SYNTAX AND INFORMATION STRUCTURE: FREE CONSTITUENT ORDER

AND FLEXIBLE RELATIVE PROMINENCE IN SERBIAN

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SYNTAX AND INFORMATION STRUCTURE: FREE CONSTITUENT ORDER

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In this dissertation, I provide an interface model that accounts for semantic and information-structure effects of constituent order variation and relative prominence in a free constituent order language. I test this model on Serbian, a free constituent order language with flexible relative prominence.

Building on Diesing's (1992) Mapping Hypothesis, I argue that the relationship between constituent order variation and information structure in a free constituent order language is mediated by the Quantification structure. The driving force behind constituent order variation is a principle that requires that constituents which participate in domain restriction be overtly moved into the restriction clause of the Quantification structure. This movement has an information structure effect in Serbian in that it determines the domain of the common ground that is relevant for the assertion in the nuclear scope. I confirm the predictions of this model experimentally by testing for speakers' acceptability ratings of simple transitive sentences in short story contexts.

I further argue that flexible relative prominence in Serbian is best captured by constraints on F-marking and GIVENNESS of Schwarzschild (1999). I show that neither of these notions can be a factor in constituent order variation, and that the full paradigm of Serbian data can be accounted for only if the F-marking structure is freely mapped on the syntactic structure. I conclude that constituent order variation and

flexible relative prominence in a language like Serbian must be driven by independent modules of the grammar (contra Godjevac 2000, 2006).

Finally, I use my interface model to explain two widely discussed interface phenomena. First, I account for the distinct distribution and pragmatics of the so-called A-accents and B-accents (Bolinger 1965, Jackendoff 1972) in terms of the Quantification structure. Second, I account for bipartite NPs, a phenomenon observed in a number of free constituent order languages. I argue that the two members of a bipartite NP are base-generated independently of one another, and that a binding relation between them is established via a secondary-predicate relation. Crucially, the two members of a bipartite NP belong to different partitions of the Quantification structure, which explains their special information structure properties.

BIOGRAPHICAL SKETCH

Nikola Predolac was born in Kruševac, Serbia in 1979. After finishing high school in his hometown, he enrolled at the University of Belgrade, Faculty of Philology. He earned his B.A. in general linguistics in 2003. Later that year, he entered Cornell's graduate program in linguistics. In 2007, he received his M.A. in Linguistics from Cornell, and has since then been working on this dissertation.

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CHAPTER 1

OVERVIEW AND THEORETICAL BACKGROUND

1.0 Introduction

In addition to respecting rules of the grammar, human language communication must also respect rules that are concerned with "packaging" of the information, and felicity of sentences, in addition to their grammaticality. Language utterances must appropriately encode distinctions such as the ones between old and new information, or salient and non-salient entities. For example, it is for this reason that all languages have pronouns. Following Chafe (1976), this aspect of language communication is referred to as information structure, and as such it primarily belongs to the domain of pragmatics.

Languages differ considerably in how they encode information structure distinctions. While pronouns are common to all languages, languages are known to differ from one another in whether they employ phenomena such as constituent scrambling, variable pitch contours, variable prosodic phrasing, variable relative prominence, or special morphology for similar purposes. An example is the category of focus, which is encoded in a number of ways cross-linguistically (see, for example, discussion in Büring 2009). For this reason, research on information structure extends to all levels of the grammar, that is, morphology, syntax, semantics, and phonology.

1.1 The problem

For any given language, a major research task is to model the relationship between the pragmatic distinctions that relate to information structure on the one hand, and

modes of encoding these distinctions in the grammar on the other. This in itself is not a trivial task, and is essentially, a syntax/semantics/phonology/pragmatics *interface* problem. Importantly, one must aim at solving such an interface problem in a non-arbitrary way. Namely, due to the fact that, with respect to information structure, languages differ considerably in how pragmatics and the grammar connect with each other, one must rely on more abstract, language-universal interface notions that mediate the relationship between the two.

In this dissertation, I construct an interface model to account for semantic and information-structure effects of constituent order variation and relative prominence in a free constituent order language.

I focus on Serbian, in which the phenomena of free constituent order and flexible relative prominence are known to encode some aspects of information structure. The two phenomena are illustrated in (1a-f) and (2a-f), respectively. The examples in (1a-f) show that a simple transitive sentence can occur in any of the six logically possible orders among the subject, verb, and object:

(1) a. Jovan   voli Mariju.   SVO
        John.nom loves Marija.acc

     b. Jovan Mariju voli.   SOV

     c. Voli Jovan Mariju.   VSO

     d. Voli Mariju Jovan.   VOS

     e. Mariju Jovan voli.   OSV

     f. Mariju voli Jovan.   OVS

        "John loves Marija."

The example in (2a-c) show how a simple transitive sentence can be pronounced in three ways that differ with respect to which constituent is prosodically the most prominent one. (The most prominent constituent is underlined.)

(2)   a. Jovan   voli   <u>Mariju</u>.   SV<u>O</u>

          John.nom loves Marija.acc

       b. Jovan <u>voli</u> Mariju.   S<u>V</u>O

       c. <u>Jovan</u> voli Mariju.   <u>S</u>VO

          "John loves Marija."

How exactly these two phenomena relate to the information structure is not well understood, as it has not been sufficiently investigated. The only relatively systematic study for Serbian is Godjevac (2000, 2006). Yet, providing an adequate information-structure model of these phenomena opens the way toward a better understanding of a number of puzzles in Serbian and, more generally, Slavic syntax, including scrambling and bipartite NPs. These phenomena are well-known to interact with information structure, but it is exactly their information-structure aspect that has not been thoroughly understood, and it is, perhaps, mainly for this reason that they have been widely debated without receiving a satisfactory account. In this dissertation, I show how the proposed information-structure model can be used to shed light on these phenomena.

From a more general point of view, due to the fact that Serbian employs overt free constituent order variation and flexible relative prominence, the language provides us with a solid empirical basis for teasing apart the information-structure effects of these phenomena from one another, or understanding how they interact with one another. Moreover, it will be shown how Serbian data offers evidence in favor of a non-orthodox model of the grammar in which the phonological component can receive direct input not only from the pre-Spell-Out syntax, but also from LF. This syntax-semantics interface model is in contrast with the models stemming from Chomsky (1999, 2000), since these models do not allow for communication between LF and PF after Spell-Out.

The remainder of this chapter is organized as follows. Section 1.2 provides the background on the theoretical framework within which I build my account of Serbian free constituent order and flexible relative prominence. Section 1.3 provides an overview of my proposal and an outline for the subsequent chapters.

1.2 Theoretical background

1.2.1 Summary of essential concepts

The account of Serbian free constituent order to be presented here builds on the notion of Quantification structure (Lewis 1975, Heim 1982, among others), and its closely related concepts of domain restriction (von Fintel 1994, 2004; Roberts 1995, among others), Mapping Hypothesis (Diesing 1992), and presuppositionality. A brief general background on these concepts is provided in 1.2.2. The account of flexible prominence in Serbian closely follows Schwarzschild's (1999) theory of F-marking and Givenness. A brief introduction into Schwarzschild's theory is given in 1.2.3.

1.2.2 Quantification structure, domain restriction, and the Mapping Hypothesis

I start by introducing the concepts of Quantification structure and domain restriction. Lewis (1975) shows that natural language commonly uses *restricted unselective quantification*. In particular, according to Lewis, natural language quantifiers quantify over the so-called *cases*. A *case* for Lewis is an assignment of values to free variables. How a natural language quantifier quantifies over cases is illustrated with the sentence in (3). In this sentence, *always* is given a treatment of an unselective universal quantifier that binds the free variables x and y, that is, quantifies over the assignments of values for these free variables, or cases. Furthermore, note that the two *if*-clauses restrict the assignments for the free variables x and y to those

that make the *if*-clauses true. This illustrates Lewis' idea that *if*-clauses in natural language are not exactly disguised antecedents of logical implications with the connective → (as in p → q), but rather *restrictors* of operators. In this way, the *if*-clauses restrict the domain of the quantifier *always*, a phenomenon commonly referred to as *domain restriction*:[1]

(3)   Always, <u>if x is a man and y is a donkey</u>, and <u>if x owns y</u>, x beats y now and then.

(i.e. in *all cases* where x is a man and y is a donkey, and where x owns y, x beats y now and then.)

Adopting Lewis' idea of restricted unselective quantification for natural language, Heim (1982) argues that any natural language sentence can be represented at LF by its *Quantification structure*, which is essentially the tripartite logical representation in (4):

(4)   operator [restriction clause]. nuclear scope

Therefore, under Heim's view, a logical representation of any given sentence consists of an operator, the restriction clause which restricts the domain of the operator, and the nuclear scope, which corresponds to the asserted meaning. As an illustration, (6) shows how the Heim-style Quantification structure is assigned to the sentence in (5). Note how the quantifier *always* (which does not need to be overt) binds free variables x and y that are introduced by indefinite NPs in the restriction clause of the Quantification structure.[2] The restriction clause of (6) is essentially identical to the one corresponding to Lewis' *if*-clauses in (3). On the other hand, the nuclear scope part does not introduce any new variables, but simply asserts a certain relationship between the already introduced variables x and y (that is, it asserts that x *beats* y):

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[1] Domain restriction also has a contextual aspect, in that domain restrictors may be assumed from the context but not overtly present as in the case of *if*-clauses in (1). See von Fintel (1994, 2004), and Roberts (1995), among others. For the purposes of the present work, it is the explicit, non-contextual aspect of domain restriction that is of primary concern.

[2] Under Heim's view, indefinite and definite noun phrases do not have a quantificational force of their own. Rather, they always introduce free variables into the logical representation, and these variables are bound by an operator (quantifier).

(5) (Always), if *a man* owns *a donkey*, he beats it.

(6) Always$_{x,y}$ [man(x) & donkey(y) & x owns y]. x beats y

      operator   restriction clause   nuclear scope

Minimally, a logical representation of a sentence consists of the nuclear scope part. In Heim's theory, whenever there are no quantifiers that can bind free variables introduced by NPs, then the operation called *existential closure* applies, and binds all free variables with an existential quantifier. For example, in (7), the existential closure must apply to bind the free occurrences of variables x and y in the nuclear scope; in (8), the existential closure applies to bind the free occurrence of variable y in the nuclear scope (examples are originally from Diesing 1992):[3]

(7) A man owns a llama.

    ($\exists_{x,y}$).   [x is a man & y is a llama & x owns y]

    operator   nuclear scope

(8) Every llama ate a banana.

    Every$_x$ [x is a llama].   ($\exists_y$)   y is a banana & x ate y

    operator restriction clause (ex. closure) nuclear scope

Importantly, Diesing (1992) proposes a modification to Heim's framework, in which the Quantification structure is argued to be in an even tighter relation with syntactic structure. This modification is named the *Mapping Hypothesis*, and states, first, that the the material inside the vP roughly corresponds to the nuclear scope partition of the Quantification structure at LF, and second, that the upper part of the structure, that is, the TP domain and above, is mapped onto the restriction clause (of the operator). The syntactic structure is thus, according to the hypothesis, split into two parts roughly at the vP node at LF. Here is a diagram that shows this (based on

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[3] An unselective existential quantifier can also be assigned to various other operators (such as negation) when there are no other potential binders for variables in their scope, and even to whole texts.

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Diesing 1992: 9):

```
        ┌─────────────────┐
        │      IP         │
        │      ╱╲         │     ← restriction clause
        │    ╱   ╲        │
        │  Spec   I'      │
        │       ╱──┐──────┼──────────────┐
        │     ╱    │      │    VP         │
        │   I      │      │    ╱╲         │
        │          │      │  ╱   ╲        │
        └──────────┼──────┘╱      ╲       │     ← nuclear scope
                   │   Spec         V'    │
                   │              ╱  ╲    │
                   │            ╱     ╲   │
                   │          V        XP │
                   └──────────────────────┘
```
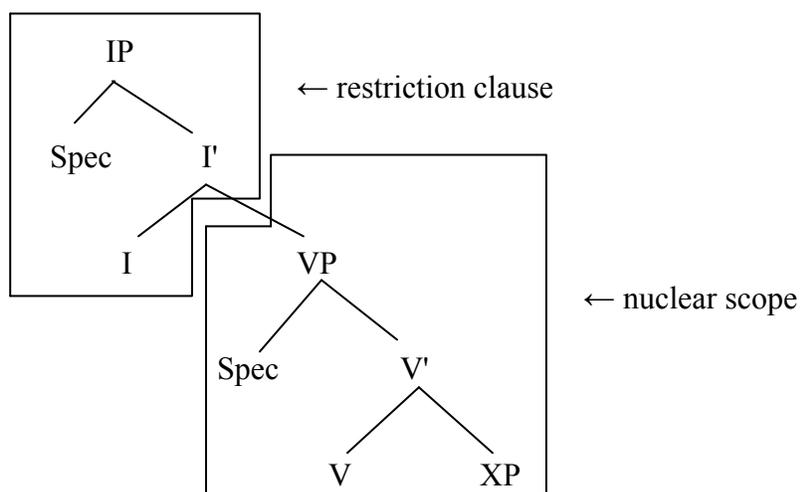
Figure 1.1   Mapping Hypothesis (tree splitting)

Diesing's theory thus explicitly states that vP-external non-operator elements belong to the restriction clause, and are, therefore, domain restrictors.

Moreover, Diesing argues that there are differences in the interpretation of domain restrictor NPs and nuclear scope NPs. Most importantly, she shows that the interpretation of indefinite NPs differs depending on which part of the syntactic tree they occur in. She attributes such interpretational differences to the fact that it is only the vP-internal material that is the domain of the existential closure, which is in contrast with Heim's view, where the existential closure applies more freely. For example, the indefinite NP *llama* in (8) is predicted by Diesing to not be able to receive existential interpretation, since its position at LF is outside of the vP, that is, outside of the domain of existential closure. Rather, due to the fact that this indefinite is introduced in the restriction clause of the Quantification structure, it will be bound by another potential binder, that is, an operator that is outside of the vP. This operator can be a generic operator, another adverb of quantification, as in (6), or a determiner directly attached to the indefinite NP, as in (8). Diesing's German example in (9) can

be used to illustrate relevant interpretation differences (Note that the tree splitting point is indicated with the symbol "||".):

(9) a. …weil   ja doch ||$_{vP}$ zwei Cellisten in diesem Hotel abgestiegen sind.

          since "indeed"   two cellists   in this   hotel have-taken-rooms

      b. …weil zwei Cellisten ja doch ||$_{vP}$ in diesem Hotel abgestiegen sind.

          since two cellists "indeed"   in this   hotel have-taken-rooms

Assuming that the sentential particles *ja doch* are vP-external and immobile in German, they can serve as diagnostics for different subject positions. The subject NP *zwei Cellisten* in (9a) is vP-internal, so it belongs to the nuclear scope of the Quantification structure, and has the existential (cardinal, asserted) reading, contributed by the existential closure. The sentence (9a) thus asserts the existence of two cellists who have taken rooms in the hotel. In (9b), the subject NP *zwei Cellisten* is positioned structurally higher than the particles, and it is thus vP-external, which means that it belongs to the restriction clause in the Quantification structure. As Diesing notes, the two cellists in (9b) are two of some larger set of cellists that is already in the common ground, and this she refers to as the *presuppositional interpretation* of an indefinite NP.[4] While all argument NPs enter the syntactic derivation within the vP, the presuppositional NPs are incompatible with existential closure and must be outside the vP at LF. Therefore, the incompatibility of such NPs with existential closure must be resolved via their syntactic movement (scrambling) out of the base vP-internal positions into structurally higher vP-external positions. This, in a nutshell, is Diesing's account for the correlation between the different

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[4] Reinhart (2004) notes that Diesing's examples such as (9a-b) are not sufficient to show that the difference in the interpretation of indefinites truly exist. However, some of the later work shows that Diesing's empirical generalization about mandatory presuppositionality of the scrambled material is nevertheless correct. For example, von Fintel (1998) provides evidence coming from presupposition projection facts, which unambiguously shows that scrambled indefinite NPs in German are obligatorily presuppositional.

syntactic positions and different interpretations of indefinite NPs.[5]

1.2.3 Schwarzschild's (1999) theory of F-marking and Givenness

The phenomenon of flexible prosodic relative prominence has predominantly been linked to the interface notion of focus (Chomsky 1971, 1976; Jackendoff 1972, Selkirk 1984, 1995; Rochemont 1986, 1998; Rooth 1985, 1992; Truckenbrodt 1995, 1999; Reinhart 1995/2004, Godjevac 2000, 2006, among many others). The common assumption in all these approaches is that focus is a notion that provides interface between discourse conditions and the relative prosodic prominence among constituents in an utterance. In particular, prosodically prominent constituents are assumed either to be focused in their utterances, or embedded within focused constituents. Focused constituents are typically taken to correspond to the requested information in the answers to questions, "contrasted" information, or more generally alternatives (Rooth 1985, 1992). For example, returning to the Serbian examples from (2), repeated here in (10), (11), and (12), we would say that a distinct constituent is the most prominent one in each of these examples because this particular constituent is focused. In (10) and (12), the focused constituents correspond to the requested information in the answers to *wh*-questions. In (11), the focused constituent corresponds to the information that is contrasted with the immediately preceding statement. Example (13) shows that the most prominent constituent can be embedded within the focused constituent:

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[5] See arguments in Diesing (1992) and Diesing and Jelinek (1995) that such semantically motivated syntactic movement must happen before Spell-Out in German, that is, in the overt syntax.

(10) - Who does Jovan love?

  - Jovan   voli [<u>Mariju</u>]$_{Focus}$.   SV<u>O</u>

    John.nom loves Marija.acc

    "John loves Marija."

(11) - Does Jovan love or hate Marija?

    …Jovan   [<u>voli</u>]$_{Focus}$ Mariju.   S<u>V</u>O

(12) - Who loves Marija?

  - [<u>Jovan</u>]$_{Focus}$ voli   Mariju.   <u>S</u>VO

    "John loves Marija."

(13) - What did Jovan do?

  - Jovan   je   [poljubio <u>Mariju</u>]$_{Focus}$.   SV<u>O</u>

    John.nom aux.cl kissed   Marija.acc

    "John kissed Marija."

    Selkirk (1995) introduces a more general notion of F-mark, which applies recursively in a syntactic tree and designates potential pitch accent hosts, that is, prosodically prominent constituents. In this influential theory, focus (FOC) corresponds to an F-mark that is undominated by another F-mark. According to Selkirk, F-marks embedded inside other F-marks correspond to "new" information. While examples (10)-(12) would receive identical representations in Selkirk's theory, the example in (13) would be represented as in (13'). Note that the object NP *Mariju* 'Marija' is an F-marked constituent, moreover the accent-bearer, despite it not being the Focus of the sentence:

(13') - What did Jovan do?

  - Jovan   je   [poljubio [<u>Mariju</u>]$_F$]$_{Focus}$.   SV<u>O</u>

    John.nom aux.cl kissed   Marija.acc

    "John kissed Marija."

However, the more recent interface research on flexible relative prominence has led to the conclusion that, on its own, the notions of Focus and F-marking are insufficient, and that the interface between discourse conditions and prosodic prominence cannot be adequately explained without the notion of Givenness (see Ladd 1980, 1996; Williams 1982, 1997, Schwarzschild 1999, Krifka 2007, Wagner 2009, among others). These arguments stem mostly from the fact that F-marking, as much as it is useful in providing the interface basis for flexible relative prominence, does not have a uniform semantic/pragmatic correlate (cf. non-embedded and embedded F-marks in Selkirk's 1995 theory). Consequently, this makes it difficult to link discourse conditions to flexible relative prominence via the notion of F-marking.

A particularly fruitful modern account of the relationship between discourse conditions and flexible relative prominence has been proposed by Schwarzschild (1999). Schwarzschild's theory revolves around the notions of F-marking and Givenness. While the theory employs the notion of F-marking, it takes it to be a notion without any semantic interpretation. The sole purpose of F-marking is to provide the interface between syntax and relative prominence, essentially the placement of pitch accents, which, ignoring for a moment a number of important details, is in the spirit of the examples (10)-(13). However, the interface between discourse conditions and flexible relative prominence patterns is delegated to the notion of GIVENNESS. GIVENNESS, as opposed to F-marking, has semantic interpretation, and its advantage over semantically interpreted notion of focus lies in the fact that it allows for a semantically elegant unification of a number of contexts (yes-no questions, *wh-*questions, contrastive contexts, etc.) under the same account. Schwarzschild defines GIVENNESS in terms of saliency and entailment:

(14) *Definition of GIVEN* (Schwarzschild 1999, p. 151)

An utterance U counts as GIVEN iff it has a salient antecedent A and

a.   if U is type e, then A and U corefer;

b.   otherwise: modulo ∃-type shifting, A entails the Existential F-closure of U.[6]

As (14a) states, if an element is of type e, for it to be GIVEN, it is necessary that there is a salient antecedent (in the context) that corefers with it. For example, in (15b), the most prominent element is the verb. This sentence answers the question in (15a), and is F-marked as a whole. Additionally, all its internal constituents are F-marked except for the object NP *lisicu* ("fox", type <e>).[7] The object is GIVEN, having a salient co-referent antecedent in (15a).

(15) a. Vidim, vuka su upucali... A lisica? (I see that they shot the wolf...But what about the fox?)

b. [[Deca]$_F$ [[pustiše]$_F$ lisicu]$_F$]$_F$.   S<u>V</u>O

     children   released   fox

"The children released the fox."

On the other hand, as stated in (15b), if an element is of a semantic type other than <e>, say <e,t>, or <e,<e,t>>, it is first converted into a proposition by adding an existential closure before the evaluation of the entailment is performed. Consider (16a-b). In (16b), the whole sentence is GIVEN, and so are the VP, the verb, and the object (that is, F-marks are absent on these constituents). Prominence is thus obligatorily shifted onto the subject. Note that both the verb and the object were already mentioned in the question (16a):

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[6] A brief note on the terms "∃-type shifting" and "existential F-closure of U" is in order here. The former term pertains to the following. Schwarzschild defines GIVENNESS in terms of entailment, and since entailment is a relation defined on propositions, for GIVENNESS to be well-defined, expressions of any type must be type-shifted to the propositional type t, by existentially binding unfilled arguments. Next, Schwarzschild defines the term "Existential-F-Closure of U" as the result of replacing F-marked phrases in U with variables and existentially closing the result.
[7] Note that all the material following the most prominent constituent in the sentence is GIVEN in Serbian.

(16) a. Pa, ko pusti lisicu? (But, who released the fox?)

    b. [[<u>Deca</u>]$_F$ [pustiše   lisicu]].   <u>S</u>VO

       children   released   fox

   "The children released the fox."

The transitive verb *pustiše* "released" in (16b) is first turned into the proposition [∃$_{xy}$. x released y] and then its entailment from the context is evaluated. If the relevant proposition is entailed by a salient antecedent from the context, as in the example, then the transitive verb is GIVEN. The same type of evaluation applies to non-referential NPs and VPs, which are of type <e,t> (cf. the VP in 16b).

    Importantly, according to Schwarzschild's theory, F-marking is syntactically unconstrained. Any non-GIVEN element must receive an F-mark, independently of its syntactic position or relations to any other constituents. This is enforced by a special constraint, called GIVENNESS, which states that all non-F-marked constituents must be GIVEN. Note that the theory even allows for F-marked constituents to be dominated by GIVEN constituents, as in (16b). The subject in (17b) is thus F-marked and its internal constituents are F-marked as well, because otherwise they would violate the GIVENNESS constraint:

(17) a. Pa, ko pusti lisicu? (But, who released the fox?)

    b. [[Blesavi]$_F$ <u>klinac</u>$_F$]$_F$ pusti   lisicu.   <u>S</u>VO

      foolish   kid   released fox

   "The foolish kid <u>released</u> the fox."

    Aside from the GIVENNESS constraint, as a complete interface account for the relationship between discourse conditions and flexible relative prominence, Schwarzschild's theory includes the following four constraints:

(18) a. Basic F-Rule: An accented word is F-marked.

    b. FOC: A Foc-marked phrase contains an accent.

c. Avoid F: Do not F mark.

d. HeadArg: A head is less prominent than its internal argument.

Schwarzschild adopts constraints (18a) and (18b) as unchanged from Selkirk (1995), but suggests that they would be interpreted more transparently within a model in which phonology and semantics/pragmatics communicate directly, and not exclusively via syntax. The constraint in (18a) ensures that accents fall on F-marked nodes exclusively. The constraint in (18b) ensures that there is an accent within each F-marked node that is undominated by another F-marked node. Next, the constraint in (18c) prevents excessive F-marking for any sentence by giving preference to the F-marking pattern that satisfies the GIVENNESS constraint with the minimum number of F-marks. The constraint in (18d) accounts for the relative prominence patterns that are independent from discourse conditions, by stating that the F-marked argument is by default more prominent than its F-marked head. Essentially identical constraints to (18d) have been proposed for the so-called discourse-neutral prominence patterns in a number of works (Selkirk 1984, 1995; Gussenhoven 1984; Jacobs 1991, Cinque 1993, Zubizarreta 1998, Truckenbrodt 1995, Wagner 2005, Kahnemuyipour 2004, 2009; Kratzer and Selkirk 2007). The relative ranking AvoidF > HeadArg gives rise to flexible relative prominence in languages that employ this strategy.[8]

1.3   Outline of the dissertation

The dissertation is organized as follows. An interface model of Serbian free constituent order variation (scrambling) and flexible relative prominence is proposed in Chapter 2. The model is experimentally tested in Chapter 3. Next, Chapter 4 provides a critique of the model proposed in Godjevac (2000, 2006), and a discussion

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[8] For languages that do not, Schwarzschild suggests that the opposite ranking of these two constraints may hold.

of advantages that the model proposed in Chapter 2 has over it. Within the proposed general model, the remaining two chapters each provide an account for a specific interface problem: distribution of the so-called A-accents and B-accents (Chapter 5), and bipartite NPs (Chapter 6). The dissertation is concluded in Chapter 7. Below, I provide a more detailed overview of the dissertation by chapters.

The main claim of Chapter 2 is that Serbian free constituent order (scrambling) and flexible relative prominence are driven by independent principles, and thus belong to different modules. Scrambling is driven by the Quantification structure, as defined in section 1.2.2. On the other hand, flexible relative prominence is driven by constraints on F-marking and GIVENNESS of Schwarzschild (1999), as outlined in 1.2.3. A further claim is that the immediate information structure effects of the two are orthogonal in Serbian data, despite the fact that some more complex pragmatic phenomena depend simultaneously on both. The grand proposal is schematized in Figure 1.2:
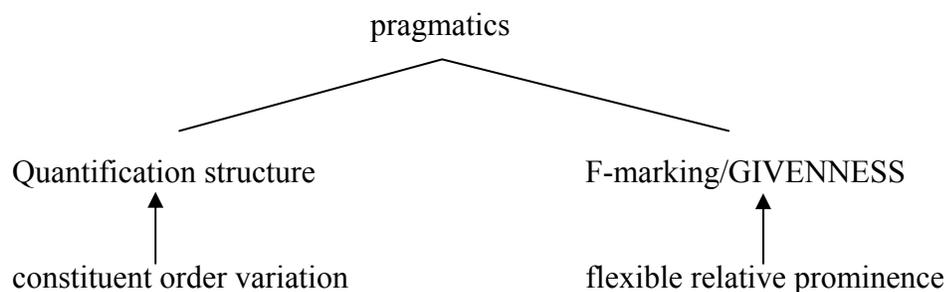
Figure 1.2   The proposed model for Serbian

In accounting for the relationship between scrambling and information structure, I use Diesing's (1992) Mapping Hypothesis as a point of departure, in particular, the idea that there is a close correlation between syntactic structure and the Quantification structure, as already outlined in 1.2.2. By virtue of its domain restriction part (the

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restriction clause), the Quantification structure has an information-structure effect in that it narrows down the common ground to a domain that is relevant for the assertion (the nuclear scope part). Where I differ from Diesing's approach is the explanation for the driving force behind scrambling. I argue that the driving force behind scrambling of elements outside of the vP in Serbian is exactly their participation in the domain restriction part of the Quantification structure as such, rather than presuppositionality. In particular, I argue that the characteristic marked presuppositional interpretation of the vP-external material follows from the discourse properties of domain restrictors, rather than directly from syntax. Consequently, according to my account, the interpretation of the material in the nuclear scope is not constrained in any way; that is, its interpretation is understood as unmarked, and could be either existential or presuppositional. Moreover, I systematically link the Quantification-structure-based LF representations to Serbian surface constituent orders in simple transitive and intransitive sentences, by testing for possible interpretations of NPs. If an F-marked element does not allow for an existential reading, that is, if it has a mandatory presuppositional reading, it follows then that it participates in domain restriction, and is outside of the vP. However, the interpretation of vP-internal material does not exhibit this effect. If in any given syntactic position an indefinite NP can have existential interpretation, the test suggests that the syntactic position in question is vP-internal. Finally, I show that flexible relative prominence has no effect on constituent order variation in Serbian. The main evidence for this claim comes from the fact that mandatory presuppositional interpretations of scrambled arguments are preserved independently of their F-marking patterns.

The proposed model for Serbian free constituent order is tested experimentally in Chapter 3. The experiment tested for speakers' acceptability ratings of simple monotransitive sentences in short story contexts. The results point to two major

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conclusions: (i) arguments that participate in domain restriction must be scrambled into positions higher than other arguments, and (ii) the relative structural ordering among multiple arguments that participate in domain restriction corresponds to their relative nesting as domain restrictors at the level of interpretation. The main hypothesis that the domain restriction is the driving force behind Serbian scrambling is thus confirmed.

In Chapter 4, I show that my approach has advantages over the focus-projection approach to free constituent order and flexible relative prominence proposed in Godjevac (2000, 2006). In contrast to my approach, Godjevac's approach makes wrong empirical predictions due to two incorrect assumptions: (i) syntactically restricted F-marking, and (ii) the exclusion of Givenness as a notion from the interface between flexible relative prominence and its discourse effects. Furthermore, I show that Godjevac's approach has certain methodological deficiencies in data collection that are due to the omission of Givenness.

In Chapter 5, I use my interface model to explain the so-called A-accent/B-accent distinction (Bolinger 1965, Jackendoff 1972) based on Serbian data. In my proposal, I treat both accents as realizations of foci (non-embedded F-marks), and further claim that pragmatic differences between these accent types are explained by the Quantification structure. In particular, it is shown that B-accents can occur only on domain restrictors, and only alongside one or more A-accents that are in a structurally lower partition of the Quantification structure. According to the proposal, A-accents can occur in any partition of the Quantification structure, and can occur independently of whether there are other accents that occur alongside with them or not. I suggest that explaining the distribution of the A-accents and B-accents requires a model of grammar in which the phonological component can receive direct input from the semantics component, more precisely, the LF-interface, at which the Quantification

structure applies.

Finally, in Chapter 6, I use the model proposed in Chapter 2 as the basis for an account of the phenomenon of bipartite NP, also referred in the generative tradition as discontinuous NP or split NP (Fanselow 1988, Corver 1992, Sekerina 1997, Fanselow and Ćavar 2002, Bošković 2005a, 2005b, Bašić 2004, Pereltsvaig 2008, among others). Unlike previous accounts, which consider bipartite NPs derived from their non-bipartite NP counterparts, I argue that bipartite NPs are an epiphenomenon: the two members of a bipartite NP are independent syntactic constituents, base-generated independently of one another. Crucially, I argue that the two members of a bipartite NP belong to different partitions of the Quantification structure, and that they are linked via a secondary-predicate relation.

CHAPTER 2

FREE CONSTITUENT ORDER, RELATIVE PROMINENCE,

AND INFORMATION STRUCTURE

2.0 Introduction

The focus of this chapter is the relationship among Serbian free constituent order, flexible relative prosodic prominence among constituents, and pragmatic conditions under which Serbian sentences are used. It is argued that constituent order variation and flexible prosodic prominence are each driven by two largely independent sets of principles. The set of principles that drive constituent order variation pertains to the notion of domain restriction of the Quantification Structure. The set of principles that drive flexible prosodic prominence, however, pertains to the notions of saliency and Givenness. The patterns of constituent order variation are directly reflected in the syntactic LF representation, while the patterns of flexible relative prominence are mapped freely on the syntactic structure.

Section 2.1 introduces the basic questions and data. In 2.2, following Schwarzschild's (1999) theory of Givenness, I explain the role of pragmatics in accounting for the flexible relative prominence. Sections 2.3 and 2.4 present my account of Serbian argument scrambling, which is based on the Quantification structure, and in particular, the notion of domain restriction. Section 2.5 addresses constituent orders with fronted verbs. In 2.6, I propose LF-structures and derivations of all Serbian simple transitive and intransitive constituent orders, by systematically linking them with their pragmatic properties. Section 2.7 explains how the phenomenon of the obligatory presuppositional reading, which occurs with scrambled

arguments, is accounted for in terms of domain restriction. In 2.8, I provide empirical support for the major claim that free constituent order and flexible prominence are orthogonal.

2.1 The problem

Serbian is a language with the so-called free constituent order. As shown in (1), a simple transitive sentence can have all six word orders that would result from the permutation of the subject, verb and object (1a-f):

(1)   a. Jovan   voli   Mariju.   SVO

        John.nom loves Marija.acc

      b. Jovan Mariju voli.   SOV

      c. Voli Jovan Mariju.   VSO

      d. Voli Mariju Jovan.   VOS

      e. MarijuJovan voli.   OSV

      f. Marijuvoli Jovan.   OVS

      "John loves Marija."

It is well known that such different constituent orders are used under different discourse conditions (see works from various linguistic traditions, e.g. Đorđević 1898, Popović 2004, Godjevac 2000, 2006, among others). However, which aspect(s) of the information structure are encoded by the constituent order variation still needs to be resolved.

A further source of variation in Serbian is that any subpart of such simple sentences can be a bearer of prosodic prominence. For a given constituent order in Serbian, as in many other languages (including English), there exists more than one possible structure of relative prosodic prominence among its subparts, where the

choice among such prosodic structures is, among other factors, affected by discourse conditions (Zec 2005; see also Ladd 1996, Selkirk 1984, 1995; Truckenbrodt 1995, 1999; Schwarzschild 1999, Wagner 2005, 2009, among others). This is illustrated in (2), where a sentence with a given constituent order (here SOV) is used with three different prominence structures that result from choosing S, V or O as prosodically most prominent. While some of these structures (namely the ones in bold) are felicitous as answers for the questions in (2b-d), others are not. (Note: whenever a constituent is underlined in the examples, it is prosodically the most prominent):

(2) a. Jovan   Mariju   voli.   SOV

         Jovan.nom Marija.acc love

     b. Who loves <u>Marija</u>? / Is it <u>Jovan</u> who loves Marija?

        S<u>O</u>V, #S<u>O</u>V, #SO<u>V</u>

     c. Who does Jovan love?

        #<u>S</u>OV, **S<u>O</u>V**, #SO<u>V</u>

     d. Does Jovan <u>love</u> Marija?

        #<u>S</u>OV, #S<u>O</u>V, **SO<u>V</u>**

   That discourse conditions matter for flexible relative prosodic prominence is also easily observable at the beginning of stories or jokes. Namely, it is not possible that the most prominent constituent be non-final at the beginning of a story/joke, as shown by (3b-c, 4b-c). Rather, the most prominent constituent must be final (3a, 4a):

(3) (beginning of a joke)

     a. Policajca   sretne   <u>kriminalac</u>…   OV<u>S</u>

        cop.acc   ran-into   criminal.nom

     b. #Policajca   <u>sretne</u>   kriminalac…   O<u>V</u>S

        cop.acc   ran-into   criminal.nom

    c. #<u>Policajca</u>   sretne   kriminalac…   O<u>V</u>S

        cop.acc   ran-into criminal.nom

     "A criminal ran into a cop."

(4)   Let me tell you a story…

    a. Bio jednom jedan vuk. Jednog dana, vuk   napadne <u>ovcu</u>…   SV<u>O</u>

       be once   one wolf one   day wolf.nom attacks sheep.acc

    b. #Bio jedan vuk. Jednog dana, vuk   <u>napadne</u> ovcu…   S<u>V</u>O

       be one wolf one   day   wolf.nom attacks sheep.acc

    c. #Bio jedan vuk. Jednog dana, <u>vuk</u>   napadne ovcu…   <u>S</u>VO

       be one wolf one   day   wolf.nom attacks sheep.acc

     "There was one wolf. One day, the wolf attacked a sheep…"

Since a simple transitive sentence can occur in six possible constituent orders, it follows that each of the orders can be matched with (at least) three prominence patterns. This gives us 18 logical possibilities that occur in Serbian, as shown in Table 2.1:

Table 2.1   Serbian constituent orders and relative prominence patterns (simple transitive sentences)

SV<u>O</u>	S<u>O</u>V	VS<u>O</u>	VO<u>S</u>	OS<u>V</u>	OV<u>S</u>
S<u>V</u>O	S<u>O</u>V	V<u>S</u>O	V<u>O</u>S	O<u>S</u>V	O<u>V</u>S
<u>S</u>VO	<u>S</u>OV	<u>V</u>SO	<u>V</u>OS	<u>O</u>SV	<u>O</u>VS

It is a major challenge to determine the discourse conditions under which each of these cases is used. An important question is whether the two factors, namely constituent order variation and flexible relative prominence, interact in the strict sense, or whether each independently imposes its own set of constraints on the context. I argue, specifically, that there is no direct interaction between constituent order variation and

flexible relative prominence, and that their most immediate effects are orthogonal (contra Godjevac 2000, 2006).

2.2 The role of Givenness

In 1.2.3, I assumed that the phenomenon of flexible prosodic relative prominence relates to the notions of Focus, F-marking, and Givenness. I adopted Schwarzschild's (1999) idea that Givenness and flexible relative prominence are simply two sides of the same coin. Recall Schwarzschild definition of Givenness from 1.2.3, which relies on the notions of saliency and entailment:

(5)   *Definition of GIVEN* (Schwarzschild 1999, p. 151)

An utterance U counts as GIVEN iff it has a salient antecedent A and

a.   if U is type e, then A and U corefer;

b.   otherwise: modulo ∃-type shifting, A entails the Existential F-closure of U.[1]

As (5a) states, if an element is of type e, for it to be GIVEN, it is necessary that there is a salient antecedent (in the context) that corefers with it. For example, in (6b), the prosodically most prominent element, i.e. the verb, is non-final. The sentence answers the question in (6a), and the "deaccented" object NP *lisica* ("fox", type <e>) is GIVEN, having a salient co-referent antecedent in (6a), which seems not only to allow for its "deaccenting", but to actually force it (note the infelicity of 6c):

(6)   a. Vidim, vuka su upucali... A lisica? (I see that they shot the wolf...But what about the fox?)

b. Ma, neki blesavi klinac je   pustio   lisicu.   S<u>V</u>O

   well some foolish kid   aux.cl released fox

---

[1] Refer to Section 1.2.3. for the explanation of terms "∃-type shifting" and "existential F-closure of U".

c. #Ma, neki blesavi klinac je   pustio <u>lisicu</u>.   SV<u>O</u>

   well some foolish kid   aux.cl released fox

  "Well, some foolish kid <u>released</u> the fox."

On the other hand, as stated in (5b), if an element is of a semantic type other than <e>, say <e,t>, or <e,<e,t>>, it is first converted into a proposition by adding an existential closure before the evaluation of the entailment is performed. Consider (7a-c). In (7b), we have "deaccenting" of both the verb and the object; prominence is obligatorily shifted onto the subject (7b). Note that both the verb and the object were already mentioned in the question (7a):

(7) a. Pa, ko je pustio lisicu? (But, who released the fox?)

    b. Ma, <u>neki blesavi klinac</u> je   pustio lisicu.   SVO

       well some foolish kid   aux.cl released fox

    c. #Ma, neki blesavi klinac je   pustio <u>lisicu</u>.   SV<u>O</u>

        well some foolish kid   aux.cl released fox

      "Well, some foolish kid <u>released</u> the fox."

The transitive verb *pustio* "released" in (7b) is first turned into the proposition [$\exists_{xy}$. x released y] and then its entailment from the context is evaluated. If the relevant proposition is entailed by a salient antecedent from the context, as in the example, then the transitive verb is GIVEN. The same type of evaluation applies to non-referential NPs and VPs, which are of type <e,t> (cf. the VP in 7b).

According to Schwarzschild's theory, a non-GIVEN element must receive an F-mark. This is enforced by a special constraint, called GIVENNESS, which states that all non-F-marked material must be GIVEN. The subject in (8b) is thus F-marked and its internal constituents are F-marked as well, because otherwise they would violate the GIVENNESS constraint:

(8)   a. Pa, ko je pustio lisicu? (But, who released the fox?)

   b. [Blesavi$_F$ [klinac]$_F$]$_F$ je   pustio   lisicu.   SVO

      foolish   kid   aux.cl released fox

   "The foolish kid <u>released</u> the fox."

F-marks are not interpreted in Schwarzschild's theory. They do not perfectly correspond to the "New" material either.[2] Rather, the role of an F-mark is simply to prevent an element from being evaluated by GIVENNESS. Moreover, only an F-mark may receive an "accent" as a phonological reflex (after Selkirk 1995), and GIVEN elements, not being F-marked, do not receive any accents.[3] Next, F-marking must be minimal, in that nothing that could be interpreted as GIVEN is F-marked, as long as GIVENNESS is respected for all constituents. This is formalized in terms of the constraint AvoidF. Finally, Schwarzschild's theory proposes a recursive evaluation of GIVEN. For example, all non-F-marked constituents in (8b) are evaluated for whether they are GIVEN: the verb, the direct object, the VP, and the whole IP are GIVEN. What is not GIVEN in (8b) is the subject and each of its internal constituents. Schwarzschild's theory thus accounts for the relationship between flexible relative prosodic prominence and pragmatics via a set of interacting constraints.

By adopting Schwarzschild's (1999) theory of Givenness as the account for flexible prosodic relative prominence in Serbian, I account for the variation within the columns of Table 2.1, repeated here as Table 2.2:

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[2] That is, a non-new element may be F-marked. When it is F-marked, such a non-new element thus does not have a GIVEN status under Schwarzschild's proposal. Compare the expression *John* in the often cited example (i). Note that *John* is already mentioned in the question, but is nonetheless F-marked in the answer:

   (i)   Who did John's mother vote for? She voted for [<u>John</u>]$_F$.

[3] In particular, following Selkirk (1995), every F-marked constituent that is not embedded inside another F-marked constituent contains an accent.

Table 2.2 Serbian constituent orders and relative prominence patterns (simple transitive sentences)

SV<u>O</u>	SO<u>V</u>	VS<u>O</u>	VO<u>S</u>	OS<u>V</u>	OV<u>S</u>
S<u>V</u>O	S<u>O</u>V	V<u>S</u>O	V<u>O</u>S	O<u>S</u>V	O<u>V</u>S
<u>S</u>VO	<u>S</u>OV	<u>V</u>SO	<u>V</u>OS	<u>O</u>SV	<u>O</u>VS

However, Schwarzschild's theory of Givenness does not explain the variation within rows, as it is not designed to address constituent order variation. In fact, as already discussed in Chapter 1 (Section 1.2.3), F-marking is syntactically unconstrained in Schwarzschild's theory. While Schwarzschild does not go as far as to say that F-marks can apply to non-constituents, he allows for an F-mark to be assigned freely to any constituent in a syntactic tree. For example, let us look at the two arguments (S and O) in an SVO sentence and an OVS sentence, given respectively in (9a-b). These arguments can be felicitously realized with all of the combinations of patterns of F-marking (10a'-d') in contexts appropriately chosen with respect to Schwarzschild's theory (10a-d):

(9)   a. Neki blesavi klinac je   pustio   lisicu.   SVO

       some foolish kid   aux.cl released fox

     "Some foolish kid released the fox."

    b. Lisicu je   pustio   neki blesavi klinac.   OVS

       fox   aux.cl released some foolish kid

(10) a. Who did some foolish kid release?

    a'. S_G V $\underline{O}_F$, $\underline{O}_F$ V S_G

    b. Who released the fox?

    b'. $\underline{S}_F$ V O_G, O_G V $\underline{S}_F$

    c. What did you say that some foolish kid did with the fox?

    c'. S_G $\underline{V}$ O_G, O_G $\underline{V}$ S_G

d. Who released who did you just say?

d'. S_F V $\underline{O}_F$, O_F V $\underline{S}_F$

While the context wh-questions in (10a-d) satisfy the GIVENNESS and AvoidF requirements of their answers in (10a'-d'), it can easily be observed that, in each of question-answer matchups, more than one constituent order can be used as a felicitous answer to the question. In other words, these wh-questions do not impose any constituent order requirements on their answers.

Another prediction of Schwarzschild's free F-marking is that it in principle always allows for sentence-wide (broad) focus, as long as the relations between elements of the sentence are not GIVEN. The prediction of Schwarzschild's theory is thus that any constituent order in Serbian can bear broad focus. That this prediction is borne out can be shown on the example of Serbian simple transitive sentences in (11)-(16). Each of the six constituent orders (SVO, VSO, VOS, OVS, SOV, OSV) can bear an F-mark on a constituent that dominates S, V, and O together at the same time.[4] Note that the F-marking representations are not thorough in the examples, since only the relevant non-embedded F-marks are shown; the embedded F-marks are not shown.

(11) (two people chatting about a boxing match)

"I heard that there was an incident during yesterday's title fight you attended. I saw only the beginning. What happened?"

[Izazivač (je) pljunuo sudiju]_F.   SV<u>O</u>

 challenger aux spat   referee

"[The challenger spat on the referee]_F."

---

[4] In Chapter 4, I will refer to the set of examples in (11)-(16) in my critique of the focus-projection approach of Godjevac (2000, 2006).

(12) (two people chatting about a boxing match)

"I heard that there was an incident during yesterday's title fight you attended. What happened?"

[Pljunuo (je)   izazivač   sudiju.]_F   VS<u>O</u>

 spat   aux.cl challenger referee

"[The challenger spat on the referee]_F."

(13) (beginning of a story; possible implicit question "What happened?")

[Ujela   nekog čoveka <u>buba</u>]_F.   VO<u>S</u>

 bit   some man   bug

"[A bug bit some man]_F."

(14) (beginning of a joke; possible implicit question "What happened?")

[Policajca   udario <u>auto</u>]_F.   OV<u>S</u>

policeman hit   car

"[A car hit a policeman]_F."

(15) (two people chatting about a boxing match)

"The incident started when one of the coaches got into an argument with the referee…"

"I see. And what happened next?"

 Onda je   [izazivač   sudiju <u>pljunuo</u>]_F.   SO<u>V</u>

 then aux.cl challenger referee spat

"Then [the challenger spat on the referee]_F."

(16) (two people chatting about a boxing match)

"The incident started when the referee took a point off from the challenger because of an illegal hold…"

"I see. And what happened next?"

Onda je   [sudiju izazivač <u>pljunuo</u>]_{F.}   OS<u>V</u>

 then aux.cl   referee challenger spat

"Then [the challenger spat on the referee]_F."

Based on the range of constituent order and relative prominence combinations illustrated for Serbian SVO and OVS sentences in (10a'-d'), as well as the consistency of wide-focus patterns with transitive sentences of any constituent order in (11-16), it can be safely concluded that the effects of Schwarzschild's F-marking/GIVENNESS are orthogonal to constituent order variation in Serbian, and that constituent order variation should be explained by a set of principles completely independent from Schwarzschild's constraints on F-marking.

2.3 The role of quantification and domain restriction in constituent order variation

2.3.1 Quantification structure

The driving force underlying constituent order variation in Serbian will be explained in terms of the tripartite Quantification structure given in (17). I thus follow the line of research originating in works of Lewis (1975), Heim (1982), and especially Diesing (1992), in systematically linking the Quantification structure to sentence LFs.

(17)   *Quantification structure*

      operator [restriction clause]. nuclear scope

As an illustration of how this structure is linked to sentence LFs, in (18) and (19) I repeat two examples from Section 1.2.2, originally from Diesing (1992). The Heim-style logical representations for sentences (18a, 19a) are given in (18b, 19b):

(18) a. Every llama ate a banana.

b. Every$_x$ [llama(x)].   ($\exists_y$)   banana(y) & x ate y

   operator restriction clause (ex. closure) nuclear scope

(19) a. A man owns a llama.

b. ($\exists_{x,y}$).   [man(x) & llama(y) & x owns y]

   (ex. closure)   nuclear scope

Note that (18a-b) show the fully expanded tripartite Quantification structure, where the subject NP *llama* is in the restriction clause, and the object NP *banana* is in the nuclear scope. As predicted by Heim's (1982) theory, the free variables (x, y) of two NPs in (18a-b) are bound by different operators, and thus contribute to the meaning of the sentence in different ways. The exact nature of these differences has been widely discussed since the publication of Heim's work. For example, according to Diesing's account, the subject NP *llama*, which restricts the operator *every*, receives a presuppositional interpretation, since it occurs in the restriction clause of the non-existential quantifier. The object NP, according to Diesing, receives an existential interpretation, characteristic of the idefinite NP arguments in the nuclear scope. On the other hand, (19a-b) contain only the nuclear scope part, and the interpretations of both indefinite NP arguments are existential, due to the fact that each of them is in the nuclear scope. A sentence thus minimally consists of the nuclear scope part of the Quantification structure. If there is no other already existing Operator (Op) that can bind free variables introduced by NPs, then the operation called *existential closure* applies, and binds all free variables with an existential quantifier (cf. *banana*(y) in

18b, and *man(x)* and *llama(y)* in 19b). Therefore, nuclear scope indefinite NP arguments receive existential interpretations.

2.3.2 Diesing's (1992) Mapping Hypothesis

In addition to addressing differences in the interpretation of arguments that are distributed in distinct partitions of the Quantification structure, Diesing (1992) proposed a major modification to Heim's framework, in which the Quantification structure is argued to be in a strictly defined tight relation with syntactic structure. This modification, named the *Mapping Hypothesis*, states, first, that the nuclear scope of the Quantification Structure roughly corresponds to the material inside the vP, and second, that the upper part of the structure (that is, the IP domain and above) is mapped into the restriction clause of an operator (Op). The syntactic structure is thus split into two parts roughly at the vP node, so that all material inside the vP is mapped onto the nuclear scope of Quantification Structure. This is illustrated in Figure 2.1, based on a diagram from Diesing 1992: 9):
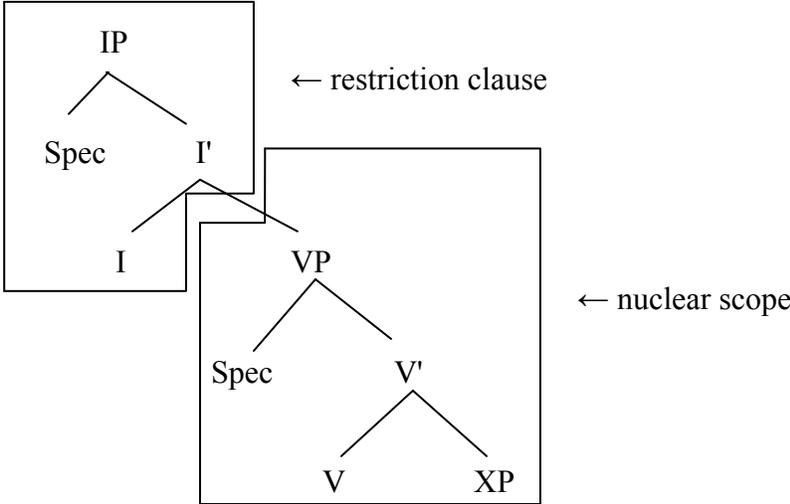
Figure 2.1   Mapping Hypothesis (tree splitting)

As an illustration of the Mapping Hypothesis, I here repeat the German example from Diesing (1992), already used in Section 1.2.2, (the tree splitting point is indicated with the symbol "||"):

(20) a. …weil   ja doch ||$_{vP}$ zwei Cellisten in diesem Hotel abgestiegen sind.

　　　　　since "indeed"   two cellists   in this   hotel have-taken-rooms

　　　b. …weil zwei Cellisten ja doch ||$_{vP}$ in diesem Hotel abgestiegen sind.

　　　　　since two cellists "indeed"   in this   hotel have-taken-rooms

Assuming that the sentential particles *ja doch* are vP-external and immobile in German, they can serve as diagnostics for different subject positions. The subject NP *zwei Cellisten* in (20a) is vP-internal, so it belongs to the nuclear scope of the Quantification structure, and has the existential, or cardinal reading, contributed by the existential closure. The sentence (20a) thus asserts the existence of two cellists who have taken rooms in the hotel. In (20b), the subject NP *zwei Cellisten* is to the left of the particles, that is, it is vP-external, and in this case belongs to the restriction clause in the Quantification structure. As Diesing notes, the two cellists in (20b) are two of some larger set of cellists that is already in the common ground. This is a typical presuppositional interpretation for a weak quantifier (or an indefinite NP).

　　In subsections 2.3.3, 2.3.4, and 2.3.5, I will mostly be concerned with the structural aspects of my account, with some observations on their impact on information structure. In Section 2.4, I address the interpretation of individual elements, as following from their position in the Quantification structure.

2.3.3 Domain restriction and scrambling of a single argument in the Quantification structure

Taking Diesing's (1992) proposal as a point of departure, I adopt the Mapping Hypothesis, that is, the view that there is a close correspondence between the syntactic structure and the Quantification structure. In particular, I adopt the idea that elements scrambled out of the vP in Serbian belong to the restriction clause of the tripartite Quantification structure, and form a binding relation between the operator and the traces they leave in the vP. Such scrambled elements participate in *domain restriction*. As a notion related to Quantification structure, domain restriction has been systematically investigated in a number of works by Kai von Fintel (starting with von Fintel 1994, 1995, and later) and Roberts (1995), among others. As a notion, domain restriction may include not only the constituent order variation aspect but also the contextual aspect. Crucially, for the purposes of the present work, it is the constituent order aspect of domain restriction that is of primary concern. By virtue of domain restriction, the Quantification Structure has an information-structure effect in that it narrows down the common ground to a domain that is relevant for the assertion.

Let us illustrate this proposal, taking a Serbian example: example (21), shows how the Quantification structure is used to capture the object scrambling case in Serbian. In OVS, the direct object is scrambled out of the vP:[5]

(21) (beginning of a joke)

    Policajca   udare <u>kola</u>…   OV<u>S</u>

    cop.acc   hit   car.nom

    "A cop was hit by a car."

---

[5] See, for example, arguments in Bailyn (2003) that the Russian direct object in sentences with word orders such as SOV and OVS are in positions external to the vP, namely Spec-IP or higher. Same arguments extend to the direct object in Serbian OVS and SOV. The exact nature of vP-external positions into which the arguments are moved is not relevant at this point.

According to my proposal, (21) receives a logical representation as in (22). Note that I use the narrative situation operator NAR, which for convenience can be paraphrased with the English expression "once upon a time" for cases where a sentence is used to start a story or a joke:[6]

(22)   a. NAR$_y$ [C+ cop (y)] .   ($\exists_x$)   car (x) & x hit y   OV<u>S</u>

          operator restriction clause   (ex. closure) nuclear scope

In (22), *policajca* "cop" restricts the domain of the operator NAR, together with a contextual variable C, which is the pragmatically fixed part of the restriction clause (see von Fintel 1995, and Roberts 1995, among others). By including this variable in the logical representations, I acknowledge the importance of the contextual aspect of the domain restriction. The nuclear scope proposition [$\exists_x$. *car (x) & x hit y*] applies only to *y*s that satisfy the condition *C + cop (y)* from the restriction clause. This condition can be paraphrased as "y is a cop in the context C". In this sense, the scrambled object participates in domain restriction, and (21) can be paraphrased as in (23):

(23) "Once upon a time, for a y such that y is a cop in context C, y was hit by a car."

Let us now compare OVS sentences with SVO sentences. While in OVS the direct object is scrambled out of the vP, in SVO the direct object is arguably in its vP-internal base position. The two possible beginnings of jokes in (24a, OV<u>S</u>) and (24b,

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[6] I thank Molly Diesing (p.c.) for suggesting this operator to me for such contexts. Note that both definite and indefinite NPs can occur as restrictors of the operator NAR. For example, in (i), a definite NP *my boxing coach* restricts the domain of NAR:

    (i)   Once upon a time, my boxing coach was hit by a student…

In (21), *policajca* "cop" can be understood as either definite (a familiar character from jokes) or a presuppositional indefinite (some specific cop). In the latter case, the relevant NP contains either a heavier accent and/or is followed by a prosodic break. Since this is a presuppositional indefinite NP, its interpretation is not standard existential, but that of a specific indefinite. See Diesing (1996) for comparable restrictions on Germanic object shift.

SV<u>O</u>) cannot be interchangeable when telling the same joke in Serbian, although the truth-conditional contents of such sentences are arguably identical:[7]

(24) (a joke about a policeman)

    a. *Policajca udare <u>kola</u>...*   OV<u>S</u>

      cop.acc   hit   car.nom

      "A cop was hit by a car."

    b. (a joke that cannot be about a cop)

      Kola   udare policajca...   SV<u>O</u>

      car.nom hit   cop.acc

      "A car hit a cop."

While (24a) has a single reading, (24b) is ambiguous due to the fact that *kola* "car" in (24b) can be either vP-internal or vP-external (scrambled). Example (24a) receives the logical representation (25a) with respect to the Quantification structure, and can be paraphrased as in (25b).

(25) a. NAR$_y$ [C+cop (y)].   ($\exists_x$) x hit y & car(x)   OV<u>S</u>

     Op   restriction clause   nuclear scope

    b. "[Once upon a time], for a y such that y is a cop in C, y was hit by a car…"

The intuition that (24b) cannot be used interchangeably with (24a) to begin the same joke is captured by referring to the Quantification structure. Following the Mapping Hypothesis, (24b) cannot receive the logical representation in (25a), because the direct object *policajca* "cop" in (24b) is not scrambled, and is therefore not in the restriction

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[7] Intuitively, (24a) is obligatorily understood as a joke about a cop. On the other hand, (24b) must be understood as either a beginning of an odd joke about an event where a car hit a cop (not focusing one's attention on either of the two), or perhaps a joke about a car that is even more odd. These intuitions can be strengthened by using transition sentences such as "Let me tell you a joke about a cop…", or "Let me tell you a joke about a car…" before the sentences in question. Only the former transition sentence can be felicitously paired with (24a), and only the latter transition sentence can be paired with (24b).

clause. In (26a) and (27a), it is shown how the two available interpretations for (24b) are logically represented in terms of the Quantification structure. The corresponding paraphrases are given in (26b) and (27b), respectively. The representation and the paraphrase in (26a,b) correspond to the intuition that the joke is about a car. The ones in (27a,b) correspond to the intuition that the joke is neither about a cop, nor about a car. Rather, the joke starts by introducing an event in which neither of the two participants is more important than the other:

(26) a. NAR_x [C+car (x)].   ($\exists_y$) x hit y & cop (y)   SV<u>O</u>

         Op   restriction clause   nuclear scope

      b. "[Once upon a time], for an x such that x is a car, x hit a cop…"

(27) a. NAR_x [C].   ($\exists_y$) x hit y & car(x) & cop (y)   SV<u>O</u>

          Op   restr. cl.   nuclear scope

      b. "Once upon a time, (it happened that) a car hit a cop…"

In sum, due to distinct distributions of their respective syntactic material across the Quantification Structure, (27a) and (27b) cannot be used interchangeably at the beginning of the same joke, despite their arguably identical truth conditions. Crucially, while the direct object in (27a) is in the restriction clause and thus participates in the domain restriction, the direct object of (27b) is in the nuclear scope, and does not participate in the domain restriction.

2.3.4 Scrambling of multiple arguments and the Recursive restriction clause

Now that it has been shown how scrambling of a single argument is reflected at the LF in terms of the Quantification structure, I turn to cases in which multiple arguments are scrambled. In such cases, the order in which the arguments are scrambled is very important. In order to capture this within the Quantification structure, I adopt the following refinement of the basic structure, first proposed by Diesing (1992):

(28) *Recursive restriction clause*

- Each constituent that is moved out of the vP forms a new partition starting higher in the tree within the restriction clause. The new-formed partition contains all other partitions of the restriction clause (recursive nesting).

Let us illustrate what is meant by the recursive restriction clause. In the syntactic tree in (29), two elements are scrambled: the subject and the direct object. Note the symbol ||, which separates the nuclear scope (vP-internal domain) from the restriction clause (vp-external domain).[8] This tree is built in a bottom-up fashion, and the direct object NP_2 *Marija* is scrambled out of the vP before the subject NP_1 *Jovan* is. Crucially, (28) states that the restriction clause domain, in the case of multiple scrambling, consists of multiple partitions. As shown in (30), the partition formed by object scrambling (*partition 1*) is nested within the partition formed by subject scrambling (*partition 2*). This correlates with the order of scrambling: the object is scrambled first, hence the partition it forms is structurally lower than the partition formed by the scrambled subject:

(29)

"Jovan loves Marija."

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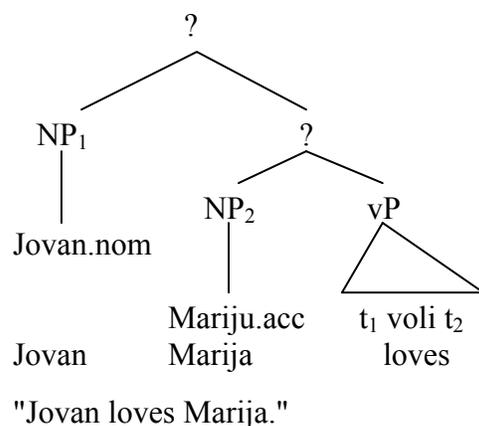
[8] For now, simply assume that the point of division between the restriction clause and the nuclear scope is immediately before the verb, and that both arguments are outside of the nuclear scope, that is, that they are in the restriction clause. I will present evidence for this in the next section.

(30) Op [₍?₎ Jovan   [₍?₎ Mariju]   ] || [$_{vP}$ t₁ voli t₂]
                    partiton 1
          p a r t i t i o n 2
        Op.   restriction clause   nuclear scope

At this point, of immediate concern for us is the significance of the recursive restriction clause for Serbian constituent order variation. I propose that recursion in the restriction clause has direct consequences for the information structure. As an illustration, let us look at two simple transitive sentences, (31b) and (31c), which are used as continuations of the sentence in (31a). The continuations differ only in constituent order (OSV in 31b, SOV in 31c), and are identical in all other respects, including their truth conditions. Importantly, however, they are not interchangeable in the given context: while (31b) is a felicitous continuation for (31a), (31c) is not.

(31) a. While in Europe almost every man knows at least several top soccer players, in America…

   b. ...čak i   najveći ljubitelji sporta   <u>samo Bekama</u> || znaju.   S<u>O</u>||V

       even part. biggest fans   of-sports only Beckham know

     "…even the biggest fans of sports know <u>only about Beckham</u>."

   c. #...<u>samo Bekama</u> čak i   najveći ljubitelji sporta || znaju.   <u>O</u>S||V

       only Beckham even part. biggest fans   of-sports know

     "…even the biggest fans of sports know <u>only about Beckham</u>."

The only obvious difference between (31b) and (31c) is that the two arguments within the restriction clause are distributed in different ways. The two distributions are shown in (32a-b), respectively:

(32) a. Op$_{xy}$ [C + b.f.o.s. (x) [Beckham (y)]].   ($\exists_y$) x knows y   S<u>O</u>||V

      Op   restriction clause (recursive)   nuclear scope

   b. Op$_{xy}$ [C + Beckham (y) [b.f.o.s. (x)]].   ($\exists_y$) x knows y   S<u>O</u>||V

      Op   restriction clause (recursive)   nuclear scope

Note that, in (32a), the partition which is formed by the scrambled direct object "only Beckham" is nested within the partition formed by the scrambled subject "even the biggest fans of sports". In (32b), we have the reversed situation: the partition formed by the scrambled subject is nested within the partition of the scrambled direct object.

Now, how is this relevant for the felicity of the continuations (31b) and (31c)? Intuitively, the felicitous continuation (31b; SOV) compares the Europeans' knowledge of soccer players to that of Americans. The example is formulated as an argument in favor of the claim that Americans know much less about soccer than Europeans. The continuation supports this claim by picking the group among Americans that is most likely to know soccer players, and then show that even that group is not very knowledgeable in this respect, since it turns out that even they know only Beckham.[9] Concretely, the continuation (31b) tells us something about the most ardent sports fans in America (corresponding to the subject NP). However, note that the OSV continuation in (31c) cannot accomplish this, due to the fact that *samo* "[≈only]" and *čak i* "[≈even]" take scope following their surface order. Namely, it is necessary that the subject NP be structurally higher than the direct object in the restriction clause for the continuation to be felicitous.

Based on such data, I argue for the following constraint:

(33) *Recursive Restriction Clause Hierarchy*

   - In the recursive restriction clause, if domain restrictor B is nested within domain restrictor A at the level of interpretation, the partition formed by the domain restrictor A is structurally higher than the partition corresponding to the domain restrictor B.

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[9] Beckham happens to be married to a music star who is a celebrity in America, so he is known also for reasons other than being a top soccer player.

The Restriction Clause Hierarchy thus states that there is a correspondence between the structural nesting among individual partitions in the restriction clause at the level of syntactic structure at LF, and their nesting with respect to domain restriction at the level of interpretation. In other words, when one domain restrictor is nested within another domain restrictor at the level of interpretation, the former restrictor will also be structurally nested within the latter restrictor. As suggested to me by Molly Diesing (p.c.), in some cases, one could informally interpret (33) as a constraint that ensures that the hierarchy of topics is respected. Under this interpretation, the most general topic corresponds to the highest partition of the restriction clause, and then all embedded topics must be nested within it according to a strict hierarchy.[10]

Finally, it should be noted that the notion of relative nesting of domain restrictors at the level of interpretation is not meant to be interchangeable with the notion of semantic relative scope that is widely used in the literature. Unlike relative nesting of overt domain restrictors in a sentence, which reflects the structural relationships in the Quantification structure, the commonly used notion of semantic relative scope pertains to intuitions that are apparently influenced by a variety of factors, which include (but are not limited to) constituent order, types of NPs used, or prosody. Crucially, however, the grammar does not ultimately determine semantic relative scope relations for a given sentence, since the relative scope ambiguities often persist even when all the mentioned factors are taken into account (Chierchia and McConnell-Ginet 2000). Rather, the intuitions about semantic relative scope are heavily dependent on the context, as the existing semantic relative scope ambiguities are ultimately resolved pragmatically. For example, the reason why the intuitions of semantic relative scope

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[10] As just noted, the comparison of nested domain restrictors with nested topics is valid only for some cases. The reader should keep in mind that the constraint in (33) is stated in terms of domain restrictors, rather than topics. The notion of domain restrictor is the only notion that figures in my model. In Section 2.7, I discuss the relationship between topics and the syntactically overt domain restriction material.

seem to be dependent on prosody, not only on its relative prominence aspect, but also on various contour shapes of prominent pitch accents, lies in the fact that both prosody and resolution of semantic relative scope ambiguities are ultimately dependent on the context.[11] This reasoning applies to the possible interaction between Quantification structure and semantic relative scope. While the relative scope intuitions often seem to correlate with constituent order under regular relative prosodic prominence, the intuitions about semantic relative scope cannot be ultimately read off the Quantification structure. As already suggested in Section 2.3.3., the Quantification Structure has an effect on information-structure role in that it narrows down the common ground to a domain that is relevant for the assertion. Domain restriction is, in fact, a consistent effect of the structure. On the other hand, the intuitions of semantic relative scope are not consistently derivable from the Quantification structure.

Semantic relative scope will not figure in further discussion. The only aspects of the Quantification structure that I will be concerned with are domain restriction, its significance for the constituent order, and its effect on the interpretation of syntactic phrases.

2.3.5 Summary

In 2.3, I have motivated my account of free constituent order and outlined its fundamental structural aspects. I argue that a syntactic constituent which participates in domain restriction must be scrambled out of the vP, that is, out of the nuclear scope. The sole driving force behind such constituent fronting is thus to ensure that the relevant constituent participate in domain restriction. In cases when multiple

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[11] As an example of this view, see Büring's (1997) discussion of the relationship between different pitch accent realizations (the so-called A- and B-accents) and relative scope. Büring treats the relationship as indirect, mediated by context.

constituents participate in domain restriction, these constituents must be scrambled in a particular order, as stated by the Recursive Restriction Clause Hierarchy.

In Section 2.4, I am concerned with the interpretation of particular elements within the Quantification structure.

2.4 Domain restriction and presuppositionality

2.4.1 What does the distribution of argument readings tell us about LFs?

As noted in Section 1.2.2, according to Diesing (1992), constituents scrambled into the restriction clause of the Quantification structure are presuppositional, and all presuppositional constituents must scramble out of the vP due to their incompatibility with existential closure. However, I suggested in Section 2.3 that constituents are scrambled out of the vP, not because of their presuppositionality, but simply because they are domain restrictors. As a consequence, in my proposal, the interpretation of the material in the nuclear scope is not constrained in any way; that is, its interpretation is understood as unmarked, and could be either existential or presuppositional. In particular, while the material inside the nuclear scope is unmarked with respect to its interpretation, having either presuppositional or existential interpretation, the material scrambled into the restriction clause (that is, the domain restriction material) is marked, in that it is obligatorily presuppositional, as stated by the following generalization:

(34) *Presuppositionality Generalization*

- An argument scrambled outside of the vP must have a presuppositional interpretation; a vP-internal argument may have either a presuppositional or an existential interpretation.

While the interpretation of a vP-external argument is obligatorily presuppositional, the interpretation of a vP-internal argument can be either presuppositional or existential.

As a consistent side-effect of domain restriction, the phenomenon of obligatory presuppositional interpretation is a reliable diagnostic for whether an element is in the restriction clause (i.e. participates in domain restriction) or not.[12] Based on this diagnostic, one can systematically link the surface syntactic distribution of arguments in Serbian with their distribution across the Quantification Structure. I will consider the cases of direct objects in 2.4.2, and then cases of subjects in 2.4.3.

2.4.2 Readings of direct objects and constituent order

Consider (35), where the placement of an indefinite direct object *nekoliko restorana* "several restaurants" with respect to the verb affects the felicity of the continuations (35a-b) in the two provided scenarios. While the continuation (35a) would be a felicitous comment in either of the two provided scenarios, the one in (35b) would be felicitous only in Scenario 2:

(35) (Scenario 1: Jovan currently owns factories, but not restaurants.)

(Scenario 2: Jovan currently owns factories and restaurants.)

No, Jovan did not become a businessman LAST YEAR…

a. …Pa, on je   imao   nekoliko restorana   još   <u>sedamdesetih</u>.   SVO<u>Adv</u>

well he aux owned several   restaurants already seventies

Scenario 1: felicitous   Scenario 2: felicitous

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[12] In Section 2.7 I will address the relationship between obligatory presuppositionality of elements and domain restriction in more detail. My view is that the mandatory presuppositionality of scrambled elements is simply a consequence of domain restriction.

b. …Pa, on je   nekoliko restorana   imao   još   <u>sedamdesetih</u>. SOV<u>Adv</u>

    well he aux several   restaurants owned already seventies

  Scenario 1: #NOT felicitous Scenario 2: felicitous

  "…Look, he owned several restaurants as early as in the seventies."

Note that the object in (35b), being outside of the vP, is in the restriction clause, and is then predicted by the Presuppositionality Generalization to have only a presuppositional reading. This prediction is borne out, since *nekoliko restorana* "several restaurants" in (35b) requires an already present set of restaurants to be in the common ground (but not necessarily salient), for example a presupposed set of many restaurants that Jovan currently owns. This set is provided by Scenario 2, but not by Scenario 1.

On the other hand, (35a) is compatible with Scenario 1, and this means that the object *nekoliko restorana* "several restaurants", when used within the vP, can have a non-presuppositional (i.e. cardinal, existential, asserted) reading, a reading not available in (35b).

The same point can be made for two other clear cases of objects scrambled outside of the vP, namely those in OSV and OVS, as shown in (36a-b), which use the same scenarios as (35). These object NPs are also limited to their presuppositional readings:

(36) (Scenario 1: Jovan currently owns factories, but not restaurants.)

  (Scenario 2: Jovan currently owns factories and restaurants.)

  No, Jovan did not become a businessman LAST YEAR…

  a. …Pa, nekoliko restorana   je on imao   još   <u>sedamdesetih</u>. OSV<u>Adv</u>

    well several   restaurants aux he owned already seventies

  Scenario 1: #NOT felicitous Scenario 2: felicitous

b. …Pa, nekoliko restorana je imao on još <u>sedamdesetih</u>.   OVS<u>Adv</u>

well several   restaurants aux owned he already seventies

Scenario 1: #NOT felicitous   Scenario 2: felicitous

"…Look, he owned several restaurants as early as in the seventies."

Since Scenario 1 does not provide a presupposed set of restaurants that Jovan currently owns, it is not compatible with a presuppositional reading of the object NP *nekoliko restorana* "several restaurants" in (36a) and (36b). Since (36a) and (36b) are infelicitous in Scenario 1, it follows that they have mandatory presuppositional readings. This means that they conform to the Presuppositionality Generalization.

Let us now address sentences with unaccusative verbs, often discussed in the context of information structure (Bolinger 1972, 1982; Selkirk 1995, Godjevac 2000, 2006; Wagner 2005, among others). These sentences normally involve a single argument, which is base-generated as the complement of the verb. Despite its nominative case marking, this argument will be considered an object (O), following the Unaccusative Hypothesis (Perlmutter 1978, Burzio 1986). In Serbian, the default surface position for the relevant argument is postverbal.

If an underlying object NP is used that can easily get a presuppositional reading, such as *profesor Petrović* "Professor Petrović", it can perfectly naturally occur in either the postverbal base position belonging to the nuclear scope, as in the $V_{unacc}S$ sentence in (37a), or the preverbal scrambled position belonging to the restriction clause, as in the felicitous SV_{unacc} sentence in (37b):

(37) How come the students improve so much this year?

a. Pa, došao je   <u>profesor Petrović</u>. $V_{unacc}\underline{O}$

well came aux professor Petrović

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b. Pa, <u>profesor Petrović</u> je došao. OV_{unacc}

    well professor Petrović aux came

  "Well, Professor Petrović came (to the department, and he is good)."

However, when an (underlying) object cannot get a presuppositional reading in a given context, as is the case with the object NP *sušna godina* "dry year" in (38a-b), the relevant object will be felicitous in its postverbal base position (38a) belonging to the nuclear scope, but infelicitous in a preverbal scrambled position (38b) belonging to the restriction clause:

(38) Why did the animals leave the savannah?

    a. Pa, došla je <u>sušna godina</u>. $V_{unacc}O$

      well came aux dry   year

    b. #Pa, <u>sušna godina</u> je došla. OV_{unacc}

      well dry   year   aux came

    "Well, there was a dry year. (literally: Well, there came a dry year.)"

Note that the presuppositional reading for *sušna godina* "a dry year" would be pragmatically odd in such a context, since – arguably – a dry year is not a part of the common ground before it occurs, and it is not predictable whether it will occur at all. In other words, it is not normally a part of the common ground before it occurs. I thus conclude that scrambled objects of unaccusative verbs also conform to the Presuppositionality Generalization in Serbian in that they only have a presuppositional reading.

It is important to note at this point that the availability of a presuppositional reading for the object (O) correlates with its ability to scramble, regardless of its prominence status. In other words, whatever the relative prominence status of an element is, it can participate in domain restriction if it meets the relevant semantic/pragmatic conditions. That is, scrambling of an object is only possible if the

relevant object can have a presuppositional reading, and is independent from its relative prominence. It is useful to note at this point that Serbian simple sentences with unaccusative verbs allow us to easily tease apart the effects of constituent order and flexible relative prominence from each other in a way that English data, in which the object must uniformly precede the unaccusative verb in such simple sentences, do not.

To summarize, the preliminary observations regarding the readings of objects in various constituent orders are given in Table 2.3:

Table 2.3   Readings of indefinite objects

	existential reading	**presuppositional reading**
SVO	yes	yes
SOV	no	yes
OSV	no	yes
OVS	no	yes
$\mathbf{V_{unacc}O}$	yes	yes
$\mathbf{OV_{unacc}}$	no	yes

Based on Table 2.3, it can be concluded that all clear cases of scrambled objects in Serbian conform to the Presuppositionality Generalization.

2.4.3 Readings of subjects and constituent order

Let us now briefly address readings of subjects in transitive sentences. I use the examples in (39) to determine whether subjects in SOV and OSV obligatorily get a presuppositional reading. While Scenario 1 is compatible only with the existential reading of the subject *juniori* "juniors", Scenario 2 is compatible with both the existential and the presuppositional reading. Since the continuation in (39a) is compatible only with Scenario 2, and not with Scenario 1, it follows that the subject *juniori* "juniors" of (39a), is obligatorily presuppositional. Similarly, the continuation

in (39b) is compatible with Scenario 2, but not with Scenario 1, and the relevant subject NP in (39b) is thus obligatorily presuppositional. The subjects in SOV and OSV therefore exhibit obligatory presuppositional readings:

(39)   (Scenario 1: The club currently has a senior team, but no junior categories. Some players did not behave well during the training camp.)

         (Scenario 2: The club currently has a senior team and junior categories. Some senior team players did not behave well during the training camp.)

   a. …Pa, juniori su probleme pravili   <u>ranijih godina</u>.   SOV<u>Adv</u>
         well juniors aux problems caused   earlier   years

      Scenario 1: #NOT felicitous   Scenario 2: felicitous

   b. …Pa, probleme su juniori pravili   <u>ranijih godina</u>.   OSV<u>Adv</u>
         well problems aux juniors caused earlier   years

      Scenario 1: #NOT felicitous Scenario 2: felicitous

      "Look, two young-team members caused problems in the earlier years."

The subjects in OVS and SVO are addressed with the example in (40). Again, Scenario 1 is compatible only with the existential reading of the subject *juniori* "juniors", and Scenario 2 is compatible with both the existential and the presuppositional reading. Since the continuation in (40a) is compatible with both scenarios, I conclude that the relevant subject *juniori* "juniors" can have an existential reading, and that it is therefore vP-internal. Likewise, the continuation in (39b) is compatible with both scenarios, from which it follows that the relevant subject in (39b) can have the existential reading. The subjects in SVO and OVS do not therefore exhibit obligatory presuppositional readings.

(40)   (Scenario 1: The club currently has a senior team, but no junior categories. Some players did not behave well during the training camp.)

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(Scenario 2: The club currently has a senior team and junior categories. Some senior team players did not behave well during the training camp.)

No, this is not the first time that we are having problems with discipline…

a. …Pa, probleme su pravili juniori <u>ranijih godina</u>.   OVS<u>Adv</u>

    well problems aux caused juniors   earlier   years

  Scenario 1: felicitous   Scenario 2: felicitous

b. …Pa, juniori su   pravili probleme <u>ranijih godina</u>.   SVO<u>Adv</u>

    well juniors aux caused   problems earlier   years

  Scenario 1: felicitous   Scenario 2: felicitous

"Look, two young-team members caused problems in the earlier years."

It should also be noted that subjects of unergative intransitive verbs can have existential readings in SV_{unerg} order. In (41), Scenario 1 requires the existential reading on the subject, and Scenario 2 allows for both existential and presuppositional readings of the subject. In the continuation, the subject *juniori* "juniors" is felicitous within both scenarios, from which it follows that the subject of SV_{unerg} can receive the existential reading, and that it can be vP-internal:

(41)   (Scenario 1: The club currently has a senior team, but no junior categories. Some player is invited to play for the national team.)

    (Scenario 2: The club currently has a senior team and junior categories. Some senior team player is invited to play for the national team.)

  …Pa, juniori su igrali <u>ranijih godina</u>.   SV_{unerg}<u>Adv</u>

   well juniors aux played earlier   years

  Scenario 1: felicitous   Scenario 2: felicitous

  "Well, two young-team members played in the earlier years."

I summarize the range of possibilities for subject readings in simple transitive and intransitive (unergative) sentences in Table 2.4:

Table 2.4   Readings of indefinite subjects

	existential reading	presuppositional reading
SVO	yes	yes
SOV	no	yes
OSV	no	yes
OVS	yes	yes
SV_{unerg}	yes	yes

The subjects of constituent orders SVO, OVS, SV$_{unerg}$ can have the existential reading. The Presuppositionality Generalization from (34) predicts that such subjects can be vP-internal at LF. From a structural point of view, this is expected, since subjects can stay in their base vP-internal position and still occur in these constituent orders.

In SOV and OSV the subject has the presuppositional reading obligatorily. The Presuppositionality Generalization in (34) states that arguments with obligatory presuppositional readings cannot be construed vP-internally. The subjects in SOV and OSV are therefore predicted to be vP-external. As noted earlier, in 2.3.4, there are independent structural arguments that the object in SOV is scrambled out of the vP. Since the subject of SOV is structurally higher than the object, it follows that the subject in SOV is vP-external as well. As far as the subject of OSV is concerned, so far I have not provided independent structural evidence that it is vP-external. This evidence is provided in Section 2.4.4.

2.4.4 Readings of arguments, constituent order, and LF-structures

I now integrate the findings for the readings of direct objects and subjects in all constituent orders that do not involve verb-fronting. At this point, there is enough data

to formulate hypotheses about LFs of various constituent orders in Serbian intransitive and transitive sentences. Based on the available readings of subjects and objects for any given surface constituent order, we are able to determine how the relevant surface constituent order is mapped onto the Quantification structure. Let us start with SOV and OSV orders in transitive sentences.

Before going into a detailed discussion of concrete cases, there is an important question to resolve, namely, whether arguments (subjects and objects) that can have an existential reading in a given syntactic surface position are *always* vP-internal at LF or not. There is still a possibility that arguments that are vP-internal on the surface may undergo covert movement after Spell-Out in Serbian under certain conditions, as has been proposed for languages such as English. However, there is evidence that such a covert movement does not occur in Serbian. Namely, if elements could undergo covert movement in Serbian, one would expect that a sentence with a covertly scrambled presuppositional element be interpreted in the same way as when this presuppositional element is overtly scrambled, yet, this does not happen. Recall from the direct object examples in (24a-b) that sentences in which the direct object is overtly scrambled can never be interchangeable in the same context with sentences in which the direct object is not overtly scrambled, due to the fact that overtly scrambled NPs automatically participate in domain restriction, while those that are not overtly scrambled do not participate in domain restriction (at least when they are F-marked).[13] This strongly suggests that Serbian overt constituent order is transparent with respect to the

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[13] In (i) below, the same point is supported with an example containing the NP *glavnog sudiju* "the main referee", which has a presuppositional reading. The example is constructed as a joke about the main referee in a football match. Note that the relevant NP must be overtly scrambled, as in OVS, for the continuation to be felicitous.

    (i)   Let me tell you a joke. At a football match…

        …Glavnog sudiju udari lopta.   OVS /   #Lopta udari glavnog sudiju.   SVO
          main   referee hit ball   ball hit   main   referee
        "…The main referee got hit by the ball.

Quantification structure as an LF-defined structure. In other words, the overt scrambling of an (F-marked) element is necessary for its participation in domain restriction, and an identical LF structure cannot be produced by a covert movement. This situation would be unexpected if NPs were able to scramble out of the vP by a covert movement in Serbian. I thus conclude the following: if an NP *can* have existential interpretation in a particular surface syntactic position in Serbian, then this syntactic position is vP-internal, at least when the relevant NP is F-marked. In other words, even when such a phrase is interpreted as presuppositional, but has an available existential reading as well in the same surface syntactic position, this phrase cannot be a domain restrictor and is vP-internal.

Keeping this in mind, let us now address individual constituent orders. The LFs for the SOV and OSV orders are straightforward, since I have established that in these surface orders both S and O have obligatory presuppositional interpretations. It follows from this that both S and O belong to the restriction clause in each of these constituent orders. This is shown in (42, 43a). Interestingly, the LF in (43b) is not attested for OSV:

(42) *SOV LF*:

$S_{Ps}O_{Ps} \parallel [_{vP} V]$

(43) *OSV LF*

a. $O_{Ps}S_{Ps} \parallel [_{vP} V]$

b. $*O_{Ps} \parallel [_{vP} S_{Ex} V]$

At this point, the ill-formedness of (43b) is puzzling. Namely, given that the basic order is SVO, one would expect it to be possible to move the object out of the vP and leave the ordering between S and V within the vP intact, as in (43b). However, once we determine the LF of OVS, which is straightforward, the solution to the puzzle will unfold itself.

As shown in Tables 2.3 and 2.4, the subject of OVS can have an existential reading, but its object has an obligatory presuppositional reading. It follows that only the object of OVS is in the restriction clause of the Quantification structure, and that, ignoring the exact position of the verb for the moment, the distribution of the two arguments at LF for a simple OVS sentence is thus as in (44):

(44) *OVS LF*

$O_{Ps} \parallel [_{vP} S_{Ex}]$

What is the position of the verb in OVS? If we now compare the impossible LF for OSV in (43b) and the possible LF for OVS in (44), an important phenomenon emerges. Namely, it becomes clear that, during the derivation of the LF for OVS, V and S switch their order once O is scrambled out of it. As suggested to me by Molly Diesing (p.c.), this phenomenon receives a reasonable explanation once we assume that the verb movement in question is simply an instance of head-movement, as already proposed in numerous works on a comparable phenomenon of object shift in Germanic, especially Scandinavian. In other words, the simplest explanation is that V obligatorily undergoes head-movement into the closest structurally higher head, as soon as another constituent (such as an argument) is scrambled out of the vP. Head movement is considered to be semantically vacuous (Chomsky 1999), and given that the LF in the case of OVS order is simply $O_{Ps} \parallel [_{vP} S_{Ex} V]$, we have a plausible explanation of the fact that the derived surface position of the verb in OVS does not matter at LF, and that it is the lower (vP-internal) copy of the verb that is interpreted. The most straightforward hypothesis is that this verb head-movement is, in fact, V-to-T movement. In the derivation of OVS in (45), it is the object that is scrambled out of the vP, and I therefore assume that such a scrambling is necessarily followed by the V-to-T movement of the verb. Note that the base position of the verb, in which the verb

is interpreted semantically, is labeled with a "_", and that the symbol "&→" stands for "necessarily followed by":

(45) *OVS order derivation*:

$\|_{vP}$ SVO   →   O $\|_{vP}$ SV   &→   O $[_{T'}$ V $\|_{vP}$ S_

Diesing and Jelinek (1995) discuss a similar correlation of the two phenomena in the case of Germanic languages and Egyptian Arabic. For example, they discuss the so-called "object shift" in Scandinavian languages within a Diesing-style framework.[14] In these languages, scrambling of the object into a position outside of the vP is necessarily accompanied with the raising of the finite verb, as in German verb-second (V2) of matrix clauses. This is often referred to in the literature as "Holmberg's Generalization" in the literature. While the verb-movement does not have semantic effects, the object shift does (see Diesing 1996). This is exactly the situation attested in the Serbian constituent order data. I thus assume that the phenomenon of object shift in Scandinavian and the just described derivation of Serbian OVS both result from the application of the same set of syntactic mechanisms.[15] Moreover, a similar local movement of the verb has already been proposed by Kučerová (to appear) as accompanying scrambling of constituents in Czech, Russian, and Serbian.[16] Once the verb movement of some kind is added to our arsenal to accompany scrambling of direct objects, there is no reason not to assume that derivations of other constituent orders such as SVO also include it, but that its effect on their constituent order often remains invisible. Let us now turn to the SVO order.

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[14] See also Diesing and Jelinek's discussion of English "Particle Shift", which is incorporated within the same analysis.

[15] See Holmberg (1986, 1999), Bobaljik (1994, 1995), Vikner (2006), Fox and Pesetsky (2004), among others, for accounts of object shift and these mechanisms.

[16] Kučerová posits a movement of the verb into a position that immediately follows what she refers to as the domain of material that is presuppositional AND salient at the same time (in her terms, Given), as soon as an element (e.g. an argument) is moved/fronted from its base position.

Here are the two predicted LFs for SVO, based on the interpretation data from Tables 2.3 and 2.4 and ignoring the exact surface position of the verb:

(46) *SVO predicted LFs*

    a. $\|$ $_{vP}$ S$_{Ex}$ V O$_{Ex}$

    b. S$_{Ps}$ $\|$ [$_{vP}$ V O$_{Ex}$]

It thus follows from the data in Tables 2.3 and 2.4 that the only constituent order in which S and O can both have existential readings is the SVO order. This happens precisely when both arguments (namely, S and O) are in the nuclear scope (vP), as in (46a). I have not provided such cases of SVO until now, but it can be easily shown that my prediction that these are possible is borne out. This is done by the example in (47). Note that S and O can both receive existential interpretations, and that this means that in a simple SVO sentence they can both be vP-internal:

(47) Svake godine, ispod našeg krova, lasta   napravi <u>gnezdo</u>.   AdvSV<u>O</u>

    every year   under our roof swallow makes nest

    "Every year, under our roof, a swallow [a different one] makes a <u>nest</u>."

Examples such as (47) provide additional support for my assumption that SVO is the basic order, and that other constituent orders are then derived from SVO by scrambling of elements into positions outside of the vP.

Let us show that the predicted LF in (46b) is attested in Serbian as well. The relevant example is given in (48b) below, and it is based on a German example from Diesing (1992; p. 78). Assuming that the sentential adverb *zapravo* "in fact" is vP-external, and immobile in Serbian, the adverb can serve as a diagnostic for different subject positions. The subject NP *nekoliko glumaca* "several actors" in (48a) can be vP-internal, since it can have the existential (cardinal, asserted) reading. The sentence can be read as an assertion about the existence of several actors who took rooms in the hotel, but who have turned out not to be in any way involved in the Oscar ceremony.

In (48b), on the other hand, the subject NP *nekoliko glumaca* "several actors" is to the left of the sentential adverb, and in this case the mentioned actors must be several of some set of actors that is already in the common ground, perhaps the set that is attending the Oscar ceremony. This is a typical presuppositional interpretation for a weak quantifier (or an indefinite NP). So, as opposed to the subject NP *nekoliko glumaca* "several actors" in (48a), which can have an existential interpretation, in (48b) the same subject NP, being scrambled in a position preceding the vP-external sentential adverb *zapravo* "in fact", has an obligatory presuppositional interpretation:

(48) Until the last moment we hoped that the Oscar ceremony would take place here…

a. …jer   je zapravo nekoliko glumaca rezervisalo sobe u ovom hotelu. AdvSVO
  since aux in-fact several actors   booked   rooms in this   hotel

b. …jer   je nekoliko glumaca zapravo rezervisalo sobe u ovom hotelu. SAdvVO
  since aux several actors   in-fact   booked   rooms in this   hotel

"…since several actors in fact booked rooms in this hotel."

Even more persuasive are the examples with individual-level predicates with regular final prominence, in which the existential readings of the subjects are excluded (see Diesing 1992; p. 38). For example, in (49), another Diesing-style example shows that the subject *mali Srbi* "little Serbs" must be vP-external when combined with an individual-level predicate such as *znaju engleski* "know English":

(49) You don't need a translator in order to be able to communicate with the children attending the Belgrade basketball camp,...

a. ?... jer   zapravo mali Srbi znaju   engleski.   AdvSVO
  since in-fact   little Serbs know   English

intended: "…since there are, in fact, little Serbs who know English."

a. ... jer   mali Srbi   zapravo znaju   <u>engleski</u>.   SAdvVO

   since little Serbs in-fact know   English

   "…since little Serbs in fact know <u>English</u>."

Since both the LF in (46a) and (46b) are attested in Serbian, I conclude that surface constituent order SVO is, therefore, ambiguous with respect to the Quantification Structure.

Finally, I provide the LFs of intransitive sentences with unergative and unaccusative verbs (50-52), which are - based on the proposed LFs of transitive sentences − straightforward (The exact surface position of the verb is not relevant at LF in these cases, so even if a verb is in T on the surface, it is still shown as a part of the vP at LF.):

(50) *SV$_{unerg}$ LFs*

   a. $\|_{vP}$ S$_{Ex}$V (base-generated)

   b. S$_{Ps}$ $\|$ [$_{vP}$ V]

(51) *V$_{unacc}$O LF*

   $\|_{vP}$ VO$_{Ex}$ (base-generated)

(52) *OV$_{unacc}$ LF*

   O$_{Ps}$ $\|$ [$_{vP}$ V]

In the next subsection, I focus my attention on the constituent orders in which verbs are initial. Since the NP-interpretation tests of the kind used to address LF-distribution of arguments do not apply to verbs, verb-initial constituent orders require special consideration.

2.5 Remarks on the verb-initial cases

2.5.1 When do the verb-initial orders occur?

Verb-initial constituent orders such as VSO, VOS, V$_{unerg}$S occur in a limited number of context types. There are two main types of contexts in which they occur in declarative sentences: as answers to Yes/No-questions with polarity items that ask for the identity of participants, and in narrative contexts. That is, what is needed for V-fronted orders to occur felicitously in declarative sentences is either an explicit or implicit Yes/No-question with a polarity item, which asks for the identity of participant(s), or a narrative operator.

Here are examples of the context type that arises with Yes/No-questions with polarity items that name the situation but ask for the participants, such as (53a-b), (54a-b), and (55a-b):

(53) a. So, did anyone hit somebody while all those people were arguing?

     b. Pa,   udario je Jovan <u>Marka</u>.   VS<u>O</u>

        well hit   aux Jovan Marka

        "Well, Jovan hit <u>Marko</u>."

(54) a. Does anybody ever beat Marko in basketball?

     b. Pa,   pobedi   njega <u>Jovan</u> po neki put…   VO<u>S</u>

        well win-over him Jovan sometimes

       "Well, <u>Jovan</u> beats him from time to time…"

(55) a. Is there anybody who smokes here (/in this building)?

     b. Pa, puši   <u>Jovan</u>.   V$_{unerg}$<u>S</u>

      well, smokes Jovan

      "Well, <u>Jovan</u> smokes."

A characteristic of such Yes/No-question contexts is that they present the situation denoted by the verb independently of whether one or more of its participants are named. For example, Yes/No-questions in (53a) and (55a) mention their situations ("hit", and "smoke") without naming the participants; (54a) mentions only one of the participants (the theme, denoted by the direct object *Marko*). These questions include negative polarity items such as *anybody*, which arguably increase the pragmatic strength of the answers (see Rooy 2003, Guerzoni and Sharvit 2007, as well as Kadmon and Landman 1993). Note that it is the task of the corresponding answers (53b, 54b, 55b) to provide the participant(s) whose identity is unknown in each case. I propose that they do so *by fronting of the vP into the restriction clause*, as shown in (53b', 54b', and 55b'). Note that the identities of the unknown participants that the questions ask for appear in a lower partition of the Quantification structure, as is the case with *Jovan* in (54b'). Other participants, such as *Marko* in (54b'), occur in the same partition of the restriction clause in which the vP occurs, that is, they occur within the fronted vP:

(53b') $Op_?$ [C+ x hit y]. Jovan (x) & Marko (y)

(54b') $Op_{"sometimes"}$ [C + x hit y & Marko (y)]. Jovan (x)

(55b') $Op_{"regularly"?}$ [C+ smokes (x)]. Jovan (x)

What is now needed is a syntactic mechanism that allows for vP fronting with these characteristics. There are two possibilities: (i) the remnant fronting of the whole vP, preceded by a local (possibly nuclear-scope-internal) movement of unknown participants, such as *Jovan* in (54b'), or (ii) vP fronting which puts the vP into the restriction clause together with variables that may not include NP descriptions. From the syntactic point of view, the first possibility is more plausible, and more developed in the existing literature. The second possibility has greater intuitive appeal, but it

requires an unorthodox syntactic solution. For this reason, I adopt the remnant vP-fronting as the solution.[17]

The other type of context in which constituent orders with verb fronting occur is the narrative context, such as beginnings of stories and jokes (56a-c):

(56) a. (beginning of a story)

Ulovio vuk <u>ovcu</u>…   VS<u>O</u>

caught wolf sheep

"A wolf caught a sheep."

   b. (beginning of a joke)

Ujela nekog čoveka <u>buba</u>.   VO<u>S</u>

bit   some man   bug

"A bug bit some man."

   c. (beginning of a joke)

Plivaju <u>dve ribe / ajkule</u>… (U nekom trenutku, nešto…)   V_{unerg}S

swim   two fish sharks   at some moment something

"Two fish / Two sharks are swimming…At some   moment something…"

I argue that fronted vPs participate in domain restriction in such narrative contexts as well. In a story/joke-initial narrative sentence with a fronted verb, the named situation plays the role of the widest domain restrictor, as in (56'a-c'):

(56') a. Op"once-upon-a-time" [x caught y]. wolf (x) & sheep (y)

   b. Op"once-upon-a-time" [x bit y]. bug (x) & some man (y)

   c. Op"once-upon-a-time" [swim (x)]. shark (x) & | x | = 2

---

[17] The remnant vP-fronting leaves some issues to resolve. Namely, it needs to be specified whether arguments that are moved prior to remnant vP-fronting stay in the nuclear scope, or not. If they do, independent evidence for vP-internal movement of arguments is needed. On the other hand, if they end up being vP-external, then the nuclear scope would be just filled with traces. I leave this issue for further research.

Note that one could claim that even the narrative contexts can be subsumed under the Yes/No-question contexts with polarity items that ask for participants. Namely, it is not implausible that even the story/joke-initial sentences are answers to implicit Yes/No-questions, such as *Did anyone catch something/anything?*, *Did anyone bite somebody/anybody?, Is anybody swimming?* (see e.g. Krifka 2007, or Roberts 1996). If so, a generalization could be made that vP-fronted constituent orders occur only in the context of (explicit or implicit) Yes/No-questions that ask for participants, and that the narrative contexts seemingly license the verb in the restriction clause simply because they relatively freely allow for various kinds of implicit questions. This could point toward a unified explanation for why vP-fronted constituent orders do not occur freely in the discourse, but are limited to a very small set of contexts. However, it would not be surprising if the narrative contexts allowed for vP-fronted constituent orders for different reasons. I will not try to provide a definite answer regarding this issue. Whatever the exact condition that licenses V-initial constituent orders in Serbian, it is important to note that my proposal sees such orders as containing fronted vPs that participate in domain restriction. This is stated as a separate hypothesis:

(57) *Verb-initial constituent orders*

- A verb-initial constituent order contains a remnant-fronted vP in the restriction clause of the Quantification Structure. This vP thus participates in domain restriction.

For fronted vPs, one cannot use any of the presuppositionality tests which I used in testing argument distribution across the Quantification Structure. However, one can still provide some support to the claim that V-initial constituent orders differ in their interpretation from non-V-initial constituent orders. In Chapter 3, it is shown experimentally that, in at least some context types, V-initial transitive orders (VSO, VOS) are not interchangeable with any of the argument-initial constituent orders

(SVO, SOV, OVS, OSV). I interpret this finding in terms of Quantification Structure, by stating that V-initial orders, unlike other constituent orders, have vPs fronted into the restriction clause as the widest domain restrictors.

2.5.2 Readings of arguments in verb-initial constituent orders

Let us now address the readings of arguments in VSO, VOS, and $V_{unerg}S$ orders with respect to the Presuppositionality Generalization. I address the direct object readings first, by using the already familiar test contexts.

The example in (58a) shows that the reading of the object *nekoliko restorana* "several restaurants" in VSO is not necessarily presuppositional, since the VSO continuation is compatible with either of the two familiar test scenarios. Recall that Scenario 1 does not provide a presupposed set of restaurants, and is therefore compatible only with the existential reading of the object. On the other hand, (58b) suggests that the object in VOS is presuppositional, since it is compatible only with Scenario 2:

(58) (Scenario 1: Jovan currently owns factories, but not restaurants.)

(Scenario 2: Jovan currently owns factories and restaurants.)

No, Jovan did not become a businessman LAST YEAR…

a. …Pa, imao je on nekoliko restorana još   <u>sedamdesetih</u>. VSO<u>Adv</u>

   well owned aux he several   restaurants already seventies

   Scenario 1: felicitous   Scenario 2: felicitous

b. …Pa, imao je nekoliko restorana on još   <u>sedamdesetih</u>. VOS<u>Adv</u>

   well owned aux several   restaurants he already seventies

   Scenario 1: #NOT felicitous   Scenario 2: felicitous

   "…Look, he owned several restaurants as early as in the seventies."

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The object readings are summarized in Table 2.5:

Table 2.5   Readings of indefinite objects

	existential reading	presuppositional reading
VSO	yes	yes
VOS	no	yes

Let us now briefly address readings of subjects in sentences with initial verbs. Again, I rely on the already used scenarios for subject readings, which help us to determine if/when subjects obligatorily get a presuppositional reading. While in (59) Scenario 1 is compatible only with existential readings of the subject *juniori* 'juniors', Scenario 2 is compatible with both existential and presuppositional readings. Based on the felicity of the continuations in (59a-b) in the two scenarios, it turns out that in VSO and VOS the subjects can have existential readings:

(59)   (Scenario 1: The club currently has a senior team, but no junior categories. Some players did not behave well during the training camp.)

    (Scenario 2: The club currently has a senior team and junior categories. Some senior team players did not behave well during the training camp.)

No, this is not the first time that we are having problems with discipline…

a. …Pa, pravili su juniori probleme <u>ranijih godina</u>.   VSO<u>Adv</u>

    well caused aux juniors problems earlier years

    Scenario 1: felicitous   Scenario 2: felicitous

b. …Pa, pravili su probleme juniori <u>ranijih godina</u>.   VOS<u>Adv</u>

    well caused aux problems juniors earlier years

    Scenario 1: felicitous   Scenario 2: felicitous

  "Look, juniors caused problems in the earlier years."

Next, it should be noted that subject of initial unergative intransitive verbs can have existential readings. Again, Scenario 1 requires the existential reading on the subject NP *juniori* 'several juniors', and Scenario 2 allows for both existential and presuppositional readings. Note that the target $V_{unerg}S$ sentence is compatible with both scenarios and that this means that the relevant subject can have the existential reading:

(60)   (Scenario 1: The club currently has a senior team, but no junior categories. Some player is invited to play for the national team.)

     (Scenario 2: The club currently has a senior team and junior categories. Some senior team player is invited to play for the national team.)

No, this is not the first time that our player is playing for the national team…

     …Pa, igrali su   juniori <u>ranijih godina</u>. $V_{unerg}S\underline{Adv}$

        well played aux juniors earlier   years

         Scenario 1: felicitous   Scenario 2: felicitous

        "Well, juniors played in the earlier years."

I summarize the possibilities for subject readings in simple transitive sentences and unergative intransitive sentences with initial verbs in Table 2.6, and summarize all observations about V-initial constituent orders in Table 2.7:

Table 2.6   Readings of indefinite subjects

	existential reading	presuppositional reading
VSO	yes	yes
VOS	yes	yes

Table 2.7   Readings of constituents in V-initial orders

Const. order	S readings (indef. NP)		O readings (indef. NP)		vP reading
	Ex	**Ps**	**Ex**	**Ps**	
VSO	yes	yes	yes	yes	domain restriction
VOS	yes	yes	no	yes	domain restriction
V$_{unerg}$S	yes	yes	N /A		domain restriction

2.5.3 Verb-initial constituent orders and the derivations of LF-structures

Based on Table 2.7, it can now be concluded that the LF representations of VOS and V$_{unerg}$S constituent orders are as in (61a) and (62a). The corresponding derivations are provided in (61b) and (62b):

(61) a. *VOS LF*

   VO$_{Ps}$ || [$_{vP}$ S$_{Ex}$]

   b. *VOS order derivation*:

   ||$_{vP}$ SVO   →   O ||$_{vP}$ SV   &→   O ||$_{vP}$ VS_ → [$_{vP}$ V] | O ||$_{vP}$ _S_

(62) a. *V$_{unerg}$S LF*

   [$_{vP}$ V] || [$_{vP}$ S$_{Ex}$]

   b. *V$_{unerg}$S derivation*:

   ||$_{vP}$ SV   →   [$_{vP}$ V] ||$_{vP}$ S_

Note now that my system predicts that the surface VSO order for simple transitive sentences can be derived in the following two ways (63a-b), giving rise to two different LFs:[18]

(63)   *VSO order derivations and LFs*

   a. ||$_{vP}$ SVO   → [$_{vP}$ V] ||$_{vP}$ S_O

---

[18] Recall that the vP-internal argument is unmarked, in that it can have either an existential or a presuppositional interpretation.

b. $\|_{vP}$ SVO $\rightarrow$ S $\|_{vP}$ VO &$\rightarrow$ S $\|_{vP}$ V_O $\rightarrow$ $[_{vP}$ V] | S$\|_{vP}$ _O

At first glance, it seems that the system predicts two derivations of VSO constituent order that do not differ with respect to the readings of their individual elements. However, once we apply the Diesing-style test for the subject readings (64a-b), it becomes clear that there truly are two LFs that correspond to the surface VSO order. As opposed to the subject NP *nekoliko glumaca* "several actors" in (64a), which can have an existential interpretation, in (64b) the same subject NP, being scrambled in a position preceding the vP-external sentential adverb *zapravo* "in fact", has an obligatory presuppositional interpretation:

(64) Until the last moment we hoped that the Oscar ceremony will take place here…

   a. …jer je rezervisalo zapravo nekoliko glumaca sobe   u ovom hotelu. VAdvSO

      since aux booked in-fact several   actors   rooms in this   hotel

   b. …jer je rezervisalo nekoliko glumaca zapravo sobe u ovom hotelu. VSAdvO

      since aux booked several   actors   in-fact rooms in this   hotel

      "…since several actors in fact booked rooms in this hotel."

Note also that the VSO-derivation in (63b) goes through a step $S \|_{vP} V\_O$, which is on its own a valid, and already attested, LF for the SVO surface order. It thus follows that the vP can be moved into the restriction clause at any point, either following scrambling of an argument into the restriction clause, as in $[_{vP}$ V] | S$\|_{vP}$ _O (63b), or before scrambling of arguments into the restriction clause (not excluding their nuclear-scope internal scrambling), as in $[_{vP}$ V] $\|_{vP}$ S_O (63a).

2.6 Grand summary of constituent orders and derivations of their LFs

We can now amend our prior set of constituent order derivations with some new LF-derivation possibilities that are predicted by the system. They are provided in table

2.8. Again, for the sake of simpler representation, V-to-T movement is shown as vP-internal movement at LF, since V-to-T movement does not have any semantic effects.

Table 2.8   Summary of constituent orders and derivations of their LFs

Surface order	Derivations	LFs
SVO	a. $\|_{vP}$ SVO (base-generated) b. $\|_{vP}$ SVO → S $\|_{vP}$ VO &→ S $\|_{vP}$ V_O c. $\|_{vP}$ SVO → [$_{vP}$ SV] $\|_{vP}$ O	a. $\|_{vP}$ SVO b. S $\|_{vP}$ V_O c. [$_{vP}$ SV] $\|_{vP}$ O
SOV	$\|_{vP}$ SVO → O $\|_{vP}$ SV &→ O $\|_{vP}$ VS_ → SO$\|_{vP}$ V_	SO$\|_{vP}$ V_
OSV	$\|_{vP}$ SVO → S $\|_{vP}$ VO &→ S $\|_{vP}$ V_O → OS$\|_{vP}$ V_	OS$\|_{vP}$ V_
OVS	$\|_{vP}$ SVO → O $\|_{vP}$ SV &→ O $\|_{vP}$ VS_	O $\|_{vP}$ VS_
VOS	a. $\|_{vP}$ SVO → [$_{vP}$ VO] $\|_{vP}$ S b. $\|_{vP}$ SVO → O $\|_{vP}$ SV &→ O $\|_{vP}$ VS_ → → [$_{vP}$ V] | O$\|_{vP}$ _S_	a. [$_{vP}$ VO] $\|_{vP}$ S b. [$_{vP}$ V] | O$\|_{vP}$ S_
VSO	a. $\|_{vP}$ SVO → [$_{vP}$ V] $\|_{vP}$ S_O b. $\|_{vP}$ SVO → S $\|_{vP}$ VO &→ S $\|_{vP}$ V_O → → [$_{vP}$ V] | S$\|_{vP}$ _O	a. [$_{vP}$ V] $\|_{vP}$ S_O b. [$_{vP}$ V] | S$\|_{vP}$ _O
SV$_{unerg}$	a. $\|_{vP}$ SV (base-generated) b. $\|_{vP}$ SV → S $\|_{vP}$ V &→ S $\|_{vP}$ V_	a. $\|_{vP}$ SV b. S $\|_{vP}$ V_
V$_{unerg}$S	$\|_{vP}$ SV → [$_{vP}$ V] $\|_{vP}$ S_	[$_{vP}$ V] $\|_{vP}$ S_
V$_{unacc}$O	a. $\|_{vP}$ VO (base-generated) b. $\|_{vP}$ VO → [$_{vP}$ V] $\|_{vP}$ _O	a. $\|_{vP}$ VO b. [$_{vP}$ V] $\|_{vP}$ _O
OV$_{unacc}$	$\|_{vP}$ VO → O $\|_{vP}$ V &→ O $\|_{vP}$ V_	O $\|_{vP}$ V_

It is, of course, important that each predicted derivation in the system proceeds through stages that are attested syntactic structures of Serbian as well. The derivations in Table 2.8 satisfy this condition, as long as one adopts that the semantically vacuous V-to-T movement necessarily accompanies the first scrambling of another element out

of the vP. Note also that some constituent orders are more ambiguous than others. In particular, among transitive sentences, SVO surface constituent order is the most ambiguous, with three distinct LFs in my data, followed by basic constituent orders SV_{unerg} and $V_{unacc}O$, as well as VSO and VOS, which are each associated with two distinct LFs. More importantly, the less marked of these LFs, that is, those LFs with smaller numbers of interpretationally marked, obligatorily presuppositional constituents, also regularly occur as intermediate steps in derivations of other constituent orders. For example, the derivation of SO||V proceeds through an O||VS stage, the derivation of OS||V oproceeds through an S||VO stage, and so on. An important prediction of the system is that constituent orders with higher complexity of derivations also require richer contexts (which must accommodate the greater number of marked interpretations of their constituents). Note that among simple transitive cases, SVO, due to being derivationally simplest constituent order in one of its readings, namely ||$_{vP}$ SVO puts the weakest requirements on the context. At the same time, derivationally more complex SOV, OSV require fairly rich contexts to occur felicitously. For example, we can rank a group of transitive LFs as in (65), and the hierarchy would reflect both the increasing derivational complexity and the increasing richness of required contexts:

(65) ||SVO > O||VS, S||VO > [$_{vP}$ SV] ||O, [$_{vP}$ V] ||SO, [$_{vP}$ VO] ||S > SO||V, OS||V,

[$_{vP}$ V] | S ||O, [$_{vP}$ V] | O || S

Another important observation to be made at the end of this section is that, keeping in mind the arguments presented against covert argument movement in Serbian, my findings reveal that the surface syntactic distribution of arguments in Serbian generally reflects their position in the Quantification Structure at LF.

2.7 Deriving presuppositionality effects from domain restriction

While it is true that material scrambled out of the vP is presuppositional (as originally proposed by Diesing 1992), scrambling is not driven directly by presuppositionality-related rules. Under my view, if an element moves for domain restriction purposes, presuppositionality of the scrambled element is a side effect. Namely, domain restriction as such requires that the material in the restriction clause be presuppositional. Somewhat similar view, under which topical elements necessarily carry presuppositions, is defended in works such as Strawson (1964), Gundel (1977), Reinhart (1981, 1997, 2004).[19] For example, building on ideas of Strawson (1964), Reinhart (2004) shows that topical NPs bring about clear presupposition failure intuitions (the so-called truth-value gaps) and that such elements are thus obligatorily presuppositional. In my approach, the obligatory presuppositionality of scrambled elements is, similarly, a characteristic that is required by domain restriction: domain restrictors necessarily carry presuppositions. However, in contrast with Reinhart, who for example claims that *only* topical indefinite NPs are presuppositional, I do not assume that all presuppositional elements are domain restrictors.[20] In my approach, presuppositional elements are thus not necessarily located in the restriction clause, and can be in the nuclear scope. For example, while NPs that participate in domain restriction are obligatorily presuppositional, presuppositional NPs are neither

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[19] A note about the relationship between topics and overt domain restriction material that occurs in the restriction clause is in order here. In the literature, there is a number of different views on what topics are. The definition of topic in Reinhart (2004), who in this respect builds on Strawson (1964), is closest to what is referred to in the present work as the vP-external domain restriction material. In Reinhart (2004), topic is a discourse notion, and it refers to an element from which the empirical assessment of an utterance begins. However, Reinhart does not subscribe to the view that topics have designated syntactic positions at LF. This is an important difference of Reinhart's topics and the restriction clause material in my approach, since I adopt Diesing's Mapping Hypothesis.

[20] Namely, Reinhart assumes that intuitions about presupposition failure (the truth-value gaps) provide a reliable test for presuppositionality. As von Fintel (1998) notes, Reinhart's assumption is too strong, since presupposition failure intuitions cannot be expected to occur whenever a presupposition that is carried by a presuppositional element is not satisfied by the context.

necessarily domain restrictors, nor are they necessarily scrambled out of the nuclear scope into the restriction clause. In other words, presuppositionality of syntactic elements is not the driving force behind scrambling, but is rather its side-effect.

Note that this approach has an advantage when compared to theories that motivate constituent order variation by relying directly on presuppositionality. While such theories can in principle explain the characteristic distribution of obligatorily presuppositional elements with respect to other elements, they fail to explain the relative distribution of two obligatorily presuppositional elements with respect to one another. For example, these theories are less adequate because they need a completely different set of principles to explain why, say, constituent orders OSV and SOV do not pragmatically behave identically. Namely, as shown in 2.4.2 and 2.4.3, the two arguments (S and O) are obligatorily presuppositional in both the OSV and the SOV order. It, however, remains a mystery why these arguments must be ordered in a particular way with respect to one another in each of the two orders. In contrast to these theories, under my domain-restriction-driven movement, these elements are ordered according to the domain restriction hierarchy, which simply follows from the Quantification Structure whose restriction clause is recursive, as explained in 2.3.4.

Furthermore, among theories that account for constituent reordering directly by presuppositionality considerations, even those that acknowledge the fact that presuppositional elements do not always move out of their base position run into problems if they do not take into account domain restriction as a factor. One recent account of this type is that of Kučerová (2007a, to appear). Kučerová proposes that reordering of the basic SVO order (for Czech, Russian, and Serbian) occurs only when it is needed to prevent a situation where an element that is simultaneously presuppositional and salient (in her terms, "Given") would follow either a non-presuppositional, or a non-salient element (in her terms, "New"). Her theory explains

contrasts such as the one between continuations in (66b) and (66c). Note that the direct object NP *lizalicu* "the lollipop" is simultaneously presuppositional and salient in (66b) and (66c), since it is previously introduced in (66a). According to Kučerová, the relevant object must in such cases precede the newly introduced subject NP *dečak* "a boy", as in (66b). Note that this is not true of (66c), where the subject precedes the object, and the continuation (66c) is thus infelicitous:

(68)   a. There is a lollipop on the street...

     b. Lizalicu   nađe dečak.   OVS

       lollipop.acc finds boy.nom

     c. #Dečak nađe lizalicu.   SVO

        boy   finds lollipop

      "A boy finds the lollipop."

Since presuppositional elements are, according to Kučerová, fronted only if they would otherwise follow a non-presuppositional or a non-salient element, the theory predicts that presuppositional elements stay in situ when they are non-salient or when other salient presuppositional elements follow them. However, it turns out that this prediction is insufficient on its own to explain scrambling. Namely, the theory would need additional mechanisms to explain cases in which reordering occurs for reasons other than Kučerová's reordering principle. As an illustration, consider the case in (67). Note that the presuppositionality status, and also the saliency status, of the arguments *Anđela* and *lizalicu* "lollipop", respectively S and O in continuations (67b) and (67c), is identical in the given scenario and after (67a) is uttered by someone. Yet, the reordering between the two arguments can either occur (67c; OVS), or it may not occur (67b; SVO). That is, a continuation for (67a) can either remain as SVO (67b), or reorder into OVS (67c). This suggests that Kučerová's presuppositionality considerations simply do not matter for reordering in this case:

(67) [Context: There is a large number of people at a birthday party, and Angela is a baby that could put a dirty lollipop in her mouth if she found it on the carpet. Her mother says:]

a. Look how somebody threw a lollipop on the carpet!

b. I šta ako sad <u>Anđela</u>   nađe tu lizalicu?!   SVO
   and what if   now Angela.Nom finds this lollipop.Acc

c. I šta ako sad tu lizalicu   nađe <u>Anđela</u>?!   OV<u>S</u>
   and what if   now this lollipop.Acc finds Angela.Nom

"...And what if now <u>Angela</u> finds this lollipop?!"

On the other hand, once domain restriction is taken into account as a relevant factor, we would simply state that domain restriction of the continuation is in this case not uniquely predetermined by the context, and that the speaker can choose different strategies for his next uterance. Kučerová would thus need to add domain restriction to her set of reordering principles.

However, even if domain restriction is simply added, such a modified theory would need to explain how domain restriction and the original set of reordering principles would operate together. Based on (67), the former would need to have priority over the latter. Now, if domain restriction must have priority, there is no evidence that Kučerová's original set of principles is at all necessary in addition to domain restriction. In particular, contrasts such as (66b) vs. (66c), which form the core empirical basis for Kučerová's theory, do not occur with just any given prosodic pattern. Note first that the felicity of (66b) is straightforwardly accounted for solely by my domain restriction principle, since *lizalicu* "lollipop" is set up by the context of (66) to act in continuations as nothing but a fronted domain restrictor. And, as I argued at the beginning of this section, there is a necessary condition on domain restrictors that they be presuppositional. Now, note that a continuation such as (66c) can be

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felicitous as well, as long as there is no pressure by the context that the phrase *lizalicu* "lollipop" be understood as a domain restrictor. The way that the context in (66) is set, this is not the case. Consider now a somewhat modified scenario in (68), where what really happened is that, say, some irresponsible passenger left a half-empty bottle of a poisonous household cleaning solution on the street near a residential house, and that this turned out to have disastrous consequences because there happened to be a naive little boy who played in front of the house and, unfortunately, found the bottle and played with it. In such a case, an example such as (68c), analogous with (66c), is felicitous as a part of the story that is told among worried residents who report the highlights of the story to each other as they heard it on TV. Note that these speakers do not need to know the participants, nor where exactly in the town the event happened and how it happened. In such a case, the NP *bocu* "the bottle" can be used as domain restrictor, but does not need to, as shown respectively by (68b) and (68c). Therefore, the relevant phrase does not need to be moved into the restriction clause. This is possible since the main point of the story is commenting on the shocking irresponsibility of people who throw such objects on the street, and not commenting on the bottle as such. So, the continuation need not have *bocu* "the bottle" as the domain restrictor:

(68) a. Some citizens are truly irresponsible. Listen to this story. Somebody left a poisonous bottle on the street, and guess what happened then...

    b. Bocu   nađe <u>dečak</u>, i završi u <u>bolnici</u>!   OVS

       bottle.Acc finds boy.Nom and ends-up in hospital

    c. Dečak   <u>nađe</u> bocu,   i završi u <u>bolnici</u>!   SVO

       boy.Nom finds bottle.Acc and ends-up in hospital

      "A boy finds the bottle, and ends up in the hospital."

Note also another related problem with Kučerová's theory. Kučerová (2007a) proposes that reordering is driven by constraints that refer to simulatenous presuppositionality and saliency of elements. However, this means that an additional explanation would be needed to account for why the beginnings of jokes can start in different constituent orders, despite nothing in the relevant sentences being salient. While both *policajca* "a cop" and *kriminalac* "a criminal" in (69) can, arguably, be considered parts of the common ground at the moment when the joke starts (at least under some readings), crucially, however, neither is salient in the context when the speaker begins to tell the joke:

(69) (beginning of a joke; nothing is salient in the context of the jokes)

    a. Policajca sreo   <u>kriminalac</u>…   OV<u>S</u>

        cop.acc   ran-into criminal.nom

    b. Sreo   policajca <u>krininalac</u>…   VO<u>S</u>

        "A cop was ran-into by a criminal."

    c. Kriminalac   sreo   <u>policajca</u>…   SV<u>O</u>

        criminal.nom ran-into cop.acc

    d. Sreo   kriminalac   <u>policajca</u>…   VS<u>O</u>

        ran-into criminal.nom cop.acc

        "A criminal ran into a cop."

Again, as argued in 2.3.3, the domain-restriction-based theory of scrambling already provides a simple explanation for why the constituent orders are different in these beginnings of jokes, and no additional mechanisms are needed.

Based on these arguments, there is sufficient evidence to prefer the domain-restriction-based theory of constituent order variation for a language such as Serbian.

2.8 Domain restriction and GIVENNESS are orthogonal

In section 2.1, I introduced the issue of the relationship between free constituent order, flexible relative prosodic prominence, and information structure by looking at the case of simple transitive sentences, which exhibit 18 logical possibilities for combining constituent order with flexible relative prominence, all of which are attested in Serbian, as shown in Table 2.9, familiar from previous sections:

Table 2.9   Serbian constituent orders and relative prominence patterns (simple transitive sentences) (repeated Table 2.1)

SV<u>O</u>	SO<u>V</u>	VS<u>O</u>	VO<u>S</u>	OS<u>V</u>	OV<u>S</u>
S<u>V</u>O	S<u>O</u>V	V<u>S</u>O	V<u>O</u>S	O<u>S</u>V	O<u>V</u>S
<u>S</u>VO	<u>S</u>OV	<u>V</u>SO	<u>V</u>OS	<u>O</u>SV	<u>O</u>VS

The question I addressed was whether constituent order variation and flexible relative prominence interact in the strict sense, or whether each independently imposes its own set of constraints on the context. I concluded in 2.2 that constituent order variation and flexible relative prosodic prominence act independently from each other. Given my findings so far, I am now in a position to further support this conclusion.

In a nutshell, I showed in 2.4-2.6 that Serbian surface syntactic structure closely reflects LF structure, in that Serbian surface constituent order variation is driven by the Quantification structure. It is now important to show that this is true independently of relative prominence, and that flexible relative prominence simply has an additive effect onto such already formed syntactic trees. The claim is that the F-marking structure, which determines relative prosodic prominence via Schwarzschild's (1999) constraints, is freely mapped onto the syntactic tree. We thus need to show that an F-

mark can occur in either the nuclear scope or in the restriction scope, and that likewise GIVEN, that is, non-F-marked elements, can occur in either of these two partitions of the Quantification structure as well.

Recall that obligatory presuppositionality of scrambled phrases is consistently a side-effect of their participation in domain restriction. Keeping this in mind, we already have some initial empirical evidence for the claim that an F-mark can occur in either the restriction clause, or the nuclear scope. Namely, I showed in 2.4.2 that the object of an unaccusative verb, when scrambled into a preverbal position is obligatorily presuppositional, and that it thus participates in domain restriction, even if it is clearly F-marked as the most prominent element in the sense of Schwarzschild (1999). I repeat the relevant examples here. Recall that the object *profesor Petrović* in (70a-b) allows for the presuppositional reading in its context. On the other hand, the object *sušna godina* "a dry year" in (71b) does not allow for a presuppositional reading in the context of (71a). This explains why the object NP *sušna godina* "a dry year" in (71b) cannot participate in domain restriction, and why (71b) is infelicitus. Examples (70a) and (71a) demonstrate that an F-mark can occur in the nuclear scope. Based on (70b), where the F-marked direct object *profesor Petrović* participates in domain restriction, we can conclude that F-marks are not limited to the nuclear scope of the Quantification Structure, but that they can occur in the restriction clause as well:

(70)   How did the students improve so much this year?

   a. Pa, došao je   [profesor Petrović]$_F$. $V_{unacc}\underline{O}$
      well came aux   professor Petrović

   b. Pa, [profesor Petrović]$_F$ je   došao. $\underline{O}V_{unacc}$
      well professor Petrović   aux came

(71) Why did the animals disappear?

    a. Pa, došla je [sušna godina]_F. $V_{unacc}\underline{O}$

      well came aux dry   year

    b. #Pa, [sušna godina]_F je   došla. $\underline{O}V_{unacc}$

       well dry   year   aux came

      "Well, there was a dry year. (literally: Well, there came a dry year.)"

Another piece of evidence that F-marks occur not only in the nuclear scope, but also in the restriction clause, comes from the well-known fact that the so-called "topical" elements, which I understand as domain restrictors, do not need to be previously GIVEN, as the example in (72), taken from Krifka (2007), shows. Note that there are no GIVEN constituents in (72), and that even the topical NP is thus F-marked:

(72) [A good friend of mine]_{F-Topic} [married Britney Spears last year]_{Comment}.

Next, GIVEN elements (as defined by Schwarzschild 1999) can occur either in the restriction clause or in the nuclear scope. In (73b), I show that a GIVEN element can occur in the restriction clause. The scrambled direct object NP *bocu* "bottle" in the restriction clause of (73b) is GIVEN, having a salient co-referent antecedent in (73a). Note the boundary "||", which separates the restriction clause from the nuclear scope in (73b):

(73) a. Some citizens are truly irresponsible. Listen to this story. Somebody left a poisonous bottle on the street, and guess what happened then...

    b. Bocu || nađe <u>dečak</u>,   i   završi   u <u>bolnici</u>!   OVS

      bottle.Acc   finds boy.Nom and ends-up in hospital

      "A boy finds the bottle, and ends up in the hospital."

In (74), I show that GIVEN elements can occur in the nuclear scope as well. Examples in (74) are repeated from sections 2.1 and 2.2 I focus my attention on the

direct object NP *lisicu* "fox" in these examples. In (74b), which answers the question in (74a), the "deaccented" object NP *lisicu* "fox" has a salient antecedent in (74a), which seems not only to allow for its "deaccenting", but to actually force it, as suggested by the infelicity of (74c). The relevant object NP in (74b), therefore, does not contain an F-mark and is interpreted as GIVEN in Schwarzschild's terms. Note also that the this object is not scrambled out of the vP in (74b), and that the subject NP *neki blesavi klinac* "some foolish kid" is arguably the only element in the restriction clause, as can be supported by (74d), which includes a sentential adverb:

(74) a. Vidim, vuka su upucali... A lisica? (I see that they shot the wolf...But what about the fox?)

    b. Ma, neki blesavi klinac je   <u>pustio</u>   lisicu.   S<u>V</u>O

       well some foolish kid   aux.cl released fox

    c. #Ma, neki   blesavi klinac je   pustio   <u>lisicu</u>.   SV<u>O</u>

        well some foolish kid   aux.cl released fox

      "Well, some foolish kid <u>released</u> the fox."

    d. Ma, neki blesavi klinac je   zapravo <u>pustio</u>   lisicu.   S<u>V</u>O

       well some foolish kid   aux.cl actually released fox

      "Well, some foolish kid actually <u>released</u> the fox."

    Moreover, it is possible to have a situation in which the whole nuclear scope is GIVEN. The popular saying in (75), which is an <u>S</u>OV sentence, can serve as an illustration. Note that, according to the previous discussion, the sentence is distributed across the Quantification Structure as in (75b), and the GIVEN verb *krasi* "decorates" is the sole element in the nuclear scope:

(75) a. <u>Konac</u> delo krasi.   SOV

       end   work decorates

     "The end decorates the work."

b. [S$_{Ps}$]$_F$ O$_{Ps}$||$_{vP}$ V__

Finally, example (76) provides a different type of argument that GIVEN material does not need to leave the nuclear scope. Consider (76b), which is the answer to the question (76a). In (76b), the direct object NP *gitaru* "a guitar", although GIVEN, can have an existential reading. If one accepts the view that obligatory presuppositionality of an element is consistently a side-effect of its participation in domain restriction, it then follows that a GIVEN argument whose interpretation is not obligatorily presuppositional does not participate in domain restriction. Here, I assume that what a GIVEN element stands for does not need to be presupposed to exist in the common ground:[21]

(76) a. Does anyone have a guitar here?

b. <u>Jovan</u>$_F$ ima gitaru.

   Jovan   has guitar

   "<u>Jovan</u> has a guitar."

In (76b), the object NP *gitaru* is non-referential. Its status as GIVEN is evaluated via an existential closure that turns it into a proposition of the form [∃$_x$. guitar(x)]. This existential closure, of course, is not a part of the LF representation. Rather, its purpose is solely evaluation of GIVENNESS an expression of type <e,t>. Once GIVENNESS is evaluated, this existential closure is discarded. In other words, it is not necessarily the case that there is a proposition in the common ground such as "There is a guitar" that needs to be true.

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[21] I am here referring to presuppositionality in the strong sense, as used in the section on constituent order. Note that some authors use the term presuppositional in a weaker sense than I use it here. For example, even Wagner (2009), who argues that "deaccenting" and presuppositionality in this stronger sense are orthogonal to one another, nevertheless assumes that a Given element can carry a weak presupposition that there is a salient expression in the discourse set Δ, which plays the role of its antecedent. The discourse set Δ contains both salient linguistic expressions and entities. What I assume in the present discussion does not apply to this weaker notion of presuppositionality. See the relevant work by Wagner for a recent discussion of the issue, and also a discussion on focus and presuppositionality in Rooth (1999), which is also relevant in such a discussion.

Based on arguments presented in this subsection, I thus conclude that domain restriction, on the one hand, and GIVENNESS and F-marking on the other, are phenomena that are orthogonal to each other. Note that there is no evidence that either GIVEN or F-marked material ever moves syntactically merely because it is GIVEN or F-marked. In fact, positing a movement of this type would only introduce unnecessary complexity into the theory, without providing any benefits. Rather, there is strong evidence that the F-marking structure, which determines relative prosodic prominence via Schwarzschild's (1999) constraints, is freely mapped onto the syntactic tree.[22] This means that constituent order variation and flexible relative prosodic prominence act independently from one another, and that only the former but not the latter drives constituent order variation.

2.9 Conclusion

In this chapter, I argued that free constituent order and flexible relative prominence are each driven by independent principles. First, I showed that constituent order variation in a free word order language such as Serbian is driven by the Quantification structure, in that the elements are overtly scrambled out of the vP when they participate in domain restriction. Second, I showed that domain restriction is, in fact, a sufficient condition for reordering to occur. I argued that the presuppositionality of moved elements, another factor that has been proposed in the literature as relevant for constituent reordering is nothing other than a side effect of domain restriction. Third, based on a systematic examination of the simple transitive and intransitive sentences in all constituent orders, I determined that Serbian surface constituent order to a great extent faithfully reflects the LF structure. Finally, I showed that flexible relative

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[22] Recall also the broad focus data from Section 2.2, which supports the view that constituent order does not directly affect assignment of F-marks.

prosodic prominence, when understood in terms of Schwarzschild's (1999) F-marking and GIVENNESS constraints, does not interact directly with constituent order, and that the immediate effects of F-marking are, in fact, independent from the immediate effects of constituent order variation.

In Chapter 3, I further support these findings with experimental data.

CHAPTER 3

CONSTITUENT ORDER, DOMAIN RESTRICTION, AND GIVENNESS

(EXPERIMENTAL FINDINGS)

3.0 Introduction

In Chapter 2, I argued that constituent order variation in a free constituent order language such as Serbian is driven by the tripartite Quantification structure. The gist of the proposal is that the restriction clause material, consisting of domain restriction elements, narrows down the common ground to the domain that is relevant for the meaning contained in the nuclear scope. I proposed that this relationship accounts for the often noted information-structure effects of constituent order variation. I further argued that flexible relative prominence, understood in terms of Scwarzschild's (1999) F-marking and the related notion of GIVEN, has no effect on domain restriction and, consequently, does not interact directly with constituent order variation. In sum, my proposal is that the effects of domain restriction, such as mandatory presuppositionality of syntactically moved arguments, are preserved independently of F-marking patterns, and that the direct effects of F-marking are orthogonal to the effects of constituent order variation. In this chapter, my goal is to experimentally test the account proposed in Chapter 2.

3.1 Questions addressed in the experiment

The following two questions are addressed in the experiment: (i) Is the linear order among the constituents of a sentence correlated with its Quantification structure?, and (ii) Does GIVENNESS, as an element of the prominence structure, affect the relative

order among constituents in the sentence? As already noted, in Chapter 2, I argued in favor of (i), and against (ii).

Question (i) is addressed by creating stimuli of simple transitive sentences in which S, V and O occur in each of the six possible orders. These stimuli are presented in contexts that favor either S or O as domain restrictors, and where both arguments (S, O) are F-marked, that is, where neither argument is GIVEN. Question (ii) is addressed by presenting these tokens in contexts that would force interpretation of either S or O, whichever is favored as the domain restrictor, as GIVEN. The domain restriction variable is named *DR relative scope*, and has two values: S > O, and O > S. Value S > O stands for the case in which S takes the wide DR relative scope with respect to O, that is, where S is favored by the context as a domain restrictor. Analogously, value O > S stands for the case in which O takes the wide DR relative scope over S, that is, where O is favored by the context as the domain restrictor. Since the variable that encodes GIVENNESS applies only to the argument that is favored as the domain restrictor, that is, the wide-scope argument, this variable is named *GIVENNESS of the wide-scope argument*. Its two values are DNG and DG. Value DNG stands for the case where the wide-scope argument is not GIVEN, and value DG stands for the case where the wide-scope argument is GIVEN. The six constituent orders, with varying values of variables *DR relative scope* and *GIVENNESS of the wide-scope argument*, resulted in 24 experimental cases. The full structure of the stimuli used in the experiment is given in Figure 3.2 below.

The experiment tests for the effects of Serbian word order variation without relying on truth-conditional differences and truth-value judgments. Rather, it relies on felicity judgments for simple transitive target sentences used as continuations, where constituent order of such sentences varies. For example, one group of stimuli included

continuations (1b,c) presented with the context (1a), a case already discussed in Chapter 2 (Section 2.3.4):

(1) a. While in Europe everyone knows several top soccer players, in America…

   b. ...čak i   najveći ljubitelji sporta   znaju | samo Bekama.   SVO

       even part. biggest fans   of-sports know only Beckham

   c. #...samo Bekama znaju | čak i   najveći ljubitelji sporta.   OVS

       only Beckham know even part. biggest fans   of-sports

     intended: "…even the biggest fans of sports know only about Beckham."

While the restriction clause of (1b) is suitable within the context of (1a), the restriction clause of (1c) is not, as reflected in different felicity judgments. The different felicity judgments are due to unequal suitability of elements that participate in domain restriction in the context of (1a). Namely, while the subject NP *čak i najveći ljubitelji sporta* "the biggest fans of sports" is suitable, the direct object NP *samo Bekama* "only Beckham" is not. More explicitly, the relevance of the DR relative scope between the two NPs for the felicity of sentences in a given context can be better understood from the semantic representations of expressions that include the focusing adverbs *even* and *only*, as given in (2a-b):

(2) a. *only* $(C)(P(x)) \leftrightarrow P(x) \wedge \forall y.P(y) \rightarrow y = x$

   b. *even* $(C)(P(x)) \leftrightarrow P(x) \wedge \forall y.P(y)$ is the more likely proposition in C than $P(x)$.

Based on the representations in (2a-b), the example (1b) can be seen as an instance of the representation (2b), where the proposition P is substituted with the complete expression (2a). In this case, the expression *only* $(C)(P(x))$ ends up being embedded under the scope of *even*, as in *even* $(C)($ [*only*(C) $(P(x)$] $(y))$. Sentence (1b) is felicitous, since the context of (1) is structured so as the continuation has to pick the least likely group y of whom *know only Beckham* is true. Similarly, the example (1c) can be seen as an instance of the representation (2a), where the proposition P is

substituted with the complete expression (2b): *only* (C)([*even*(C) (P(x)] (y)). The continuation in (1c) thus picks up Beckham as the only y in C such that the least likely group (that is, *the biggest fans of sports* in America) knows y and nobody else. The continuation (1c) is infelicitous the given context, since it does not provide a valid argument for the point being made.

3.2 Hypothesis

The main hypothesis to be experimentally tested is named *Hypothesis* 1, and it states that the wide DR relative scope of an F-marked argument with respect to another F-marked argument at the level of interpretation requires that the first argument linearly precedes the second argument, as formulated in (3):

(3)   *Hypothesis 1*

$[\text{arg}_i]_F$ takes wide DR scope over $[\text{arg}_j]_F$ → $[\text{arg}_i]_F$ precedes $[\text{arg}_j]_F$

The main goal is thus to answer the question of whether the linear precedence relationships among elements in a sentence are consistently correlated with the pragmatics of Serbian constituent order data as predicted by the Quantification structure, or not. For example, as outlined in Chapter 2, Section 2.3.4, the Quantification Structure predicts that constituent orders logically represented as $[\text{arg}_i$ V || $\text{arg}_j]$ and $[\text{arg}_j$ V || $\text{arg}_i]$ would each be compatible with a distinct type of context, since the distribution of arguments arg_i and arg_j within the restriction clause and the nuclear scope is not identical. Moreover, constituent orders $[\text{arg}_i \mid \text{arg}_j \parallel V]$ and $[\text{arg}_j \mid \text{arg}_i \parallel V]$ are also predicted to be pragmatically distinguishable, since the arguments in the restriction clause are not organized in the same way. In the former case, arg_j further restricts the domain of the common ground already restricted by arg_i; in the latter case, it is the other way around. Next, based on the summary of constituent

orders and their LFs given in Table 2.8 in Chapter 2 (Section 2.6), the mapping of the surface positions of the arguments (S, O) onto the Quantification structure for target sentences is predicted to be as follows. If an argument is sentence initial (e.g. O in OVS and OSV), it is predicted to be in the restriction clause of the Quantification Structure (i.e. OV||S and OS||V). If an argument is post-verbal (e.g. O in SVO and VSO), it is predicted to be in the nuclear scope of the Quantification Structure. If both arguments are preverbal (as in SOV and OSV), the prediction is that they would both be in the restriction clause, but that at the same time, their different relative order in the restriction clause (i.e. S|O||V and O|S||V) would have result in pragmatic differences. In V-initial cases (VSO and VOS), only the final argument is predicted to be in the nuclear scope, while the other argument could be either in the restriction clause or in the nuclear scope.

As already noted, a further question of this experimental study is whether GIVENNESS would affect the relationship between DR relative scope and constituent order, provided this relationship is confirmed, or not. My hypothesis is that it would not. This additional hypothesis is named *Hypothesis 2*, and is tested by comparing the cases in which neither argument is GIVEN with cases in which the wide-scope argument is GIVEN. The hypothesis is stronger than *Hypothesis 1*, and it is thus testable only if *Hypothesis 1* is confirmed, as shown in (4):

(4)   *Hypothesis 2*

$[arg_i]_F$ takes wide DR scope over $[arg_j]_F$ → $[arg_i]_F$ precedes $[arg_j]_F$

AND

$[arg_i]_{GIVEN}$ takes wide DR scope over $[arg_j]_F$ → $[arg_i]_{GIVEN}$ precedes $[arg_j]_F$

Finally, note that neither of the two hypotheses refers to presuppositional or existential readings of arguments in any way. Although the placement of arguments within the Quantification structure determines their possible readings (as argued in

Chapter 2), including these readings as a factor in the experiment is not necessary. The reason for this is that all contexts used in stimuli allowed for the possibility that both arguments in the target sentences (S, O) be used in their presuppositional readings. Recall that NPs with presuppositional readings can occur anywhere in the Quantification structure, and that they are not limited to either the restriction clause or the nuclear scope. Therefore, scrambling of S and O was not constrained by the NP interpretation in any of the target sentences.

3.3 Methodology

3.3.1 Participants

The participants were 240 adult speakers of Standard Serbian, of whom around 220 were randomly selected undergraduate students at two Serbian universities (University of Belgrade and University of Novi Sad), and the rest (around 20) were just randomly selected adult speakers outside of academia.

3.3.2 Materials

The experiment was based on Serbian simple transitive sentences, in which S (=subject), V (=verb) and O (=object) occurred in all six possible orders (i.e. SVO, SOV, VSO, VOS, OVS, OSV). The two arguments of such sentences (S, O) were used with "focusing" adverbs *čak i* and *samo*, which only roughly correspond to English *even* and *only*, respectively.[1] This was done to ensure the F-marking on the relevant NPs in the default case, i.e. the case where neither argument is GIVEN.[2] The verb is always kept GIVEN in the target sentences across all stimuli.

---

[1] Note that Serbian *čak i* is not the exact equivalent of English *even*, since Serbian *čak i* corresponds only to the so-called ordinary *even* of English. Namely, Serbian *čak i* does not have the negative polarity usage that English *even* has (see Rullmann 1997).
[2] As done, for example, in Wagner (2008).

A target sentence always occurred as continuation after a brief context. A combination of a particular context and a particular target sentence represented a single stimulus. The participants were asked to evaluate the acceptability of the target (=underlined) sentence relative to its context on a scale from 1 to 5:

(5) *A sample stimulus*

   Context: "Among land animals, elephants are extraordinary in how much load
            they can carry."

   Target sentence: <u>Samo slonovi   nose   čak   i   velika stabla.</u>

                      only   elephants carry even part. big   logs

                      "Even big logs, elephants can carry; it is only elephants that can
                      do it (among animals)."

There were 1440 stimuli in total. These were created out of 120 randomly selected unrelated scenarios on which contexts were based. First, two minimally different contexts were derived from each scenario in order to vary GIVENNESS of one of the arguments in the target sentence. The total number of contexts was thus 240. Next, each of the 240 contexts (such as the one given in 3) was "run through" all six word-order variants of their corresponding target sentence (i.e. SVO, SOV, VSO, VOS, OVS, OSV).

3.3.3 Experimental design

The experimental design was a repeated-measures ANOVA, done in two separate analyses:

   i.   Analysis by participants
   ii. Analysis by stimuli

The following table provides an overview of the experimental variables:

Table 3.1   Overview of the Experimental Variables

Dependent variable: Acceptability ratings - values: numbers between 1 and 5	Independent variable 2: GIVENNESS of the wide-scope argument - grouping variable across participants, but repeated across stimuli; - values: DG (=GIVEN) and DNG (=not-GIVEN)
Independent variable 1: DR Relative scope - grouping variable in both analyses; - values: S > O and O > S	Independent variable 3: Word order - repeated variable in both analyses; - values: SVO, SOV, VSO, VOS, OVS, OSV
	Random variables: Participants and Stimuli

Dependent variable: Acceptability ratings

The participants' evaluations on the scale from 1 to 5 (more precisely, averages across them) served as the dependent variable.

Independent variable 1: DR Relative scope

Scenarios were set as to force a particular DR relative scope between these arguments: either S > O, or O > S, which were the two levels of the DR relative scope variable. In other words, there was only one pragmatically felicitous way for participants to set the DR relative scope between the two arguments in the target sentence in a given context. For an illustration, for the already seen sample stimulus in (5), there is exactly one felicitous way to set the DR relative scope between "(only) elephants" and "(even) big logs" in the target sentence with respect to the given context, and it is the one where the former takes scope over the latter (S > O), as in (6a). The meaning of the other scope possibility (O > S) for the target sentence is paraphrased in (6b), and this one is incompatible with the given context in (5):

(6)   a. Only for elephants (we can say that), they carry even the big logs.

b. Even for big logs (we can say that), only elephants carry them.

Paraphrases (6a) and (6b) differ with respect to which NP is taken to be the domain restrictor in the restriction clause, and which one is in the nuclear scope. Scenarios were chosen in such a way that only some types of domain restriction patterns were natural for target sentence continuations. The speakers were thus guided toward a particular DR scope relationship between the two arguments in each of the contexts.

As already mentioned, all contexts were based on 120 unrelated scenarios. These scenarios were divided into 4 groups, as shown in Figure 3.1:

$$S > O \qquad\qquad\qquad\qquad O > S \quad \text{(scope)}$$

$$S_{\text{čak-i}}/O_{\text{samo}} \quad S_{\text{samo}}/O_{\text{čak-i}} \qquad\qquad S_{\text{čak-i}}/O_{\text{samo}} \quad S_{\text{samo}}/O_{\text{čak-i}}$$

Group 1	**Group 2**		**Group 3**	**Group 4**
(30)	(30)		(30)	(30)

Figure 3.1 Classification of Scenarios

As can be seen in Figure 3.1, the main division among scenarios was made across two levels of the DR relative scope variable (S > O and O > S). Each group contained 60 scenarios. In order to create scenarios as natural as possible, two distinct focusing adverbs (i.e. *čak i* ≈"even" and *samo* ≈"only") were used. Consequently, it was necessary to control for a potential unwanted effect that the usage of two distinct focusing adverbs could cause. A further division was thus made within each of these two groups, and it was based on which of the two focus operators (i.e. *čak i* ≈"even" or *samo* ≈"only") was used with a particular argument (S or O): $S_{\text{čak-i}}/O_{\text{samo}}$ or $S_{\text{samo}}/O_{\text{čak-i}}$.

Independent variable 2: GIVENNESS of the wide-scope argument

GIVENNESS of the wide DR-scope argument was included in the design as an independent variable. The variable had two levels: wide-scope-argument-GIVEN

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(=DG) and wide-scope-argument-not-GIVEN (=DNG). At the same time, the verb was invariably GIVEN in the previous context, while the narrow-scope argument was kept as non-GIVEN (i.e., it was F-marked).

While GIVENNESS of the wide-scope argument was a repeated variable across stimuli, it was a grouping (=non-repeated) variable across participants.[3] Each participant saw only contexts with a single value of the GIVENNESS of the wide-scope argument variable (either DG or DNG), in addition to only a single value of the scope variable (either $S > O$ or $O > S$).

<u>Independent variable 3: Word order</u>

As already mentioned, the target sentences were simple transitive sentences in each of the six possible word orders: SVO, SOV, VSO, VOS, OVS, OSV. Each of the 240 contexts was "run through" all six word-order variants of its corresponding target sentence. I give the final chart with the distribution of stimuli in Figure 3.2:

```
        S > O                                    O > S          (relative scope)

Sčak-i/Osamo   Ssamo/Očak-i           Sčak-i/Osamo   Ssamo/Očak-i
 Group 1        Group 2                 Group 3        Group 4
   (30)           (30)                    (30)           (30)
                                                                 (GIVENNESS of
                                                                  the wide-sc. arg.)
 DG     DNG    DG      DNG            DG     DNG    DG      DNG
(30)    (30)  (30)     (30)         (30)    (30)  (30)     (30)
  |       |     |        |            |       |     |        |  (word order)
SVO(30) SVO(30)  SVO(30) SVO(30)    SVO(30) SVO(30)  SVO(30) SVO(30)
SOV(30) SOV(30)  SOV(30) SOV(30)    SOV(30) SOV(30)  SOV(30) SOV(30)
VSO(30) VSO(30)  VSO(30) VSO(30)    VSO(30) VSO(30)  VSO(30) VSO(30)
VOS(30) VOS(30)  VOS(30) VOS(30)    VOS(30) VOS(30)  VOS(30) VOS(30)
OVS(30) OVS(30)  OVS(30) OVS(30)    OVS(30) OVS(30)  OVS(30) OVS(30)
OSV(30) OSV(30)  OSV(30) OSV(30)    OSV(30) OSV(30)  OSV(30) OSV(30)
```

Figure 3.2 Distribution of Stimuli

---

[3] Making "GIVENNESS of the wide-scope argument" a repeated variable across participants would require 240 unrelated scenarios (twice as many), which would have made the already challenging task of context creation practically unmanageable for a single researcher.

Word order was a repeated measure both in the analysis across stimuli (i.e. each context appeared with all six possible word orders in the target sentence), as well as in the analysis across participants (since each participant saw all six word orders). Nevertheless, the experiment was designed in such a way that no participant saw the same scenario twice. Moreover, whenever two different participant subgroups saw the same context, they saw it together with target sentences whose word orders were different. In other words, no stimulus was repeated across participant subgroups. This was achieved by the usage of a 6x6 Latin square in the experimental design ([6 word orders] x [6 participant subgroups]). There were 24 participant subgroups (i.e. 1A, 1B,…2A, 2B,…4E, 4F), where each subgroup consisted of 10 participants, as shown in Figure 3.3:

```
        S > O                           O > S              (scope)

                                                      (GIVENNESS of
      DG      DNG                    DG      DNG       the wide-sc. arg.)
   Part.Gr.1 Part.Gr.2            Part.Gr.3 Part.Gr.4
     (60)     (60)                  (60)     (60)
    1A(10)   2A(10)                3A(10)   4A(10)
    1B(10)   2B(10)                3B(10)   4B(10)
    1C(10)   2C(10)                3C(10)   4C(10)
    1D(10)   2D(10)                3D(10)   4D(10)
    1E(10)   2E(10)                3E(10)   4E(10)
    1F(10)   2F(10)                3F(10)   4F(10)
```
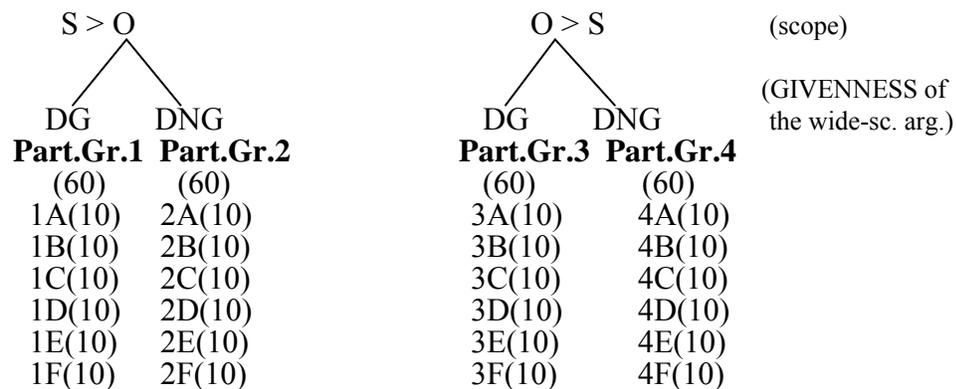
Figure 3.3 Distribution of participants

3.3.4 Procedure

At 10 experimental sessions, which lasted up to 30 minutes, participants were given questionnaires. Each questionnaire consisted of 60 stimuli, i.e. context + target sentence combinations. The questionnaires were made with two different random

orders among contexts for each of the participant subgroups (i.e. 1A.order1, 1A.order2, 1B.order1, 1B.order2,…4F.order1, 4F.order2).

Participants were asked to read each short excerpt of text carefully and evaluate the acceptability of the underlined target sentence that occurred at the end of each excerpt. A scale from 1 to 5 (where "5" = "perfectly natural/acceptable") was used, and the participant was asked to circle a number on it for each stimulus.

3.4 Results

3.4.1 Analysis by participants

i. SO*WO: The two-way interaction between DR relative scope (labeled as SO on the charts below) and word order (labeled as WO on the charts below) was significant: $F(5, 1180) = 88.44$, $p<0.05$.

ii. SO*GivennessD: The two-way interaction between DR relative scope (SO) and GIVENNESS of the wide-scope argument (labeled as Givenness) was not significant: $F(1, 236) = 0.05$, $p>0.05$.

iii. GivennessD*WO: The two-way interaction between GIVENNESS of the wide-scope argument and word order was marginally significant: $F(5, 1180) = 2.23$, $p=0.0496 < 0.05$.

iv. SO*Givenness*WO: The three-way interaction between DR relative scope, GIVENNESS of the wide-scope argument, and word order was significant: $F(5, 1180) = 4.44$, $p < 0.05$. The relevant charts are given in Figure 3.4:

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a.   b.

Figure 3.4   SO*Givenness*WO charts by participants

v. *Tukey post-hoc comparisons by participants (selection):*

For S > O and DNG:

- SVO and SOV not significantly different (p>0.05);

- OVS and OSV not significantly different (p>0.05);

- SVO, SOV each significantly better than OVS, OSV, VSO, VOS (p<0.05).

For O > S and DNG:

- SVO and SOV not significantly different (p>0.05);

- OVS and OSV not significantly different (p>0.05);

- OVS, OSV each significantly better than SVO, SOV, VSO, VOS (p<0.05).

For S > O and DG:

- SVO significantly better than SOV (p<0.05);

- OVS and OSV not significantly different (p>0.05);

- SVO significantly better than both OVS and OSV (p<0.05);;

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For O > S and DG:

- SVO, OVS and OSV not significantly different (p>0.05);

- SVO, OVS and OSV each significantly better than SOV, VSO, VOS (p<0.05).

3.4.2 Analysis by stimuli

i. SO*WO: The two-way interaction between DR relative scope (SO) and word order (WO) was significant: $F(5, 590) = 66.395$, $p<0.05$.

ii. SO*Givenness: The two-way interaction between DR relative scope (SO) and GIVENNESS of the wide-scope argument (Givenness) was not significant: $F(1, 236) = 0.05$, $p>0.05$.

iii. Givenness*WO: The two-way interaction between GIVENNESS of the wide-scope argument and word order was significant: $F(5, 590) = 2.823$, $p=0.0157 < 0.05$.

iv. SO*Givenness*WO: The three-way interaction between DR relative scope, GIVENNESS of the wide-scope argument and word order was significant: $F(5, 590) = 5.871$, $p < 0.05$.

v. *Tukey post-hoc comparisons by stimuli*: identical to (v) in the analysis by participants.

3.5 Discussion

The main experimental result is that there is a significant three-way interaction among DR relative scope, GIVENNESS of the wide-scope argument, and word order (compare the charts for SO*Givenness*WO given in Figure 3.4). This means that the effect of each of these three factors on the acceptability of target sentences is

dependent on the values of the other two factors. The results for the DNG and DG cases are discussed below separately, starting with the DNG case.

3.5.1 Interaction SO*WO, where DNG

Recall from Section 3.2 that the main Hypothesis that the experiment tested was *Hypothesis 1* from (3), repeated here in (7). This hypothesis refers to two F-marked (not GIVEN) arguments, that is, to the experimental cases where the wide-scope argument was not given (=DNG).

(7) $[arg_i]_F$ takes wide DR scope over $[arg_j]_F$ → $[arg_i]_F$ precedes $[arg_j]_F$

Recall the predicted mappings between the linear position of arguments in target sentences and their position in the Quantification structure from Section 3.2. If an argument was sentence initial, I predicted that this argument would be in the restriction clause of the Quantification structure. If an argument was post-verbal in the target sentence, I predicted that it would be in the nuclear scope of the Quantification structure. If both arguments were preverbal, I predicted that they would both be in the restriction clause, but at the same time, that their different relative order in the restriction clause would have different pragmatic effects.

These predictions are borne out by the experimental results, and *Hypothesis 1* is thus confirmed. The main charts from both analyses are provided in Figure 3.5 below:

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a. Analysis by participants   b. Analysis by stimuli

Word Order*Scope (SO)*Givenness; LS Means
Current effect: F(5, 1180)=4.4386, p=.00052
Effective hypothesis decomposition
Vertical bars denote 0.95 confidence intervals

Givenness*Word Order*Scope(SO); LS Means
Current effect: F(5, 590)=5.8708, p=.00003
Effective hypothesis decomposition
Vertical bars denote 0.95 confidence intervals

Wide-scope argument: not GIVEN
Narrow-scope argument: not GIVEN

SO S>O
SO O>S

Figure 3.5   Experimental Results (neither of the two arguments is GIVEN)

As it can be seen in Figure 3.5, the two DR relative scope (SO) lines are mirror images of one another. Crucially, when the DR relative scope value was S > O, the subject-initial constituent orders (SVO, SOV) were rated as significantly more acceptable by participants than non-subject-initial constituent orders (VSO, VOS, OVS, OSV). On the other hand, when the DR relative scope value was O > S, the object-initial constituent orders (OVS, OSV) were rated as significantly more acceptable by participants than non-object-initial constituent orders. Therefore, a sentence with the initial wide-scope argument is significantly more acceptable to speakers of standard Serbian than the corresponding sentence in which the wide-scope argument is not sentence-initial. Such a relationship between the DR relative scope and precedence with arguments is clearly consistent with *Hypothesis* 1, and thus predicted by the Quantification structure. Namely, ignoring V-initial cases for the moment, and given how the constituent orders of Serbian monotransitive sentences are mapped onto the

Quantification Structure, the two arguments were always in two distinct partitions of the Quantification Structure. If arg_i was initial, then arg_i was in the restriction clause, and the argument arg_j was necessarily in a structurally lower partition of the Quantification structure than arg_i. Regardless of whether argument arg_j was in the restriction clause or not, arg_j had a narrow DR relative scope with respect to the arg_i. In sum, *Hypothesis 1* is confirmed, and the Quantification Structure thus correctly captures the relationship between constituent order and pragmatic effects described by the DR relative scope.

Furthermore, the findings also suggest that what matters for felicity of the target sentences is not merely the relative ordering (precedence) between the two arguments, but rather whether the wide-scope argument was sentence-initial or not. Namely, V-initial sentences (whatever the relative ordering between the two arguments in them was) were consistently judged as significantly less acceptable by participants than the sentences in which the wide-scope argument was initial. Moreover, there was no statistically significant difference between the two V-initial orders (VSO and VOS) for either value of the relative scope variable. What such a finding with respect to V-initial word orders suggests is that these orders have a special information structure. This is consistent with my proposal from Chapter 2 (Section 2.5), where I argued that V-initial orders are a result of the vP being fronted into the restriction clause. The fact that V-initial orders require different contexts is then not surprising, since the contexts used in the experiment were tailored as to favor arguments as domain restrictors.[4] Note that the verb was always GIVEN. Yet, its fronting in all contexts that were used in the experiment resulted in infelicity.

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[4] Recall the discussion of the pragmatics of V-initial constituent orders in 2.5.1. Recall that they received the vP-fronting analysis.

3.5.2 Interaction SO*WO, where DG

Since *Hypothesis 1* is confirmed, *Hypothesis 2* becomes testable. This additional hypothesis, given earlier in (4), is repeated in (8) below. The first conjunct corresponds to *Hypothesis 1*, and is thus already confirmed. For the complete *Hypothesis 2* to be confirmed, it is thus crucial to show that the second conjunct is confirmed.

(8)   *Hypothesis 2*

$[arg_i]_F$ takes wide DR scope over $[arg_j]_F$ → $[arg_i]_F$ precedes $[arg_j]_F$

AND

$[arg_i]_{GIVEN}$ takes wide DR scope over $[arg_j]_F$ → $[arg_i]_{GIVEN}$ precedes $[arg_j]_F$

Recall that the question for which I seek an answer by means of testing *Hypothesis 2* is whether making the wide-scope argument GIVEN (DG) would change the established relationship between DR relative scope and constituent order in the case where neither argument is GIVEN?

The answer is not straightforward. Two main differences in the results, compared to the DNG case are summarized in (9a,b), and the relevant diagrams are provided in Figure 3.6:

(9)   a. In O > S case, O-GIVEN, the acceptability of the SVO order is not significantly different from those of O-initial orders, Namely, it seems that suddenly not two, but as many as three orders (OVS, OSV, and crucially, SVO) become more acceptable than the rest (SOV, VSO, VOS).

b. In S > O case, S-GIVEN, OVS and OSV are significantly less acceptable than the S-initial orders.
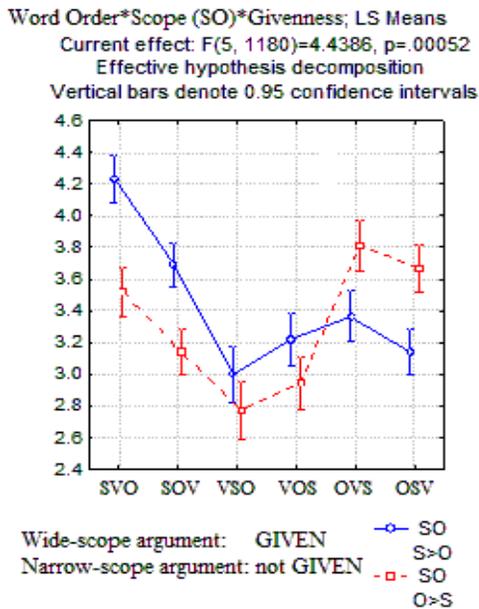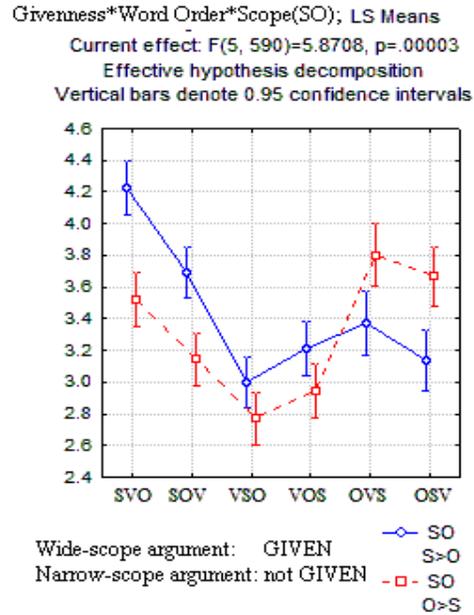
Figure 3.6 Results (the wide-scope argument is GIVEN)

The difference in (9a) is puzzling. It suggests that the GIVEN object (O) can apparently be understood as participating in the domain restriction, taking the wide DR scope from its base position with respect to the non-GIVEN subject (S). However, (9b) suggests that a similar result is not obtained with the GIVEN final subject argument (in OVS) that is GIVEN, in which case the subject does not seem to be able to participate in domain restriction and "outscope" the object. This is a less surprising finding, since the final subject (whether GIVEN or not) is not in the restriction clause of the Quantification Structure, and it thus does not play a role in domain restriction. Due to insufficient data, I stay agnostic with respect to the exact interpretation of the results in (9a,b) at this point.[5]

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[5] Recall that GIVENNESS was of secondary importance in the experiment. The experiment thus did not include the cases where the narrow-scope argument is GIVEN. This is thus left for future investigation.

3.6 Conclusion

The experimental results in the case of F-marked arguments confirm that the pragmatic effects of constituent order variation in Serbian can be explained by the notion of DR relative scope, as defined on the Quantification Structure. DR relative scope can thus be understood as a predictor of constituent order for a given sentence. In particular, the results point to two major conclusions. First, arguments that participate in domain restriction must be scrambled into positions higher than other arguments. Second, the relative structural ordering among multiple arguments that participate in domain restriction corresponds to their relative nesting as domain restrictors at the level of interpretation. The main hypothesis that the domain restriction is the driving force behind Serbian scrambling is thus confirmed.

Furthermore, the experimental results suggest that the verb-initial orders are pragmatically special when compared to non-V-initial orders. This is consistent with the position I took with respect to V-fronted constituent orders earlier, namely, that they involve vP-fronting (Chapter 2, Section 5).

Finally, the effects of GIVENNESS turned out to not be straightforwardly interpretable based on my experimental data. On the one hand, as expected, GIVENNESS of the wide-scope subjects that follow objects, as in OVS, does not affect the felicity of OVS orders. This might suggest that GIVENNESS does not change anything in the established regular all-F-marked DR relative scope patterns. However, the experimental findings are different for SVO cases, in that making the wide-scope object GIVEN can improve felicity judgments for the SVO order from dispreferred (when the object is F-marked) to more acceptable (when the object is GIVEN). Due to the lack of the whole paradigm, in which we would have a possibility

of having the narrow scope arguments as GIVEN tested as well, I leave the experimental testing of this issue for further research.[6]

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[6] In Chapter 6, I explore the possibility that GIVEN elements, wherever they are located in the clausal structure, may in fact act as contextual domain restrictors by virtue of their salient antecedent in the context, and that in this case they may outscope any F-marked elements from the restriction clause.

CHAPTER 4

A CRITIQUE OF GODJEVAC'S (2000/2006) FOCUS-PROJECTION APPROACH
TO SERBIAN

4.0 Introduction

In this chapter, I provide my critique of an alternative approach to Serbian free
constituent order and flexible relative prominence: the focus-projection approach
proposed in Godjevac (2000, 2006). I argue that this approach both undergenerates
and overgenerates, and that this is a consequence of two problematic assumptions that
it relies on: (i) that focus projection is syntactically restricted; and (ii) that the notion
of Givenness is excluded from the main interface module. Moreover, I will show that
there is a methodological problem with data collection in the approach, due to the fact
that Godjevac's method relies exclusively on *wh*-question/answer pairs that are
insufficiently rich to factor Givenness of individual constituents in. In Section 4.1, I
provide an overview of Godjevac's approach. In 4.2 and 4.3, I provide arguments
against this approach. Finally, in 4.4, I show the advantages of my own approach over
Godjevac's approach.

4.1 Overview of Godjevac (2000/2006)

Assuming Selkirk's (1995) theory of focus (FOC) and F-marking, as outlined in
1.2.3, Godjevac argues that the relationship between information structure in Serbian,
on the one hand, and the free constituent order and relative prosodic prominence on
the other is mediated by the notion of focus. Recall from Section 1.2.3 that focus
(FOC), as defined in Selkirk (1995), is an F-marked constituent that is not embedded

within another F-marked constituent. More specifically, Godjevac claims that the ability of focus to project in Serbian depends both on constituent order and on relative prominence (cf. Godjevac 2006: 105). Godjevac's model can be schematically represented as in Figure 4.1:[1]

pragmatics

|

Focus

constituent order variation   flexible relative prominence
                                (Selkirk-style FOC-projection)
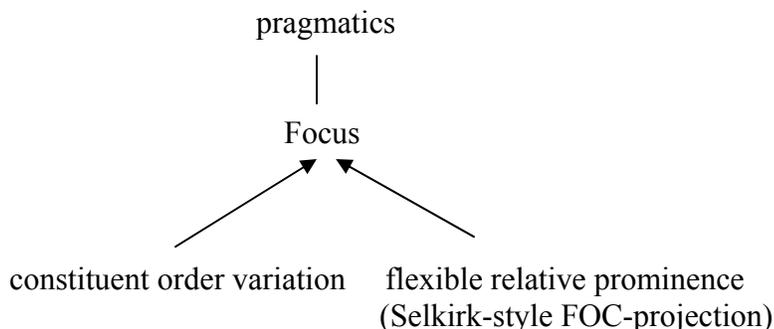
Figure 4.1   Godjevac's model for Serbian

According to Godjevac, one of the effects that Serbian free constituent order variation and flexible relative prominence have on information structure is that their interaction determines the set of possible foci (FOCs). The set of possible FOCs in turn has an effect on the pragmatic potential of the utterance. Building on Selkirk (1995) and Rochemont (1998), Godjevac proposes that the set of possible foci (FOCs) for any given sentence is determined by the version of the Focus Projection Algorithm that she proposes. Relevant aspects of Godjevac's algorithm are given in (1)-(3):[2]

(1)   *Basic Focus Rule* (Selkirk 1995)

       An accented word is F-marked.

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[1] It should be noted that the diagram in Figure 4.1 is not proposed by Godjevac as a complete model for the information structure effects of constituent order variation and flexible relative prominence in Serbian. Rather, Godjevac acknowledges that constituent order variation has effects that pertain to information-structure notions other than Focus as well, for example, topichood. However, she does not discuss these. I will thus limit my discussion in this chapter only to the aspect of constituent order variation that Godjevac addresses in detail, namely Focus Projection.

[2] Other aspects of Godjevac's approach are not relevant for the discussion in this chapter. For the full version of the algorithm, see Godjevac (2006: 165).

(2) *Focus Projection* (Godjevac's 2006 modification of Selkirk's 1995 rules)

    a. Inherited F-marking (F-marking not acquired by the Basic Focus Rule) of the head of a phrase licenses F-marking of the phrase.

    b. Acquired F-marking (F-marking acquired by the Basic Focus Rule) of the head of a phrase licenses F-marking of the phrase iff all internal arguments of the head belong to the class of indefinite quantificational pronouns.

    c. F-marking of an internal argument of a head licenses the F-marking of the head.

(3) *Assumption about the upper limit for focus projection* (Godjevac 2006)

    Focus can project only within vP, and the widest possible Focus for a given structure is thus on the vP node.

    The effect of constituent order on focus projection is, according to Godjevac, the result of the assumption in (3). In canonical constituent orders, which are in Godjevac's approach characterized by the absence of argument scrambling (SVO and VSO for simple transitive sentences), a FOC mark on the vP node means that the whole sentence bears the FOC mark. In the case of non-canonical constituent orders, which are characterized by argument scrambling (SOV, VOS, OSV, OVS for simple transitive sentences), the whole sentence cannot bear a FOC mark, since at least one argument is out of the vP. This, according to Godjevac, accounts for contrasts such as (4a-g). The question (4a), which requires a FOC mark on the whole sentence (so-called "broad focus"), is compatible only with answers (4b) and (4g), since in these two cases neither argument is scrambled out of the vP. On the other hand, all constituent orders in which S and/or O are scrambled out of the vP, namely those in (4c-f), are predicted by Godjevac to be ill-formed:

(4) a. What's new?

b. Jelena   je   kupila kompjuter.   SVO

Jelena.nom aux.cl bought computer.acc

"Jelena bought a computer."

c. #Jelena je kompjuter kupila.   SOV

d. #Kompjuter je kupila Jelena.   OVS

e. #Kompjuter je Jelena kupila.   OSV

f. #Kupila je kompjuter Jelena.   VOS

g. Kupila je Jelena kompjuter.   VSO

The discourse effects of flexible relative prominence are also mediated by the notion of Focus, via the rules (1) and (2a-c). Note that the rules in (2a-c) determine the possible patterns of F-marking, and consequently the set of possible foci (FOCs), on a purely syntactic basis. Godjevac thus treats F-marking as syntactically constrained, adopting the original idea from Selkirk (1995). Using simple transitive sentences as an example, Table 4.1 summarizes Godjevac's generalizations about the discourse effects of free constituent order and flexible relative prominence in Serbian. Possible FOCs for each case are given in bold; the most prominent constituent is underlined:[3]

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[3] Godjevac also states generalizations regarding the availability of multiple foci, but these are not relevant for the present discussion. I thus omit these cases from Table 4.1. In addition to simple monotransitive sentences, Godjevac's addresses ditransitive structures, intransitive structures, structures with adjuncts, different semantic types of objects.

Table 4.1   Godjevac's generalizations for simple monotransitive sentences

Constituent order – Relative Prominence Interaction						
final prominence	SVO **SVO VO O**	SOV **V**	OSV **V**	OVS **S**	VSO **VSO VO O**	VOS **S**
non-final prominence	SVO **V**	SOV **VO O**	OSV **S**	OVS **V**	VSO **S**	VOS **VO O**
non-final prominence	SVO **S**	SOV **S**	OSV **O**	OVS **VO O**	VSO **V**	VOS **V**

In Section 4.2, I show that Godjevac's rules of focus projection make a number of wrong predictions. In Section 4.3, I discuss a methodological problem with Godjevac's data collection. In particular, Godjevac's *wh*-question/answer pairs do not provide a reliable empirical basis for understanding the effects of constituent order variation and flexible relative prominence in Serbian.

4.2 Problems due to Focus Projection Algorithm and the exclusion of GIVENNESS

Godjevac's approach crucially relies on the assumptions in (5a-b), which, as will be argued, are incorrect. Objections to the assumption in (5a), which goes back to Selkirk (1995), have already been put forward in Schwarzschild (1999) and Büring (2006). As far as (5b) is concerned, such an assumption has already been made in Reinhart's (2004) theory of information structure, for example. For some arguments against it, see Wagner (2009).

(5)   a. F-marking is syntactically constrained.

b. GIVEN constituents cannot be embedded within F-marked constituents at the same level of representation.

That (5a) is a problematic assumption was shown by Schwarzschild's (1999), who argues that the example in (6) cannot be accounted for by Selkirk's Focus Projection Algorithm. The same objection applies to Godjevac's version of the Algorithm. Note that (6B) is a felicitous answer to the question in (6A):

(6)   A: John drove Mary's red <u>convertible</u>. What did he drive before that?

       B: He drove her <u>blue</u> convertible.

Let us try to determine the F-marking for the answer in (6B) following Godjevac's Focus Projection Algorithm in (1)-(3). Compare the two candidates in (7a,b):

(7)   a.   He drove her [<u>blue</u>]$_F$ convertible.

         b.   He drove her [[<u>blue</u>]$_F$ convertible]$_F$.

Since the Focus Projection Algorithm does not license vertical projection of F-marking from adjuncts such as *blue* further up in the structure, the Focus Projection Algorithm predicts only the F-marking pattern in (7a), but not the one in (7b). However, the wh-question in (6A) requires the outer F-mark on [*blue convertible*]$_F$ to be present in B's answer, as in the case of (7b). This is necessary for the FOC of the answer in (6B) to be congruent with the question in (6A).[4] Schwarzschild's example in (6) thus poses a problem for Selkirk's, as well as Godjevac's Focus Projection Algorithm.[5]

Godjevac is aware of Schwarzschild's objection and offers a way out of the problem by excluding GIVENNESS as a core notion of the interface. She attempts to justify

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[4] This requirement is a part of Selkirk's original *FOC Interpretation* principle. Godjevac adopts this requirement in her model.

[5] Büring (2006) gives further arguments against the bottom-up focus projection of Selkirk (1995) based on many other cases (i.e. projection from transitive subjects, adverbs, indirect objects, etc.), convincingly showing on English and German data that such a projection would have to be unrestricted if it is to be taken as a part of the theory.

this position by relying on Roberts' (1996) theory of strategies. Godjevac's solution to the problem is summarized in (8):[6]

(8)   The question that B truly answers in (6) is an implicit subquestion of the explicit question asked by A. In other words, the explicit question *What did he drive before that?* is, in fact, replaced with a subquestion such as *Which of Mary's convertibles did he drive before that?* In this manner, the F-marking of (7a) for the answer in (6B) is correct, and predicted by the Focus Projection Algorithm.

In other words, Godjevac's approach does not allow for GIVENNESS to enter the interface at the same level where F-marking does. Due to this, F-marking patterns such as (7b) are not predicted by her theory. I will now show that such a position cannot be maintained.

Note first that, in (8), Godjevac grounds her solution in Roberts' (1996) notion of strategies. In particular, Roberts' theory proposes that an explicit question may often be implicitly replaced with a more specific subquestion if the speaker is willing/able to give only a partial answer to the original question. For example, a question such as *What did you do yesterday?* can be replaced with implicit subquestions such as *What did you do in the morning?*, *What did you do in the afternoon?*, and so on. When the speaker then answers the subquestion, he/she in fact answers it completely. In this way, the perfect question-answer congruence is preserved through the course of the conversation. Importantly, Roberts assumes that there is an entailment relation between the two questions in such cases, in a sense that a complete answer to the explicit superquestion would entail the answer to the subquestion. In other words, one could informally say that the superquestion entails the subquestion. Keeping this in

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[6] See Godjevac (2006: 53-55).

mind, there are several problems with Godjevac's position in (8), which I address one by one.

i.   <u>Overgeneration Problem: Part 1 (the absence of the entailment relation)</u>

If a subquestion is more specific than the superquestion, it does not necessarily follow that it is entailed by it. For example, applying Roberts-style reasoning to the example in (6), where we have an explicit superquestion *What did he drive before that?*, cannot give us the subquestion that Godjevac wants, *Which of Mary's convertibles did he drive before that?*. Namely, there is no true proposition in the common ground that John drove a convertible before. Such a strategy would thus be predicted as inappropriate by Roberts' theory. Suppose now that the strategy proposed by Godjevac is in fact allowed, contrary to Roberts' approach. Nothing in the theory would then prevent the speaker B from answering a potential subquestion such as *Which of Mary's bicycles did he drive before that?* as a substitute for the explicit question. In other words, the infelicitous answer in (9B) would then be incorrectly predicted as felicitous:

(9) A: John drove Mary's red <u>convertible</u>. What did he drive before that?

     B: #He drove her <u>blue</u> bicycle.

Now, what makes the answer in (6B) felicitous and the answer in (9B) infelicitous is exactly the fact that the "convertible" is already GIVEN. It is not at all obvious how Godjevac's solution would capture such an observation, since the connection between the way in which strategies are formed and GIVENNESS are independent, the first being solely dependent on the entailment relation between the two questions. Empowering the speaker with the ability to freely create implicit subquestions from explicit questions in the manner proposed by Godjevac is therefore undesirable.

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ii. Overgeneration Problem: Part 2 (scrambled vs. canonical constituent orders)

Another kind of overgeneration that occurs in Godjevac's approach is due to the incompatibility between *FOC Interpretation* and the way in which Godjevac uses Roberts' notion of strategies. If such an approach is strictly applied, the grammar generates sentences that can never be used. One such case consists of sentences that contain traces of constituents that are moved out of the vP, and where Roberts' strategies get into the way of what the Focus Projection Algorithm would correctly account for. To illustrate this point, I will focus on the difference proposed by Godjevac between the canonical constituent orders (SVO, VSO) and the constituent orders in which objects are scrambled (OVS, OSV, SOV). Due to Godjevac's constraint in (3), F-marking rules project only up to the vP node, and sentences with objects outside of their vP thus cannot have broad focus.

Compare now a canonically ordered monotransitive sentence S$\underline{V}$O (the verb is underlined as the most prominent constituent), and one in which the object is scrambled, e.g. O_iS [$_{vP}$ $\underline{V}$ t_i]. According to Godjevac, both of these sentences (10a and 10b, respectively) can, in principle, have the F-marked vP, and thus be answers to a vP-*wh*-question):

(10)   Somebody was showing Jovan a nice car for a good price at the fair.

        So, what did Jovan do?

        a. Jovan je $\underline{kupio}$ kola. (S$\underline{V}$O; can have VP as F-marked, since V is F-marked)

           J.   aux bought car

          "Jovan bought the car."

        b. Kola$_i$ je Jovan $\underline{kupio}$ t_i. (OS$\underline{V}$; can have VP as F-marked, since V is F-marked)

Note now that the object *kola* "the car" is not F-marked in either (10a) or (10b), and that under Godjevac's assumptions, both (10a) and (10b) *must* actually involve strategies and be answers to a V-focus question such as *What did John do with/about the car?*, and not to the vP-superquestion *So, what did Jovan do?* in (10). This leads into an overgeneration problem for Godjevac, because a sentence with an appropriately F-marked constituent (according to the Focus Projection Algorithm) can never be employed to respond to its corresponding congruent *wh*-question, such as the vP-*wh*-question in (10). Consequently, any constituent that contains a trace of a subconstituent that moved out of the vP and is F-marked is not predicted to be attested in the language, yet Godjevac's grammar produces such patterns.

iii. An undergeneration problem (unlikely strategies)

Furthermore, there are cases where a subquestion is impossible to form in the way Godjevac's position in (8) would predict. Consider the following example, which is analogous to Schwarzschild's example in (6), but poses a somewhat different problem for the Focus Projection Algorithm:

(11)   A: So, they didn't allow you to talk to the president at the White House reception. Did you manage to talk to anyone else who could help you?

B: Well, we talked to a former$_F$ president / (#former president).

Again, it follows from Godjevac's argumentation that the focus projection rules are correctly predicting the single F-mark on *former* in (11B), and the prosodic pattern of the answer in (11B), but that speaker B employs a Roberts-type strategy by reformulating speaker A's explicit question. However, the problem occurs due to the fact that the adjective being used is the non-subsective adjective *former*. Since Roberts' strategies are applied to semantic content, the needed subquestion is expected to be of the form such as *What/which/what kind of president did you talk to?* However,

the phrase *former president* cannot normally be used to answer such a question. This is supported by the fact that speakers find the conversation in (11) perfectly natural. However, once a subquestion such as *What/which/what kind of president did you talk to?* is added explicitly to the conversation, speakers find the conversation pragmatically odd. This is an indication that (11) does not involve an implicit strategy.

A similar problem is illustrated by the example (12):

(12)   A: So, John is selling all his shares in small companies. What is he buying with that money then?

B: Well, he is buying <u>gold</u> and shares in <u>big</u> companies/ #<u>companies</u>.

There are at least two syntactic analyses of coordinate structure in the object position. One analyisis is that there are two separate object NPs that are coordinated, and the other that the object consists of a single coordinated NP.

With the first syntactic analysis, Godjevac would have to assume that speaker B answers to A's explicit question with one of the objects (i.e. <u>gold</u>), and that B at the same time formulates a subquestion such as *In what kind of companies is John buying shares now?* for the object NP *shares in <u>big</u> companies*. Although this is not theoretically impossible, it is hard to see what would necessitate such a choice. For example, it remains unclear why B wouldn't be able to answer A's explicit question with both objects equally, i.e. without using a strategy in the case of the second object. Why is a particular strategy enforced in this case? Godjevac does not offer an explanation.

Assume now the second syntactic analysis, which says that there is a single coordinate-NP object in (12B). Similarly, in that case, it follows from Godjevac's position that B is for some reason forced to reformulate A's explicit question as a subquestion such as: *What is John buying now and what kind of companies is he buying shares in now?* While this is not theoretically impossible, it again remains

unexplained why this particular strategy would be the only plausible way to answer A's explicit question.

Given all these objections, Godjevac's response to Schwarzschild's (1999) challenge to the constrained focus projection is not valid. It is thus necessary to allow for GIVENNESS to interact with the focus at the main level of the information structure analysis.

4.3 Inaccuracy of Wh-question/answer pairs as a testing device

In this section, I address a methodological problem in Godjevac's approach. The problem arises due to the fact that, in her data collection, Godjevac relies almost exclusively on simple *wh*-question/answer pairs.[7] I now show that contrasts such as the ones in (4), Section 4.1, repeated here in (13), are not due to the Focus Projection Algorithm, as Godjevac argues, but rather to insufficiently rich contexts.

(13) a. What's new?

     b. Jelena   je   kupila kompjuter.   SVO

        Jelena.nom aux.cl bought computer.acc

      "Jelena bought a computer."

     c. #Jelena je kompjuter kupila.   SOV

     d. #Kompjuter je kupila Jelena.   OVS

     e. #Kompjuter je Jelena kupila.   OSV

     f. #Kupila je kompjuter Jelena.   VOS

     g. Kupila je Jelena kompjuter.   VSO

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[7] This problem can be seen as another negative consequence of the exclusion of the notion of Given from the main interface module in Godjevac's theory. Namely, due to the exclusion of this notion, the contexts are not tailored to factor it in, and are typically insufficiently rich to correctly test for the size of foci.

Recall that Godjevac claims that a sentence cannot bear a broad FOC if at least one argument is scrambled out of the vP. According to Godjevac, the infelicity of answers with constituent orders that involve argument movement out of the vP, namely SOV (13c), OVS (13d), OSV (13e), and VOS (13f), is thus due to the constraint that the widest possible Focus for a given structure is on the vP node, as in (3). Below, I show that Godjevac's empirical generalization is incorrect, and that the constraint in (3) leads to incorrect predictions.

Crucially, when contexts are suitably construed, any order of the subject, verb and object can have a sentence-wide focus in Serbian monotransitive sentences. This is shown by the answers to sentential-focus wh-questions in (14)-(19), which have been already used in Chapter 2, Section 2.2 as an argument that F-marking is unconstrained by the constituent order in Serbian. The final constituent is invariably the most prominent (underlined). Note that the *wh*-contexts in all examples are constructed so that they require foci that are broad enough to contain all three relevant constituents in the answer, i.e. the target sentence. For each case, the F-marking in the English translations stands for the F-marking that the Question-Answer congruence requires. The Question-Answer congruence figures as an assumption in Godjevac's account:

(14) (two people chatting about a boxing match)

"I heard that there was an incident during yesterday's title fight you attended. I saw only the beginning. What happened?"

[Izazivač (je)   pljunuo <u>sudiju</u>]_F.   SV<u>O</u>

challenger aux   spat   referee

"[The challenger spat on the referee]_F."

(15) (two people chatting about a boxing match)

"I heard that there was an incident during yesterday's title fight you attended. What happened?"

[Pljunuo (je)   izazivač   sudiju]F.   VSO

spat   aux.cl challenger referee

"[The challenger spat on the referee]F."

Note that examples (14) and (15) exhibit constituent orders whose ability to bear broad focus was already noted by Godjevac, namely SVO and VSO.

However, in addition to O-final sentences, Serbian S-final sentences can clearly bear broad foci. For example, Serbian has a verb form with special properties, the so-called "truncated perfect", whose name refers to the perfect verb form without the auxiliary. Importantly, this verb form is commonly used to start narrative discourse such as stories or jokes with broad-focus sentences, where the standard "full" perfect cannot always be used interchangeably with it, as shown by (16) and (17):

(16) (beginning of a story; implicit question "What happened?")

[Ujela   (#je)   nekog čoveka buba]F.   VOS

bit.active aux.cl some man   bug

"[A bug bit some man]F."

(17) (beginning of a joke; implicit question "What happened?")

[Policajca   (#je)   udario auto]F.   OVS

policeman   aux.cl hit   car

"[A car hit a policeman]F."

Note that the sentences in (16) and (17) are all-new sentences that begin a story. In other words, there is no independent evidence suggesting that anything in these sentences is previously GIVEN in the context. Yet, such sentences can clearly be used as answers to a *wh*-question such as *What happened?* As such, there is nothing to

prevent us from assuming that not only Serbian monotransitive sentences with O-final constituent orders, but also those with S-final orders, namely OV<u>S</u> and VO<u>S</u> can bear a broad focus in Serbian.

Finally, a similar point can be made with respect to the V-final constituent orders (SO<u>V</u> and OS<u>V</u>). Once the contexts are enriched so that some of the expressions in target sentences end up as GIVEN, these two constituent orders are able to bear broad focus as well. This is illustrated by the two verb-final sentences in (18) and (19):

(18) (two people chatting about a boxing match)

"The incident started when one of the coaches got into an argument with the referee…"

"I see. And what happened next?"

Onda je   [izazivač   sudiju <u>pljunuo</u>]_F.   SO<u>V</u>

then   aux.cl challenger referee spat

"Then [the challenger spat on the referee]_F."

(19) (two people chatting about a boxing match)

"The incident started when the referee took a point off from the challenger because of an illegal hold…"

"I see. And what happened next?"

 Onda je   [sudiju izazivač   <u>pljunuo</u>]_F.   OS<u>V</u>

 then   aux.cl referee challenger   spat

"Then [the challenger spat on the referee]_F."

Examples (14)-(19) are summarized in the following table. All six constituent orders in simple transitive sentences can can have a focused constituent that is wide enough to contain S, V, and O together at the same time:

Table 4.2   Availability of broad focus

	broad focus
SVO	yes
VSO	yes
SOV	yes
OSV	yes
VOS	yes
OVS	yes

When *wh*-question/answer pairs are used within richer contexts that factor GIVEN denotations of individual constituents in, but without the relations among these constituents as GIVEN, it turns out then that monotransitive sentences in all six constituent orders are able to bear broad focus in Serbian. Crucially, insisting on the idea that implicit "strategies" in all these cases might change the explicit question into a more specific question would only additionally expose the *wh-question/answer* method as methodologically insufficient for the purpose of assessing the size of FOCs. If, on the other hand, the question-answer congruence is taken as the correct principle that determines the FOC-marking in the answer (target) sentences, and if one assumes a Selkirk-style theory of focus projection to determine possible F-marks and FOCs, both of which Godjevac does, then the examples above strongly suggest that argument scrambling does not directly constrain focus projection. Godjevac's theory thus makes incorrect predictions. The summary in Table 4.2 thus provides direct evidence that Godjevac's assumption that the widest possible Focus for a given structure is on the vP node cannot be maintained.

4.4 Comparison with my approach

There are three important conclusions that can be made based on the discussion of Godjevac's approach in the previous sections of this chapter, which reiterate the

advantages of the approach to Serbian free constituent order and flexible relative prominence proposed in this dissertation.

First, there is strong evidence that the syntactic-based rules that determine possible F-marking patterns via the Focus Projection Algorithm, as in (2a-c), make wrong predictions, due to the fact that they are overly restrictive. This applies both to Selkirk's (1995) original account, as shown by Schwarzschild (1999) and Büring (2006), and to Godjevac's (2000, 2006) account of Serbian, as I showed in Section 4.2. The most important conclusion of this chapter is thus that it provides additional support for the view according to which F-marking is syntactically unconstrained, as proposed originally by Schwarzschild (1999), and further supported by Serbian data in Chapter 2 of this dissertation. In contrast with Godjevac's approach, in my approach, syntactic structure is a factor in F-marking only with respect to the fact that it provides a matrix, that is, constituent nodes in the tree that are potential bearers of F-marks. However, F-marking is otherwise unconstrained by syntactic structure, in that any syntactic node can be a bearer of an F-mark.

Second, although constituent order variation has pragmatic effects in Serbian, these effects cannot explained by Godjevac's (2000, 2006) Focus-Projection approach. In fact, the only way in which F-marking and constituent order variation (scrambling) interact in Serbian syntax is very indirect, namely a consequence of the fact that scrambling adds more nodes to the syntactic tree, and reduces the phonologically overt content of the vP. However, F-marking patterns are freely mapped on the syntactic tree, and the immediate pragmatic effects of F-marking are additive to the pragmatic effects of constituent order variation, as claimed in Chapter 2, Section 2.8. In my approach, the major direct pragmatic effects that constituent order variation has in Serbian are, however, accounted for by the Quantification structure.

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Third, the problems that Godjevac's theory runs into due to the exclusion of Givenness reiterate the validity of the view that GIVENNESS must figure as an important interface notion in accounting for flexible relative prominence. Importantly, one of the welcome results of Schwarzschild's (1999) theory of F-marking and Givenness is that it does not need to assume that discourse is represented as consisting of explicit or implicit questions that are followed by answers, as it is done in Roberts' (1996) theory, for example. Despite their initial appeal and elegance, theories such as the one by Roberts are nevertheless overly restrictive in representing discourse (see discussion in Kadmon 2001, for example). Since in my approach I adopt Schwarzschild's (1999) idea that GIVENNESS figures as an important interface notion, on par with that of F-marking, the problems that Godjevac's theory runs into simply do not occur.

CHAPTER 5

JOINT PHONOLOGICAL EFFECTS OF THE QUANTIFICATION STRUCTURE

AND GIVENNESS

(AN ACCOUNT OF THE A-ACCENT VS. B-ACCENT DISTINCTION)

5.0 Introduction

The account of free constituent order and relative prominence proposed in Chapter 2 can be naturally extended to some other information-structure phenomena, which have not been mentioned so far, but which are known to correlate with both constituent order and prosody. In this chapter, I show how the proposed combination of the Quantification structure and the GIVENNESS-based approach to relative prominence enables us to formulate a simple account of the characteristic prosodic patterns that define a family of descriptive information-structure categories, including those contrastive topics and frame setters.

5.1 The problem

I propose a new account for predicting two types of pitch contours that serve as realizations of prosodically prominent constituents, referred to as "A-accents" and "B-accents" (Bolinger 1965, Jackendoff 1972). The distribution of these distinct prosodic realizations in English and other languages has been a matter of much debate. I argue that their distribution can be accounted for solely in terms of F-marking and the Quantification structure, both elaborated in Chapter 2.

As I argued in Section 2.3, constituent order variation in Serbian is driven by the Quantification structure. Recall from Section 2.8 that the effects of the flexible relative

prosodic prominence are additive to the effects of constituent order, in that the relative prominence patterns created by F-marking are freely mapped onto the Quantification structure. I provided support for this claim by showing how F-marked elements, such as the F-marked NP *profesor Petrović* "Professor Petrović" in (1), can occur either in the nuclear scope of the Quantification structure, as in (1a), or in the restriction clause, as in (1b); the examples are repeated from Section 2.8 (70a-b):

(1) How come the students improved so much this year?

    a. Pa, || došao je   profesor Petrović$_F$.   V$_{unacc}$S

       well came aux professor Petrović

    b. Pa, profesor Petrović$_F$ || je   došao.   SV$_{unacc}$

       well professor Petrović   aux came

       "Well, Professor Petrović came (to the department, and he is good)."

I further showed that GIVEN elements can also occur in both partitions of the Quantification structure, as in the case of the NP *delo* "work" in (2) and the NP *lisicu* "fox" in (3b), also repeated here from Section 2.8:

(2) Konac$_F$ delo || krasi.   SOV

    end   work decorates

   "The end decorates the work."

(3) a. Vidim, vuka su upucali... A lisica? (I see that they shot the wolf...But what

      about the fox?)

    b. Ma, neki blesavi klinac$_F$ je || pustio$_F$ lisicu.   SVO

       well some foolish kid   aux.cl   released fox

     "Well, some foolish kid released the fox."

    Building on these findings, in this chapter I develop a proposal for predicting the distribution of the so-called "A-accents" and "B-accents". I propose that both accent

types are simply F-mark realizations within foci, and that their distinct pitch contours can be predicted based on their relative positions in the Quantification structure.

5.2 Basic facts about A- and B-accents and previous accounts

The terms "A-accent" and "B-accent" (Jackendoff 1972) are to be understood as descriptive terms. The former refers to prominent pitch accents with a falling contour, which I label as "\". The latter refers to prominent pitch accents with a rising contour, which I label as "/". We can observe both types of accents in the classic examples from Jackendoff (1972) in (4S2) and (5S2):

(4) S1: Well, what about <u>FRED</u>? What did <u>HE</u> eat?

    S2: FRED (/) ate the <u>BEANS</u> (\).

(5) S1: Well, what about the <u>BEANS</u>? Who ate <u>THEM</u>?

    S2: FRED (\) ate the <u>BEANS</u> (/).

The scenario contains various people who ate various things. S1 is asking questions of the form *Who ate what?,* and S2 is answering. If S1 is asking by person, S2 answers as in (4); if S1 is asking by foods, S2 answers as in (5). Importantly, the choice between the two accents is pragmatically determined (see also Büring 1997, 1999, 2003 for a thorough discussion).

There are two major types of approaches to the distribution of A and B-accents. According to the first type of approach, the two accent types are simply realizations of two distinct types of constituents. This approach is argued for in Büring (1997, 2003). According to Büring, A-accents and B-accents are phonological realizations of distinct types of constituents, in that the B-accents occur on the so-called contrastive topics, while the A-accents occur on foci. Büring (2003) proposes that contrastive topics, and consequently B-accents, indicate usage of a "strategy" in the sense of Roberts (1996).

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Examples (4) and (5) involve different strategies, in that the couplings of S1's subquestion and S2's corresponding answer are different in (4) and (5). In (4), the coupling of S1's subquestion *What did HE eat?* and S2's answer with a congruent B-accent on *FRED* indicates a strategy of addressing the main question *Who ate what?* by person. In (5), the coupling of S1's subquestion *Who ate THEM?* and S2's answer with a congruent B-accent on *BEANS* indicates a strategy of addressing the main question *Who ate what?* by foods. In contrast with B-accents, Büring (2003) proposes that A-accents stand for foci and that they do not indicate strategies.

Büring's approach relies on the distinction between the notions of "contrastive topic" and "focus", where each of the two notions is given the status of a primitive. However, it is not clear that both notions are necessary. If an equally adequate theory can be constructed with a smaller set of primitives, it is to be preferred. Moreover, as noted by Wagner (2008), Büring's approach does not offer an account of different distribution patterns of A- and B-accents cross-linguistically. Namely, the approach remains mute with respect to the fact that the linear order between A- and B-accents may be free in one language, as it is in English, but fixed in another, as in German. I discuss this problem in detail in 5.3 below.

The second type of approach to the A-accent/B-accent distinction treats both A-accents and B-accents as realizations of the same constituent type, but claims that the two different characteristic pitch contours result from different structural relationships among such constituents (Williams 1997, Sauerland 2005, Wagner 2008). For example, Williams (1997) and Wagner (2008) argue that constituents realized by A- and B-accents are all foci, and that it is the relative scope relationships among such foci, in other words the relative nesting among them, that determines the pitch accent realizations. All else being equal, this type of approach is simpler, since it employs a fewer number primitives. While Büring's approach employs both the notion of

"contrastive topic" and the notion of "focus" as primitives, the accounts of Williams and Wagner employ only one primitive, the notion of "focus". Moreover, this type of approach can be naturally extended to account for the mentioned cross-linguistic differences in the ordering among A- and B-accents (see Wagner's account). Namely, if this type of approach is on the right track, such differences can and should follow from the well-established and independently motivated relationships between the syntactic structure and linear order. In the case of Büring's approach, it is not obvious why such differences would exist in the first place.

In the following sections, I argue that the distribution of the two accent types can be thoroughly captured in terms of F-marking and Quantification structure, without any additional assumptions. While I adopt the view of Williams (1997) and Wagner (2008) that A-accents and B-accents both occur within foci, my approach differs from theirs in the following way. Unlike Williams and Wagner, I derive the difference between the A- and B-accent pitch contours, not from the scopal relationships among foci, but from the relationships between the partitions in the Quantification structure. I argue that these two characteristics allow for a simple account with straightforward predictions. While my main focus is on Serbian, I provide a broader account of this phenomenon, which also addresses English.

5.3 Different distribution of A-accents and B-accents in English and Serbian

Note that in English the A-accent and the B-accent can occur in either order. In (4S2) the B-accent precedes the A-accent; in (5S2) the A-accent precedes the B-accent. However, in Serbian, the A- and B-accents have a more restricted distribution than they do in English. Namely, in Serbian a B-accent can precede an A-accent, as in (6S2), but it cannot follow it, as shown by the ill-formed (7S2). Note that Serbian in

this respect patterns with German, a language that has been well investigated in this respect (see Büring 1997 and Wagner 2008, among others).

(6)   *Serbian: the B-accent can precede the A-accent*

    S1: Well, what about <u>JELENA</u>? What did <u>SHE</u> eat?

    S2: JELENA (/) je   jela <u>MALINE</u> (\).

       Jelena   aux ate raspberries

       "Jelena ate raspberries."
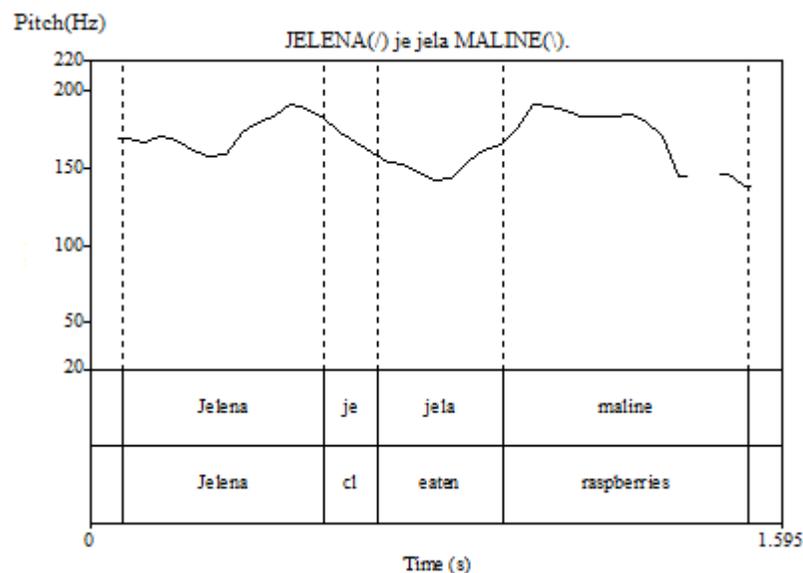
Figure 5.1   Pitch track of S2's sentence

(7)   *Serbian: the A-accent cannot precede the B-accent*

    S1: Well, what about the <u>RASPBERRIES</u>? Who ate <u>THEM</u>?

    S2: *JELENA(\) je   jela <u>MALINE</u> (/).

       Jelena   aux ate raspberries

So, how does Serbian form a sentence analogous to the English example (5S2), if (7S2) is not a possibility?

To accomplish this, Serbian must change the underlying order between the subject and the object, so that the object precedes the subject. However, the order between the A- and B-accent remains the same. This is shown in (8S2), which contains the scrambled F-marked (and focused) object *maline* "raspberries" that carries a B-accent:

(8)   S1: Well, what about the RASPBERRIES? Who ate THEM?

       S2: MALINE (/) je   jela   JELENA (\).
           raspberries   aux eaten Jelena
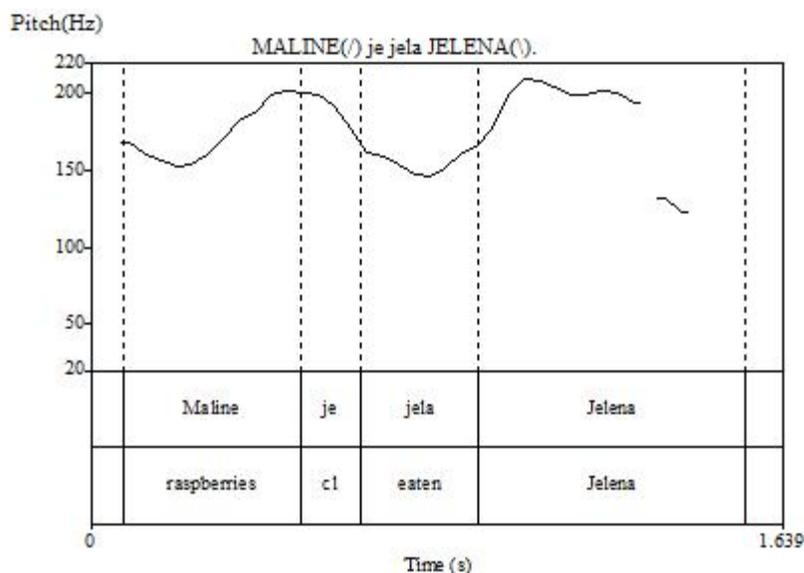
Figure 5.2   Pitch track of S2's sentence

Generally, in Serbian there is a division of labor between constituent order variation and accent distribution. The difference between English and Serbian is in the following. On the one hand, while in English the order between an A-accent and a B-accent is free (compare 4S2 and 5S2), in Serbian this order is fixed, as B-accents always precede A-accents. This is jointly shown by the examples (6S2), (7S2), and

(8S2). However, Serbian is not in any way less pragmatically refined than English in this respect. Namely, both languages can express the same set of semantic/pragmatic possibilities. What English accomplishes with free ordering between the two accent types, Serbian accomplishes through constituent order alternation (scrambling). I summarize the descriptive data for English and Serbian in the following table:

Table 5.1   Distribution of A- and B-accents in English and Serbian

English	Serbian
• free order among A- and B-accents	• fixed order among A- and B-accents
• fixed constituent order	• free constituent order

If the generalizations in Table 5.1 were given a theoretical status, we would need two separate sets of rules that govern A- and B-accent distribution: one for Serbian, and one for English. However, I do not take this approach. I show that the generalization in Table 5.1 can be derived from a single set of rules that govern A- and B-accent distribution in the two languages.

The crucial missing piece that will allow us to provide a unified account for the relevant distribution is the Quantification structure. In 5.3, I propose that, in both Serbian and English, the distribution of A- and B-accents is mediated by the Quantification structure. I show that B-accents can occur only on domain restrictors, and only alongside A-accents. On the other hand, A-accents are not limited in either way. That is, unlike B-accents, A-accents can occur in any partition of the Quantification structure, and can occur independently of whether there are other accents that occur alongside with them or not. Serbian offers strong evidence for this account due to the transparency of its surface constituent order with respect to the Quantification structure. Importantly, the simple rules that account for accent

realizations provided below are incompatible with the standard models of syntax stemming from Chomsky (1999, 2000), in which all correlations between PF and LF are encoded within syntax before the point of Spell-Out. It is suggested that an interface model in which semantics and phonology communicate directly with each other is more adequate for capturing the distribution of accent types.

5.4 The Quantification structure and the distribution of the A- and B-accents

Keeping in mind the descriptive generalizations from Table 5.1, I now provide an account for accent-type distribution in terms of the Quantification structure. Again, note that all the proposed generalizations that refer to the placement of the two accent-types rely on a non-standard assumption that the relationship between the Quantification structure, as an LF category, and accent realizations, as a PF category, is not mediated by the part of syntax prior to Spell-Out, but that this relationship is direct. In other words, accents occur at PF as realizations of F-marks, but their exact contours are determined on the basis of the relationships among accent-bearing elements established across the Quantification structure, an LF category.

5.4.1 The case of Serbian

I start with the distribution of A-accents in Serbian, and then turn to B-accents. In Serbian, A-accents can occur either in the nuclear scope, or in the restriction clause of the Quantification structure. Both cases can be observed, for example, with the object of an unaccusative verb. I showed in 2.4.2 that fronted subjects (that is, underlying objects) of unaccusative verbs must be presuppositional independently of whether they are prominent prosodically or not, as shown by examples (9b) and (10b), repeated from 2.4.2. If the object bears the main prominence of such simple sentences, as in

(9a-b) and (10a), it also bears the A-accent. The infelicity of (10b) shows that the fronted object of an unaccusative verb must be presuppositional, since the NP *sušna godina* "dry year" cannot get a presuppositional reading:

(9)   How come the students improved so much this year?

    a. Pa, došao je   <u>profesor Petrović</u>(\)(*/).   V_{unacc}<u>O</u>

        well came aux professor Petrović

    b. Pa, <u>profesor Petrović</u>(\)(*/) je došao.   <u>O</u>V_{unacc}

        well professor Petrović   aux came

(10)   Why did the animals leave the savannah?

    a. Pa, došla je   <u>sušna godina</u>(\)(*/).   V_{unacc}<u>O</u>

        well came aux dry   year

    b. #Pa, <u>sušna godina</u>(\)(*/) je došla.   <u>O</u>V_{unacc}

        well dry   year   aux came

        "Well, there was a dry year. (literally: Well, there came a dry year.)"

Examples (9-10) also show that whenever there is only one prominent accent in an utterance in Serbian (due to a single focus), this must be an A-accent, and it cannot be a B-accent. The A-accent is thus the unmarked F-mark realization, as opposed to the B-accent, which is marked.

The A-accent in the restriction clause is not limited to the cases of scrambled objects. For example, in SOV order, the subject is obligatorily in the restriction clause, and must have an A-accent when it is the most prominent subpart of the sentence:

(11)   <u>Konac</u>(\)(*/) delo krasi.

    end   work decorates

    "The end decorates the work."

The distribution of A-accents in Serbian is summarized in the following generalization:

(12) *The A-accent Generalization*

An A-accent is the unmarked F-mark realization; it can occur either in the nuclear scope, or in the restriction clause of the Quantification structure.

Let us now turn to the distribution of B-accents in Serbian. The crucial generalization is that B-accents are limited to the elements in the restriction clause. The evidence for this comes from the fact that the NPs that carry B-accents are obligatorily presuppositional. I will first show that this is true of direct objects, and then that it is also true of subjects.

I start by providing evidence for the claim that a B-accented object is obligatorily presuppositional. As shown in 2.4, obligatorily presuppositional elements occur in the restriction clause. I thus want to show that a B-accented object has to occur in the restriction clause, and that it cannot occur elsewhere. For this purpose, in (13), I modify one of the examples from 2.4.2, which I earlier used to test whether scrambled objects are obligatorily presuppositional. Ignoring prosody for a moment, the direct object *nekoliko restorana* "several restaurants" in (13a) and (13b) can either be in the restriction clause (as in SVO‖Adv), or in the nuclear scope (as in, say, S‖VOAdv). However, and crucially, once prosody is taken into account, the location of the object within the Quantification structure is no longer ambiguous. First, when *nekoliko restorana* "several restaurants" carries an A-accent, as in (13a), the object is in the nuclear scope. Namely, Scenario 1 requires the existential reading on the object, and the continuation, which contains an A-accent on the direct object, is felicitous. Since existential readings of NPs are possible only in the nuclear scope, it follows that the relevant object in (13a) is in the nuclear scope. Second, when this object carries a B-

accent, as in (13b), the object can only have a presuppositional interpretation, from which it follows that it must be in the restriction clause. The evidence for this comes from the fact that Scenario 1, which does not allow for the presuppositional reading of the object, is incompatible with the continuation (13b), where the direct object carries a B-accent. At the same time, in Scenario 2, which allows for (but does not require) the presuppositional reading of the direct object, the continuation (13b) is felicitous: [1]

(13)   (Scenario 1: Jovan currently owns factories, but not restaurants.)

(Scenario 2: Jovan currently owns factories and some restaurants as well.)

No, Jovan did not become a businessman LAST YEAR…

   a.   …Pa, on je   imao nekoliko restorana(\) još sedamdesetih (\). SVOAdv

        well he aux owned several restaurants already seventies

        Scenario 1: felicitous   Scenario 2: felicitous

     "…Look, he owned several restaurants as early as in the seventies."

   b.   …Pa, on je   imao nekoliko restorana(/) još sedamdesetih (\). SVOAdv

        well he aux owned several   restaurants already seventies

        Scenario 1: #NOT felicitous   Scenario 2: felicitous

     "…Look, he owned several restaurants as early as in the seventies."

This then strongly suggests that Serbian direct objects can receive B-accents only when they are in the restriction clause and participate in domain restriction.[2]

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[1] The example just further supports our thesis from 2.8. that presuppositionality of scrambled (i.e. vP-external) elements, as a consistent reflex of the domain restriction in the Quantification Structure, is not affected by the prosodic prominence variation, B-accents included.

[2] Molly Diesing (p.c.) points out to me that potential evidence against the claim that B-accents occur only on obligatorily presuppositional elements comes from the B-accented objects of the so-called verbs of creation, such as *make, write, bake* [as in *bake cookies*]. Namely, objects of such verbs can receive B-accents, although what they denote apparently does not exist in the common ground. An English example is given in (i):

   (i)   *What about pies? Who will make THEM?*
         FRED(\) will make pies(/).

This objection, in fact, is not limited to the problem of distribution of B-accents, but rather touches upon a more general problem with the exact nature of presuppositionality of objects of verbs of creation. Objects of such verbs can be scrambled in Serbian, but even then they do not necessarily bring about truth-value gaps that would be expected based on their "topicality" (recall the discussion of

I now address the case of subjects with B-accents in Serbian. I focus on subjects in the SVO order, and show that B-accented subjects are obligatorily presuppositional, and that they consequently can occur only in the restriction clause, as is the case with objects. In (14), I repeat an example that I used in 2.4.3 to test for subject readings in various constituent orders. While Scenario 1 is compatible only with existential readings of the subject *juniori* "juniors", Scenario 2 is compatible with both the existential and the presuppositional readings. Since the continuation in (14a) is compatible with both scenarios, we can conclude that the relevant A-accented subject *juniori* "juniors" can have an existential reading, and that it is therefore vP-internal. On the other hand, since the continuation in (14b) is compatible with Scenario 2, and not with Scenario 1, it follows that the B-accented subject *juniori* "juniors" of (14b), is obligatorily presuppositional:

(14)   (Scenario 1: The club currently has a senior team, but no junior categories. Some players did not behave well during the training camp.)

         (Scenario 2: The club currently has a senior team and junior categories. Some senior team players did not behave well during the training camp.)

Reinhart 2004 from Chapter 2, Section 2.7). This is shown by the Serbian example (ii), which is the Serbian equivalent of English (i):

(ii) *What about pies? Who will make THEM?*
      PITE(/) će   napraviti FRED(\).
      pies.acc will make   Fred.nom

The problem thus boils down to what the exact nature of the presuppositionality that is associated with objects of verbs of creation is. Examples (i) and (ii) with verbs of creation suggest that the denotation of the NP *pies* is in the common ground in some form (as "pies that are meant to be made for the party", or "pies as an item from the planned party menu"). Now, whether the actual pies have already been made or not may have no bearing on the existence of "pies" as an item on the party menu. Otherwise, one would expect presupposition failure intuitions in these cases. A more thorough examination of such cases is certainly needed.

No, this is not the first time that we are having problems with discipline…

a. …Pa,   juniori(\) su   pravili probleme <u>ranijih godina</u> (\). SVO<u>Adv</u>

   well juniors   aux caused problems earlier years

   Scenario 1: felicitous   Scenario 2: felicitous

b. …Pa,   juniori(/) su   pravili probleme <u>ranijih godina</u>.(\) SVO<u>Adv</u>

   well juniors   aux caused problems earlier years

   Scenario 1: #NOT felicitous   Scenario 2: felicitous

In other words, the B-accent can attach only to the subject NP *juniori* "juniors" that has an obligatory presuppositional reading.

What these cases of B-accented direct objects and subjects tell us is that the B-accent, in fact, has no option of occurring inside the nuclear scope and that it can only occur in the restriction clause of the Quantification structure, on a domain restrictor. This is summarized in the following generalization:

(15)   *The B-accent Generalization*

A B-accent can occur only outside of the nuclear scope of the Quantification structure, that is, on a domain restrictor in the restriction clause.

The B-accent Generalization states a necessary condition on the distribution of B-accents. This condition can be further supported with cases of sentences with the so-called "multiple foci", which include two or more foci but no contrastive topic, as in (18S2). This example shows that a B-accent cannot be realized on an F-mark unless the condition in (15) is respected, even if all other previously noted descriptive conditions on the number of F-marks and the order between accent types are satisfied. Example (16) below is based on an example by Jacobs (1997), also cited in Büring (2003). Note that S2's answer must have an A-accent on *KARL*, and that it cannot have a B-accent instead. Although possible in another context, a B-accent on *KARL* is infelicitous in the given context, since the context in (16) does not allow for *KARL* to

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occur in the restriction clause. That is, *KARL* must occur in the nuclear scope. The sentence thus contains two A-accents:[3]

(16)   S1: I don't get it. Did Carl sue the company, or did the company sue Carl?

        S2: Pa, rekao sam ti: tužio je KARL(\)(#/) <u>KOMPANIJU</u>(\).

            well told aux you sued aux Carl   company

            "Well, I told you: Carl sued <u>the company</u>."

Note that S2's answer in (16) consists of two matrix clauses. The one after the colon is crucial. The verb *tužio* "sued" paricipates in domain restriction, and it is moved into the restriction clause. The two arguments are in the nuclear scope. Based on the discussion from Chapter 2, Section 2.5, the second matrix clause of S2's answer in (16) is arguably logically represented as in (17):

(17) Op_{xy} [$_{vP}$ x sued y]   ‖ Carl(x) & company(y)

Due to the fact that both the subject and the object are *in the nuclear scope*, a B-accent is not possible on either of them in the given context.

5.4.2 The case of English

    As stated in the descriptive generalizations in Table 5.1, repeated in Table 5.2, while English constituent order can be considered fixed for our purposes, in English the order between an A-accent and a B-accent is free. English thus exhibits a situation that is completely opposite to the one found in Serbian, where the constituent order is free, but the order between the two accent types is fixed. Yet, English achieves the same pragmatic goals:

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[3] Note that the example suggests that the hypothesis that the B-accent is any prominent accent that precedes another prominent accent is not correct, a point already made in Büring (1997).

Table 5.2   Distribution of A- and B-accents in English and Serbian

English	Serbian
• free order among A- and B-accents	• fixed order among A- and B-accents
• fixed constituent order	• free constituent order

In the English example (5S2), repeated here as (18S2), the direct object receives a B-accent in SVO, but this is not possible in Serbian:

(18) [Scenario: *Who ate what?*]

S1: Well, what about the <u>BEANS</u>? Who ate <u>THEM</u>?

S2: FRED (\) ate the <u>BEANS</u> (/).

Now, note that these puzzling differences between English and Serbian are stated in terms of the surface structure. However, the only relevant level for the distribution of A- and B-accents is LF. Once the Quantification structure is taken into account, it turns out that these differences between Serbian and English are only apparent. In other words, once LF is introduced, the puzzle disappears. Namely, B-accents show the same limited distribution in English as they do in Serbian. They can occur only in the restriction clause of the Quantification structure.

While in English the evidence for this claim cannot come from the constituent order data, it can still be shown that the interpretation of English B-accented direct objects and subjects is obligatorily presuppositional, and that they thus must be in the restriction clause at LF. In other words, the argument that comes from the NP interpretation is relevant for English as much as it is for Serbian.

The English data are completely analogous to Serbian data. In example (19), continuation (19a) shows that the English direct object *several restaurants* can have an existential reading when it carries an A-accent. Recall that Scenario 1 requires an existential reading of the direct object, and observe that the continuation in (19a) is

felicitous in this scenario. Continuation (19b) shows that a B-accented direct object is, however, obligatorily presuppositional. Namely, the relevant continuation is not felicitous in Scenario 1 (where the existential reading is required), but is, however, felicitous in Scenario 2, which allows for a presuppositional reading:[4]

(19)   (Scenario 1: John currently owns factories, but not restaurants.)

        (Scenario 2: John currently owns factories and some restaurants as well.)

        No, John did not become a businessman LAST YEAR…

        a.   …Look, he owned several restaurants(\) <u>in the seventies</u>(\).   SVO<u>Adv</u>

             Scenario 1: felicitous   Scenario 2: felicitous

        b.   …Look, he owned several restaurants(/) <u>in the seventies</u>(\).   SVO<u>Adv</u>.

             Scenario 1: #NOT felicitous   Scenario 2: felicitous

Likewise, English subjects are obligatorily presuppositional when they carry the B-accent. In (20), continuation (20a) shows that the English subject *juniors* can have an existential reading when it carries an A-accent. Recall that Scenario 1 requires an existential reading of the subject, and observe that the continuation in (20a) is felicitous in this scenario. Continuation (20b) shows that a B-accented subject is, however, obligatorily presuppositional. Namely, the relevant continuation is not felicitous in Scenario 1 (where the existential reading is required), but is, however, felicitous in Scenario 2, which allows for a presuppositional reading:[5]

(20)   (Scenario 1: The club currently has a senior team, but no junior categories.

                     Some players did not behave well during the training camp.)

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[4] These judgments should be taken with some caution. The judgments provided do not seem to hold consistently for all English speakers. While my English speaker reported the judgments presented here, another English speaker familiar with the examples considers the sentence (19b) felicitous not only in Scenario 2, but also in Scenario 1, namely for a situation where John had started out as a restauranteur, and later switched to factories.

[5] The same kind of disagreement among English speakers discussed in the case of (20) occurred for (20) as well, with one speaker reporting the judgments presented here, and another allowing for (20b) to be felicitous in both scenarios. Each speaker showed the same pattern for both examples. The observed variation across English speakers suggests that a more thorough examination might be needed for firmer conclusions about English judgments.

(Scenario 2: The club currently has a senior team and junior categories. Some senior team players did not behave well during the training camp.)

No, this is not the first time that we are having problems with discipline in our club…

a. …Look, juniors(\) caused problems <u>in the earlier years</u>(\).   SVO<u>Adv</u>

   Scenario 1: felicitous   Scenario 2: felicitous

b. … Look, juniors(/) caused problems <u>in the earlier years</u>(\)   SVO<u>Adv</u>

   Scenario 1: #NOT felicitous   Scenario 2: felicitous

I thus conclude that different distributions of A- and B-accents in Serbian and English, stated in Table 5.1/ Table 5.2 , can be explained with a single set of conditions, once these conditions are stated in terms of the Quantification structure. Note that the difference between Serbian and English is reduced to the already well-established differences that the two languages exhibit with respect to the relationship between the surface syntactic structure and LF. While English surface syntactic structure is opaque with respect to the LF structure, Serbian surface syntactic structure is transparent with respect to LF.[6]

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[6] Note also that the account of the A- and B-accent distinction proposed in this chapter accounts for the pragmatic effects that Büring (1997) attributes to contrastive topics. Namely, in my account, B-accented foci in the restriction clause of the Quantification structure correspond to contrastive topics in Büring's theory. Since these constituents semantically correspond to alternatives that define domains for the embedded focus alternatives in both theories, the two theories equally well capture the pragmatic effects that are attributed to B-accents as realizations of pitch accents on contrastive topics. One example is the relative scope disambiguation phenomenon, illustrated in (i) below:

(i)   a. ALL(/) politicians are NOT(\) corrupt.   (relative scope: not > all)
         b. ALL(\) politicians are not corrupt.   (relative scope: all > not)

Büring accounts for this phenomenon by using a pragmatic filter on LF representations that removes unreasonable implicatures induced by the contrastive topic alternatives, and thus removes one of the scope readings, resolving the ambiguity. Büring's idea can thus be easily be implemented in my account.

5.4.3 Summary for Serbian and English

The observed correspondences between Serbian and English constituent order and accent type distribution is given in Table 5.3. Serbian examples include the quantification structure boundaries as well:

Table 5.3   Distribution of A- and B-accents in English SVO vs. Serbian SVO/OVS

	English	**Serbian**
SVO	S(/)VO(\)	S(/)‖VO(\)
	S(\)VO(/)	*S(\)VO(/)
	S(\)VO(\)	S(\)VO(\)
	*?S(/)VO(/)	*S(/)VO(/)
OVS	*OVS	O(/)‖VS(\)
	(regardless of accents)	*O(\)VS(\)
		*O(\)VS(/)
		*O(/)VS(/)

5.5 Algorithm that derives the distribution of A-accents and B-accents

Given what has been said regarding the distribution of the two accent types so far, we can conclude the following. While for the occurrence of a B-accent there must be at least one more prominent accent following it, it is crucial that the B-accent also be in the restriction clause of the Quantification structure, as well as in a higher partition of the Quantification structure than this other accent. I thus propose that the sufficient condition for the occurrence of the B-accent in Serbian is the following:

(21)   *Sufficient Condition for the B-accent occurrence*

Within a focused constituent (FOC), a B-accent occurs on an F-marked element if this element is in the restriction clause, and if there is one or more A-accents in a structurally lower partition of the Quantification structure.

Finally, in (22), I provide a simple informal algorithm that derives the distribution of B-accents and A-accents from the LF-structure cross-linguistically:[7]

(22)   *The Informal Algorithm for the Assignment of Prominent Accents*

i. Start from the lowest partition in the Quantification structure (i.e. the nuclear scope);

ii. Assign an A-accent to all prosodically prominent elements (F-marks) in the current partition of the Quantification structure;

iii. IF there are no F-marks in the current partition (that is, everything is GIVEN and no A-accents were assigned), go to the next structurally higher partition and apply step (ii);

ELSE proceed to step (iv);

iv. Assign a B-accent to all prosodically prominent elements (F-marks) in the current partition of the Quantification structure;

v. IF there is a structurally higher partition, go there and apply (iv) again;

ELSE finish.

Let us illustrate how (22) works in Serbian, whose surface syntactic structure is relatively transparent with respect to the Quantification structure aspect of LF. For example, if a sentence consists only of the nuclear scope (for example, it occurs as ||SVO), then all prominent accents are A-accents. If we assume that nothing is GIVEN, and that each of the three constituents (S,V, O) gets an accent, then the pattern is as in (23).

(23) || [$_{vP}$ S(\)(*/) V(\)(*/) O(\)(*/)]

---

[7] Recall from 5.4. that my generalizations concerning accent realizations provided below are incompatible with the standard "T-model" of syntax, in which all correlations between PF and LF are encoded within syntax before the point of Spell-Out. The generalizations point toward the need for an interface model in which semantics (LF) can also provide direct inputs to phonology, that is, inputs not necessarily mediated by the syntax prior to Spell-Out.

If a sentence has one partition in the restriction clause (e.g. O‖VS), then there is two major cases to consider. First, if there is only one prominent accent in the sentence, and it happens to be located in the restriction clause (i.e. when the whole nuclear scope consists of GIVEN material, that is bare variables), then this single prominent accent is an A-accent, as shown in (24a). The second case is when the prominent accents are distributed according to a pattern such as the one in (24b), assuming that not more than one of the elements in the nuclear scope (V, S) is GIVEN (G):[8]

(24) a. O(\) ‖ $_{vP}$ V(G)S(G)

b. O(*\)(/)(G) ‖ $_{vP}$ V(\)(*/)(G) S(\)(*/)(G)

If a sentence has three partitions, which happens when the restriction clause has two partitions (e.g. in SO‖V), then we have even more possibilities. Some of these are given in (25a-d):

(25) a. S(G) | O(\)(*/)   ‖$_{vP}$ V(G)

b. S(\)(*/) | O(G)   ‖$_{vP}$ V(G)

c. S(*\)(/) | O(\)(*/)   ‖$_{vP}$ V(G)

d. S(*\)(/)(G) | O(*\)(/)(G)   ‖$_{vP}$ V(\)(*/)

Using such patterns as predicted cases, one can easily test the informal algorithm from (22) empirically in Serbian. It is important to note that the two accents (A- and B-) are more distinguishable if there are GIVEN elements adjacent to them. If there are no GIVEN elements that are adjacent, the accents are less distinguishable from one another.

---

[8] When an element is GIVEN (G), then there is neither A- nor B-accent on it.

5.6 Topics, Contrastive Topics, Foci, Delimitators

That the proposed account is a fruitful way of approaching the A-accent vs. B-acccent distinction is supported by a number of descriptive phenomena that involve B-accents. These phenomena are much broader in range than it is usually assumed. For example, B-accents are applied to many types of fronted constituents in Serbian, and not only to standard cases of (contrastive) topics. In particular, the class that is covered by our account corresponds to the class of *delimitators*, as defined in Krifka (2007). In Krifka's terminology, the class of delimitators includes frame setters and topics that have embedded foci (and are therefore contrastive).[9] Below, I give an overview of Krifka's classification of the relevant phenomena. Under my approach, each of these phenomena is treated as a combination of a partition in the restriction clause of the Quantification structure and a focus inside it. The restriction clause elements narrow down the common ground to the part that is relevant for the utterance, that is, they participate in domain restriction, and foci correspond to alternatives (Rooth 1992, 1995, Schwarzschild 1999). While this treatment is intuitively in accordance with the role that the restriction clause has under my view, there is a number of open issues that remain. For example, from the semantic point of view, one open issue is concerned with how, for example, frame setters would be incorporated in the Quantification structure.[10]

---

[9] In my view, contrastiveness is just another intuition that may or may not occur with focus, that is, with an F-marked constituent that is not embedded within another F-marked constituet. Focus corresponds to alternatives. When contrastiveness occurs with focus, it usually goes hand in hand with surrounding elements being GIVEN. Whether GIVENNESS and contrastivenness going together is more than just an accident and how consistent the correlation is a matter of debate. See, for example, Wagner (2005, 2009) for arguments that the two are connected in a principled way.

[10] For example, do we need an event argument to bind the nuclear scope elements, or not? This and other similar questions are beyond scope of this work, and I leave them for future research.

According to Krifka (2007), *contrastive topic* corresponds to a combination of an (aboutness) topic and a nested focus, as in (26a-b). The relevant elements are given in bold. The most prominent syllables in Krifka's examples are given in capital letters:

(26) a. A: What do your siblings do?

   B: **[My [SIster]F]Topic** [[studies MEdicine]F]Comment,

   and **[my [BROther]F]Topic** [is [working on a FREIGHT ship]F]Comment.

   b. A: Where were you (at the time of the murder)?

   B: **[[I]F]Topic** [was [at HOME]F]Comment.

As already noted, for Krifka, contrastive topics are a special case of his broader notion of *delimitation*, which unifies notions *contrastive topic* and *frame setter*. Before looking at the arguments for such unification, let us look at Krifka's examples frame setters:

(27) a. A: How is business going for Daimler-Chrysler?

   B: **[In [GERmany]F]Frame** the prospects are [GOOD]F,

   but **[in [AMErica]F]Frame** they are [losing MOney]F.

   b. A: How is John?

   B: **[[HEALTHwise]F]Frame** he is [FINE]F.

Frame setters (as in 27a-b) set a domain (that is, a "frame") in which the following expression should be interpreted. As Krifka suggests, notions such as *he won a lot of money* cannot be interpreted in the scope of *healthwise*, and frame setters in such a way "systematically restrict the language (the notions that can be expressed)". They are different from contrastive topics in that the information that follows them is not stored in anything like a file-card labeled according to them. Note that in (27a,b) such file-cards (that is, "aboutness topics") are *Daimler-Chrysler* (not "health situation") and *John* (not "Germany/America"), respectively.

Importantly, Krifka claims that explicit frame setters are always focused (i.e. have a nested focus inside), since they are chosen from a set of alternative frames.[11] Otherwise, they would not be used. This makes them strikingly similar to contrastive topics. Another similarity between the two lies in the fact that both the sentences with contrastive topics and the ones with frame setters have another focused constituent outside (as in all examples in 26 and 27).[12] Krifka thus proposes the unification of the two notions under a single notion of *delimitation*, whose definition is given in (28):

(28)   A *Delimitator* α in an expression $[\ldots\alpha\ldots\beta_{Focus}\ldots]$ always comes with a focus *within* α that generates alternatives α'. It indicates that the current informational needs of the CG are not wholly satisfied by $[\ldots\alpha\ldots\beta_{Focus}\ldots]$, but would satisfy it by additional expressions of the form $[\ldots\alpha'\ldots\beta'_{Focus}\ldots]$.

The major gain that results from such unification is not merely the justifiable generalization over the two familiar notions, but actually the fact that the notion of *delimitator* can include some nested-focus cases that are neither contrastive topics nor frame setters, which Krifka illustrates with the example given in (29):

(29)   **[An [inGEnious]$_F$ mathematician]$_{Delim}$ he is [NOT]$_F$.**

To summarize, it thus seems reasonable to treat all these examples, including those such as (29), as just another instantiation of the Quantification structure, where it does not matter whether the elements in the restriction clause are NPs, verbs, or any other types of formulas. From our point of view, all such elements are equally natural as domain restrictors, and when they are F-marked, they can receive a B-accent through the implementation of the algorithm in (22).

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[11] Note that Krifka (2007) assumes alternative semantics of focus.
[12] See Büring (2003) for some potential exceptions in the case of contrastive topics. As mentioned earlier, it is a matter of debate whether sole contrastive topics (and B-accents) can occur in English sentences without accompanying foci (and A-accents) or not.

5.7 Conclusion

My interface model explains the distribution of A- and B-accents in a simple way. Both accents are realizations of foci (non-embedded F-marks). B-accents are marked with respect to their distribution, since they occur only on domain restrictors, and only alongside one or more A-accents that are in a structurally lower partition of the Quantification structure. On the other hand, A-accents are unmarked, in that they are the elsewhere case. Next, I argued that explaining the distribution of the A-accents and B-accents requires a model of grammar in which the phonological component can receive direct input from the semantics component, more precisely, the LF-interface, at which the Quantification structure applies. Finally, I suggested that the account can be naturally extended to a number of phenomena that are covered by Krifka's (2007) notion of delimitator. These include, but are not limited to, sentences with contrastive topics and frame setters.

CHAPTER 6

BIPARTITE NPs: ANOTHER EFFECT OF THE QUANTIFICATION STRUCTURE

6.0 Introduction

In this chapter, I show how the approach to constituent order variation in terms of the Quantification structure, as elaborated in Chapter 2, accounts for another phenomenon that is closely linked to information structure, namely bipartite NPs.

The term *bipartite NP* is a descriptive label that refers to a discontinuous string which looks like a canonical Serbian NP interrupted by some other material. In other words, in a string of the form *A...B*, A and B form a *bipartite NP* if [NP *AB*] is also possible.[1] I will refer to *A* and *B* as the *members* of the *bipartite NP* in *A...B*. The phenomenon is illustrated in (1a), where, as opposed to the canonical case (1b), the verb apparently separates the two parts of the NP *srebrne minđuše* "silver earrings":

(1) - Do you ever wear silver jewelry?

    a. - Da. *Srebrne* nosim *minđuše*.   (*bipartite NP*)

       yes silver   wear-I earrings

     "Yes. I wear silver earrings."

---

[1] Bipartite NPs are also referred to in the literature as *discontinuous* or *split NPs* (see e.g. Fanselow 1988, Corver 1992, Sekerina 1997, Fanselow and Ćavar 2002, Bošković 2005a, 2005b, Bašić 2004, Pereltsvaig 2008, among others). Cross-linguistically, we find them in several other Slavic languages such as Russian, Czech, Polish (see e.g. Sekerina 1997, Pereltsvaig 2008, Corver 1992, Kučerová 2007b, etc.). A number of languages outside of the Slavic group show similar phenomena, e.g. German, where the phenomenon is more limited (see e.g. Fanselow 1988, Bader & Frazier 2005), or Latin (Uriagereka 1988). Non-configurational languages such as Warlpiri are also known to exhibit discontinuous constituents (see Hale 1983, Jelinek 1984, Speas 1990, Baker 2001, among others), although it is not clear how and to what extent the phenomenon of discontinuous constituents in such languages can be related to bipartite NPs in, say, Slavic languages.

b. - Da. nosim *srebrne minđuše*.   (*non-bipartite NP*)

    yes wear-I   silver   earrings

    "Yes. I wear silver earrings."

6.1 The problem

The main question that I address is whether bipartite NPs are derived from their non-bipartite NP counterparts, or are they instead two independent phrases that only happen to look like a discontinuous constituent. While both possibilities are perfectly valid hypotheses, in numerous works on the phenomenon, bipartite NPs are assumed to be derived from their non-bipartite counterparts (see Corver 1992, Sekerina 1997, Bašić 2004, Bošković 2005a, 2005b, Fanselow and Ćavar 2002, among others). Consequently, the other possibility has not been sufficiently discussed in the literature.[2]

Before going into a detailed discussion of bipartite NPs, I list some important properties of non-bipartite NPs in Serbian.

Serbian NPs lack articles. For example, Serbian equivalents of English NPs *the sun* and *a letter*, used respectively in (2a) and (2b), consist of bare nouns:[3]

(2) a. Sunce sija.

     sun   shines

     "The sun is shining."

---

[2] The only approach that I am aware of in which bipartite NPs are argued to be two independently generated constituents is that of Fanselow (1988), who argues that the bipartite NP consists of two full NPs linked by a binding relation.

[3] Bošković (2005a, 2008) argues that the absence of articles correlates with the availability of bipartite NPs cross-linguistically.

b. U sandučetu je bilo pismo.

in mailbox aux.cl was letter

"There was a letter in the mailbox."

Within a non-bipartite (canonical) NP, adjectival modifiers normally precede the noun, as illustrated by (3a). The opposite order is either dispreferred or judged as ungrammatical, as shown by (3b,c):

(3) a. Nosim (velike) srebrne minđuše.

wear-I big silver earrings

"I wear (big) silver earrings."

b. ?*Nosim minđuše srebrne (velike).

wear-I earrings silver big

c. ?*Nosim minđuše velike srebrne.

wear-I earrings big silver

Finally, Serbian non-bipartite NPs can undergo N'-ellipsis (or N'-drop). This is a characteristic comparable to English *one*-replacement, as shown in (4a-b):[4]

(4) a. - What kind of pencil would you like me to buy for you*?*

- Hoću [_{NP} *crnu* Ø].

want-I black

"I want a black one."

b. - Which yogurt do you buy?

- Kupujemo [_{NP} *onaj* Ø *u flašici*].

buy-we that in bottle

"We buy that one in the bottle."

---

[4] Pereltsvaig (2008) argues that the N'-ellipsis is as an important condition for languages to have bipartite NPs. Also, Fanselow (1988) assumes N'-drop in one of the members of the bipartite NPs. See the second footnote of this chapter.

Besides their discontinuity, when compared with non-bipartite NPs, bipartite NPs exhibit a number of special properties. I describe these properties below.

The two members of a bipartite NP belong to different partitions of the Quantification structure. Take, for example, the bipartite NP *srebrne...minđuše* "silver...earrings" in (5a): while the member *srebrne* "silver" serves as a domain restrictor in the restriction clause, as licensed by the context yes-no question, the member *minđuše* "earrings" is in the nuclear scope. Similarly, (5b) provides an example of the type already discussed in Chapter 5: *srebrne* "silver" is a B-accented domain restrictor in the restriction clause, and *minđuše* "earrings" is an A-accented element in the nuclear scope.

(5) a. - Do you ever wear silver jewelry?

    - Da. *Srebrne*   nosim <u>*minđuše*</u>(\\).

     yes silver   wear-I earrings

     "Yes. I wear   silver <u>earrings</u>."

  b. - Do you wear exclusively golden jewelry, or do you wear some silver stuff as well?

    - Pa,   zlatne nosim ogrlice   i   prstenje,

     well   golden wear-I necklaces   and rings

     ali   *srebrne*(/) nosim <u>*minđuše*</u>(\\).

     but   silver   wear-I earrings

     "Well, I (do) wear golden necklaces and rings, but I (also) wear silver <u>earrings</u>."

Note that the distribution of members across distinct partitions of the Quantification structure is an inherent property of bipartite NPs. In other words, for a bipartite NP to be felicitous, a special context that allows for at least one of the members to be a domain restrictor is required. In (6), where the context does not allow

for the member *srebrne* "silver" to serve as a domain restrictor, the bipartite NP is infelicitous (6a). This context is compatible only with the non-bipartite NP counterpart that is in the nuclear scope (6b):

(6) - What kind of jewelry do you usually wear?

    a. - #*Srebrne* nosim *minđuše*.   (bipartite NP)

       silver   wear-I earrings

    "I wear silver earrings."

    b. - Nosim *srebrne minđuše*.   (non-bipartite NP)

      wear-I silver   earrings

    "I wear silver earrings."

Next, it is not necessary that the two members of the bipartite NP differ in F-marking. In other words, from the pragmatic point of view, for the occurrence of a bipartite NP, it is sufficient that the two members belong to distinct partitions of the Quantification structure, and the relative prominence between the two members is irrelevant. Examples (7a-d) show that all four logical possibilities for the distribution of F-marks on the two members, that is, G-F, F-G, G-G, F-F are attested. While in (7a) and (7b), the two members of the bipartite NP *srebrne...minđuše* "silver...earrings" differ in their F-marking, the ones in (7c) and (7d) do not. Yet all these cases of bipartite NPs are felicitous in properly chosen contexts:[5]

(7) a. - Do you ever wear silver jewelry?

    - Da. *Srebrne*G nosim <u>*minđuše*F</u>**.**   *G-F*

    yes silver   wear-I earrings

    "Yes. I wear   silverG <u>earringsF</u>."

---

[5] For the ease of exposition, the examples in (7) contain the descriptive label G, which does not have any theoretical significance. It is just used as a convenient label that stands for "GIVEN, not F-marked".

b. - Which kind of earrings do you wear with these white glasses: silver or golden?

    - _Srebrne_F   nosim _minđuše_G**.**   _F-G_

     silver   wear-I earrings

     "I wear silverF earringsG."

c. - I suggest that you definitely wear silver earrings tonight.

    - Naravno. _Srebrne_G i   nosimF _minđuše_G.   _G-G_

     sure   silver   part. wear-I   earrings

     "Sure. I amF wearing silverG earringsG."

d. - Do you wear exclusively golden jewelry, or do you wear some silver stuff as well?

   - Pa,   zlatne nosim ogrlice   i   prstenje,

    well   golden wear-I necklaces   and rings

    ali   _srebrne_F nosim _minđuše_F   _F-F_

    but   silver   wear-I earrings

    "Well, I (do) wear goldenCT necklaces and ringsF, but I (also) wear silverF earringsF."

Another important property of *bipartite NPs* is that their two members, with one systematic class of exceptions, can occur in either order. While the examples in (7) consist of *bipartite NPs* in which the adjective precedes the noun (order Adj-N), examples in (8a-d) illustrate instances of a *bipartite NP* whose two members occur in the reverse order (order N-Adj). Note that, again, the sentences with bipartite NPs are felicitous as far as the contexts allow for the higher member of the bipartite NP to be used as a domain restrictor, regardless of relative prominence. That is, all four logical possibilities are attested for F-marking on the members of the bipartite NP *minđuše...srebrne* "earrings...silver", namely G-F, F-G, G-G, F-F:

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(8) a. - What kind of earrings do you usually wear?

   - *Minđuše*_G   nosim *srebrne*_F**.**   *G-F*

    earrings   wear-I silver

    "I wear silver_F earrings_G."

  b. - Do you wear any silver jewelry?

   - Da. *Minđuše*_F nosim *srebrne*_G**.**   *F-G*

    yes earrings wear-I silver

    "I wear silver_G earrings_F."

  c. - Well, if you are going to wear a piece of silver jewelry tonight, then that

    should definitely be earrings_F.

   - Naravno. *Minđuše*_G (uvek) i   nosim_F *srebrne*_G.   *G-G*

    Sure.   earrings   always part. wear-I   silver

    "Sure. I do_F (always) wear silver_G earrings_G."

  d. - What kind of necklaces, rings and earrings do you usually wear?

   - Pa,   ogrlice   i   prstenje nosim   zlatne,

    well   necklaces and rings   wear-I golden

    ali   *minđuše*_F   nosim *srebrne*_F   *F-F*

    but   earrings   wear-I silver

    "Well, I wear golden_F necklaces and rings_F, but I (also) wear silver_F earrings_F."

To summarize, first, the members of the bipartite NP obligatorily belong to distinct partitions of the Quantification structure. Second, F-marking, that is, relative prominence, is irrelevant for the felicity of bipartite NPs. This is expected based on our findings from Chapter 2 (Section 2.8), where it was shown that constituent order phenomena, which are driven by the Quantification structure, do not show interaction with F-marking as such. Third, the order between the two members of a bipartite NP is not fixed, since both the Adj-N and the N-Adj orders are possible.

In order to account for these major properties of bipartite NPs, I will propose an account that builds on the findings about the relationship between Serbian constituent order and the Quantification structure from Chapter 2. Crucially, I propose that bipartite NPs are nothing but instances of syntactically independent phrases, whose apparent relatedness is mainly due to them being descriptions of the same variable in the Quantification structure. In 6.2., I give a systematic overview of the data. This is followed by an overview of earlier approaches in Section 6.3., and the proposed solution to the problem in Section 6.4.

6.2 Descriptive facts (syntax)

6.2.1 Bipartite NPs and the modifier/complement distinction

It has been noted that, from the syntactic point of view, not all non-bipartite NPs have bipartite-NP counterparts. In particular, in the case of NPs whose head noun has a complement, the noun head and the complement can neither occur as two (distinct) members of a bipartite NP, nor be within its two distinct members. For example, NPs such as *rušenje zgrade* "destruction of the building", or *(njegovo) priznanje krivice* "(his) admission of guilt" cannot have bipartite-NP counterparts of the form **rušenje...zgrade*, or **(njegovo) priznanje...krivice*, as shown by the ill-formedness of (9b) and (10b). The non-cannonically ordered bipartite-NP variants are excluded as well in such cases, as shown by (9c) and (10c). Only the non-bipartite-NPs, as in (9a) and (10a) are grammatical:

(9)   a. Gledamo   *rušenje*   *zgrade*.

          watch-we   destruction of-building

     b. **Rušenje*   gledamo *zgrade*.

         destruction watch-we of-building

c. *_Zgrade_   gledamo _rušenje._

   of-building watch-we destruction

   "We are watching the destruction of the building."

(10) a. Slušamo _(njegovo) priznanje krivice._

      listen-we his   admission of-guilt

   b. *_(Njegovo) priznanje_ slušamo _krivice._

       his   admission listen-we of-guilt

   c. *_Krivice_ slušamo   _(njegovo) priznanje._

      of-guilt listen-we his   admission

    "We are listening to (his) admission of guilt."

Therefore, only NPs with adjunct-like modifiers, such as _srebrne minđuše_ "silver earrings", can occur as bipartite NPs: _srebrne...minđuše_ "silver...earrings" and _minđuše...srebrne_ "earrings...silver". Crucially, it is only a modifier that can be stranded from the head noun.

6.2.2 Basic cases of Bipartite NPs with a single modifier member

In the literature, prototypical cases of bipartite NPs consist of two simple members: the adjectival modifier member and the head noun member. Such prototypical cases of bipartite NPs occur in several basic forms. These forms can be classified depending on the type of the adjectival modifier member, or more precisely, depending on the type of the adjectival member which would be the modifier in the reconstructed corresponding non-bipartite NP. The full range of phrases that generally function as adjectival modifiers in Serbian NPs, occur as members of bipartite NPs as well: regular adjectives, demonstratives, possessors, quantifiers, and _wh_-words. We

have already seen cases of bipartite NPs with regular adjectives. I briefly illustrate other cases below, respectively.

Cases of bipartite NPs that consist of a demonstrative which is non-adjacent to the noun head it modifies are shown in (11a) and (12a). The corresponding non-bipartite NPs are given in (11b), and (12b):

(11) a. (E...) *ove*   poznajem   *momke.*   (bipartite NP)

    now these   know-I   guys

    "(Now,…) these guys, I know."

  b. (E,…) poznajem   *ove*   *momke.*   (non-bipartite NP counterpart)

    now   know-I   these   guys

    "These guys, I know."

(12) a. (E…) *takve*   volim *cipele.*   (bipartite NP)

    now that-kind   like-I   shoes

    "(Now,…) that kind of shoes, I like."

  b. (E…) volim   *takve*   *cipele*.   (non-bipartite NP counterpart)

    now   like-I   that-kind shoes

    "(Now,…) that kind of shoes, I like."

Next, I illustrate cases of bipartite NPs that consist of a possessor that is non-adjacent to the noun head it modifies, as in (13a) and (14a):

(13) a. (E…) *babin*   volim *hleb*.   (bipartite NP)

    now   grandma's   like-I   bread

    "(Now,…) grandma's bread, I like."

  b. (E…) volim *babin*   *hleb*.   (non-bipartite NP counterpart)

    now   like-I   grandma's bread

    "(Now,…) grandma's bread, I like."

(14) a. (E…) *njegove* mrzim   *romane*.   (bipartite NP)

   now his hate-I   novels

   "(Now,…) his novels I hate."

  b. (E…) mrzim *njegove romane*.   (non-bipartite NP counterpart)

   now hate-I his   novels

   "(Now,…) his novels I hate."

   A bipartite NP can also occur when an adjectival quantifier quantifies over the head-noun to which it is not adjacent, as in (15a) and (16a):

(15) a. *Mnogo* imam *filmova* (na DVD-ju).   (bipartite NP)

   many have-I movies in DVD

   "I have many movies (in DVD)."

  b. Imam *mnogo filmova* (na DVD-ju).   (non-bipartite NP counterpart)

   have-I many movies in DVD

   "I have many movies (in DVD)."

(16) a. *Svaku* proverim *ringlu* (pre nego što odem).   (bipartite NP)

   every check-I burner before than that leave

   "I check every burner (before I leave)."

  b. Proverim *svaku ringlu* (pre nego što odem). (non-bipartite NP counterpart)

   check-I every burnt before than that leave

   "I check every burnt (before I leave)."

   Finally, cases of bipartite NPs in the literature often include an adjectival *wh*-word which is non-adjacent to the head-noun it modifies, as in (17a) and (18a):

(17) a. *Koliko* imaš *godina*?   (bipartite NP)

   how-many have-youyears

   "How old are you?" (lit. "How many years do you have?")

b. *Koliko   godina* imaš?   (non-bip. NP counterpart)

    how-many   years   have-you

    "How old are you?" (lit. "How many years do you have?")

(18)   a. A *koji*   kupuješ   *jogurt*?   (bipartite NP)

    but which   buy-you   yogurt

    "But which yogurt do you buy?"

    b. A *koji*   *jogurt* kupuješ?   (non-bipartite NP counterpart)

    but which   yogurt buy-you

    "But which yogurt do you buy?"

It should be noted that bipartite NPs that involve *wh*-phrases are the only type of bipartite NPs that do not allow both orders between the two members. Namely, the *wh*-word must always be in the member on the left, and the non-canonical order is therefore excluded, as shown by the ill-formedness of (19) and (20):

(19)   ?**Godina*   imaš   *koliko*?   (non-canonical order)

        years   have-you   how-many

        intended: "How old are you?" (lit. "How many years do you have?")

(20)   ?**A *jogurt*   kupuješ   koji?   (non-canonical order)

          but yogurt   buy-you   which

          intended: "But which yogurt do you buy?"

6.2.3 Bipartite NPs with multiple pre-head elements

    Serbian regular NPs can have more than one pre-head element, as shown in (21a-d):

(21) a. *moj   srebrni   prsten*   (2 pre-head elements)

      my   silver   ring

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b. *babin*   *crni*   hleb   (2 pre-head elements)

   grandma's   brown bread

c. *onaj veliki*   šrafciger   (2 pre-head elements)

   that   big   screwdriver

d. *onaj veliki*   *crni*   šrafciger   (3 pre-head elements)

   that   big   black   screwdriver

Importantly, corresponding *bipartite NPs* exist as well, for example, *bipartite NPs* whose two pre-head elements occur separated from the head noun. A bipartite NP of the relevant form is given in (22a-b). Example (22a) has a canonically ordered bipartite NP *onaj veliki...šrafciger* "that big…screwdriver", whose first part consists of two pre-head elements. Example (22b) contains (22a)'s corresponding reversely ordered bipartite NP:

(22) a. [Scenario: Speaker 1 is repairing a broken tap in the kitchen and speaker 2 is assisting him. At one point, speaker 2 sees that a screw needs to be removed and hands a screwdriver to speaker 1. However, speaker 1 thinks that the screwdriver that speaker 2 wants to give him is too small and says:]

   Ne...onaj veliki mi daj *šrafciger.*   (bipartite NP: Dem+Adj…N)

   No…that big   me give screwdriver

   "No…Give me that big screwdriver."

  b. [Scenario: Speaker 1 is repairing a broken tap in the kitchen and speaker 2 is assisting him. Speaker 1 asks speaker 2 to hand him a wrench and a screwdriver. Speaker 2 does so and asks if the wrench is the right one. Speaker 1 says: "Yes", but immediately continues with:]

   …ali *šrafciger*   mi daj *onaj*   *veliki.* (bipartite NP: N…Dem+Adj)

    but screwdriver me give that   big

   "But as for the screwdriver, give me that big one (there)."

It is also possible for a bipartite NP with two pre-head elements to occur in such a way that while one of these elements occurs as non-adjacent to the head noun, the other occurs as adjacent to the head noun. A bipartite NP of this type is shown in (23a-b); (23a) contains a canonically ordered bipartite NP *babin…crni hleb* "grandma's…brown bread", whereas (23b) contains the corresponding non-canonically ordered bipartite NP:

(23) a. "Wow! You always eat white bread. Did you ever try brown bread?"

    Babin volim *crni hleb.* (bipartite NP: Poss…Adj+N)

    grandma's like   black bread

    "As for the brown bread, I like grandma's."

  b. Yes it is true that I eat mostly white bread…

    …ali *crni hleb* volim *babin.* (bipartite NP: Adj+N…Poss)

     but black bread like   grandma's

    "…but, as for the brown bread, I like grandma's."

Note that there is nothing extraordinary about bipartite NPs that have more than two pre-head elements. On the one hand, they do require somewhat richer contexts to be felicitously used, but on the other hand, from a structural point of view, it would be wrong to assume an upper limit on the number of pre-head elements a bipartite NP may contain. And indeed, bipartite NPs can have even more than two pre-head elements. These elements can be distributed across the two members in all logically possible ways. In (24a-c), I provide the relevant data for the canonically ordered bipartite NPs corresponding to the non-bipartite NP *onaj veliki crni šrafciger* "that big black screwdriver":

(24) a. [Scenario: Speaker 1 is repairing a broken tap in the kitchen and speaker 2 is assisting him. At one point, speaker 2 sees that a screw needs to be removed

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and hands speaker 1 a screwdriver. However, speaker 1 thinks that the screwdriver that speaker 2 wants to give him is a wrong one and says:]

Onaj veliki   crni   mi daj   šrafciger   (*Dem+Adj+Adj*...N)

that   big   black   me give-you   screwdriver

"Give me that big black screwdriver."

b. [Scenario: Speaker 1 is repairing a broken tap in the kitchen and speaker 2 is assisting him. Speaker 1 requests that speaker 2 hands him "the black screwdriver". There are, in fact, two black screwdrivers available, and speaker 2 hands speaker 1 the smaller one. Speaker 1 notices that this is not the one he wanted and says: "Sorry,…]

...onaj veliki   mi daj *crni*   šrafciger."   (*Dem+Adj…Adj*+N)

  that big   me give black   screwdriver

 "Give me that big black screwdriver."

c. [Scenario: Speaker 1 is repairing a broken tap in the kitchen and speaker 2 is assisting him. Speaker 1 requests that speaker 2 hands him "the big black screwdriver". There are, in fact, two big black screwdrivers available, and Speaker 2 hands Speaker 1 the wrong one. Speaker 1 notices that this is not the one he wanted and says: "Sorry,…]

…*onaj* mi daj *veliki crni*   šrafciger."   (Dem…Adj+Adj+N)

    that   me give big   black   screwdriver

"Give me that big black screwdriver."

In (25a-c), I provide the relevant data for the corresponding non-canonically ordered bipartite NP:

(25) a. [Scenario: Speaker 1 is repairing a broken tap in the kitchen and speaker 2 is assisting him. Speaker 1 asks speaker 2 to hand him a wrench and a

screwdriver, and speaker 2 does so and asks if the wrench is the right one. Speaker 1 says: "Yes", but immediately continues with:

…ali šrafciger   mi daj *onaj veliki crni*.   (N…*Dem+Adj+Adj*)

   but screwdriver me give that   big   black

   "But as for the screwdriver, give me that big one (there)."

b.   [Scenario: Speaker 1 is repairing a broken tap in the kitchen and speaker 2 is assisting him. Speaker 1 requests that speaker 2 hands him a wrench and "the black screwdriver". There are, in fact, two black screwdrivers available, but speaker 2 sees only one of them. Speaker 2 hands speaker 1 a wrench and the black screwdriver that he saw. Speaker 2 asks speaker 1 if the wrench is the right one. Speaker 1 answers: "Yes", but immediately continues with: "But,…]

   ... *crni* šrafciger   mi daj *onaj veliki*.   (*Adj*+N…*Dem+Adj*)

    black screwdriver   me give that   big

   "But as for the black screwdriver, give me that big one (there)."

c.   [Scenario: Speaker 1 is repairing a broken tap in the kitchen and speaker 2 is assisting him. Speaker 1 requests that speaker 2 hand him a wrench and "the big black screwdriver". There are, in fact, two big black screwdrivers available, but speaker 2 sees only one of them. Speaker 2 hands speaker 1 a wrench and the big black screwdriver that he saw. Speaker 2 asks speaker 1 if the wrench is the right one. Speaker 1 answers: "Yes", but immediately continues with: "But,…]

...*veliki crni* šrafciger   mi daj   *onaj* (tamo).   (*Adj+Adj*+N...*Dem*)

   big   black screwdriver me give-you that   there

"But as for the big black screwdriver, give me that one (there)."

6.2.4 The constituency problem: internal structure of the members in a bipartite NP

One of the members of a bipartite NP may appear as a non-constituent. For example, two pre-head elements can occur together within a single member of their bipartite NP. This is illustrated in (26a-b), where the pre-head elements *onaj* "that" and *veliki* "big" occur together within a single member of a bipartite NP headed by the noun *šrafciger* "screwdriver". Note that these elements, taken as such, do not form a constituent together:

(26) a. ...[*onaj* [*veliki* mi daj   crni   šrafciger.   ([*Dem*+[*Adj*…Adj+N)

            that   big   me give   black screwdriver

        "Give me that big black screwdriver."

     b. ... *crni*   šrafciger   mi daj [*onaj* [*veliki*.   (*Adj*+N…[*Dem*+[*Adj*)

            black screwdriver me give that   big

        "But as for the black screwdriver, give me that big one (there)."

Another case of a bipartite-NP member that appears to be a non-constituent as such occurs when a pre-head element and a post-head element are both isolated from from their head, but form a single member of a bipartite NP together. In (27), the pre-head demostrative *onaj* "that" and the post-head adjunct PP *u flašici* "in the bottle" occur together in a single part of a bipartite NP, isolated from the head noun *jogurt* "yogurt". The structure of the non-bipartite NP in (27) is [[<u>*Onaj*</u>]_{Dem} [*jogurt*_N [<u>*u flašici*</u>]_{PP}]_{NP}:

(27) [Scenario: In a grocery store, Speaker 1 and speaker 2 are together in the section with dairy products. Speaker 1 picks up several cartons of yogurt and says: "My kids love this yogurt, so I always buy several cartons.". Speaker 2 then says:]

       A   mi *onaj u flašici* kupujemo *jogurt*.

       but we that in bottle buy   yogurt

       "But we buy that yogurt in the bottle."

Moreover, note that a post-nominal NP-adjunct seemingly can appear in a position where it is non-adjacent to its noun head, even when there are no pre-head elements within the relevant NP, as shown in (28b):

(28) a. Kupujemo [*jogurt*_N [*u flašici*]_{PP}]_{NP}.

      buy-we   yogurt   in bottle

    "We buy yogurt in the bottle."

    b. [*U flašici*]_{PP} kupujemo [*jogurt*]_N.

      in bottle   buy-we   yogurt

    "We buy yogurt in the bottle."

6.2.5 PP-internal bipartite NPs

Serbian allows that a bipartite NP occur inside a PP, the most important condition being that the preposition occurs adjacent to the higher member of such bipartite NPs. In (29a) and (29c), this is illustrated on the PP *sa svakakvim ljudima* "with all-kinds-of people". Examples (29b) and (29d) are ungrammatical due to the fact that the preposition is not adjacent to the higher member of the bipartite NP:

(29)   I work at the police station, and…

    a. *...sa   svakakvim* se   srećem *ljudima*.

      with all-kinds-of part. meet   people

    b. *…*svakakvim*   se   srećem *sa*   *ljudima*.

        all-kinds-of part. meet with   people

    c. *...sa   ljudima* se   srećem *svakakvim*.

      with people   part. meet   all-kinds-of

    d. …*ljudima*   se   srećem *sa*   *svakakvim*.

       people part. meet with all-kinds-of

    "I meet all kinds of people."

6.2.6 Bipartite NPs with non-subsective adjectives

Nowak (2000) notes that bipartite NPs whose one member is a non-subsective adjective such as Polish *byly* "former" are ungrammatical in Polish, as illustrated by her data in (30a-b). Note that the bipartite NP in (30a) is canonically ordered, and that the one in (30b) is non-canonically ordered:

(30) a. *Z   *bylym*   rozmawiala   *prezydentem*.

      with former   talked-she   president

      intended: "She talked with the former president."

   b. *Z   *prezydentem* rozmawiala *bylym*.

    with president   talked-she   former

    intended: "She talked with the former president."

While Nowak states that all bipartite NPs with non-subsective adjectives are grammatical, this generalization is too strong, at least in the case of Serbian. Namely, such bipartite NPs are grammatical, but are felicitous only under very special conditions. It can be shown that the acceptability of such NPs is dependent on both the order between the two members and the F-marking of the members. That is, such bipartite NPs are grammatical, regardless of whether they are canonically ordered or not; however, for each of the two orders between the two members, some F-marking patterns are never felicitous.

As far as canonically ordered bipartite NPs are concerned, the case in which the non-subsective adjective is F-marked and the noun is GIVEN, which I represent as $nsAdj_F...N_G$, is never felicitous. An illustration of this case is provided in (31b), which contains the bipartite NP *navodne...zločine* "alleged...crimes". The non-subsective adjective *navodne* "alleged" occurs as the structurally higher F-marked member of the bipartite NP, and the noun *zločine* "crimes" is GIVEN, that is, non F-marked. Note that the identically F-marked non-bipartite NP counterpart in (31a), represented as

nsAdj_FN_G, is felicitous in the context of (31), and that cases of bipartite NPs with different F-markings in (32b) and (32c), represented respectively as $nsAdj_G...N_F$ and $nsAdj_F...N_F$, are felicitous in the context of (32). Finally, in (33b), a case of the $nsAdj_G...N_G$ type is provided for the sake of completeness. However, its acceptability is less clear-cut:

(31) This organization does not really worry about any true crimes. Instead,…

    a. …Ona pripisuje *navodne_F zločine_G.* $nsAdj_FN_G$

       it   attributes alleged   crimes

    b. #…Ona *navodne_F* pripisuje *zločine_G.* $nsAdj_F...N_G$

       it   alleged   attributes crimes

   "…it attributes alleged_F crimes."

(32) This newspaper is a serious problem. We are not talking about the newspaper that puts forward alleged events from the life of celebrities. Instead,…

    a. …ona pripisuje *navodne_{F/G} zločine_F.* $nsAdj_GN_F$

       it   attributes alleged   crimes

    b. …ona *navodne_G* pripisuje *zločine_F.* $nsAdj_G...N_F$

       it   alleged   attributes crimes

    c. …ona *navodne_F* pripisuje *zločine_F.* $nsAdj_F...N_F$

       it   alleged   attributes crimes

   "…It attributes alleged_{G/F} crimes_F."

(33) This newspaper is a serious problem. We are not talking about the newspaper that merely comments on alleged crimes. Instead,…

    a. …ona pripisuje_F *navodne_G zločine_G.* $nsAdj_GN_G$

       it   attributes alleged   crimes

b. ?#…ona *navodne*$_G$ pripisuje$_F$ *zločine*$_G$. $nsAdj_G...N_G$

   it   alleged   attributes crimes

"…It attributes$_F$ alleged$_G$ crimes$_G$."

Next, in the case of non-canonically ordered bipartite NPs with non-subsective adjectives, cases in which the non-subsective adjective is F-marked are never felicitous, regardless of the F-marking on the noun: $\#N_{G/F}...nsAdj_F$. An illustration of such cases is provided in the ill-formed (34b) and (34c), which contain the non-canonically ordered bipartite NP *zločine…navodne* "crimes… alleged". In these cases, the non-subsective adjective *navodne* "alleged" occurs as the structurally lower F-marked member of the bipartite NP. On the other hand, cases of non-canonically ordered bipartite NPs with different F-markings are given in (35b) and (36b). While (35b), represented as $N_F...nsAdj_G$ is clearly felicitous in the context of (35), the example in (36b), a case of the $N_G...nsAdj_G$ type is less clear-cut, as in the case of (33):

(34) This organization does not really worry about any true crimes. Instead,…

   a. …Ona pripisuje *navodne*$_F$ *zločine*$_G$. $nsAdj_FN_G$

      it   attributes alleged   crimes

   b. #…Ona *zločine*$_G$ pripisuje *navodne*$_F$. $N_G...nsAdj_F$

      it   crimes   attributes alleged

   "…it attributes alleged$_F$ crimes$_G$."

   c. #…Ona *zločine*$_F$ pripisuje *navodne*$_F$. $N_F...nsAdj_F$

      it   crimes   attributes alleged

   "…it attributes alleged$_F$ crimes$_F$."

(35) This newspaper is a serious problem. We are not talking about the newspaper that puts forward alleged events from the life of celebrities. Instead,…

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a. …ona pripisuje   *navodne*$_F$ *zločine*$_G$. $nsAdj_FN_G$

    it   attributes   alleged   crimes

b. …ona *zločine*$_F$ pripisuje   *navodne*$_G$. $N_F...nsAdj_G$

    it   crimes   attributes   alleged

  "…it attributes alleged$_G$ crimes$_F$."

(36) This newspaper is a serious problem. We are not talking about the newspaper that merely comments on alleged crimes. Instead,…

a. …ona pripisuje$_F$ *navodne*$_G$ *zločine*$_G$. $nsAdj_GN_G$

    it   attributes   alleged   crimes

b. ?…ona *zločine*$_G$ pripisuje$_F$ *navodne*$_G$. $N_G...nsAdj_G$

    it   crimes   attributes   alleged

  "…it attributes alleged$_G$ crimes$_F$."

The acceptability of NPs with non-subsective adjectives is summarized in Table 6.1:

Table 6.1   Acceptability judgments for NPs with non-subsective adjectives

	G-F	F-G	F-F	G-G
nsAdjN	✓	✓	✓	✓
nsAdj…N	✓	*	✓	?
N…nsAdj	*	✓	*	?

In section 6.4.1, I provide an account for the pattern observed in Table 6.1 within the more general Quantification structure approach to bipartite NPs.

6.3 Earlier accounts of bipartite NPs

There is a vast literature on bipartite NPs, especially for those occurring in Slavic languages. Accounts that have been proposed typically assume a single underlying basic NP-structure for both bipartite NPs and their non-bipartite-NP counterparts, such as the one given in Figure 6.1:[6]
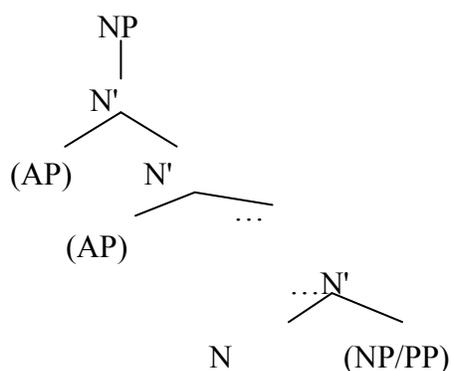
Figure 6.1   Basic NP-structure in Serbian

In other words, most accounts attempt to derive bipartite NPs from their non-bipartite-NP counterparts. Depending on what types of mechanisms they employ, there are two major types of such accounts:

    i.   Extraction accounts

    ii.   Distributed-PF-deletion accounts

6.3.1 Extraction accounts

The first type of account is based on the extraction of subconstituents out of a non-bipartite NP. A bipartite NP is then simply a result of such extraction, where the extracted part of the original non-bipartite NP is moved into a different syntactic
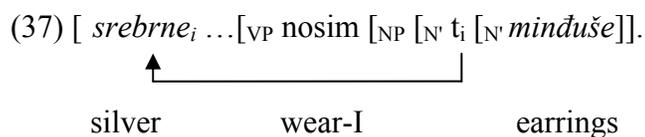
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[6] The NP-structure shown here is for illustration purposes only. The present discussion and the analysis to be proposed here are crucially not dependent on the NP-internal structure in Serbian or on the issue of whether Serbian has a DP or not.
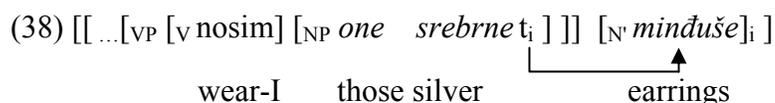
position, becoming a member of the newly created bipartite NP (see e.g. van Riemsdijk 1989, Corver 1992, Sekerina 1997, Bošković 2005a, 2005b, Franks and Progovac 1994, Bašić 2004, among others).

In the literature on *bipartite NPs*, the extraction has been argued to happen in one of the following ways:

i. as the extraction of a left-branch modifier out of the non-bipartite NP, also known as the *Left-Branch Extraction* (*LBE*), illustrated in (37) – see e.g. Corver (1992):

(37) [*srebrne$_i$* ...[$_{VP}$ nosim [$_{NP}$ [$_{N'}$ t$_i$ [$_{N'}$ *minđuše*]].

        silver   wear-I   earrings

ii. as the extraction of an N'/N'-like constituent out of the non-bipartite NP (illustrated in 38; see e.g. Franks and Progovac 1994, Bašić 2004)[7]:

(38) [[...[$_{VP}$ [$_{V}$ nosim] [$_{NP}$ *one   srebrne* t$_i$]]] [$_{N'}$ *minđuše*]$_i$]

        wear-I   those silver   earrings

iii. as the extraction of either a left-branch element or an N'/N'-like element (i. and ii. mechanisms combined, as in Sekerina 1997).

Let us now discuss each of the three variants of the extraction analysis from above.

The left-branch extraction (LBE) approach:

In the LBE-approach, the left-branch modifier is extracted out of the NP. The modifier ends up in a higher position in the tree, which for the sake of an illustration can be taken to be a left-peripheral position, such as [SpecCP], as shown in (39a-b):

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[7] The N'-movement shown in (38) is shown as a rightward movement. However, such a movement need not be rightward necessarily. For example, Bašić (2004) employs a leftward movement instead. The present discussion is not dependent on these details.

(39) a. *the extraction of a left-branch modifier*

NP
N'
N'
(AP)
N   complement
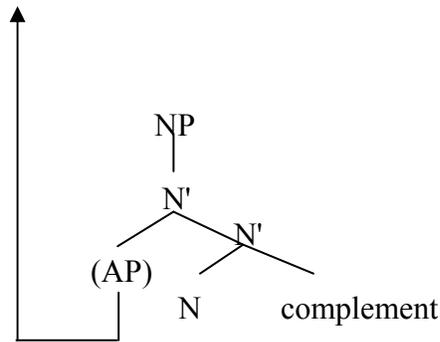
b. [$_{CP}$ *Sposobnog$_i$* …[$_{VP}$ nađite [$_{NP}$ [$_{N'}$ t$_i$ [$_{N'}$*programera*]]].

capable   find   programmer

"Find a capable programmer."

This approach is often paired with the claim that Slavic languages which allow Left-Branch Extraction (e.g. Serbian, Russian, Czech, Polish) also lack the DPs and instead have "bare NPs". Namely, it has been claimed that if a language has the DP layer, the AP-modifiers cannot be extracted from their NPs (see Corver 1992 for an ECP-analysis, and Bošković 2005b for a phase-based analysis). This potentially accounts for the impossibility of LBE in languages that have DPs (such as English, Italian, French, etc.), and its availability in languages that supposedly lack them.

While the LBE-approach derives the basic canonically ordered cases of bipartite NPs elegantly, it suffers from undergeneration problems. The first one is posed by the existence of non-canonically ordered bipartite NPs, e.g. the one in (40):

(40) *Worker*: "Boss, you told us to hire a programmer for the job. However, the problem is that there aren't many good programmers on the market right now. Also, those that are on the market are very expensive. Maybe we should give the job to a younger and less expensive one..."

   Boss: "Ne. Vi *programera* nađite *sposobnog,* a   o   novcu ću ja brinuti."
          no you programmer find   capable   and ab. money will I worry

"No, you find a capable programmer, and I will worry about the money."

The LBE-approach might approach this problem in two ways. One option would be to show that non-canonically ordered bipartite NPs (40) are a completely different phenomenon from the canonically ordered NPs, and not worry about cases such as (40) at all. However, at least all mentioned Slavic languages that have bipartite NPs have non-canonically ordered bipartite NPs in addition to canonically ordered bipartite NPs. Such a reduction in the data set would thus be artificial. Another option would be to allow for rightward movement and say that the LBE can eventually put a modifier into a higher, right-adjoined, position as well. Although the latter solution seems more plausible from the empirical point of view, allowing for rightward LBE in addition to the leftward one opens a whole new set of issues regarding the nature of LBE as a syntactic movement. Namely, LBE would likely be the only movement in a language such as Serbian that must be allowed to proceed in both directions, likely boosting the syntactic power just for resolving the problem of bipartite NPs.

On the other hand, even if a proponent of the LBE-approach successfully completed the task of fixing the problem of non-canonically ordered bipartite NPs that these pose to it, another very common type of objection to this approach would still be in place. Namely, it has been noted in the literature that languages that have simple bipartite NPs of the kind that the LBE-approaches successfully deal with, also have cases where one of the members of a bipartite NP is not a constituent on its own (see e.g. Franks and Progovac (1994), Fanselow and Ćavar (2002), Pereltsvaig (2008), among others). Particularly problematic for the LBE-approach are cases such as (41b):

(41) No doubt that John is a good programmer despite him being self-taught.

However,…

a. …mi želimo *onog programera s   diplomom*.   (non-bipartite NP)

we want   that programmer with diploma

  "…we want that programmer with a diploma."

b. …mi *onog   s   diplomom* želimo *programera*.   (bipartite NP)

we that with diploma   want   programmer

  "…we want that programmer with a diploma."

Note that the NP *onog programera s diplomom* "that programmer with a diploma"
seemingly occurs as a *bipartite NP* whose left member *onog s diplomom* "that with
diploma" is not a constituent on its own in (41b). Given the standard principle that
only constituents can move, (41b) cannot be derived under the LBE-approach. Since
languages that have simple bipartite NPs have cases such as (41b) as well, it would be
unjustified to reduce the data set so that these cases are excluded. I conclude that the
LBE-approach is therefore inadequate as an account of bipartite NPs.

The N'-extraction approach

Another type of the extraction approach is based on the extraction of the N' out of
the regular non-bipartite NP. Such an extraction is then followed by a remnant
movement of the whole NP, as shown in (42a-b):[8]

---

[8] In the literature, the 1st movement step is either to the right (as in Franks & Progovac 1994), or to the
left (as in e.g. Bašić 2004). For the sake of illustration, this movement step is shown as the movement to
the right in (42a-b).

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(42) a.

NP
|
N'
(AP)   N'
        (AP)
                ...
                ...N'
                N   (NP/PP)

1st mvt.

2nd mvt.
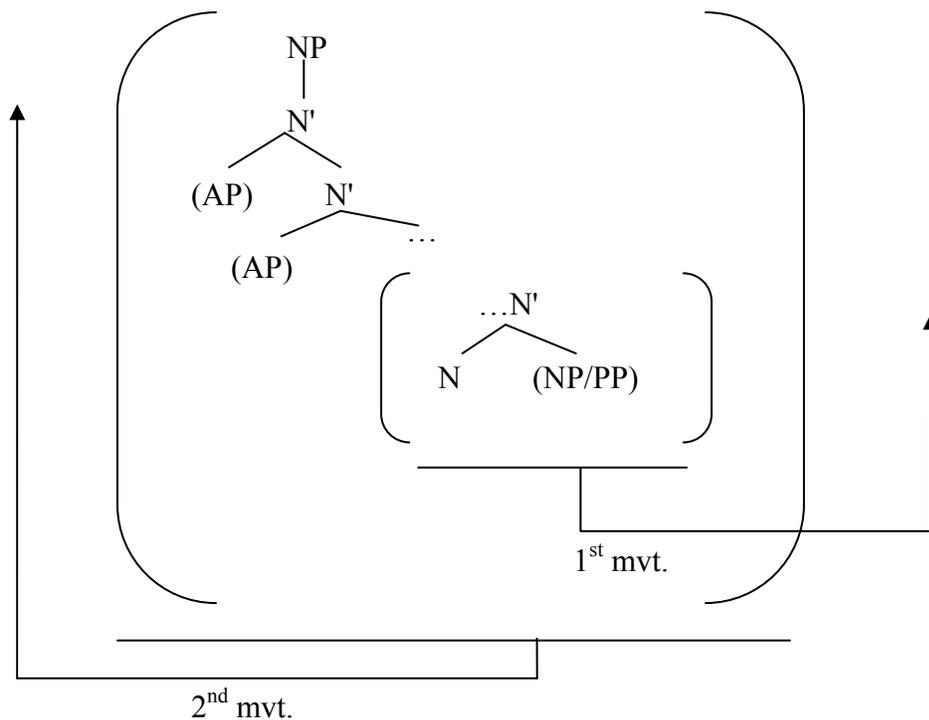
b.   [[CP ...[VP [V želimo] [NP *onog sposobnog* t$_i$]]]   [N' *programera*]$_i$]

[[CP [NP *onog sposobnog*   t$_i$]$_j$...[VP [V želimo] t$_j$]] [N' *programera*]$_i$].

     that capable   want-we   programmer

"We want that capable programmer."

The N'-extraction approach, when paired with the subsequent remnant movement of the whole NP/PP, has an advantage over the LBE-approach in that it can derive not only the basic cases of bipartite NPs, but also the ones that pose the constituency problem for the LBE-analyses, e.g. (41b).

However, this approach cannot be straightforwardly applied to non-canonically ordered PP-internal bipartite NPs such as (43b):

(43) Context: - Boss, maybe we should hire younger and less expensive programmers

             for this project…

a. – Ne. Oslanjajte se na *sposobne programere.*

    no rely-on-you part. on capable programmers

    "No. Rely on capable programmers (only)."

b. – Ne. Na *programere* se oslanjajte *sposobne...*

    no on programmers part. rely-on-you capable

    "No. Rely on capable programmers (only…and I will worry about the rest)."

Note that an N'-approach has to make additional assumptions in order to account for how the non-bipartite PP *na sposobne programere* "on capable programmers" would become bipartite in such a way that the preposition *na* "on" end up being adjacent to the supposedly extracted N' *programere* "programmers" and not to the AP *sposobne* "capable".

Bošković (2005b) gives a related argument against the N'-extraction approaches, pointing out that the N'-extraction as such overgenerates, as shown in (44):

(44)   *Programere$_i$* se vi oslanjajte [$_{PP}$ na [$_{NP}$ *sposobne* t$_i$]…

    programmers part. you rely   on   capable

    "You rely on capable programmers,…"

For (44) to become grammatical, the remnant fronting of the whole base-NP would have to follow the N'-extraction. It is unclear why these two independent movements have to go hand in hand in this case. Again, introducing further complexity into the N'-approach in order to cope with such problems is certainly a logical possibility. However, it will be shown below that certain problems would stay nevertheless. Before this, let us briefly discuss yet another type of the extraction approach.

The combined-extraction approach

An approach that combines the two extraction possibilities (LBE and N'-extraction) was proposed by Sekerina (1997). The approach involves two movement

steps: (i) standard NP/PP-fronting, which is then followed by (ii) either rightward LBE or rightward N'-extraction. This approach to some extent resembles the N'-extraction/remnant-movement analyses since it can include the same two movement steps. However, in Sekerina's (1997) approach, the two movement steps occur in the reverse order, while an option that the final movement step be LBE to the right, instead of the N'-extraction to the right, is also available.

This approach can account for PP-internal bipartite NPs such as (43b), since its first movement step would involve fronting of the whole PP. This ensures that the preposition always ends up being adjacent to the left member of the bipartite NP. At the same time, the problem that (44) poses to N'-extraction analyses that rely on the subsequent remnant movement is avoided, since the two movement steps can stay completely independent from one another without overgeneration. The approach also successfully avoids the undergeneration problems that the pure LBE-accounts encounter, while still maintaining a fairly large data set.

One minor objection to this approach was noted by Nowak (2000), who notices that Sekerina's analysis does not account for some empirically possible bipartite NPs. Namely, the complete set of examples that Sekerina's approach was built on involved only those bipartite NPs whose two members were exclusively sentence peripheral. This was then incorrectly built into the analysis, since the landing sites for the two movements were proposed to be peripheral as well. Recall now our example (27), repeated here as (45), which involves a non-sentence-initial left member of the bipartite NP:

(45)   Context: In a grocery store, A and B are together in the section with dairy products. A picks up several cartons of yogurt and says: "My kids love this yogurt, so I always buy several cartons.". B then says:

> A mi *onaj u flašici* kupujemo *jogurt*.
>
> but we that in bottle buy yogurt
>
> "But we buy that yogurt in the bottle."

While this may be considered a minor problem, which could possibly be solved by modifying Sekerina's (1997) analysis so that it is less rigid with respect to the landing sites of the moved constituents, it should be noted that the data of the (45)-type must be included in any account of bipartite NPs.

A much more serious counterargument to this version of the extraction approach, and in fact to all extraction approaches that have been discussed, is posed by the examples that look like bipartite NPs that are internal to PP-adjuncts, as in (46b):

(46) Context: - Boss, do not worry. I and my team will successfully finish the job, no

matter how complex it is…

   a. Radim [_Adjunct-PP_ sa *sposobnim* *programerima*].

    work-I with capable programmers

    "…I'm working with capable programmers."

   b. Sa *sposobnim* radim *programerima*.

    with capable work-I programmers

    "I'm working with capable programmers."

In order to account for (46b), any extraction-based account of bipartite NPs would have to extract a part of the adjunct PP from (46a). Note now that the adjunct-island constraint, as formulated in Ross (1967), holds in Serbian, as shown by the example (47b), cited here from Bošković (2005b). Note that in this example the standard wh-fronting cannot apply to an adjunct-internal wh-phrase:

(47) a. On je pobegao [_Adjunct_ zbog pretnje *oružjem*]?

    he aux ran-away because threat weapons

    "He ran away because of the threat with weapons."

b. *$\check{C}ime_i$ je on pobegao [$_{Adjunct}$ zbog   pretnje t_i]?

of-what aux he ran-away   because threat

intended: "Because of the threat of what did he run away?"

It thus follows from this small data set that, in order to derive the bipartite NP in (46b), an extraction approach must violate a constraint that is otherwise not violable in Serbian, namely the adjunct-island constraint. This is a serious counterargument to all extraction analyses, for which a straightforward patch is simply not available. For some other island-constraint based arguments against the extraction approaches, see Pereltsvaig (2008).

To conclude, the extraction approaches to bipartite NPs are inadequate, no matter how the extraction is done.

6.3.2 Distributed-PF-deletion accounts

An attempt to overcome the type of problems that the extraction approaches run into was proposed by Fanselow and Ćavar (2002), and later developed by Pereltsvaig (2008). According to these accounts, the extraction does not happen at all during the derivation of bipartite NPs. Instead, a bipartite NP is simply the result of partial pronunciation of two full copies of a single non-bipartite NP. This is referred to as distributed PF-deleton.

Distributed PF-deletion works as follows. First, two copies of an NP occur as a result of an independent movement that the relevant NP undergoes. The copies are then each partially deleted (i.e. interpreted) at PF, so that they end up being complements to the full original NP for one another, as illustrated in (48) below:

(48)   1st step: [$_{NP}$ *srebrne minđuše*] nosim [$_{NP}$ *srebrne minđuše*].

 (NP-movement)   silver earrings   wear-I   silver   earrings

   2nd step: either [$_{NP}$ *srebrne minđuše*] nosim [$_{NP}$ *srebrne minđuše*]

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or   [_{NP} ~~srebrne~~ *minđuše*] nosim [_{NP} *srebrne* ~~minđuše~~]

"I wear silver earrings."

An advantage of the distributed PF-deletion, taken in its unconstrained form, is that it does not undergenerate, which is typically the case with various extraction approaches. Note that such an approach has no difficulties even in the adjunct-island cases of the (46b)-type, since no extraction out of an adjunct is needed in such cases. Rather, the PF-deletion approach requires that there simply be two full copies of the full non-bipartite NP/PP. This is a less problematic requirement in that it doesn't go against our current understanding of movement in syntax.

On the other hand, the crucial task that a proponent of a PF-deletion approach has to accomplish is to constrain the overly powerful distributed PF-deletion operation. For example, Bošković (2005b) notes that additional conditions have to be imposed on such deletion. While these conditions would have to allow for derivation of cases such as (48), they would need to prevent the occurrence of examples such as (49a-b) at the same time (example originally from Bošković 2005b):

(49) a. *The ~~students~~ were arrested ~~the~~ students.

    b. *~~The~~ students were arrested the ~~students~~.

    c. The students were arrested ~~the students~~.

This is where the PF-deletion accounts turn to the information-structure properties that bipartite NPs exhibit. In a nutshell, both mentioned PF-deletion accounts pair the distributed-deletion proposal with the claim that only multiple copies of an NP whose internal parts carry distinct information-structure features are eligible for such deletion. This can be stated in the following way:

(50) If A and B are two parts of an NP, and if they respectively carry information-structure features x and y (x≠y), then multiple copies of the relevant NP are

eligible for distributed deletion such that parts A and B end up being interpreted by the PF-interface (i.e. pronounced) in distinct copies.[9]

Once the split-IS constraint on PF-deletion is accurately formulated and incorporated in the proposal, a PF-deletion approach could, in principle, generate all the data we have seen so far, including also the data with which various extraction approaches have difficulties.

However, there is a problem with the distributed PF-deletion approaches in that they assume that the semantic contribution of bipartite NPs and non-bipartite NPs to the truth conditions of the sentence are identical. Note that a sentence such as the one in (48) is assumed under these accounts to have the same LF-representation after the the 1st movement step (i.e. the NP-movement step), independently of which way the PF-deletion might later take place in one or both copies. After all, it is a standard property of a PF-deletion operation that it does not affect the semantic interpretation.[10] Consider now the following data. As already noted in 6.2.6., based on the original data from Nowak (2000), bipartite NPs whose one member is a non-subsective adjective, such as *navodni* "alleged", are never acceptable with some patterns of F-marking in Serbian, as opposed to non-bipartite NPs.

Recall that a non-bipartite NP with a non-intersective adjective of this type, e.g. *navodni$_F$* "alleged", is perfectly acceptable in Serbian, as shown in (51a-b). Crucially, (51c) shows that the corresponding bipartite NP with the same F-marking is ill-

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[9] I use the information-structure variables x and y in (50) as a shorthand for concrete information structure features used in each of the two PF-deletion accounts in question, i.e. [topic], [focus], [contrastive], or any possible combinations of these. For our discussion, it is not relevant what particular information-structure features are used in the PF-deletion approaches.

[10] It should be noted that not all scholars would agree that this principle is without exceptions. However, the more basic version of PF-deletion is clearly the one that does not affect the LF. Introducing more complexity into the theory in order to account for particular phenomena should always be the last resort and independently and thoroughly justified.

formed, and (51d) reminds us that the corresponding non-canonically ordered bipartite NP is ill-formed as well:

(51) This organization does not dare to attribute any *real* crimes. Instead, its task is completely different…

    a. …Ona pripisuje   *navodne*$_F$ *zločine*$_G$.

      it   attributes   alleged   crimes

   "…It attributes alleged$_F$ crimes$_G$."

    b. …Ona *navodne*$_F$ *zločine*$_G$ pripisuje.

      it   alleged   crimes   attributes

   "…It attributes alleged$_F$ crimes$_G$."

    c. #…Ona   *navodne*$_F$ pripisuje *zločine*$_G$.

      it   alleged   attributes crimes

   intended: "…It attributes alleged$_F$ crimes."

    d. #…Ona *zločine*$_G$ pripisuje *navodne*$_F$.

      it   crimes   attributes alleged

   intended: "…It attributes alleged$_F$ crimes."

Now, under distributed-PF-deletion accounts of bipartite NPs, at least (51b), (51c), and (51d) would be assumed to have identical LF-representations. Since the data show that these representations cannot be identical, the PF-deletion approaches cannot be maintained in their current form.

It thus follows from the data in (51) that sentences with bipartite NPs and corresponding minimal-pair sentences with non-bipartite-NPs do not compose their meanings in the same way. While the results of these two distinct ways of composition (i.e. the final truth conditions) may often seem indistinguishable, NPs with non-subsective adjectives such as *navodni* "alleged" show that they clearly *are* distinct in certain cases, and thus provide strong evidence that the compositions themselves are

distinct. This is a crucial argument against the distributed PF-deletion as an account for Serbian bipartite NPs.

To summarize, earlier approaches that I addressed in this section assume that the underlying structure for bipartite NPs is in fact the structure of their non-bipartite-NP counterparts. One of the reasons why such an assumption might be appealing is that bipartite NPs then can be derived from an already independently needed structure, i.e. the regular non-bipartite NP-structure. However, as discussed above, these approaches encounter serious difficulties. Below, I will propose a new approach to bipartite NPs, which is not based on the assumption that bipartite NPs are derived from their non-bipartite counterparts, but rather on the assumption that bipartite NPs are a special case of another type of structure – secondary predicates. At the same time, I will argue that an approach to bipartite NPs in terms of the Quantification structure accounts for their semantic and pragmatic properties.

The proposal to be outlined consists, therefore, of two major components. One is concerned with the characteristics of bipartite NPs pertaining to Quantification structure and F-marking, addressed in Section 6.4., and the other one is mainly concerned with their structural properties, and is addressed in Section 6.6. In my account of bipartite NPs, I capture all the descriptive properties of bipartite NPs outlined in Section 6.2. These properties are addressed one by one in Section 6.6.

6.4 Proposal (part 1): Semantics and pragmatics of bipartite NPs

6.4.1 The Quantification structure and bipartite NPs: the fundamentals

In the semantic/pragmatic part of the proposal, the major claim is that a bipartite NP is always an instance of two phrases that belong to distinct partitions of the

Quantification structure but describe the same variable.[11] What this means is that the structurally higher member of the bipartite NP is formally a domain restrictor, and that the structurally lower member is formally either a part of the nuclear scope or a domain restrictor that is nested within the structurally higher member. For example, in (52a), an example repeated from Section 6.1, *minđuše* "earrings" is the domain-restrictor member of the bipartite NP *minđuše…srebrne* "earrings…silver". The structurally lower member *srebrne* "silver" belongs to the nuclear scope and is the main part of the assertion. Intuitively, with the provided F-marking, the member *srebrne* "silver" picks out a subset of earrings that is relevant for the assertion. Likewise, in (52b), the domain-restrictor member of the PP-internal bipartite NP *ljudima…svakakvim* "people…of all kinds" is the structurally higher member NP phrase *ljudima* "people"; the member *srebrne* "silver" is a part of the nuclear scope, and with the given F-marking, intuitively picks out a subset of people:

(52) a. - What kind of earrings do you usually wear?

   - *Minđuše$_G$*   nosim   *srebrne$_F$*.

     earrings   wear-I silver

     "I wear <u>silver</u> earrings."

   b. I work at the police station, and…

     ...sa   ljudima$_G$ se   srećem svakakvim$_F$.

      with people   part. meet   <u>all-kinds-of</u>

     "I meet all kinds of people."

---

[11] In fact, it should be noted that Fanselow (1988) already proposed that bipartite NPs are two full NPs that stand in a binding relation. While my approach shares this general idea about the independent generation of the two members in bipartite NPs, as well as the idea of the binding relation between them, the execution of these ideas is very different in my account, as it will be seen in the further presentation. Also, while Fanselow (1988) is concerned mainly with the syntactic aspect of the bipartite NP phenomenon, my account is intended as a complete interface account.

6.4.2 GIVENNESS and nesting of domain restrictors with bipartite NPs

However, the pragmatics of bipartite NPs is actually more complex than the simplified Quantification structure account outlined in 6.4.1 suggests. Namely, it is important to note that the relationship between the Quantification structure, as an LF-notion, and the intuitions about the observed superset-subset relationships between the two members may change with different F-marking on the members. For example, the F-marking opposite from that in (52a) and (52b) would reverse the intuitive superset-subset relationship between the two members of the bipartite NPs. In (53a), it is the member *minđuše$_F$* "earrings" that intuitively picks out a subset from the set of the silver objects. Likewise, in (53b) the intuituive superset-subset relationship from (52b) is also reversed:

(53) a. - Is there any piece of silver jewelry that you would wear?

- *Minđuše$_F$*   nosim *srebrne$_G$*.

earrings   wear-I silver

"I wear <u>silver</u> earrings."

b. No, it's not due to all these different kinds of animals that I want to leave my job at the ZOO. On the contrary, believe it or not, in my line of work, it's the people I need to deal with that I find annoying.

...*sa ljudima$_F$* se   srećem *svakakvim$_G$*.

with people   part. meet   all-kinds-of

"I meet all kinds of people$_F$ (and that's what's bothering me.)."

Importantly, however, this does not mean that the Quantification structure accounts only for the pragmatics of some, and not all, cases of bipartite NPs. Rather, it can be shown that the Quantification structure is the appropriate account for all cases of bipartite NPs, independently of the applied F-marking. As already shown in Chapter 2,

Section 2.8, F-marking is orthogonal to constituent order, and I will now demonstrate that this holds in the case of bipartite NPs as well.

What happens in (53a-b) is that the non-F-marked members *srebrne*$_G$ and *svakakvim*$_G$ are each only formally a part of the nuclear scope at LF. That is, they are simply formal fillers of the nuclear scope in the Quantification structure. On the other hand, their interpretation is dependent on the GIVENNESS constraint of Schwarzschild (1999), which requires them to have an antecedent in the context in order to be marked as GIVEN. These antecedents in (52a-b) then act as contextual pragmatic domain restrictors, into which the structural domain restrictors of the restriction clause, namely *minđuše*$_F$ "earrings" (in 52a) and *ljudima*$_F$ "people" (in 52b), are nested at the level of interpretation. From the pragmatic point of view, then, the structural domain restrictors intuitively act as subsets of the context domain restrictor supersets "silver jewelry" and "all kinds of things", respectively. Nonetheless, the members *minđuše*$_F$ "earrings" (in 52a) and *ljudima*$_F$ "people" (in 52b), do not belong to the nuclear scope of the Quantification structure. Instead, they belong to the restriction clause, as is generally the case with scrambled phrases. For example, they comply with the same presuppositionality constraints as all other scrambled phrases, in that they are obligatorily presuppositional. As an answer to the question in (54), the sentence in (54b) is non-felicitous, since the presupposition induced by the scrambled phrase *srebrne*$_F$ "silver" is not satisfied by the context. Note that the answer in (54a), with the scrambled phrase *minđuše*$_G$ "earrings", is felicitous, because the context satisfies the presupposition that accompanies the phrase *minđuše*$_G$ "earrings". On the other hand, if the context satisfies the presupposition induced by the scrambled phrase *srebrne*$_F$ "silver", as in (55), the answer from (54b), repeated as (55b), is felicitous. Note that *srebrne*$_F$ "silver" in (55b) picks out one of the contextually provided presupposed alternatives:

(54) - I am almost all set for the date tonight. I pretty much know what I am going to

wear. Do you have any earrings that I could borrow from you just for tonight?

a. *Minđuše*$_G$ imam   *srebrne*$_F$.

   earrings   have-I silver

   "As for earrings, I have a <u>silver</u> pair (which I could give you)."

b. #*Srebrne*$_F$ imam   *minđuše*$_G$.

    silver   have-I earrings

    intended: "As for earrings, I have a <u>silver</u> pair (which I could give you)."

(55) - I remember you told me you have a pair of earrings with you. Is that your

golden pair or the silver pair?

- *E,   da…Srebrne*$_F$ imam   *minđuše*$_G$ (kod sebe).

  well yes silver   have-I earrings   at   self

  "Well, yes…It is the <u>silver</u> pair that I have (with me)."

6.5 Proposal (part 2): The secondary-predication approach to bipartite NPs

6.5.1 The proposal, in a nutshell

The major claim of the proposal is that what is descriptively referred to as a bipartite NP consists of a (smaller) NP that is accompanied by a non-local adjunct modifier. I propose that bipartite NPs are a special case of a more general syntactic phenomenon, namely the secondary-predication structure, given in (56):

(56)   [NP/PP-internal NP]   …   [AP/NP/PP]

   argument   non-local adjunct modifier

                             (secondary predicate)

What this means is that one member of the bipartite NP is an argument for which its other member is a non-local adjunct modifier, a secondary predicate. For example, in

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(57), *minđuše* "earrings" is the argument NP, which is modified by the secondary-predicate AP *srebrne* "silver":

(57)   - What kind of earrings do you usually wear?

     - *Minđuše*G(Arg-Obj)   nosim *srebrne*F(SP).

       earrings   wear-I silver

       "I wear silverF earringsG."

We have seen in 6.3 that approaches which structurally derive bipartite NPs from their non-bipartite counterparts run into serious problems. In subsequent sections, I show how the present proposal explains all descriptive facts surrounding the phenomenon of bipartite NPs while keeping the members as two independent syntactic phrases. Before this, a brief overview of the phenomenon of secondary predication is in order.

6.5.2 Secondary predicates in Serbian (fundamentals)

A secondary predicate can be tentatively defined as an adjunct-like non-verbal predicate that is present in addition to the main verbal predicate of the clause (see also Williams 1980, and Rothstein 1985, 2001 for some formal definitions of the phenomenon).

The most familiar cases of secondary predicates cross-linguistically are the so-called depictives and resultatives. For example, a depictive secondary predicate is used to attribute a state to one of the arguments of the verb during the event described by the main predicate (Rothstein 1985). Depending on which argument this is, a secondary predicate can be either subject-oriented or object-oriented. An example of a subject-oriented depictive secondary predicate in Serbian is given in (58a), where the secondary-predicate adjectival phrase *umoran* "tired" describes Jovan's state at the

moment of coming to work. In (58b), *Jovana* is the direct object, with which the object-oriented secondary predicate *pijanog* is associated:

(58) a. *Jovan*_{Arg-Subj} je došao na posao *umoran*_{SP}.

     Jovan   aux come to work tired

   "Jovan_{Arg-Subj.} came to work <u>tired</u>_{SP}."

  b. Nemoj da dovodiš *Jovana*_{Arg-Dir.Obj.} *pijanog*_{SP}.

    do-not to bring   Jovan   drunk

   "Do not bring Jovan_{Arg-Dir.Obj.} <u>drunk</u>_{SP}."

  Serbian secondary-predicate structure can be represented as in (59):[12]

(59) [NP/PP-internal NP] … [AP/NP/PP]

     argument   non-local adjunct modifier

                                 (secondary predicate)

Note that the argument and the secondary predicate in (59) each consist of full independent phrases that do not form a constituent together (see Rothstein 2004 for a brief overview of arguments). For example, the argument can be a proper name, as in (58a-b), or any other kind of NP. In Serbian, the argument can also be an NP that is embedded in a PP, as I am about to discuss. On the other hand, the secondary-predicate part can be any predicative phrase, e.g. an AP, a predicative NP, or a predicative PP.

In Serbian, the phenomenon of secondary predication covers a broader range of constructions than, say, in English, which only allows that secondary predicates modify subjects or direct objects. Serbian allows that secondary predicates also modify indirect objects (60a) or PP-internal NPs (60b):

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[12] I adopt the dominant view on the structure of secondary predicates, which treats them as adjuncts (see e.g. Williams 1980, Bowers 1993, Pylkkänen 2002, among others). Positions of secondary predicates are not fixed in Serbian, a point that I address later in this section. Due to this reason, I represent the secondary-predication structure as two independent phrases, where the adjunct modifier, the secondary predicate, can be adjoined at various points in the syntactic tree.

(60) a. Dao sam   *Jovanu*_{Arg-Ind.Obj.} *pijanom*_{SP} da vozi.

   let   aux   Jovan   drunk   to drive

   "I let Jovan_{Arg} drive drunk_{SP}."

   b. Naišao   sam [na *Jovana*_{Arg-Acc}] (još)   *pospanog*_{SP-Acc}.

   run   aux   at   Jovan   still   sleepy

   "I ran into Jovan, who was still sleepy."

Note that this particular property is not an idiosyncracy of Serbian. Pylkkänen (2002), who uses depictive predication as a test in determining whether a language has high or low applicatives, identifies a class of languages in which secondary predicates can modify indirect objects or PP-internal arguments, mentioning Albanian as an example.[13]

   Importantly, on the semantic side of the phenomenon, it has been claimed that depictive secondary predicates must be of the stage-level type (see e.g. Rothstein 1985, Drubig 1992, Winkler 1997, among others). However, while this generalization seems to be correct for cases of secondary predicates discussed in the literature, there are cases that arguably do not differ from the secondary predicates in any structural way, but which cannot be classified as stage-level predicates. For example, in Serbian, in addition to the standard depictive stage-level secondary predicates we have seen so far, phrases that normally occur as individual-level predicates elsewhere can also occur as secondary predicates, as illustrated in (61):

(61)   The treasurer can be anybody, but as far as the manager goes…

   …*njega*_{Arg}   uzmite *dobrog inženjera*_{SP}.

   him   take   good   engineer

   "…but take (/pick) the manager who is a good engineer."

---

[13] Note also that some English speakers accept indirect-object-oriented depictive secondary predicates as grammatical. Thanks to John Bowers (p.c.) for pointing this out to me.

Note that the phrase *dobrog inženjera* "good engineer" typically has an individual-level interpretation elsewhere, and that its interpretation in (61) is also of the individual-level type. However, the relevant phrase bears strong resemblance to stage-level secondary predicates in that its interpretation is constrained by the given modal imperative context. Namely, while the assignment of stage-level secondary predicates to their arguments in classic cases of secondary predication is limited by the event (or, alternatively, tense) used in the clause[14], in (61) assignment of the description *dobrog inženjera* "good engineer" to the argument *njega* "him [=manager]" applies only within the boundaries of the modal imperative context. In this respect, such individual-level secondary predicates do not differ in any fundamental way from the classic stage-level cases of secondary predication.

Apart from Serbian examples such as (61), it has been observed that even English may allow individual-level adjectives in situations where multiple secondary predicates apply to the same argument. For example, (62) shows two object-oriented secondary predicates, *raw* and *tender* (Simpson 1983a, Rothstein 1985):

(62)   They eat *the meat$_i$ raw$_i$ tender$_i$.*

While the predicate *raw* is a clear example of a depictive stage-level predicate, the secondary predicate *tender* is not. According to Winkler (1997), the latter can be argued to have a conditional interpretation instead (as defined by Halliday 1967a, and developed by Guémann 1990). Namely, the meaning of (61) is best paraphrased as "they eat the meat when the meat is raw, when the meat is tender" (Rothstein 1985). There are thus cases in English in which a secondary predicate does not necessarily receive a typical stage-level interpretation. Moreover, cases such as (63) below are perfectly natural in English, and are structurally an instance of the secondary

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[14] See, for example, the semantic analysis for (stage-level) depictive secondary predicates in Pylkkänen (2002), who uses an event argument to capture this property of secondary predicates in her semantic representations.

predication. Note that the individual-level predicate *small* is used as a secondary predicate of the direct object argument *them*:

(63)   As far as laptops go, I like *them* <u>*small*</u>.

What examples with individual-level secondary predicates have in common, and what enables the usage of individual-level secondary predicates in them, is that at least one of the conditions in (64a) and (64b) is satisfied:

(64)   *Conditions on individual-level secondary predicates*

　　　　a. The argument of the individual-level secondary predicate is non-referential.

　　　　b. When the argument of an individual-level secondary predicate is referential, there is a modal operator that takes the secondary predicate into its scope, but does not necessarily outscope the argument at the same time.

For example, arguments of the individual-level secondary predicates in (61)-(63), namely *njega* "him" [="manager"] in (61), *meat* in (62), and *them* [="laptops"] in (63), are arguably non-referential. At the same time, all these sentences contain modal or tense operators that are embedded between the argument and the secondary predicate, and narrow down the context in which the secondary predicate assign their meaning to the argument. In (61), we have an imperative context, in (62) a conditional context, and in (63), a context created by the modally used verb *like* (cf. "In the world of my liking, laptops are small."). The correct generalization about the interpretation of all secondary predicates is thus that their assignment to the argument is always constrained by an intermediate operator. In the case of standard stage-level secondary predicates, this operator pertains to the described event, or depending on the analysis, tense. When the argument of the secondary predicate is referential, but the context is not modal, this is the only felicitous possibility, and the stage-level predicates are required. On the other hand, under certain conditions, described in (64a-b), secondary predicates can be of the individual-level type. To conclude, a variety of predicates that

elsewhere occur as individual-level predicates might be used as secondary predicates with non-referential arguments, or with referential arguments in embedded modal contexts.

Next, unlike secondary predicates in languages such as English, Serbian secondary predicates have non-fixed positions. For example, they can either precede or follow their arguments. While the case where secondary predicates follow their arguments are clearly more common cross-linguistically, cases where the secondary predicate precedes their argument can be observed under special pragmatic conditions, as in (65):

(65) - Did you ever see a drunk cop on duty?

   - Da. Video sam *pijanog$_{SP}$* često *Jovana iz   glavne stanice$_{Arg}$*. (SP-Arg order)

     yes saw   aux drunk   often Jovan from main station

  "Yes. I saw Jovan from the main station drunk."

Again, this is not an idiosyncracy of Serbian. A similar phenomenon has been observed in German (cf. Jacobs' 1997 *i*-topicalization; see also Haider 1997).

Moreover, once the non-fixed position of secondary predicates in Serbian is taken into account, some other non-local adjunct modifiers, for example, restrictive appositive modifiers, can in essence also be considered secondary predicates. The only difference between the restrictive appositive modifiers from the classic cases of secondary predication is that the assignment of the meaning of the restrictive appositive to the argument is not necessarily restricted by the event or tense of the main predicate, but is instead restricted by an operator of a wider scope. For example, in (66a) below, the non-local adjunct modifier *pijan$_F$* "drunk", which would traditionally be classified as a restrictive appositive modifier, is embedded under a conditional operator, but it at the same outscopes the main predicate *poludi* "goes crazy". Namely, the sentence is best paraphrased as "Jovan, when he is drunk$_F$, (often)

goes crazy_F". In other words, it is conveyed that Jovan goes crazy under the condition that he is drunk. Now, in the infelicitous example (66b), I provide a classic case of a stage-level secondary predicate. Note that this example differs from the example (66a) only in the attachment site of the non-local adjunct modifier. The sentence in (66b) conveys that Jovan often goes crazy while being drunk at the same time, but not under the condition that he is drunk. For this reason, (66b) is infelicitous as a continuation in the context of (66):

(66)   Although normally a very calm person,…

    a. …*Jovan* (često) *pijan_F* poludi_F.

       Jovan often drunk goes-crazy

     "Jovan, when he is drunk_F, (often) goes crazy."

    b. #…*Jovan* (često) poludi_F   *pijan_F*.

       Jovan often   goes-crazy drunk

     "Jovan, (often) goes crazy drunk_F."

Under my view, there are thus no differences between classic cases of secondary predicates and restrictive appositive modifiers other than those that occur as a result of different attachment sites. Syntactically, both are non-local adjunct modifiers. Semantically, in both cases, the assignment of the meaning of the non-local adjunct modifier to the argument is constrained by an operator. It is only the relative scope of this operator with respect to the main predicate that differs in the two cases. As a side note, the role of the restrictive appositive modifier *pijan* "drunk" in (66a) is comparable to the conditional secondary predicate *tender* in the English example (62). The restrictive appositive modifiers are thus structurally identical with secondary predicates, as they are understood in the present work. For this reason, I will consider them a special case of secondary predicates.

Another property of Serbian secondary predicates that might look unusual at first glance is that even NPs can occur as secondary predicates. This is illustrated by the already familiar example (61), where the NP *dobrog inženjera* "good engineer" is a secondary predicate for the argument *njega* "him". Winkler, based on Simpson's (1983b) examples in (67) below, notes that this is certainly a possibility even in English, and that some specific adjectival NPs can do so, despite "nominal phrases [being] normally referring expressions" and therefore normally not occurring as secondary predicates (Winkler 1997: 10):

(67) a. They cut the stick short/*the right length*.

   b. They painted the car green/*a pale shade of green*.

Examples in (67) both involve resultative secondary predicates. Simpson (1983b) and Rothstein (1985) observe that while APs, PPs and participles can occur as depictive secondary predicates, NPs never do so. While this generalization may be correct for the standard stage-level cases of depictives, it still does not exclude the possibility of NPs occurring as other types of secondary predicates, in particular when they are of individual-level type, as in the earlier discussed Serbian example (61).[15]

Finally, there is a specific set of pragmatic conditions under which secondary predicates are used, and these come as a result of the Quantification structure. Ignoring all cases where secondary predicates are GIVEN, and receive their interpretation from an antecedent phrase in the context, the standard information structure of secondary-predicate structures comes in the basic form of (68a). This form is illustrated with examples in (68b-d):

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[15] Note also that Serbian NPs do not have articles, which might be the reason why they can be more often used as secondary predicates. However, more research needs to be done to address this hypothesis.

(68) a.

	argument NP	*secondary predicate*
QS (LF)	*(higher) restrictor*	*(lower) restrictor or nuclear scope*
F-marking	*Given or F-marked*	*F-marked*

b. The treasurer can be anybody, but as far as the manager goes…

…*njega*$_{Arg}$-G/F   uzmite || *dobrog inženjera*$_F$.

  manager   take   good   engineer

"…but take (/pick) the manager so that he is a good engineer."

c. *Jovan*$_{G/F}$ je   došao na posao || *umoran*$_F$.

  Jovan   aux come to work   tired

"Jovan came to work tired."

d. Although normally a very calm person,…

…*Jovan* (često) | *pijan* || poludi.

  Jovan often   drunk   goes-crazy

"Jovan, when he is drunk, (often) goes crazy."

Let us briefly describe the semantic and pragmatic conditions under which (68b-d) are used by linking them to the configuration in (68a). In (68b), an individual-level F-marked predicate NP *dobrog inženjera*$_F$ "good engineer" is, being in the vP, structurally in the nuclear scope of the Quantification structure. Its F-marking ensures that it is also interpreted as a nuclear scope element.[16] This secondary predicate phrase thus assigns a crucial assertion property to the domain restrictor argument NP *njega* "him [=manager]" within an imperative context. In (68c), the referential argument NP *Jovan* is in the restriction clause of the Quantification structure.[17] The F-marked stage-

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[16] Recall the discussion in 6.4.2, and note that the substitution of the relevant F-marked secondary predicate with its non-F-marked variant *dobrog inženjera*$_G$ would result in this phrase being formally present in the nuclear scope, but not be interpreted as a part of the nuclear scope.

[17] If GIVEN, *Jovan* is interpreted via its antecedent, as a context domain restrictor. If F-marked, *Jovan* is necessarily a FOC, and it has to carry a B-accent when its secondary predicate *umoran* 'tired' is F-marked at the same time, and this is an indication that it is in the restriction clause of the Quantification

level secondary-predicate AP *umoran* "tired" is interpreted in the nuclear scope, and being embedded under the main predicate, assigns a temporary state to the domain restrictor argument, where this state is simultaneous with the event of the main predicate *došao na posao* "came to work". Finally, in (68d), the referential NP *Jovan* "Jovan" is in the restriction clause of the Quantification structure and is a domain restrictor. The F-marked secondary-predicate AP *pijan* "drunk" is in the restriction clause as well (see the last footnote), and is interpreted as a nested domain restrictor relative to the argument NP *Jovan* "Jovan". Also, this secondary predicate is embedded under a conditional operator, but it outscopes the main predicate in the nuclear scope. Therefore, the secondary predicate assigns a property to the argument within a modal conditional context, but this assignment is not limited by the event described with the main predicate.

To conclude, the argument and its secondary predicate in the secondary-predicate structures are always placed into distinct partitions of the Quantification structure. The argument is the domain restrictor, while the F-marked secondary predicate is either an embedded domain restrictor, or belongs to the nuclear scope. The resulting characteristic pragmatic properties of secondary-predicate constructions occur as a consequence of such distribution.

6.5.3 Bipartite NPs as an instance of secondary-predication structure

In this subsection, I show that there is a complete parallelism between the phenomenon of bipartite NPs and the phenomenon of secondary predication as outlined in 6.5.2.

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structure. Recall from Chapter 4 that B-accents occur only in the restriction clause. The same can be said of the NP *Jovan* and the secondary predicate *pijan* 'drunk' in (68d).

One of the main differences between our standard examples of secondary predication and bipartite NPs is now seen as simply a difference in the type of the argument NP in the structure in the secondary-predicate structure, repeated in (69):

(69)   [NP/PP-internal NP]   …   [AP/NP/PP]

      argument   non-local adjunct modifier

                                  (secondary predicate)

Namely, in the standard examples of secondary predication, the argument of the secondary predicate is often a proper name, which clearly is a full NP. On the other hand, in bipartite NPs we instead typically find common nouns or adjectives in this position, and these could be seen as either full or incomplete NPs, depending on the approach to the bipartite-NP phenomenon. The present analysis thus sees them as full NPs associated with secondary predicates.

Another reason why especially canonically ordered bipartite NPs may appear to be unlike the standard cases of secondary predication is that bipartite NPs often involve N'-ellipsis in the argument member. Recall from Section 6.1 that Serbian allows N'-ellipsis (or N'-drop), comparable to English *one*-replacement, as shown by the examples in (70a-b), repeated from (4):

(70) a. - What kind of pencil would you like me to buy for you*?*

      - Hoću [NP *crnu*   Ø].

       want-I   black

     "I want a black one."

   b. - Which yogurt do you buy?

      - Kupujemo [NP *onaj Ø u flašici*].

       buy-we   that   in bottle

     "We buy that one in the bottle."

Consider now our familiar canonically ordered bipartite NP *srebrne…minđuše* "silver...earrings" in (71), whose argument member is in fact a full NP that undergoes N'-ellipsis:[18]

(71) - Do you wear anything silver by any chance?

    - Da. [*Srebrne Ø*] nosim <u>*minđuše*</u>.

    yes   silver   wear-I earrings

    "Yes. Of the silver stuff, I wear earrings."

Canonically ordered bipartite NPs, therefore, may contain a full NP as their argument member that undergoes N'-ellipsis and is only an apparent AP.[19]

The proposed approach to bipartite NPs thus holds that the two members of a bipartite NP are base-generated separately from one another, and that they do not necessarily need to form a constituent at any point in the derivation, as in the classic cases of non-local adjunct modifiers such as secondary predicates.[20]

Recall from the discussion in the previous subsection that secondary predicates in Serbian can modify subjects, direct objects, indirect objects and even PP-internal arguments. *Bipartite NPs* in Serbian have exactly the same range of syntactic possibilities, since they can apparently occur as subjects (72a), direct objects (72b), indirect objects (72c), or as PP-internal (72d):

(72) a. E,   *ovaj*   me nervira   *voditelj*.

     now   this   me annoys   TV-host

     "Now, this TV-host annoys me."

---

[18] Note that the interpretation of the argument NP [*srebrne Ø*] is not "silver earrings", but rather "silver things", or "silver stuff", since the null-element has its antecedent in the NP *anything* from the question.

[19] Recall also from Section 6.5.2 that secondary predicates sometimes may precede their arguments (as it was shown by example 65, where the secondary predicate is a domain restrictor for the argument that is in the nuclear scope). My proposal thus predicts that there are two ways in which canonically ordered bipartite NPs may occur. For each case of a canonically ordered bipartite NP, the exact analysis depends on the context.

[20] See, for example, Rothstein (1985) for arguments that secondary predicates and their arguments do not form constituents at any point of the derivation.

b. - Do you ever wear silver jewelry?

    - Da. *Srebrne* nosim *minđuše.*

     yes silver   wear-I earrings

    "Yes. I wear silver earrings."

c. E,   *tom* je   Jovan pomogao *čoveku.*

  now   that aux Jovan helped   man

  "Now, Jovan helped that_F man."

d. - Boss, maybe we should hire younger and less expensive programmers for this

    project…

    - Ne. Na *programere* se   oslanjajte *sposobne...*

     no on programmers part. rely   capable

     "No. Rely on capable programmers (only)… (and I will worry about the

     money)."

At the same time, when secondary predicates are not possible in Serbian, bipartite NPs are not possible either. For example, secondary predicates are impossible with NPs that are internal to other NPs (as in 73a, or with the coordinate structure in 73b; see Neeleman 1994 for similar Dutch examples, and Müller 2004 for German examples):

(73) a. *Jovan je [kutiju [*ribe*_Arg]] pojeo *žive*_SecPred.   (an impossible SP)

    J.   aux box   fish   eaten raw

   intended: "Jovan ate up a box of raw fish."

b. *Jovan je [puževe   i   [*ribu*_Arg]] pojeo *živu*_SecPred. (an impossible SP)

    J.   aux snails.pl and   fish.sg   eaten raw.sg

   intended: "Jovan has eaten up snails and raw fish."

Likewise, bipartite NPs are impossible in the corresponding cases in (74):

(74) a.   *Jovan je [NP kutiju [*minđuša*]] kupio   *srebrnih*. (an impossible bip. NP)

   J.   aux box   earrings   bought   silver

   intended: "Jovan bought a box of silver earrings."

b.   *Jovan je [minđuše i [prsten]] kupio   *srebrni*. (an impossible bip. NP)

   J.   aux earrings and ring   bought   silver.sg

   intended: "Jovan bought earrings and a silver ring."

Next, recall that secondary predicates do not need to be phrases that otherwise occur exclusively as stage-level predicates in Serbian, and that some phrases that are normally used as individual-level predicates can occur as secondary predicates as well, as it was shown in Section 6.5.2. Likewise, bipartite NPs can employ both types of predicates as their members. So far, we have seen many examples of an *individual-level* predicate occurring as a part of a bipartite NP (cf. *srebrne* "silver", in *srebrne…minđuše* "silver…earrings"). A *stage-level* predicate can also be used in bipartite NPs, making them indistinguishable from classic cases of secondary predication, as in (75):

(75)   - Should I fry the fish?

   - Ne. *Ribu* jedem *živu*.   (a *stage-level* predicate in a *bipartite NP*)

     no fish   eat-I raw

     "No. As for fish, I eat it raw."

Finally, the Quantification-structure accounts for the parallel information structure properties of bipartite NPs on the one hand, as shown in sections 6.1 and 6.4, and those of the secondary-predicate structures on the other, as shown in Section 6.5.2. Note that one of the previous basic examples of non-canonically ordered bipartite NPs, repeated here as (76), is indistinguishable from the case in which the secondary predicate is an individual-level predicate:

(76)   - What kind of earrings do you usually wear?

   - *Minđuše*_G   nosim   *srebrne*_F**.**

      earrings   wear-I silver

    "I wear   silver_F earrings_G."

Based on all the arguments in this subsection, I conclude that bipartite NPs are simply a special case of secondary predication, and that they are in fact an epiphenomenon. In Section 6.6, I show how this analysis of bipartite NPs accounts for their descriptive properties from Section 6.2.

6.6 Descriptive properties of bipartite NPs revisited

The exposition in this section largely mirrors the one from Section 6.2. I account for each descriptive property of bipartite NPs noted in Section 6.2.

6.6.1 Bipartite NPs and the modifier/complement distinction

Recall that a noun head and its complement can neither occur as two (distinct) members of a bipartite NP, nor can they be within two distinct members of a bipartite NP. For example, NPs such as *rušenje zgrade* "destruction of the building", or *(njegovo) priznanje krivice* "(his) admission of guilt" cannot have bipartite-NP counterparts **rušenje...zgrade*, or **(njegovo) priznanje...krivice*, as shown by the ill-formedness of canonically ordered bipartite NPs in (77b) and (78b), and their non-cannonically ordered bipartite-NP variants (77c) and (78c):

(77) a. Gledamo *rušenje*   *zgrade*.

      watch-we destruction of-building

   b. **Rušenje*   gledamo *zgrade*.

      destruction watch-we of-building

c. *Zgrade   gledamo *rušenje*.

    of-building watch-we destruction

   "We are watching the destruction of the building."

(78) a. Slušamo   *(njegovo) priznanje krivice*.

    listen-we   his   admission of-guilt

  b. *(Njegovo) priznanje* slušamo *krivice*.

     his   admission listen-we of-guilt

  c. *Krivice   slušamo *(njegovo) priznanje*.

    admission listen-we his   of-guilt

   "We are listening to (his) admission of guilt."

This property is now straightforwardly explained by the secondary-predication account of bipartite NPs. Recall the secondary predicate structure from Section 6.5., repeated here in (79). This structure requires that one member of the bipartite NP be an argument NP or a PP-internal NP:

(79)   [NP/PP-internal NP] …   [AP/NP/PP]

     argument   non-local adjunct modifier

                              (secondary predicate)

Crucially, in the ill-formed bipartite NPs in (77b,c) and (78b,c), the argument members *rušenje* "destruction" and *priznanje* "admission" cannot be full NPs in the intended usage. The intended usage is that which would be equivalent to the corresponding head-complement non-bipartite NPs. That is, a head noun and its complement in such a usage may correspond to an NP only together. Consequently, **rušenje...zgrade* "destruction...of-building", or *(njegovo) priznanje...krivice* "(his) admission...of-guilt", as well as their non-canonically ordered counterparts are impossible bipartite NPs.

6.6.2 Basic cases of Bipartite NPs with a single "modifier" member

Once the secondary-predication account of bipartite NPs is paired together with the Serbian property of N'-drop, as outlined in Section 6.5.3, all basic cases of bipartite NPs from the literature are easily analyzed. Recall that allowed "modifier" members in bipartite NPs include demonstratives, possessors, adjectival quantifiers, and adjectival *wh*-words. Except for some adjectival quantifiers, such as *svaki* "every", all these adjectival phrases can occur as AP secondary predicates in Serbian. Moreover, due to the N'-drop property of Serbian, these adjectival phrases can also stand for the argument NPs of the form [$_{NP}$ AP Ø] in secondary-predicate constructions. For example, bipartite NPs *babin…hleb* "grandma's…bread" and *hleb…babin* "bread…grandma's" can be analyzed as either [$_{NP}$ *babin* Ø]$_{Arg}$…[$_{NP}$ *hleb*]$_{SP}$, or [$_{NP}$ *hleb*]$_{Arg}$…[$_{AP}$ *babin*]$_{SP}$. As a result, both canonically and non-canonically ordered bipartite NPs with all types of "modifier" members are predicted in Serbian.

Recall from Section 6.2.2 that non-canonically ordered bipartite NPs with adjectival *wh*-words are not grammatical, as shown by the repeated example (80b):

(80) a. A *koji*   kupuješ   *jogurt*?

      but which   buy-you   yogurt

      "But which yogurt do you buy?"

    b. *A *jogurt* kupuješ *koji*?

      but yogurt buy-you which

      intended: "But which yogurt do you buy?"

Now, it is easy to see that these examples are disallowed for independent reasons. Namely, in Serbian, all *wh*-phrases are moved into the left periphery. Since my account of bipartite NPs treats the members as independent phrases, it is not surprising that all members containing *wh*-words move into the left periphery. Therefore, examples such as (80b) are ungrammatical.

It should also be noted that some adjectival quantifiers, for example *svaki* "every", cannot occur as AP predicates due to their semantic type, that is, for independent reasons. Whenever such a quantifier seems to form a member of the bipartite NP on its own, as in (81a), this member must in fact be an argument NP with N'-drop, for example, [NP *svaki* Ø]. The restrictor of this quantifier is thus [N' Ø], which has an antecedent in the context. Furthermore, the contrast between (81a) and (81b) tells us that the argument (quantifier) member [NP *svaku* Ø] must be focused (and thus F-marked), and that the secondary predicate member *ringlu* "burner" must be GIVEN. Since the secondary predicate member is GIVEN, it must have an antecedent in the context. The antecedent is the same in both cases then, and the phrase [NP *svaku* Ø] is thus interpreted as [NP *svaku* <*ringlu*>] "[NP every <burner>]". The combining between the quantifier and the restrictor is thus not direct but goes via the common antecedent of the [N' Ø] in the argument and the antecedent of the GIVEN secondary predicate.

(81) a. [NP <u>*Svaku* Ø</u>]_F   proverim   *ringlu*_G   (pre   nego što odem).

               every.acc   check-I   burner.acc before than that leave

    "I check every burner (before I leave)."

   b. ?#[NP *Svaku* Ø]_G   proverim   <u>*ringlu*</u>_F   (pre   nego što odem).

               every.acc   check-I   burner.acc   before than that leave

    "I check every burner (before I leave)."

Note also that the bipartite NP in (81a) would be even more readily used in a context where *ringlu* "burner", despite being salient, would not be previously explicitly mentioned and where there is a chance that the listener might not be sure whether the speaker is about to talk about burners or, say, lightbulbs. The usage of such a late GIVEN topic then might be caused by the speaker's concern that the ellipsis in the

previously uttered argument had introduced too much ambiguity. The late topic is then used as a repair strategy.

6.6.3 The constituency problem in complex bipartite NPs and PP-internal bipartite NPs

Recall that one of the members of a bipartite NP may appear as a non-constituent. Under the secondary-predication approach, the two members of the bipartite NP are independent phrases. However, I already suggested that either member may happen to contain an instance of N'-drop. Therefore, cases such as (82), with apparent constituency problem, are easily accounted for. The information structure of (82) is essentially the same as that of (81a): the elided N' in the argument and the GIVEN secondary predicate *jogurt* "yogurt" share the same antecedent.

(82)   (In a grocery store)

     - My kids love this yogurt, so I always buy several cartons!

     - A   mi [$_{NP\text{-}Arg}$ *onaj* Ø (*u flašici*)$_F$] kupujemo [$_{NP\text{-}Sec.Pred.}$ *jogurt*$_G$].

      but we   that   in bottle   buy   yogurt

      "We, on the other hand, buy that yogurt (in the bottle)."

The same explanation applies to PP-internal bipartite NPs whose structurally higher member appears to be a non-constituent in the canonically ordered case, as in (83):

(83)   I work at the police station, and…

     …[$_{PP}$ *sa* [$_{NP}$ *svakakvim*$_F$ Ø]]   se   srećem *ljudima*$_G$.

         with   all-kinds-of   part. meet   people

     "I meet with all kinds of people."

Moreover, due to the fact that many PPs cannot be analyzed as secondary predicates of argument NPs, i.e. as non-local adjunct modifiers, the corresponding PP-internal NPs are ungrammatical when the preposition is within the structurally lower member, as in the ill-formed (84b) and (84d). Which of those cases are ungrammatical depends on the case of the argument member and the verb. The structurally low PP-member must be able to occur as an adjunct modifier of its structurally higher argument NP with an appropriate verb for the sentence to be grammatical, as is the case in (85):

(84)   I work at the police station, and…

    a. ...[$_{PP}$ *sa* [$_{NP}$ *svakakvim Ø*]] se   srećem *ljudima*.

        with   all-kinds-of   part. meet   people

         "I meet with all kinds of people."

    b. *…*svakakvim*   se   srećem [$_{PP}$ *sa*   *ljudima*].

        all-kinds-of part. meet   with people

    c. ... [$_{PP}$ *sa*   *ljudima*]   se   srećem *svakakvim*.

        with people   part. meet   all-kinds-of

    d. …*_ljudima_ se   srećem [$_{PP}$ *sa* [$_{NP}$ *svakakvim Ø*]].

        people   part. meet   with   all-kinds-of

(85)   [*Jogurt*]$_{NP-Arg}$ kupujemo [*u flašici*]$_{PP-SP}$.

      yogurt   buy-we   in bottle

    "We buy yogurt in the bottle."

6.6.4 An account of bipartite NPs with non-subsective adjectives

In section 6.2.6, I showed how the acceptability of NPs with non-subsective adjectives, such as *navodni…zločini* "alleged crimes" depends on both the relative order between the two members and their relative F-marking. The table which

summarizes the acceptability data for bipartite NPs with non-subsective adjectives is repeated as Table 6.2. Allowed configurations are as follows: $nsAdj_G...N_F$, $nsAdj_F...N_F$, $nsAdj_G...N_F$, and $N_F...nsAdj_G$. Configurations that are never acceptable are $*nsAdj_F...N_G$, $*N_G...nsAdj_F$, and $*N_F...nsAdj_F$.

Table 6.2   Acceptability judgments for NPs with non-subsective adjectives

	G-F	F-G	F-F	G-G
nsAdjN	✓	✓	✓	✓
nsAdj…N	✓	*	✓	?
N…nsAdj	*	✓	*	?

Namely, if the non-subsective adjective is F-marked, the only acceptable configuration is $nsAdj_F...N_F$, and configurations $*nsAdj_F...N_G$, $*N_G...nsAdj_F$, and $*N_F...nsAdj_F$ are ill-formed. In the case when the non-subsective adjective is GIVEN, no case is necessarily ill-formed, that is, in the case of $nsAdj_G...N_F$, $nsAdj_G...N_F$, or $N_F...nsAdj_G$, there is always a context in which these bipartite NPs are acceptable.

Now, as suggested by their name, the non-subsective adjectives have the following basic property: they are not subsective. That is, they cannot pick out a subset within any domain defined by another description, since this leads into a contradiction. Due to this property, while on the one hand alleged crimes can be understood as a subset of alleged objects, the alleged crimes cannot be a subset of crimes, since alleged crimes are not crimes. In other words, a Heim-style description *crime(x)* can be interpreted as an "alleged crime" without contradiction when embedded within a domain defined by the modal non-subsective adjective *alleged(x)*, that is, within the world of alleged objects. However, something that is an alleged crime cannot be felicitously interpreted

when it occurs within the domain defined by *crimes(x)*, if this domain is outside of the world of alleged objects. Importantly, then, the non-subsective adjective introduces a modal context, and the way in which *alleged(x)* combines with the *crimes(x)* is not a simple predicate modification, but instead introduces the possible worlds as a factor into the composition of meaning (see, for example, Heim & Kratzer 1998).

We can thus formulate a simple generalization for bipartite NPs with non-subsective adjectives based on the acceptability data from Table 6.2:

(86)   *Bipartite NPs with non-subsective adjectives*

In the bipartite NP with a non-subsective adjective, the occurrence of the variable described by the head noun is possible if and only if this occurence is, at the level of interpretation, nested within the modal domain introduced by the non-subsective adjective.

Now that the generalization (86) is in place, the observed acceptability patterns from Table 6.2 can, in fact, be easily explained by the already outlined approach to bipartite NPs in terms of the Quantification structure in 6.4.1 and 6.4.2. Namely, recall that when a non-subsective adjective of a bipartite NP is F-marked, the noun must also be F-marked and moreover belong to the lower partition of the Quantification structure. As argued in 6.4.2, F-marked elements are interpreted right at the level of LF, regardless of the context. Since the occurrence of non-F-marked, that is, GIVEN elements, is dependent on them having an antecedent in the context, their relative scope with respect to the other elements at the level of LF cannot simply be read off the Quantification structure. Instead, GIVEN elements may serve as domain restrictors from the context, and even the F-marked elements from the restriction clause of the Quantification structure may naturally end up as domain restrictors nested within them. For this reason, the only option for an F-marked non-subsective adjective to felicitously occur as a part of a bipartite NP is that it co-occurs with the F-marked

noun that belongs to a lower partition of the Quantification structure, that is, as in the configuration $nsAdj_F...N_F$. Namely, it is only in this case that the scope relationships required by the semantics of non-subsective adjectives are respected. Other configurations are all illicit: *$nsAdj_F...N_G$, *$N_G...nsAdj_F$, and *$N_F...nsAdj_F$.

The same reasoning accounts for the acceptability of multiple felicitous cases when the non-subsective adjective is not F-marked: $nsAdj_G...N_F$, $nsAdj_G...N_F$, or $N_F...nsAdj_G$. Namely, since the GIVEN expression $nsAdj(x)$ is required by GIVENNESS to pick up an antecedent from the context, it becomes possible that this antecedent acts as a domain restrictor from the context, and therefore outscope all F-marked elements, whose interpretations and relative scope are directly read off the LF structure.

Finally, I stay agnostic about the cases when both members of the bipartite NP are GIVEN, ?$nsAdj_G...N_G$ and ?$N_G...nsAdj_G$. While it is likely that context would be an important factor to consider in this case, it is unclear what their acceptability status is, and more research is necessary.

6.7 Conclusion

I provided a syntax-semantics interface account to bipartite-NP phenomenon, by linking it to the Quantification structure, as outlined in Section 6.4., and approaching it as an instance of a more general phenomenon of secondary predication, as outlined in Section 6.5. I showed that all properties associated with bipartite NPs, structural and semantic/pragmatic, follow from the standard properties of secondary predication once this structure is paired with the N'-drop, as an independently needed operation in Serbian. I also argued that bipartite NPs cannot be derived from their non-discontinuous-NP counterparts in Serbian. I showed how other current approaches to

bipartite NPs that do so, namely the extraction approach (in any of its variants) and the distributed-PF-deletion approach, are not adequate in accounting for bipartite NPs. The former generally undergenerate, while the latter overgenerate.

CHAPTER 7

CONCLUSION

My main goal in this dissertation has been to construct an interface model that explains semantic and information structure effects of constituent order variation (scrambling) and relative prominence in a free constituent order language. I focused my attention on the case of Serbian, which is precisely that type of case: a free constituent order language with flexible relative prominence.

Taking Diesing's (1992) Mapping Hypothesis as a starting point, I argued that information structure effects of constituent order variation in a free constituent order language such as Serbian are best captured by the Quantification structure which, as I propose, mediates the relationship between constituent order variation and information structure. In particular, the restriction clause part of the Quantification structure contains all overt domain restriction material of the sentence, while the nuclear scope part of the Quantification structure contains the assertion material of the sentence. The sole driving force behind scrambling is a simple principle that requires that constituents which participate in domain restriction be in the restriction clause of the Quantification structure and not in the nuclear scope. Since Diesing's Mapping Hypothesis states that vP-external material is mapped onto the restriction clause, all constituents that are domain restrictors must move out of the vP. The crucial property of a free constituent order language such as Serbian is that this movement must happen overtly. In other words, Serbian surface constituent order is transparent with respect to the Quantification structure. Information structure effects of scrambling essentially consist in determining the domain of the common ground that is relevant for the assertion in the nuclear scope of the Quantification structure. The more

material is scrambled out of the vP and placed into the restriction clause, the more this domain is narrowed down. By virtue of this, the Quantification structure provides the interface between constituent order variation and its pragmatic effects. In the proposed model, presuppositionality of elements does not play a direct role in scrambling, but is rather seen as a consequence of domain restriction, independent from syntax. While the approach thus predicts that scrambled elements have mandatory presuppositional interpretation, it also predicts that the interpretation of elements in the nuclear scope is unmarked, that is, that they can be either presuppositional or existential. The predictions of the proposed approach to constituent order variation have been tested, and confirmed, experimentally.

A further conclusion is that flexible relative prominence does not directly interact with the constituent order variation in a free constituent order language such as Serbian. The set of principles that drive flexible prosodic prominence in Serbian is best explained by the notions of F-marking and GIVENNESS, as defined in Schwarzschild (1999). I have shown that neither of these notions can be a factor in constituent order variation.

In sum, constituent order variation and flexible relative prominence in a language like Serbian are driven by independent modules of the grammar. My approach contrasts with, and presents an argument against the focus-projection approach to Serbian proposed in Godjevac (2000, 2006).

The model I have developed can be naturally extended to provide accounts for two widely discussed interface phenomena.

The first phenomenon is the so-called A-accent/B-accent distinction (Bolinger 1965, Jackendoff 1972). In my model, the pragmatic differences between these accent types are explained in terms of the Quantification structure. This further suggests that the distribution of the A- and B-accents calls for a model of grammar in which the

phonological component can receive direct input from the semantic component.

The second phenomenon that my model accounts for is the case of bipartite NPs in Serbian, and more generally, in Slavic and some non-Slavic languages. I have argued that bipartite NPs are in fact an epiphenomenon: the two members of a bipartite NP, do not correspond to a single split NPs. Rather, they are base-generated independently of one another, and there is a binding relation between them established via a secondary-predicate relation. Crucially, the two members of a bipartite NP belong to different partitions of the Quantification structure, which accounts for their specific information structure properties.

The model that I have proposed is a general interface model for free constituent order languages. In this dissertation, it has been extensively tested on Serbian.

The immediate research task for the future is testing the proposed model on other languages that exhibit free constituent order.

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