

# Argument Structure, Ergativity, Aspect and Agreement

a view from n-based nominalizations



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# Abstract

In this thesis, I argue that the nature of a topmost phase head influences the feature specification and syntactic realization of layers merging both below and above the phase head. I base my argumentation on nominalizations in nominative-accusative and ergative-absolutive languages, starting from the root domain to the DP projection. I discuss the argument and event structure, aspectual values, agreement patterns, morphological properties, and mechanics of word formation. The core generalizations are formed on the basis of the Serbian language, as a representative of the nominative-accusative alignment, and Yucatec Mayan, a language surfacing with the ergative-absolutive pattern. Providing novel, original data, I identify and address several puzzles in domains of aspectual distinctions, argument and event structure, gender and number agreement, and the height of affixation.

I argue that Serbian, in contrast to languages such as English, German, and Spanish that have both n-based and D-based nominalizations in the typology offered in Alexiadou, Iordăchioaia, and Schäfer (2011) and Alexiadou (2020b) employs a single nominalization strategy, as all deverbal nominals are instances of n-based nominalizations.

I demonstrate that the presence of the nominalizing head *n* that embeds varying amounts of verbal structure (Alexiadou, 2001 and subsequent work) influences both the verbal layers below it and the nominal layers above it. I show that Serbian obeys the ergativity requirement proposed in Alexiadou (2001) and provide further evidence that vP under *n* is distinct from the vP under T. Furthermore, on the basis of the argument structure of active and passive clauses, as well as nominalizations and participles, I demonstrate that *v* under T can assign accusative case to its internal argument, *v* under *n* can assign genitive, while *v* under *a* in participles lacks the capability of case assignment.

The analysis of Voice and argument structure builds on work that proposes several variants of Voice head (Alexiadou, 2001, Alexiadou, Anagnostopoulou, & Schäfer, 2015, Kastner, 2020). Elaborating on the idea that the local relationship with the *n* head influences the specification of verbal layers, I argue that VoiceP under *n* is distinct from the VoiceP under T. Specifically, it needs to be deficient (Alexiadou, 2001) and specified as Voice<sub>[-D]</sub> (Kastner, 2020) prohibiting a DP to appear in its specifier position.

On the basis of aspectual values of deverbal nominals, I provide evidence that the value

of the AspP depends on the local relationship with the categorizing head above it. Namely, AspP under TP/CP can be specified as both perfective and imperfective, while AspP under *n* is always specified as imperfective.

Providing evidence from gender agreement, I demonstrate that the nominalizing head *n* influences the layers above it. Namely, the spell out of the special nominalizing morphology influences the gender features specification in a higher layer hosting grammatical gender, a projection proposed in Puškar (2017, 2018). Moving to number features on deverbal nominals, I show that morphologically identical nominalizations in Serbian exhibit the event structure ambiguity and allow both for mass and count noun interpretation, depending on the interaction between the Inner Aspect and the property of boundedness, in line with Alexiadou, Iordăchioaia, and Soare (2010).

Alexiadou (2001) demonstrates that nominative-accusative languages show the ergative-absolutive alignment in nominalizations. In light of a broader discussion on ergativity, I provide evidence from several Mayan languages that ergative-absolutive languages mirror this picture and exhibit an accusative pattern in their nominalization side.

# Zusammenfassung

In dieser Masterarbeit argumentiere ich, dass die Beschaffenheit eines obersten Phasenkopfes die Merkmalspezifikation und syntaktische Realisierung von Schichten sowohl unterhalb als auch oberhalb des Phasenkopfes beeinflusst. Ich stütze meine Argumentation auf Nominalisierungen in Nominativ-Akkusativ- und Ergativ-Absolutiv-Sprachen, ausgehend von der Wurzelldomäne bis zur DP-Projektion. Ich diskutiere die Argument- und Ereignisstruktur, Aspektwerte, Kongruenzmustern, morphologische Eigenschaften und Mechanismen der Wortbildung. Die wichtigsten Generalisierungen werden anhand der serbischen Sprache als Beispiel für die Nominativ-Akkusativ-Anordnung und des Yucatec Mayas, einer Sprache, die das Ergativ-Absolutiv-Muster zeigt, getroffen. Anhand neuer, origineller Daten identifiziere und diskutiere ich mehrere Probleme in den Bereichen der aspektuellen Unterscheidungen, Argument- und Ereignisstruktur, Genus- und Numeruskongruenz und Höhe der Affixierung.

Ich argumentiere, dass Serbisch im Gegensatz zu Sprachen wie Englisch, Deutsch und Spanisch, die sowohl n-basierte als auch D-basierte Nominalisierungen in der Typologie von Alexiadou, Iordăchioaia und Schäfer (2011) und Alexiadou (2020b) haben, eine einzige Nominalisierungsstrategie verwendet, da alle deverbalen Nominale Instanzen von n-basierten Nominalisierungen sind.

Ich zeige, dass das Vorhandensein des nominalisierenden Kopfes n, der unterschiedliche Mengen an verbaler Struktur einbettet (Alexiadou, 2001 und nachfolgende Arbeiten), sowohl die verbalen Schichten unter ihm als auch die nominalen Schichten über ihm beeinflusst. Ich zeige, dass das Serbische die in Alexiadou (2001) vorgeschlagene Ergativitätsbedingung erfüllt, und liefere weitere Belege dafür, dass vP unter n sich von vP unter T unterscheidet. Darüber hinaus zeige ich anhand der Argumentstruktur von Aktiv- und Passivsätzen sowie von Nominalisierungen und Partizipien, dass v unter T seinem internen Argument den Akkusativ zuweisen kann, v unter n den Genitiv, jedoch v unter a in Partizipien die Fähigkeit zur Kasus-Zuweisung vermissen lässt.

Die Analyse von Voice und Argumentstruktur baut auf Arbeiten auf, die mehrere Varianten des Voice-Kopfes vorschlagen (Alexiadou, 2001, Alexiadou et al., 2015, Kastner, 2020). Ausgehend von der Idee, dass die lokale Beziehung zum n-Kopf die Spezifizierung von Verbalschichten beeinflusst, argumentiere ich, dass VoiceP unter n sich von VoiceP unter T unter-

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scheidet. Insbesondere muss es defizient sein (Alexiadou, 2001) und als Voice<sub>[-D]</sub> (Kastner, 2020) spezifiziert werden, was verbietet, dass eine DP in ihrer Spezifiziererposition erscheint.

Anhand der aspektuellen Werte von deverbalen Nominalen beweise ich, dass der Wert des AspP von der lokalen Beziehung zum kategorisierenden Kopf über ihm abhängt. AspP unter TP/CP kann nämlich sowohl als perfektiv als auch als imperfektiv spezifiziert werden, während AspP unter n immer als imperfektiv realisiert wird.

Anhand der Genus-Übereinstimmung zeige ich, dass der nominalisierende Kopf n die darüber liegenden Schichten beeinflusst. Die Realisierung der speziellen nominalisierenden Morphologie beeinflusst die Spezifikation der Genusmerkmale in einer höheren Schicht, die das grammatische Genus beherbergt. Diese Projektion wird von Puškar (2017, 2018) vorgeschlagen wird. In Bezug auf die Numerusmerkmale deverbaler Nominalen zeige ich, dass morphologisch identische Nominalisierungen im Serbischen eine Ambiguität der Ereignisstruktur aufweisen und sowohl die Interpretation als Massen- sowie als Zählomen ermöglichen. Dies ist abhängig von der Interaktion zwischen dem inneren Aspekt und der Eigenschaft der Begrenztheit, in Übereinstimmung mit Alexiadou, Iordăchioaia und Soare (2010).

Alexiadou (2001) zeigt, dass Nominativ-Akkusativ-Sprachen das Ergativmuster in Nominalisierungen aufweisen. Vor dem Hintergrund einer breiteren Diskussion über Ergativität zeige ich anhand mehrerer Maya Sprachen, dass Ergativ-Absolutiv-Sprachen dieses Bild widerspiegeln und auf ihrer Nominalisierungsseite ein Akkusativmuster aufweisen.

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# Chapter 1

## The Puzzles

### 1.1 Introduction

The study of nominalizations encompasses a large scale of syntactic phenomena that lie in the core of language architecture. In this thesis, I elaborate on the properties of nominalizations in nominative-accusative and ergative-absolutive languages, starting from the root domain to the topmost DP projection. I discuss the argument and event structure, aspectual values, agreement patterns, morphological properties, and mechanics of word formation. The core generalizations and mechanics are formed on the basis of the Serbian language, as a representative of the nominative-accusative alignment, and Yucatec Mayan, a language surfacing with the ergative-absolutive pattern. Serbian nominalizations have not been under much of a research spotlight, except in Šarić (2018), who discusses them in light of a more general discussion on the NP/DP hypothesis.

Providing novel, original data, I identify and address several puzzles in domains of aspectual distinctions, argument and event structure, gender and number agreement, and the height of affixation.

As demonstrated in the review on existing main approaches to nominalizations in Alexiadou & Borer (2020), they have been a subject of the intense study from an early lexicalist approach that dissociates their formation from syntax and places it in the lexicon, put forth in Chomsky (1970), through the  $\theta$ -theory within the Government and Binding model, to syntax-based approaches most notably realized within the framework of Distributed Morphology (Marantz (1997), Alexiadou (2001) and subsequent work, among others) and Borer's Exo-Skeletal Model (Borer, 2003, 2013). The main shift from Chomsky's (1970) *Remarks* to nowadays understanding of nominalizations begins from finding that nominalizations are not derived transformationally from clauses (Alexiadou, 2020b). As Alexiadou (2020b) argues, clauses and deverbal nominals are formed independently in syntax, sharing a varying amount

of functional layers. Henceforth, I use the terms Argument Structure Nominals (ASNs) and Result Nominals (RNs) as instances of a broad notion of *nominalizations* since they accurately convey the distinct syntactic behavior nominals with the verbal source exhibit.

In this chapter, I introduce the puzzles, provide information on the data, and spell out the theoretical assumptions, setting the scene for the upcoming discussion.

## 1.2 Puzzle #1

The projection of Outer Aspect is one of the cardinal verbal properties of Slavic languages (Bloch-Trojnar & Malicka-Kleparska, 2017), replicated in the formation of ASNs (Alexiadou, 2001). As the data below adapted from Tatevosov (2011) for Russian, Bloch-Trojnar (2017) for Polish, and Procházková (2006) for Czech demonstrates, Slavic languages allow for a formation of ASNs both from imperfective and perfective verbs, surfacing with aspect-related morphology and aspectual modifiers<sup>1</sup>.

- (1) a. Pisanie pisem zajalo dva časa.  
writing.IMPF letters.GEN took two hours  
'Writing (all the) letters took two hours.'
- b. Na-pisanie pisem zajalo dva časa.  
PF-writing.NMLZ letters.GEN took two hours  
'Writing all the letters took two hours.'
- Russian*
- (2) a. czytanie książki przez dwa dni/\*w dwa dni  
read.IMPF.NMLZ book.GEN.SG for two days/\*in two days  
'reading of the book for two days/\*in two days'
- b. prze-czytanie książki w dwa dni/\*przez dwa dni  
PF-read.NMLZ book.GEN.SG in two days/\*for two days  
'having read the book in two days/\*for two days'
- Polish*
- (3) a. čtení knih-y hodin-u  
reading.IMPF.NOM.SG book-ACC.SG hour-ACC.SG  
'the reading of a book for an hour'

<sup>1</sup>ABBREVIATIONS: 0-meaningless element; 1-first person; 2-second person; 3-third person; ACC-accusative; A-set A marker; ACT-active; ABS-absolutive; ABSTR- abstract marker; AUX-auxiliary; B – set B marker; CL-noun class; COMP-complementizer; CMPL-completive; D-deictic; DAT-dative; DET-determiner; EXIST-existential; FEM-feminine; FUT-future; GEN-genitive; IMP-imperative; IMPF/IPFV-imperfective; INAN-inanimate; INCOMP-incompletive; INF-infinitive; INT-interrogative; INTNS-intensifier; LOC – locative; LP-lexical prefix; MSC-masculine; NMLZ/NML-nominalizer; NEUT-neuter; NEG-negation; NOM-nominative; OBL-oblique; PASS-passive; PF-perfective; PFX-prefix; PL-plural; POSS-possessive; PREP-preposition; PROG-progressive; PRS-present; PST-past; PTCP-participle; Q – question particle; REL-relationalizer; RFL-reflexive; SSBJ-subject; SG-singular; SMF-semelfactive; SP-superlexical prefix; SPONT-spontaneous; SUBJ – subjunctive; SUP-supine; SR-subordinator; TH-theme vowel; TRR-transitivizer

- b. pře-čtení knih-y za hodin-u  
 PF-reading.NOM.SG book-ACC.SG in hour-ACC.SG  
 ‘the reading through a book in an hour’

Czech

On the other hand, though possible, formation of ASNs out of perfective verbs is highly limited in Serbian (Ignjatović, 2016, Arsenijević & Simonović, 2018, Šarić, 2018). In Chapter 2, I provide evidence for a three-way blocking of a nominalization process in Serbian and solve the puzzle arguing that the nominalizer *n* imposes a requirement of imperfectivity in the aspectual layer.

### 1.3 Puzzle #2

The question of argument structure in deverbal nominals is one of the most vibrantly discussed phenomena in the literature on nominalizations that has commonly served as a criterion for their classification (Grimshaw 1990; Alexiadou 2001; Borer 2003; Alexiadou & Grimshaw 2008). While Grimshaw (1990) dissociates nominal from verbal arguments and proposes that the nominal suffix is responsible for surfacing with arguments in the nominal domain, Giorgi & Longobardi (1991) argue for the one:one mapping of verbal argument structure to the nominal one. In a series of contributions, Borer (2003, 2013, 2014) most notably argues that ASNs are built on the basis of a complete verb phrase inheriting its argument structure.

In Chapter 2, I discuss the ergative case pattern in Serbian, a paramount nominative-accusative language, that emerges as a consequence of the nominalization process within Alexiadou’s (2001) theory of ergativity. I refer to this view here as *n-based driven ergativity*.

Furthermore, in the same chapter, I touch upon a morphological puzzle that emerges in the nominalization of unaccusative, unergative, and anticausative verbs. Namely, in the formation of ASNs, these nominals surface with the passive-related morphology available solely to transitive verbs that passivize. As the example (4) below demonstrates, the nominalizer *-j-* attaches to the passive participle morpheme spelled out as *-n-* both in nominals derived out of transitive (4a) and unaccusative verbs (4b).

- (4) a. brisa-n-j-e podatak-a od strane Tamara  
 delete-PASS-NMLZ-NEUT data-GEN by side Tamara  
 ‘deleting of the data by Tamara’  
 b. cveta-n-j-e cveć-a  
 flourish-PASS-NMLZ-NEUT flowers-GEN  
 ‘flourishing of the flowers’

Passive-related morphology under nominalization is attested in Mayan languages as well. Imanishi (2020) provides the following data from Kaqchikel and argues that a subset of nom-

inalized transitive verbs always surface with the passive morphology when nominalized.

- (5) röj y-øj-ajin            che ki-q'ete-x-ik            ri ak'wal-a'.  
 WE IPFV-B1PL-PROG PREP A3PL-hug-PASS-NMLZ DET child-PL  
 'We are hugging the children.'

I have identified a similar pattern in Yucatec, where a transitive verb needs to be passivized before surfacing with the nominalizer *-Vl* specialized for intransitive bases.

- (6) Tu'ux yaan            u ju'un-il            úuchik u            to'o-b-ol            waaj=o'?'  
 where EXIST.[B.3] A.3 paper-REL OBL.SR A.3 wrap-PASS-INCMPL tortilla=D2  
 'Where is the paper with which they wrapped the tortilla?'            [CoCoYum](#), ACC0189
- (7) bix u            ts'a'ak-al  
 how A.3 cure.PASS-INCMPL  
 'how it can be cured'            [CoCoYum](#), ACC0281

Borer (2020) differentiates between Long Argument Structure Nominals (LASNs) surfacing with genitives (8a) and Short Argument Structure Nominals (SASNs) with optional *by*-phrases, arguing that the latter embed passive structure.

- (8) a. The dean's formation/forming of the committee  
 b. the formation/forming of the committee (by the new dean)            ([Borer, 2020](#))

Ahdout (2021) provides an extensive overview of the interaction between passives and deverbal nominals, their similarities and points of departure.

In light of the ergativity hypothesis endorsed here, I analyze both passives and nominalizations as forms that can be subsumed under the broader phenomenon of ergativity. Providing an array of arguments, I will demonstrate that nominalizations are nominal counterparts of passives in the verbal domain. I will demonstrate that the nominalizer *n* changes the value of  $\text{Voice}_{[+D]}$  to  $\text{Voice}_{[-D]}$ , i.e., a Voice head that has a value  $[+D]$  under T obligatorily shifts its feature specification, having a value  $[-D]$  when it is in a local relationship with *n*. This view departs from Bruening's (2013) and Kastner's (2020) proposals, who assume  $\text{Voice}_{[+D]}$  in passives. I argue that a verb starts as  $\text{Voice}_{[+D]}$  but shifts its specification in the contexts of the *n* head and Pass head in nominalizations and passives, respectively.

## 1.4 Puzzle #3

The phenomenon of split ergativity understood as nominative-accusative alignment in an ergative-absolutive language has been attested in several Mayan languages, including Yucatec

Maya (Verhoeven, 2007), Chol (Coon, 2010a, 2010b), Chuj Mayan (Coon & Carolan, 2017), Kaqchikel, Q’anjob’al, and Ixil (Imanishi, 2014, 2020).

Namely, split ergativity arises in imperfective and progressive contexts in Yucatec Maya. As the examples below demonstrate, the imperfective morpheme *k-* surfaces with the ergative set A markers both with intransitive (9) and transitive verbs (10), leading to the apparent alignment split, since arguments of transitive verbs and sole arguments of intransitives are identically cross-referenced.

- (9) Ba’axtéen k=u jóo’-ol u ja’-il a w-ich?  
 why.[B.3] IMPF=A.3 exit-INCMP A.3 water-REL A.2 0-eye  
 ‘Why are you crying?’ CoCoYum, ACC0599.1
- (10) K=u jach ts’a-ik y-óol ti’ meyaj.  
 IMPF=A.3 really put/give-INCMP A.3-mind LOC work  
 ‘He really concentrates on working.’ CoCoYum, MPK002

In Chapter 4, I demonstrate that Yucatec Maya replicates the Chol pattern observed in Coon (2010a, 2010b), and argue that split ergativity should be attributed to the process of nominalization.

## 1.5 Data and Methodology

For the purposes of this study, verb lemmas were selected from the Dictionary of Serbian Language and checked on their ability to nominalize, resulting in 16120 verbs and 8144 respective deverbal nouns. Using standardized tests, verbs are classified with respect to Voice into four main classes, transitive, unaccusative, unergative, and anticausative, with several subclasses within each class. The next criterion for the organization of the verbs within the database was aspect, imperfective and perfective, and surfacing with aspectual morphology, which in Serbian includes suffixation with secondary imperfective and semelfactive *-nu-*, and prefixation with lexical and superlexical prefixes. The main part of the analysis included applying the diagnostics on the verbal and nominal scale proposed in Alexiadou (2020b) to deverbal nominals.

For the analysis of Yucatec Maya, I have performed the corpus analysis on the Collective Corpus of Yucatec Maya (CoCoYum), developed by Elisabeth Verhoeven, Nico Lehmann, and Frederic Blum at the Humboldt University of Berlin. CoCoYum includes the Yuctext corpus (YT) provided by Christian Lehmann, which consist of around 159.000 tokens. I have used the LYC-Elicited suborcpus containing 44,360 tokens imported into the ANNIS framework. CoCoYum is a fully annotated corpus of Yucatec Maya that includes the following layers: (i) standardize sentence layer (rtx), containing the transcription of a phrase or sentence in one

span, (ii) standardized normalization layer (nm) that establishes comparability between different varieties and facilitates the annotation of non-canonical structures, (iii) morphological layer (mb), containing morphological segmentation of each token, (iv) gloss layer (ge), providing glossing according to the Leipzig Glossing Rules, and (v) translation layer (te, ti, ta), giving the translation of a sentence or phrase in Spanish, English, or German.

Serbian data consists of the original examples that I have produced as a native speaker unless otherwise indicated. The data for other languages discussed in the thesis comes from the existing literature.

## 1.6 Layering Approach

The analysis of argument structure builds on Alexiadou's (2001, 2017a) n-based driven ergativity and theory of deficient Voice. Furthermore, the specifics of the analysis are couched in Alexiadou et al. (2011) and Alexiadou's (2020b) framework, which proposes a distinction between n-based and D-based nominalizations, under a general framework of Distributed Morphology (DM).

I apply the layering approach to syntax (Alexiadou et al., 2015; cf. Wood, 2020, 2021), which proposes that each functional layer is associated with a particular function. In line with Alexiadou (2001, 2014) and Borer (2003, 2013), I take roots to function as syntactic terminals without syntactic properties. Furthermore, they are carriers of a core lexical meaning (Alexiadou et al., 2015). Being acategorial, roots need to be adjoined to a categorizing head (Marantz, 1997, 2001) in order to be established as verbs, nouns, or adjectives.

When it comes to higher layers, I assume a split between the vP as a layer that introduces eventivity and the internal argument and the VoiceP, responsible for licensing of the external argument (Pylkkänen, 2008; Alexiadou, Anagnostopoulou, & Schafer, 2006; Alexiadou et al., 2015; Harley, 2009; Wood & Marantz, 2017). Further theoretical assumptions are given as the analysis unfolds.

The thesis is organized as follows. In Chapter 2, I discuss the structure of the Serbian verbal complex, apply Verb-Stranding Verb Phrase Ellipsis (VVPE) as a diagnostic for functional structure (Gribanova, 2013b) and employ a post-syntactic amalgamation as a kind of head movement that participates in the formation of complex words, proposed in Harizanov & Gribanova (2019) in order to account for the formation of deverbal nominals as complex words. In the same chapter, I address the first puzzle introduced here and offer a solution for it.

In Chapter 3, I discuss the theory of ergativity proposed in Alexiadou (2001, 2017a), provide a detailed classification of Serbian verbs, present the argument licensing potential of their respective nominals, and spell out the mechanics of argument licensing.

Chapter 4 brings the analysis of split ergativity in Yucatec as a consequence of nominalization. In Chapter 5, I focus on the nominal layers between the nominalizer *n* and the D layer, providing evidence for the ambiguity in the event structure of morphologically identical ASNs in Serbian. In Chapter 6, I present the complete typology of Serbian ASNs and RNs based on the height of affixation. Chapter 7 summarizes the thesis.



## Chapter 2

# Aspectual distinctions in Argument Structure Nominals and Result Nominals

### 2.1 Introduction

Cross-linguistically, languages show differences in the formation of Argument Structure Nominals (ASNs) and Result Nominals (RNs) with respect to a particular verb class that serve as the input for the nominalizing process. As demonstrated in Alexiadou (2001), ASNs can be derived from unaccusatives, but not from unergatives in Greek. On the other hand, Serbian does not show such restriction, i.e., transitive, unaccusative, unergative, causative, and anti-causative verbs can serve as inputs for the nominalization process. However, distinct verb classes and their subclasses show differences in the nominalization process when it comes to aspectual values of underlying verbs. In this chapter, I aim to solve a long-standing puzzle of why Serbian perfective verbs show limitations in their nominalizing potential.

Grammatical or Outer Aspect, known also as viewpoint aspect, aspect proper, viewpoint, perspective point, distinct from the lexical aspect or *Aktionsart*, frequently referred to as semantic or situation aspect, verb character, intrinsic verb meaning, Aristotelian aspect, actionality or aspectuality (Bloch-Trojnar & Malicka-Kleparska, 2017) is one of the paramount categories in Slavic languages.

The distinction between the imperfective and perfective aspect of the verb is morphologically encoded in Slavic languages, and preserved in ASNs (Alexiadou, 2001). This stance is further supported by the fact that nominalizations license the same type of adverbial modifiers as their underlying verbs. The inheritance of aspectual modifiers is apparent in comparison of perfective and imperfective contexts, where nominals derived from imperfective verbs accept *for*-adverbials, while those derived from perfective verbs are compatible with *in*-adverbials. The data below is adapted from Tatevosov (2011) for Russian, Bloch-Trojnar (2017) for Pol-

ish, and Procházková (2006) for Czech.

- (1) a. Pisanie pisem zanjalo dva časa.  
writing.IMPF letters.GEN took two hours  
'Writing (all the) letters took two hours.'
- b. Na-pisanie pisem zanjalo dva časa.  
PF-writing.NMLZ letters.GEN took two hours  
'Writing all the letters took two hours.'
- Russian*
- (2) a. czytanie książki przez dwa dni/\*w dwa dni  
read.IMPF.NMLZ book.GEN.SG for two days/\*in two days  
'reading of the book for two days/\*in two days'
- b. prze-czytanie książki w dwa dni/\*przez dwa dni  
PF-read.NMLZ book.GEN.SG in two days/\*for two days  
'having read the book in two days/\*for two days'
- Polish*
- (3) a. čtení knih-y hodin-u  
reading.IMPF.NOM.SG book-ACC.SG hour-ACC.SG  
'the reading of a book for an hour'
- b. pře-čtení knih-y za hodin-u  
PF-reading.NOM.SG book-ACC.SG in hour-ACC.SG  
'the reading through a book in an hour'
- Czech*
- (4) a. izrađivanje moje ogrlice mesecima  
making my.GEN necklace.GEN MONTH.INSTR.PL  
'making my necklace for months'
- b. izrada ogrlice za šest meseci  
making necklace.GEN PREP six months  
'making of the necklace in six months'
- Serbian*

The examples above show that deverbal nominals can be derived both from imperfective and perfective verbs. Moreover, Procházková (2006) claims that, in Czech, it would be very difficult to find a verb that cannot undergo nominalization process. However, Serbian faces several severe restrictions when it comes to nominalization of perfective verbs. For the purposes of this study, verb lemmas were selected from the Dictionary of Serbian Language and checked on their ability to nominalize, resulting in 16120 verbs and 8144 respective deverbal nouns.

Arsenijević and Simonović (2018) argue that “all and only imperfective verbs in S-C productively derive deverbal nominalizations”, allowing for a small group of perfective verbs to build nominalizations followed by an unattested prosodical pattern or idiosyncratic meaning. On the other hand, Šarić (2018) claims that both perfective and imperfective verbs can serve as inputs for nominalizations, “except in certain cases where the perfective verb simply does not allow for the formation of the nominalizations”.

Closer morphological examination of the striking result that roughly half of the verbs do not nominalize provides evidence for a three-way blocking of the nominalization process in Serbian. In the most frequent case (6b), the verb is prefixed with the perfectivizing lexical prefix that merges low in the structure – within the vP.

- (5) a. Teniser je trča-o po terenu.  
 tennis.player AUX run.IMPF-PST.PTCP.3SG.MSC PREP COURT  
 ‘The tennis player run across the court.’  
 b. trčanje teniser-a  
 running tennis.player-GEN  
 ‘running of a tennis player’
- (6) a. Teniser je istrča-o na teren.  
 tennis.player AUX run.PF-PST.PTCP.3SG.MSC PREP COURT  
 ‘The tennis player ran onto the court.’  
 b. \*is-trčanje teniser-a  
*out*-running tennis.player-GEN  
 ‘running of a tennis player’

Superlexical perfectivizing prefix hosted in the higher aspectual projection that scopes over the secondary imperfective morpheme in the lower Asp head can completely block the nominalizing process, as the further discussion will demonstrate:

- (7) a. is-pre-crt-ava-ti  
 CMPL-*across*-draw-2IMPF-INF  
 ‘redraw one by one’  
 b. \*is-pre-crt-ava-n-j-e  
 CMPL-*across*-draw-2IMPF-PASS-NMLZ-NEUT  
 Intended: ‘redrawing one by one’

Finally, in a small group of verbs where the perfective and imperfective version of the verb differ only in the choice of the thematic vowel (lupati ‘hit.IMPF’- lupiti ‘hit.PF’), perfective version of the verb cannot build a noun.

- (8) a. lup-a-ti  
 hit-TH-INF  
 ‘hit.IMPF’  
 b. lup-a-n-j-e  
 hit-TH-PASS-NMLZ-NEUT  
 ‘hitting’  
 c. lup-i-ti  
 hit-TH-INF

- ‘hit.PF’  
 d. \*lup-i-n-j-e  
 hit-TH-PASS-NMLZ-NEUT  
 Intended: ‘hitting’

The chapter is organized as follows. In Section 2, I present the morphological structure of the Serbian verbal complex, focus on the distinction between lexical and superlexical prefixes and their impact on the nominalization process, moving then to the aspectual suffixation and its relation to deverbal nominals. In Section 3, I apply Verb-Stranding Verb Phrase Ellipsis (VVPE) in order to determine the position of syntactically independent but morphologically united individual pieces of the Serbian verbal complex. In the next step, I explain the derivation of deverbal nominals from the perspective of the post-syntactic amalgamation as a kind of head movement that participates in the formation of complex words, proposed in Harizanov & Gribanova (2019). In the central part of the chapter, Section 4, I apply a range of established diagnostics to probe for the aspectual values of ASNs and RNs in Serbian. Finally, in Section 5, I resolve the puzzle. Section 6 summarizes the chapter.

## 2.2 Serbian verbal complex and aspectual morphology

### 2.2.1 Ingredients of Serbian verb

Serbian has rich verbal morphology with a wide range of prefixes and suffixes that can co-occur or mutually exclude each other. The simplest form of the verb consists of three slots. As explained in the introductory chapter, roots in the framework of Distributed Morphology are acategorical. The theme vowel that follows it serves as a piece of functional morphology (Oltra-Massuet, 1999, 2000; Embick, 2010). As the example (9b-c) demonstrates, a lexical or superlexical prefix can occupy the initial position. Number [1] is a notation I use here to designate the pre-root position. It, however, by no means indicates that these prefixes occupy the same head syntactically. In Serbian, secondary imperfective morpheme never appears together with the theme vowel. Finally, infinitive suffix or fused inflection suffix that contains information about tense, person, and number appears in the final slot.

- (9) a. crt-a-ti  
 draw-TH-INF  
 ‘draw’  
 b. 1[is]-1[pre]-2[crt]-3[ava]-4[ti]  
 SP-LP-ROOT-2IMPF-INF  
 ‘redraw one by one’

- c. 1[is]-1[pre]-2[crt]-3[ava]-4[m]  
 SP-LP-ROOT-2IMPF-PRS.1SG  
 ‘(I) redraw one by one’

Having proposed the basic morphological structure of the Serbian verb, I will now focus on aspectual prefixation and suffixation in greater detail. From now on, I follow notational conventions established in Svenonius (2004b), i.e., lexical prefixes are glossed in italics, while superlexical prefixes by small caps. Furthermore, I adopt the translations for each of them proposed in Svenonius (2004a).

### 2.2.2 Lexical prefixes ban nominalization

There is a consensus in the literature about the battery of morphological, syntactic, and semantic diagnostics for identifying lexical prefixes, henceforth LPs (Babko-Malaya 1999, 2003; Svenonius 2004a, 2004b; Romanova 2004; Tatevosov 2008; Gribanova 2013b; Kalin 2014). With respect to the morphological make-up of the verb, they attach as adjuncts and are closer to the stem than superlexical prefixes when they co-occur, as demonstrated in the example (9b). Syntactically, LPs can affect argument structure and add a new argument to the verb. At the same time, their co-occurrence is ruled out, as they mutually exclude each other. This property of LPs has been attributed to the uniqueness of their structural position in contributions that argue for the resultative semantics of Slavic LPs, meaning that a single VP cannot have more than one resultative component, as argued in Svenonius (2004b). In terms of semantics, they compose with the verb idiomatically. Additional property of LPs comes from their co-occurrence with aspectual suffixation. Namely, secondary imperfective scopes over lexical prefixes yielding the overall imperfectivity of the verb. In Gribanova’s (2013b) analysis, this property of lexical prefixes means that they are compatible with secondary imperfectivization.

The semantic contribution of LPs has been usually tied with the notions of boundedness, telicity, result augmentation, and perfectivity (Ramchand, 2004). The resultative meaning of lexical prefixes and their specific position in the structure of the verbal complex have led several previous studies to draw a parallel between them and Germanic particles (Svenonius 1994, 2004a, 2004b; Ramchand & Svenonius 2002; Ramchand 2003; Ramchand 2004). For instance, both Germanic particles and Slavic prefixes originate in the prepositional inventory as Svenonius (2004a) demonstrates:

- (10) a. give up vs. up the tree  
 b. drop out vs. out the window  
 c. goof around vs. around the fountain

- (11) a. iz-bežatj  
out.of-run  
'avoid'
- b. iz doma  
out.of house  
'out of the house'
- c. pod-bežatj  
under-run  
'run up to'
- d. pod domom  
under house  
'under the house'

*Russian*

However, in contrast to prepositions, prefixes are inseparable parts of the verbal complex:

- (12) a. Vy-hod' tu kočku!  
out-throw.IMP the cat  
'Throw the cat out!'
- b. \*hod' tu kočku vy  
throw.IMP the cat out  
Intended: 'Throw the cat out!'
- c. \*vy tu kočku hod'  
out the cat throw.IMP  
Intended: 'Throw the cat out!'
- d. \*hod' vy tu kočku  
throw.IMP out the cat  
Intended: 'Throw the cat out!'

*Czech (Caha & Ziková, 2016)*

Moreover, Slavic prefixes have additional properties as they contribute telicity and perfectivity to the structure of the verbal complex (P. Svenonius, 2004a). Building on Vitkova (2004), Svenonius (2004a) provides the following examples from Bulgarian, and, applying a standard telicity test, shows that, when prefixed, the verb selects for the Bulgarian counterpart of the *in*-modifier and rejects *for*-modifier:

- (13) John iz-prazni rezervoara (za čas/\*edin čas).  
John out.of-emptied the.tank in hour/one hour  
'John emptied out the tank (in an hour/\*for an hour).'

*Bulgarian*

The same holds for Serbian. Prefixed verbs tolerate solely *in*-modifier:

- (14) Marija je po-jela tortu za petnaest minuta/\*petnaest minuta.  
Maria AUX.3SG along-eat cake in fifteen minutes/fifteen minutes

‘Maria ate up the cake in fifteen minutes.’

*Serbian*

On the contrary, an unprefixated version of the verb exhibits atelic interpretation accepting *for*-modifier and rejecting *in*-modifier:

- (15) Marija je jela tortu \*za petnaest minuta/petnaest minuta.  
 Maria AUX.3SG eat.PST.PTCP cake in fifteen minutes/fifteen minutes  
 ‘Maria was eating the cake for fifteen minutes.’

*Serbian*

Furthermore, perfective verbs have the property of boundedness (P. Svenonius, 2004b), attributed to telic events and count nouns as argued in Alexiadou et al. (2010), while imperfective verbs are primarily connected to unboundedness (P. Svenonius, 2004b), attested for atelic events and mass nouns (Alexiadou et al., 2010).

The precise inventory of lexical prefixes both in individual languages and across the Slavic family is a subject of debate. Svenonius (2004b) provides an exhaustive list of LPs in Russian, Polish, Czech, Serbian (Serbo-Croatian), and Bulgarian. He lists fifteen LPs for Serbian with respective glosses: *do-* ‘to, up’, *iz-* ‘out’, *s-* ‘off’, *za-* ‘up’, *pod-* ‘under’, *pri-* ‘to’, *od-* ‘from’, *u-* ‘in’, *uz-* ‘out’, *po-* ‘along’, *na-* ‘on’, *pre-* ‘across’, *pro-* ‘through’, *raz-* ‘around’, *ob-* ‘about’. Except *pro-*, *raz-*, and *ob-*, these prefixes are homophonous with prepositions in Serbian and, as proposed for Russian, bear closest resemblance to respective prepositional meanings (Ramchand, 2004). However, the exact meaning computation of the LP and the stem is often unpredictable (Gribanova, 2013b). Consider the examples below, where the same root *rast-* ‘grow’ combines with LPs resulting in different meanings:

- (16) a. Testo rast-e.  
 dough grow-3SG.PRS  
 ‘The dough grows.’
- b. Testo je na-ras-lo.  
 dough AUX.3SG on-grow-PST.PTCP.3SG.NEUT  
 ‘The dough has risen.’
- c. Peter Handke je od-rast-a-o u Berlinu.  
 Peter Handke AUX.3SG from-grow-TH-PST.PTCP.3SG.M in Berlin  
 ‘Peter Handke grew up in Berlin.’
- d. Vinova loza je ob-ras-la ogradu.  
 wine lineage AUX.3SG about-grow-PST.PTCP.3SG.F fence  
 ‘The grapevine overgrew the fence.’
- e. Dečak je pre-rast-a-o pantalone.  
 boy AUX.3SG across-grow-TH-PST.PTCP.3SG.M pants  
 ‘The boy outgrew his pants.’

Another line of thinking proposes that Slavic prefixes do not contribute any perfective seman-

tics. Istratkova (2004) claims that Bulgarian prefixes contribute the meaning of quantization, i.e., once a prefix is attached to the verb, the new verb become quantized, while Filip (1996, 1999, 2000, 2003) takes them to be V modifiers. According to Borer (2005), attachment of the perfectivizing prefix gives rise to the quantity-telic readings. At the same time, the feature specification of SPs is more complex as they contain the cumulative component (quan-cum) than the specification of LPs that contribute solely quantity (quan).

When it comes to nominalization, a lexical prefix can ban it (18b):

- (17) a. spav-a-ti  
sleep-TH-INF  
'sleep'
- b. spav-a-n-j-e  
sleep-TH-PASS-NMLZ-NEUT  
'sleeping'
- (18) a. u-spav-a-ti se  
*in*-sleep-TH-INF RFL  
'fall asleep.PF'
- b. \*u-spav-a-n-j-e  
*in*-sleep-TH-PASS-NMLZ-NEUT  
Intended: 'falling asleep'

However, secondary imperfective can merge and facilitate the formation of the nominal:

- (19) a. u-spavlj-iva-ti se  
*in*-sleep-2IMPF-INF RFL  
'fall asleep.IMPF'
- b. u-spavlj-iva-n-j-e  
*in*-sleep-2IMPF-PASS-NMLZ-NEUT  
'falling asleep'

### 2.2.3 Superlexical prefixes block nominaliation

While bringing perfectivity is the shared property of lexical and superlexical prefixes, henceforth SPs, the range of properties identified for SPs is systematically different from those attested for LPs (Babko-Malaya 1999; Gehrke 2004; Ramchand 2004; Romanova 2004; Svenonius 2004a, 2004b; Tatevosov 2008; Griбанова 2013b; Smith 2013; Kalin 2014). Lexical and superlexical prefixes tolerate each other and can appear together in the verbal complex. As noted above, from the morphological point of view, in the case of their co-occurrence, SPs are outside of LPs, i.e., they are farther away from the root in comparison to LPs (20).





imperfectivization before they are ready to combine with a SP.

The inventory of SPs in Serbian is considerably lower compared to the one of LPs. Svenonius (P. Svenonius, 2004a) provides a list of five SPs in Serbian: inceptive *za-*, completive *iz-*, distributive *po-*, cumulative *na-*, and repetitive *pre-*. In the Slavic perspective, Serbian is a language with the lowest number of attested SPs. On the other side is Russian with 11 prefixes and their respective meanings. Regarding the overlap with the group of LPs, Milićević (2004) claims that prefixes *iz-*, *po-*, and *na-*, in Serbian appear as lexical prefixes, but also as superlexical prefixes and provides a series of generalizations associated with each type.

Finally, arriving to the main point of this section, there is a significant evidence cumulated from several languages that verbs containing SPs systematically resist to nominalize. Svenonius (2004a) argues that the absence of superlexical prefixes from nominalization is quite striking. In Serbian, it is not only absent from nominalizations but fully blocks nominalization process:

- (23) a. *is-pre-sav-ija-ti*  
 CMPL-*across*-fold-2IMPF-INF  
 ‘fold completely’  
 b. \**is-pre-sav-ija-n-j-e*  
 CMPL-*across*-fold-2IMPF-PASS-NMLZ-NEUT  
 Intended: ‘folding completely’
- (24) a. *po-za-palj-iva-ti*  
 DSTR-*up*-fire-2IMPF-INF  
 ‘fire one by one’  
 b. \**po-za-palj-iva-n-j-e*  
 DSTR-*up*-fire-2IMPF-PASS-NMLZ-NEUT  
 Intended: ‘firing one by one’
- (25) a. *po-za-duž-iva-ti*                    *se*  
 DSTR-*up*-debt-2IMPF-INF RFL  
 ‘borrow several times’  
 b. \**po-za-duž-iva-n-j-e*  
 DSTR-*up*-debt-2IMPF-PASS-NMLZ-NEUT  
 Intended: ‘borrowing several times’

The same has been attested in Russian. Tatvosov (2008) shows that it is not possible to form a nominal out of the verb containing superlexical verb such as *na-ot-kryva-t* ‘open a lot’ and *po-ot-kryva-t* ‘open for a while’

- (26) a. \**na-ot-kryva-ni-e*  
 b. \**po-ot-kryva-ni-e*

To account for the inability of these verbs to nominalize Tatevosov (2008) and Tatevosov & Pazelskaya (2008) argue that the maximal projection that can undergo nominalization process in Russian is AspP. Since SPs are above the AspP they are systematically excluded from nominals. Slavcheva Markova (2007) comes to a similar conclusion for Bulgarian. Since attachment of a superlexical prefix to an *-ie* nominal that contains the past participial suffix *-n/-t*, taken to be hosted in the VoiceP, would lead to an ungrammatical form, Slavcheva Markova (2007) argues that once nominalizer *-ie* attaches to the VoiceP further prefixation is impossible and aspectual projections above VoiceP are incompatible with nominals.

Romanova (2004) raises the question of what is so super about superlexical prefixes. In Serbian, they freeze the verb and make it inaccessible for the nominalization process.

### 2.2.4 How secondary imperfective helps?

The counterpart of lexical prefixes in Slavic languages is secondary imperfective (henceforth 2IMPF) (Romanova, 2004), the morpheme shared across all Slavic languages. In contrast to LPs, 2IMPF cannot affect the meaning of the root and the argument structure of a verb. According to Ramchand (2004), this piece of evidence shows that they occupy a head above the vP. In the data below adapted from Svenonius (2004a), prefixes are omitted:

<b>Russian</b>	<b>Polish</b>	<b>Czech</b>	<b>Serbian</b>	<b>Bulgarian</b>
pis-a-tj	pis-a-ć	ps-á-t	pis-a-ti	pis-a
write-v-INF	write-v-INF	write-v-INF	write-v-INF	write-v
‘write.IMPF’	‘write.IMPF’	‘write.IMPF’	‘write.IMPF’	‘write.IMPF’
pis-yva-tj	pis-ywa-ć	pis-ova-t	pis-iva-ti	pis-va-m
write-IMPF-INF	write-IMPF-INF	write-IMPF-INF	write-IMPF-INF	write-IMPF-1SG
‘write.IMPF’	‘write.IMPF’	‘write.IMPF’	‘write.IMPF’	‘write.IMPF’

As noted in the introduction, a considerable amount of prefixed perfective verbs (27) cannot nominalize. It is not possible to derive neither typical ASNs that include specialized passive and nominalizing morphology (\*nagomilanje, \*ovladanje, \*podbacenje), ASNs with simpler morphology (\*nagomil, \*ovlad, \*podbac) nor RNs.

- (27) a. *na-gomilati* (‘pile up’)  
 b. *o-vladati* (‘master’)  
 c. *pod-baciti* (‘fail’)

However, merging of 2IMPF facilitates the nominalizing process, except, as argued above, when SP scopes above it:

- (28)
- a. na-gomil-ava-n-j-e  
on-pile-2IMPF-PASS-NMLZ-NEUT  
'piling up'
  - b. o-vlad-ava-n-j-e  
on-govern-2IMPF-PASS-NMLZ-NEUT  
'mastering'
  - c. pod-bac-iva-n-j-e  
under-throw-2IMPF-PASS-NMLZ-NEUT  
'failing'

### 2.2.5 Its counterpart: the case of semelfactive *nu*

The place of the Slavic semelfactive *-nu-* has been a controversial question. Svenonius (2004b) claims that this morpheme is indeed a theme vowel since the two do not tolerate each other within a single word. This view has been accepted in Bašić (2010), Caha & Ziková (2016), and Šarić (2018), among others. However, Gribanova (2013b) challenges this claim providing several examples of their co-occurrence in Russian. Furthermore, Svenonius (2004b) takes *-nu-* to be morphologically omitted in the presence of the secondary imperfective. However, we do not have convincing evidence to argue for this omission. Rather, verbs in which either *-nu-* or 2IMPF appear have distinct derivations and there is no need for each of them to appear in the structure they do not belong to. The exact position of these morphemes will be the subject of the debate in the continuation of this chapter. At this point, it is necessary to note that semelfactive *-nu-* is to some extent counterpart of secondary imperfective, as its merging leads to blocking of the nominalization process, which brings them closer to perfectivizing prefixes. However, the formation of nominals is not completely banned, as was the case with superlexical prefixes, since we find nominalizations involving this morpheme.

Serbian passive participle morpheme has two allomorphs *-n/-t-* that participate in the building of nominalizations. However, semelfactive *-nu-* attaches solely to the formant *-t-*. Moreover, a special nominalizer *-j-* or null nominalizer can embed various amounts of verbal structure. Nominals below have the same morphological form as most ASNs, embedding the passive morpheme. Note that the actual form of these nominals is *dostignuće*, *iščeznuće*, *raspuknuće*. Iotization process that creates [ć] out of [t] and [j] might obscure the underlying structure of these complex words, but it is clear that the nominalizer *-j-* participates in their formation as well.

- (29)
- a. do-stig-nu-t-j-e  
up-reach-SMF-PASS-NMLZ-NEUT  
'achievement'
  - b. iš-čez-nu-t-j-e

- out*-yearn-SMF-PASS-NMLZ-NEUT  
‘disappearance’
- c. ras-puk-nu-t-j-e  
*around*-burst-SMF-PASS-NMLZ-NEUT  
‘rupture’

Furthermore, several verbs involving semelfactive morpheme, such as *prekinuti* (‘cut off’), *pokrenuti* (‘start up’), *opomenuti* (‘warn’), allow for a null nominalizer to attach lower in the structure and embed only the RootP resulting in following forms:

- (30) a. pre-kid  
*across*-tear  
‘cease’
- b. po-kret  
*along*-move  
‘move’
- c. o-pomen-a  
*on*-mention-FEM.SG  
‘warning’

The upcoming sections will show why semelfactive *-nu-* is not a verbalizer and should not be considered as a theme vowel. Arguments for this view come from ellipsis and the analysis of the vP domain.

### 2.2.6 Theme Vowels

In DM approach to word formation, verbalizing affixes are the spell-out of the little *v* head (Marantz 2001, Marantz 2007, Alexiadou & Schäfer 2010), responsible for introducing even-tivity. For instance, Greek formants *-iz-*, *-on-*, *-en/an*, *-ev*, *-az*, *-a* (Alexiadou & Anagnostopoulou, 2013), and English suffixes *-ify*, *-en*, *-ize*, and *-ate* (Harley, 2009) are taken to function as verbalizing morphology, i.e., overt reflexes of *v*. In a similar manner, Svenonius (2004a) argues that Slavic theme vowels should be analyzed as verbalizers occupying the little *v* head. On the basis of Catalan data, Oltra-Massuet (1999, 2000) proposes a wider understanding of theme vowels as complexes of primitive binary features realized as a single morpheme that satisfies the morphological well-formedness condition on every functional head, thus allowing for several theme vowels in a verbal or nominal complex. This idea does not clash with the first one since, as Oltra-Massuet (1999, 2000) further elaborates, a theme vowel is in the realm of little *v* fulfilling the well-formedness condition, but not realized in the head position.

Serbian distinguishes between three main theme vowels – *a*, *e*, and *i* (for an exhaustive list see Arsenijević & Milosavljević 2021). They are preserved in nominals derived from non-prefixed imperfective verbs, as demonstrated in the right column in the examples below. In contrast to – *a* – and – *e* –, theme vowel – *i* – takes its allomorphic form – *e* – in the formation of nominalizations. It is worth noting that despite having overt aspectual morphology, Serbian does not require its presence when the theme vowel is overt. All listed verbs below are imperfective, but the overt morpheme suggesting imperfectivity is absent:

- (31) Theme vowel *a* in verbs and deverbal nominals
- |                              |                                  |
|------------------------------|----------------------------------|
| <i>glas-a-ti</i> ‘vote’      | <i>glas-a-nje</i> ‘voting’       |
| <i>bir-a-ti</i> ‘choose’     | <i>bir-a-nje</i> ‘choosing’      |
| <i>vesl-a-ti</i> ‘paddle’    | <i>vesl-a-nje</i> ‘paddling’     |
| <i>jač-a-ti</i> ‘strengthen’ | <i>jač-a-nje</i> ‘strengthening’ |
| <i>vaj-a-ti</i> ‘sculpt’     | <i>vaj-a-nje</i> ‘sculpting’     |
- (32) Theme vowel *e* in verbs and deverbal nominals
- |                           |                                |
|---------------------------|--------------------------------|
| <i>gor-e-ti</i> ‘burn’    | <i>gor-e-nje</i> ‘burning’     |
| <i>let-e-ti</i> ‘fly’     | <i>let-e-nje</i> ‘flying’      |
| <i>crven-e-ti</i> ‘blush’ | <i>crvenj-e-nje</i> ‘blushing’ |
| <i>sed-e-ti</i> ‘sit’     | <i>sed-e-nje</i> ‘sitting’     |
| <i>vrt-e-ti</i> ‘spin’    | <i>vrt-e-nje</i> ‘spinning’    |
- (33) Theme vowel *i* in verbs and devrbal nominals
- |                              |                                  |
|------------------------------|----------------------------------|
| <i>div-i-ti se</i> ‘admire’  | <i>divlj-e-nje</i> ‘admiration’  |
| <i>ron-i-ti</i> ‘dive’       | <i>ronj-e-nje</i> ‘diving’       |
| <i>kreč-i-ti</i> ‘whitewash’ | <i>kreč-e-nje</i> ‘whitewashing’ |
| <i>zvon-i-ti</i> ‘ring’      | <i>zvonj-e-nje</i> ‘ringing’     |
| <i>del-i-ti</i> ‘share’      | <i>delj-e-nje</i> ‘sharing’      |

The presence of the theme vowels in Serbian nominalizations shows striking correlation with the overt morphological realization of the Asp head. Namely, theme vowels and the overt Outer Aspect morphology systematically exclude each other. Merging of the secondary imperfective morpheme in the AspP leads to the absence of theme vowels not only in the morphological make-up of nominalizations (35b) but in the structure of the underlying verbal complex as well (35a). Svenonius (2004b) notices the same ordering of morphemes in Russian, i.e., in the presence of secondary imperfective, theme vowel is absent. Consider the Serbian examples below:

- (34) a. *pis-a-ti*  
write-TH-INF

- ‘write’
- b. pis-a-n-j-e  
draw-TH-PASS-NMLZ-NEUT  
‘writing’
- (35) a. pre-pis-iva-ti  
across-write-2IMPF-INF  
‘rewrite’
- b. pre-pis-iva-n-j-e  
across-write-2IMPF-PASS-NMLZ-NEUT  
‘rewriting’

In line with Oltra-Massuet (1999, 2000, 2021) and Embick (2010), I take theme vowels in Serbian to be pure morphological markers inserted post-syntactically. Their interaction with the overt realization of the Asp head that always begins on vowel (-iva-, -ava-, -eva-) indicates that a theme vowel is inserted when it is necessary to split the consonant cluster<sup>1</sup>.

## 2.3 Building the structure: Evidence from ellipsis

To proceed with the analysis, it is necessary to clarify the general assumptions related to the derivation of nominalizations at this point. The present section will shed light on the syntactic structure of the Serbian verbal complex and present the particular type of head movement assumed throughout the thesis.

### 2.3.1 Verb-Stranding Verb Phrase Ellipsis (VVPE) as a diagnostic for the functional structure

Verb-Stranding Verb Phrase Ellipsis is a widely attested cross-linguistic phenomenon that has received its theoretical and empirical analysis in Russian (Gribanova, 2013a, 2013b), Polish (Ruda, 2014), Lithuanian (Portelance, Asatryan, Song, & Whitmal, 2020), Greek (Merchant, 2018), Danish (Houser, Mikkelsen, Toosarvandani, Brainbridge, & Agbayani, 2006), Hocak (Johnson, 2016), Irish (McCloskey, 2017), Uzbek (Gribanova, 2020), Arabic (Hawkins, 2012), Kashmiri (Manetta, 2020), Persian (Rasekhi, 2018), Turkish (Şener & Takahashi, 2010), Farsi (Toosarvandani, 2009), Hindi-Urdu (Manetta, 2018, 2019), Japanese (Fujiwara, 2017; Funakoshi, 2016; Şener & Takahashi, 2010), and Chinese (Hawkins, 2012; Soh, 2007), among

<sup>1</sup>However, for a different view and some recent approaches to theme vowels in the structure of the Serbian verb see Milosavljević et al. (2021), Arsenijević & Milosavljević (2021), Kovačević, Milosavljević, and Simonović (2021).

others. In this chapter, I discuss VVPE in Serbian and use it as a syntactic strategy for the analysis of the functional structure of the Serbian verbal complex.

Gribanova (2013b) argues for the potential of the Verb-Stranding Verb Phrase Ellipsis to serve as a diagnostic for determining the exact position and independence of individual pieces of Russian morphosyntactically complex verbs. The main assumption behind this approach is that these individual pieces are syntactically independent units and thus distributed across different syntactic domains.

Notwithstanding the theoretical ground of a particular analysis, authors converge on the idea that LPs are low in the structure, while SPs secure a high position in the verbal complex (see Svenonius (2004a), Ramchand (2004), Romanova (2004) for Russian, Istratkova (2004) for Bulgarian, Milićević (2004) for Serbian, Jablonska (2004) for Polish, among others) and must reside in the top areas of the tree (Romanova, 2004). However, this evidence is based mainly on semantic grounds or on the mixture of syntactic and semantic parameters, as the next section will show in greater detail. On the other hand, Gribanova (2013b) provides purely syntactic evidence for the high/low dichotomy. Under this approach, LPs, SPs, and 2IMP are syntactic heads that appear in the preverbal position via head movement. The exact type of the head movement will be a subject of the debate in a follow-up section.

As Gribanova (2013b) demonstrates on the basis of Russian data, VVPE has three prerequisites: (a) it is licensed within an island, (b) it requires overt linguistic antecedent, (c) it is subject to the matching requirement on the stranded verb. To account for the existence of VVPE in Serbian and use it as a test for the functional structure of the verb, we need to ensure that testing sentences do not surface with the instances of the object-drop. To achieve this, the examples below respect all mention requirements. The stranded verb is given within a relative clause island since, contrary to the ellipsis, the object-drop is disallowed within a relative clause island or a complex nominal island, it has an overt linguistic antecedent in the preceding sentence, and the stems of the antecedent and stranded verb match.

Let me start with the cases where the application of the VVPE is ruled-out. In contrast to the object drop, this type of ellipsis is not licensed in the absence of the overt linguistic antecedent. In representation of the data, I follow Gribanova (2013b) and include the covert anaphora within square brackets.

[*Context*: A woman enters a tailor's shop with an unstitched dress in her hands.]

- (36) Sada će doći žena koja će #(je) u-šiti.  
 now 3SG.AUX.FUT come woman that 3SG.AUX.FUT #(it) in-sew  
 'The woman who will sew it arrives soon'

[*Context*: The postman brings several packages and puts them in front of the company door.]



- (37) Sada će doći kolega koji će #(ih) u-neti.  
 now 3SG.AUX.FUT come colleague who 3SG.AUX.FUT #(them) in-bring  
 ‘A colleague who will bring them in arrives soon.’

In example (38a) the antecedent verb *rušiti* (‘demolish’) is not prefixed, while the verb *srušiti* (‘completely demolish’) in example (38b) contains the LP. When verb stems are mismatched, it is not possible to omit the direct object *je* (‘it’) and the VVPE is ruled out. Moreover, as the example (39) shows, it is not enough for both verbs to be prefixed with LPs to create an appropriate syntactic context for the licensing of the VVPE since mismatching of the lexical prefixes leads to unacceptable sentences.

- (38) a. Jesi li čuo da su juče rušili zgradu u našoj ulici?  
 did Q hear COMP AUX yesterday demolish.IMPF building in our street  
 ‘Did you hear that they were demolishing the building in our street yesterday?’  
 b. Da video sam radnike koji su rušili, ali #(je) nisu  
 yes saw AUX workers that AUX demolish.IMPF but (it) not  
 s-rušili.  
*down-demolish.PF*  
 ‘They were demolishing the building, but they did not demolish it.’
- (39) a. Ne dopada mi se kako mi stoji ova haljina. Hoću da je  
 NEG like me.DAT RFL how DAT suits this dress want COMP AUX  
 ra-šijete.  
*out-sew.2PL*  
 ‘I do not like how this dress suits me. I want you to unstitch it.’  
 b. #Sada će doći žena koja će #(je) u-šiti.  
 now AUX.FUT come woman that AUX.FUT it.ACC in-sew  
 ‘The woman who will sew (it) arrives soon’

On the other hand, object-drop is possible and common outside islands. The first relative clause in example (40b) represents an example of VVPE since the antecedent verb in (40a) *ra-šiti* (‘out-sew’) and the stranded verb in (40b) are matched. However, in a subsequent coordinate disjunctive relative clause, the verb contains different LP *u-šiti* (‘in-sew’), and the omission of the object is possible, though the verbs from the two relative clauses do not constitute an island. This pattern can presumably be a consequence of coordination.

- (40) a. Ne dopada mi se kako mi stoji ova haljina. Hoću da je  
 NEG like me.DAT RFL how DAT suits this dress want COMP AUX  
 ra-šijete.  
*out-sew.2PL*  
 ‘I do not like how this dress suits me. I want you to unstitch it.’

- b. Sada će doći žena koja neće ra-šiti nego samo malo u-šiti.  
 now AUX come woman that NEG *out-sew* but just little *in-sew*  
 ‘The woman who won’t unstitch the whole dress, but sew it a little, arrives soon’

When lexical prefixes are matched, VVPE is licensed (41-43). This suggests that LP is subject to the matching requirement and merges inside the vP, i.e., inside the domain of VVPE.

- (41) a. Ne dopada mi se kako mi stoji ova haljina. Hoću da je  
 NEG like 1.SG.DAT RFL how 1.SG.DAT suits this dress want COMP AUX  
 ra-šijete.  
*out-sew.2PL*  
 ‘I do not like how this dress suits me. I want you to unstitch it.’
- b. Sada će doći žena koja će ra-šiti.  
 now AUX.FUT come woman who AUX.FUT *out-sew*  
 ‘The woman who will unstitch it arrives soon.’
- (42) a. Želim da u-pakujem poklon za rođendan.  
 want.1SG.PRS *da<sub>subj</sub>* *in-pack.1.SG.PRS* present for birthday  
 ‘I want to pack a birthday present.’
- b. U knjižari prekoputa možete u-pakovati.  
 in bookstore across.the.street can.2PL *in-pack.INF*  
 ‘You can pack (it) at the bookstore across the street.’
- (43) a. Volela bih da mi neko pre-gleda domaći.  
 like BE.1SG *da<sub>subj</sub>* 1SG.DAT someone *across-look.3SG.PRS* homework  
 ‘I would like someone to review my homework before I hand it in.’
- b. Ne brini, u školi je sada moja sestra koja će  
 NEG worry.2SG.PRS in school AUX.3SG now my sister who AUX.FUT  
 pre-gledati.  
*across-look.INF*  
 ‘Don’t worry, my sister who will review it is at school now.’

SPs show significantly different behavior. As examples below demonstrate, SP is present in the stranded verb (44b, 44b), but not in the antecedent verb (44a, 45a), and the verbs have different aspectual values. Crucially, omitting the object gives a grammatical sentence, which suggests that SP is not a subject to the matching requirement and do not originate inside the vP.

- (44) a. Jeste li po-livali jabuke u voćnjaku ove godine?  
 be.2PL.PRS Q *along-watered* apples in orchard this year  
 ‘Have you watered apples in the orchard this year?’
- b. Ne još, sutra dolazi čovek koji će is-po-livati.  
 not yet tomorrow come.3SG.PRS man who AUX.FUT *CMPL-along-water.INF*

‘Not yet, tomorrow comes a man who will water them.’

- (45) a. Jesi li već bra-la maline za kolač?  
 be.2SG.PRS Q already pick-PST.PTCP.3SG.F raspberries.ACC PREP cake  
 ‘Have you already picked raspberries for a cake?’
- b. Jesam, ali činjenica da nisam dovoljno na-bra-la  
 be.1SG.PRS but fact that NEG enough CMLT-pick-PST.PTCP.3SG.F  
 me nervira sad.  
 1SG.ACC annoy now  
 ‘Yes, but the fact that I did not pick enough annoys me now.’

Moving to the other parts of the verbal complex and keeping the same perspective, we can expect that, if we find instances where *-nu-* and 2IMPF are interchangeable in the antecedent and stranded verbs, they are both merged above the ellipsis domain. In examples (46a, 48a), the antecedent verb contains 2IMPF morpheme and the stranded verb (46b, 48b) semelfactive *-nu-*. In such an environment, the ellipsis of objects is licensed. Conversely, when the antecedent verb contains semelfactive *-nu-* (47a, 49b), and the stranded verb 2IMPF (47b, 49b), the ellipsis is again licensed.

- (46) a. U-šmrk-iva-o je lek za migrenu desiset minuta.  
 in-sniff-2IMPF-PST.PTCP.3SG.M AUX.3SG cure PREP migraine ten minutes  
 ‘He was sniffing the migraine cure for ten minutes’
- b. Kao lekara, brine me činjenica da nije mogao odmah  
 as doctor worry.3SG.PRS 1SG.ACC fact that NEG could immediately  
 u-šmrk-nu-ti.  
 in-sniff-NU-INF  
 ‘As a doctor, I am worried about the fact that he could not sniff immediately.’
- (47) a. U-šmrk-nu-o je lek za migrenu za nekoliko sekundi.  
 in-sniff-SMF-PST.PTCP.3SG. AUX.3SG cure PREP migraine in few seconds  
 ‘He sniffed the migraine cure in a few seconds.’
- b. Raduje me činjenica da nije morao dugo u-šmrk-iva-ti.  
 rejoice.3SG.PRS 1SG.ACC fact that NEG must long in-sniff-2IMPF-INF  
 ‘I am glad that he did not have to sniff for long’
- (48) a. Do-šapt-ava-li su rešenja jedno drugom.  
 to-whisper-2IMPF-PST.PTCP.3PL solutions one another  
 ‘They were whispering solutions to each other.’
- b. Znam, raduje me činjenica da su i meni  
 know.1SG.PRS rejoice.3SG.PRS 1SG.ACC fact that 3PL.AUX and 1SG.DAT  
 uspe-li do-šap-nu-ti.  
 manage-PST.PTCP.3PL to-whisper-SMF-INF  
 ‘I know. I am glad that they managed to whisper to me too.’

- (49) a. Do-šap-nu-li su mi rešenja juče na ispitu.  
to-whisper-SMF-PST.PTCP.3PL AUX.3PL 1SG.DAT solutions yesterday PREP exam  
'They whispered solutions to me at the exam yesterday.'
- b. Da, ali smo svi kažnjeni zbog činjenice da su oni  
yes but 1PL.AUX all punished PREP fact that 3PL.AUX they  
do-šapt-ava-li.  
to-whisper-2IMPF-PST.PTCP.3PL  
'Yes, but we were all punished for the fact that they whispered.'

In the similar manner as LPs, theme vowels are subject to the matching requirement, as VVPE is not allowed. As the examples (50-51) demonstrate, theme vowels and 2IMPF are not interchangeable, implying that they cannot occupy the same syntactic position.

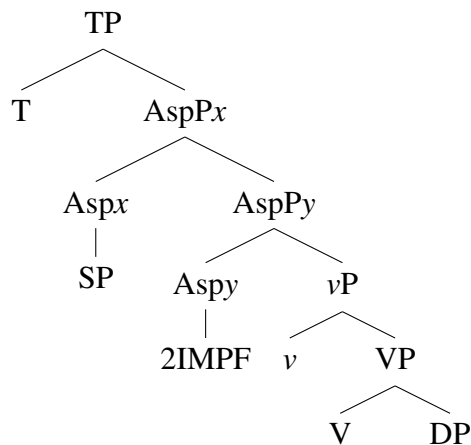
- (50) a. Jesi li čuo da su raz-ruš-i-li zgradu?  
did Q hear that AUX *around*-demolish-TH-PST.PTCP building  
'Did you hear that they were demolishing the building?'
- b. Video sam radnike koji su #(je) raz-ruš-ava-li.  
saw AUX workers that AUX (it) *around*-demolish-2IMPF-PST.PTCP  
'I saw the workers who were demolishing (it) fully.'
- (51) a. Jesi li čuo da su raz-ruš-ava-li zgradu?  
did Q hear that AUX *around*-demolish-2IMPF-PST.PTCP building  
'Did you hear that they were fully demolishing the building?'
- b. Video sam radnike koji su #(je) raz-ruš-i-li.  
saw AUX workers that AUX (it) *around*-demolish-TH-PST.PTCP  
'I saw the workers who were demolishing (it).'

Integrating these facts with the previous analysis on the position of SPs and LPs, we can conclude that we have convincing arguments to claim that SPs, 2IMPF, and the semelfactive morpheme are above the ellipsis domain, while LPs and theme vowels are below it. On the basis of the Russian data, Gribanova (2013b) shows that:

1. SP might be present in the stranded verb but not in the antecedent verb
2. If both antecedent and stranded verb contain SPs they might be different (e.g., prefix *do-* on the antecedent and *pere-* on the stranded verb in Russian)
3. The antecedent and the stranded verb can have different aspectual values (e.g., antecedent verb might be perfective, while stranded verb might be imperfective)

These patterns motivate the conclusion that SPs, 2IMPF, and semelfactive are outside of the ellipsis domain and lead Gribanova (2013b) to propose the following structure of the Russian verbal complex.

(52) The structure of the verbal complex (Gribanova, 2013b)



The presented analysis demonstrates that the structure of the Serbian verbal complex replicates the results obtained for Russian in Gribanova (2013b). Therefore, in the continuation of the discussion and throughout the thesis, I assume the above-given structure.

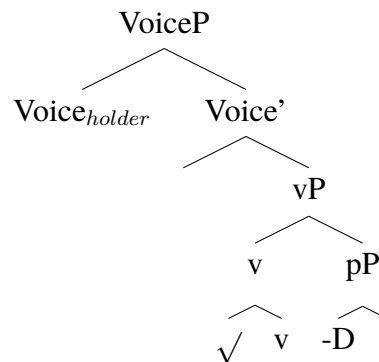
### 2.3.2 pP

Although I will not delve into the clausal structure of Serbian, some fundamental remarks on the functional structure and affixation associated with each head need to be made at this point. Together with Harizanov & Gribanova (2019), I take functional head T to host the inflectional morphology on the clausal level, while its counterpart in the nominal domain is a functional projection above nominalizer.

The previous section has shown that lexical prefixes originate low in the structure. Compelling evidence that Slavic prefixes bring resultativity has been proposed in the Small Clause approach (P. A. Svenonius, 1994, 2004a), First-Phase Syntax (Ramchand, 2004), and Concatenation theory (Arsenijević, 2007). The unifying view in these different approaches is that the exact place of the lexical prefix is within the Result Phrase below vP, tantamount to the place of verb particles in Germanic languages (Ramchand & Svenonius, 2002).

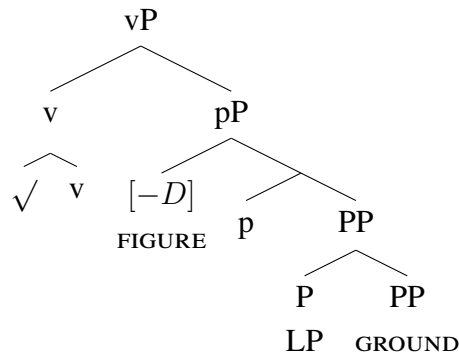
The same idea of low attachment holds for prefixes situated in pP within the Greek verbal complex (Alexiadou, 2019a, Alexiadou, 2020a) and particles in PrtP in English verb particle constructions (Harley, 2009). Furthermore, the existence of the pP has been proposed in Wood (2015) and Kastner (2020) for the Icelandic and Hebrew figure reflexives, respectively.

(53) pP in Greek (Alexiadou, 2019a)



Following this line of thinking, I argue that Slavic lexical prefixes originate in the specifier position of PP, taking a Ground argument as its complement. On the other hand, p introduces the Figure, as the external argument. Furthermore, the p head is specified as [-D] and prohibits forms surfacing with the D feature to appear in its specifier position (Kastner, 2020). Rather, external argument is saturated later in the derivation.

(54) Prepositional phrase in Slavic



### 2.3.3 Head movement meets Post-syntactic amalgamation

Having established the general structure of the Serbian verbal complex with its numerous ingredients hosted in designated heads, the question of how these individual pieces get associated with each other resulting in well-formed nominals in a given language, immediately arises. There is a broad agreement in the literature on nominalizations that a nominalizer hosting the nominalizing affix and the underlying verb of the nominal are associated via head movement (Alexiadou, 2001).

The phenomenon of head movement has received a substantial amount of attention in the literature so far (Baker 1985, 1988; Koopman 1984; Travis 1984; Rizzi & Roberts 1989;

Chomsky 2000; Pesetsky and Torrego 2001, among others). Its necessity has been challenged both in purely theoretical work (Chomsky, 2000, 2001) and studies more empirically focused (Koopman & Szabolcsi, 2000; Fanselow, 2004). However, as Baker (2009) stresses, though possibly conceptually superfluous, it has certain advantages that make it an essential part of the state-of-the-art syntactic theory. For instance, the head movement analysis of noun incorporation in Mapudungun and Mohawk is still superior over its competing alternatives.

The extensiveness of the topic and different prospects accumulated throughout decades can be subsumed into four main lines of thinking: (a) approach that considers the head movement a syntactic operation that takes place in the narrow syntax, (b) an intermediate view assuming a combination of syntactic movement and a post-syntactic operation, (c) stance that removes it from the realm of syntax and accounts for it to be a post-syntactic operation, and finally, (d) a view that takes it to be post-syntactic, excluding at the same time any movement and relating the obtained word order to linearization resulting from the syntactic hierarchy (Dékány, 2018).

Peculiarities emerged in individual languages motivated authors to propose fine graded distinctions between various instances of head movement. Harizanov & Gribanova (2019) make a clear demarcation line between two types of head movement based on the clusters of properties associated with each class: (i) genuine syntactic movement and (b) its morphological counterpart. The first class represents a pure syntactic operation that involves Internal Merge and that takes place in the narrow syntax. The units that participate in this operation are fully formed words that move to another structural position via Internal Merge resulting in phenomena such as V-to-C movement in Danish, long head movement in Bulgarian, and predicate clefting in Hebrew.

While the genuine syntactic head movement does not participate in process of word formation, can skip heads violating the Head Movement Constraint (HMC), and does not have interpretative effects, its morphological counterpart, *post-syntactic amalgamation*, forms words, affects solely structurally adjacent heads, and does not give rise to interpretative effects, as argued in Harizanov & Gribanova (2019).

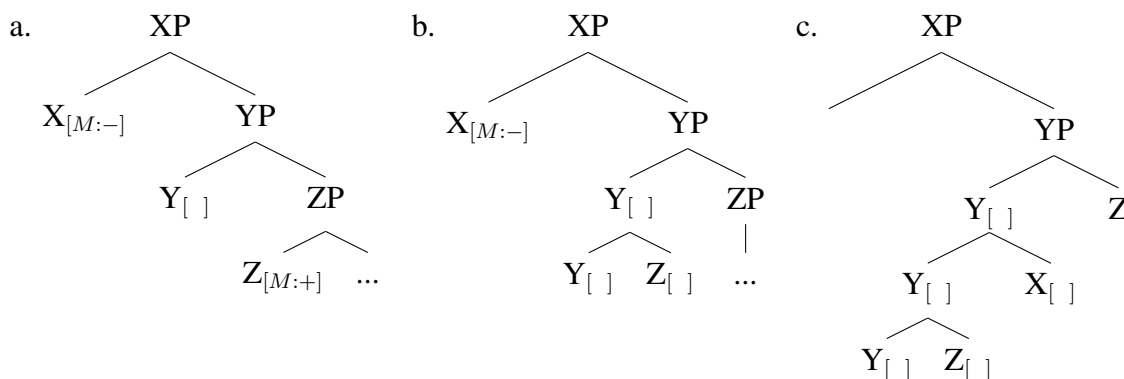
The previous section has shown that lexical and superlexical prefixes, as well as secondary imperfective and semelfactive suffixes, are syntactically independent units distributed across several heads of the Serbian verbal complex. The question arises of how these different syntactic heads are united and pronounced as a single verb in a designated head. Post-syntactic amalgamation, as an operation that unites disparate syntactic heads of a morphologically complex words, offers a promising way to analyze the exact derivation of the verbal complex and opens the door for the explanation of certain restrictions in the derivation of nominalizations in Serbian.

The process of post-syntactic amalgamation involves several ideas that have direct conse-

quences on the explanation of the phenomenon in individual languages. Before application to Serbian data, I will present the core theoretical assumptions respecting the ordering in Harizanov & Gribanova (2019).

Post-syntactic amalgamation postulates the existence of a binary morphological selectional feature  $M$  that is a subject of cross-linguistic variation, i.e., individual languages determine the nature and the type of the feature  $M$ , specified with a  $[+]$  or a  $[-]$  value. The specification of the feature  $M$  is a prerequisite for the amalgamation operation, while its value determines the direction of the operation. Namely, if the feature is specified as  $[+]$ , a head moves to a higher position resulting in *Raising* operation, while the  $[-]$  value leads to the movement of a head to a lower position, a process already known as *Lowering*. On the other hand, the absence of the  $M$  feature, does not have any repercussions to the head at PF. Specified and moved head is post-syntactically adjoined to the target head resulting in a head-adjunction structure. Once the amalgamation process takes place, this  $M$  feature is solely associated with the target head, while it becomes inactive on a head that has undergone the movement. At the same time,  $M$  feature belongs to the feature bundle of the respective lexical item. The amalgamation is a bottom-up process and, in contrast to a genuine syntactic movement, cannot deviate from the HMC, as the target head must be a structurally adjacent to the head that undergoes movement. Again, in contrast to the syntactic movement, the absence of Internal Merge in post-syntactic amalgamation, multiple occurrences of the moved head are not expected. In the figures below,  $Z$  is specified as  $[M:+]$  and thus adjoined to  $Y$ . Since  $Y$  is specified as  $[\ ]$ , movement proceeds further.  $X$  itself, being specified as  $[M:-]$ , adjoins to  $Y$ .

(55) Post-syntactic amalgamation (Harizanov & Gribanova, 2019)



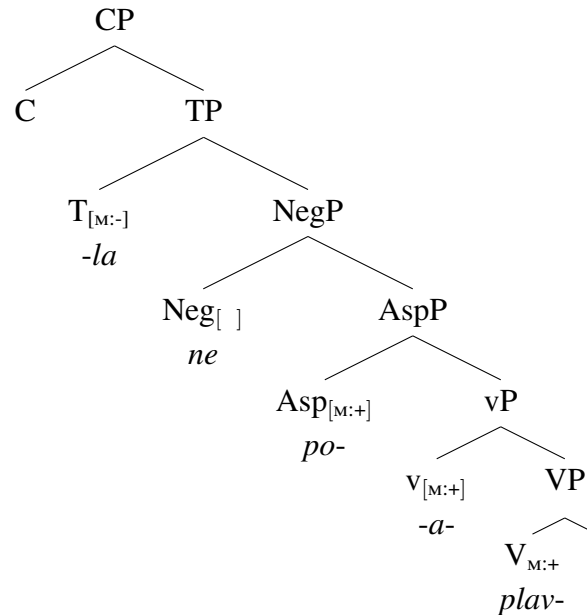
A concrete implementation of this idea explains the amalgamation of V, v, Asp, Neg and T, and the movement of the Russian verbal complex to a Neg head (Harizanov & Gribanova, 2019).

(56) ne po-plav-a-la  
NEG PFX-SWim-THEME-PST.SG.F



‘She did not swim a little bit.’

(57) Post-syntactic amalgamation in Russian



To implement the amalgamation idea in the current analysis, I will present the result nouns derivation since they have a significantly simpler structure compared to process ones. The general idea on movement to higher heads, forming of the complex heads and their subsequent movement up and lowering, holds for all types of nominals discussed later. Finer processes within the vP and further possibilities for the merging of roots and their interaction with pP are discussed in the context of argument structure in the next chapter.

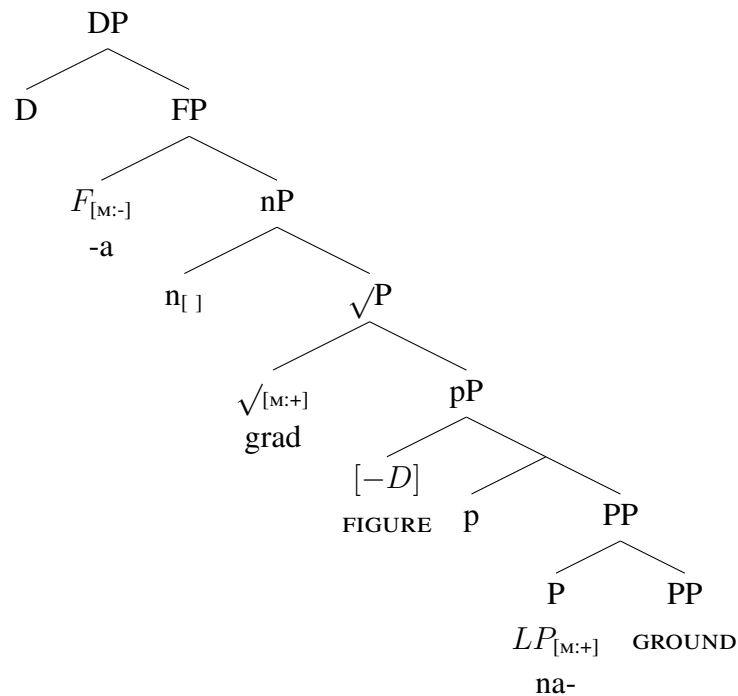
Under the theoretical framework applied here, lexical prefixes that move from the head position of pP and merge with the root forming a complex head belong to the *inner morphology* below the first categorizing head (Marantz, 2007). We have also seen that lexical prefixes contribute idiosyncratic meanings, taken to be available in the realm of the first phase (Marantz, 1997, 2001, 2007). Even if the alternative view that proposes the VoiceP to be the boundary for idiosyncratic meanings (Harley 2014, Anagnostopoulou & Samioti 2013) accommodates the cross-linguistic data more accurately, the proposal that prefixes under debate are very low in the structure and contribute apparent idiosyncratic meanings is not refuted.

Let me now present a step-by-step derivation of the result noun *nagrada* (‘award’) applying post-syntactic amalgamation. In syntax, a lexical prefix is situated low and occupies the head of the pP. It is specified as [M:~], which triggers the movement to the root. It is stated above that post-syntactic amalgamation cannot violate the Head Movement Constraint. Therefore, the presence of the head D between the prefix and the root might challenge this view. However, Alexiadou (2019a), on the basis of prefixed Greek deponent verbs, shows that the licensing of

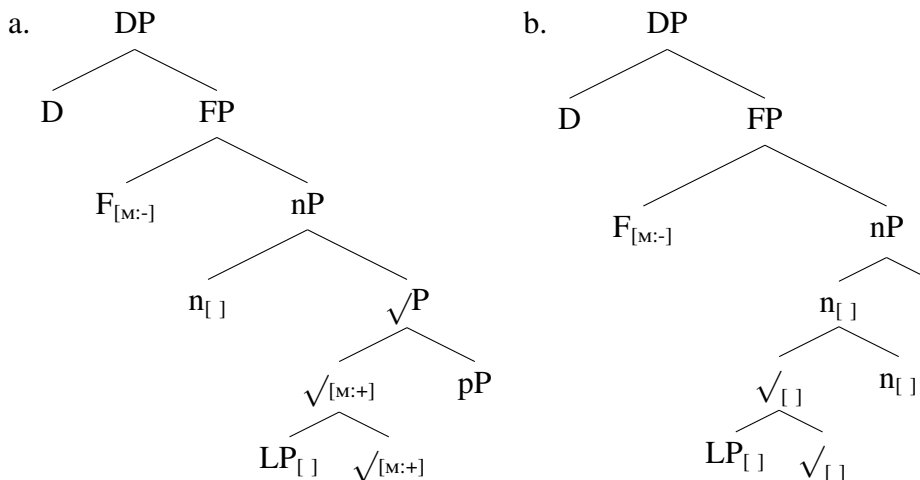
the specifier in pP is prohibited due to the presence of [-D] feature on the head p.

Therefore, adopting this view to the present analysis implies that the prefix passes through this head and adjoins to the root. Once moved, [M] feature is inactive on the prefix head and becomes solely associated with the root (59a). The absence of the feature on the phase head n allows for the further movement of the complex head consisting of the prefix and the root to n (59b). As noted above, inflectional morphemes in the nominal domain are treated here on a par with inflectional morphemes in the clausal domain situated in the head T. In the same fashion as the suffix containing information about tense and agreement lowers in TP, a nominal functional head F containing inflection lowers to n. At the same head, n head is the position where the respective noun is pronounced and the result is the correct order of morphemes (60).

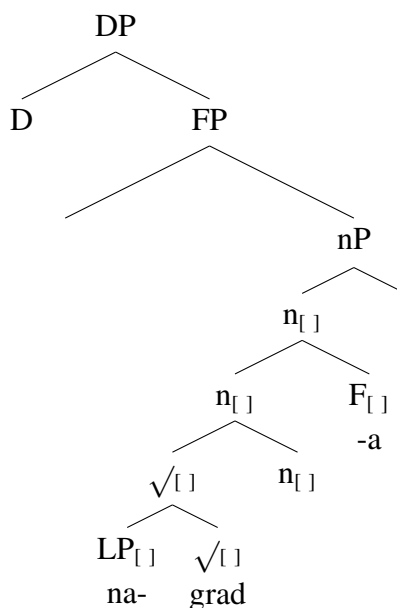
(58) Output of syntax



(59) prefix-to-root (a) and prefix-root-to-n movement (b)



(60) Output of Raising and Lowering



The combination of VVPE and the post-syntactic amalgamation has several advantages for the explanation of the derivation of ASNs and RNs in Serbian. First, if we assume that all perfective prefixes originate in AspP or move there independently of other morphemes (P. Svenonius, 2004a), then we could not account for the derivation of RNs. In that case, the nominalizer would embed the AspP and layers below it, which is an undesirable outcome, since neither aspectual modifiers licensed by AspP nor eventive readings contributed by the *v* head are present in paramount examples of Serbian RNs, as the upcoming sections will show. Furthermore, uniting disparate syntactic heads triggered by the feature [M] can nicely explain the cases of ASNs containing multiple prefixes whose original result semantics is not

active anymore once higher heads contributing processuality and aspectual interpretation are merged in the syntax. In that sense, merging of secondary imperfective in AspP later in the derivation overwrites the resultative, or as we will see later, causative contribution of lexical prefixes.

## 2.4 n & AspP

The proposal I want to put forth as the solution to the first puzzle is that the nominalizer *n* triggers imperfectivity of the AspP. Furthermore, when embedded under TP, AspP can have both perfective and imperfective values. By contrast, when embedded under nP, it can only have imperfective value. Evidence for this claim comes from nominalizations of perfective verbs.

### 2.4.1 ASNs & Perfective verbs

As argued in the introduction of this chapter, though considerably limited, nominalization of perfective verbs is possible in Serbian in certain cases. ASNs derived out of perfective verbs surface with the structure in (61), preserving an overt aspectual morphology. Furthermore, the AspP licenses *in*-adverbials. With respect to the argument structure, these nominals surface with the Theme argument bearing genitive case, and an Agent argument in form of the *by*-phrase. Note that the form in (61) is the maximal structure available to nominalizations derived out of perfective verbs. Chapter 6 will demonstrate that the nominalizer can attach as high as AspP and as low as RootP when embedding a perfective verb.

(61) [DP [nominal FP [nP [AspP [VoiceP [vP [RootP]]]]]]]]

(62) *iz-rad-a ogrlice za šest meseci od strane tima juvelira*  
*out-work-FEM necklace.GEN PREP six months by side team jewelers*  
 ‘Making of the necklace in six months by the team of jewelers’

### 2.4.2 Perfectivity tests: Failed

However, nominalizations derived out of perfective verbs surprisingly fail all perfectivity tests, such as co-occurrence with phasal verbs, surfacing with interval properties, coordination test, and aspectual compositional effects test. The same pattern has been attested in Tatevosov (2011) for Russian and in Caha & Ziková (2016) for Czech. As Tatevosov (2011) extensively argues, co-occurrence with phasal verbs is available to imperfective but not to perfective verbs in Russian. However, the nominal domain exhibits a different pattern as nominalizations de-

rived on the basis of perfective verbs freely combine with phasal verbs. The example (63) demonstrates that the same holds for Serbian.

### Diagnostic #1: Co-occurrence with phasal verbs

- (63) Završena je iz-rad-a ogrlice.  
 finished AUX *out-work-FEM* necklace.GEN  
 ‘The making of the necklace is finished.’

The second test that can be applied to distinguish between the imperfective and perfective verbs is availability of interval readings. While in a clausal environment involving perfective verb, the time of an underlying event cannot include a topic time, this pattern is not replicated with deverbal nominals (Tatevosov, 2011). In the Serbian example below, the time of making the necklace includes the time of the arrival.

### Diagnostic #2: Interval properties

- (64) Stigli smo u vreme iz-rad-e ogrlice.  
 arrived AUX in time *out-work-GEN* necklace.GEN  
 ‘We arrived at the time of the making of the necklace.’

Furthermore, in contrast to perfective verbs that allow only the two distinct events reading when surfacing with a coordinated temporal modifier, which signalizes the telicity of the underlying event, nominals derived out of perfective verbs allow both for two distinct events and a single continuous event reading under the same conditions. This pattern indicates that an underlying event in nominals can be both telic in the former and atelic in the latter reading.

### Diagnostic #3: Coordination (✓ two distinct events, ✓ a single continuous event)

- (65) Iz-rad-a ogrlice u ponedeljak i utorak.  
*out-work-GEN* necklace.GEN on Monday and Tuesday  
 ‘The making of the necklace on Monday and Tuesday.’

Finally, the aspectual composition effects that emerge in the clausal environment and force the object to receive a unique maximal interpretation, i.e., to refer to all entities of a particular type, this restriction is not attested in the nominal domain, as the indefinite plural interpretation is also possible (Tatevosov, 2011).

### Diagnostic #4: Aspectual compositional effects (✓ all necklaces, ✓ necklaces)

- (66) iz-rad-a ogrlica  
*out-work-GEN necklace.GEN.PL*  
 ‘making of necklaces’

## 2.5 Solving the puzzle: What blocks nominalization

### 2.5.1 Proposal

We have two possibilities at our disposal: to form a *process noun* (ASN) out of an imperfective (67) or a perfective verb (68) or form a *result noun* (RN) out of a perfective verb (69).

- (67) crt-a-n-j-e automobil-a satima od strane Jovana  
*draw-TH-PASS-NMLZ-NEUT car-GEN for.hours by side John*  
 ‘drawing of a car by John for hours’
- (68) iz-rad-a ogrlice za šest meseci od strane tima juvelira  
*out-work-FEM necklace.GEN PREP six months by side team jewelers*  
 ‘Making of the necklace in six months by the team of jewelers’
- (69) do-kaz postojanja života na Marsu  
*to-say existence.GEN life PREP Mars*  
 ‘proof of the existence of life on Mars’

Furthermore, perfective verbs in Serbian can (i) give rise to ASNs that fail perfectivity effects being embedded under *n*, or (ii) resist to nominalize. I argue that the AspP layer under T is distinct from AspP layer under *n*. We have seen that ASNs are obligatorily imperfective independently of the aspectual value of the underlying verb, an idea put forth previously in Grimshaw (1990) and Engelhardt (1998, 2000). The proposal that I want to put forth here is that the operator that triggers imperfectivity is the nominalizer *n*. Crucially, in order to turn clausal perfective aspect into nominal imperfective, nominalizer *n* needs to embed enough structure, i.e., vP or AspP. Otherwise, RNs would also have imperfective readings, which is not born out. In RNs, the nominalizer attaches to the RootP and does not interact with any layer contributing aspect.

### 2.5.2 Blocking #1 Solution

Lexical prefixes originating in the pP can merge, change the argument and the event structure, and block nominalization. In the typology of prefixed verbs in Serbian proposed in Arsenijević (2011), verbs showing this type of the blocking effect belong to the group of manner

incorporation verbs.<sup>2</sup> This is the class of verbs that are followed by the change of the argument structure, i.e., by adding a goal-argument (70b).

- (70) a. Devojčica je čita-la.  
 girl AUX.3SG read-PST.PTCP.3SG.FEM  
 ‘The girl was reading.’
- b. Devojčica je pro-čita-la knjigu-u.  
 girl AUX.3SG *through*-read-PST.PTCP.3SG.FEM book-ACC  
 ‘The girl read the book.’
- c. \*Devojčica je pro-čita-la.  
 girl AUX.3SG *through*-read-PST.PTCP.3SG.FEM book-ACC  
 Intended: ‘The girl read the book.’

Furthermore, the basic unprefixated verb *trčati* (‘run’) denotes a motion event with a particular set of manner features (Arsenijević, 2011).

- (71) \*is-trčanje teniser-a  
*out*-running tennis.player-GEN  
 Intended: ‘running of a tennis player out’

We have seen that resultativity in Slavic is realized within pP merged with the RootP. According to Arsenijević (2011), the entire result predicate including the goal-argument is not incorporated in the case of manner incorporation verbs.

I argue that the nominalizer *n* is incompatible with perfectivity in ASNs. In the process of repairing the structure and making it a suitable landing site for attachment, *n* changes the perfective value of the underlying verb. As argued before, AspP in the clausal domain is distinct from the AspP in the nominal domain. Under *n*, it changes its perfective value to imperfective in syntax, which is realized as 2IMPF at the level of Vocabulary Insertion, resulting in ASN (72).

- (72) is-trč-ava-n-j-e teniser-a  
*out*-run-2IMPF-PASS-NMLZ-NEUT tennis.player-GEN  
 ‘running of a tennis player out’

<sup>2</sup>Arsenijević (2011) differentiates between three groups of verbs. The first group consists of manner incorporation verbs, the second group incorporates the result argument, while the third group not necessarily involves a result component. Ignjatović (2016) basis his argumentation on Arsenijević’s (2011) typology claiming that the second group of verbs gives RNs in Serbian. However, this view cannot be maintained here, as we have seen that perfective verbs containing prefixes can give rise to ASNs.

### 2.5.3 Blocking #2 Solution

The findings of VVPE have shown that SPs are situated in the highest AspP layer. Therefore, I argue that merging of any higher AspP is not possible, and the repairing mechanism remains inaccessible. In that sense, the nominalization process remains fully blocked and a nominal layer can never attach to the highest AspP hosting SPs (73b).

- (73)
- a. is-pre-crt-ava-ti  
CMPL-*across*-draw-2IMPF-INF  
'redraw one by one'
  - b. \*is-pre-crt-ava-n-j-e  
CMPL-*across*-draw-2IMPF-PASS-N-NEUT  
Intended: 'redrawing one by one'

### 2.5.4 Blocking #3 Solution

In the last group of verbs where the perfective and imperfective version of the verb differ only in the choice of the theme vowel (lupati 'hit.IMPF' - lupiti 'hit.PF'), nominalization is blocked within the v layer. Since the blocking effect happens lower in the structure in comparison to the previous group, repairing mechanism is available. Similarly to the first class, nominalizer n requires imperfective aspect in syntax, which is morphologically realized as changing of the thematic vowel.

- (74)
- a. lup-i-ti  
hit-TH-INF  
'hit.PF'
  - b. \*lup-i-n-j-e  
hit-TH-PASS-NMLZ-NEUT  
Intended: 'hitting'
  - c. lup-a-ti  
hit-TH-INF  
'hit.IMPF'
  - d. lup-a-n-j-e  
hit-TH-PASS-NMLZ-NEUT  
'hitting'

## 2.6 Summary

In this chapter, I have demonstrated that, in contrast to other Slavic languages, Serbian is more restrictive in the formation of ASNs out of perfective verbs. I have observed a blocking



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effect that can be divided into three types depending on the verbal layer in which the blocking emerges. Although resultativity is tied with perfectivity, perfective verbs can result in ASNs if the nominalizer attaches sufficiently high and changes its aspectual value. I put forth the proposal that AspP under T is distinct from AspP under n, providing evidence that nominalizer n is an operator that obligatorily triggers the imperfectivity of the nominal.

# Chapter 3

## Ergativity and Argument Structure

### 3.1 Introduction

Building on Marantz's (1984) proposal that the external argument should not be considered a genuine argument of the verb, Kratzer (1996) argues for its dissociation from the VP. The core of this idea postulates that the external argument is not introduced by the verb but by the higher functional projection that Kratzer names VoiceP. Moreover, VoiceP introduces a DP argument in active and licenses a PP in the passive (Alexiadou, Anagnostopoulou, & Schäfer, 2008), bears features related to agentivity and manner (Alexiadou et al., 2006), and establishes a thematic relation between the external argument and the event (Pylkkänen, 2008).

The split between the VoiceP and the vP in the verbal domain is widely accepted in syntactic theory (Pylkkänen, 2008; Alexiadou et al., 2006; Alexiadou et al., 2015; Harley, 2009, 2013; Wood & Marantz, 2017) and further elaborated in a growing body of cross-linguistic data (Hopperdietzel, 2020; Nie, 2020). While the vP is present both in nominals that have verbal internal structure, meaning that the head D acts as a nominalizer and embeds one of the verbal layers, and nominals with mixed internal structure in which nominalizer n below D embeds a verbal layer, being thus responsible for several nominal properties of these nominalizations, such as compatibility with adjectives, gender features, and pluralization, the question of the presence of the VoiceP in the nominal domain remains the controversial one.

In this chapter, I will discuss the argument licensing potential of deverbal nominals in Serbian, as a nominative-accusative language that is expected to demonstrate the ergative alignment in nominalizations in sense of Alexiadou (2001). I will first focus on the phenomenon of ergativity from the theoretical perspective, provide the syntax of passive participles as the structurally close form to nominalizations, and discuss their interaction with passives. In the central part, I apply an array of Voice diagnostics in order to determine the exact flavour of the Voice head, and analyze the argument structure of all verb classes and their respective sub-

classes in Serbian. In the final part, I spell out the syntax of argument licensing in deverbal nominals on the basis of Serbian data.

### 3.2 n-based driven ergativity

To be considered ergative, a language should exhibit one or more of the following properties (Deal, 2015):

- (1)
  - a. *The ergative property* - subjects of transitive clauses behave differently from subjects of intransitive clauses for some grammatical generalization(s)
  - b. *The absolutive property* – objects of transitive clauses and subjects of intransitive clauses behave identically for some grammatical generalization(s)
  - c. *The argument-structural property* – subjects of unaccusative verbs behave differently from subjects of unergative and transitive verbs for some grammatical generalization(s)

Putting these pieces together, ergativity is understood as an encoding separation between S-argument, the sole argument of the intransitive clause, and P-argument, the Theme argument of the transitive clause, on the one hand, and A-argument, the Agent argument of the transitive clause, on the other. As the table below demonstrates (2), in the ergative-absolutive alignment, S-argument groups with P-argument receiving absolutive marking, against A-argument which receives ergative. This system is radically distinct from the one found in the nominative-accusative pattern, where both subjects pattern alike in contrast to the transitive object.

- (2) **Ergativity** (Alexiadou, 2001)

	N/A system	E/A system
A-argument	NOM	ERG
S-argument	NOM	ABS
P-argument	ACC	ABS

Despite the clarity of this division, the syntactic theory has not yet reached the unified account of ergativity due to the great syntactic and morphological diversity among ergative languages (Deal, 2015). The most vibrant discussion is focused on the layers responsible for the assignment of the ergative and absolutive case and usually depends on one's choice of the Case theory. Mentioned great diversity in ergative encoding can be subsumed under two main manifestations: (a) morphological ergativity, meaning that the intransitive subject and the transitive object (absolutive) pattern alike with respect to morphological marking, thus

contrasting the transitive subject (ergative), and (b) syntactic ergativity, achieved through the same patterning of absolutive with respect to their syntactic behavior in contrast to ergative. Instantiations of morphological ergativity are agreement and case marking, while the syntactic ergativity is observable through the ability of the absolutive argument to undergo the A'-movement on the one hand, and the inability of the ergative argument to undergo the same type of movement, on the other. In a broader sense, syntactic ergativity also includes the grouping of S-argument and P-argument to the exclusion of A-argument with respect to coreference across clauses, coreferential deletion, scope, binding, quantifier float, rising, control, and other dependencies. Furthermore, morphological ergativity is a more widespread phenomenon than syntactic ergativity since there are morphologically ergative languages that do not express syntactic ergativity, but there are no syntactically ergative languages that do not display morphological ergativity (Polinsky, 2017).

As Alexiadou (2001, 2017a) demonstrates on the basis of a wide range of cross-linguistic data, ergative case pattern is not exclusive to morphologically and syntactically ergative languages but obligatorily emerges in nominalizations of nominative-accusative languages. Importantly, this pattern has been attested in languages that have more than one nominalizing strategy, while the apparent ergativity emerges as a result of the presence of the *n* layer. Namely, Alexiadou (2001, 2017a) proposes a refinement of the Voice projection and argues that nominalizations contain deficient VoiceP/vP as a consequence of the presence of nominalizer *n* in the structure. At the same time, this deficient VoiceP/vP has direct repercussions on the case assignment leading to the ergative pattern.

In the environment of the nominalizing head *n*, only one argument can receive structural case within the nP phase, i.e., there is no space for two distinct heads that would agree with two arguments surfacing with distinct cases, as is the case in transitive clauses, while the deficient Voice head does not project an argument. Furthermore, being a phase head, the *n* head fixes the nominal interpretation of the embedded structure and creates a nominal case domain. Any potential layer above *n* has to be nominal and agree with *n* in morphosyntactic features, while verbal layers are ruled out. Crucially for the present discussion, in the environment created by the *n* head, the accusative case cannot be assigned to an internal argument. Instead, the DP argument has to surface with the genitive, while the external argument is realized in the form of the *by*-phrase (PP) adjoined to the deficient VoiceP. I will refer to this idea as *n*-driven ergativity generalization (3). This postulate create the basis of the argumentation in this chapter.

(3) ***n*-driven ergativity generalization** (Alexiadou, 2017a)

*n*-based nominalizations make room for one structural case within the nP phase, and require a deficient VoiceP/vP complement, i.e., a Voice/vP projection that does not project an external/agent argument.

Updating our previous table with the data obtained from nominalizations, we get the following pattern: the A-argument in nominalizations is realized as a PP in contrast to S- and P-arguments that receive genitive case.

(4) **Ergativity in nominalizations** (Alexiadou, 2001)

	N/A system	E/A system	Nominalization
A-argument	NOM	ERG	PP
S-argument	NOM	ABS	GEN
P-argument	ACC	ABS	GEN

Given that all Serbian nominalizations involve *n* as a nominalizer (see Chapter 6), ergative pattern is expected and attested. The agent argument is realized as a PP (5) equivalent to that found in passives (6), in contrast to the theme argument (5) and the sole argument of unaccusatives (7) and unergatives (8) that surfaces with the genitive case.

(5) branje jagod-a od strane moje bake  
picking strawberries-GEN by side my grandma  
'picking strawberries by my grandma'

(6) Jagode su ubrane od strane moje bake.  
strawberries AUX.3PL picked by side my grandma  
'The strawberries have been picked by my grandma.'

(7) cvetanje cveć-a  
flourishing flowers-GEN  
'flourishing of the flowers'

(8) skok atletičar-a  
jump athlete-GEN  
'jump of the athlete'

Double genitive constructions in which both the theme argument and the agent argument surface with the genitive case are ruled out (Alexiadou, 2017a). Šarić (2018) explicitly argues for a different view under which the second genitive is agentive, admitting, however, that speakers use the genitive form to express agents of derived nominals when possessive is unavailable. Furthermore, Šarić (2018) takes this as evidence that genitive agents are in complementary distribution with the possessive agents. Following Alexiadou (2017a), I argue that in Serbian two genitives cannot be assigned within the same nP, as the nominalizer *n* creates an environment for the one structural case. Rather, when two genitive forms follow the deverbal nominal, the second genitive is either a pure possessive form, with the parsing as in (10b) patterning in

this respect with object nouns (10a), or a genitive assigned outside the domain of *n*, patterning in this respect with prenominal possessives (9b) that are also underlying genitives (Pesetsky, 2013; Šarić, 2018), following the general mechanics of genitive assignment, as I will demonstrate in the continuation of this chapter. Crucially, neither the postnominal second genitive nor the prenominal possessive are assigned within *nP* but in a higher functional projection.

- (9) a. branj-e                    jagod-a                    moj-e   bak-e  
       picking-NOM.NEUT strawberries-GEN.PL my-GEN grandma-GEN  
       ‘my grandma’s picking of strawberries’
- b. bak-in-o                    branj-e                    jagod-a  
       grandma-POSS-NEUT picking-NOM.NEUT strawberries-GEN.PL  
       ‘my grandma’s picking of strawberries’
- (10) a. [knjig-a            [prič-a            moj-e            bak-e]]  
       book-NOM.FEM story-GEN.PL my-GEN.FEM grandma-GEN.FEM  
       ‘a book of my grandma’s stories’
- b. [branj-e            [jagod-a            moj-e   bak-e]]  
       picking-NOM.NEUT strawberries-GEN.PL my-GEN grandma-GEN  
       ‘picking of my grandma’s strawberries’

### 3.3 The Structure of Participles

In this section, I will discuss two types of participles observed in Serbian, the so-called active and passive participle forms. After presenting morphological patterns, I will discuss passive participles in the light of their role in the formation of passives, and apply a range of diagnostics proposed in Alexiadou, Anagnostopoulou, and Schäfer (2015) to probe for the verbal functional layers present in their spine.

#### 3.3.1 Active and passive morphology

Serbian differentiates between two classes of participles. The so-called active participle, which occurs in the formation of complex tenses, and the passive participle, found in passive clauses, besides syntactic differences, are further distinguished via surfacing with particular morphology. While active participles surface with the morpheme *-l-* (11), passive participles are marked by the morpheme *-n-* (12). Furthermore, there are no restrictions with respect to particular verb classes and subclasses when it comes to the formation of *-l-* participles in this function, i.e., any verb can figure as its underlying source, while only transitive verbs, as expected, participate in the formation of passive participles in passive environments.

- (11) Marija je pegla-l-a suknj-u.  
 Maria AUX.3SG iron-ACT.PTCP-3SG.FEM skirt-ACC  
 ‘Maria was ironing the skirt.’
- (12) Suknj-a je pegla-n-a od strane Marije.  
 skirt-NOM AUX.3SG iron-PASS.PTCP-3SG.FEM by side Maria  
 ‘The skirt was ironed by Maria.’

As Aljović (2000) argues, Serbian has two tests for distinguishing between unaccusative and unergative verbs: (i) surfacing with active participle morphology when a participle modifies a noun appearing in adjectival function, and (ii) participating in the Impersonal Passive Construction (IPC). While unaccusative verbs can form active participles employing *-l-* (13), this strategy is unavailable to unergatives (14):

- (13) a. pristig-l-i gosti  
 arrive-ACT.PTCP-pl guests  
 ‘arrived guests’
- b. opa-l-i listovi  
 fall-ACT.PTCP-PL leaves  
 ‘fallen leaves’ Aljović (2000)
- (14) a. \*skoči-l-i dječaci  
 jump-ACT.PTCP-PL boys  
 \*‘jumped boys’ (=boys that jumped)
- b. \*telefonira-l-i gosti  
 telephone-ACT.PTCP-PL guests  
 \*‘telephoned guests’ (=guests that telephoned) Aljović (2000)

Moreover, Aljović demonstrates that imperfective forms of unaccusatives cannot form *-l-* participles and pattern in this respect with unergatives, taking this as evidence that the aspectual value of the verb can affect its belonging to a particular verb class, i.e., its Voice. Based on the results of the present test, perfective version of the verb *opasti* ‘fall.PF’ in Serbian belongs to the class of unaccusative verbs, while imperfective *opadati* ‘fall.IMPF’ belongs to the class of unergative verbs.

- (15) a. \*pristiza-n-i /\*pristiza-l-i gosti  
 arrive-PASS.PTCP-PL /\*arrive-ACT.PTCP-PL guests  
 Intended: ‘arrived guests’
- b. \*opada-n-i /\*opada-l-i listovi  
 fall-PASS.PTCP-PL /\*fall-ACT.PTCP-PL leaves  
 Intended: ‘fallen leaves’ Aljović (2000)

In the previous chapter, I have mentioned that lexical prefixes can affect the argument struc-

ture of the verb and add a new argument. Further examples from Serbian demonstrate that unaccusative verb *skočiti* ‘jump.PF’, when combined with the lexical prefix, form a new verb that belongs to the class of transitive verbs. In the examples below, the unaccusative verb surfaces with the single argument (16), while the newly formed transitive verb surfaces with the external and internal argument (17).

- (16) Devojčica je skoči-la.  
 girl AUX.3SG jump-PST.PTCP.3SG.FEM  
 ‘A girl jumped.’
- (17) Devojčica je pre-skoči-la ograd-u.  
 girl AUX.3SG across-jump-PST.PTCP.3SG.FEM fence-ACC  
 ‘A girl jumped over the fence.’

Note that the internal argument (17) is the genuine argument of the verb surfacing with the accusative case, licensed as a ground argument within pP. The same noun can appear in the genitive case as part of the adverbial modifier with the unaccusative verb (18a), but the accusative case in the unaccusative environment is ruled out (18b).

- (18) a. Devojčica je skoči-la preko ograd-e.  
 girl AUX.3SG jump-PST.PTCP.3SG.FEM PREP fence-GEN  
 ‘A girl jumped over the fence.’
- b. \*Devojčica je skoči-la ograd-u.  
 girl AUX.3SG jump-PST.PTCP.3SG.FEM fence-ACC  
 Intended: ‘A girl jumped over the fence.’

The second test that makes a clear cut between unergatives and unaccusatives is The Impersonal Passive Construction (IPC). Namely, while unergative verbs, such as *trčati* (‘run’) and *spavati* (‘sleep’) can enter impersonal passive form, being accompanied by passive-related morphology (19), this strategy is not available to unaccusative verbs (20).

- (19) a. Na ovom krevetu je nedavno spava-n-o.  
 on this bed is recently sleep-PASS.PTCP-NEUT-SG  
 ‘This bed has recently been slept in’
- b. Po ovoj travi je nedavno trča-n-o.  
 on this grass is recently run-PASS.PTCP-NEUT.SG  
 ‘This grass has recently been run over’

Aljović (2000)

- (20) a. \*U ovo doba godine višnje su cveta-n-e.  
 PREP this time year.GEN cherries AUX.2PL  
 ‘At this time of year, the cherries are in bloom.’
- b. \*Ruže su venu-t-e.  
 roses AUX.3PL wither-PASS.PTCP-3PL

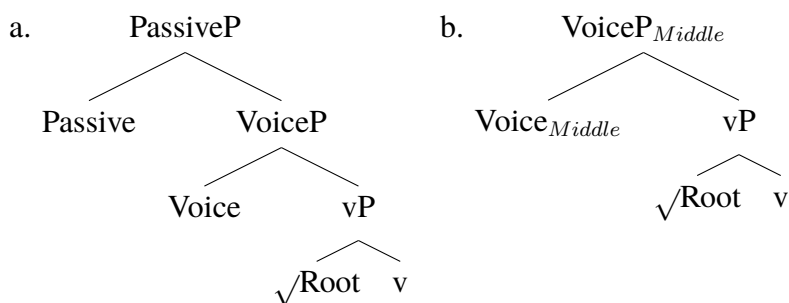


‘The roses are withered.’

### 3.3.2 Participles and Passives

Alexiadou, Anagnostopoulou, and Schäfer (2015) introduce a distinction between two types of passives cross-linguistically. In languages such as English and German, a designated Passive head selects VoiceP introducing the external argument. Passive is realized in the analytic form consisting of an auxiliary combined with a participle and surfaces with the passive morphology. On the other hand, the Passive head is not present in languages like Greek. Rather, the syntactically intransitive thematic non-active Voice head, Voice<sub>Middle</sub> is the head that both introduces an external argument and existentially binds it. In contrast to the previous type, Greek passives are synthetic<sup>1</sup>.

(21) Two types of passives (Alexiadou et al., 2015)



As Alexiadou, Anagnostopoulou, and Schäfer (2015) further argue, passive in languages like English and German embeds active transitive verbs and renders them passive. I adopt this view here alongside the definition of passive verbs given in Kastner (2020).

- (22) a. A PASSIVE VERB is an intransitive verb which does not have an overt external argument in the regular subject position but does have an Agent which is either (a) implicit and existentially closed over or (b) made overt in a *by*-phrase.
- b. Formally, there is no external argument in Spec,VoiceP (or Spec,TP, for that matter) but there is an Agent role in the semantics.

Serbian passives are analytic forms consisting of an auxiliary and a passive participle marked by the passive-related morphology realized in the form of the morpheme *-n*. Participles surfacing with the morpheme *-n* are attested in two of three types of Serbian passive constructions: (i) verbal passive, (ii) *se*-passive, and (iii) The Impersonal Passive Construction. I use the term verbal passive here for instances of genuine passivization of transitive verbs, *se*-passive

<sup>1</sup>Note that this does not necessarily imply that analytic passives involve the PassiveP strategy and synthetic passives the Middle Voice.

for intransitive impersonal forms with a promoted object argument surfacing with reflexive morphology, and Impersonal Passive Construction for passive-like forms of unergative verbs. Recall the example (19b) repeated here as (25) for the verbal passive and the example adapted from Aljović (2000) for the IPC.

- (23) Suknj-a je pegla-n-a od strane Marije.  
 skirt-NOM AUX.3SG iron-PASS.PTCP-3SG.FEM by side Maria  
 ‘The skirt was ironed by Maria.’ **verbal passive**
- (24) Suknj-a se pegla nakon pranja.  
 skirt-NOM RFL iron.PRS.3SG after washing  
 ‘The skirt is ironed after washing.’ **se-passive**
- (25) Po ovoj travi je nedavno trča-n-o.  
 on this grass is recently run-pass.ptcp-neut.sg  
 ‘This grass has recently been run over’ **IPC**

I take the fact that the special passive-related morphology that systematically surface with forms derived on the basis of active transitive verbs is absent in forms that involve the reflexive morpheme as evidence to propose that the morpheme *-n* is, together with an auxiliary, a spell out of the Passive head. At the same time, reflexive morpheme *se* should be analyzed on a par with Greek middle morphology and French *se*-passives, all being instances of non-active or Middle Voice head (Kastner, 2020).

In the same manner as Greek adjectival participles (Alexiadou & Anagnostopoulou, 2008), Serbian active and passive participles pattern with adjectives and can be used in attributive and predicative positions. However, while this property is related to the class of adjectival participles in Greek, this distributional pattern holds for all participles in Serbian. Outside passives, participles derived out of transitive verbs can also functions as attributive modifiers of the noun<sup>2</sup>.

<sup>2</sup>I leave for future work the question of whether the prenominal or postnominal position of participles affects the interpretation and surfacing with the external argument.

- (26) a. podaci spretno brisani od strane Tamare  
 data.NOM deftly deleted by side Tamara  
 ‘the data deftly deleted by Tamara’
- b. dete postepeno osnaživano od strane roditelja  
 child.NOM gradually empowered by side parents  
 ‘the child gradually empowered by the parents’
- c. marama nemarno vezana od strane Tamare  
 scarf.NOM AUX.3SG carelessly tied by side Tamara  
 ‘the scarf carelessly tied by Tamara’
- d. veš brzo osušen veš od strane Tamare  
 laundry.NOM quickly dried by side Tamara  
 ‘the laundry quickly dried by Tamara’

- (27)
- a. spretno brisani podaci od strane Tamare  
deftly deleted data.NOM by side Tamara  
'the deftly deleted data by Tamara'
  - b. postepeno osnaživano dete od strane roditelja  
gradually empowered child.NOM by side parents  
'the gradually empowered child by parents'
  - c. nemarno vezana marama od strane Tamare  
carelessly tied scarf.NOM by side Tamara  
'the carelessly tied scarf by Tamara'
  - d. brzo osušen veš od strane Tamare  
quickly dried laundry.NOM quickly by side Tamara  
'the quickly dried laundry by Tamara'

Alexiadou, Anagnostopoulou, and Schäfer (2015) demonstrate that adjectival passives are distinguished from adjectives in surfacing with agents, instruments, and locative modifiers, that are unavailable to genuine adjectives. Serbian data replicates the pattern observed in German (Alexiadou et al., 2015):

- (28)
- a. Helikopter je konstruisa-n od strane iskusnih inženjera.  
helicopter.NOM AUX.3SG construct-PASS.PTCP by side experienced engineers  
'The helicopter was constructed by experienced engineers.' ✓ **agent**
  - b. \*Helikopter je impresivan od strane iskusnih inženjera.  
helicopter.NOM AUX.3SG impressive by side experienced engineers  
'The helicopter is impressive by experienced engineers.' ✗ **agent**
- (29)
- a. Helikopter je skicira-n specijalnom olovkom.  
helicopter.NOM AUX.3SG sketch-PASS.PTCP special.INSTR pencil.INSTR  
'The helicopter was sketched with a special pencil.' ✓ **instrument**
  - b. \*Helikopter je veliki olovkom.  
helicopter.NOM AUX.3SG big special.INSTR pencil.INSTR  
'\*The helicopter is big with a special pencil.' ✗ **instrument**
- (30)
- a. Helikopter je sastavljen u Parizu.  
helicopter AUX assembled PREP Paris  
'The helicopter was assembled in Paris.' ✓ **location**
  - b. \*Helikopter je lep u Parizu.  
helicopter AUX beautiful PREP Paris  
'\*The helicopter is beautiful in Paris.' ✗ **location**

Talić (2017) demonstrates that adjectives allow adverb extraction out of a prenominal AP with a short adjective in Serbian.

- (31) a. Izuzetno<sub>i</sub> je kupila t<sub>i</sub> lijep kaput.  
 extremely is bought t<sub>i</sub> beautiful.SF coat  
 ‘She bought an extremely beautiful coat.’
- b. Užasno su kupili t<sub>i</sub> ružan stan.  
 terribly are bought t<sub>i</sub> ugly.SF apartment  
 ‘They bought a terribly ugly apartment.’ (Talić, 2017)

On the other hand, if we try to apply the same test to structures with participles preceding a nominal, adverb extraction results in ungrammatical forms (32-34). I take this as an additional property that distinguishes adjectives and participles in Serbian.

- (32) a. Apple je predstavio značajno poboljšanu verziju M1 čipa.  
 Apple AUX introduced significantly improved version M1 chip  
 ‘Apple has introduced a significantly improved version of the M1 chip.’
- b. \*Značajno je Apple predstavio poboljšanu verziju M1 čipa.  
 significantly AUX Apple introduced improved version M1 chip  
 Intended: ‘Apple has introduced a significantly improved version of the M1 chip.’
- (33) a. Svi smo se divili impresivno lansiranoj raketi.  
 all AUX.1PL RFL admired impressively launched rocket  
 ‘We were all admiring the impressively launched rocket.’
- b. \*Impresivno smo se svi divili lansiranoj raketi.  
 impressively AUX.1PL RFL all admired launched rocket  
 Intended: ‘We were all admiring the impressively launched rocket.’
- (34) a. Političari su razgovarali o poplavama strahovito uništenom delu grada.  
 politicians AUX talked PREP flood.INSTR terribly damaged part city  
 ‘Politicians discussed the terribly flood-damaged part of the city.’
- b. \*Strahovito su političari razgovarali o poplavama uništenom delu grada.  
 terribly AUX politicians talked PREP flood.INSTR damaged part city  
 Inteded: ‘Politicians discussed the terribly flood-damaged part of the city.’

In terms of argument structure, participles radically differ from nominalizations. In active clauses, when a participial form co-occurs with the auxiliary, Agent surfaces with the nominative case, while the Theme receives accusative (35). On the other hand, in passive forms, where a participle again co-occurs with the auxiliary, the Theme argument gets promoted and surfaces with the nominative case while the Agent is expressed in the form of the *by*-phrase (36). Finally, when the participle appears as a modifier, the noun functioning as a Theme surfaces with the nominative, while the Agent is again expressed in the form of the *by*-phrase (37). As demonstrated above, modified nominal can also stand for an Agent in the case of unergative verbs.

- (35) Marija je pegla-l-a suknoj-u.  
 Maria AUX.3SG iron-ACT.PTCP-3SG.FEM skirt-ACC  
 ‘Maria was ironing the skirt.’
- (36) Suknoj-a je pegla-n-a od strane Marije.  
 skirt-NOM AUX.3SG iron-PASS.PTCP-3SG.FEM by side Maria  
 ‘The skirt was ironed by Maria.’
- (37) Suknoj-a pegla-n-a od strane Marije.  
 skirt-NOM iron-PASS.PTCP-3SG.FEM by side Maria  
 ‘the skirt ironed by Maria.’

Crucially, the internal (Theme) argument can never receive genitive case in structures with participles. This state of affairs speaks against the idea that nominalizer embeds the participle since, in that case, we would expect the same argument structure, i.e., what is found in participles is preserved in nominalizations. In the previous section, the ergative case pattern has been attributed to the presence of the nominalizer *n*. In a similar vein, I argue that the categorizing phase head *a* in participles influences the argument structure. This furthermore means that little *v* under *n* that can assign genitive to its internal argument is not the same as little *v* under *a*. I take that a nominal moves to T to receive nominative case in active and passive clauses and to D in cases where a participle modifies it for the same reason. Therefore, *v* under T can assign accusative case to its internal argument, *v* under *n* can assign genitive, while *v* under *a* in participles lacks the capability of case assignment altogether.

In an extensive work on participles in Serbian (Serbo-Croatian), Bešlin (2020b, 2020a, 2021) demonstrates that passive participles in Serbian have the external syntax of adjectives and argues against the existence of the participle as a category proposing that passive participles are adjectives that embed different amounts of verbal layers cross-linguistically. Convincing evidence for the presence of the categorizing head *a* comes from agreement. Namely, stative and eventive participles show agreement for case, gender and number features, while verbal forms agree with their subjects only in person and number. Furthermore, patterning with adjectives, they can appear in definite forms, when used in attributive function while only non-specific (short) forms are acceptable in the predicative function. Finally, participial forms can undergo comparison. On the other hand, as verbal properties Bešlin (2021) lists surfacing with theme vowels, that she takes to be the exponents of the categorizing head *v*, presence of aspectual morphology, and modification by manner adverbs and agentive phrases.

While I agree with Bešlin’s observations on the nominal side of participles and the presence of the head *a*, the analysis presented here differs on the verbal side. Namely, as argued above, I take little *v* under *a* to be distinct from little *v* under T. Furthermore, Voice layer under T in active clauses is distinct from the Voice layer in passives and under *n* and *a* heads. In that sense, any instance of participles surfacing with *by*-phrases should lead to the treat-

ment of the Voice head as ergative one on a par with Voice in nominalizations. Furthermore, I argue that participles do not have the external syntax of adjectives, as we have seen above that passive participles are distinguished from genuine adjectives in surfacing with agents, instruments, and locative modifiers, unavailable to genuine adjectives. Therefore, the question that remains to be explored is whether the agreement patterns of adjectives and participles replicate the picture obtained in Serbian cross-linguistically.

### 3.4 Voice Diagnostics

In this section, I will apply five tests proposed in Alexiadou, Anagnostopoulou, and Schäfer (2015) to probe for the presence of the implicit external argument in passives and nominalizations: (i) licensing of *by*-phrases, (ii) compatibility with agentive adverbs, (iii) the ability to control, (iv) licensing of instrumental PPs, and (v) licensing of the *by-itself* string. Further discussion will show which classes and sub-classes of verbs in Serbian license *by*-phrases when nominalized. To test the hypothesis that both deverbal nominals and passives exhibit the full array of Voice diagnostics, I will use the class of transitive verbs.

#### 3.4.1 *by*-phrases

Surfacing with the implicit external argument realized in the form of the *by*-phrase is the most apparent property that unifies passives (38) and nominalizations (39). However, the two forms do not exhibit an identical argument structure. Namely, an internal (Theme) argument of passives surfaces with nominative, while an internal argument of nominalizations gets structural genitive case in Serbian.

- (38) a. Podaci su brisani od strane Tamare.  
 data.NOM AUX.3PL deleted by side Tamara  
 ‘The data was deleted by Tamara.’
- b. Dete je osnaživano od strane roditelja.  
 child.NOM AUX.3SG empowered by side parents  
 ‘The child has been empowered by the parents.’
- c. Marama je vezana od strane Tamare.  
 scarf.NOM AUX.3SG tied by side Tamara  
 ‘The scarf is tied by Tamara.’
- d. Veš je sušen od strane Tamare.  
 laundry.NOM AUX.3SG dried by side Tamara  
 ‘The laundry was dried by Tamara.’
- (39) a. brisanje podatak-a od strane Tamare  
 deleting data-GEN by side Tamara

- ‘deleting of the data by Tamara’
- b. osnaživanje deteta od strane roditelja  
empowering child.GEN by side parents  
‘empowering of the child by the parents’
  - c. vezivanje maram-e od strane Tamare  
tying scarf-GEN by side Tamara  
‘tying of the scarf by Tamara’
  - d. sušenje veš-a od strane Tamare  
drying laundry-GEN by side Tamara  
‘drying laundry by Tamara’

### 3.4.2 Agent-oriented adjectives

As stated above, licensing of *by*-phrases and overt passive morphology are convincing but not only diagnostics for the presence of the deficient VoiceP. The second test that can be applied to probe for its presence and the unifying analysis of nominalizations and passives is licensing of agent-oriented adverbs. As demonstrated below, transitive verbs allow agent-oriented adverbs when passivized.

- (40)
- a. Podaci su spretno brisani od strane Tamare.  
data.NOM AUX.3PL deftly deleted by side Tamara  
‘The data was deftly deleted by Tamara.’
  - b. Dete je postepeno osnaživano od strane roditelja.  
child.NOM AUX.3SG gradually empowered by side parents  
‘The child has been gradually empowered by the parents.’
  - c. Marama je nemarno vezana od strane Tamare.  
scarf.NOM AUX.3SG carelessly tied by side Tamara  
‘The scarf is carelessly tied by Tamara.’
  - d. Veš je brzo sušen od strane Tamare.  
laundry.NOM quickly AUX.3SG dried by side Tamara  
‘The laundry was quickly dried by Tamara.’

In order to be applied to Serbian data, this test needs to be slightly modified. Serbian nominalizations do not tolerate adverbs but combine with agent-oriented adjectives, which depict the way an event denoted by an underlying verb has been performed. As examples below demonstrate, agent-oriented adjectives are licit in all three sub-classes of transitive verbs, both in structures with *by*-phrases and possessives, obligatorily preceding the deverbal nominal.

- (41)
- a. spretno brisanje podatak-a od strane Tamare  
deft deleting data-GEN by side Tamara

- ‘deft deleting of the data by Tamara’
- b. postepeno osnaživanje deteta od strane roditelja  
gradual empowering child.GEN by side parents  
‘gradual empowering of the child by the parents’
  - c. nemarno vezivanje maram-e od strane Tamare  
careless tying scarf-GEN by side Tamara  
‘careless tying of the scarf by Tamara’
  - d. brzo sušenje veš-a od strane Tamare  
quick drying laundry-GEN by side Tamara  
‘quick drying laundry by Tamara’

### 3.4.3 Control

The third standard diagnostic that unifies passives and nominalizations is the control into adjunct clauses. Distinct subclasses show differences in the type of control they allow. The class of non-alternating transitive verbs prefers implicit subject control. The agreement patterns in the embedded clause convincingly show that the PRO argument that is coreferential with the subject agrees with the auxiliary and the participle in the purpose clause. In the example below, PRO is coreferential with the explicit subject in the active clause, as well as with the implicit argument in the form of the by-phrase in passives and nominalizations.<sup>3</sup>

<sup>3</sup>Furthermore, the presence of the implicit agent in both passives and nominalizations is evidenced by their compatibility with purpose complex phrases.

- (42) a. Podaci su obrisani od strane Tamare s ciljem prikrivanja dokaza.  
data AUX deleted by side Tamara with aim covering.up evidence  
‘Data is deleted by Tamara with the aim of covering up the evidence.’  
b. brisanje podataka od strane Tamare s ciljem prikrivanja dokaza  
deleting data by side Tamara with aim covering.up evidence  
‘deleting the data by Tamara with the aim of covering up the evidence’
- (43) a. Marama je vezana od strane Tamare s ciljem isticanja lepote njene haljine.  
scarf aux tied by side Tamara with aim emphasizing beauty her dress  
‘The scarf is tied by Tamara with the aim of emphasizing the beauty of her dress.’  
b. vezivanje maram-e od strane Tamare s ciljem isticanja lepote njene haljine  
tying scarf by side Tamara with aim emphasizing beauty her dress  
‘tying of the scarf by Tamara with the aim of emphasizing the beauty of her dress’
- (44) a. Ručak je redovno kuvan od strane Tamare s ciljem zdravog načina života.  
lunch aux regularly cooked by side Tamara with aim healthy way life  
‘Lunch is regularly cooked by Tamara with the goal of a healthy lifestyle.’  
b. kuvanje ručka od strane Tamare s ciljem zdravog načina života  
cooking lunch by side Tamara with aim healthy way life  
‘cooking lunch by Tamara with the goal of a healthy lifestyle’



- (45) a. Tamara<sub>i</sub> je obrisala podatke da bi PRO<sub>i</sub> prikri-la dokaze.  
 Tamara<sub>i</sub> AUX.3SG deleted data C AUX.3SG PRO<sub>i</sub> cover.up evidence  
 ‘Tamara deleted the data to cover up the evidence.’
- b. Podaci su obrisani od strane Tamare<sub>i</sub> da bi PRO<sub>i</sub> prikri-la dokaze.  
 data AUX.3PL deleted by side Tamara<sub>i</sub> C AUX.3SG PRO<sub>i</sub> cover.up  
 evidence  
 ‘The data was deleted by Tamara to cover up the evidence.’
- c. brisanje podataka od strane Tamare<sub>i</sub> da bi PRO<sub>i</sub> prikri-la dokaze  
 deleting data by side Tamara<sub>i</sub> C AUX.3SG PRO<sub>i</sub> cover.up evidence  
 ‘deleting of the data by Tamara to cover up the evidence’

Moving to the class of transitive verbs that participate in accusative-unaccusative alternations, we can observe a split in control patterns between active clauses on the one hand, and passive clauses and nominalizations, on the other. Namely, while subject control is preferable reading in the active (46a), object control is preferred in passives in nominalizations (46b-c). This fact further supports the hypothesis of the unified analysis of the two forms.

- (46) a. Tamara<sub>i</sub> je vezala maramu<sub>j</sub> da bi PRO<sub>i/?j</sub> istakla lepotu haljine.  
 Tamara<sub>i</sub> AUX tied scarf C AUX.3SG PRO<sub>i</sub> emphasize beauty dress  
 ‘Tamara tied a scarf to emphasize the beauty of the dress.’
- b. Marama<sub>j</sub> je vezana od strane Tamare<sub>i</sub> da bi PRO<sub>j/?i</sub> istakla lepotu  
 scarf AUX tied by side Tamara C AUX.3SG emphasize beauty dress  
 haljine.  
 ‘The scarf is tied by Tamara to emphasize the beauty of the dress.’
- c. vezivanje marame<sub>j</sub> od strane Tamare<sub>i</sub> da bi PRO<sub>j/?i</sub> istakla lepotu  
 tying scarf by side Tamara C AUX.3SG PRO<sub>j/?i</sub> emphasize beauty  
 haljine  
 dress  
 ‘tying of the scarf by Tamara to emphasize the beauty of the dress’

Finally, in the subclass of causative verbs that participate in the causative-anticausative alternations, external causer can be coreferential with the PRO argument in the embedded clause. This subclass patterns with the first one in preferring subject control.

- (47) a. Tamara<sub>i</sub> redovno kuva ručak da bi se PRO<sub>i</sub> hranila zdravo.  
 Tamara regularly cooks lunch C AUX.3SG RFL PRO<sub>i</sub> eat healthily  
 ‘Tamara regularly cooks lunch to eat healthily.’
- b. Ručak je redovno kivan od strane Tamare<sub>i</sub> da bi se PRO<sub>i</sub> hranila  
 lunch AUX regularly cooked by side Tamara<sub>i</sub> C AUX.3SG RFL PRO<sub>i</sub> eat

- zdravo.  
healthily  
'lunch is regularly cooked by Tamara to eat healthily'
- c. kuvanje ručka od strane Tamara<sub>i</sub> da bi se PRO<sub>i</sub> hranila zdravo  
cooking lunch by side Tamara<sub>i</sub> C AUX.3SG RFL PRO<sub>i</sub> eat healthily  
'cooking of the lunch by Tamara to eat healthily'

### 3.4.4 Disjoint reference effects

Alexiadou et al. (2013) apply Kratzer's (1996) test to probe for the presence of the VoiceP in nominalizations. Namely, while English *ing-of* gerund behaves like the verbal passive in ruling out the *self*-action interpretation, English derived nominals allow it.

- (48) *The children were being registered.*  
The children registered themselves. **\*Th=Ag**  
The children were registered by someone. **Th≠Ag**  
The report mentioned the painfully slow registering of the children. **Th≠Ag/\*Th=Ag**  
The report mentioned the painfully slow registration of the children. **Th≠Ag/Th=Ag**

As Alexiadou et al. (2013) further demonstrate, German *-ung* nominals vacillate between *self*-action and non-*self*-action interpretation (49), while nominal infinitives behave like English *ing-of* gerunds, i.e., agent argument does not overlap with the theme (50).

- (49) Die Anmeldung der Gäste  
The registration the.GEN guests  
'the registration of the guests' **Ag=Th/Ag≠Th**
- (50) Das Anmelden der Gäste  
The register.inf the.GEN guests  
'the registering of the guests' **Ag≠Th/\*Ag=Th**

Serbian shows the same ambiguity when it comes to nominalizations derived out of verbs that include reflexive morpheme *se*. In the example (52) below, the deverbal noun is derived out of the verb *prijaviti se* ('to register oneself') and the interpretation of the genitive argument vacillate between agent and theme. Furthermore, reflexive verbs can be ambiguous between active reading in the present tense and the so-called *se*-passive reading (51). Since reflexive morpheme is not preserved in the formation of a deverbal noun, nominals like the one in (52) allow both for Agent and Theme interpretation of the genitive argument. However, once a by-phrase is overtly expressed, ambiguity disappears and the only interpretation available to genitive is Theme.

- (51) Učenici se prijavljuju za takmičenje iz matematike.  
 students.NOM RFL register.ORS.3PL PREP competition PREP math  
 ‘Students register for the math competition themselves.’
- (52) prijavljivanje učenika za takmičenje iz matematike  
 registration student.GEN PREP competition PREP math  
 ‘student registration for the math competition’ **Ag=Th/Ag≠Th**

On the other hand when the verb does not include the reflexive morpheme as in *prijaviti* (‘to register’) in the example (53), where an Agent surfaces with the nominative and a Theme argument with the accusative, the reflexive reading in nominalization (55) is excluded and genitive argument can only be the Theme. In other words, there is no coreference between the Agent and the Theme. Furthermore, this verb productively forms passive surfacing with an overt passive morphology (54).

- (53) Nastavnici prijavljuju učenike za takmičenje iz matematike.  
 teachers.NOM register.PRS.3PL students.ACC PREP competition PREP math  
 ‘Teachers register students for the math competition.’
- (54) Učenici su prijavlje-n-i za takmičenje iz matematike od strane nastavnika.  
 students.NOM AUX.3PL register-PASS-3PL PREP competition PREP math by  
 side teachers  
 ‘Students were registered for the math competition by the teachers.’
- (55) prijavljivanje učenika za takmičenje iz matematike od strane nastavnika  
 registering student.GEN PREP competition PREP math by side teacher  
 ‘registering students for the math competition by the teachers’ **Ag≠Th/\*Ag=Th**

### 3.4.5 Instrumental PPs

Licensing of instrumental PPs represents a further diagnostic for the presence of the implicit agent since instruments are under the control of an external argument (Alexiadou et al., 2015). As demonstrated below, both passives (56) and nominalizations (57) readily accept modification by instrumental PPs which in Serbian surface with the morphologically realized instrumental case.

- (56) a. Podaci su brisani programom koji uklanja tragove od strane Tamare.  
 data.NOM AUX deleted program.INSTR that removes traces by side Tamara  
 ‘The data was deleted with a program that removes traces by Tamara.’
- b. Dete je pohvalama osnaživano od strane roditelja.  
 child.NOM AUX praise.INSTR empowered by side parents  
 ‘The child has been empowered by the parents with praise.’

- c. Marama je vezana svilenom trakom od strane Tamare.  
 scarf.NOM AUX tied silk.INSTR ribbon.INSTR by side Tamara  
 ‘The scarf is tied with a silk ribbon by Tamara.’
- d. Veš je sušen fenom od strane Tamare.  
 laundry.NOM AUX dried hairdryer.INSTR by side Tamara  
 ‘The laundry was dried with a hairdryer by Tamara.’
- (57) a. brisanje podataka programom koji uklanja tragove od strane Tamare  
 deleting data.GEN program.INSTR that removes traces by side Tamara  
 ‘deleting of the data with a program that removes traces by Tamara’
- b. osnaživanje deteta pohvalama od strane roditelja  
 empowering child.GEN praise.INSTR by side parents  
 ‘empowering of the child by the parents with praise’
- c. vezivanje marame svilenom trakom od strane Tamare  
 tying scarf.GEN silk.INSTR ribbon.INSTR by side Tamara  
 ‘tying of the scarf with a silk ribbon by Tamara.’
- d. sušenje veša fenom od strane Tamare  
 drying laundry.GEN hairdryer.INSTR by side Tamara  
 ‘drying of the laundry with a hairdryer by Tamara.’

### 3.4.6 *by-itself* test

The final test that will be applied here is the so-called *by-itself* test that is usually used as a diagnostic for unaccusative and anticausative verbs. Namely, while unaccusatives and anticausatives freely combine with the string *by-itself*, transitive verbs systematically reject it. I take this as further evidence for the presence of the external agent. As demonstrated below, both passives (58) and nominalizations (59) do not tolerate *by-itself*. It is important to note that the following examples employ genuine transitive verbs and not their unaccusative, unergative, or anticausative variant surfacing with the morpheme *se*. The following discussion will elaborate on Voice alternation in Serbian in greater detail. Therefore, the following sentences would be acceptable if an intransitive version of the verb would serve as an input.

- (58) a. \*Podaci su brisani od sebe.  
 data.NOM AUX deleted by itself  
 ‘The data was deleted by itself.’
- b. \*Dete je osnaživano od sebe.  
 child.NOM AUX empowered by itself  
 ‘The child has been empowered by itself.’
- c. \*Marama je vezana od sebe.  
 scarf.NOM AUX tied by itself  
 ‘The scarf is tied by itself.’

- d. \*Veš je sušen od sebe.  
laundry.NOM AUX dried by itself  
'The laundry was dried by itself.'
- (59) a. \*brisanje podataka od sebe  
deleting data.GEN by itself  
'deleting of the data by itself'
- b. \*osnaživanje deteta od sebe  
empowering child.GEN by itself  
'empowering of the child by itself'
- c. \*vezivanje marame od sebe  
tying scarf.GEN by itself  
'tying of the scarf by itself'
- d. \*sušenje veša od sebe  
drying laundry.GEN by itself  
'drying of the laundry with a hairdryer by itself.'

### 3.4.7 Voice Diagnostics: Summary

The preceding discussion has demonstrated that passives and nominalizations exhibit identical syntactic behavior when it comes to all diagnostics for the presence of an implicit external argument proposed in theory. The table below summarizes the findings.

	NOMINALIZATION	PASSIVE
by-phrases	✓	✓
control	✓	✓
agentive adverbs	✓	✓
instrumental PPs	✓	✓
by-itself	✗	✗

Table 3.1: Voice diagnostics

## 3.5 Argument structure

In this section, I will examine the four main verb classes in Serbian: (i) transitive, (ii) unaccusative, (iii) unergative, and (iv) anticausative verbs with various subclasses within each group and provide an insight into the differences between the argument licensing potential of verbs and their respective nominal forms.

### 3.5.1 Transitive verbs

The class of transitive verbs in Serbian consists of (i) non-alternating transitive verbs, including verbs that can optionally take clausal objects such as *istraživati* (‘investigate’) and *ispitivati* (‘examine’), (ii) accusative variant of an accusative ~ unaccusative alternation, (iii) accusative variant of an accusative ~ unergative alternation, (iv) causative variant of a causative ~ anticausative alternation. In the formation of passive participles, these verbs employ a morpheme *-(e)n* that is also found in nominalizations.

Serbian is a nominative-accusative language with an overt case-related morphology on its arguments. An internal argument of transitive verbs obligatorily gets assigned an accusative case, while the external argument surfaces with the nominative.

- (60) Moj deka bere jagod-e.  
 my.NOM grandpa.NOM pick.PRS.3SG strawberries.ACC.PL  
 ‘My grandpa is picking strawberries.’

In the subclass of verbs that I have identified here as non-alternating transitive verbs, adding further pieces of morphology does not cause this verb to participate in any Voice alternation. Furthermore, these verbs never surface with the reflexive morphology in active clauses, while merging lexical prefixes does not change the Voice specification, and the argument structure remains the same.

- (61) Moj deka je u-brao jagod-e.  
 my.NOM grandpa.NOM AUX.3SG *in*-picked strawberries.ACC.PL  
 ‘My grandpa picked up the strawberries.’

VERB	PARTICIPLE	NOMINALIZATION
<i>BRATI</i> (‘pick’)	bran (‘picked’)	branje (‘picking’)
<i>LANSIRATI</i> (‘launch’)	lansiran (‘launched’)	lansiranje (‘launching’)
<i>POTKIVATI</i> (‘shoe’)	potkivan (‘shod’)	potkivanje (‘shoeing’)
<i>VAJATI</i> (‘sculpt’)	vajan (‘sculpted’)	vajanje (‘sculpting’)
<i>GRADITI</i> (‘build’)	građen (‘built’)	građenje (‘building’)
<i>ISTRAŽIVATI</i> (‘investigate’)	istraživan (‘investigated’)	istraživanje (‘investigating’)
<i>ISPITIVATI</i> (‘examine’)	ispitivan (‘examined’)	ispitivanje (‘examining’)

Table 3.2: Non-alternating transitive verbs

The next sub-class identified within the class of transitive verbs encompasses verbs that participate in accusative ~ unaccusative Voice alternation. This alternation is followed by two morphological strategies: (ii) adding prefixes, which leads to the switch from an unaccusative

to an accusative verb, and (ii) adding a reflexive morpheme, which leads to the switch from an accusative to an unaccusative verb. Namely, merging prefixes to an unaccusative verb such as *težati* ('gain weight') in (62a) results in a transitive verb *otežati* ('make difficult') in (62b). Similarly, a transitive verb such as *vezati* ('tie') (63a) when surfaced with the reflexive morphology *vezati se* ('become attached') (63b) changes its Voice specification and belongs to the class of unaccusative verbs.

- (62) a. Vaš pas tež-a sve više i više.  
 your dog root-PRS.3SG all more and more  
 'Your dog is gaining weight more and more.' *unaccusative*
- b. Vrućina o-tež-av-a mom psu da zaspi.  
 heat LP-root-2IMPF-PRS.3SG my.DAT dog.DAT to fall.asleep  
 'The heat makes it difficult for my dog to fall asleep.' *accusative*
- (63) a. Tamara vezuje maram-u.  
 Tamara tie.PRS.3SG scarf-ACC  
 'Tamara ties a scarf.' *accusative*
- b. Tamara se vezuje za grad u kojem živi.  
 Tamara RFL tie.PRS.3SG PREP city PREP which lives  
 'Tamara is attaching to the city in which she lives.' *unaccusative*

VERB	PARTICIPLE	NOMINALIZATION
<i>OSNAŽIVATI</i> ('empower')	osnaživan ('empowered')	osnaživanje ('empowering')
<i>PRERASTATI</i> ('outgrow')	prerastan ('outgrown')	prerastanje ('outgrowing')
<i>OTEŽAVATI</i> ('make difficult')	otežavan ('made difficult')	otežavanje ('making difficult')
<i>POJAČAVATI</i> ('boost')	pojačan ('boosted')	pojačavanje ('boosting')
<i>VEZIVATI</i> ('bind')	vezivan ('bound')	vezivanje ('binding')
<i>ADAPTIRATI</i> ('adapt')	adaptiran ('adapted')	adaptiranje ('adapting')
<i>BAZIRATI</i> ('base')	baziran ('based')	baziranje ('basing')

Table 3.3: Alternating transitive verbs: accusative ~ unaccusative alternation

Within the subgroup of transitive verbs that participate in the accusative ~ unergative alternation, morphology follows the Voice shift. As the example below demonstrates, a transitive verb taking a direct object in the instrumental case changes its category status and Voice specification when it surfaces with the reflexive morphology and belongs to the class of unergative verbs. This morphological strategy holds for all the verbs listed below.

- (64) a. Laura vešto rukuje opasn-im hemikali-jama u  
 Laura skillfully handle.PRS.3SG dangerous-INSTR chemicals-INSTR PREP

- laboratoriji.  
laboratory  
'Laura skillfully handles dangerous chemicals in the laboratory.' *accusative*
- b. Laura se rukuje sa premijerom.  
Laura RFL shake.hands.PRS.3SG PREP prime.minister  
'Laura shakes hands with the prime minister.' *unergative*

VERB	PARTICIPLE	NOMINALIZATION
UJEDINITI ('unite')	ujedinjen ('united')	ujedinjenje ('unification')
ZAŠTITITI ('protect')	zaštićen ('protected')	zaštita ('protection')
BACITI ('throw')	bačen ('thrown')	*
RUKOVATI ('handle')	*rukovan	rukovanje ('handling')
GRLITI ('hug')	grljen ('hugged')	grljenje ('hugging')
LJUBITI ('kiss')	ljubljen ('kissed')	ljubljenje ('kissing')
VENČAVATI ('marry')	venčavan ('married')	venčavanje ('marrying')

Table 3.4: Alternating transitive verbs: accusative ~ unergative alternation

Finally, the last group of transitive verbs consists of causative verbs that participate in a causative ~ anticausative alternation. A morphological pattern observed in the previous subclass is repeated here. Namely, an anticausative verb surfaces with the reflexive morphology (65b), which is absent in the causative variant (65a).

- (65) a. Frizer joj je istanjio kos-u.  
hairdresser 3SG.DAT AUX.3SG thinned hair-ACC  
'The hairdresser thinned her hair.' *causative*
- b. Kos-a joj se istanjila sama od sebe.  
hair-NOM 3SG.DAT RFL thinned alone by itself  
'Her hair got thinned by itself.' *anticausative*

VERB	PARTICIPLE	NOMINALIZATION
KUVATI ('cook')	kuvan ('cooked')	kuvanje ('cooking')
SUŠITI ('dry')	sušen ('dried')	sušenje ('drying')
USPAVATI ('put to sleep')	uspavan ('put to sleep')	*
IZBORATI ('wrinkle')	izboran ('wrinkled')	*
ISTANJIVATI ('thin')	istanjivan ('thinned')	istanjivanje ('thinning')
UGREJATI ('warm up')	ugrejan ('warmed up')	*
ZGRUDVATI ('clump')	zgrudvan ('clumped')	*

Table 3.5: Causative verbs



As stated above, when embedded under TP, i.e., in the clausal environment, the external argument of these verbs surfaces with the nominative case, while the internal argument obligatorily receives accusative.

- (66) Tamara briše                    podatk-e.  
 Tamara delete.PRS.3SG data-ACC.PL  
 ‘Tamara deletes the data.’

In contrast, when embedded under nP, i.e., in the nominal environment, the agent surfaces with the *by*-phrase while the Theme (internal argument) gets assigned the genitive (67-69a). The external argument in nominalizations and passives is implicit, since it can be omitted yielding grammatical forms (67-69b). In the presence of the *by*-phrase, the internal argument cannot be omitted (67-69c).

- (67) a. brisanje podatak-a od strane Tamara  
 deleting data-GEN by side Tamara  
 ‘deleting of the data by Tamara’  
 b. brisanje podatak-a  
 deleting data-GEN  
 ‘deleting of the data’  
 c. \*brisanje od strane Tamara  
 deleting by side Tamara  
 ‘deleting by Tamara’ *non-alternating verb*
- (68) a. vezivanje maram-e od strane Tamara  
 binding scarf-GEN by side Tamara  
 ‘tying of the scarf by Tamara’  
 b. vezivanje maram-e  
 binding scarf-GEN  
 ‘tying of the scarf’  
 c. \*vezivanje od strane Tamare  
 binding by side Tamara  
 ‘tying by Tamara’ *alternating verb*
- (69) a. sušenje veš-a                    od strane Tamare  
 drying laundry-GEN by side Tamara  
 ‘drying laundry by Tamara’  
 b. sušenje veš-a  
 drying laundry-GEN  
 ‘drying laundry’  
 c. \*sušenje od strane Tamare  
 drying by side Tamara  
 ‘drying by Tamara’ *causative alternating verb*

All sub-classes of transitive verbs give nominals that license possessive external argument that has to rise above the nominalizations, while any post-position is ruled out.

- (70) a. Tamar-in-o           brisanje podataka  
           Tamara-POSS-NEUT deleting data  
           ‘Tamara’s deleting of the data’  
       b. \*brisanje podataka Tamar-in-o  
           deleting data       Tamara-POSS-NEUT  
           Intended: ‘Tamara’s deleting of the data’  
       c. \*brisanje Tamar-in-o           podataka  
           deleting Tamara-POSS-NEUT data  
           Intended: ‘Tamara’s deleting of the data’ *non-alternating verb*
- (71) a. Tamar-in-o           vezivanje marame  
           Tamara-POSS-NEUT binding scarf  
           ‘Tamara’s tying of the scarf’  
       b. \*vezivanje marame Tamar-in-o  
           binding scarf    Tamara-POSS-NEUT  
           Intended: ‘Tamara’s tying of the scarf’  
       c. \*vezivanje Tamar-in-o           marame  
           binding Tamara-POSS-NEUT scarf  
           Intended: ‘Tamara’s tying of the scarf’ *alternating verb*
- (72) a. Tamar-in-o           sušenje veša  
           Tamara-POSS-NEUT drying laundry  
           ‘Tamara’s drying of the laundry’  
       b. \*sušenje veša    Tamar-in-o  
           drying laundry Tamara-POSS-NEUT  
           ‘Tamara’s drying of the laundry’  
       c. \*sušenje Tamar-in-o           veša  
           drying Tamara-POSS-NEUT laundry  
           ‘Tamara’s drying of the laundry’ *causative alternating verb*

As predicted, two genitive arguments are ruled out, independently of the order of arguments:

- (73) a. \*brisanje podatak-a Tamar-e  
           deleting data-GEN Tamara-GEN  
           Intended: ‘deleting of the data by Tamara’  
       b. \*brisanje Tamar-e    podatak-a  
           deleting Tamara-GEN data-GEN  
           Intended: ‘deleting of the data by Tamara’ *non-alternating verb*
- (74) a. \*vezivanje marame Tamar-e  
           tying scarf Tamara-GEN

- Intended: ‘tying of the scarf by Tamara’
- b. \*vezivanje Tamar-e marame  
tying Tamara-GEN scarf  
Intended: ‘tying of the scarf by Tamara’ *alternating verb*
- (75) a. \*sušenje veša Tamar-e  
drying laundry Tamara-GEN  
Intended: ‘drying of laundry by Tamara’
- b. \*sušenje Tamar-e veša  
drying Tamara-GEN laundry  
Intended: ‘drying of laundry by Tamara’ *causative alternating verb*

### 3.5.2 Unaccusative verbs

The class of unaccusative verbs in Serbian consists of: (i) non-alternating pure unaccusatives, (ii) alternating change of state verbs, (iii) reflexive verbs as unaccusative variants in accusative ~ unaccusative alternation. Verbs belonging to this group surface with a single argument in nominative case and accept causer PP modifiers realized in the form prepositions *od* (‘from’) and *zbog* (‘because of’) and genitive, as well as *by itself* modifier, passing standard unaccusativity tests (Levin & Hovav, 1995, Alexiadou & Anagnostopoulou, 2004).

- (76) a. Površina vode blješti od sunca.  
surface.NOM water.GEN sparkle.PRS.3SG from sun.GEN  
‘The surface of the water is sparkling from the sun.’
- b. Novak Đoković rapidno napreduje zbog zdrave ishrane.  
Novak Đoković rapidly advance.PRS.3SG because.of healthy diet  
‘Novak Đoković is advancing rapidly due to a healthy diet.’
- c. Ruže polako venu same od sebe.  
roses.NOM.PL slowly wither.PRS.3PL alone from itself  
‘Roses are slowly withering by themselves.’

In the subclass of non-alternating unaccusative verbs, adding further pieces of morphology, such as prefixes and a reflexive morpheme, does not cause this verb to participate in any Voice alternation. As the data below demonstrates, these verbs cannot give rise to passive participles, but nominalizations freely surface with the passive-related morphology.

In the previous section, I have shown that verbs participate in causative ~ unaccusative Voice alternations that are followed by surfacing with particular morphology. The subclass of alternating change of state verbs consists of verbs that lack prefixes that are obligatorily present in their transitive counterparts. In the same vein as the previous subclass, these verbs cannot form passive participles, but nominalizations do surface with the passive-related morphology.

The final subclass of unaccusative verbs consists of reflexive verbs that participate in ac-

<b>VERB</b>	<b>PARTICIPLE</b>	<b>NOMINALIZATION</b>
<i>CVETATI</i> ('flourish')	*cvetan	cvetanje ('flourishing')
<i>VENUTI</i> ('wither')	*venut	venuće ('withering')
<i>BLEŠTATI</i> ('sparkle')	*bleštan	bleštanje ('sparkling')
<i>SIJATI</i> ('shine')	*sijan	sijanje ('shining')
<i>NAPREDOVATI</i> ('advance')	*napredovan	napredovanje ('advancing')
<i>BRILJIRATI</i> ('excel')	*briljiran	briljiranje ('excelling')

Table 3.6: Non-alternating unaccusative verbs

<b>VERB</b>	<b>PARTICIPLE</b>	<b>NOMINALIZATION</b>
<i>SNAŽITI</i> ('strengthen')	*snažen	snaženje ('strengthening')
<i>RASTI</i> ('grow')	*rasten	rastenje ('growing')
<i>TEŽATI</i> ('gain weight')	*težan	težanje ('gaining weight')
<i>JAČATI</i> ('strengthen')	*jačan	jačanje ('strengthening')
<i>ĆELAVITI</i> ('getting bald')	*ćelavljen	ćelavljenje ('balding')
<i>STARITI</i> ('age')	*staren	starenje ('aging')

Table 3.7: Alternating change of state verbs

cusative ~ unaccusative Voice alternation. As argued in the previous section, their accusative pairs lack reflexive morphology. In contrast to the previous two subclasses of unaccusatives, these verbs can serve as inputs for the passive participles, and the passive-related morphology is present in nominalizations as well.

<b>VERB</b>	<b>PARTICIPLE</b>	<b>NOMINALIZATION</b>
<i>VEZIVATI SE</i> ('bind')	vezivan ('bound')	vezivanje ('binding')
<i>ADAPTIRATI SE</i> ('adapt')	adaptiran ('adapted')	adaptiranje ('adapting')
<i>BAZIRATI SE</i> ('base')	baziran ('based')	baziranje ('basing')
<i>PRILAGOĐAVATI SE</i> ('adapt')	prilagođavan ('adapted')	prilagođavanje ('adapting')

Table 3.8: Reflexive verbs as unaccusative variants in accusative ~ unaccusative alternation

The state of affairs presented in the data above faces us with the second puzzle presented in the introductory chapter. Namely, nominalizations whose input verb, being unaccusative, can never undergo the passivization process share the same passive morphology with those derived from transitive verbs. The fact that passive participles of non-alternating unaccusative verbs do not exist and thus cannot serve as a building part of nominalizations is a further argument that speaks against the passive participle embedding in deverbal nominals formation. Therefore, the question of how to explain these morphological patterns emerges.

In line with their underlying verbal sources, nominalizations derived from unergative verbs can license solely a single argument which in the nominal environment surfaces with the genitive case:

- (77) cvetanje cveć-a  
flourishing flowers-GEN  
'flourishing of the flowers' *non-alternating unaccusative*
- (78) rastenje det-eta  
growing child-GEN  
'growing of the child' *non-alternating change of state*
- (79) adaptiranje Marij-e na nove uslove života  
adapting Maria-GEN PREP new conditions life  
'Maria's adapting to new living conditions' *reflexive unaccusative*

Possessive argument and *by*-phrases are licit with reflexive verbs (82, 85), while non-alternating unaccusatives and non-alternating change of state verbs do not tolerate them.

- (80) \*cveć-ev-o cvetanje  
flowers-POSS-NEUT flourishing  
Intended: 'flourishing of the flowers' *non-alternating unaccusative*
- (81) \*detet-ov-o rastenje  
child-POSS-NEUT growing  
Intended: 'growing of the child' *non-alternating change of state*
- (82) Marij-in-o adaptiranje na nove uslove života  
Maria-POSS-NEUT adapting PREP new conditions life  
'Maria's adapting to new living conditions' *reflexive unaccusative*
- (83) \*cvetanje od strane cveća  
flourishing from side flowers  
Intended: 'flourishing of the flowers' *non-alternating unaccusative*
- (84) \*rastenje od strane deteta  
growing from side child  
Intended: 'growing of the child' *non-alternating change of state*
- (85) adaptiranje na nove uslove života od strane Marije  
adapting PREP new conditions life from side Maria  
'adapting to new living conditions by Maria' *reflexive unaccusative*

### 3.5.3 Unergative verbs

Unergative verbs consist of the following subgroups: (i) non-alternating unergative verbs, (ii) alternating reflexive verbs, (iii) alternating reciprocal verbs. These verbs surface with a single argument in nominative case and, in contrast to the previous class, accept agentive modifiers (Levin & Hovav, 1995).

- (86) a. Svesno je otrčao u šumu.  
consciously AUX run.off PREP forest  
'He consciously ran into the woods.'
- b. Njihova deca namerno vrište.  
their children deliberately scream.PRS.3PL  
'Their children are deliberately screaming.'

In a similar manner as non-alternating verbs from previous classes, surfacing with prefixes and reflexive morphology does not change the verb class. Furthermore, these verbs cannot form passive participles, but nominalizations surface with the passive-related morphology.

VERB	PARTICIPLE	NOMINALIZATION
TRČATI ('run')	*trčan	trčanje ('running')
SKAKATI ('jump')	*skakan	skakanje ('jumping')
DOLAZITI ('arrive')	*dolažen	dolaženje ('arriving')
PADATI ('fall')	*padan	padanje ('falling')
SLETATI ('land')	*sletan	sletanje ('landing')
VRIŠTATI ('scream')	*vrištan	vrištanje ('screaming')

Table 3.9: Non-alternating unergative verbs

Alternating unergative verbs form two subclasses: (i) reflexive verbs and (ii) reciprocal verbs. As demonstrated previously, their accusative pair does not surface with the reflexive morphology. Furthermore, in contrast to non-alternating unergatives, these verbs give rise to passive participles in most cases, and passive-related morphology is present in deverbal nominals.

VERB	PARTICIPLE	NOMINALIZATION
UJEDINITI SE ('unite oneself')	ujedinjen ('united')	ujedinjenje ('unification')
ZAŠTITITI SE ('protect oneself')	zaštićen ('protected')	zaštita ('protection')
BACITI SE ('throw oneself')	bačen ('thrown')	*
SPAKOVATI SE ('pack oneself')	spakovan ('packed')	*

Table 3.10: Alternating unergative verbs: Reflexives

VERB	PARTICIPLE	NOMINALIZATION
<i>RUKOVATI SE</i> ('shake hands')	*rukovan	rukovanje ('handshaking')
<i>GRLITI SE</i> ('hug')	grljen ('hugged')	grljenje ('hugging')
<i>LJUBITI SE</i> ('kiss')	ljubljen ('kissed')	ljubljenje ('kissing')
<i>VENČAVATI SE</i> ('get married')	venčavan ('married')	venčavanje ('getting married')

Table 3.11: Alternating unergative verbs: Reciprocals

In the preceding discussion, we have seen that passive morphology is available to unergative verbs when they participate in the Impersonal Passive Constructions. Outside passive clauses, non-alternating unergative verbs cannot form a passive participle that modifies the noun. In contrast, passive morphology is available to the alternating unergative verbs.

- (87) grlje-n-o                      dete  
 hug-PASS.PTCP-NEUT child  
 'a hugged child'

Regardless of the sub-group, nominalizations share the same morphology. When it comes to their argument licensing potential, all sub-groups freely surface with the possessive (88-90) and genitive arguments (91-93).

- (88) teniser-ov-o                      trčanje  
 tennis.player-POSS-NEUT running  
 'tennis player's running' *non-alternating unergative*
- (89) predsednik-ov-o                      rukovanje  
 president-POSS-NEUT handshaking  
 'president's handshaking' *non-alternating reciprocal*
- (90) Jovan-ov-o                      venčavanje  
 John-POSS-NEUT getting.married  
 'John's getting married' *alternating reciprocal*
- (91) trčanje                      teniser-a  
 running tennis.player  
 'running of a tennis player' *non-alternating unergative*
- (92) rukovanje                      predsednik-a  
 handshaking president-GEN  
 'handshaking of a president' *non-alternating reciprocal*
- (93) venčavanje                      Jovan-a  
 getting.married John-GEN  
 'John's getting married' *alternating reciprocal*

On the other hand, verbs from different subgroups show variation with respect to availability of *by*-phrases. While non-alternating unergative verbs accept implicit external arguments in the form of *by*-phrases (94), these forms are ruled out in nominals whose input are reciprocal verbs (95-96).

- (94) trčanje od strane srpskog tenisera  
 running from side Serbian tennis.player  
 ‘running of the Serbian tennis player’ *non-alternating unergative*
- (95) \*rukovanje od strane predsednika  
 handshaking from side president  
 ‘handshaking by presiden’ *non-alternating reciprocal*
- (96) \*venčavanje od strane Jovana  
 getting married from side John  
 ‘getting married by John’ *alternating reciprocal*

Furthermore, alternating reciprocal verbs can accept implicit external argument if the nominal surface with the internal argument first:

- (97) venčavanje Jovan-a i Marij-e od strane sveštenika  
 getting.married John-GEN and Mary-GEN from side priest  
 ‘the wedding of John and Mary by a priest’ *alternating reciprocal*

### 3.5.4 Causative and Anticausative Verbs

Following Alexiadou, Anagnostopoulou, and Schäfer (2015), I have applied by-itself test, Roll verbs test, and Oblique causers test in order to identify the causative verbs in the database.

Namely, by-itself test rejects the presence of a causer and bears the meaning ‘no particular cause’ (Alexiadou et al., 2015). As examples below demonstrate, verbs marked by the reflexive morpheme *se* such as *polomiti se* ‘break’, *otvoriti se* ‘open’ and *srušiti se* ‘collapse’ pass the test in Serbian. The absence of a causer can be further strengthened by the insertion of the modifier *sam.MASC/sama.FEM* ‘alone’, which stresses that the subject of the clause undergoes the process denoted by the verb without any external influence.

- (98) Vaza se polomi-la (sama) od sebe.  
 vase REFL break-PST.PTCP.3SG.FEM alone from itself  
 ‘The vase broke by itself.’
- (99) Prozor se otvori-o (sam) od sebe.  
 window REFL open-PST.PTCP.3SG.M alone from itself  
 ‘The window opened by itself.’



- (100) Polica se srušila (sama) od sebe.  
 shelf REFL collapse-PST.PTCP.3SG.FEM alone from itself  
 ‘The shelf collapsed by itself.’

Furthermore, it has been observed that languages differ in whether manner-of-motion verbs such as *roll* undergo the causative alternation or not (Alexiadou et al., 2015). Serbian patterns with German restrictions in anticausative version, while causative variant license both agent and causer in subject position:

- (101) Marija je kotrljala loptu preko linije gola.  
 Maria AUX rolled ball across line goal  
 ‘Maria rolled the ball across the goal-line.’ *causative*
- (102) Lopta se kotrljala preko linije gola.  
 ball REFL rolled across line goal  
 ‘The ball rolled across the goal-line.’ *anticausative*
- (103) Lopta se kotrljala od vetra.  
 ball REFL rolled from wind  
 ‘The ball rolled from the wind.’ *anticausative*
- (104) Lopta se kotrljala preko linije gola \*od vetra.  
 ball REFL rolled across line goal from wind  
 ‘The ball rolled across the goal-line from the wind.’ *anticausative*

Nominalizations further support the fact that implicit external argument and possessive are available solely for causative variants with agent in subject position, while causer can be expressed solely by the form *od* + genitive. On the other hand, It is not possible for the causer to appear in the position of an implicit external argument (108a), genitive argument (108b), as well as possessive external argument (108c).

- (105) Kotrljanje lopt-e od strane Marije  
 rolling ball-GEN from side Maria  
 ‘rolling of the ball by Maria’ *implicit external argument*
- (106) Marij-in-o kotrljanje lopt-e  
 Maria-POSS-NEUT rolling ball-GEN  
 ‘Maria’s rolling of the ball’ *possessive*
- (107) kotrljanje lopt-e od vetra  
 rolling ball-GEN from wind  
 ‘rolling of the ball from the wind’ *PREP& genitive*
- (108) a. \*kotrljanje lopt-e od strane vetra  
 rolling ball-GEN by side wind  
 Intended: ‘rolling of the ball by the wind’

- b. \*kotrljanje vetr-a lopt-e  
 rolling wind-GEN ball-GEN  
 Intended: ‘rolling of the ball by the wind’
- c. \*vetr-ov-o kotrljanje lopt-e  
 wind-POSS-NEUT rolling ball-GEN  
 ‘wind’s rolling the ball’

Oblique causers test can be applied to Serbian data since German datives, interpreted as unintentional/involuntary causers of the change-of-state event, have the same interpretation in Serbian, and the verb can be combined with the by-itself phrase. In some cases, this dative can have possessive interpretation:

- (109) Dem Mann ist die Vase zerbrochen.  
 the.DAT man is the.NOM vase broken  
 ‘The man unintentionally caused the vase to break’
- (110) Čovek-u se polomila vaz-a (od sebe).  
 man-DAT REFL broken vase-NOM by itself  
 ‘The man unintentionally caused the vase to break.’ / The man’s vase broke (by itself).

The dative in pronominal (111) or nominal form (112) is frequent when the speaker does not want to admit that he/she did something and was the causer but stresses that the event happened by accident, i.e., to avoid responsibility. An adverbial *slučajno* (‘accidentally’) further stresses that the event happened unintentionally:

- (111) Slučajno mi se polomila vaza dok sam išla uz stepenice.  
 accidentally 1SG.DAT REFL broke vase while AUX walking up stairs  
 ‘Accidentally, the vase broke as I walked up the stairs.’ ≈ I accidentally broke the vase as I walked up the stairs.
- (112) Marij-i se slučajno polomila vaza dok je isla uz stepenice.  
 Maria-DAT REFL accidentally broke vase while AUX walking up stairs  
 ‘Accidentally, the vase broke as Maria walked up the stairs.’ ≈ Maria accidentally broke the vase as she walked up the stairs.

Cross-linguistically, anticausatives fall into three distinct classes (Alexiadou et al., 2015). Class A, or marked anticausatives, use a special device to mark anticausative use. Class B, unmarked anticausatives, do not use any formal device to differentiate between causative and anticausative variants. Finally, Class C consists of verbs that are optionally marked, i.e., in their anticausative uses, they can come either as marked or unmarked.

Under the discussion of transitive verbs, I have pointed out that the causative ~ anticausative alternation is always followed by changes in the morphological pattern. I have iden-

tified two groups of anticausative verbs in Serbian, that, however, always use special morphological devices to mark the anticausative use.

In the class of anticausative verbs identified here as Class A, anticausative verb surfaces with the reflexive morphology, which is absent in the causative variant. Recall the example (65), repeated here as (113).

- (113) a. Frizer    joj    je    istanjio kos-u.  
 hairdresser 3SG.DAT AUX.3SG thinned hair-ACC  
 ‘The hairdresser thinned her hair.’ *causative*
- b. Kos-a    joj    se    istanjila sama od sebe.  
 hair-NOM 3SG.DAT RFL thinned alone by itself  
 ‘Her hair got thinned by itself.’ *anticausative*

The second group of anticausatives named Class B here encompasses verbs that mark anticausative use by the choice of the particular thematic vowel. Namely, while causative verbs take the vowel *-i-*, anticausative variants surface with the vowel *-e-*.

- (114) a. Šminkerka   joj    rumeni    obraz-e.  
 make-up.artist 3SG.DAT blush.PRS.3SG cheek-ACC.PL  
 ‘The make-up artist blushes her cheeks.’
- b. Obraz-i    joj    rumene.  
 cheek-NOM.PL 3SG.DAT become.blush.PRS.3PL  
 ‘Her cheeks are blushing.’

Class B anticausatives can optionally surface with the reflexive morpheme, giving a class of verbs identified here as Class C anticausatives. Although the verb class does not change and the Voice specification remains the same, surfacing with particular morphology indicates the change of event structure. Namely, while the anticausative verb without the reflexive morpheme in (115a) indicates that her cheeks are becoming rosy, the verb surfacing with the reflexive morphology indicates that they are already rosy (115b).

- (115) a. Obraz-i    joj    rumene.  
 cheek-NOM.PL 3SG.DAT become.blush.PRS.3PL  
 ‘Her cheeks are blushing.’
- b. Obraz-i    joj    se    rumene.  
 cheek-NOM.PL 3SG.DAT RFL become.blush.PRS.3PL  
 ‘Her cheeks are blushing.’

Causative verbs with a human causer show the widest range of potential external arguments: implicit external argument in the form *by* phrase (117), possessive form (118), while the genitive external argument is ungrammatical (119). Internal argument receives genitive

case in nominalization, while an instrument is in instrumental and preserves its case in nominalization.

- (116) Žena suši kos-u fen-om.  
 woman dry.PRS.3SG hair-ACC hair.dryer.INSTR  
 ‘The woman is drying her her with a hair dryer.’ *causative verb*
- (117) sušenje kos-e fen-om od strane žene  
 drying hair-GEN hair.dryer.INSTR from side woman  
 ‘drying of hair with a hair dryer by the woman’ *implicit external argument*
- (118) žen-in-o sušenje kos-e fen-om  
 woman-POSS-NEUT drying hair-GEN hair.dryer.INSTR  
 ‘woman’s drying of hair with a hair dryer’ *possessive external argument*
- (119) \*sušenje žen-e kos-e  
 drying woman-GEN hair-GEN  
 ‘woman’s drying of hair’ *genitive external argument*

On the other hand, natural forces license only causer PPs in the form of a preposition *od/usled* (from/because of) and a nominal surfacing with the genitive case:

- (120) Sunce isušuje zemljište.  
 sun dry.OUT.PRS.3SG soil.ACC  
 ‘The sun dries out the soil.’ *causative verb*
- (121) \*isušivanje zemljišta od strane sunce  
 drying.out soil by side sun  
 ‘drying out of the soil by the sun’ *implicit external argument*
- (122) \*sunč-ev-o isušivanje zemljišt-a  
 sun-POSS-NEUT drying.out soil-GEN  
 ‘Sun’s drying out of the soil’ *possessive external argument*
- (123) isušivanje zemljišt-a od/usled sunca  
 drying.out soil-GEN from/because.of sun  
 ‘drying out of the soil because of the sun’ *PREP + genitive*

The licensing of causer PPs in examples above does not reflect the presence of an external argument, but the presence of a causative event, as already demonstrated in German and Greek. The following examples are adapted from Alexiadou, Anagnostopoulou, and Schäfer (2015).

- (124) Der Baumstamm verrottete durch die Feuchtigkeit.  
 the tree.trunk rotted through the humidity  
 ‘The tree trunk rotted from humidity.’ *German*

- (125) To fito anthise me tin zesti.  
 the plant blossomed with the heat  
 ‘The plant blossomed from the heat.’ *Greek*

Single argument in nominalizations derived out of anticausative verbs receives genitive case in Serbian.

- (126) a. Alergija se širi.  
 allergy REFL spread.PRS.3SG  
 ‘An allergy is spreading.’  
 b. širenje alergij-e  
 spreading allergy-GEN  
 ‘spreading of an allergy’ *anticausative verb*
- (127) a. Materijal beli.  
 material becoming.white.PRS.3SG  
 ‘The material is becoming white.’  
 b. beljenje materijal-a  
 whitening material-GEN  
 ‘whitening of the material’ *anticausative verb*

These patterns give us enough evidence for the following typology of anticausatives in Serbian:

CAUSATIVE	ANTICAUSATIVE	NOMINALIZATION
<i>KUVATI</i> ('cook')	<i>KUVATI SE</i> ('cook RFL')	kuvan <b>je</b> ('cooking')
<i>SUŠITI</i> ('dry')	<i>SUŠITI SE</i> ('dry RFL')	sušen <b>je</b> ('drying')
<i>USPAVATI</i> ('put to sleep')	<i>USPAVATI SE</i> ('get asleep')	*
<i>IZBORATI</i> ('wrinkle')	<i>IZBORATI SE</i> ('wrinkle RFL')	*
<i>ISTANJIVATI</i> ('thin')	<i>ISTANJIVATI SE</i> ('thin RFL')	istanjivan <b>je</b> ('thinning')
<i>UGREJATI</i> ('warm up')	<i>UGREJATI SE</i> ('warm up RFL')	*
<i>ZGRUDVATI</i> ('clump')	<i>ZGRUDVATI SE</i> ('clump RFL')	*
<i>RASIPATI</i> ('scatter')	<i>RASIPATI SE</i> ('scatter RFL')	rasipan <b>je</b> ('scattering')
<i>MENJATI</i> ('change')	<i>MENJATI SE</i> ('change RFL')	menjan <b>je</b> ('changing')
<i>PROŠIRIVATI</i> ('expand')	<i>PROŠIRIVATI SE</i> ('expand RFL')	proširivan <b>je</b> ('expanding')

Table 3.12: Anticausative verbs: Class A

CAUSATIVE	ANTICAUSATIVE	NOMINALIZATION
<i>RUMENITI</i> ('making blush')	<i>RUMENITI</i> ('blush')	rumenjen <b>je</b> ('blushing')
<i>PLAVITI</i> ('making blue')	<i>PLAVITI</i> ('becoming blue')	plavljen <b>je</b> ('becoming blue')
<i>TAMNITI</i> ('making dark')	<i>TAMNITI</i> ('becoming dark')	tamnjen <b>je</b> ('becoming dark')
<i>CRNITI</i> ('making black')	<i>CRNITI</i> ('becoming black')	crnjen <b>je</b> ('becoming black')
<i>MODRITI</i> ('making livid')	<i>MODRITI</i> ('becoming livid')	modren <b>je</b> ('becoming livid')
<i>ZELENITI</i> ('making green')	<i>ZELENITI</i> ('becoming green')	zelenjen <b>je</b> ('becoming green')

Table 3.13: Anticausative verbs: Class B

ANTICAUSATIVE	NOMINALIZATION
<i>RUMENITI SE</i> ('blush')	rumenjen <b>je</b> ('blushing')
<i>PLAVITI SE</i> ('be blue')	plavljen <b>je</b> ('being blue')
<i>TAMNITI SE</i> ('be dark')	tamnjen <b>je</b> ('being dark')
<i>CRNITI SE</i> ('be black')	crnjen <b>je</b> ('being black')
<i>MODRITI SE</i> ('be livid')	modren <b>je</b> ('being livid')
<i>ZELENITI SE</i> ('be green')	zelenjen <b>je</b> ('being green')

Table 3.14: Anticausative verbs: Class C

### 3.6 The Mechanics of Argument Licensing: VoiceP under n

The analysis of Voice and argument structure in this thesis builds on Alexiadou's (2001, 2017a) n-based driven ergativity and theory of deficient Voice, discussed above in greater detail, analyses that propose a system of Voice which differentiates between active Voice as a variant of the Voice projection which introduces an external argument and non-active or expletive Voice which leads to the suppression of the external argument (Schäfer, 2008, Alexiadou et al., 2015), Kastner's (2020) Trivalent Theory of Voice, as well as Nie's (2020) proposal of Voice as a nominal licenser.

Under the layering approach to Voice alternation proposed in Alexiadou, Anagnostopoulou, and Schäfer (2015), the authors introduce the system of Voice that distinguishes between the active Voice and the non-active or expletive Voice, introduced in Schäfer (2008). Namely, the distinction between causative and anticausative verbs is captured by the presence of the VoiceP as a layer responsible for introducing an external argument. Namely, while causative verbs have VoiceP, this extra layer of structure is absent in anticausatives. Furthermore, as anticausatives in languages such as Greek and German are marked with the reflexive morphology found in other verbal alternations such as passives, the authors argue for an additional, semantically inert, Voice layer in their structure, named expletive Voice.

Kastner (2017, 2020) distinguishes between three values of the Voice head depending on the presence of D [EPP] feature. Namely, in Kastner's typology, the Voice head can be either underspecified [+/-D], or specified as [+D] or [-D]. Underspecified Voice stands for the Voice head that lacks specification for a [D] feature and thus, does not impose requirement on whether its specifier must be filled.

(128) Voice<sub>[+/-D]</sub> (Kastner, 2017)

A Voice head with no specification for a [D] feature. It has no requirements regarding whether its specifier must be filled. In transitive verbs, Voice is the locus of accusative case assignment, either itself by feature checking (Chomsky, 1995) or through the calculation of dependent case (Marantz, 1991).

On the other hand, Voice head with a [+D] feature requires merging of a DP in Spec, Voice<sub>[+D]</sub> to check the D feature. Merging of a DP in the specifier of Voice guarantees surfacing with the external argument.

(129) Voice<sub>[+D]</sub> (Kastner, 2017)

A Voice head with a [+D] feature, requiring that some element check the [D] feature in its specifier (usually via Merge).

Finally, Voice<sub>[-D]</sub> prohibits the external argument in the position of its specifier.

(130) Voice<sub>[-D]</sub> (Kastner, 2017)

A Voice head with a [-D] feature, prohibiting anything with a [D] feature from merging in its specifier. As typically assumed for unaccusative little *v* or unaccusative Voice, Voice<sub>[-D]</sub> does not assign accusative case itself (Chomsky, 1995) or through the calculation of dependent case (Marantz, 1991).

Nie (2020) argues for a universal system of argument licensing in which all nominals in every language must be assigned a thematic role and licensed via abstract  $\varphi$ -agreement, independently of the realization of case and agreement morphology in individual languages. Under Nie's (2020) approach, Voice is a nominal licenser in every language. It is associated with both the introduction of external arguments and with the abstract mechanism of nominal licensing. Nie (2020), furthermore, demonstrates that the properties of the Voice projection depend on the local relationship in which the Voice participates within the clausal spine. In that sense, Voice under T is different from Voice embedded under any other functional projection. Namely, Voice under T is special in being an obligatory licenser and defining the licensing domain of the clause, as well as in being able to license both an external and an internal argument.

Alexiadou et al. (2009) argue that external arguments in nominalizations do not mimic the behavior of the verbal domain. Furthermore, there is an independently reached conclusion in the literature that the genuine external argument is absent from nominalizations. As stated above, Alexiadou (2001) proposes that nominalizations lack external arguments due to the unaccusativity requirement and ergativity as their defining property. Kratzer (2003) claims that there are two ways to explain why nominalizations do not surface with the external argument of the underlying verb: (i) it is either suppressed or (ii) it is neo-Davidsonian in syntax and thus not a true argument of the verb, arguing for the second one as correct. Bruening (2013) analyzes *by*-phrases of passives and nominalizations on a par and claims that in both forms external argument is suppressed.

### 3.6.1 Implicit external argument

The proposal I want to put forth here is that the Voice head both in passive participles and nominalizations in Serbian is an instance of the Voice<sub>[-D]</sub>. Furthermore, this value of the Voice head is obtained as a consequence of the local relationship between the Voice head and a nominal head above it, either *n* in case of deverbal nominals, or *a* in case of passive participles.

Roots bear a core lexical meaning (Alexiadou et al., 2015), and need to be adjoined to a categorizing head, namely *v*, *n*, or *a* (Marantz, 1997, 2001) in order to be established as verbs, nouns, or adjectives, respectively. In line with Nie (2020), I assume that events are introduced



by roots verbalized by adjunction to a syntactic categorizing head *v*. Therefore, in the class of transitive verbs, a root augmented by a verbalizing layer *v* selects Voice<sub>[+D]</sub> which projects its external argument as a DP in the specifier position of the VoiceP, while the internal argument surfaces with a dependent accusative case. However, the derivation is significantly different when VoiceP is embedded under *n*, in contrast to the previous case of the local relationship between VoiceP and T.

Nominalizer *n* requires a deficient VoiceP that cannot project external argument (Alexiadou, 2001, 2017a). As stated above, I assume that Voice is a nominal licenser in every language and that all arguments are licensed via abstract  $\varphi$ -agreement, as proposed in Nie (2020). What distinguishes arguments of deverbal nominals from the arguments of genuine verbs is that nominals do not show the same pattern of  $\varphi$ -agreement with their arguments as verbs do. In Serbian, verbal forms agree with the subject argument in person, number, and gender (131a). On the other hand, no agreement can be identified between the deverbal nominal and the implicit argument in the form of the *by*-phrase (131b), while possessive argument shows the agreement for number and gender (132a), the same pattern as a typical possessive modifier with any other noun (132b):

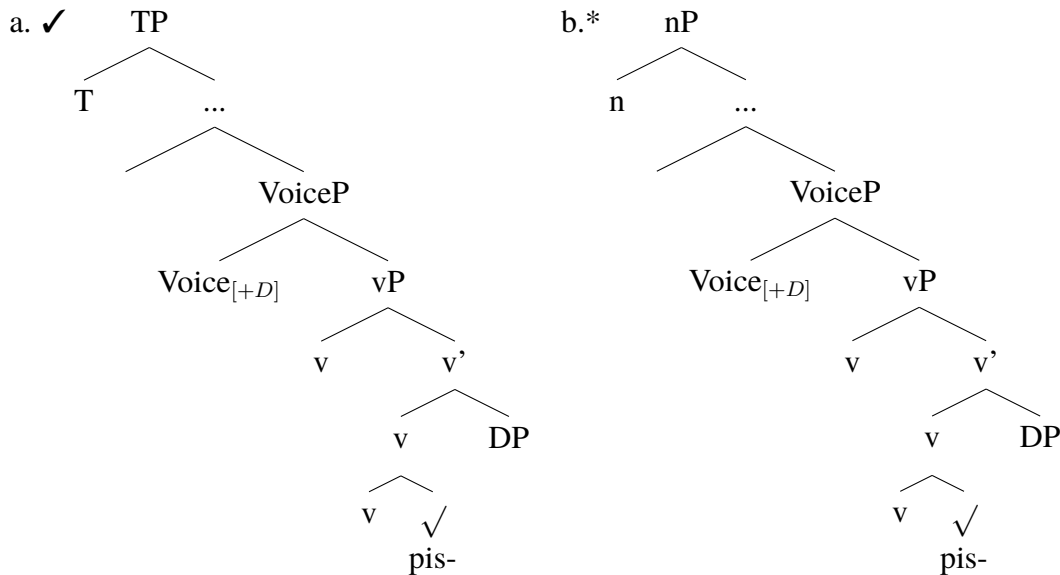
- (131) a. Tamara je obrisa-la podatke.  
 Tamara.NOM.SG.F AUX.3SG delete-PST.PTCP.3SG.F data  
 ‘Tamara deleted the data.’
- b. brisanje podatak-a od strane Tamara  
 deleting data-GEN by side Tamara  
 ‘deleting of the data by Tamara’
- (132) a. Tamar-in-o brisanje podataka  
 Tamara-POSS-SG.NEUT. deleting.SG.NEUT data  
 ‘Tamara’s deleting the data.’
- b. Tamar-in-a sestra  
 Tamara-POSS-FEM sister.SG.FEM  
 ‘Tamara’s sister’

In order for a derivation to converge, *n* has to agree with a head that prohibits the realization of the external argument in the form of the DP. Therefore, if a Voice layer is specified as Voice<sub>[+D]</sub>, the derivation crashes.

We have seen that verbs from all classes and sub-classes in Serbian productively nominalize. In the case of transitive verbs, building the structure from bottom to top always results in a Voice head specified as [+D]. Therefore, simply embedding the verbal structure, that might contain further verbal layers such as AspP, under the nominalizer *n*, would cause the derivation to crash. As the example below demonstrates, a root *pis-* (‘write’) augmented by a categorizing head *v*, selects Voice<sub>[+D]</sub> that projects the external argument in the form of the

DP in the specifier position of VoiceP (133a). For ease of exposition, theme vowels within vP and inflectional morphology in T are excluded. When embedded under TP, given representation results in a clause with a transitive verb, the subject argument in nominative case, and the object argument in the accusative. In this particular case, object-drop is possible, but it does not affect the analysis. On the other hand, the same root augmented by a verbalizing layer v selecting, as expected, the same variant of Voice head cannot be embedded under nP (133b).

(133) Voice<sub>[+D]</sub> under T vs. Voice<sub>[+D]</sub> under n



In the course of the derivation, transitive verbal layers cannot see whether the nominalizer n will attach later and always select Voice<sub>[+D]</sub>. Therefore, the question of how to reconcile the nominalizer n and the Voice<sub>[+D]</sub> in transitive verbs immediately emerges. As stated above, in order to account for Serbian data, I follow Alexiadou's (2001, 2017a) analysis of n as a trigger of ergativity. I argue that the nominalizer n enters the derivation with a selectional feature Voice<sub>[-D]</sub>. This view corresponds to Bruening's (2013) analysis, who proposes that the nominalizer has selectional features and requires an unsaturated Voice, representing this requirement as [S:Voice(S:N)]. Furthermore, n changes the value of Voice<sub>[+D]</sub> to Voice<sub>[-D]</sub>, i.e., a Voice head that has a value [+D] under T obligatorily shifts its feature specification, having a value [-D] when it is in a local relationship with n. Therefore, when merged, nominalizer n leads to a Voice alternation. As a consequence, little n probing for a [-D] feature successfully agrees with the Voice<sub>[-D]</sub>. The view of obligatory Voice<sub>[-D]</sub> head under n and PassP in nominalizations and passives, respectively, crucially differs from Bruening's (2013) and Kastner's (2020) proposals, who assume Voice<sub>[+D]</sub> in passives. I argue that a verb starts as Voice<sub>[+D]</sub> but shifts its specification in the context of the n head.

Merging of *by*-phrases follows the standard mechanism assumed for all instances of adjuncts in a language. To account for the *by*-phrases, I follow Bruening's (2013) view on how adjuncts emerge in the structure<sup>4</sup>. Bruening's (2013) analysis is based on the assumption that each syntactic head is associated with a particular selectional feature, which is checked off when merged with an element of the category that this selectional feature requires.

Functional layers and their heads are not the only syntactic units that can bear selectional features. Namely, Bruening (2013) argues that PPs select an unsaturated Voice and have the selectional feature specified as [S:Voice(S:N)]. Since *by*-phrases have an internal argument, they are specified as [S:N, S:Voice(S:N)], where the first part of the specification (S:N) stands for the requirement to merge with an internal argument, while the second part [S:Voice(S:N)] indicates that, after taking the internal argument, *by* is going to merge with an unsaturated Voice. Since the element that selects Voice, i.e., a *by*-phrase, is an adjunct now, once merged with the Voice, the Voice projects. Furthermore, being an adjunct, a *by*-phrase checks off its own features and not the features of Voice. I take this as evidence that the value of the Voice head is not affected, i.e., it stays realized as Voice<sub>[-D]</sub> and accessible for successful agreement with the nominalizer *n*.

In the preceding discussion, I have demonstrated that nominalizations in Serbian surface with the *by*-phrase when an input verb belongs to the class of (i) transitive verbs, including all sub-classes, (ii) reflexive unaccusative verbs, and (iii) non-alternating unergative verbs. I argue that licensing of the implicit external argument in these classes proceeds in the unified way explained above, via abstract agreement of the nominalizer *n* and the Voice head. Furthermore, the class of transitive verbs surfaces with the genitive internal argument, which is assigned as a structural case in the environment created by the nominalizer *n* (Alexiadou, 2001).

Using the example from the beginning of this section (134), deverbal nominals whose input is a transitive verb have a structure represented by the figure in (135). Furthermore, nominals derived out of reflexive unaccusative verbs and non-alternating unergatives have the

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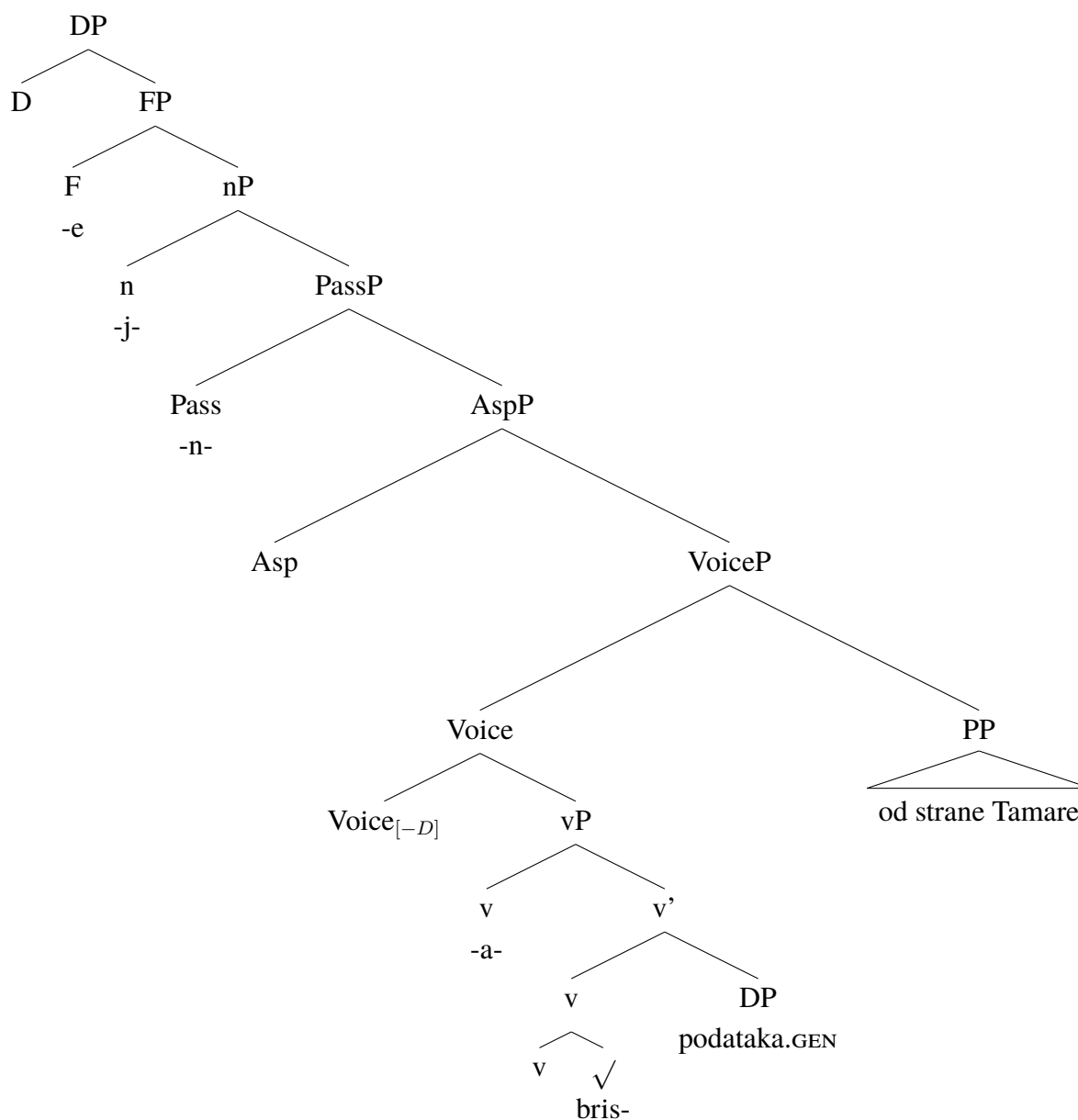
<sup>4</sup>Bruening (2013) offers an analysis of *by*-phrases in nominalizations. In Bruening's view, a nominalizing head has the same role as the Pass head in passives, selecting Voice[S:N]. However, in contrast to passive forms, nominals do not existentially bind the external argument. As a consequence, external argument is realized as a null NP in the specifier position of N. Bruening (2013) further argues that the unifying property of the Nom and Pass heads is the requirement for all arguments to be saturated. Therefore, an open argument is saturated in the position of the specifier of Nom, while in the absence of the open argument, Nom stays semantically vacuous. On the other hand, *by*-phrases are taken to be saturated as adjuncts before the Nom is merged.

However, this analysis is not fully sustainable in Serbian, as nominalizations show syntactically more complex structure than English nominals of the type *destruction*. Syntactic complexity is also morphologically supported. The complex consisting of Pass-Asp-Voice-V is spelled out as passive participle. Nominalizer *n* easily embeds the passive participle resulting in the most productive type of deverbal nominals in Serbian. Therefore, I agree with Bruening (2013) that the *by*-phrase is an adjunct to the Voice. However, I disagree with the idea that the nominalizer takes the role of the Pass head, since, as we have seen above, a nominalizer embeds the very same structure that participates in the formation of passives.

same structure, the only difference being a lack of the assignment of the structural genitive case.

- (134) brisanje podatak-a od strane Tamara  
 deleting data-GEN by side Tamara  
 ‘deleting of the data by Tamara’

- (135) Implicit external argument



### 3.6.2 Possessive external argument

In the overview of argument licensing potential of deverbal nominals derived out of transitive verbs, I have shown that *by*-phrases (136a) and the possessive arguments (136b) are licit in identical environments. As argued above, *by*-phrases are adjuncts of the VoiceP layer. Since both arguments are licit with the same nominal, I take VoiceP to be present not only in forms that surface with *by*-phrases but also in nominals whose argument is realized in the form of the possessive.

- (136) a. brisanje podatak-a od strane Tamara  
deleting data-GEN by side Tamara  
'deleting of the data by Tamara'
- b. Tamar-in-o brisanje podataka  
Tamara-POSS-NEUT deleting data  
'Tamara's deleting of the data'

I argue that the nominalizer projects the argument in the form of the possessive in its specifier position if the VoiceP has not saturated the external argument in the form of the *by*-phrase. Crucially, the nominalizer *n* triggers the ergative case pattern. Abstract agreement of *n* requiring VoiceP that prohibits the external argument in the form of the DP merged in its specifier and the deficient VoiceP realized as Voice<sub>[-D]</sub> licenses the realization of the possessive argument.

As demonstrated, possessive external arguments and *by*-phrases in Serbian nominalizations are freely interchangeable and occur in the same environments. This proposal is further supported by the fact that possessive external arguments are found in nominalizations whose input verb belongs to the class of (i) transitive verbs, including all subclasses, (ii) reflexive unaccusative verbs, and (iii) unergative verbs, exactly the same classes that I have identified to surface with the implicit external argument. The only group of verbs that behaves differently is the sub-class of non-alternating reciprocal verbs that accept possessives but reject *by*-phrases. I think that the exact mechanism behind this pattern can be found by further investigation of the syntax of the verbs belonging to this sub-class in clausal environments.

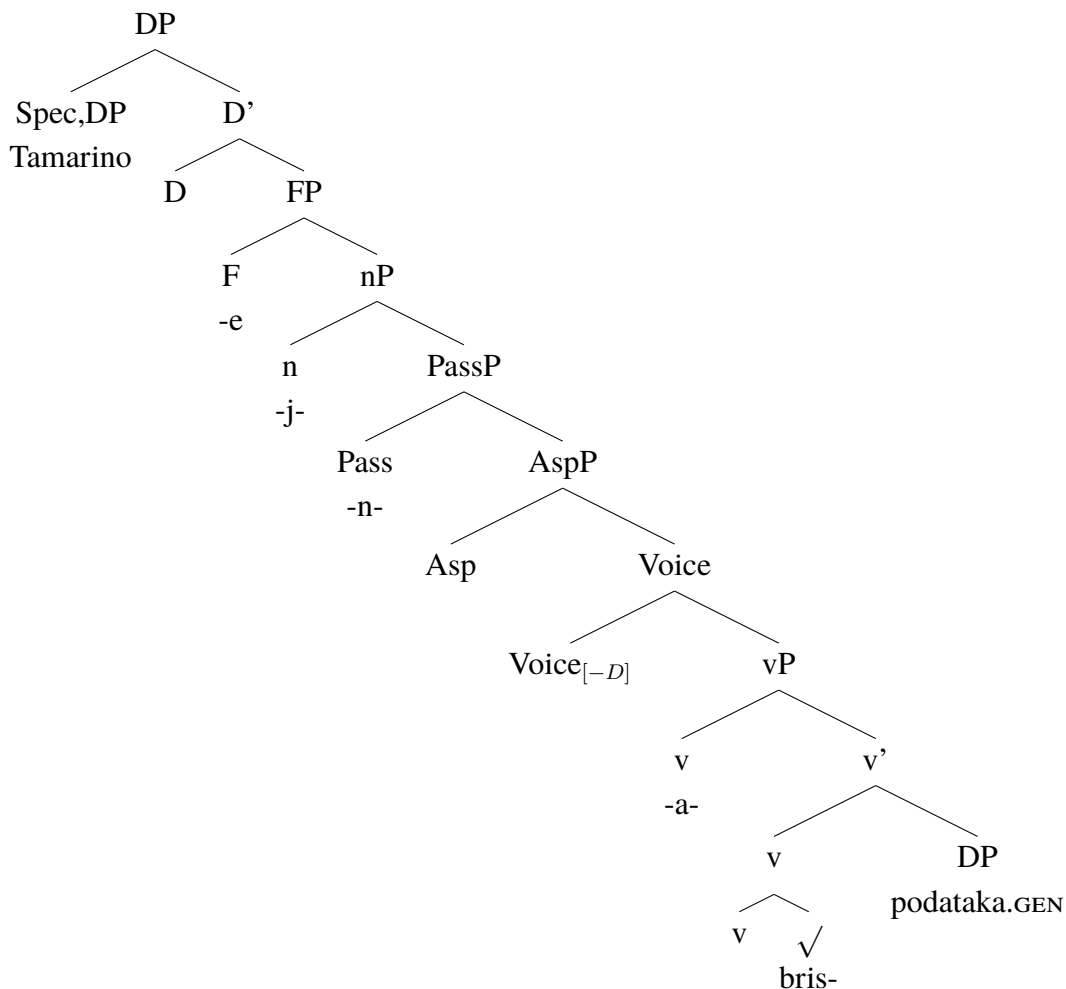
Building on Pesetsky (2013), Šarić (2018) extensively argues that possessive arguments in Serbian are underlying genitives merged as specifiers of NP. Diagnostics applied in Šarić (2018) unambiguously speak in favor of the underlying genitive Case in the structure of possessives. On the other hand, in light of the preceding discussion, the view that possessives are situated in the specifier position of the nominalizer cannot be endorsed here, as I have argued above, following Alexiadou (2017a) since the nominalizer *n* creates an environment for only one genitive. What is crucial in argument structure of nominals that surface with possessive external argument is that they at the same time also surface with the internal (Theme) argument

in genitive. Since Agent bearing a genitive case is not licit in environments with the Theme surfacing with genitive independently of their order (Alexiadou (2017a); for a different view see Šarić 2018), one of the arguments needs to escape nP.

I have argued above that (i) *by*-phrases are adjuncts and in that sense implicit external arguments of the deverbal nominals, and that (ii) *by*-phrases and possessives are licit in same environments. As *by*-phrases adjoin to the Voice<sub>[-D]</sub> and cannot affect the internal structure of the nominal, possessive arguments also need to receive genitive case outside nP. I argue that possessive argument in Serbian nominalizations should be analyzed on a par with genitives in English nominal gerunds, further instances of the n-based nominalization strategy:

(137) John's destruction of the manuscript (Alexiadou, 2017a)

Under this view, the possessive external argument is in Spec, DP (Alexiadou, 2001, 2017a). At the same time, the D head is the locus of the possessive affix and the genitive case. I take this position to (i) host the Agent argument and (ii) be the source of genitive case in all instances of possessive external arguments in Serbian nominalizations.



### 3.6.3 Genitive

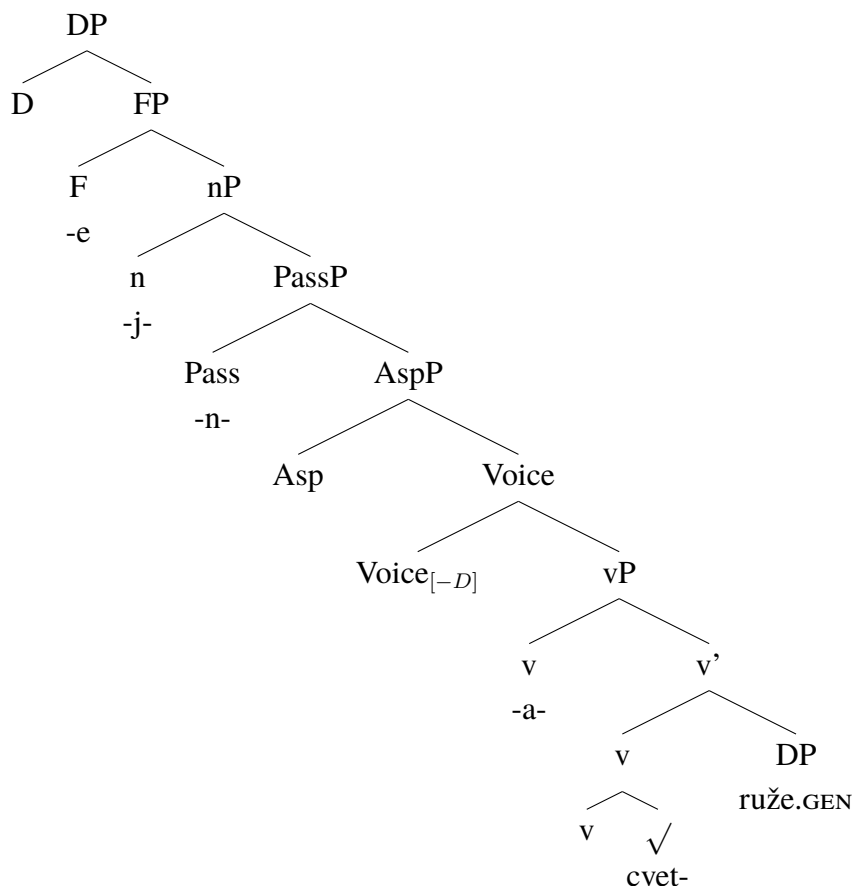
The final piece of evidence for the ergative case pattern in Serbian nominalizations comes from the licensing and distribution of arguments surfacing with the genitive case. In previous sections, I have shown that the internal (Theme) argument of deverbal nominals derived out of transitive verbs obligatorily receives genitive. Furthermore, the overview section of verb classes and subclasses and their argument structure potential has shown that a single argument of nominalizations whose input verb belongs to the class of unaccusatives and unergatives also surfaces with the genitive. This pattern straightforwardly speaks in favor that genitive found in n-based nominalizations of nominative-accusative languages is a structural counterpart of absolutive case in ergative-absolutive languages. In the same vein as internal arguments of transitive verbs and single arguments of intransitive verbs surface with the absolutive, internal arguments and single arguments of nominalizations surface with the genitive.

Building on my understanding of the assignment of genitive elaborated above, I analyze

genitive case found in single arguments of nominals derived out of unaccusative and unergative verbs to be assigned within vP, as a consequence of the ergative case pattern triggered by the nominalizer n. The fact that the Voice head is specified as Voice<sub>[-D]</sub> again does not over-generate since, in all previous cases where the genitive case has been assigned to the Theme argument, VoiceP had a role of licensing of an external argument. In this case, there is no competition, and the Voice<sub>[-D]</sub> assigns an unmarked genitive case to the single argument of the verb. I exemplify the assignment of the genitive case to a single argument of a nominal by a nominalization of an unaccusative verb (138). Crucially, the same pattern holds for all single arguments surfacing with the genitive case in nominals derived both from unaccusative and unergative verbs.

- (138) cvetanje ruž-e  
 flourishing rose-GEN  
 ‘flourishing of a rose’

- (139) Genitive argument





### 3.7 Puzzle Solution: nominal layers & ergativity

The discussion above demonstrates that nominalizations and passive participles share the passive-related morphology, realized in the form of the morpheme *-n-*. This morphological evidence has lead previous researchers to propose that Serbian nominalizations are instances of passive participle embedding. Authors differ in how they call this head: PassP (Šarić, 2018), PassPcpl (Arsenijević & Simonović, 2018), PartP (Bašić, 2010).

However, if we rely on morphological evidence, this approach runs into an apparent problem. Namely, the argumentation would be acceptable only for the class of transitive verbs since only transitive verbs and certain subclasses of unaccusatives and unergatives give rise to passive participle formation. Moreover, the data above demonstrates that certain verbs, such as *rukovati* ('handle'), cannot serve as an input for the formation of the passive participle form in isolation (140a), i.e., a form *rukovan* (handled) does not exist, but we find it both in the formation of passives and deverbal nominals (140b,c). Therefore, we might be on the right track saying that it is the syntax of passives and nominalizations that triggers a particular morphology that otherwise does not exist.

- (140) a. Ovaj uređaj je **\*rukovan**.  
 this.NOM device.NOM AUX.3SG handled  
 Intended: 'This device has been handled.'
- b. Ovim uređajem je **rukovano** od strane nekog neiskusnog.  
 this.INSTR device.INSTR AUX.3SG handled by side someone inexperienced  
 'This device has been handled by someone inexperienced.'
- c. **rukovanje** ovim uređajem  
 handling this.INSTR device.INSTR  
 'handling this device'

Furthermore, previous analyses fail to answer or do not attempt to answer why we find passive-related morphology in nominalizations derived from the verbs that do not give rise to passive participles such as majority of unaccusative, unergative, and anticausative verbs. The focus has been primarily on transitive verbs, while all other classes of verbs and their morphological properties have been put aside. We have also seen that passive morphology is not necessarily connected with the licensing of external arguments since nominals that undoubtedly license external arguments do not surface with passive morphology (141).

- (141) iz-rad-a ogrlice za šest meseci od strane tima juvelira  
*out-work-FEM necklace.GEN PREP six months by side team jewelers*  
 'Making of the necklace in six months by the team of jewelers'

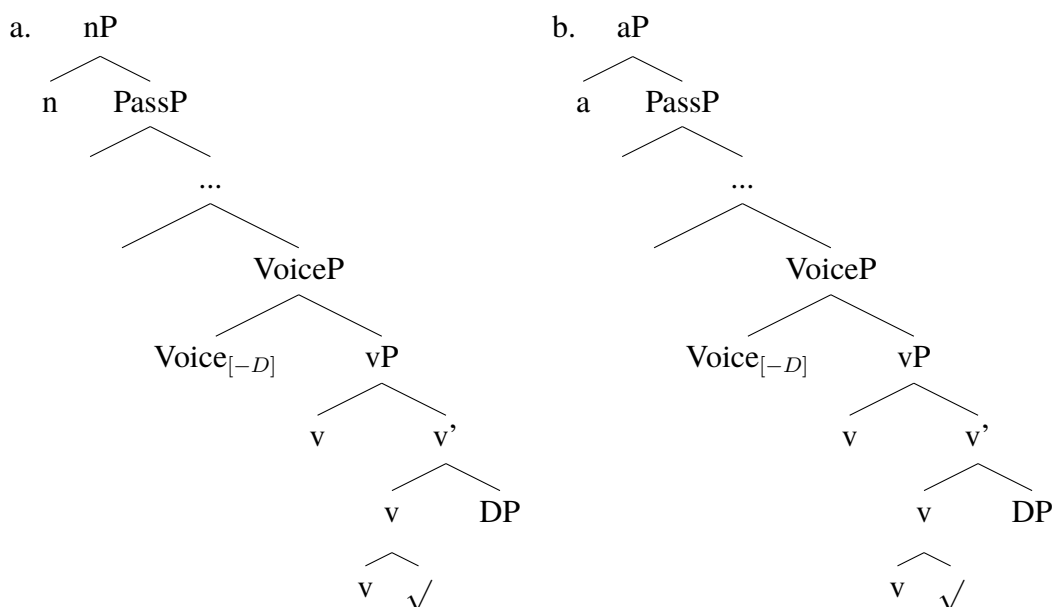
The analysis I want to put forth here is that the special nominalizer *-j-* requires the presence of



izer *-j-*, but, as a consequence of ergativity and unaccusativity imposed by the nominalizer *n*, as argued in Alexiadou (2001), this piece of morphology does not stand for transitivity.

In the section devoted to the structure of participles, I have demonstrated that *v* under *T* can assign accusative case to its internal argument, *v* under *n* can assign genitive, while *v* under *a* in participles lacks the capability of case assignment. Furthermore, I argue that, being nominal heads, both *n* and *a* phase layers impose ergativity requirement on the embedded verbal structure and can embed only a Voice head specified as  $\text{Voice}_{[-D]}$ .

(145) The structure of nominalizations (a) & The structure of passive participles (b)



Integrating active and passive clauses, as well as nominalizations and passive participles in the same picture, we can observe that in Serbian internal argument surfacing with accusative Case in active clauses receives nominative in passives. On the other hand, in nominal environments, it surfaces with the genitive, while passive participles modify the noun as pure adjectives. Therefore, when passive participles appear outside passive clauses, i.e., outside verbal environments, and function as modifiers of nominals they precede, a nominal layer in their structure that is responsible for its external syntax also triggers ergativity requirement. In that sense, VoiceP is realized as  $\text{Voice}_{[-D]}$  both in passive participles and nominalizations, as stated above.

- (146) a. Jovan je precrtao automobil danima.  
 John AUX redraw.IMPf car.ACC day.INSTR.PL  
 'John was redrawing the car for days.'
- b. Automobil je danima precrtao-n od strane Jovana.  
 car.NOM AUX day.INSTR.PL redraw-PASS.PTCP by side John



# Chapter 4

## Split ergativity and Argument Structure

### 4.1 Introduction

In contrast to the nominative-accusative languages discussed in the previous chapter, all Mayan languages exhibit an ergative-absolutive alignment. However, as argued in Coon (2010a), about a third of the Mayan languages have aspectually based splits, attested and discussed in Yucatec Maya (Verhoeven, 2007), Chol (Coon, 2010a, 2010b), Chuj Mayan (Coon & Carolan, 2017), Kaqchikel, Q'anjob'al, and Ixil (Imanishi, 2014, 2020), among others. Namely, an expected ergative-absolutive pattern is attested solely in clauses with the perfective aspect. On the other hand, the nominative-accusative alignment emerges in clauses that surface with the non-perfective, imperfective and progressive aspect.

In Mayan languages, grammatical relations are cross-referenced via head-marking. In languages that show the aspect based split, arguments are marked by the agreement morphemes that attach to the predicate, the so-called set A and set B markers, set A surfacing with the Agent of transitive verbs, set B marking sole arguments of intransitive verbs and transitive objects, thus constituting an ergative-absolutive pattern in perfective contexts. In other words, set A corresponds to the ergative case, that is homophonous with the genitive in Mayan languages, while set B corresponds to the absolutive case. As demonstrated below on the basis of Chol data, an expected ergative-absolutive pattern is attested in the perfective aspect, where an Agent of the transitive verb is marked differently, via the set A marker realized in the form of the morpheme *a-* attached to the main verb (1a), than the object of the transitive verb and the sole argument of the intransitive verb (1b), that surface with the set B markers.

- (1) a. Tyi a-mek'-e-yoñ.  
PFV A2-hug-TV-B1  
'You hugged me.'

- b. Tyi wäy-i-yoñ.  
 PFV sleep-ITV-B1  
 ‘I slept.’ Coon (2010a)

Moving now to the imperfective and progressive aspect, we find an unexpected nominative-accusative pattern, as both the Agent of a transitive verb and the sole argument of an intransitive verb surface with the set A markers, in contrast to the transitive object that receives the set B morpheme.

- (2) a. Mi a-mek'-oñ.  
 IMPF A2-hug-B1  
 ‘You hug me.’  
 b. Mi a-wäy-el.  
 IMPF A2-sleep-NML  
 ‘You sleep.’ Coon (2010a)
- (3) a. Choñkol a-mek'-oñ.  
 PROG A2-hug-B1  
 ‘You are hugging me.’  
 b. Choñkol a-wäy-el.  
 PROG A2-sleep-NML  
 ‘You are sleeping.’ Coon (2010a)

Throughout this chapter I will use the term *split ergativity*, though Dixon’s (1979) term *extended ergativity*, put forth also in Coon (2010a), more accurately depicts this state of affairs since there are no distinct nominative and accusative morphemes, the Set A being extended to the sole arguments of intransitives.

In what follows, I will outline Coon’s (2010a) analysis of split ergativity in Chol and Imanishi’s (2020) proposal of the split ergativity pattern in Kaqchikel. In the main part, I will offer a biclausal analysis of nominalizations in Yucatec Maya.

## 4.2 Split Ergativity and Nominalization in Chol

Coon (2010a) attributes the attested split ergativity in Chol to the process of nominalization. Under her account, the imperfective marker *mi* and the progressive marker *choñkol* should be analyzed as the main syntactic predicates of the clause, while the notional predicate is a subordinated nominal form. Since genitive marking is identical to ergative in Mayan languages, the morpheme *a-* in the example below is not ergative but a genitive marker coindexing a possessor, while *amek'oñ* and *awäyel* are possessed nominals. At the same time, being a genuine syntactic predicate, aspect marker *mi* exhibits the absolutive agreement with the possessed

nominal phrase, which is its single argument.

- (4) a. Mi-∅ [a-mek'-oñ].  
 IMPF-ABS3 GEN2-hug-ABS1  
 'You hug me.' 'Your hugging me occurs.'
- b. Mi-∅ [a-wäy-el].  
 IMPF-ABS3 GEN2-sleep-NML  
 'You sleep.' 'Your sleeping occurs.' Coon (2010a)

Coon (2010a) proposes that the form that has been analyzed as the main verb should be considered a subordinated nominal form, i.e., nominalization. On the other hand, the aspect marker does not only have a role of bringing a particular aspectual reading but instead serves as the main predicate taking the nominalized form as its argument. Furthermore, the fact that genitive and ergative are homophonous, opens the doors for the analysis of the ergative morpheme *a-* as a possessor. What follows is that set A marks external arguments, while set B marks internal arguments, showing a typical ergative-absolutive marking. Therefore, there is no split ergativity as all predicates show an ergative-absolutive pattern of agreement and we do not need to account for the special rules of case assignment. Therefore, what looks like the split in argument structure should be attributed to the process of nominalization and argument encoding in nominalized forms.

### 4.3 Split Ergativity and Nominalization in Kaqchikel

In contrast to Chol, Kaqchikel exhibits an unexpected alignment pattern where the sole argument of the intransitive verb and the agent argument of the transitive verbs surface with the set B morpheme, i.e., absolutive marking, while the transitive object receives the set A or ergative marker, as demonstrated in Imanishi (2020).

- (5) a. y-in-ajin che [ki-k'ul-ik ak'wal-a'].  
 IMPF-B1SG-PROG PREP A3PL-meet-NMLZ child-PL  
 'I am meeting children.'
- b. y-in-ajin che [atin-ik].  
 IMPF-B1SG-PROG PREP bathe-NMLZ  
 'I am bathing.' Imanishi (2020)

Building on Alexiadou (2001), Imanishi (2020) proposes the Restriction on Nominalization (RON), a requirement stating that an external argument in the specifier position of VoiceP is not projected in Kaqchikel.

## (6) The Restriction on Nominalization (RON)

Nominalized verbs must lack a syntactically projected external argument.

Furthermore, as Imanishi (2020) argues, unaccusatives but not unergatives can surface with the set A markers in nominalizations since a set A morpheme marks an internal argument, while with unergatives it stands for the external argument. In the continuation, we will see that both unaccusative and unergative verbs can surface with the set A marker in Yucatec Maya, patterning in this respect with Chol. To account for the Kaqchikel data, Imanishi attributes the split between unaccusative and unergative verbs to the semantic control, claiming that it fails to relate the agent argument to an external  $\theta$ -role of unaccusative and passive verbs thus making an external  $\theta$ -role absent or suppressed in these constructions.

However, as demonstrated in the previous section, in languages such as Chol, Agent arguments are cross-referenced by the ergative set A markers, while the Theme argument of transitive verbs surfaces with the set B markers. Under Imanishi's (2020) view, in languages such as Chol and Q'anjob'al, an external argument can be projected within a nominalization since RON is not active. Namely, in these languages, two nominals compete for the assignment of the structural genitive case, Agent argument and Theme argument. Being the highest DPs in the nominalized clauses, agent arguments in Chol and Q'anjob'al receive genitive case from D. On the other hand, RON blocks the projection of the external argument in Kaqchikel, which makes a transitive object the only nominal that can receive case from the D head. At the same time, both in Chol and Q'anjob'al type of languages and in Kaqchikel, the set A marker cross-references the possessor of a DP, the difference being that the possessor is an external argument in the former and an internal argument in the latter type.

## 4.4 Case Study: Yucatec Maya

### 4.4.1 Nominalizers

As argued in Lehmann (2017), nominalizations whose input verb is intransitive can be formed in two ways. In certain cases, deverbal nominals do not surface with a special nominalizing morphology, a verb stem being morphologically equivalent to the noun (7). On the other hand, deverbal nominals can be derived via adding a morpheme  $-VI$ , where V replicates the vowel present in the stem (8). Furthermore, Lehmann (2002) demonstrates that two types of nominalizations in Yucatec Maya that he calls *nomina acti* and *gerundives* take a transitive base as their input blocking the direct object position. This process is referred to as *introversion*. On the other hand, the subject slot is converted into a slot for a possessive attribute.

It is important to state at this point that in the representation of the data, I have not modi-



fied the orthography. The original examples from the [CoCoYum](#) corpus are given as they are stored in the corpus. I have also respected the examples adapted from the literature. Therefore, the orthography may differ in certain cases. For instance, in the example below adapted from Lehmann (2017), *meyah* stands for ‘work’, while the same word is listed as *mejaj* in [CoCoYum](#).

- (7) a. óok’ot  
dance.Ø  
‘dance’  
b. meyah  
work.Ø  
‘work’ (Lehmann, 2017)
- (8) a. wen-el  
sleep-NMLZ  
‘sleep’  
b. kóoh-ol  
arrive-NMLZ  
‘arrival’ (Lehmann, 2017)

Nominals derived out of intransitive verbs surfacing with the suffixes *-ul*, *-al*, *-il*, freely combine with the demonstrative *le*. As the examples below demonstrate, a nominal surfacing with a nominalizer can receive additional morphology such as deictic clitics, realized in the form of the distal marker *-o’* in (9).

- (9) kib-il le uk’-ul=o’  
candle-REL DEM drink-NMLZ=D2  
‘the candle of the drink’ CoCoYum, ACC0283
- (10) Mina’an teen k’aj-óol-al ti’ le ba’al=a’.  
NEG.EXIST[B.3] me know-NMLZ LOC DEM thing=D  
‘I have no knowledge of this thing.’ CoCoYum, ACC0298.1
- (11) U k’a’asaj-il  
A.3 remember:ABSTR-REL  
‘memory of something’ CoCoYum, ACC0303

Nominal nature of these forms is further supported by their combinations with quantifiers, numerals, adjectives, and plural morphology.

- (12) Ya’ab utsil u k’a’ajsaj-il=o’ob in nojoch yuum  
much/many good2 A.3 remember:ABSTR-REL-PL A.1.SG big2 master/father  
yaan teen.  
EXIST[B.3] me

‘I have many beautiful memories of my grandfather.’ [CoCoYum](#), ACC0455

However, the nominalizing suffixes *-VI*, for intransitive bases, and *-ik* for transitive ones, have undergone the historical development and evolved into incomplete suffixes in Modern Yucatec ([Lehmann, 2017](#)). As the example below demonstrates, a suffix *-il* attaches to the main verb of the clause bringing nonperfective reading.

- (13) X-ch’úpal áant-ej líik’-il a w-óol, ma’ tuláakal k’aasi.  
 0-woman:child help-IMP[2.SG] rise-INCMP A.2 0-mind NEG all bad.[B.3]  
 ‘Girl helps cheer you up, not everything is bad.’ [CoCoYum](#), ACC0142

#### 4.4.2 Biclausal Analysis

I argue that imperfective contexts in Yucatec Maya show the split ergativity pattern of the Chol type. Namely, the imperfective morpheme *k-* surfaces with the ergative set A markers with typical intransitive verbs such as *jóok* ‘exit’ (14), *wen* ‘sleep’ (15), *tsa’ay* ‘befall’ (16), *chukpaj* ‘suffice’ (17). The same set marker also attaches to the imperfective with transitive verbs such as *ts’a* ‘put/give’ in (18) receiving the transitive marker *-ik*. In other words, agent arguments of transitive verbs and sole arguments of intransitives are identically cross-referenced, which results in an apparent nominative-accusative alignment type.

- (14) Ba’axtéen k=u jóo’-ol u ja’-il a w-ich?  
 why.[B.3] IMPF=A.3 exit-INCMP A.3 water-REL A.2 0-eye  
 ‘Why are you crying?’ [CoCoYum](#), ACC0599.1
- (15) E champal=o’ k=u wen-el yo’ol u y-ook u maamaj=o’.  
 DEM small:child=D2 IMPF=A.3 sleep-INCMP ON A.3 0-foot A.3 mother=D2  
 ‘The small child sleeps on the knees of its mother.’ [CoCoYum](#), ETC0001
- (16) Wáaj choko a w-óol=e’ k=u tsa’ay-aj tech jump’ée k’oja’an-il  
 if hot A.2 0-mind=D3 IMPF=A.3 befall-INCMP you one:CL.INAN ill-NMLZ  
 u k’aaba’=e’ páasmar.  
 A.3 name=D3 páasmar  
 ‘If you are feeling hot this causes an illness called páasmar.’ [CoCoYum](#), NMP0053
- (17) K=u chukpaj-al teen.  
 IMPF=A.3 suffice:SPONT-INCMP me  
 ‘It gets complete for me.’ [CoCoYum](#), RMC0318
- (18) K=u jach ts’a-ik y-óol ti’ meyaj.  
 IMPF=A.3 really put/give-INCMP A.3-mind LOC work  
 ‘He really concentrates on working.’ [CoCoYum](#), MPK002

Moving now to progressive contexts, Verhoeven (2007) demonstrates that Yucatec distin-

guishes between two types of aspect / mood markers, morphologically bound and unbound ones, the main difference being the unit that constitutes the predicate of the clause. Namely, the perfective marker *t-*, prefixed to the subject clitic *-u*, can form the predicate only in combination with the lexical verb, in contrast to the unbound progressive marker that functions as a predicate on its own. In the example below, a form consisting of the perfective aspect marker and the verb (19b) can serve as an answer to the question in (19a), while the progressive marker alone is sufficient (19d) as an answer to the question in (19c).

- (19) a. T-u hats'-ah-ech wáah?  
 PFV-SBJ.3 beat-CMPL-ABS.2SG INT  
 'Did he beat you?'
- b. T-u hats'-ah-en.  
 PFV-SBJ.3 beat-CMPL-ABS.1.SG  
 'He did.'
- c. Táan wáah u hats'-ik-ech?  
 PROG INT SBJ.3 beat-INCMP-ABS.1.SG  
 'Is he beating you?'
- d. Táan.  
 PROG  
 'He is.'
- Verhoeven (2007)

Furthermore, it is important to note that Verhoeven (2007) refers to unbound markers as aspect/mood *auxiliaries*, while to the bound markers as aspect/mood *markers*. I take this view as a further argument in favor of the analysis that aspect/mood auxiliaries are more verbal in nature than pure aspect/mood markers and argue that the progressive marker should be analyzed as a predicate.

In the same vein as the imperfective morpheme, progressive surfaces with the ergative set A markers with intransitive verbs such as *jóok* 'exit' (20), *jóop* 'flame up' (21), *k'a'aj* 'remember' (22), *k'áax* 'rain' (23), *na'ak* 'climb' (24).

- (20) Túun jóok'-ol u k'i'ik'-el in ni'.  
 PROG.A.3 exit-INCMP A.3 blood-rel A.1.SG nose  
 'My nose is bleeding.' CoCoYum, AME0001
- (21) Túun jóop-ol le k'áak'=o'.  
 PROG.A.3 flame.up-INCMP DEM fire=D2  
 'The fire flares up.' CoCoYum, RMC0516
- (22) T=in w-il-ik le chan xi'ipal=a', túun chen  
 LOC-A.1.SG 0-see-INCMP[B.3] DEM little man:child=D1 PROG.A.3 just  
 k'a'aj-al teen u yuum.  
 remember-INCMP me A.3 master/father

‘I am looking at this child, and it is simply reminding me of his father.’ [CoCoYum](#), ACC0304

- (23) Táan u k’áax-aj ka’am-kach ja’ wey=e’.  
 PROG A.3 rain-INCMPPL loud-INTNS water here=D3  
 ‘It is heavily raining here.’ [CoCoYum](#), ACC0631
- (24) T=in wayak’t-aj t́ín na’ak-al t=ej ka’an=o’.  
 PFV=A.1.SG dream-CMPL PROG:A.1.SG climb-INCMPPL LOC=DEM sky=D2  
 ‘I dreamt I was going up to the sky.’ [CoCoYum](#), RMC1398

Replicating the pattern observed in imperfective contexts, progressive surfaces with the set A markers with transitive verbs, resulting in a nominative-accusative pattern.

- (25) E ko’olel=o’ táan u ch’éneb-t-ik.  
 DEM woman=D2 PROG A.3 peek-TRR-INCMPPL  
 ‘The woman is examining the door.’ [CoCoYum](#), MPK032
- (26) Táan in k’áa’a-t-ik bak.  
 PROG A.1.SG fire-TRR-INCMPPL flesh  
 ‘I am roasting meat.’ [CoCoYum](#), RMC2055

Following Coon’s (2010a) proposal for Chol, I argue that both imperfective and progressive markers in Yucatec Maya should be analyzed as one-place predicates that take a nominalized verb as its complement. Imanishi (2020) represents the biclausal structure of non-perfective clauses in Mayan as follows:

- (27) [Asp ... [ $vP_{NMLZ}$ ]]

In contrast to Chol, imperfective and progressive predicates in Yucatec do not surface with the set B marker but with the ergative set A markers. Recall Chol data in (4) repeated here as (28). Coon (2010a) proposes that the imperfective morpheme surfaces with the null absolutive morpheme agreeing with its complement, while the set A marker attached to the verb should be analyzed as a genitive/possessor. As noted above, the same pattern has been observed in Yucatec Maya, where the subject argument is converted into an argument governing a possessive attribute and the nominalization is relational in nature ([Lehmann, 2002](#)).

- (28) a. Mi-∅ [a-mek’-oñ].  
 IMPF-ABS3 GEN2-hug-ABS1  
 ‘You hug me.’ ‘Your hugging me occurs.’
- b. Mi-∅ [a-wäy-el].  
 IMPF-ABS3 GEN2-sleep-NML  
 ‘You sleep.’ ‘Your sleeping occurs.’ [Coon \(2010a\)](#)

On the other hand, set A markers attach to the imperfective and progressive predicates in Yucatec Maya in both unaccusative (29) and transitive contexts (30). I argue that set A morphemes attached to both imperfectives and progressives should be analyzed on a par with Chol arguments, and considered as an overt realization of the possessive/genitive argument. In that sense, sentences below could be analyzed as *the small child's sleeping* and *my roasting the meat*. Furthermore, imperfectives and progressives occupy the AspP projection within the nominalization spine and take the verb within vP as its complement, in line with (27). Note that with transitive underlying verbs as in (30), the Theme argument *bak* ('meat') does not surface with neither set A nor set B markers, suggesting that it can bear an absolutive case, which is in most cases null in Mayan languages. I assume that the possessive/genitive case assignment replicates the mechanics of possessor assignment in nominative-accusative languages elaborated in the previous chapter, where the nominal argument is licensed in n, subsequently moving to D to receive the case. Possessor argument in D in case of nominalizations whose input verb is transitive also ensures that two genitives are ruled out within a single nominalization.

- (29) E champal=o' k=u wen-el yo'ol u y-ook u maamaj=o'.  
 DEM small:child=D2 IMPF=A.3 sleep-INCMPPL ON A.3 0-foot A.3 mother=D2  
 'The small child sleeps on the knees of its mother.' [CoCoYum, ETC0001](#)
- (30) Táan in k'áa'a-t-ik bak.  
 PROG A.1.SG fire-TRR-INCMPPL flesh  
 'I am roasting meat.' [CoCoYum, RMC2055](#)

Further evidence for analyzing set A morphemes as possessors comes from the structure of simple and expanded possessed nominals in Yucatec Maya, where the possessor clitic is always preposed with respect to the possessed nominal.

- (31) a. [u [mehen xibpal] -o'b]  
 POSS.3 small man:child -3.PL  
 'their small boy'
- b. [[a [mehen xibpal] -e'x] te'x]  
 POSS.2 small man:child -2.PL you.PL  
 'your (pl.) small boy' [Verhoeven \(2007\)](#)

Finally, I argue that the fact that the *-Vl* suffix is identical in non-process nominals discussed in section 4.4.1, such as *dance*, *work*, *arrival*, *knowledge*, and in more verbal forms discussed later cannot be a mere morphological incident. Rather, it provides further support for the view that this suffix should be analyzed as a nominalizer in all cases when it attaches to the verb, both in constructions when it surfaces with imperfective and progressive morphemes and without them.

## 4.5 Summary

Integrating the data observed in this chapter with our previous discussion, results in the pattern given in (32). Type I ergative-absolutive languages stands for the languages such as Chol, Q'anjob'al, and Yucatec, where the Agent argument of transitive verbs and sole argument of intransitives surface with the genitive case, patterning together against the Theme argument of transitives, which receives the absolutive case. On the other hand, A and S arguments of Type II ergative-absolutive languages such as Kaqchikel surface with the absolutive, in contrast to the Theme argument of transitive verbs, surfacing with the genitive.

(32) Argument Structure Cross-Linguistically

	<b>N/A system</b>	<b>E/A system</b>	<b>N/A Nom</b>	<b>E/A Nom - Type I</b>	<b>E/A Nom - Type II</b>
<b>A</b>	NOM	ERG	PP	GEN	ABS
<b>S</b>	NOM	ABS	GEN	GEN	ABS
<b>P</b>	ACC	ABS	GEN	ABS	GEN

This state of affairs provides us with one interesting further point on how arguments pattern cross-linguistically. Namely, in their accusative side, i.e., in clausal domain, nominative-accusative and ergative-absolutive languages exhibit the reverse pattern, as A and S argument pattern together against the P argument in the former, while S and P argument pattern together against the A argument in the latter. Therefore, we would expect that argument structure in nominalizations of two types of languages will follow this pattern. As the table above demonstrates, this is indeed borne out. While in nominative accusative languages, A argument is marked differently than S and P arguments, in ergative-absolutive languages A and S arguments are grouped together against P, no matter whether it is the genitive case assigned in Type I or absolutive assigned in Type II languages. In other words, while nominative-accusative languages in nominalizations exhibit the ergative-absolutive alignment, ergative-absolutive languages under nominalizations mirror the nominative-accusative alignment. Note that this argument structure pattern does not imply that nominalizations in ergative-absolutive languages surface with accusativity, as the nominalization process in Yucatec Maya, for instance, is always followed by the blocking of the direct object slot (Lehmann, 2002). In that sense, unaccusativity is a universal property of n-based nominalizations (Alexiadou, 2001, Alexiadou, 2017a), independently of the language type.

# Chapter 5

## Agreement patterns

### 5.1 Introduction

In contrast to English, Serbian patterns with Greek (Alexiadou, 2009) requiring all nominals to belong to a particular inflectional class. Surfacing with the nominalizer *n*, deverbal nominals in Serbian exhibit the same set of agreement markers as non-verbal nouns. In the example below, a nominalization *čitanje* ('reading'), surfacing with a special nominalizer *-j-*, includes the information about gender, case, and number features in the same manner as a deverbal nominal without the special nominalizer such as *zaplena* 'seizure', and an object noun *sveska* 'notebook'. The same pattern has been observed for Greek verbal nominals, such as *katastrofi* 'destruction' and non-verbal nominals, such as *avli* 'yard'.

- (1) Inflection of verbal and non-verbal nouns in Greek (Alexiadou, 2009)  
NOM katastrof-i    NOM avl-i  
GEN katastrof-is    GEN avl-is  
ACC katastrof-i    ACC avl-i
- (2) Inflection of verbal and non-verbal nouns in Serbian  
NOM čitanj-e    zaplen-a    svesk-a  
GEN čitanj-a    zaplen-e    svesk-e  
ACC čitanj-u    zaplen-u    svesk-u

I argue that Serbian nominalizations exhibit the following structure:

- (3) [DP [nominal FP [nP [(verbal FP) [vP ...]]]]

While verbal functional layers and the root domain where the subject of the debate in preceding chapters, in this chapter I will examine the nominal functional layers between the nominalizer *n* and the D head.

## 5.2 Gender Agreement

Serbian deverbal nominals have the external syntax of non-verbal nouns, as the two appear in identical environments. In line with Longobardi (1994) and Alexiadou et al. (2007), I take D head to assign reference and be a layer necessary for the argument status of a nominal. Furthermore, Šarić (2018) proposes a set of arguments that speak in favor of the proposal that Serbian, despite being a language without articles, does project a DP.

As stated in the introduction, all deverbal nominals show gender agreement. However, the presence or absence of the special nominalizer *-j-* triggers an apparent split in the agreement patterns. Namely, all nominalizations that have a special nominalizing morphology receive neuter gender. Similar pattern, neuter gender on nominalizations, is found in Romanian and Lavukaleve. The examples are adapted from Iordăchioaia and Soare (2008) and Kramer (2015), respectively.

- |     |   |                   |
|-----|---|-------------------|
| (4) | a. trčanj-e      tenisera      bilo je      spor-o<br>running-NEUT tennis.player was AUX slow-NEUT<br>‘running of the tennis player was slow’ | <i>Serbian</i>    |
|     | b. cînta-t-∅<br>sing-Sup-N.Sg<br>‘singing’  | <i>Romanian</i>   |
|     | c. lo-e<br>finish-N<br>‘end’  | <i>Lavukaleve</i> |

By contrast, deverbal nominals that do not employ the special nominalizer pattern with non-deverbal nouns, freely surface with masculine and feminine gender:

- |     |   |
|-----|---|
| (5) | a. skok<br>jump.MSC<br>‘jump’               |
|     | b. kazn-a<br>punishment-FEM<br>‘punishment’ |

The neuter gender of the Romanian plural supine ending is explained as a default specification, since the same suffix is found in the borrowed nouns that are not fully integrated into the nominal system. The fact that singular form of the supine is not specified for gender, leads to the conclusion that Romanian supine does not carry gender features (Iordăchioaia & Soare, 2008).

Furthermore, Kramer (2015) proposes following *ns* as nominalizers, and argues that the



neuter gender on deverbal nominals in Luvukaleve is default, licensed under a plain *n* as in (6c).

(6) Types of *n* (Kramer 2015)

- a. *n i* [+FEM]
- b. *n i* [-FEM]
- c. *n*
- d. *n u* [-FEM]
- e. *n u* [+FEM]

The view I want to put forth here is that the gender features on a deverbal nominal depend on the exact spell-out of the *n* head. A note on the special nominalization morphology is necessary at this point. In the previous work on nominalizations in Serbian, authors proposed different morphemes to take a role of nominalizing suffixes. Zlatić (1997) and Arsenijević & Simonović (2018) propose that the suffix *-nje* appears in this function, Ignjatović (2016) *-je*, Bašić (2010) and Šarić (2018) take *-j-* to be the nominalizer, while the final *-e* is an agreement morpheme. I am in agreement with the last proposal, i.e., the formant *-j-* occupies the head position of the nP, while *-e* is situated in the nominal functional projection above it. Moreover, I claim that the morpheme *-j-* is the only genuine nominalizer in Serbian. Deverbal nominals in Serbian have a wide inventory of potential suffixes that they share with other nouns in the language.

- (7)
- a. *skok*  
jump-M.SG  
'agreement'
  - b. *beleš-ka*  
note-FEM.SG  
'note'
  - c. *zaključ-ak*  
conclude-M.SG  
'conclusion'
  - d. *žetv-a*  
harvest-FEM.SG  
'harvest'

However, the specialized morpheme *-j-* is always followed by the suffix *-e* and attaches solely to the passive participle morpheme *-n/-t-*:

- (8)
- a. *brisan-j-e*  
deleted-N-NEUT

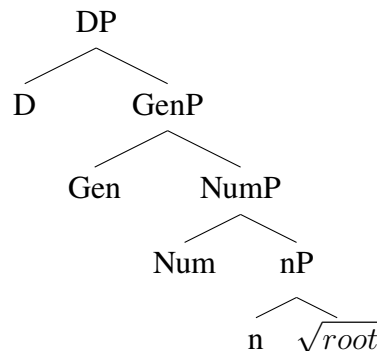
- ‘deleting’
- b. izuzet-j-e  
 exempted-N-NEUT  
 ‘exemption’

I do not take any of the suffixes in (8) to be an exponents of *n*. Rather, they are placed in the nominal functional projection above the cyclic *n* head that triggers Spell-Out. This generalization does not hold only for the mentioned suffixes but for all affixal morphemes that attach either to the RootP or to a certain amount of verbal structure in Serbian, some of them being listed in (8). Therefore, I propose the following rules for the spell-out of *n*:

- (9) Spell-out of *n* in Serbian  
 $n \rightarrow j / \_ [\text{PassP}]$   
 $n \rightarrow \emptyset$  Elsewhere

Furthermore, Serbian has mixed gender assignment system, i.e., a system with both natural and grammatical gender (Puškar, 2017, 2018). Having in mind that the natural gender cannot be assigned to a process or a result of the process, we can conclude that gender features observable at classes of nominalizations in Serbian must be instances of the grammatical gender. Puškar (2017, 2018) proposes that gender in Serbian can be hosted in two distinct projections. Namely, nominalizer *n* carries natural gender features, while the higher functional projection GenP carries grammatical gender and can bear any of the three grammatical gender features [M], [F], [N].

- (10) The structure of DP in Serbian (BCS) (Puškar, 2017, 2018)



I argue that the nominalizer *-j-*, as a spell out of the *n* head, triggers the obligatory neuter grammatical gender in the Gen head. I do not make any claims on whether this neuter gender is default or not. On the other hand, in the absence of the special nominalization morphology, masculine and feminine features are licit in Gen.

### 5.3 Number Agreement

The question of plurality in deverbal nominals dates back to Grimshaw (1990), who argued that plural number, in contrast to RNs, is not available to ASNs. This phenomenon was further explored by Borer (2005), who argues that the telicity of the underlying event determines whether a deverbal nominal can pluralize, as only telic underlying events can give rise to the plurality of ASNs. On the other hand, atelic ASNs do not pluralize. In what follows, I will present the analysis of plurality in ASNs proposed by Alexiadou, Iordăchioaia, and Soare (2010), as the later discussion of Serbian patterns builds on it.

On the basis of English, German, and Romanian data, Alexiadou, Iordăchioaia, and Soare (2010) demonstrate that the pluralization of ASNs is not subject to language variation, but depends on aspectual properties such as (a)telicity, (im)perfectivity, and (un)boundedness, that correspond to the projection of Number, Aspect, and Classifier. Evidence for such a view comes from languages that employ two nominalizing strategies. Namely, as argued previously in Iordăchioaia and Soare (2008), Romanian differentiates between infinitival ASNs, exhibiting more nominal properties, and the supine, that patterns closely with verbal forms. While infinitive pluralizes, allows events specified as [+bounded], surfaces with NumberP and lacks AspP, supine does not pluralize. Crucially, it allows events specified as [+bounded], surfaces with AspP and lacks NumberP. The authors take these empirical facts as evidence that the projections of Number and outer Aspect mutually exclude each other in ASNs. Furthermore, the presence of the NumberP in infinitives is tied with the inner aspect of the event, while the AspP in supine correlates with the unboundedness triggered via aspect shift. The examples below are adapted from Alexiadou, Iordăchioaia, and Soare (2010).

- (11) a. a cînta - cînta-r-e/           cîntă-r-i  
           to sing - sing-INF-FEM.SG/ sing-INF-PL  
           ‘to sing’ - sing.SG/ sing.PL
- b. a reproduce - reproduce-r-e/           reproduce-r-i  
           to reproduce - reproduce-INF-FEM.SG/ reproduce-INF-PL  
           ‘to reproduce’ - reproduce.SG/ reproduce.PL *Infinitive*
- (12) a. a cînta - cînta-t/   \*cînta-t-uri  
           to sing - sing-SUP/ sing-SUP-PL  
           ‘to sing’ - sing.SUP/\*sing.SUP.PL
- b. a reproduce - reprodu-s/           \*reprodu-s-uri  
           to reproduce - reproduce-SUP/ reproduce-SUP-PL  
           ‘to reproduce’ - reproduce.SUP/\*reproduce.SUP.PL *Supine*

Alexiadou, Iordăchioaia, and Soare (2010) argue that the two nominalization patterns exhibiting distinct syntactic behavior, one surfacing more with nominal properties and the other

with verbal, indeed involve two types of event plurality. Namely, infinitival ASNs surface with the nominal Number, while the supine ASN surfaces with the pluractional operator present in the verbal AspP that causes the aspectual shift and turns a [+bounded] event into [-bounded]. In other words, AspP is a projection that contributes to the number interpretation in the latter case.

In a similar vein, English has two nominalization strategies, a nominal gerund, surfacing with the nominal internal structure, and a verbal gerund, surfacing with a verbal internal structure. Replicating the pattern observed in Romanian, a nominal gerund accepts pluralization, while the verbal gerund rejects it. The authors take this fact as evidence to propose that nominal gerunds project NumberP and surface with the nominal number, while verbal gerunds project the AspP that is responsible for event plurality interpretation.

- (13) a. my frequent *readings of economic magazines*  
 b. \*Emma's *readings the poem*

The final piece of evidence comes from German that, similarly to previous two languages, differentiates between *-ung* nominals, a more verbal forms that do not accept pluralization and infinitival nominals exhibiting more nominal structure that freely allow it. However, *-ung* nominals can be ambiguous between ASN and RN readings as well as between telic and atelic inner aspect. As the examples below demonstrate, ASNs and RNs can have identical morphological structure departing, however, in their syntax. Namely, only the RN reading allows pluralization.

- (14) a. die Beobacht-ung des Verdächtigen.TH/ der Polizei.AG  
 the observe-UNG the.GEN suspect/ the.GEN police  
 'the observing of the suspect/the police'  
 b. die Beobacht-ung-en der Polizei  
 the observe-UNG-PL the.GEN police  
 'the observation of the police'

Alexiadou, Iordăchioaia, and Soare (2010) further demonstrate that, when surfacing with the telic inner aspect of the underlying verbs, these nominals can pluralize, taking this as evidence that the decisive factor for the possibility of pluralization of ASNs is crucially related to aspectual properties such as (a)telicity, (im)perfectivity, and (un)boundedness, as stated above.

- (15) a. die Töt-ung des Feindes/ des Verbrechers.TH/\*AG  
 the kill-UNG the.GEN enemy.GEN/ the.GEN criminal.GEN  
 'the killing of the enemy/the criminal'

- b. die gezielten Töt-ung-en der politischen Führer durch die Armee  
 the targeted kill-UNG-PL the.GEN political leaders via the army  
 ‘The targeted killings of political leaders via the army.’

Turning to Serbian data, a similar interaction of the NumberP and the AspP can be observed. In Chapter 2, I have argued that the imperfective aspect in AspP is a requirement of the nominalizer *n*, as nominals derived out of perfective verbs systematically fail perfectivity tests. In this section, I will demonstrate that nominalizations involving AspP in their structure behave like mass nouns, i.e., imperfectivity in AspP contributes mass interpretation.

Applying Chierchia’s (1998) diagnostics for the mass/count distinction, I will demonstrate here that Serbian ASNs can have both mass and count interpretation, depending on the Inner Aspect of an underlying verb and the projection of the outer aspect in AspP, in line with Alexiadou, Iordăchioaia, and Soare (2010). Furthermore, Serbian does not have two nominalization strategies that create a clear cut with respect to availability of pluralization. Rather, an event structure ambiguity can give rise to both interpretations. We have seen in Chapter 2, example (65) repeated here as (16), that nominalizations of perfective verbs can exhibit the two distinct events reading in case of the telicity of an underlying event. On the other hand, a single continuous event reading correlates with atelicity.

- (16) Iz-rad-a ogrlice u ponedeljak i utorak.  
*out-work-GEN necklace.GEN on Monday and Tuesday*  
 ‘The making of the necklace on Monday and Tuesday.’

I argue that Serbian ASNs surface with the event ambiguity in the domain of Inner Aspect, i.e., within vP. Namely, this pattern holds both for nominals derived out of imperfective and perfective verbs. Crucially, telicity in the Inner Aspect domain leads to count properties of deverbal nominals, while atelicity brings mass readings. It is important to note that these nominals are morphologically the same and surface with the identical argument structure, i.e., this distinction does not correlate with the ASN vs. RN split.

Out of Chierchia’s (1998) ten properties, including (1) availability of plural morphology, (2) distribution of numeral determiners, (3) obligatoriness of classifier and measure phrases for combining with numerals, (4) some determiners occur only with count nouns, (5) some determiners occur only with mass nouns, (6) some determiners occur only with plurals and mass nouns, (7) some determiners are unrestricted, (8) independence of the distinction from the structure of matter, (9) a (predominantly) count noun can be made mass, (10) a (predominantly) mass noun can be made count, I highlight here four that are crucial for resolving the ambiguity in the event domain.

As demonstrated before, nominalizations that have the projection of Outer Aspect in their structure are nominals derived out of imperfective verbs (17a), imperfective verbs that have

undergone secondary imperfectivization (17b), perfective verbs (17c). As demonstrated below, none of the forms that surface with the AspP tolerate numeral determiners, available to countable nouns. Furthermore, the nominals in (17) surface with the event ambiguity. When interpreted as a single continuous atelic event, these nominals cannot license numeral determiners nor accept the plural morphology, Chierchia's first diagnostic. On the other hand, a switch from the atelic to telic in the event structure, causes ASNs to readily accept both numerals and the plural morphology (18).

**Diagnostic #1: licensing numeral determiners (✗ atelic, ✓ telic)**

- (17) a. #dva crtanj-a automobil-a od strane Jovana  
two drawing-PL car-GEN by side John  
'two drawings of a car by John'
- b. #dva precrtavanj-a automobil-a od strane Jovana  
two drawing-PL car-GEN by side John  
'two redrawings of a car by John'
- c. #pet zaplen-a narkotika od strane policije  
five seizure-PL narcotics.GEN by side police  
'five seizures of narcotics by the police'
- (18) Triatlonac danas planira dva penjanj-a biciklom uz planinu, jedno  
triathlete today plans two climbing-PL bike PREP mountain one  
plivanje-e, tri trčanj-a po deset kilometara.  
swimming-SG three running-PL PREP ten kilometers  
'The triathlete is planning two mountain bike rides, one swim, three ten-kilometer runs for today.'

Although measure phrases such as *grain*, *pile*, *stack* cannot be licit in structures with nominalizations as forms with a verbal source, we can slightly modify this diagnostic and adapt it for the present purposes. A numeral can appear in the structure with an atelic nominalization if a deverbal noun such as *pokušaj* ('attempt') acts as a measure phrase. This diagnostic provides further evidence that atelic nominals and mass nouns are alike.

**Diagnostic #2: classifier and measure phrases with numerals (✓ atelic)**

- (19) Jedan pokušaj crtanja automobila od strane Jovana.  
one attempt drawing-GEN car-GEN by side John  
'one attempt at drawing a car by John'

Single determiners such as *every* and plural determiners such as *several* are compatible solely with count nouns. In a context where two architects are discussing what they did that day

using the sentences in (20), the only available reading is telic, where individual occurrences of a drawing event were repeated. In this case, underlyingly telic events in a nominalization can readily surface with count noun determiners.

**Diagnostic #3: compatibility with count noun determiners** (✗ atelic, ✓ telic)

- (20) a. Svako crtanje danas nam je bilo uspešno.  
 every drawing.SG today 1.PL.DAT AUX was successful  
 ‘Our every drawing today was successful.’
- b. Nekoliko crtanja danas nam je bilo uspešno.  
 several drawing.PL today 1.PL.DAT AUX were successful  
 ‘Several of our drawings today were successful.’

On the other hand, atelic events combine with determiners typically associated with mass nouns, such as *little*, *a lot of*. The only possible reading in (21) is atelic. This diagnostic encompasses Chierchia’s properties (5) and (6).

**Diagnostic #4: compatibility with mass noun determiners** (✓ atelic, ✗ telic)

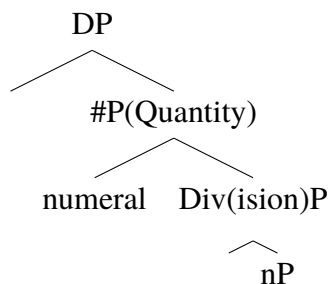
- (21) a. Mnogo učenj-a u poslednje vreme me je umorilo.  
 lot learning-GEN PREP last time 1SG.ACC AUX.3SG tire.out  
 ‘A lot of learning lately has tired me out.’
- b. Malo spavanj-a bi mi pomoglo da se odmorim.  
 little sleep-GEN would 1SG.DATA help to RFL rest  
 ‘A little sleeping would help me rest.’

Furthermore, combination with determiners such as *the*, *some*, *any*, *no* leads to unrestricted reading with atelic event. It seems that Chierchia’s property (8) that applies to pairs such as *shoes/footwear* and *clothes/clothing* is inapplicable in the event domain, so I abstract away from it at this point. Finally, this switch in the event structure from telic to atelic is in line with the property (9), which states that a count noun can be made mass. Similarly, a switch from the atelic to telic event corresponds to the change from the mass to count interpretation.

Based on the presented evidence, I argue that the ambiguity in the event structure arises as a consequence of the morphologically non-observable inner aspect shift available to Serbian deverbal nominals. The telic events specified as [+bounded] pattern with count nouns and project DivP, responsible for hosting plurality. On the other hand, atelic events specified as [-bounded] make nominalizations counterparts of mass nouns. Furthermore, the presence of the Outer Aspect layer AspP specified as imperfective as in (17a) contributes mass noun interpretation. The exact layering I assume for the nominal functional projections between the nominalizer *n* and the head *D* is given in (22). In contrast to languages such as Romanian

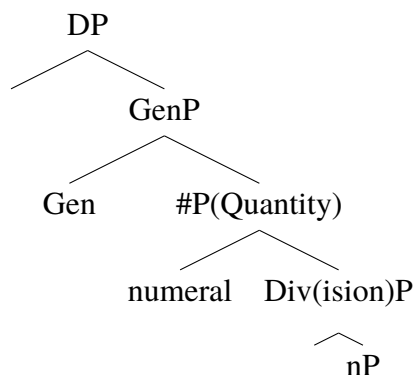
which employ two nominalizing strategies with morphologically distinct nominal forms, Serbian nominalizations are morphologically identical and exhibit the event ambiguity that can be resolved applying a set of diagnostics.

(22) Structural representation of the noun phrase (Alexiadou, 2019b)



Integrating the structure in (22) with the peculiarities of Serbian gender system and Puškar's (2017, 2018) proposal on two distinct layers hosting gender features, results in the following representation:

(23) Nominal functional layers in Serbian nominalizations



## 5.4 Summary

In this chapter, I tackled upon the gender agreement patterns and the interpretation of plurality in Serbian nominalizations. I have demonstrated that the special nominalizing morphology spelled out as *-j-* triggers neuter gender in the GenP layer hosting grammatical gender features, as proposed in (Puškar, 2017, 2018). This shows that the nominalizer *n* not only have an influence on the layers below it and triggers ergative case pattern in VoiceP and imperfectivity in AspP, but can affect the layers above it. Therefore, agreement patterns provide further evidence that speaks in favor of the idea that distinct functional projections have different specifications in the context of *n* head. Furthermore, I have noted that Serbian nominalizations



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exhibit the event structure ambiguity and allow both for mass and count noun interpretation, depending on the interaction between the Inner Aspect and the property of boundedness, in line with Alexiadou, Iordăchioaia, and Soare (2010). Finally, I have argued that nominal functional layers between the nominalizer *n* and the *D* head include the *DivP* responsible for plurality, *#P* that introduces quantity, and *GenP* hosting grammatical gender features.

# Chapter 6

## D-based vs. n-based nominalizations

### 6.1 Introduction

A vast amount of cross-linguistic data provides compelling evidence for the proposal put forth in Alexiadou et al. (2011) and further elaborated in Alexiadou (2020b) that most languages employ two nominalizing strategies, one exhibiting more verbal properties and the other surfacing with more nominal properties. The former structures involve several verbal layers embedded under the D head that acts as a nominalizer (Alexiadou, 2020b; Iordăchioaia, 2020), while the latter surface with the varying amount of both verbal and nominal functional layers, thus exhibiting a mixed internal structure. This split is captured by the terms D-based and n-based nominalizations in Alexiadou (2020b), where individual nominalizing strategies are named after a functional projection that acts as a nominalizer, D in case of D-based, and n in the case of n-based nominals. Furthermore, a main distinction between the two lies in the projection of nP, obligatorily present in the n-based and absent in D-based nominalizations. The nominalizer n does not only have significant repercussions on the assignment of case, as demonstrated in Chapter 3 and aspectual realization, as discussed in Chapter 2. Being a phase head (Alexiadou, 2020b), n does not allow the projection of verbal functional layers above it. The nominal FP in (1b) can consist of layers associated with the interpretation of plurality and quantity, as we have seen in the previous chapter.

- (1) a. [DP [verbal FP [vP ...]]]  
b. [DP [nominal FP [nP [(verbal FP) [vP ...]]]]]

Alexiadou et al. (2011) examine the distinction between forms that exhibit varying amounts of verbal and nominal behavior on the basis of languages that employ two nominalizing strategies, such as Romanian supines and infinitives, Spanish verbal and nominal infinitives, English verbal and nominal gerunds, and German verbal and nominal infinitives. As the authors

demonstrate, Spanish verbal infinitives license accusative case, and allow adverbial modification, while nominal infinitives surface with bare nominals and adjectival modifiers. A similar pattern is observed in Romanian, where the supine as a more verbal form licenses adverbial modifiers, while infinitives accept adjectives. The same split is observed in Germanic languages. Namely, English verbal gerunds exhibit more verbal properties, surfacing with accusative objects and adverbial modifiers, while nominal gerunds license PP-objects and adjectival modifiers. Finally, German verbal infinitives, similarly to Spanish ones, license accusative case and adverbial modification, while nominal infinitives surface with the genitive or PP-objects and allow adjectival modification. Alexiadou (2020b) provides further data from Greek that support this split and argues that English verbal gerunds, Greek nominalized clauses, Spanish verbal infinitives, and German verbal infinitives are all instances of D-based nominalizations, while English nominal gerunds, English derived nominals, Spanish nominal infinitives, and German nominal infinitives represent the n-based nominalization strategy.

To explain the fine distinctions between more verbal and more nominal forms, Alexiadou et al. (2011) introduce the verbal and the nominal scale that consist of several properties and can be identified in the discussed forms. As verbal properties, thus occurring on the verbal scale, the authors list subject with nominative case, occurrence of modal or auxiliary verbs, accusative case on objects, projection of Outer Aspect, and the Argument Structure realization. On the other hand, the nominal scale comprises genitive/PP subjects, genitive/PP-objects, gender features on nominalizations, availability of plural, and the possibility to combine with all types of determiners. Alexiadou (2020b) slightly modifies and extends this list, providing the following properties on the verbal and the nominal scale.

(2) Verbal and nominal scale (Alexiadou, 2020b)

#### **The verbal scale**

- ✓ Presence of a complementizer
- ✓ Subject with nominative case
- ✓ Occurrence of modal or auxiliary verbs
- ✓ Accusative case on objects
- ✓ Projection of outer Aspect
- ✓ Implicit external argument

#### **The nominal scale**

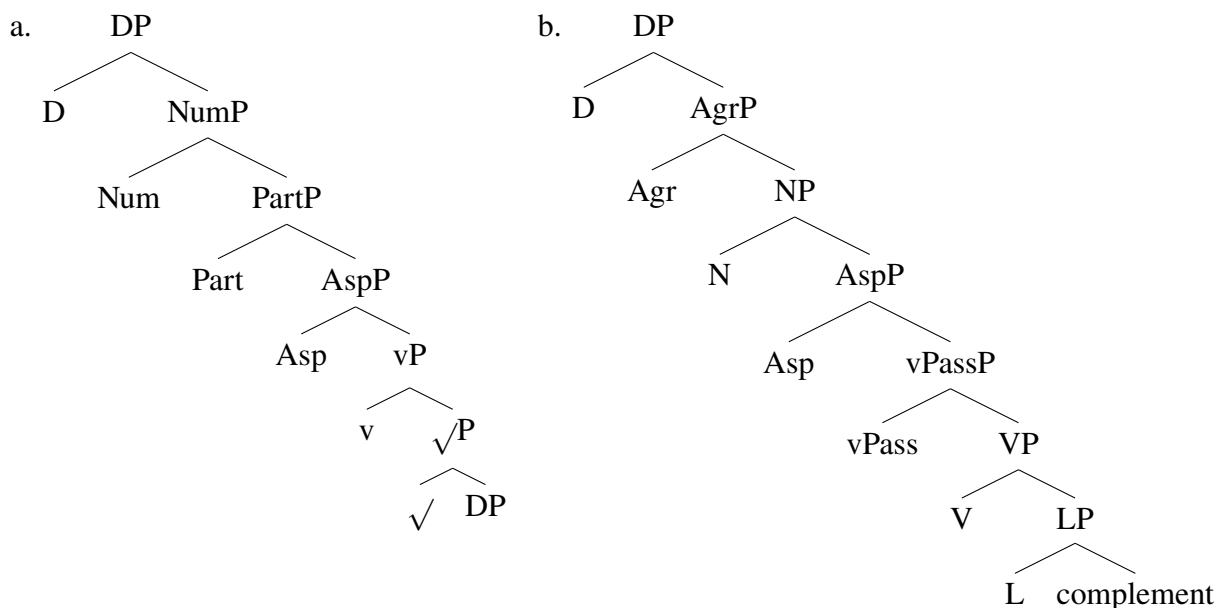
- ✓ Genitive/PP-subject
- ✓ Genitive/PP-object
- ✓ Gender features
- ✓ Availability of plural
- ✓ Possibility to combine with all types of determiners
- ✓ Adjectival modification

## **6.2 Argument Structure Nominals (ASNs) in Serbian**

Bašić (2010) and Šarić (2018) apply standard diagnostics set up in Alexiadou (2001) for identifying verbal and nominal layers in nominalizations to Serbian data and argue that Serbian

Complex Event Nominals (CENs) or Argument Structure Nominals (ASNs) have the following structure in Serbian:

- (3) ASNs in Serbian: a. Bašić (2010) vs. b. Šarić (2018)



Considering theme vowels as verbalizers, both authors take their presence as evidence for the eventive *v* layer in nominalizations. Furthermore, surfacing with participial passive morphology, licensing of *by*-phrases, and absence of the accusative case serve as evidence for the PartP in Bašić (2010) and *vPassP* in Šarić (2018), respectively. Finally, the presence of the aspectual morphology and licensing of adverbial modifiers speak in favor of the presence of AspP. When it comes to nominal layers, Bašić proposes a NumP that accommodates plurality on top of the layer hosting participial morphology. On the other hand, Šarić argues for N as a nominalizer assuming an additional AgrP between D and N heads to host agreement morphology.

In the following sections, I will apply an array of diagnostics introduced in Alexiadou (2020b), demonstrating that nominalizations in Serbian come in different sizes. Crucially, their syntactic behavior depends on the amount of the verbal layers embedded under the nominalizer *n*, i.e., on the height of affixation.

### 6.2.1 Affixation Height #1: PassP

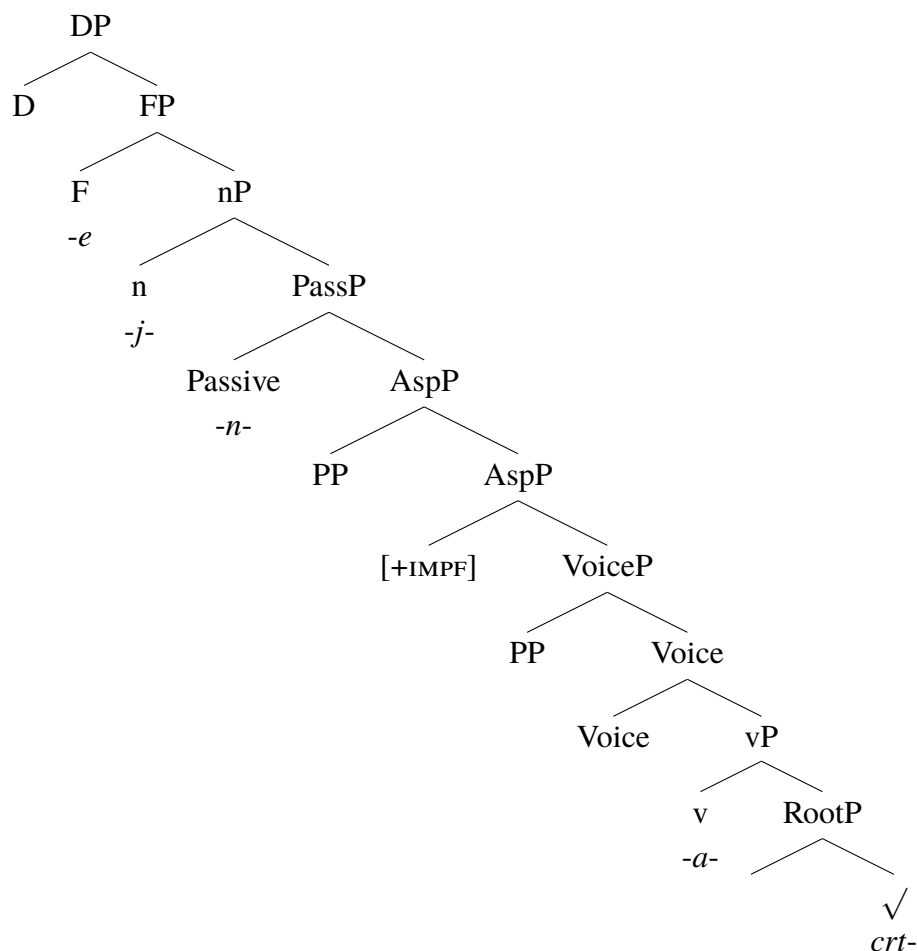
Deverbal nominals in which a nominalizer *n* embeds a layer hosting participial morphology, dubbed PassP here, represent the most complex form of Serbian nominalizations having more

verbal structure embedded in comparison to other types. When it comes to argument structure, the external argument surfaces with the Serbian counterpart of the *by*-phrase licensed by the VoiceP, while internal arguments obligatorily receive genitive case in the realm of vP. From the point of view of their aspectual properties, nominalizations whose input verb is inherently imperfective (4), as well as those whose formation is facilitated by merging the secondary imperfective (5) have the unified structure and belong to this group. The presence of the secondary imperfective morpheme in the Asp head signals the outer aspect (Borer et al., 2005), an additional diagnostic belonging to the verbal scale in Alexiadou (2020b). As elaborated above, the object of prefixed verbs is licensed by the pP that merges with the root. Together with Alexiadou (2001), I take licensing of aspectual modifiers as evidence for the presence of AspP. As demonstrated in Chapter 2, both morphological evidence and syntactic tests motivated the existence of the AspP in individual Slavic languages, as proposed for Russian (Pazelskaya & Tatevosov, 2008), Polish (Schoorlemmer, 1995), (Rozwadowska, 1997), (Bloch-Trojnar, 2017), Serbian (Bašić, 2010; Šarić, 2018), Czech (Procházková, 2006). Furthermore, these nominals contain special nominalizing morphology (-j-), which is unavailable in all other types. Alexiadou (2009) notices the similar morphological property in Greek. Namely, Greek root-derived nominals never surface with affixes specialized for formation of nominalizations, while those that embed several verbal layers do receive nominalizing morphology.

- (4) a. Jovan je crtao automobil satima.  
 John AUX draw.IMPf car.CAR hour.INSTR.PL  
 ‘John was drawing a car for hours.’  
 b. crtanje automobila satima  
 drawing car.GEN hour.INSTR.PL  
 ‘drawing a car for hour’
- (5) a. Jovan je precrtavao automobil danima.  
 John AUX redraw.IMPf car.ACC day.INSTR.PL  
 ‘John was redrawing the car for days.’  
 b. precrtavanje automobila danima  
 redrawing car.GEN day.INSTR.PL  
 ‘redrawing of a car for days’
- (6) a. crtanje je trajalo satima  
 drawing AUX lasted hour.INSTR.PL  
 ‘drawing lasted for hours’  
 b. precrtavanje je trajalo danima  
 redrawing AUX lasted day.INSTR.PL  
 ‘redrawing lasted for days’

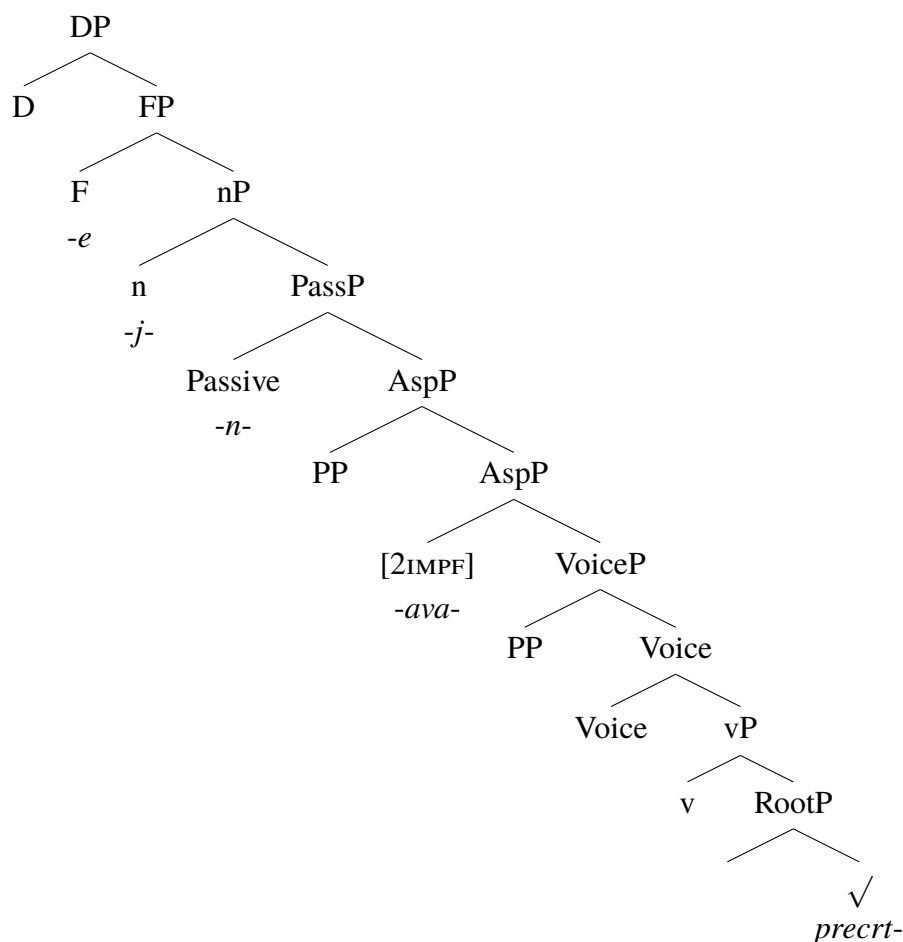
The presence of PassP in (9) is motivated by the range of properties that nominalizations and passive share, overt passive morphology being one of them.

- (7) a. Automobil je satima crta-n od strane Jovana.  
 car.NOM AUX hour.INSTR.PL draw-PASS.PTCP by side John  
 ‘The car was drawn by John for hours.’
- b. Automobil je danima precrtava-n od strane Jovana.  
 car.NOM AUX day.INSTR.PL redraw-PASS.PTCP by side John  
 ‘The car was redrawn by John for days.’
- (8) a. crt-a-n-j-e automobil-a od strane Jovana  
 draw-TH-PASS-NMLZ-NEUT car-GEN by side John  
 ‘drawing of a car by John’
- b. pre-crt-ava-n-j-e automobil-a od strane Jovana  
*across*-draw-2IMPF-PASS-NMLZ-NEUT car-GEN by side John  
 ‘redrawing of a car by John’
- (9) Affixation Height #1: PassP



Since both types license external and internal arguments, surface with aspectual modifiers and the overt aspectual morphology, as well as specialized passive and nominalization morphology, we can draw a single unified structure for nominals derived out of inherently imperfective verbs (9) and imperfective verbs which have undergone the process of secondary imperfectivization (10). For the ease of exposure, processes that happen in the realm of RootP discussed in Chapter 2 are excluded in the representation.

(10) Affixation Height #1: PassP



### 6.2.2 Affixation Height #2: AspP

Closer examination of nominalizations that exhibit almost the same extent of verbal behavior as the above discussed forms, such as argument and aspectual modifiers licensing, provides evidence that *n* in Serbian can attach to AspP. In contrast to the previous group, these nominals are derived out of perfective verbs, but do not show overt theme vowels and passive morphology, nor the special nominalizer. In spite of lacking theme vowels, these nominals

not only exhibit eventiveness corroborated by their compatibility with modifiers such as *lasted for*, which even in forms dubbed Simple Event Nouns (SENs) in Grimshaw's (1990) serves as an indication of an underlying event, but license the same aspectual modifiers as the verb that serves as their input. For the sake of concreteness, I take here two nominals derived out of verbs that share the same root but come with different aspectual values:

- (11) a. iz-rad-iva-ti  
*out-work-2IMPF-INF*  
 'make'
- b. iz-rad-iva-n-j-e  
*out-work-2IMPF-PTCP-NMLZ-NEUT*  
 'making'
- (12) a. iz-rad-i-ti  
*out-work-TH-INF*  
 'make'
- b. iz-rad-a  
*out-work-FEM*  
 'making'

As noted above, nominalizations license the same type of adverbial modifiers as their underlying verbs. The inheritance of aspectual modifiers is even more apparent in comparison of perfective and imperfective contexts, where nominals derived from imperfective verbs accept *in*-adverbials, while those derived from perfective verbs are compatible with *for*-adverbials :

- (13) a. Tim juvelira izrađivao je ovu ogrlicu mesecima.  
 team jeweler.GEN.PL make.IMPF AUX this.ACC necklace.ACC month.INSTR.PL  
 'A team of jewelers has been making this necklace for months.'
- b. \*Tim juvelira izrađivao je ovu ogrlicu za šest meseci.  
 team jeweler.GEN.PL make.IMPF AUX.3SG this.ACC necklace.ACC PREP six  
 meseci.  
 months  
 Intended: 'A team of jewelers has been making this necklace for months.'
- (14) a. Tim juvelira izradio je ovu ogrlicu za šest meseci.  
 team jeweler.GEN.PL make.PF AUX this necklace PREP six months  
 'A team of jewelers made this necklace in six months.'
- b. \*Tim juvelira izradio je ovu ogrlicu mesecima.  
 team jeweler.GEN.PL make.PF AUX this necklace month.INSTR.PL  
 Intended: 'A team of jewelers made this necklace in six months.'



- (15) a. Izrađivanje moje ogrlice mesecima čini me  
 making my.GEN necklace.GEN month.INSTR.PL makes 1SG.ACC  
 nestrpljivom.  
 impatient.INSTR  
 ‘Making my necklace for months makes me impatient.’
- b. Izrada ogrlice za šest meseci čini se realna.  
 making necklace.GEN PREP SIX months seems RFL realistic  
 ‘Making of the necklace in six months seems realistic.’

The fact that both the imperfective and perfective versions of the verb passivize in Serbian is not surprising. However, as examples above demonstrate, overt passive morphology realized in the form of morpheme *-n-* both in imperfective and perfective passive form of a verb, is preserved in a nominal derived out of an imperfective verb, while it is absent in a nominal derived out of a perfective verb. This, however, does not imply that nominals derived out of perfective verbs do not have passive morpheme. In the class of nominals under debate, the absence of passive morphology is taken as evidence that nominalizer attaches lower in comparison to nominals that inherit overt passive participle suffix.

- (16) Ogrlica je iz-rađ-iva-n-a od strane tima juvelira  
 necklace.NOM AUX *out-work-2IMPF-PASS-F* by side team jeweler.GEN.PL  
 mesecima.  
 month.INSTR.PL  
 ‘The necklace has been made by jewelers for months.’
- (17) Ogrlica je iz-rađ-en-a od strane tima juvelira za šest  
 necklace.NOM AUX *out-make-PASS-F* by side jeweler.GEN.PL PREP six months  
 meseci.  
 ‘The necklace was made by jewelers in six months.’

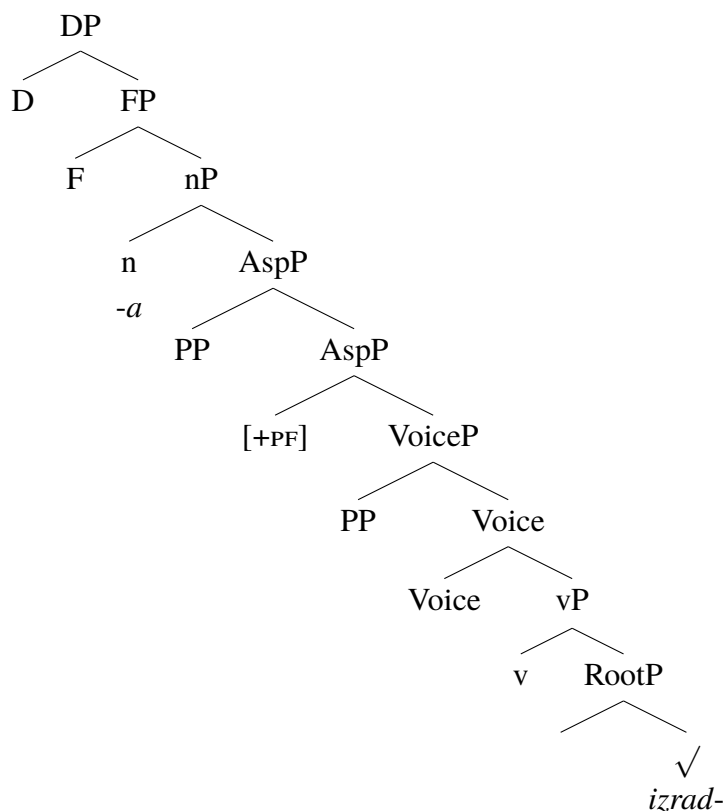
Surfacing with the external argument in the form of the *by*-phrase and internal argument in genitive, followed by the lack of passivizing morphology is apparent characteristic of this group, while licensing of agent modifiers provides a further evidence for the VoiceP in their structure:

- (18) a. zaplen-a narkotika od strane policije  
 seizure-FEM narcotics.GEN by side police  
 ‘seizure of narcotics by the police’
- b. procen-a vrednosti od strane radnika banke  
 valuation-FEM value.GEN by side worker.GEN bank.GEN  
 ‘valuation by the bank employee’

- (19) a. Namerna iznenadna zaplena narkotika od strane policije iznervirala je  
 deliberate sudden seizure narcotics.GEN by side police irritated AUX  
 kriminalce.  
 criminals.ACC  
 ‘The sudden, deliberate seizure of narcotics by the police made the criminals  
 irritated.’
- b. pažljiva potraga za blagom  
 careful search PREP treasure.INSTR  
 ‘careful treasure hunt’

While the noun *izrađivanje* (‘making’) belongs to the attachment height #1 type, as it exhibits the same behavior as the previously discussed class, the noun *izrada* (‘making’) derived out of a perfective verb still have one property from the Alexiadou’s (2020b) verbal scale - licensing of an implicit external argument. It also license aspectual modifiers but lacks overt passive, verbalizing and nominalizing morphology. As discussed above, these nominals receive the same inflection as all other Serbian nouns and lack special nominalizer *-j-* that we have seen above. Therefore, I propose the following structure for this group to accommodate both its syntactic and morphological properties:

- (20) Affixation Height #2: AspP



### 6.2.3 Affixation Height #3: VoiceP

Gradual nature of the nominalization process is further supported by the class of nominals that license internal and external arguments but disallow adverbial modifiers.

- (21) Napad na grad od strane neprijatelja.  
 attack PREP city by side enemy  
 ‘attack on the city by the enemy’
- (22) napad \*četiri sata/\*za četiri sata  
 attach for hours/\*PREP four hours  
 Intended: ‘The attack lasted for four hours.’

It is important to note here that there is no aspectual modifier to be inherited since the perfective version of the verb does not allow any adverbial modification:

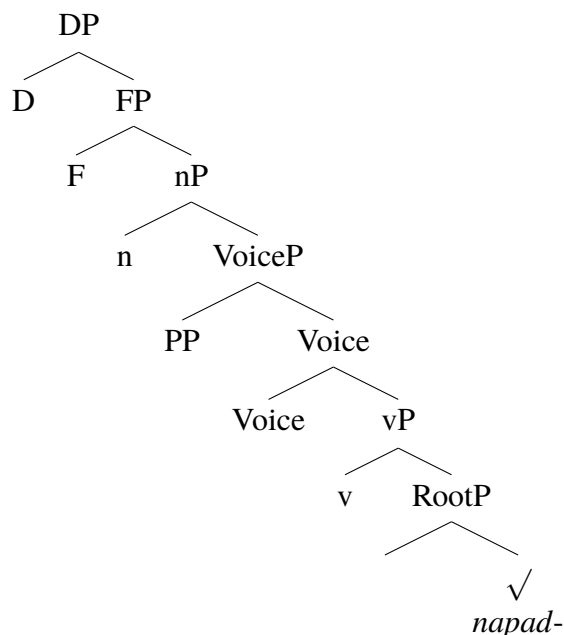
- (23) Neprijatelji su danima napadali grad.  
 enemies AUX day.INSTR.PL attacking city.ACC  
 ‘Enemies have been attacking the city for days.’
- (24) \*Neprijatelji su napali grad za dva sata.  
 enemies AUX attacked city.ACC PREP two hours  
 ‘Enemies attacked the city in two hours.’
- (25) Neprijatelji su napali grad.  
 enemies AUX attacked city.ACC  
 ‘Enemies attacked the city.’

Nevertheless, eventive reading is evidenced by the combination with *lasted for*:

- (26) Na-pad je trajao četiri sata.  
*on-fall* AUX lasted four hours  
 ‘The attack lasted for four hours.’

Therefore, licensing of arguments and eventive reading motivate the following structure for this class:

## (27) Affixation Height #3: VoiceP

**6.2.4 Affixation Height #4: vP**

Going lower on the scale of verbal properties, brings us to the class of nominals that do not have any diagnostics from the verbal scale. In terms of argument structure, these nominals licence solely internal arguments in genitive case:

- (28) na-stup francuske pevačice  
*on-enter* French.GEN.F singer.GEN.F  
 ‘the performance of the French singer’

Despite rejecting adverbial modifiers, these nominals are compatible with adverbials indicating duration which indicates the presence of the eventiveness.

- (29) Na-stup je trajao trideset minuta.  
*on-enter* AUX lasted thirty minutes  
 ‘The performance lasted for thirty minutes.’
- (30) nastup \*pola sata/\*za pola sata  
 performance half hour/PREP half hour  
 Intended: ‘Performance lasted for half an hour.’

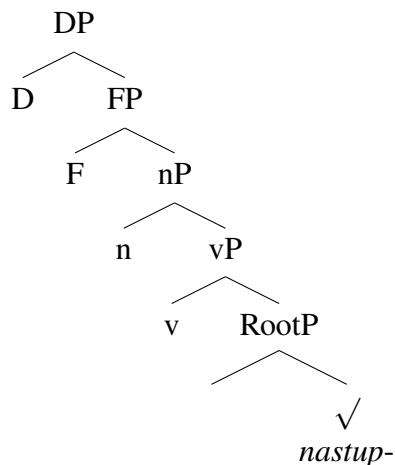
Furthermore, combination with *frequent* shows sharp differences with all previous classes. While previously discussed nominals appear freely in both singular and plural form accompanied by the modifier *frequent* (31), this group demonstrates a strong preference for the plurality

(32):

- (31) a. Čest-e zaplen-e narkotika ojačale su poverenje građana  
 frequent seizure-PL.F narcotics.GEN strengthened AUX trust citizen.GEN.PL  
 u vlast.  
 PREP government  
 ‘Frequent seizures of narcotics have strengthened citizens’ trust in the govern-  
 ment.’
- b. Česta zaplena narkotika ojačala je poverenje građana  
 frequent seizure-SG.F narcotics.GEN strengthened AUX trust citizen.GEN.PL  
 u vlast.  
 PREP government  
 ‘Frequent seizure of narcotics has strengthened citizens’ trust in the govern-  
 ment.’
- (32) a. Čest-i nastup-i na televiziji su počeli da me umaraju.  
 frequent appearance-PL.M PREP television AUX started COMPL 1SG.ACC tire  
 ‘Frequent television appearances started to tire me.’
- b. \*Čest nastup na televiziji je počeo da me umara.  
 frequent appearance-SG.M PREP television AUX started COMPL 1SG.ACC tire  
 Intended: ‘Frequent television appearances started to tire me.’

I argue that nominals that disallow external arguments and aspectual modifiers, lack overt aspectual, passive and nominalizing morphology but nevertheless allow event implications are instances of nP attaching to the vP:

(33) Affixation Height #4: vP



### 6.3 Result Nominals (RNs) in Serbian

Grimshaw's (1990) study proposing that differences between superficially morphologically identical nominals exhibiting different syntactic behavior is a consequence of their structural ambiguity between these two forms represents a major switch from polysemous approaches to nominalizations (Alexiadou & Borer, 2020). Differentiating between Result Nominals (RNs), Simple Event Nominals (SENs), and Complex Event Nominals (CENs), Grimshaw argues that the notable property of RNs is the absence of external and internal arguments. Alexiadou (2001) challenges this view and provides evidence for argument licensing potential of result nominals, thus distinguishing between process and result nominals. Borer (2003) also differentiates between two types, making a distinction between Argument Structure Nominals that have obligatory arguments, surface with *by*-phrases that take the role of arguments, license agent-oriented and aspectual modification, and Referential Nominals that do not surface with obligatory arguments, lack event readings, and modification.

Furthermore, Grimshaw (1990) proposes that RNs do not inherit the event structure of the underlying verb nor can surface with most of the properties available to ASNs, such as surfacing with agent-oriented and aspectual modifiers. Furthermore, in contrast to ASNs, RNs readily accept pluralization, patterning in this respect with object nouns. While the severance of the argument structure from the verb poses one of the major problems for Grimshaw's framework (Alexiadou & Borer, 2020), the idea that event and argument structure are closely tied in that the absence of event structure immediately leads to the absence of argument structure (Marantz, 1989; Hovav & Levin, 1992; Borer, 2013), has been challenged on the basis of English agent nominalizations in Alexiadou & Schäfer (2010) and Greek deverbal compounds in Alexiadou (2017b).

Grimshaw's classification has been revisited in Alexiadou & Grimshaw (2008), who exclude Simple Event Nominals and solely preserve the distinction between Result and Complex Event Nominals.

RNs	CENs / ASNs
non- $\theta$ -assigners	$\theta$ -assigners
no obligatory arguments	obligatory arguments
no event reading	event reading
no agent-oriented modifiers	agent-oriented modifiers
subjects are possessives	subjects are arguments
no implicit argument control	implicit argument control
no aspectual modifiers	aspectual modifiers
<i>frequent, constant</i> + PL	<i>frequent, constant</i> + SG
may be plural	must be singular

In the following sections, I will discuss RNs in Serbian, focus on their morphological and syntactic properties, and provide an insight into the ambiguity that arises in the nominal domain.

### 6.3.1 Affixation Height #5: RootP

The preceding debate showed that process and result nominals in Serbian may have the same morphological structure, consisting solely of the root occasionally merged with lexical prefixes in the realm of the root domain and agreement morphology. As the nominals in (34) demonstrate, the presence of the theme vowel is not necessary for the eventive reading.

- (34) Process nominals without an overt verbalizer
- |                                   |                             |
|-----------------------------------|-----------------------------|
| <i>nastup-i-ti</i> ‘perform’      | <i>nastup</i> ‘performance’ |
| <i>zaplen-i-ti</i> ‘seize’        | <i>zaplena</i> ‘seizure’    |
| <i>izrad-i-ti</i> ‘manufacture’   | <i>izrada</i> ‘production’  |
| <i>pobun-i-ti se</i> ‘rebel’      | <i>pobuna</i> ‘rebellion’   |
| <i>potraž-i-ti</i> ‘search after’ | <i>potraga</i> ‘search’     |
| <i>procen-i-ti</i> ‘assess’       | <i>procena</i> ‘assessment’ |
- (35) Result nominals
- |                              |                               |
|------------------------------|-------------------------------|
| <i>dokaz-a-ti</i> ‘prove’    | <i>dokaz</i> ‘proof’          |
| <i>zasluž-i-ti</i> ‘deserve’ | <i>zasluga</i> ‘merit’        |
| <i>izvest-i-ti</i> ‘inform’  | <i>izveštaj</i> ‘report’      |
| <i>nagrad-i-ti</i> ‘award’   | <i>nagrada</i> ‘award’        |
| <i>odluč-i-ti</i> ‘decide’   | <i>odluka</i> ‘decision’      |
| <i>potvrd-i-ti</i> ‘confirm’ | <i>potvrda</i> ‘confirmation’ |

A solution I proposed in Chapter 2 that lexical prefixes merge with the root in the root domain, i.e., RootP before reaching little *v*, is further supported here applying the range of diagnostics. In contrast to previously discussed nominals, RNs are not compatible with adverbial modifiers, nor do they refer to a simple event.

- (36) a. \*Pobeda je trajala pola sata.  
victory AUX lasted half.GEN hour.GEN  
\*The victory lasted half an hour.
- b. \*Dokaz je trajao satima.  
proof AUX lasted hours.INSTR  
\*The proof lasted for hours.
- c. \*Nagovor je završen za tri minuta.  
prsuasion AUX completed prep three minutes  
\* The speech was completed in three minutes.

The licensing of external arguments is ruled out (37), while internal arguments are licensed within the pP (38):

- (37) a. \*zasluga od strane sportiste  
merit by side athlete  
'merit by the athlete'
- b. \*dokaz od strane naučnika  
proof by side scientist  
'proof by the scientist'
- (38) a. dokaz postojanja života na Marsu  
proof existence.GEN life PREP Mars  
'proof of the existence of life on Mars'
- b. odluka o radnom vremenu  
decision PREP working time  
'a decision on working hours'
- c. izveštaj o poslovanju  
report PREP business  
'business report'

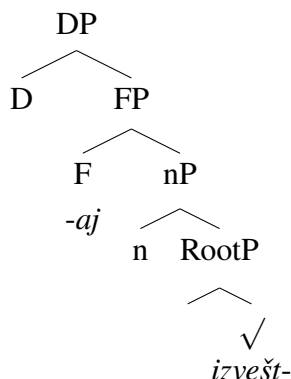
Furthermore, these nominals do not show any vacillation when it comes to combination with the modifier *frequent* requiring solely plural forms:

- (39) a. čest-e nagrad-e  
frequent-PL award-PL  
'frequent awards'
- b. \*čest-a nagrad-a  
frequent-SG award-SG  
Intended: 'frequent awards'
- (40) a. čest-i izveštaj-i  
frequent-PL report-PL  
'frequent reports'
- b. \*čest izveštaj  
frequent.SG report.SG  
'frequent report'

Therefore, we can conclude that the nominalizer *n* attaches to the RootP already merged with the pP, while any potential processuality is escaped since the *v* layer is not embedded. In the structure (41) below, *n* head bears masculine gender feature, while inflectional suffix *-aj* attaches above it giving the result noun *izveštaj* ('report'):



## (41) Affixation Height #5



## 6.4 Ambiguity in the Nominal Domain

Although individual morphological units of Serbian nominals signal the meaning ingredients of the input verb being in this respect similar to Hebrew nominalizations (Ahdout, 2017), a certain level of ambiguity is nevertheless present. Namely, a small group of result nominals exhibits the same morphological structure as the most complex process nominals, i.e., those showing overt passive morphology and the specialized nominalizer, as noticed already in Grimshaw (1990), systematically vacillate between the two readings.

As noted in the preceding discussion, nominals derived out of perfective verbs can vacillate between process and result readings, keeping the morphological form of the underlying verb and including passive and nominalization morphology. However, these nominals form two distinct groups depending on the number of functional layers embedded. With this perspective in mind, ambiguity disappears.

A considerable amount of perfective prefixed verbs preserve overt verbalizing morphology and receives passive and special nominalizing morphology as well. They surface with the external argument in the form of the *by*-phrase and genitive internal argument:

- (42) uručenje nagrada \*(po) ceo dan/za pet minuta  
 awarding prizes for whole day in five minutes  
 ‘awarding prizes in five minutes’ Šarić (2018)
- (43) proglašenje pobednika od strane poznate voditeljke za deset minuta  
 announcement winner.GEN by side famous presenter PREP ten minutes  
 ‘announcement of the winner by a famous presenter in ten minutes’
- (44) uništenje dokaza od strane pomagača za dva minuta  
 destruction evidence.GEN by side helpers PREP two minutes  
 ‘destruction of evidence by helpers in 2 minutes’

The fact that these nominals are compatible with the form *lasted for* further supports the presence of eventivity:

- (45) Saslušanje poznate glumice od strane inspektora trajalo je više od  
interrogation famous.GEN actress.GEN by side inspector lasted AUX more PREP  
četiri sata.  
four hours  
'The interrogation of the famous actress by the inspector lasted more than four hours.'
- (46) Suočenje optuženog sa žrtvom trajalo je četrdeset minuta.  
confrontation defendant.GEN with victim.INSTR lasted AUX forty minutes  
'The defendant's confrontation with the victim lasted forty minutes.'

On the other hand, we find nominals derived out of perfective verbs that licence both external and internal arguments, surface with the passive and nominalizing morphology, but the presence of aspectual modifiers is ruled out as well as any indication of eventivity:

- (47) impresivno rešenje višedecenijskog matematičkog problema od strane  
impressive solution decades.long.GEN mathematical.GEN problem.GEN by side  
naučnika  
scientist  
'the impressive solution to a decades-long mathematical problem by the scientist'

Neither licensing of aspectual modifiers nor modification by *lasted for* is allowed:

- (48) a. \*rešenje za pet minuta  
solution PREP five minutes  
Intended: 'solution in five minutes'
- b. \*odobrenje za pola sata  
permission PREP half hour  
Intended: 'permission in half an hour'
- (49) a. \*Rešenje je trajalo pet minuta.  
solution AUX lasted five minutes  
Intended: 'The solution lasted for five minutes.'
- b. \*Odobrenje je trajalo pola sata.  
permission AUX lasted half hour  
Intended: 'Permission lasted for half an hour.'

Since we have evidence for the internal and external argument, as well as overt passive morphology, I analyze these examples as PassP nominalizations. Crucially, AspP is not projected in RNs. Therefore, I argue that resolving ambiguity in Serbian should go in the direction that would look into little *v* alloosemy. More precisely, the *v* alloosemy in the absence of AspP in

the nominal spine exhibits distinct behavior from the *v* alloeme in the context of projected AspP.

## 6.5 Summary

Integrating the findings of the present chapter with the previous discussion results in an array of convincing arguments for the analysis of Serbian nominalizations as n-based forms. The discussed nominals surface with all diagnostics necessary for determining a particular nominal as n-based, as demonstrated in the lists below adapted from Alexiadou (2020b). The data discussed in Chapter 5 showed that Serbian deverbal nominals surface with gender and number features, projecting the head responsible for accommodating plurality (DivP). The same chapter provided evidence for surfacing with determiners and adjectives. Finally, the argument structure potential of Serbian nominalizations discussed in Chapter 4 provides the strongest evidence for the presence of the n head as a trigger of ergativity.

- (50)
- a. If a nominalization is n-based, then gender is present in languages that have gender.
  - b. If a nominalization is n-based, DivP may also be included.
  - c. If a nominalization is n-based, then all types of determiners and adjectives are licensed.
  - d. If a nominalizations is n-based, the internal argument surfaces with genitive. *By*-phrases are possible.
- (51)
- a. If a nominalization is D-based, external argument may surface with genitive or nominative (depending on the presence of and features on TP).
  - b. If a nominalization is D-based, determiners may be present, but are invariable. By contrast, n-based nominalizations show variability of determiners due to the presence of a nominal core (due to D-n agreement; Iordăchioaia, 2014).

Furthermore, I have demonstrated in this chapter that Serbian exhibits the same split between RNs and ASNs observed in other languages. Crucially, there is no single structure that covers all its morphological and syntactic properties. Rather, Serbian nominalizations come in several different sizes, while the amount of the embedded verbal layers determines their behavior.

# Chapter 7

## Summary and Open Questions

In this thesis, I have argued that the local relationship between the two layers is crucial for their feature specification and syntactic behavior, providing evidence from argument and event structure, aspectual domain, and agreement patterns.

In Chapter 2, I have discussed the morphological make-up of the Serbian verbal complex with a special focus on the overt aspectual morphology. Applying the Verb-Stranding Verb Phrase Ellipsis, I have provided the internal functional structure of the Serbian verb. Evidence from the post-syntactic amalgamation as a special type of head movement that participates in the formation of complex words developed in Harizanov & Gribanova (2019) demonstrated that merging of the secondary imperfective morpheme in AspP later in the derivations overwrites the resultative/causative component of Slavic lexical prefixes that originate within pP. The main part of this chapter concerns the aspect-based puzzle identified in the Serbian data. I have demonstrated that Serbian nominalizations exhibit a three-way blocking of the nominalization process. Providing evidence that Serbian deverbal nominals derived out of perfective verbs fail perfectivity tests departing from their respective verbs in this sense, I have attributed the imperfectivity in their AspP to the presence of the nominalizing head *n*. I proposed that the value of the AspP depends on the local relationship with the categorizing head above it. Namely, AspP under TP/CP can be specified as both perfective and imperfective, while AspP under *n* is always specified as imperfective. In a broader Slavic perspective, it remains an open question how to explain the fact that Serbian shows stronger restrictions in its ability to build nominalizations and whether it is related to the fact that Serbian has an archaic aspectual system compared to other Slavic languages (Dickey, 2015) or the syntax of pPs and their interaction with the RootP and vP differs in individual Slavic languages.

In Chapter 3, providing the complete range of argument structure patterns in nominalizations whose input verbs belong to classes of (i) transitive, (ii) unaccusative, (iii) unergative, (iv) anticaustative, and various subclasses within each class, I have demonstrated that Serbian

obeys the ergativity requirement proposed in Alexiadou (2001). Elaborating on the idea that the local relationship with the *n* head influences the specification of verbal layers, I have argued that VoiceP under *n* is distinct from the VoiceP under *T* and needs to be specified as [-D] prohibiting a DP to appear in its specifier position. Furthermore, on the basis of the argument structure of active and passive clauses, as well as nominalizations and participles, I have demonstrated that little *v* under *T* is the most verbal version of *v* in that it can assign the accusative case to the internal argument. Moving to nominal heads *n* and *a*, I have observed a gradual decrease in capability of case assignment. While little *v* under *n* in nominalizations can assign genitive case to the internal argument, *v* under *a* in participles is devoid from the case assignment.

Chapter 4 brings the analysis of the split ergativity in Yucatec Mayan. I have argued that the apparent split in argument structure should be attributed to the process of nominalizations. Furthermore, I have demonstrated that imperfectives and progressives should be analyzed as predicates taking nominalized forms as their arguments. This chapter also provided further insights on argument patterning cross-linguistically. While nominative-accusative languages in nominalizations exhibit the ergative pattern, evidence from several Mayan languages shows that ergative-absolutive languages exhibit an accusative pattern in their nominalization side.

Chapter 5 provides further evidence for the proposal that the local relationship with the *nP* layer influences other parts of the structure. While in previous chapters the focus was on verbal layers below *nP*, this chapter demonstrates that the *nP* layer influences the nominal layers above it. Namely, the exact spell out of the *n* head has an influence on gender features in a higher layer hosting grammatical gender features. I have also provided evidence for the ambiguity in the event structure of morphologically identical deverbal nominals in Serbian, and resolved the ambiguity employing the feature of boundedness in the Inner Aspect domain and the presence of the Outer Aspect projection.

Finally, in Chapter 6, I have provided evidence for the gradual nature of Serbian nominalizations as the number of verbal functional layers decrease and proposed that all nominalizations in Serbian fit into one of the following six strategies, arguing that the height of affixation is the decisive factor in the syntactic behavior a particular nominal will exhibit.

- (1) a. [DP [nominal FP [nP [PassiveP [AspP [VoiceP [vP [RootP]]]]]]]]]
- b. [DP [nominal FP [nP [AspP [VoiceP [vP [RootP]]]]]]]
- c. [DP [nominal FP [nP [PassiveP [VoiceP [vP [RootP]]]]]]]
- d. [DP [nominal FP [nP [VoiceP [vP [RootP]]]]]]]
- e. [DP [nominal FP [nP [vP [RootP]]]]]
- f. [DP [nominal FP [nP [RootP]]]]]

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