

Argument Structure Inheritance

Evidence from Deverbal Compounds

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- The argument structure of deverbal nominals is one of the most vibrantly discussed phenomena in the literature on nominalizations and has commonly served as a criterion for their classification (Grimshaw 1990 [21]; Alexiadou 2001 [1]; Borer 2003 [16]; Alexiadou & Grimshaw 2008 [11]).

- **Grimshaw (1990)** [21] - Result Nominals (RNs), Simple Event Nominals (SENs), Complex Event Nominals (CENs)
- **Alexiadou (2001)** [1] - Result Nominals and Process Nominals
- **Borer (2003)** [16] - Referential Nominals (RNs) and Argument Structure Nominals (ASNs)
- **Alexiadou & Grimshaw (2008)** [11] - revisit Grimshaw (1990) [21], exclude SENs, and preserve the distinction between RNs and CENs

ASNs

- (1) a. The breaking (✓IA of the door) (✓EA by Mary) (✓adverbial modification in two minutes) (✓purpose clauses in order to retrieve her locked-up dog)
- b. The stabbing (✓IA of the emperor) (✓EA by Brutus) (✓adverbial modification for ten minutes) (✓purpose clauses in order to eliminate him from Roman public life)

DCs

- (2) a. (I watched) the door breaking (*by Mary) (*in two minutes) (*in order to retrieve her locked-up dog)
- b. (I read about) the emperor stabbing (*by Brutus) (*for ten minutes) (*in order to eliminate him from Roman public life)

- Di Sciullo (1992) [20] argues that English DCs are close to CENs.
 - The example below is adapted from Alexiadou (2017) [4], originally from Di Sciullo (1992) [20].
- (3)
- a. The/*a/*one/*that taxi driving John did was exhausting. ✓ def. determiners
 - b. *The taxi drivings John did were fun. ✗ pluralization
 - c. Taxi driving by John can be dangerous. ✓ by-phrases
 - d. John's deliberate taxi driving did not please Harry. ✓ agentive modifiers
 - e. Harry cannot stand his frequent taxi driving. ✓ modifier *frequent*

- (4) a. *kapnokaliergia apo agrotes
tobacco-cultivation by farmers
'tobacco-cultivation by farmers' ✗ by-phrases
- b. *kapnokaliergia ja 3 hronia
tobacco-cultivation for 3 years
'tobacco-cultivation for 3 years' ✗ adverbial modifiers
- c. I kapno-kaliergia sti Kavala arhise to 19o eona.
the tobacco cultivation in Kavala started during the 19th century
'The tobacco cultivation in Kavala started during the 19th century.' ✓ event
- d. tosi diafimisi apo kapnokaliergies
so much advertisement from tobacco-cultivations
'So much advertising of tobacco-cultivations.' ✓ pluralization
- e. *i sihni kapnokalliergia kurazi
the frequent tobacco cultivation tires
'Frequent tobacco cultivation is tiresome.' ✗ modifier *frequent*

In the present talk, I argue that:

- Serbian DCs exhibit different behavior both from English and Greek type,
- there is no single structure of Serbian DCs that covers all its appearances,
- in the same manner as non-DC nominalization, DCs show gradual nature depending on the properties of the head noun.

Morphology

- Serbian DCs are right-headed by a deverbal noun that can stand in isolation outside of a compound.
- The head nominal always appears in its complete form, while the form of the non-head varies. It can appear in a root (5), stem, or a full word form.

(5) prim-o-predaja
receive-LE-delivery
'handover'

- In certain cases, the exact form might be obscured by the fact that the root, stem and word take the same form.

(6) brod-o-lom
ship-LE-breakage
'shipwreck'

- In contrast to English, Serbian patterns with Greek (Alexiadou 2009 [2]) requiring all nominals to belong to a particular inflectional class.
- In (7), an object noun *sveska* 'notebook', deverbal noun *zaplena* 'seizure', and DC *lovokrađa* 'poaching' share the same inflectional morphology that includes the information about the case, gender, and number.

(7) Inflection of verbal and non-verbal nouns in Serbian

	ON	DN	DC
NOM	svesk-a	zaplen-a	lovokrađ-a
GEN	svesk-e	zaplen-e	lovokrađ-e
ACC	svesk-u	zaplen-u	lovokrađ-u

- The compound marker, called linking element, is semantically empty form, does not have any syntactic status (Ralli 2013 [39]), and exhibits behavior similar to inflectional affixes (Alexiadou 2020 [6]).
- Linking elements have received unified analysis in works that come from different theoretical frameworks, being referred to as a meaningless extension (Lieber Stekauer 2011 [32]), an extra segment (Neef 2009 [35]), or a linking morpheme (Hardarson 2017 [22]).

- The presence of the linking element is not exclusive to DCs, as it appears in non-deverbal compounds as well.

(8) **gluv-o-nem**
deaf-LE-MUTE
'deaf-mute'

- In contrast to Germanic languages that have complex systems of linking elements (Neef 2009 [35], Nübling & Szczepaniak 2013 [37]), Serbian has a single morpheme in the function of a linking element, patterning in this respect with other Slavic languages, such as Russian (Krott et al. 2007 [31]).

- In contrast to Greek (Alexiadou 2020 [6]), its presence is not obligatory.
- The presence of a compound marker -o- is obligatory in the first two classes, while it is systematically absent in the third and fourth.

(9)	kup-o-prodaja buy-LE-sale 'purchasing and selling'	Class I
(10)	brod-o-gradnja ship-LE-building 'shipbuilding'	Class II
(11)	pred-istraga in.front.of-investigation 'pre-investigation'	Class III
(12)	protiv-dokaz against-evidence 'counter-evidence'	Class IV

Argument Licensing

- An external argument is not introduced by the verb but by the higher functional projection named VoiceP (Kratzer 1996 [30])
- Split between VoiceP and vP (Pylkkänen, 2008 [38]; Alexiadou et al., 2006, [8]; Alexiadou et al., 2015 [10]; Harley 2009, [23], 2013 [24]; Wood & Marantz 2017 [48], Hopperdietzel, 2020 [25]; Nie, 2020 [36])

VoiceP

- introduces a DP argument in active and licenses a PP in the passive (Alexiadou, Anagnostopoulou, & Schäfer 2008 [9])
- bears features related to agentivity and manner (Alexiadou et al., 2006 [8])
- establishes a thematic relation between the external argument and the event (Pylkkänen, 2008 [38]).

The analysis of Voice and argument structure builds on:

- Alexiadou's 2001 [1], 2017 [3]) n-based driven ergativity and theory of deficient Voice
- 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 [42], Alexiadou et al., 2015 [10])
- Kastner's 2020 [29] Trivalent Theory of Voice
- Nie's 2020 [36] proposal of Voice as a universal nominal licenser

- Ergative case pattern is not exclusive to morphologically and syntactically ergative languages but obligatorily emerges in nominalizations of nominative-accusative languages (Alexiadou 2001 [1], 2017 [3]).
- This pattern has been attested in languages that have more than one nominalizing strategy (see also Alexiadou et al. [13] Alexiadou 2020 [7]).
- Ergativity emerges as a result of the presence of the n layer.

Refinement of the Voice projection

- Nominalizations contain deficient VoiceP/vP as a consequence of the presence of nominalizer n in the structure (Alexiadou 2001 [1], 2017 [3]).

- (13) **n-driven ergativity generalization** (Alexiadou, 2017 [3])
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.

(14) **Ergativity in nominalizations** (Alexiadou, 2001 [1])

	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 (Ilić 2021 [27]), ergative pattern is expected and attested.
- The agent argument is realized as a PP (15) equivalent to that found in passives (16), in contrast to the theme argument (15) and the sole argument of unaccusatives (17) and unergatives (18) that surfaces with the genitive case.

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

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

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

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

- The layering approach to syntax (Alexiadou et al. 2015 [10]; cf. Wood 2020 [46], 2021 [47]), assumes that each functional layer is associated with a particular function.
- Alexiadou et al. (2015) [10] introduce the system of Voice that distinguishes between the active Voice and the non-active or expletive Voice.
- The distinction between causative and anticausative verbs is captured by the presence of the VoiceP as a layer responsible for introducing an external argument.
- VoiceP present in causative verbs, absent in anticausatives.
- Greek and German anticausatives marked with the reflexive morphology - semantically inert Voice layer - expletive Voice

Three values of the Voice head depending on the presence of D [EPP] feature (Kastner 2020 [28]):

- (19) $\text{Voice}_{[+/-D]}$
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) [19] or through the calculation of dependent case Marantz (1991) [34].
- (20) $\text{Voice}_{[+D]}$
A Voice head with a [+D] feature, requiring that some element check the [D] feature in its specifier (usually via Merge).
- (21) $\text{Voice}_{[-D]}$
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, $\text{Voice}_{[-D]}$ does not assign accusative case itself Chomsky (1995) [19] or through the calculation of dependent case Marantz (1991) [34].

- Universal system of argument licensing in which all nominals in every language must be assigned a thematic role and licensed via abstract φ -agreement, independently of the realization of case and agreement morphology in individual languages (Nie, 2020 [36]).
- 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.
- 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.

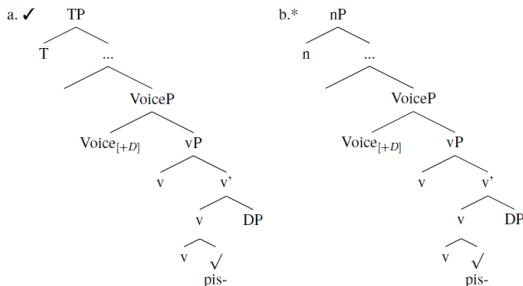
- I argue that the Voice head in Serbian nominalizations is an instance of the Voice_[-D].
- This value of the Voice head is obtained as a consequence of the local relationship between the Voice head and a nominal head above it.

- 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.
- If a Voice layer is specified as Voice [+D], the derivation crashes.

The Mechanics of Argument Licensing: VoiceP under n

- In the case of transitive verbs, building the structure from bottom to top always results in a Voice head specified as [+D].
- A root *pis-* ('write') augmented by a categorizing head *v*, selects Voice_[+D] that projects the external argument in the form of the DP in the specifier position of VoiceP (22a).
- When embedded under TP → the external argument in nominative case, the internal argument in the accusative.
- The same root augmented by a verbalizing layer *v* selecting the same variant of Voice head cannot be embedded under nP (22b).

(22) Voice_[+D] under T vs. Voice_[+D] under n (Ilić 2021 [27])



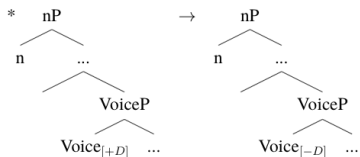
- In the course of the derivation, transitive verbal layers cannot see whether the nominalizer n will attach later and always select Voice_[+D].

Q: How to reconcile the nominalizer n and the Voice_[+D] in transitive verbs?

- In order to account for Serbian data, I follow Alexiadou's 2001 [1], 2017 [3] analysis of n as a trigger of ergativity.
- I argue that the nominalizer n enters the derivation with a selectional feature $\text{Voice}_{[-D]}$.
- This view corresponds to Bruening's 2013 [18] analysis, who proposes that the nominalizer has selectional features and requires an unsaturated Voice, representing this requirement as $[\text{S:Voice}(\text{S:N})]$.

- 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 .
- When merged, nominalizer n leads to a Voice alternation. As a consequence, little n probing for a $[-D]$ feature successfully agrees with the $\text{Voice}_{[-D]}$.

(23) $\text{Voice}_{[-D]}$ under n



- The view of obligatory Voice_[-D] head under n and PassP in nominalizations and passives, respectively, crucially differs from Bruening's (2013) [18] and Kastner's (2020) [29] proposals, who assume Voice_[+D] in passives.
- I argue that a verb starts as Voice_[+D] but shifts its specification in the context of the n head.

Proposal

- The argument structure of deverbal compounds is inherited from the head nominal, as they fully replicate the behavior of the head nominal in isolation.
- In addition to AS patterns, Serbian deverbal compounds preserve all the properties of their head-nouns, which indicates that they should be considered as a sub-type of nominalizations, as proposed in Alexiadou (2017) [4].
- Layers introducing arguments and layers introducing events are not interdependent and should be thus dissociated, as proposed in Alexiadou & Schäfer (2010) [14] and Alexiadou (2017) [4], contra the view that the presence of an underlying event is a prerequisite for the argument licensing (Marantz 1989 [33], Rappaport & Levin 1992 [26], Borer 2013 [17]).

- Serbian DCs have the same argument structure (24a, 25a) as the head nominal in isolation (24b, 25b).
- Ergative case pattern is attested in Serbian DCs, providing evidence for the n layer. The external argument surfaces with the *by*-phrase, while the internal argument receives genitive case.
- Genitive internal argument is a structural case assigned in the context of the n head.

- (24) a. kupoprodaja stanova od strane investitora
purchasing.and.selling apartment.GEN.PL by side investors
'purchasing and selling of apartments by investors'
- b. prodaja jabuka od strane trgovca
selling apple.GEN.PL by side trader
'selling of apples by a trader'
- (25) a. primopredaja bolesnika od strane bolnica
handover patient.GEN.PL by side hospitals
'handover of patients by hospitals'
- b. predaja finansijskog izveštaja od strane menadžera
submission financial.GEN report.GEN by side manager
'submission of a financial report by the manager'

- Nominalizations license the same type of adverbial modifiers as their underlying verbs.
- Since head nominals have perfective verbs in their basis, they are compatible with *in*-modifiers.

- (26) Kupoprodaja ovako skupih vila za pola sata
purchasing.and.selling such expensive.GEN.PL villa.GEN.PL PREP half hours
može biti ishitrena odluka.
can be hasty decision
'Purchasing and selling such expensive villas in half an hour can be a hasty decision.'
- (27) Primopredaja nakita za dva minuta čini se moguća.
handover jewelry.GEN.PL in two minutes seems RFL possible
'Handover of jewelry in two minutes seems possible.'

- Modification by *lasted for* (28) and *has been finished in* (29) as well as adjectival modification (30) indicating duration further suggests the presence of an underlying event.

(28) Kupoprodaja je trajala dva sata.
purchasing.and.selling AUX.3SG lasted two hours
'Purchasing and selling lasted for two hours.'

(29) Primopredaja je izvršena za dva sata.
handover AUX.3SG executed in two hours
'The handover has been executed in two hours.'

(30) dvočasovna primopredaja
two.hours handover
'two-hour handover'

- English DCs whose internal argument figures as a non-head do not surface with *by*-phrases.
- By contrast, in Serbian, the internal argument of the verb appears as a non-head element of the compound, while the external argument surfaces with the *by*-phrase.
- The internal argument originates as a complement of the root within RootP and moves to Spec,nP to receive the case. A subsequent head-to-head movement, results in a well-formed DC Alexiadou & Iordăchioaia (2015) [12].

(31) brod-o-gradnja od strane iskusnih inženjera
ship-LE-building by side experienced engineers
'shipbuilding by experienced engineers'

(32) Rib-o-lov od strane lica koja nemaju dozvolu je zabranjen.
fish-LE-hunt by side persons who not.have license AUX prohibited
'Fishing by unlicensed persons is prohibited.'

- In comparison to the previous class, Class II DCs systematically reject adverbial modification (33-34), suggesting a lack of the AspP (Alexiadou 2001 [1]).
- However, combination with *lasted for* suggests the presence of an underlying event (35-36) (Borer 2003 [16]).

(33) *brodogradnja mesecima/za mesec dana
 shipbuilding month.INSTR/PREP month days
 Intended: 'Shipbuilding lasted for months/for a month.'

(34) *ribolov pola sata/za pola sata
 fishing half hour/PREP half hour
 Intended: 'Fishing lasted half an hour.'

(35) Brodogradnja je trajala mesecima.
 shipbuilding AUX lasted month.INSTR
 'Shipbuilding lasted for months.'

(36) Ribolov je trajao pola sata.
 fishing AUX lasted half hour
 'Fishing lasted half an hour.'

- A preposition appears in the non-head position.
- *by*-phrases are not licit, suggesting the absence of the VoiceP.
- Patterning with previous classes, these DCs allow internal arguments in genitive (37) or in the form of PP (38).

(37) pred-is-trag-a ovog krivičnog dela
out-trace-FEM this.GEN criminal.GEN offense.GEN
'pre-investigation of this criminal offense'

(38) pred-is-trag-a o finansiranju gradnje novog tržnog
out-trace-FEM PREP financing.GEN construction.GEN new.GEN shopping.GEN
centra
center.GEN
'pre-investigation of financing of the construction of a new shopping center'

- Patterning with Class II, Class III DCs systematically reject adverbial modification (39-40), suggesting a lack of the AspP, but a string *lasted for* provides evidence for the underlying eventivity (41-42).

- (39) *pred-istraga šest meseci/za šest meseci
pre-investigation six months/PREP six months
Intended: 'Pre-investigation lasted for six months.'
- (40) *protiv-napad četiri sata/za četiri sata
against-attack four hours/PREP four hours
Intended: 'The counterattack lasted for four hours.'
- (41) Predistraga je trajala šest meseci.
pre-investigation AUX lasted six months
'The pre-investigation lasted for six months.'
- (42) Protivnapad je trajao dvadeset minuta.
counterattack AUX lasted twenty minutes
'The counterattack lasted for twenty minutes.'

- A preposition appears in the non-head position.
- *by*-phrases are not licit, suggesting the absence of the VoiceP.
- The head element is a genuine result nominal (RN) surfacing with the internal argument.
- **Q:** Where does an internal argument originate?

(43) protiv-do-kaz postojanja života na Marsu
against-to-say existence.GEN life PREP Mars
'counter-evidence of the existence of life on Mars'

(44) protiv-tužba za korišćenje hemijskog oružja
against-lawsuit PREP use chemical.GEN weapons.GEN
'a counterclaim for the use of chemical weapons'

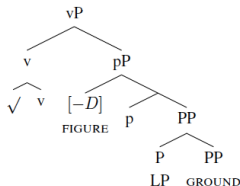
- Class IV rejects both adverbial modification and modification by the form *lasted for*, suggesting the absence of eventivity.

- (45) *protiv-dokaz za deset minuta
against-proof PREP ten minutes
Intended: 'Counter-evidence lasted for ten minutes'
- (46) *protiv-predlog za pola sata
against-proposal PREP half hours
Intended: 'Counter-proposal lasted for half an hour.'
- (47) *Protiv-dokaz je trajao deset minuta.
against-proof AUX lasted ten minutes
Intended: 'Counter-evidence lasted for ten minutes'
- (48) *Protiv-predlog je trajao pola sata.
against-proposal AUX lasted half hour
Intended: 'Counter-proposal lasted for half an hour.'

- Head nominals are derived out of perfective verbs surfacing with lexical prefixes (LPs).
- Compelling evidence that Slavic prefixes bring resultativity has been proposed in the Small Clause approach (Svenonius 1994[44], 2004[43]), First-Phase Syntax (Ramchand 2004[40]), and Concatenation theory (Arsenijevic 2007[15]).
- 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[41]).
- The same idea of low attachment holds for prefixes situated in pP within the Greek verbal complex (Alexiadou 2020[5]) and particles in PrtP in English verb particle constructions (Harley 2009)[23].
- The existence of the pP has been proposed in Wood (2015) [45] and Kastner (2020) [29] for the Icelandic and Hebrew figure reflexives, respectively.

- Slavic lexical prefixes originate in the specifier position of PP, taking a Ground argument as its complement.
- p introduces the Figure, as the external argument.
- the p head is specified as [-D] and prohibits forms surfacing with the D feature to appear in its specifier position (Kastner, 2020 [29]). The external argument is saturated later in the derivation.
- Internal argument in Class IV compounds is licensed within the pP, as a Ground argument.
- This suggests that Slavic RNs can freely surface with arguments in the absence of the vP layer.

(49) Prepositional phrase in Slavic (Ilić 2021 [27])



Summary

- Serbian DCs preserve all the properties of their head-nouns, which indicates that they should be considered as a subtype of nominalizations, as proposed in Alexiadou (2017) [4].
- In comparison to English and Greek, Serbian DCs embed more verbal layers as they surface with internal and external arguments and tolerate adverbial modification.
- Crucially, they exhibit the gradual nature, and the amount of the nominalized verbal structure is dependent on the head nominal.
- DCs surface with the ergative pattern, requiring the VoiceP to be specified as Voice_[−D].
- Layers introducing arguments should be dissociated from layers introducing events.

Thank You!

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