Chapter 42

Missing verbal structure in Bosnian-Croatian-Serbian agent nominals

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Based on morpho-phonological evidence from BCS agent nominals, I argue that elements which are traditionally analyzed as verbal in Slavic ('verbal' theme vowels, secondary imperfectivizers, lexical prefixes) are not verbal at all. Illustrating with data from root-derived versus deadjectival agent nominals, I first show that root-conditioned allomorphy and accent placement in BCS are limited to the first spell-out domain, which may include only one categorizer. I then show that agent nominals containing morphology analyzed as verbal behave for these morpho-phonological processes like root-derived nouns. I argue there is no syntactic evidence for the presence of verbal structure in these agent nominals, as well as that the available semantic evidence (the presence of event/agent entailments) should not compel us to assume such structure either. Finally, I offer a tentative alternative analysis for the identity of the 'verbal' morphemes in question.

Keywords: agent nominal, verbal structure, theme vowel, secondary imperfective, event entailment, Bosnian-Croatian-Serbian

1 Introduction

In this paper, I argue that morphemes traditionally taken to be part of the verbal extended projection are not verbal at all in Bosnian-Croatian-Serbian (BCS) agentive nouns. I will be concerned primarily with a sample of BCS agent nominals illustrated in (1)-(3), which contain what is traditionally analyzed as verbal morphology across Slavic languages.

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(1) a. prouč-av-á-telj
study-AV-TH-N
'researcher'

b. pozn-av-á-telj
know-AV-TH-N
'expert'

c. reš-av-á-telj
solve-AV-TH-N
'solver'

(2) a. predsed-av-a-áč
chair-AV-TH-N
'chair'

b. pred-av-a-áč
lecture-AV-TH-N
'lecturer'

c. ugnjet-av-a-áč
oppress-AV-TH-N
'oppressor'

(3) a. prod-av-a-ác
sell-AV-TH-N
'seller'

b. dar-o-d-av-a-ác
gift-L-give-AV-TH-N
'giftgiver'

c. posl-o-d-av-a-ác
job-L-give-AV-TH-N
'employer'

Specifically, when *-av* (or one of the morpheme's other allomorphs) appears on the corresponding verbs (4), it is traditionally analyzed as a 'secondary imperfectivizer', given its role in producing atelic/imperfective verbal stems from the telic/perfective ones in (5) (e.g., Schuyt 1990; see Łazorczyk 2009 and Tatevosov 2015 for a discussion of the precise role of this morpheme in the verbal domain). This is an entirely productive process in BCS. Note also that the agent nominals in (1)-(3) contain the same theme vowels as the imperfective verbs in (4). These theme vowels have been claimed to be exponents of the verbal categorizing head (v); see, for example, Svenonius 2004a, Caha & Ziková 2016, Biskup 2019, Milosavljević & Arsenijević 2022, Bešlin 2023.[1]

(4) a. prouč-av-a-ti
study-AV-TH-INF
'be researching'

b. predsed-av-a-ti
chair-AV-TH-INF
'be chairing'

c. prod-av-a-ti
sell-AV-TH-INF
'be selling'

(5) a. prouč-i-ti
study-TH-INF
'research'

b. predsed-a-ti
chair-TH-INF
'chair'

c. prod-a-ti
sell-TH-INF
'sell'

Let me note at the outset that the presence of the theme vowel can only be detected at the surface in the agent nominals in (1), because the nominal suffixes

[1]Many of the nominals I discuss also contain so-called *lexical prefixes*, which have been studied extensively in the verbal domain (e.g., Svenonius 2004b), cf. (ia-b). I will ignore these prefixes in the glosses for the time-being and return to them in section 4.3.

(i) a. pro-uč-i-ti
LP-learn-TH-INF
'research'

b. uč-i-ti
learn-TH-INF
'be learning'

in (2)-(3) begin with a vowel. In Slavic, this kind of hiatus is frequently resolved by deleting the first (leftmost) vowel, here the theme vowel (Jakobson 1948). The deletion is a phonological process, so the theme vowel is present at the form interface (for example, at Vocabulary Insertion), which will be of interest to us here. While I will continue to represent the theme vowel throughout, it is not crucial for any of my arguments that it be present on all relevant agent nominals. It is sufficient that it be present on at least some of them, which is apparent from the surface forms. The claim is that, for those agent nominals that contain the theme vowel or the 'secondary imperfectivizer', these morphemes are not verbal.

Notice that the nominals in (1)-(3) contain different *n*-allomorphs and that the accent of *-áč* and *-ác* surfaces on the resulting nouns. Building on Bešlin 2025, to appear, I will show that BCS root-conditioned allomorphy and accent placement are limited to the first spellout domain, which includes only one categorizing morpheme. Given the observed patterns of allomorphy and accent placement in the agent nominals in (1)-(3), I will ultimately argue that the 'verbal' elements we see inside them are not verbal at all and raise the possibility that these elements are not exponents of verbal functional heads even when they are found on verbs.

The paper is organized as follows. Section 2 provides some necessary background on Distributed Morphology (DM), cyclic domains, the role of categorizers, and allomorphy. Illustrating with data from root-derived versus deadjectival agent nominals, section 3 shows that root-sensitive allomorphy and accent placement in BCS are confined to the first spellout domain, centered around the first-merged categorizer. This behavior is shown to follow from a DM conception of cyclic domains. Section 4 returns to the 'deverbal' agent nominals discussed in this section, arguing that they pattern with root-derived nouns (and root-root compounds) for purposes of allomorphy and accent placement. It then provides an alternative analysis of the 'verbal' morphemes under discussion, arguing that they are not, in fact, part of the verbal extended projection. It is proposed that the morpheme AV is a root, that theme vowels are morphemes that attach to (certain) roots more generally, and that the so-called 'verbal lexical prefixes' cannot be verbal, since they appear in contexts in which a deverbal analysis is very dubious. Finally, this section challenges existing meaning-based arguments for assuming verbal structure in agent nominals. Section 5 concludes.

2 Theoretical background

In this section, I briefly present relevant aspects of the framework I couch my analysis in, Distributed Morphology (DM). There are several aspects of DM which

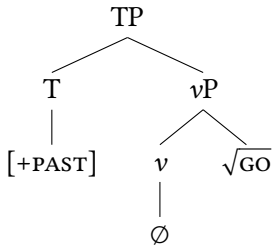
make it particularly opportune for capturing the phenomena I address in this paper, namely syntactically conditioned locality effects at the form interface.

First, DM is a piece-based approach to morphology. The pieces (syntactic atoms) include roots and functional heads. Syntactic categoryhood is a derived notion: Acategorial roots obtain their category in syntactic derivations with the obligatory addition of categorizers, *n*, *v* and *a* (for nouns, verbs, and adjectives).

DM is also a realizational framework. Words are built up syntactically out of abstract morphemes that receive form and meaning at the relevant interfaces. Focusing on form (with similar issues arising at the meaning interface, see Marantz 2013, Myler 2014, Wood 2023), this allows us to capture the fact that the form of one morpheme may be determined by the identity or morphosyntactic features of another morpheme in its environment.

For example, the root $\sqrt{\text{GO}}$ will have the form *went* if it is in the context of a [+past] Tense feature (6). Different allomorphs of a single morpheme are thought to be in competition with each other, regulated by the *Subset Principle* (also known as the *Elsewhere Condition*). Vocabulary Insertion (VI) lists such as (6b) are consulted starting with the most specific (i.e., most contextually restricted) Vocabulary Items. If the context for the insertion of the more specific allomorph(s) is not met, the elsewhere allomorph is inserted.

(6) a.



b. $\sqrt{\text{GO}}$ → went / [+past]
→ go / Elsewhere

Morphemes cannot influence each other's form across unbounded distances, however. One way in which these interactions have been argued to be constrained is cyclic spell-out. Spell-out (transfer to the interfaces) happens cyclically, at certain points of the derivation, with the categorizers (*v, n, a*) the relevant cyclic heads. The schema in (7) provides a description of the spell-out mechanism.

(7) Schematization of cyclic domains (Embick 2014):
   a. Cyclic *y* merged in [*y* [X [Y [*x* $\sqrt{\text{ROOT}}$ ...]]]
   b. Cyclic domain centered on *x* = [X [Y [*x* $\sqrt{\text{ROOT}}$]]] sent to interfaces

The intended outcomes of (7) are as follows: The root is accessible to the first cyclic head x and any non-cyclic heads (X, Y) in x's extended projection (as in *go–went* above). Furthermore, the root and the second cyclic head y are not visible to each other (qua morphemes) because they are in separate spell-out domains.

Embick (2014) furthermore notes that what is sent to the interfaces at one cycle is not inaccessible at the next cycle in its entirety. Specifically, while the root and cyclic x (along with any non-cyclic heads in x's extended projection) are spelled-out in the same cycle, only the complement of x (i.e., the root) becomes inaccessible at the cycle y is spelled out (8). On the other hand, x and any functional heads above it are still visible to y in the cycle y undergoes VI. We will see the effects of the Activity corollary in action in section 3.

(8) Activity corollary (Embick 2014):
In [[.... x] ... y], x and y cyclic, the complement of x is not active in the PF cycle in which y is spelled out.

Cyclic spell-out is thought to explain many patterns of (im)possible morphophonological interactions, including (im)possible allomorphy. A prominent early example discussed in Marantz 1997 is that of two kinds of nominals in English, what Chomsky 1970 calls derived nominals (9) versus gerundive nominals (10). There are a number of different exponents of n in English, as exemplified in (9). The different allomorphs are not interchangeable; the choice of n is based on the identity of the root it combines with. On the other hand, gerundive nominals show uniform nominal morphology across roots.

(9) marri-*age*, grow-*th*, remov-*al*, free-*dom*, divers-*ity*, strateg-*y*, ...

(10) marry-*ing*, grow-*ing*, remov-*ing*, free-*ing*, divers-ify-*ing*, strateg-iz-*ing*,...

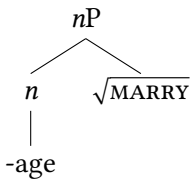
Why would this be? The elements in (9)/(10) are all nominal; they appear in clausal positions that are occupied only by nominals, and can be accompanied by nominal possessors (11)/(12). However, gerunds exhibit syntactico-semantic (and sometimes morphological) properties that suggest they contain some verbal structure. This includes the following properties: (i) gerunds have accusative objects, despite the fact that simple nouns in English require *of*-complements (e.g., *a student of physics*); (ii) gerunds are modified by adverbs, not adjectives; (iii) gerunds have an eventive interpretation, which has been associated with the presence of verbal structure; (iv) some gerunds include overt *v*s, for example *-ify* in *diversifying*.

(11) We were surprised by [their thorough diversity of opinions].

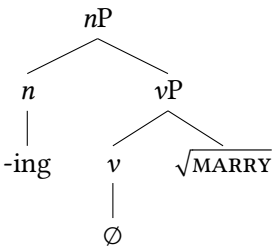
(12) We were surprised by [their diversifying their investments thoroughly].

Given all this, we may conclude that gerunds, but not derived nominals, contain verbal structure. I give a schematic structural representation of the two types of nominals in (13). The structural differences between the two can also explain the availability of root-conditioned *n*-allomorphy in (9) but not (10). Given the cyclicity schema in (7), the root is accessible when *n* undergoes spell-out in (13a) since it is the first-merged categorizer. The root is not accessible when *n* undergoes spellout in (13b) and therefore cannot influence the choice of *n*-allomorph in this configuration.

(13) a.



b.



Intervention by a categorial head has the same effect on allomorphy and accent placement in BCS, as I show in detail in the next section. The first (root-centered) spell-out domain includes the first categorizer and any functional heads in its extended projection, but not the second categorizer.

3 Constraints on allomorphy and accent placement in BCS

In this section, I report and build on data from Bešlin 2025, to appear demonstrating that BCS categorizers *a* and *n* are cyclic heads. Being cyclic heads, *a* and *n* impose locality boundaries for morpho-phonological processes. More specifically, I contrast the behavior of root-derived and deadjectival (agentive) nouns (14), showing that the presence of *a* in deadjectival nouns prevents *n* from participating in first-phase morphophonological processes: root-conditioned allomorphy and accent placement.[2]

[2] As we will see, accent placement in BCS is limited to the first spellout domain. This is a property of the phonological system of BCS (as well as e.g., Turkish and Cupeño, Newell 2008). Other languages may have their lexical stress 'recalculated' at every cycle within a phonological word (e.g., Armenian, Dolatian 2020 and Farsi, Amini 1997). There are different ways to implement the observed cross-linguistic variation depending on one's assumptions about the phonology. The implementation of this particular issue is irrelevant for my purposes here.

(14) a. [[ROOT] *n*] b. [[[ROOT] *a*] *n*]

I show that the intervention effect of *a* cannot be explained in simple (linear or structural) adjacency terms, by contrasting its behavior with the behavior of non-categorizers, including negation, comparatives, and roots in root-root nominal compounds. In section 4, I show that the 'deverbal' *-av(a)* agent nominals pattern with root-derived nouns and root-root nominal compounds, rather than with nouns whose derivation involves recategorization. This suggests that the structure inside *-av(a)* nouns is not verbal.

3.1 Allomorphy in root-derived versus deadjectival agent nominals

As illustrated in (15), the broadly agentive *n*-suffixes in BCS are at least *-telj, -ar, -aš, -er, -an, -a, -(a)c, -ač, -ic(a), -ik, -ist(a)* and *-džij(a)*. Root-derived nouns may take any of the *n*-allomorphs on offer; the choice of *n* is determined by the root (so-called 'lexically-conditioned allomorphy').

(15) a. uči-*telj* 'teacher' g. pis-*ac* 'writer'
b. kormil-*ar* 'helmsman' h. voz-*ač* 'driver'
c. batin-*aš* 'beater' i. izdaj-*ica* 'traitor'
d. poz-*er* 'poser' j. proza-*ik* 'prose writer'
e. blebet-*an* 'chatterbox' k. šah-*ista* 'chess player'
f. dangub-*a* 'loiterer' l. bureg-*džija* 'börek maker'

A root may determine the choice of *n* as in (15) only if *n* is the first-merged categorizer. If *a* intervenes between the root and *n* (ROOT-*a*-*n*), the root can no longer determine the form of *n* (16)-(19). Only *a* can now influence the form of *n*, which is uniform regardless of the root in question (either due to *a*-conditioned allomorphy or the application of the *Elsewhere principle*). This is fully in line with the view of cyclic domains presented in (7) and the Activity corollary in (8).

(16) a. prlj-*av*-*ac* 'dirty one' d. peg-*av*-*ac* 'freckled one'
b. mrš-*av*-*ac* 'skinny one' e. prg-*av*-*ac* 'grumpy one'
c. mut-*av*-*ac* 'mute one' f. hvalis-*av*-*ac* 'boastful one'

(17) a. plaš-*ljiv*-*ac* 'scared one' d. povod-*ljiv*-*ac* 'gullible one'
b. smrd-*ljiv*-*ac* 'stinky one' e. var-*ljiv*-*ac* 'cheating one'
c. grab-*ljiv*-*ac* 'predatory one' f. vaš-*ljiv*-*ac* 'lousy one'

(18) a. hajduk-*ov-ac* 'H. supporter'
b. dinam-*ov-ac* 'D. supporter'
c. maček-*ov-ac* 'M. follower'
d. sps-*ov-ac* 'SPS member'
e. nobel-*ov-ac* 'Nobel winner'
f. oskar-*ov-ac* 'Oscar winner'

(19) a. smrt-*n-ik* 'mortal one'
b. put-*n-ik* 'traveler'
c. boles-*n-ik* 'sick one'
d. bestid-*n-ik* 'shameless one'
e. duž-*n-ik* 'debtor'
f. gubit-*n-ik* 'loser'

The locality effect is best observed when the same root can produce both a root-derived noun and a deadjectival noun, as in (20); cf. **gubit-n-aš*, **gubit-ik*. The two nouns in (20) share the same root and have the same meaning, yet they contain different exponents of *n* due to the presence of *a* in (20b).

(20) a. gubit-*aš*
lose-N
'loser'
b. gubit-*n-ik*
lose-A-N
'loser'

In other words, even though the root √*gubit* clearly picks out the nominalizer *-aš*, it can no longer do so if an adjectivizer intervenes between the two. This can be accounted for if BCS *a* and *n* are cyclic heads. In a [[[ROOT] *a*] *n*] configuration, the root and *n* are in separate spellout domains, hence the root (*qua* morpheme) can no longer be identified when *n* undergoes VI and can therefore not influence the choice of *n*-allomorph.

3.2 Accent placement in root-derived vs. deadjectival agent nominals

Exponents of BCS morphemes are idiosyncratically marked or unmarked for accent, the phonetic correlate of which is pitch prominence (Inkelas & Zec 1988).[3] Bešlin 2025 shows that there are constraints on the realization of accent in polymorphemic words. Specifically, accent in BCS is realized on the structurally highest underlyingly accent-marked element in the first spellout domain, where the first spellout domain is understood as in (7). For example, the nominalizer *-(á)c* is underlyingly accent-marked, but it only realizes that accent if it is in the configuration [[ROOT] *n*] (21), and not, for example, in [[[ROOT] *a*] *n*] (22). I mark the position of the accent with an acute symbol throughout (á).

[3] See Bešlin 2025:177-8 for a discussion of the terms *accent*, *stress*, and *morphological tone*.

(21) a. pis → pis-ác
$\sqrt{write}$ 'writer'

b. alžír → alžir-ác
$\sqrt{algeria}$ 'Algerian(N)'

(22) a. pŕlj-av → pŕlj-av-ac
'dirty' 'dirty one'

b. smrd-ljív → smrd-ljív-ac
'stinky' 'stinky one'

Also in accordance with the cyclicity schema in (7), if the extended projection of the first categorizer contains non-cyclic heads and their exponents are accented, the accent surfaces on (the structurally highest one of) them. These non-cyclic heads include, for example, comparative and superlative degree for adjectives, diminutive for nouns, and negation for both nouns and adjectives. A particularly revealing example is that of adjectives whose derivation includes all of the above-mentioned elements. Illustrating with *slan* 'salty' (23a), notice that the accent surfaces on the exponent of *a*, but it shifts to the structurally higher negation in the negated form in (23b). The shift occurs again with the addition of the comparative morpheme (23c) and the superlative (23d), which is built overtly on the comparative. The structure of (23) is given in (24). Notice also that the accent repeatedly shifts to the structurally higher (underlyingly accented) element regardless of that element's status as a prefix or suffix, that is, independently of its linear position to the left or right of the root.

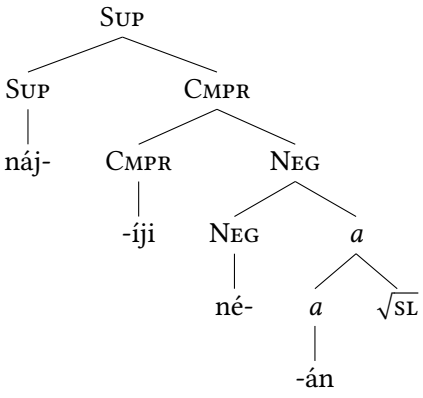
(23) a. sl-án
salt-A
'salty'

b. né-sl-an
NEG-salt-A
'unsalty'

c. ne-sl-an-íji
NEG-cold-A-CMPR
'unsaltier'

d. náj-ne-sl-an-iji
SUP-NEG-salt-A-CMPR
'most unsalty'

(24)



It is possible for some syntactic composition to occur before categorization takes place. Of specific interest here are root-root (nominal) compounds (25). Root-root compounds in BCS frequently involve visibly bound roots which cannot appear as words independently. For example, neither *dub* 'deep' nor *rez* 'cut' in (25a) can be used without the addition of overt categorizers or other elements. Root-root compounds also include a L(inker) and contain one accent. They behave as expected under the cyclicity schema in (7): Since the roots are merged before any categorization takes place, the accent placement is still 'frozen' only in the spellout domain of the first categorizer. In other words, the accent can still surface on *n* if *n* is overt and has an underlying accent (25) or on a suffix in *n*'s extended projection, as illustrated with the diminutive suffix in (26a); cf. the accent in the base form (26b).[4] In contrast, compounds that involve two categorized elements (e.g., two nouns) are not connected via a L(inker) and each element has an accent of its own (27). The behavior of root-root compounds will become important immediately in the following section; we will see that 'deverbal' agent nominals in BCS behave for the purposes of accent placement exactly like root-root nominal compounds.

(25) a. dub-o-rez-ác
deep-L-cut-N
'woodcarver'

b. pad-o-bran-ác
fall-L-defend-N
'parachuter'

(26) a. pad-o-bran-čić
fall-L-defend-DIM
'little parachute'

b. pád-o-bran-∅
fall-L-defend-N
'parachute'

(27) a. nadžák bába
pickaxe.N grandma.N
'belligerent person'

b. rák rána
cancer.N wound.N
'sore subject'

In this section, I showed that root-conditioned allomorphy and accent placement in BCS are limited to the first spellout domain, which includes exactly one

[4] I do not specify the exact structure of these root-root compounds, since it is irrelevant for our purposes. For example, I do not take a stance on whether the L(inker) is present in the syntax of these compounds, which would then presumably involve an asymmetric, conjunction-type structure, or whether the L is perhaps a dissociated morpheme, with the roots then merged directly, as argued for some compounds in Chinese (Zhang 2007), Ojibwe (Newell & Piggott 2014), and Dutch (De Belder 2017). What is important is only that these roots are combined before any categorization takes place.

categorizer. In the following section, we will see that BCS 'deverbal' agent nominals pattern with respect to these phenomena as though they only contain one categorizer (namely, *n*). This will lead me to argue that the 'verbal' elements inside these nominals are not verbal after all.

4 Back to 'deverbal' agent nominals

As I showed in section 1, there are different *n*-allomorphs in 'deverbal' agent nominals (28)-(30). The material intervening between the root and *n* in these nominals is the same: *-av* and the theme vowel *-a*. There are no syntactic differences that correlate with the presence of different *n*s (e.g., differences in argument structure). There are also no discernible semantic or phonological factors that condition the allomorphy on *n*. I therefore conclude that the *n*-allomorphs in (28)-(30) are conditioned by the identity of the respective roots (what is sometimes called 'lexically-conditioned allomrphy'). This is very surprising if the material intervening between the root and *n* is verbal. Given the cyclicity schema in (7) and what we have seen with root-derived versus deadjectival nouns in BCS, root-conditioned allomorphy is restricted to the spellout domain of the first-merged categorizer.

(28) a. prouč-av-á-telj
study-AV-TH-N
'researcher'

b. pozn-av-á-telj
know-AV-TH-N
'expert'

c. reš-av-á-telj
solve-AV-TH-N
'solver'

(29) a. predsed-av-a-áč
chair-AV-TH-N
'chair'

b. pred-av-a-áč
lecture-AV-TH-N
'lecturer'

c. ugnjet-av-a-áč
oppress-AV-TH-N
'oppressor'

(30) a. prod-av-a-ác
sell-AV-TH-N
'seller'

b. dar-o-d-av-a-ác
gift-L-give-AV-TH-N
'giftgiver'

c. posl-o-d-av-a-ác
job-L-give-AV-TH-N
'employer'

Furthermore, as also shown in (28)-(30), accent in these 'deverbal' agent nominals can surface on the *n*-exponents that underlyingly have it (*-áč* and *-ác*). Recall, accent can only surface in the first spellout domain, which includes one categorizer. Hence, not only allomorphy but also accent placement patterns suggest that the *n* in BCS 'deverbal' agent nominals is the first-merged categorizer. A corollary of this conclusion is that the 'verbal' morphology inside these nominals is not verbal at all.

4.1 The morpheme AV

As we have seen, the morpheme AV, exponed most frequently as *-av* or *-iv*, appears productively in so-called secondary imperfective verbs and signals a shift in aspect (44b)-(32).

(31) a. prouč-i-ti
study-TH-INF
'research'

b. prouč-av-a-ti
study-AV-TH-INF
'be researching'

(32) a. zatašk-a-ti
cover_up-TH-INF
'cover up'

b. zatašk-iv-a-ti
cover_up-IV-TH-INF
'be covering up'

The morpheme is also found on *some* agent nominals (33), though not all (34): The nominals in (33) appear to be related to the atelic/imperfective verbs in (31b)/(32b), while those in (34) appear to be related to the telic/perfective verb in the aspectual pair (35).

(33) a. prouč-av-a-telj
study-AV-TH-N
'researcher'

b. zatašk-iv-a-ač
coverup-IV-TH-N
'cover up agent'

(34) a. uruč-i-telj
serve-TH-N
'process server'

b. istovar-a-ač
unload-TH-N
'unloader'

(35) a. uruč-i-ti
serve--IV-TH-INF
'serve'

b. uruč-iv-a-ti
unload--IV-TH-INF
'be serving'

When present, the morpheme AV is in the same position as on verbs, namely immediately adjacent to the root. However, there are a number of reasons why associating this morpheme with aspectual features is problematic. First, nominals with or without the morpheme AV do not denote agents of aspectually different kinds of events. Specifically, the nominals in (33) do not necessarily denote agents of atelic/imperfective events, nor do the nominals in (34) necessarily denote agents of telic/perfective events.

Although most agent nominals are deterministic in terms of whether they AV (33) or not (34), there are also a few cases where the agent nominal can be derived

with or without the morpheme, with no apparent difference in meaning (36). Crucially for us here, there are no aspectual differences in the meanings of the two nominals, as would be expected if AV was an aspectual morpheme.

(36) a. ponud^{j}-i-ač
offer-TH-N
'contractor'

b. ponud^{j}-iv-a-ač
offer-IV-TH-N
'contractor

Moreover, the morpheme AV can appear in the context of so-called verbs of creation (38). As noted in Embick 2004, verbs of creation (*build*, *make*, *create*...) are incompatible with predicates whose meaning involves event entailments, as shown by the contrast in (37); see also Kratzer 2000 for a similar point. Specifically, the resultative participle *opened* denotes a result state of a prior event, and this eventive semantics clashes with the verb of creation. The purely stative *open* shows no such clash.

(37) This door was built open/*opened.

Importantly for our purposes, BCS participles which include the morpheme AV can readily appear in the context of a verb of creation. In (38), the creation of the model is achieved with a 3D printer, so the observable state of being destroyed or crumpled does not necessitate an event of destroying/crumpling. The participle is denotes a simple state and involves no event entailments. If the morpheme AV were an aspectual morpheme, its denotation would necessarily involve event modification (regardless of the precise role of aspect, given different theories). Given that there is no clash with verbs of creation, we see that the morpheme AV appears in contexts where it clearly does not contribute an aspectual meaning component.[5]

(38) 3D štampač je pokvaren pa je maketa izašla
3D printer is broken so is model came_out
iz-u-ništ-av-a-n-a / is-pre-sav-ij-a-n-a.
SP-LP-destroy-AV-TH-PTCP-F.SG SP-LP-bend-IJ-TH-PTCP-F.SG
'The 3D printer is broken so the model came out destroyed/crumpled.'

[5]See also Tatevosov 2015 for an argument that, even in the verbal domain, the morpheme AV(a) is not associated with the high functional head Asp, but with a lower head in the spine of the tree. The value of Asp on verbs correlates with the presence or absence of this morpheme, but Asp itself is argued to be phonologically null.

If AV is not an aspectual morpheme, what is it then? Quaglia et al. 2022 point out that *-av* and *-iv* do not only appear in the derivation of verbs, but also in the derivation of seemingly simple nouns and adjectives. Based on this, they argue that AV is a (bound) root.

(39) a. ruk-av-∅
arm-AV-N.M.SG.NOM
'sleeve'

b. bles-av-∅
silly-AV-A.M.SG.NOM
'silly'

c. maz-iv-o
daub-IV-N.NEUT.SG.NOM
'grease'

d. jez-iv-o
shudder-IV-A.NEUT.SG.NOM
'creepy'

Recall I have also shown that AV-containing agent nominals behave exactly the same as root-root nominal compounds for purposes of allomorphy and accent placement. Specifically, the exponent of *n* in both types of nouns behaves as though it is the first categorizer. I therefore tentatively conclude with Quaglia et al. 2022 that AV is a root.

4.2 Theme vowels

As I mentioned in section 1, the agent nominals discussed in this paper have the same theme vowels as the corresponding verbs derived from the same stems (40)-(41). On verbs, theme vowels have been argued to be exponents of *v* (Svenonius 2004a, Caha & Ziková 2016, Biskup 2019, Milosavljević & Arsenijević 2022, Bešlin 2023). All else equal, the theme vowels on agent nominals should then also be treated as verbal.

(40) a. uruč-i-ti
serve--IV-TH-INF
'serve'

b. uruč-i-telj
serve-TH-N
'process server'

(41) a. osigura-av-a-ti
secure-IV-TH-INF
'be securing'

b. osigur-av-a-telj
secure-IV-TH-N
'insurer'

However, Slavic nouns have also been argued to have theme vowels (Halle 1994, Bailyn & Nevins 2008, Halle & Nevins 2009, a.o.) and Slavic adjectives have been claimed to share the theme vowels of nouns (Halle & Matushansky 2006).[6] If

[6]As was the case with some agent nominals, themes are deleted on the surface if they are followed directly by a vowel-initial suffix. This is a regular hiatus resolution strategy in Slavic.

all major word classes in BCS have themes (as proposed for Russian in Halle 1994), themes could then equally well be attributed to roots, as in (42), with contextual allomorphy able to work in the familiar way predicted by the cyclicity schema in (7) and the activity corollary in (8). For instance, the theme vowels in (43) could all be due the root $\sqrt{\text{ŽEN}}$, the surface allomorph of the theme then being conditioned by the element that selects the root+theme combination (i.e., the first categorizer or another root).

(42) a. ROOT-TH-*n*
b. ROOT-TH-*v*
c. ROOT-TH-*a*
d. ROOT-TH-ROOT

(43) a. žen-a-∅-ma
woman-TH-N-DAT.SG
'to the women'
b. žen-i-∅-ti
woman-TH-V-INF
'marry a woman'
c. žen-∅-in
woman-TH-A.POSS
'woman's'
d. žen-o-mrz-∅-ac
woman-TH-hate-TH-N
'woman-hater'

The surface form of the theme may also be determined by the root it attaches to; this would need to be the case for AV, which always conditions the theme *-a*, regardless of the categorizer that follows. If this approach turns out to be correct, then the presence of a theme vowel in AV-containing agent nominals does not necessarily indicate the presence of a verbal categorizing morpheme. Instead, it provides further evidence that AV is a root, which conditions the appearance of a theme vowel like other roots.

4.3 Lexical prefixes

There is a well-established tradition in generative linguistics of treating so-called 'lexical prefixes' on verbs as proprietary to the verbal extended projection, where they are usually argued to contribute a result component (e.g., Svenonius 2004b, Arsenijević 2006, Ramchand 2008, a.o.). In addition to having this aspectual component, lexical prefixes change the meaning of the root/stem they attach to in a way that is not predictable from the meaning of the prefix and the meaning of the root (44a-b).[7] In (44c), I provide the agent nominal based on the stem *prouč-*; while the lexical meaning component of the prefix is retained, there is no discernible result aspect to this nominal.

[7]The prefix *pro-* has no discernible meaning of its own in the synchronic grammar of BCS.

(44) a. uč-i-ti
learn-TH-INF
'be learning'

b. pro-uč-i-ti
LP-learn-TH-INF
'examine (smth)'

c. pro-uč-av-a-telj
LP-learn-AV-TH-N
'researcher'

There are two main questions that arise in the domain of lexical prefixes on nouns, in my view. First, is the prefix, if it is an independent morpheme, necessarily verbal? These prefixes are pervasive in the nominal domain, for example, (45). A verbal treatment of lexical prefixes would require us to treat all of those nouns as deverbal, with no other evidence that this is the case.

(45) a. na-uč-i-ti
LP-learn-TH-INF
'learn'

b. na-uk-a
LP-learn-N.NOM.SG
'science'

c. na-uk-∅
LP-learn-N.NOM.SG
'lesson'

The second question, which has received surprisingly little attention given the pervasive decomposition of stems with lexical prefixes in the literature, is whether the composition is always or ever synchronic and whether it is computed by the grammar. Kazanina 2011 looked at the decomposition of prefixed words in Russian by doing a series of masked priming experiments, in which she found facilitation both when the prime and the target were (assumed to be) morphologically related (e.g., *rost* 'growth' vs. *na-rost* 'outgrowth') or only apparently morphologically related (e.g., *ton* 'tone' vs. *priton* 'den'). She concludes that "all orthographic forms that can be exhaustively parsed into a prefix and a stem are decomposed into (apparent) constituent morphemes during their retrieval from the lexicon." This process is unlikely to be driven by the grammar and the results may provide initial evidence that the grammar does not segment lexical prefixes from the roots they seemingly attach to.

A different kind of priming study has been used most extensively on Semitic languages, which have non-concatenative (templatic) morphological systems. The aim in these studies has been to understand whether roots–which never appear as a unit but are always found inside categorizing templates–are treated by the morphosyntax as separate from those templates (see the early work of Frost et al. 1997 ; Berrebi et al. 2023 for an overview). The single most robust experimental result in this literature is what is referred to as 'root priming': When a prime and a target share the same root, participants are faster at identifying the target as a real word compared to a control, where the overlap in form is purely ortographic.

To exemplify how this would work in the case of BCS prefixes, if the forms in (46) share a root, we would expect faster word recognition in (46a-b) than in (47a-b), which do not share a root but whose ortographic forms overlap in the same number of letters.

(46) a. d-a-ti
give-TH-INF
'give'

b. pro-d-a-ti
LP-give-TH-INF
'sell'

(47) a. vin-a
wine-NOM.PL
'wines'

b. osovin-a
axis-NOM.SG
'axis'

To conclude the discussion of lexical prefixes, let me spell out what should be obvious from some of the examples seen throughout this paper: Nouns with lexical prefixes do not behave like re-categorized (deverbal) nouns for purposes of the morpho-phonology. Root-conditioned allomorphy and accent realization are available to *n* freely in nouns that contain lexical prefixes, suggesting that these prefixes are not verbal.

4.4 Syntactic evidence?

I only briefly note here that there is no syntactic (i.e., distributional) evidence that AV-containing agent nominals have verbal structure. For example, if AV corresponds to the (grammatical) Asp(ect) head, we may expect agent nominals that contain it to be able to have accusative complements like their corresponding verbs, contrary to fact (48a). In reality, agent nominals in BCS can only have genitive-marked arguments, which is true of BCS nouns more generally (48b)

The accusative case expectation comes from two widespread assumptions: (i) that the aspectual domain is above the argument structure domain, and (ii) that the argument structure domain includes VoiceP, which is associated with accusative-case licensing. In a monotonic fashion, we then expect structures that include Asp to also include Voice (49).

(48) a. prod-av-a-ac (cipel-a /*cipel-e)
sell-AV-TH-N shoe-GEN.PL shoe-ACC.PL
'shoe seller'

b. ugao (ulic-e /*ulic-u)
corner street-GEN.SG street-ACC.SG
'street corner'

(49) [... Asp [... Voice ...]]

If AV does not correspond to Asp but to another head in the verbal extended projection, then the expectation would be different. For example, Tatevosov 2015

argues that AV is very low in the verbal spine and that it is an 'eventizer', an element that takes as its argument a telic predicate and makes it atelic. However, as I have noted, there seems to be no correlation between the presence/absence of AV and the interpretation of the agent as an agent of an atelic or telic event.

It is unclear what the expectation is if the agent nominals I discuss contain only *v* and some very low, non-categorizing verbal prefixes which have no clear effects on the distribution of the expression they are found in. If these nominals contain *v*, we may expect this to correlate with the obligatory presence of a (genitive-marked) internal argument, in cases where the corresponding verbs are transitive. However, as seen in (48a), the internal argument is optional. I therefore conclude that there is no compelling distributional evidence that these agent nominals contain any verbal structure.

4.5 Event/agent entailments ≠ verbal syntactic structure

In this section, I address the worry that the agent nominals discussed in this paper may not be root-derived because they trigger event and/or agent entailments. I argue against a strand of research that associates the existence of event and/or agent entailments with the obligatory presence of verbal syntactic structure.

In earlier generative work on this topic, eventive (episodic) interpretations with agent nominals were taken to correlate perfectly with the presence of complement structure (see Alexiadou 2001). For example, *frequent* in (50a) was argued to trigger an episodic interpretation of the agent nominal, in turn making the complement obligatory to the same extent as for the corresponding verb *consume*. These kinds of examples were convincing because they seemed to involve both syntactic and semantic evidence for the presence of verbal structure. However, it is not difficult to come up with examples where episodic interpretations do not correspond to obligatory complement structure (50b); contrast this with *She frequently visited *(this region)*. Moreover, the noun in (50c) has an obligatory complement despite not being derived from an existing verb. This immediately puts into question the solidity of the original argument that these are valid diagnostics for the presence of verbal structure.

(50) a. a frequent consumer *(of tobacco)
b. a frequent visitor (of this region)
c. a frequent subject *(of Monet's paintings)

More radically, Alexiadou & Schäfer 2010 extend the deverbal analysis to dispositional agent nominals, which are not eventive; they denote entities which

are designated for some specific job or function but which do not have to be actually been involved in such a job or function. Some examples are given in (51). Alexiadou & Schäfer argue that even dispositional nominals have an articulated verbal structure, including *v*, Voice, and Asp.

(51) a. fire-fighter
b. teacher
c. basketball player

This analysis raises a series of questions. Firstly, if these nominals contain rich verbal structure, why do they never have accusative-marked complements or adverbial modifiers (like gerunds)? The analysis is then completely divorced from any syntactic facts and is meant to account for the agent and/or event entailment patterns associated with these nominals. Relying on entailments to diagnose syntactic structure is a slippery slope, however. To give a couple of specific examples, it has sometimes been argued that the ambiguity of (52a), in particular the reading which allows the dancing to be characterized as beautiful, suggests that *dancer* is derived from the corresponding verb *dance*. Note, however, that the same ambiguity obtains in (52b-c), yet those nouns have no corresponding verbs to be derived from.

(52) a. a beautiful dancer
b. a beautiful violinist
c. an elegant midfielder

A similar point pertains to (53): One can be *a just ruler* by virtue of being just in their ruling capacity (53a), where *just* then seemingly modifies the event of ruling. However, if this is taken as evidence that *ruler* contains verbal structure, then the same must be said for *king* in (53b): One can be just in their capacity as king without necessarily being a just person. While I am not saying that analyzing *king* as a deverbal noun is obviously wrong, it is important to point out the logical endpoint of taking entailments as evidence for syntactic structure, especially in cases where such an analysis is likely less convincing for most.

(53) a. a just ruler
b. a just king

All of this is, of course, part of a broader point: Entailments do not necessarily reveal the presence of hidden structure. Take (54) and the various entailments it

licenses. For example, the truth of the statement that the child is blond can only be evaluated in virtue of the child having hair. However, this does not compel us to claim that (54) contains a hidden 'hair' argument that projects syntactic structure. A similar point can be made for the modifier illegitimate in (54). The agent nominal cases should be no different in this respect, as far as I can see.

(54) an illegitimate blond child

The takeaway from this discussion is the following: In the absence of clear syntactic evidence, we should consider more carefully what kinds of semantic arguments are valid for diagnosing the presence of syntactic structure. For example, while scope facts are a reliable semantic cue for the presence of syntactic asymmetries, entailment patterns are less convincingly so (see Williams 2015 for an extended argument to this effect). Hence, I do not take agent/event entailments as knock-down arguments that the agent nominals considered in this paper must contain verbal structure, especially since there is clear morpho-phonological evidence to the contrary.

5 Conclusion

Based on morpho-phonological evidence from BCS agent nominals, I have argued that elements which are traditionally analyzed as verbal in Slavic ('verbal' theme vowels, secondary imperfectivizers, lexical prefixes) are not verbal at all.

Illustrating with data from root-derived versus deadjectival agent nominals, I first showed that root-conditioned allomorphy and accent placement in BCS are limited to the first spell-out domain. The first spell-out domain may include multiple morphemes (roots, non-categorizing morphemes), but only one categorizer.

I then showed that 'deverbal' agentive nouns containing morphology analyzed as verbal behave for these morpho-phonological processes like root-derived nouns (or root-root compounds). Moreover, in addition to there being no syntactic evidence for verbal structure in these agentive nouns, I argued that event/agent entailments do not provide evidence for such structure either. Finally, I provided an alternative analysis for the identity of the 'verbal' morphemes in question. I argued that (a) the 'secondary imperfectivizer' AV should instead be analyzed as a root, (b) theme vowels are morphemes which attach to roots in Slavic more generally and do not signal the presence of any specific categorial structure, and (c) there are serious reasons to doubt that 'lexical prefixes' are part of the verbal extended projection, and experimental work is needed to determine if they are even synchronically separable from the roots they attach to.

Abbreviations

3	third person	N	noun
ACC	accusative	NEG	negation
A	adjective	NEUT	neuter
DAT	dative	NOM	nominative
DIM	diminutive	POSS	possessive
GEN	genitive	PTCP	participle
INF	infinitive	PL	plural
L	linker	SG	singular
LP	lexical prefix	SUP	superlative
M	masculine	TH	theme vowel

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