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Aspectual Architecture of the Slavic Verb and Its Nominal Analogies

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Abstract

It has been argued that there are analogies between the nominal domain and the verbal domain in natural languages. Most approaches dealing with these analogies in Slavic languages investigate them from the semantic and aspectual points of view. In contrast to them, this article focuses on morphosyntactic parallels. It investigates all five aspectual markers of verbal predicates: prefixes, the secondary imperfective, the semelfactive morpheme, the iterative *-a* and the habitual suffix. The analysis follows the Distributed Morphology framework. This article addresses the question of which morphosyntactic correspondences these aspectual markers have in the nominal domain. It is argued that the iterative secondary imperfective is a parallel of the nominal number projection and that the habitual morpheme in North Slavic languages is the counterpart of the nominal determiner. Verbal prefixes are analogous to nominal classifiers, and in addition, lexical prefixes parallel the nominal complement, and superlexical prefixes correspond to adjectival modifiers of the nominal domain. The internal iterative *-a*, as a spell-out of the verbal categorizing head, is analogous to the categorizing head of nouns. Thus, it is argued that Slavic also has event-internal and event-external pluractional markers. The semelfactive morpheme parallels the singulative (diminutive) marker of the nominal domain, and we argue that these markers adjoin to the root before the categorizing head. This argues against the standard claim that semelfactives are derived from iteratives (multiplicatives).

Keywords: aspect; verb-noun analogies; secondary imperfective; habituals; prefix; pluractionals; semelfactive; morphosyntax; Slavic

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1. Introduction

Many researchers argue that there are correspondences between the nominal and the verbal domains in natural languages (e.g., see Vendler, 1957; Bach, 1986; Langacker, 1987; Krifka, 1989, 1992; Filip, 1993a, 2000; Verkuyl, 1993; Jackendoff, 1996; Mehlig, 1996; Borer, 2005; Nakanishi, 2007; Kratzer, 2008; den Dikken, 2010; Dickey & Janda, 2015; Kuhn, 2019 and Simonović, 2022).

Most works approach these analogies from the semantic and aspectual perspectives, and the correspondences concern, for example, the mass-count distinction (Bach, 1986), the property of being quantized versus non-quantized (Krifka, 1992; Filip, 2000), homogeneity versus heterogeneity (e.g., Mehlig, 1996) and plurality introduced by pluractionals, collective nouns or distributive numerals (Henderson, 2017; Kuhn, 2019). On one side, there are properties such as being quantized, singular, perfective, heterogeneous and being a particular entity, and on the other side, there are properties such as being non-quantized, (bare) plural, imperfective, cumulative, homogeneous and being a kind of entity.

There are also correspondences in the realm of morphophonology; e.g., consider Simonović (2022), who discusses two Slovenian derivational affixes, *-av* and *-ov*, used both in verbal and nominal forms. From a syntactic point of view, it has been argued that there are correspondences between the nominal and verbal domains, e.g., with respect to measure phrase constructions (Nakanishi, 2007), the absence of the singular feature (Kratzer, 2008) and case and verbal aspect or prefixation (Szucsich, 2001, 2002; Biskup, 2019) or with respect to extended projections (den Dikken, 2010).

As for Slavic languages in particular, Mehlig (1996) draws parallels between the nominal and verbal domains in Russian with respect to homogeneity/heterogeneity and argues that the semelfactive aktionsart of verbs corresponds to the singulative form of mass nouns and that the delimitative aktionsart parallels the nominal partitive genitive. Similarly, Filip (2001) investigates parallels in semantic structure between noun phrases and verbal predicates in Russian, Polish and Czech and demonstrates how a nominal argument as an incremental theme interacts with the aspectual semantics of verbal predicates. According to Borer (2005), there is an operator–variable relation between Slavic perfective prefixes and nominal arguments, and the prefixes assign range to the nominal phrase occupying the specifier position of the aspectual phrase.

As to the typological perspective, Dickey and Janda (2015) argue that Slavic verbal prefixes parallel numeral classifiers that occur with nouns, e.g., in languages in East and Southeast Asia, in the fact that they bring about individuation. While numeral classifiers create a discrete referent out of a source noun, verbal prefixes individuate and classify events in the verbal domain.

In contrast to most approaches, which deal with analogies in Slavic languages from the semantic and aspectual points of view or restrict themselves to a specific type of aspectual marker, this article is concerned with the morphosyntactic structure of Slavic verbs. It tries to "push" the correspondences between the nominal and the verbal domains as far as possible and concentrates on aspectual affixes of verbal stems. It investigates the secondary imperfective suffix, as in (1a), the habitual marker, as in (1b), and the iterative morpheme, as illustrated in (1c).

(1) a. o-mdl-e-wa-ć (Polish)
about-faint-TH-SI-INF
'to faint'

b. děl-á-va-t (Czech)
do-TH-HAB-INF
'to tend to do'

c. mig-a-ti (BCMS)
blink-ITER-INF
'to blink'

Further, it is concerned with the semelfactive suffix, as in (2a), and prefixes: lexical, as shown by the spatial *vy-* in (2b), and superlexical, as demonstrated by the delimitative *po-* in (2c).

(2) a. kop-n-ú-ť (Slovak)
kick-SEML-TH-INF
'to kick once'
b. vy-nes-ti (Russian)
out-carry-INF
'to carry out sth.'
c. po-govor-i-ť (Russian)
DEL-speak-TH-INF
'to speak for a while'

To the best of my knowledge, there has been no attempt in the literature on Slavic languages to investigate morphosyntactic analogies between all verbal aspectual markers and the nominal domain. The article argues that the secondary imperfective suffix with an iterative meaning parallels the nominal number projection and that the habitual suffix is the counterpart of the nominal determiner. The internal iterative *-a* is analyzed as a realization of the verbal categorizing head, hence it is analogous to the categorizing head of nouns. The semelfactive marker is a parallel of the singulative (or diminutive) affix of the nominal domain. Verbal prefixes correspond to nominal classifiers. Moreover, superlexical prefixes parallel adjectival modifiers of nouns, and lexical prefixes can be viewed as the counterpart of the nominal complement. This proposal follows the Distributed Morphology framework (see e.g., Halle & Marantz, 1993; Harley & Noyer, 1999).

The proposal is meant to hold for all Slavic languages, albeit with certain variations. Specifically, in contrast to Czech and Slovak, which have dedicated habitual markers for the realization of the habitual head, other Slavic languages use either a null marker or license the habitual projection at a distance (see Biskup, 2024; Klimek-Jankowska et al., 2025; Biskup, To appear). Even if all Slavic languages have a dedicated marker for a particular verbal head, the languages can differ in the phonological form of the specific marker(s). Thus, while all Slavic languages employ the semelfactive (diminutive) suffix *-n* and the vowel *-a* for spelling out the verbalizing head *v* with the iterative meaning, verbal prefixes and secondary imperfective suffixes are different to a certain extent.

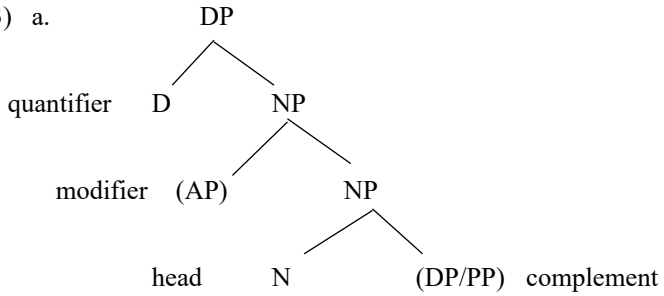
Since the Slavic aspect system is very specific (see Dahl, 1985, for the "Slavic-style" aspect)—featuring both lexical and viewpoint aspect—the analysis proposed in this article cannot be applied to non-Slavic languages in its entirety. Certain parts of the analysis, however, can be applied to non-Slavic languages. For instance, given that Germanic languages also have a difference between resultative and aspectual prefixes/particles, the part of the current analysis on nominal complements and adjectival modifiers could be applied to them (see Stiebels, 1996; Svenonius, 2004; Gehrke, 2008; Ramchand, 2008; Biskup & Putnam, 2012 and McIntyre, 2015). This and classifier analysis of verbal prefixes find parallels in East Asian and Southeast Asian languages since certain classifiers of Mandarin, Cantonese and Thai fulfill a function in both the nominal and verbal domains and the classifier phrase is selected by the appropriate verb (e.g., see Matthews & Leung, 2004, and Dickey & Janda, 2015).

The remainder of the article is structured as follows. The next section is concerned with properties of the nominal domain. Section 3 discusses morphosyntactic properties of Slavic predicates and introduces five aspectual markers of the verbal domain. The core of the article can be found in Section 4. It aims to find correspondences of the verbal aspectual affixes in the nominal domain. Section 5 concludes the article.

2. The Nominal Domain

Given Abney's (1987) DP hypothesis, the traditional analysis of noun phrases looks like (3a). The head noun represents a property that is predicated of an individual variable, e.g., the property of being a student: STUDENT(x), as in (3b). Nouns optionally have a modifier, AP, which adds another predicate, e.g., OLD(X), as shown in (3b). According to the standard analysis (Barwise & Cooper, 1981), the head D is a quantifier—e.g., represented by *all*, *a*, as in (3b)—which expresses the relation between its restrictor, (OLD) STUDENT, and its nucleus. D is also usually assumed for Slavic languages, which are mostly articleless; e.g., see Franks (1995), Progovac (1998), Rutkowski (2002), Pereltsvaig (2007), Bailyn (2012), Veselovská (1998, 2014), Šimík (2016) and Geist (2021).

(3) a.



b. an (old) student

Nouns can also have a complement DP or PP, as in *a student of architecture*, which introduces an entity different from the individual of the dominating DP (except anaphoric expressions).

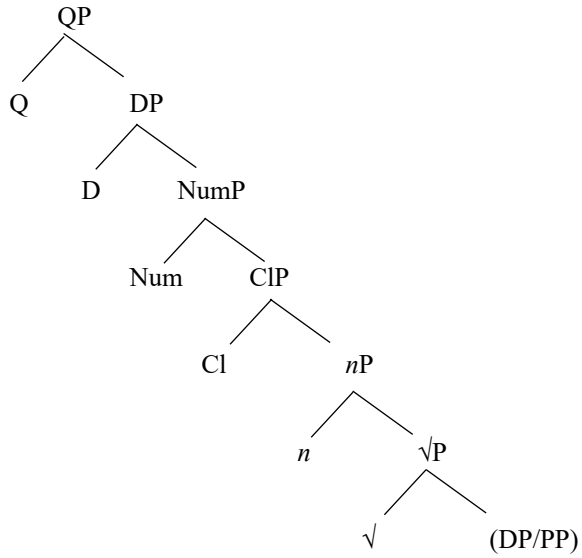
Nowadays, the extended projection of nouns is more articulated. In the Distributed Morphology approach, the head N is replaced with the root $\sqrt{}$ and the category-defining head *n* (e.g., Harley, 2005). Certain approaches assume an articulated structure for modifiers; e.g., consider the cartographic approach of Cinque (2010), in which DP-internal adjectives are generated in rigidly ordered functional projections.

It has been argued that number is realized as the head of a functional category NumP in nominal phrases (e.g., see Ritter, 1993; Wiltschko, 2021 and Corbett, 2000 for an overview of number exponents). Some researchers assume that there are, in fact, two distinct projections for quantifying elements. According to Kratzer (2008), in addition to lexical cumulativity (pluralization), there is a plural projection above the noun (NP) and a higher plural projection above DP. Similarly, Veselovská (2018), following Skrabalova (2004), postulates two quantifying phrases for Czech: NumP, positioned above *n*P, and QP, placed above DP. Moreover, Wiltschko (2008) proposes that in some languages, the plural marker can be a modifier that attaches directly to the root.

Since classifiers individuate and produce forms that serve as an input to counting or measuring, they are usually assumed to occur in a projection between *n*P and NumP (e.g., Zhang, 2013; Wiltschko, 2021), which is labeled, for example, as Cl(assifier)P, UnitP or DivP.

Gender is an inherent property of nouns, hence it is often treated as a property of the nominal head N or the category-defining *n* (e.g., see Kramer (2015); furthermore, there are also approaches assuming another, higher gender projection, such as Puškar's (2017) analysis of hybrid agreement in Bosnian/Croatian/Serbian). Simplifying somewhat and abstracting away from the specifics of particular approaches, the extended projection of nominal phrases looks like (4).

(4)



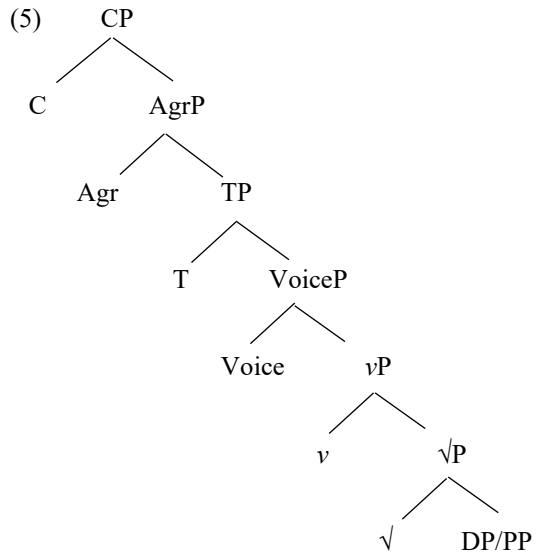
Having introduced basic properties of the extended projection of nominals, let us now move to the verbal domain.

3. The Verbal Domain

The (more or less) standard analysis of the extended projection of a transitive verb is depicted in (5); e.g., see Corver (2013) and Harley (2013). The internal argument (direct object) occurs in the complement position of the root. Mostly, it is a noun or a prepositional phrase but it can also be a result phrase (Ramchand, 2008), in which Slavic lexical prefixes are assumed to merge. The root is verbalized by the little *v* head (Marantz, 1997). The external argument—typically, the subject with the agent theta role (not shown in (5))—is introduced in the specifier position of the voice phrase (VoiceP, e.g., Harley, 2005). The tense projection specifies tense properties of the predicate and the agreement projection encodes verbal agreement properties. Before splitting, these two phrases were labeled as the inflectional phrase (IP). The complementizer phrase (CP) hosts complementizers and is mostly responsible for sentence mood properties.

For some languages, including Slavic, an aspectual phrase (AspP) is assumed. This phrase is either located between the verbal projection (VoiceP) and TP (e.g., Svenonius, 2004; Gehrke, 2008; Gribanova, 2015; Biskup, 2019) or below the projection introducing the external argument (Romanova, 2004; MacDonald, 2006), which would be between *v*P and VoiceP in (5). The structure can be more articulated, e.g., as proposed by Cinque (1999). Among others, Cinque assumes projections for habituality and iterativity (repetition), which are also relevant to our discussion.

(5)



The morphological structure of Slavic verbs looks like (6a), considering Isačenko (1960), Townsend (1968), Łazorczyk (2010), Biskup (2023a) and Klimek-Jankowska and Błaszczak (2023), among others. (6a) is instantiated, e.g., by the Czech example (6b).

(6) a. prefix(es)-root-verbalizer-secondary.impf-habitual-theme-tense/participle-agreement
b. u-plác-á-vá-va-l-i
'they tended to form sth. by slapping'

A verb can have one or more prefixes; consider the lexical prefix *u-* 'at' in (6b). The (prefixed) root is mostly followed by an overt verbalizing morpheme, e.g., by *-á*, as in (6b). Prefixed, i.e., perfective, stems can be imperfectivized by a secondary imperfective morpheme, as illustrated by *-vá* in (6b). Moreover, in Czech and Slovak, secondary imperfective stems can combine with a habitual suffix, as demonstrated by *-va* in example (6b). There is debate about the status of theme vowels in Slavic. According to some researchers, the vowel *-a* preceding the tense/participial suffix is an independent (conjugation) marker (e.g., Gribanova, 2015; Klimek-Jankowska & Błaszczak, 2022, 2023; Kwapiszewski, 2022; Quaglia et al., 2022; Matushansky, 2024). According to Biskup, To appear (Biskup, To appear), the vowel *-a* preceding the tense/participial *-l* suffix in cases such as (6b) belong to the habitual marker in Czech and Slovak in contrast to Russian and Polish. Finally, the outermost suffix *-i* represents the masculine plural agreement. This suffix would be located in the Agr head of (5).

In what follows, I concentrate on the aspectual affixes. There are at least five types: verbal prefixes, the secondary imperfective suffix, the semelfactive morpheme, the iterative marker *-a* and the habitual suffix. Let us begin with verbal prefixes. They perfectivize the stem to which they attach, as in (7), and make the predicate quantized. Many approaches distinguish between two basic types of prefixes in Slavic, lexical (resultative, internal) and superlexical (aktionsart and external); consider, for example, Isačenko (1962), Babko-Malaya (1999), Jabłońska (2004), Svenonius (2004), Romanova (2006), Szucsich (2007), Kagan (2015) and Marušič et al. (2025). These two types differ—at least by tendency—with respect to their meanings, argument structure effects, stacking and the possibility of secondary imperfectivization. These differences are usually assumed to arise from distinct base positions. While lexical prefixes are taken to merge into the complement of the root, superlexical prefixes are assumed to merge into a higher position above *v*P or in a higher position in *v*P (depending on the particular approach).

Lexical prefixes bring about spatial or idiosyncratic meanings, as in (7b), whereas superlexical prefixes have an adverbial-like (aktionsart) meaning, as shown by the prefix *po-*, which delimits the event of thinking in (7c). Also, in contrast to the unprefixed predicate *dumať*, 'to think', in (7a) or the superlexically prefixed verb *podumať*, 'to think', in (7c), the lexically prefixed *vydumať*, 'to make up', requires a direct object.

(7) a. dumať^{IPF} (Russian)
think
'to think'
b. vy-dumať^{PF}
out-think
'to make up sth.'
c. po-dumať^{PF}
by-think
'to think for a while'

Predicates with a lexical prefix can always be secondarily imperfectivized, as in (8), in contrast to superlexical prefixes, which are more restricted in this respect. Contrary to perfective verbs, such as *vydumať*, 'to make up', in (7b), predicates with the secondary imperfective suffix, such as *vydum-yv-ať*, 'to (be) make(ing) up', in (8), do not grant reaching the result state (except for in the special factual usage, in which it is assumed that the result has been reached and the imperfective form is used to stress the action leading to the result state; e.g., see Smith, 1997). In other words, forms like (8) have a progressive (partitive, ongoing) meaning. Secondary imperfective predicates can also have a pluractional (iterative) meaning, according to which the event of making up in (8) is repeated several times or habitually (e.g., Comrie, 1976; Dickey, 2000; Klimek-Jankowska et al., 2025). With respect to the secondary imperfective suffix, I follow Romanova (2004), Tatevosov (2015), Mueller-Reichau (2021) and Biskup (2023a, 2025), who argue that the secondary imperfective suffix is located below the phrase introducing the external argument, i.e., between *v*P and VoiceP in structure (5).

(8) vy-dum-yv-a-ť^{IPF} (Russian)
out-think-SI-TH-INF
'to make up sth.'
'to be making up sth.'

In contrast to South Slavic languages, North Slavic languages also have an overt habitual marker (e.g., Jabłońska, 2007; Karlík, 2017; Biskup, 2024; Filip, To appear), as illustrated in examples (6b) and (9). This suffix derives imperfective predicates from imperfective stems, that is, *spáva*(*ť*), 'to tend to sleep', can be derived from *spa*(*ť*), 'to sleep', in the case of (9).

(9) sp-á-va-ť^{IPF} (Slovak)
sleep-TH-HAB-INF
'to tend to sleep'

Contrary to other North Slavic languages, in Czech and Slovak, the formation of habitual predicates is fully productive (e.g., Filip, 1993b; Esvan, 2007; Karlík, 2017; Nübler, 2017). Moreover, as already shown in (6b), Czech—and Slovak, too—can combine the secondary imperfective suffix with the overt habitual marker. It has been argued for Slavic languages that the habitual projection (HabP) occurs below the tense phrase (Biskup, 2023a, 2024), i.e., between VoiceP and TP in (5).

The next aspectual marker—the semelfactive suffix—attaches directly to the root and derives perfective predicates; consider the Polish example in (10). According to the descriptive literature, the suffix consists of *-n* and some vowel (which is the present or past theme); see Laskowski (1979), Švedova (1980), Karlík et al. (1995) and Toporišič (2000), and for a diachronic point of view, see Wiemer and Seržant (2017).

(10) puk-n-ą-ć^{PF} (Polish)
knock-SEML-TH-INF
'to knock once'

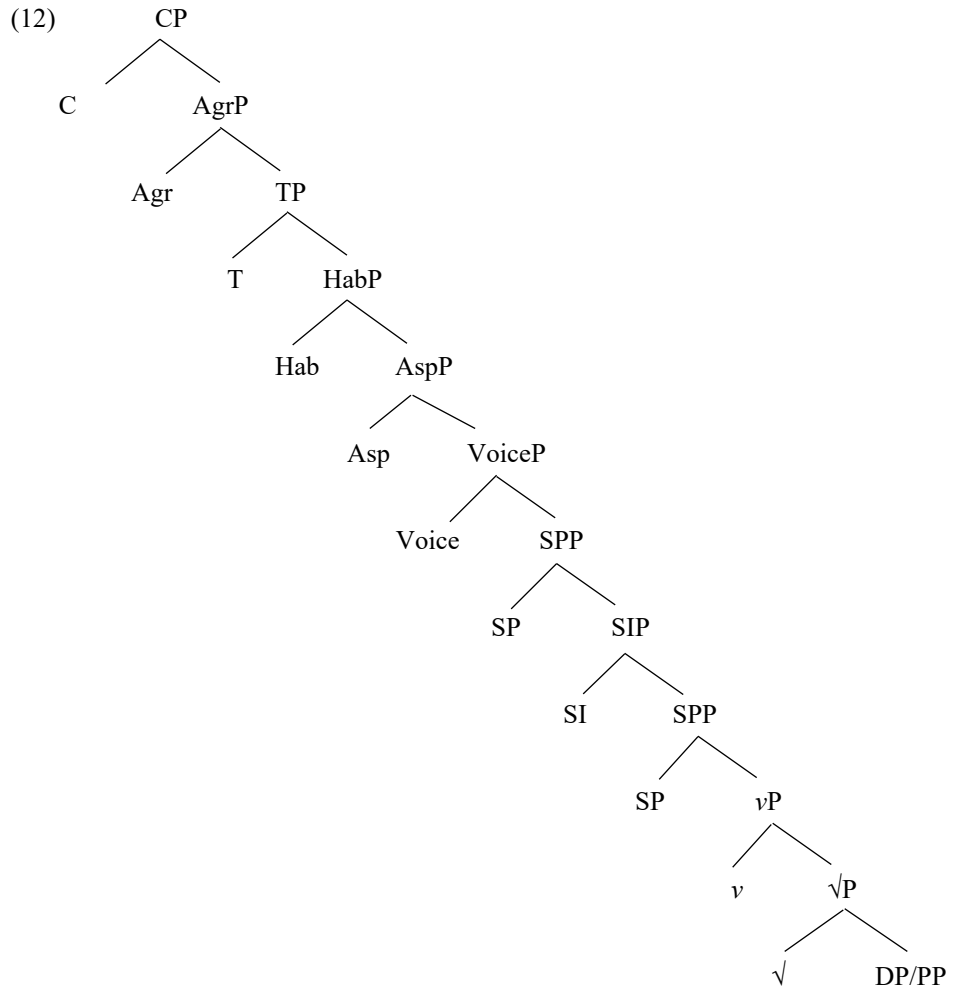
The semelfactive suffix brings about the instantaneous (single-stage event) interpretation (see Smith, 1997) and for North Slavic languages, it is mostly assumed that an event denoted by the semelfactive predicate is singular (e.g., Isačenko, 1962; Armoškaitė & Sherkina-Lieber, 2008), atomic (Łaziński, 2020) or both (Biskup, 2023a). The situation in South Slavic languages is slightly different. Some authors argue that it brings about atomicity (e.g., Arsenijević, 2006), while other researchers prefer diminutivity (e.g., Štarkl et al., 2025).

The semelfactive marker contrasts with the iterative suffix *-a*, which also attaches directly to the root, as shown in (11). In contrast to the semelfactive example (10), predicates with the iterative *-a*, as in (11), are imperfective and denote several occurrences of a particular event, as shown by the translation. This is in line with cross-linguistic findings, e.g., by Wood (2007), who argues that semelfactives commonly occur with (event-internal) pluractionality.

(11) puk-a-ć^{IPF} (Polish)
knock-ITER-INF
'to knock repeatedly'

Building on this discussion, a more articulated verbal structure with the relevant projections for aspectual affixes looks like (12). A habitual suffix realizes the head Hab and a secondary imperfective suffix spells out the head SI. Since superlexical prefixes can merge either before or after a secondary imperfective suffix in Slavic languages, there are two phrases (SPP) for them in (12). The aspectual head (Asp) is phonologically empty, and semantically, it encodes the relation between the event time and the reference time.

(12)



The next section ties the verbal and nominal domains together. It aims to find correspondences to aspectual affixes in the nominal domain.

4. Analogies Between the Verbal and Nominal Domains

4.1. The Base Structure

Most Slavic simplex (unprefixed) predicates are imperfective, non-quantized and cumulative, such as *dumat'*, 'to think', in (7a). The event of *dumat'* can have a proper part that falls under the denotation of *dumat'* as well. As for cumulativity, it holds that if x and y are events of *dumat'*, 'to think', then their sum also falls under *dumat'*. With respect to verb classes, simplex predicates typically denote states and processes, such as *dumat'* in (7a). It has been proposed that verbs are born as plurals (e.g., Krifka, 1992) or that simple predicates in natural language typically are cumulative (Krifka, 1998). In the same vein, Borer (2005) argues that nouns begin as mass nouns (i.e., cumulative). It has also been proposed that nouns start as kinds; e.g., see Kratzer (2008), and the same has been proposed for verbs (e.g., Gehrke & McNally, 2015). For instance, the noun *house* denotes the set of all kinds of houses (e.g., family houses, bungalows, blockhouses). Hence, *this house* in (13a) can refer to a certain kind of house that sells well. At the same time, the noun *house* refers to the set of atomic entities that realize some house, as shown in (13b), where *this house* refers to a certain dilapidated building.

(13) a. This house is popular. (English)
b. This house is in ruins.

Analogously, as a predicate of event kinds, the verb *sing* denotes the set of all kinds of singing; therefore, in (14a), *sing* can refer to a kind of singing which occurs at night. The verb can also refer to some atomic event, as shown by *sing* in the progressive form in example (14b).

(14) a. You sing nicely at night. (English)
b. You are singing slowly.

Given the analogous behavior—and the discussion of semantic and aspectual analogies in Section 1—one can draw a parallel between nominal and verbal roots; they differ just in type properties: verbal roots predicate over events, whereas nominal roots predicate over individuals (in predicative analysis).

Recall from the preceding section that there are two types of prefixes, lexical and superlexical. Lexical prefixes are usually analyzed as merged in the complement position of the verbal root, where they head a prepositional phrase (*p*P or PP, as in (12)), a predicative phrase or a result phrase (Ramchand, 2004; Arsenijević, 2006; Gehrke, 2008; Žaucer, 2013; Biskup, 2019; Marušič et al., 2025). In this respect, lexical prefixes parallel the complement of the nominal root; see structure (3) again. Analogously to the complement of the nominal root, the prefixes introduce a new entity: While the nominal complement introduces a new individual, the prepositional complement of the verbal root introduces a new (sub)event, the result state. For instance, in the case of the verb *vydumat'*, 'to make up', in (7b), the lexical prefix *vy-* adds the state subevent to the process event denoted by *dumat'*, 'to think'. Therefore, the object of the verb *vydumat'*, e.g., a story, occurs in the state of being made up. As to the nominal complement, e.g., in the Russian *brat otca* 'brother of my father', the genitive complement *otca* adds the new individual (father) to the individual denoted by the head noun *brat*, 'brother'.

In contrast to lexicals, there are more categories of superlexical prefixes in the literature and the prefixes are classified according to the type of aktionsart they bring about and according to their (morpho)syntactic position (Zaliznjak & Šmelëv, 1997; Istratkova, 2006; Tatevosov, 2008; Markova, 2011; Wiland, 2012, and Klimek-Jankowska & Błaszczak, 2023). These prefixes function like adverbial modifiers and add some aktionsart information about the event expressed by the verbal stem. Specifically, in (7c), the delimitative prefix *po-* modifies the verbal stem *duma*(*t'*), which denotes the event of thinking, and delimits the event temporally. Because of this, superlexicals can be viewed as parallels of adjectival modifiers of the nominal domain shown in the base nominal structure in (3). As for nominal modifiers, consider the modifying adjective *stal'noj*, 'steel', in (15). This adjective and the noun *kanat*, 'rope', predicate over some entity that that entity has the property of being rope and the property of being steel. Thus, while the adjective adds a predicate over the entity *x* in the nominal domain, the superlexical prefix adds a predicate over the event *e* in the verbal domain, e.g., that the event is short, as in the case of *podumat'*, 'to think for a while', in (7c).

(15) stal'noj kanat (Russian)
steel rope
'a steel rope'

In addition, as mentioned in Section 3, superlexical prefixes merge into a higher position in the "midfield". In this respect, superlexical prefixes also resemble adjectival modifiers of the nominal domain.

Considering the base nominal structure in (3), the following question arises: what is the verbal counterpart of the nominal determiner? Given the quantifier nature of D elements (Barwise & Cooper, 1981; Heim & Kratzer, 1998), it seems that it is the habitual morpheme. It has been argued that the North Slavic habitual suffix behaves like a vague

quantifier and brings about a regular (rule-like) repetition or characterizing properties. Therefore, it has been analyzed as the quasi-universal modal quantifier GEN (Filip, 1993b, Biskup, To appear; Biskup, 2024). Consider example (16), with the habitual verb *zpívávat*, 'to tend to sing'. The habitual suffix *-vá* is a realization of the habitual head that expresses the relation between the set of the restrictor (Jan's singing) and the set of the nuclear scope (Jan's singing at night). The quantifier is vague and can have, in this example, the quantificational strength of 'mostly'. That means that more than fifty percent of Jan's singing must happen at night.

(16) Jan zpív-á-vá v noci. (Czech)
Jan.NOM sing-TH-HAB in night
'Jan tends to sing at night.'

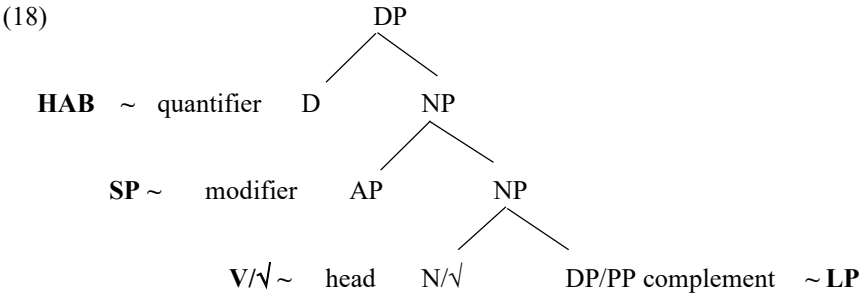
Analogously, in the nominal domain, D heads such as *a*, *most*, etc. express the relation between the restrictor (*students* in (17)) and the nucleus (*are hardworking*). Then, in the case of *most*, more than fifty percent of the restrictor set (students) must be included in the nucleus set (hardworking individuals).

(17) Most students are hardworking. (English)

The analogy between heads D and Hab is also reasonable from the morphosyntactic point of view since the habitual suffix occurs above superlexical prefixes (Biskup, 2023a), hence the c-command relation is analogous to the head D occurring above adjectival modifiers. Consider also Borer (2005), who argues that GEN assigns range to the open value of D in nouns.

To summarize, analogies between aspectual markers of the verbal domain and the elements of the base nominal structure from (3) are illustrated in (18). Verbal morphemes corresponding to the nominal elements are in bold.

(18)

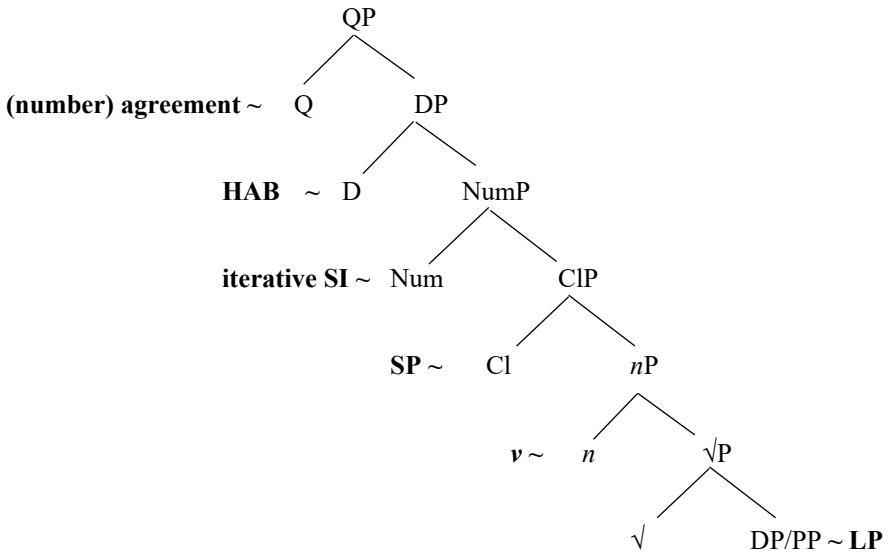


The quantifying determiner is analogous to the habitual suffix, modifying APs parallel the function of superlexical prefixes, the complement DP/PP parallel the lexical prefix heading the appropriate phrase (and introducing the state) and the nominal root/head is a counterpart of the verbal cumulative root. The next section will show parallels between aspectual markers of verbal predicates and the more articulated nominal structure depicted in (4).

4.2. The More Articulated Structure

Structure (19) is the roadmap of this section. It shows the more articulated nominal structure from (4) with the corresponding aspectual markers of the verbal domain (they are in bold again). The analogies between particular nominal elements and their verbal counterparts are discussed in the following subsections.

(19)



4.2.1. Roots and Prefixes

As mentioned in Section 2, roots are not specified for category in the Distributed Morphology approach. This is based on the fact that the same root can occur in different categories. In the nominal domain, the root is selected by the nominalizing affix *n*, as shown in (19), whereas in the verbal domain, the root is selected by the verbalizing morpheme *v*, as shown in structure (12) and exemplified by the morpheme *-á* in *uplác-á-vávali*, 'they tended to form sth. by slapping', in (6b). It holds for both domains that the categorizing morpheme can be covert, as shown by the English word *kick*, which can be a noun as well as a verb. It is often assumed for Slavic that the verbalizing head *v* can be spelled out by the theme vowel or the semelfactive suffix (if present); e.g., consider Svenonius (2004), Biskup (2019), Klimek-Jankowska and Błaszczak (2022), Simonović et al. (2023) and Matushansky (2024).

In the more articulated nominal structure in (4)/(19), the noun projection *n*P is dominated by the classifier phrase. Classifiers are dedicated to individuation and measuring or counting (e.g., see Borer, 2005; Nakanishi, 2007; Wiltschko, 2008). It has been proposed that, in non-classifier languages like English, there are covert classifiers (e.g., Chierchia, 1998; Borer, 2005 and Kratzer, 2008). Thus, *this house* in the English example *This house is in ruins* in (13b) has a covert classifier that turns the root *house* into a predicate denoting a set of individual houses; consider (20a). In the case of plural nouns, the plural suffix realizes the number head, as demonstrated in (20b).

(20) a. This [$_{\text{ClP}}$ Cl [$_{n\text{P}}$ *n* [$_{\sqrt{\text{P}}}$ house]]] is in ruins. (English)
b. [$_{\text{DP}}$ These [$_{\text{NumP}}$ [$_{\text{ClP}}$ Cl [$_{n\text{P}}$ *n* [$_{\sqrt{\text{P}}}$ house]]]-s]] are in ruins.

The structure depicted in (20b) is in accord with the proposal in (19), where the head D c-commands the (plural) head Num, which in turn c-commands the classifier head.

Slavic languages can be treated in the same way given that they are mostly categorized as belonging to non-classifier languages. As an illustration, consider example (21) from Bulgarian, which (together with Macedonian) has definite articles, unlike other Slavic languages. The definite form (21) morphologically contains the singular *knjaz*, 'prince', and the plural *knjaze*, 'princes'.

(21) [$_{\text{DP}}$ [$_{\text{NumP}}$ [$_{\text{ClP}}$ Cl [$_{n\text{P}}$ *n* [$_{\sqrt{\text{P}}}$ knjaz]]]-e]-te] (Bulgarian)
prince-PL-DEF
'the princes'

There are certain noun classes in Slavic languages (e.g., *n*-stems, *nt*-stems and *s*-stems) with a specific suffix preceding the plural (and case) suffix; consider the suffix *-ov* in the

Bulgarian example (22), which is based on the singular *grad*, 'town'. Such suffixes could have the function of a classifier (but this requires further research).

(22) [$_{DP}$ [$_{NumP}$ [$_{ClP}$ Cl [$_{nP}$ *n* [$_{\sqrt{P}}$ grad]]-ov]-e]-te] (Bulgarian)
town-CL-PL-DEF
'the towns'

Let us now turn to Slavic prefixes. They make a base predicate perfective, as in (7)—i.e., the event time of the event denoted by the predicate is included in the reference time—and quantized, i.e., the prefixed stem denotes an event that does not have a proper part falling under the denotation of the prefixed predicate. Concretely, the event of *vydumat'*, 'to make up', does not have a proper part that is also *vydumat'* (see also the discussion of unprefixed predicates in the beginning of Section 4.1). Given this individuation, events denoted by the prefixed predicates can be counted, i.e., iterated by the secondary imperfective operator, as shown by *vydumyvat'*, 'to make up', in (8), derived from the prefixed *vydumat'*. This is in line with claims in the literature that the secondary imperfective morpheme needs a quantized or telic stem (e.g., Łazorczyk, 2010; Tatevosov, 2015; Biskup, 2025). Because of their individuating effect, Slavic prefixes can be treated as the verbal parallel of nominal classifiers. This is proposed by Dickey and Janda (2015), who argue that Slavic aspectual prefixes and numeral classifiers of the nominal domain belong to a general category of lexico-grammatical unitizers.

The parallel behavior of classifiers and verbal prefixes is also demonstrated in examples (23) and (24). The Vietnamese example (23), taken from Wągiel and Caha (2021, p. 477), shows that for counting, a classifier must be present. If it is not the case, the construction is ungrammatical, as in (23a). If the classifier *cái* is added, as in (23b), the example becomes grammatical.

(23) a. * hai bát (Vietnamese)
two bowl
Intended: 'two bowls'
b. hai cái bát
two CL bowl
'two bowls'

If the analysis of Slavic nominal theme suffixes such as the *-ov* in (22) is correct, then we expect that they are also obligatory in the specific contexts. This is correct since *-ov* cannot be omitted from the plural definite form: **grad-e-te*.

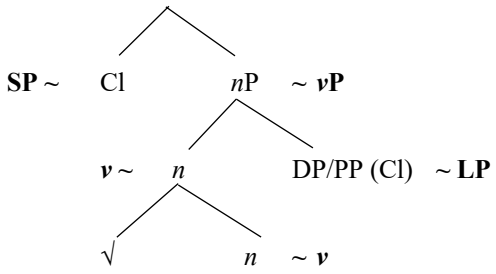
Now consider the unprefixed stative verb *vědět*, 'to know', in (24a). It cannot co-occur with a secondary imperfective suffix and its event cannot be iterated, as shown in the ungrammatical example (24b) (the form *vídat* can only have the habitual meaning 'to see/meet habitually'). Analogously to the presence of classifiers in the nominal domain, the presence of a prefix is necessary for attaching a secondary imperfective suffix; compare (24b) with (24d), which is based on the prefixed form (24c).

(24) a. věd-ě-t^{IPF} (Czech)
know-TH-INF
'to know'
b. * víd-a-t^{IPF}
know-SI-INF
Intended: 'to know repeatedly'
c. do-věd-ě-t^{PF} se
to-know-TH-INF self
'to get to know sth.'
d. do-víd-a-t^{IPF} se
to-know-SI-INF self
'to get to know sth. repeatedly'

The classifier proposal is reasonable from a morphosyntactic point of view as well since the classifier phrase is dominated by the number projection in the nominal domain, as shown in (19). This structural adjacency of the nominal domain parallels the structural adjacency of a superlexical prefix and the pluralizing operator of a secondary imperfective marker in the verbal domain under the assumption that the iterative meaning of secondary imperfective predicates, such as *vydumyvat'*, 'to make up', in (8), is derived by a pluralizing operator (Biskup, 2024).

Lexical prefixes occur in the complement position, as shown in structures (18) and (19), thus they merge before the verbalizing head *v*, which—analogously to the nominalizing head *n* in (19)—is structurally lower than the head with a classifier function. To avoid this complication, one can assume that the root adjoins to the categorizing head before the verbal head takes a complement (e.g., see Folli & Harley, 2020). Another possibility is to assume that lexical prefixes (and their phrases) do not merge as a complement but generally merge higher than the categorizing head *v* (e.g., Markova, 2011; Kwapiszewski, 2022; Biskup, 2023b). In both systems, lexical prefixes merge after the verbal categorizing head and before the secondary imperfective morpheme, i.e., quite analogously to the nominal classifiers, which merge after the categorizing head *n* and before the number head; consider structure (19) again. The second possibility, however, has the disadvantage that the complement analogy between lexical prefixes and DP/PP complement of nouns would be lost. For this reason, I will analyze lexical prefixes as complement of the verbal categorizing head to which the root is adjoined; see the relevant part of the structure in (25). This ensures that verbal prefixes always enter the derivation after the verbal categorizing head, and in this way, it maintains the analogy between nominal classifiers and verbal prefixes generally.

(25)



To summarize, given their structural positions and given their individuating function, Slavic verbal prefixes can be viewed as analogous to nominal classifiers. At the same time, superlexical prefixes can be perceived to parallel adjectival modifiers of the nominal domain. Recall the argumentation and examples from Section 4.1, with *stal'noj kanat*, 'steel rope', and the verb *podumat'*, 'to think for a while', which show that while an adjective adds

a new predicate over an entity *x* in the nominal domain, a superlexical prefix adds a new predicate over an event *e* in the verbal domain.

In contrast, lexical prefixes head a phrase that introduces a new eventive entity and occurs in the complement position. For this reason, I treated lexical prefixes as counterparts of the nominal complement. Using the examples *brat otca*, 'brother of my father', and the prefixed verb, *vydumat'*, 'to make up', it was shown in Section 4.1 that the nominal complement adds the new individual (father) to the individual denoted by the head noun, whereas the lexical prefix, i.e., the prepositional complement of the verbal root, introduces a new (sub)event, the result state.

Given that Slavic prefixes behave very similarly with respect to perfectivization and quantization, classifier analysis can be applied to all Slavic languages. The same also holds for modifier analysis of superlexical prefixes and complement analysis of lexical prefixes. Slavic languages mostly differ in the meanings/heads which a specific prefix can realize.

As discussed in Section 1, complement analysis and modifier analysis could be extended to Germanic languages to some extent because they also differentiate between resultative and aspectual prefixes (particles). Classifier analysis naturally can be extended to East Asian and Southeast Asian languages, in which certain classifiers function in both the nominal and the verbal domains. In addition, if the classifier phrase is selected by the corresponding verb (e.g., see Matthews & Leung, 2004, and Dickey & Janda, 2015) then complement analysis can also be called into action.

4.2.2. The Iterative Secondary Imperfective

Quantization—as brought about by prefixation—is a necessary but not a sufficient condition for secondary imperfectivization (iteration of an event denoted by the predicate). Leaving aside lexical idiosyncrasies and "empty" prefixes, lexical prefixes generally derive secondary imperfectives, but not all superlexical prefixes allow secondary imperfectivization. The question is whether the impossibility of secondary imperfectivization should be ascribed to semantic reasons, selectional properties, morphosyntactic properties of particular superlexical prefixes or to a combination of these factors. In the case of morphosyntactic reasons, "problematic", higher superlexical prefixes merge above the secondary imperfective (Svenonius, 2004; Tatevosov, 2008; Biskup, 2023a; Klimek-Jankowska & Błaszczak, 2023), as shown in the more articulated verbal structure in (12), i.e., in the language of the nominal domain: above the number phrase, hence also above the classifier phrase. However, given the modifier analogy proposed for superlexical prefixes in Section 4.1, this does not pose a problem, since there are various types of modifiers in the nominal domain and their positioning is very variable.

The parallel between the iterative secondary imperfective suffix of the verbal domain and the plural marker of the nominal domain is based on semantic as well as morphosyntactic properties of the two suffixes. The semantic analogy between the iterative imperfective suffix and the suffix realizing the plural number head of the nominal domain is obvious. Consider, for example, the Bulgarian plural noun *knjaz-e*, 'princes', which was discussed in (21). In this case, the cardinality of the set of individual princes is greater than one. If the plural noun refers to kinds, then there are at least two kinds of princes. Analogously, the iterative secondary imperfective suffix pluralizes the event denoted by the predicate to which it attaches. Thus, in the case of the iterative meaning of the secondary imperfective predicate in (26), there are at least two events of asking. Therefore, the predicate can be modified, e.g., by the indefinite adverbial 'several times'.

(26)	On	s-praš-iv-a-l	(neskol'ko	raz).	(Russian)
	he.NOM	with-ask-SI-TH-PTCP	several	time	
	'He asked several times.'				

Concerning the morphosyntactic parallelism, the Bulgarian *knjaz-e-te*, 'the princes', and *grad-ov-e-te*, 'the towns', in (21) and (22) show that the plural number head realized by *-e* occurs between the D head and the classifier head. In the verbal domain, the iterative imperfective suffix attaches after a (lexical or superlexical) prefix, as in (24), and before the habitual morpheme, as shown by *uplácávávali*, 'they tended to form sth. by slapping', in (6). This is in accordance with structural properties of the nominal domain since the habitual suffix corresponds to the head D and prefixes correspond to the classifier head, as illustrated in (19) and in the partial structure (25).

Given that all Slavic languages employ nominal plural markers and secondary imperfective suffixes with an iterative meaning, the current proposal can be applied to all Slavic languages. Since the iterative secondary imperfective suffix is the marker of event-external pluractionality, the current analysis could possibly be extended to other languages with nominal plural markers and external pluractionality affixes in the verbal domain (for more on (event-external) pluractionality, see Cusic, 1981; Chrakovskij, 1997; Wood, 2007; Bertinetto & Lenci, 2012; Cabredo Hofherr, 2021).

4.2.3. The Internal Iterative -a

There is another source of iteration in Slavic, theme vowels. For instance, in the case of momentaneous roots, the verbalizing theme vowel *-a* brings about repetition of the event, as shown by *pukać*, 'to knock repeatedly', in (11). The same also holds for the root *plác* in example (6b), from which we can derive the imperfective predicate *pláca*(*-t*), 'to slap repeatedly', denoting the repetitive event of slapping.

As already mentioned, for counting, individuation is necessary. Given the analogy established above, in the nominal domain, individuation is brought about by classifiers and, in the verbal domain, in the case of secondary imperfective predicates, it is induced by verbal prefixes. In *pukać*, 'to knock repeatedly', and *plácat*, 'to slap repeatedly', there are no prefixes, but momentaneous predicates can be viewed as minimal. That means that they cannot have a proper part, and hence, they are quantized. Consequently, an individuating morpheme (verbal prefix) is not necessary for iteration, in contrast to secondary imperfective forms.

As shown by example (6b), repeated for convenience with glosses in (27), the iterative verbalizing *-a* (lengthened to *-á* by the secondary imperfective suffix) is closer to the root—i.e., is structurally lower—than the secondary imperfective suffix.

(27) u-plác-á-vá-va-l-i (Czech)
at-slap-ITER-SI-HAB-PTCP-3.PL
'they tended to form sth. by slapping'

If the iterative secondary imperfective is the verbal counterpart of the nominal number phrase, as suggested above, we need another projection in the verbal domain related to number. This is in accordance with the literature on verbal plurality arguing that there is event-internal and event-external pluractionality; consider Cusic (1981), Chrakovskij (1997), Wood (2007), Bertinetto and Lenci (2012), Kuhn (2019), Cabredo Hofherr (2021) and Wągiel (2023). Recall also from Section 2 that certain approaches assume more number projections in the nominal domain (e.g., Kratzer, 2008; Wiltschko, 2008; Veselovská, 2018).

The different statuses of the iterative verbalizing *-a* and the iterative secondary imperfective are supported by their distinct interpretational properties.[1] Predicates with the iterative *-a* display ambiguous behavior with respect to cardinal adverbials such as 'twice', as shown in (28). Either the adverb specifies the cardinality of the iterated subevents, as in the first translation, or the adverb iterates the events consisting of several parts (subevents), as in the second translation.

(28) Včera ho plác-a-l po zádech dvakrát. (Czech)
yesterday he.ACC slap-ITER-PTCP on backs twice
'Yesterday, on some occasions, he patted him on the backs twice.'
'Yesterday, on two occasions, he patted him on the backs several times.'

In contrast, secondary imperfective predicates modified by a cardinal adverbial do not display such pluractional ambiguity, as illustrated in example (29). The only possible interpretation is that there are two events of replenishing. The reading with two (internal) subevents is not available here.

(29) Včera to do-plň-ova-l dvakrát. (Czech)
yesterday it.ACC to-full-SI-PTCP twice
'Yesterday, he replenished it twice.'

Thus, the iterative *-a* is related to event-internal pluractionality, whereas the iterative secondary imperfective morpheme is responsible for event-external pluractionality.

Given the verbalizing function of the iterative *-a*, the pluractional meaning can be placed in the verbalizing head *v* (see Wiltschko, 2008, for the claim that pluralizers can combine directly with roots and can instantiate various heads). Example (30a) shows that the iterative *-a* indeed verbalizes the root (recall also the BCMS *mig-a-ti* in (1c)). Thus, the iterative *-a* is a counterpart of the categorizing head *n* of the nominal domain. In the case of momentaneous roots, the nominalizing head is typically null, as shown in (30b). That (30b) is indeed a nominal category is confirmed by the fact that the form can co-occur with the definite article, as shown in (30c).

(30) a. mig-a (Bulgarian)
blink-ITER.PRS.3.SG
'he/she blinks'
b. mig
blink
'moment'
c. mig-ât
blink-the
'the moment'

The iterative *-a* attaches to other types of roots, too; consider the multidirectional motion verb in (31a). Again, the nominal counterpart, the nominalizing head *n*, can be either phonologically null, as in (31b), or it can be realized by the nominalizing *-k*, as in (31c).

(31) a. lét-a-t (Czech)
fly-ITER-INF
'to fly repeatedly'
b. let
fly
'flight'
c. let-k-a
fly-*n*-F.SG
'the squadron'

This analysis can be applied to all Slavic languages since the iterative *-a* is present in all of them and the suffix always attaches directly to the root. The iterative *-a* is a Slavic counterpart of event-internal pluractional markers discussed, for example, by Cusic (1981), Lasersohn (1995), Wood (2007) and Cabredo Hofherr (2021). It seems that it also parallels the German iterative verbalizers *-el*(*n*) and *-er*(*n*), such as *blinkern*, 'to blink'. The analogy

between the verbal and the nominal domains is supported by the fact that the suffixes *-el* and *-er* are also used in the nominal domain in German.

4.2.4. The Semelfactive Suffix

The contrast between the examples *puknąć*, 'to knock once', and *pukać*, 'to knock repeatedly', in (10) and (11), respectively, shows that the semelfactive *-n* and the iterative *-a* have opposite number-related behaviors: While the semelfactive suffix singularizes, the iterative marker pluralizes. As mentioned in Section 3, the *-n* suffix is also proposed to have a diminutive meaning in South Slavic languages (Štarkl et al., 2025). This is not surprising since, according to Jurafsky (1996), the overlap of diminutive and singulative meanings is not rare typologically (for Slavic, see Asmus & Werner, 2015).

Given the opposing number-related behaviors between the semelfactive and the iterative marker, these two suffixes are ideal candidates for the counterpart of nominal number. However, I argued above that the iterative *-a* spells out the verbalizing head *v* and that the counterpart of the nominal number head is the iterative secondary imperfective (expressing event-external pluractionality). Thus, it seems that the analogy between the semelfactive suffix and the relevant part of the nominal domain cannot be based on semantics. However, it can be based on morphosyntactic properties. So, the question arises of where the semelfactive *-n* is placed. Morphosyntactically, it behaves like the iterative *-a* since it attaches directly to the root and can turn the root into a verb; compare (32a) with (32c). As in Bulgarian (30), the root can also be nominalized by the null *n*; see (32b).

(32) a. mig-a-ti (BCMS)
blink-ITER-INF
'to blink'
b. mig
blink
'blink'
c. mig-n-u-ti
blink-SEML-TH-INF
'to blink'

Since the iterative *-a* and the semelfactive *-n* are in complementary distribution, an analysis also placing the semelfactive *-n* in the head *v* is empirically meaningful.[2] In North Slavic languages, the semelfactive suffix is not compatible with the secondary imperfective morpheme, but in certain varieties of South Slavic languages, the two markers can co-occur, as shown by the South-East Serbo-Croatian example in (33).

(33) a. tak-n-e-m^{PF} (South-East Serbo-Croatian)
touch-SEML-TH-1.SG
'I touch'
b. tak-n-u-je-m^{IPF}
touch-SEML-SI-TH-1.SG
'I touch'
'I am touching'

This shows that the semelfactive suffix indeed is not the verbal counterpart of the nominal number head and that it must occur in a lower position in the verbal structure. Consequently, the reason for the incompatibility of the semelfactive suffix and the secondary imperfective marker in North Slavic languages should be semantic (e.g., the incompatibility of the singularizing meaning of the North Slavic *-n* with the pluralizing semantics of the iterative secondary imperfective).

However, there are reasons to believe that this is not the whole story. According to Mehlig (1996), the semelfactive aktionsart of Russian verbs corresponds to the singulative form of the nominal domain; thus, the semelfactive *-n*(*u*), e.g., in *prygnut'*, 'to jump once', is analogous to the singulative suffixes *-in* and *-ink*, deriving countable forms like *kartofelina*, 'a (single) potato', and *snežinka*, 'a (single) snowflake', from the mass nouns *sneg*, 'snow', and *kartofel'*, 'potatoes' (see also Chrakovskij, 1987, and the discussion of Ukrainian singulatives in Wągiel & Shlikhutka, 2023).[3] According to Kagan and Nurmio (2024), the Russian *-ink*—which can be compositional or non-compositional—has singulative and diminutive meanings. Czech also uses the *-in* and *-ink* markers (to a lesser extent), and the *-ink* marker can be found in almost all major categories, in nouns, as in (34) and (35), in adjectives (and so in adverbs), as in (36), and in verbs, as in example (37). It also can bring about a singulative or a diminutive meaning (or hypocoristic meaning, which is related to the diminutive one). For our discussion, it is important that the marker can attach directly to the root, as shown in the examples, and that it is closer to the root than the theme vowel *-a* in the verb in (16).

(34) a. pus-a (Czech)
mouth-NOM.SG
'mouth'
b. pus-ink-a
mouth-ink-NOM.SG
'small mouth'

(35) a. kvas (Czech)
sourdough.NOM.SG
'sourdough'
b. kvas-ink-a
sourdough-ink-NOM.SG
'yeast cell'

(36) a. prost-ý (Czech)
simple-NOM.SG.M
'simple'
b. prost-ink-ý
simple-ink-NOM.SG.M
'more simple'

(37) a. sp-á-t (Czech)
sleep-TH-INF
'to sleep'
b. sp-ink-a-t
sleep-ink-TH-INF
'to sleep cutely'

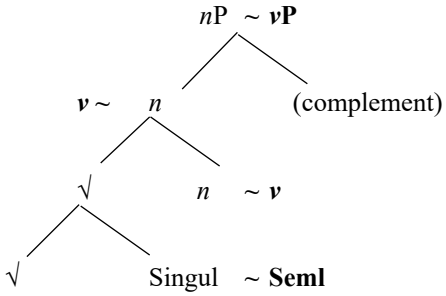
The theme *-a* in (37b) spells out the verbalizing head *v* and does not instantiate a higher theme projection below the infinitival TP (see the discussion of (6b) in Section 3). This is supported by the fact that the predicate *spinka*(*t*) can be used to derive the habitual form (38a) and the secondary imperfective form (38b), in which the theme *-a* (lengthened to *-á*) is closer to the root than the habitual *-va* and the secondary imperfective *-va*. Recall that in preceding sections, I proposed treating the habitual marker as the verbal counterpart of the nominal head D and the (iterative) secondary imperfective marker as the counterpart of the nominal number projection.

(38) a. sp-ink-á-va-t (Czech)
sleep-ink-TH-HAB-INF
'to tend to sleep cutely'
b. vy-sp-ink-á-va-t
out-sleep-ink-TH-SI-INF
'to sleep cutely'
'to be sleeping cutely'

Thus, the marker *-ink* behaves like a modifier adjoined to the root (see Wiltschko, 2008) and like a "low diminutive" in the sense of De Belder et al. (2014) since it merges before the categorizing head (*v*, *n*, etc.). Specifically, in (37b), *-ink* adjoins to the root *sp-* before the merger of the verbalizing head *-a* and behaves like a non-compositional *-ink* suffix in the sense of Kagan and Nurmio (2024), given that the form without *-k* (**spinat*) does not exist. If roots are adjuncts of categorizing heads, as discussed above and illustrated in (25), then the complex *sp-ink* adjoins to the verbalizing head *-a*.

Consequently, if it is correct that the singulative/diminutive *-in*(*k*) is analogous to the semelfactive *-n*, then the semelfactive *-n* also attaches directly to the root before the verbalizing head merges. This has the advantage that the infinitival theme following *-n* (Russian or Serbo-Croatian *-u*, Polish *-ą*, Czech *-ou*, etc.) can be placed in the verbalizing head *v* as can other theme vowels, e.g., *-á* in *spinkávat*, 'to tend to sleep cutely', in (38a) or the iterative *-a* in *plácal*, 'he patted', in example (28).[4] Thus, the analogy between the semelfactive (diminutive) *-n* of the verbal domain and the singulative (diminutive) marker of the nominal domain, as *-in* and *-ink*, looks like (39). The semelfactive *-n* spells out the sister constituent of the root in cases like the Polish *puknąć*, 'to knock once', in (10) and the theme vowel *-ą* instantiates the verbal categorizing head *v*.

(39)



Since morphosyntactically, semelfactive suffixes behave very similarly across Slavic languages, the current analysis can be used for all of them. Slavic languages differ mainly in semantic properties of the semelfactive marker. As already mentioned, while South Slavic languages seem to prefer the diminutive meaning of the *-n* suffix, North Slavic languages prefer the singularizing meaning. The current proposal could be extended to Slavic degree achievements—such as the Czech *stárnout*, 'to get older'—that are formally analogous to semelfactives, i.e., they contain the suffix *-n* plus some theme (see Taraldsen Medová & Wiland, 2019 for the claim that the semelfactive *-n* in fact contains the degree achievement *-n* in Polish and Czech).

Again, the German suffix *-el*(*n*) is relevant to this discussion because, according to Fleischer and Barz (2007), this morpheme can have a diminutive meaning in addition to an iterative one, as in *hüsteln*, 'to cough slightly and repeatedly'. Another possibility is to extend the current proposal to Celtic languages such as Welsh and Breton, which were compared to Slavic by Asmus and Werner (2015) with respect to the overlap of diminutivity and singulativity.

4.2.5. The Habitual Suffix and Agreement

In Section 4.1, I proposed treating the habitual suffix as the counterpart of the head D of the nominal domain. The analogy has semantic as well as morphosyntactic reasons. The semantic analogy is based on the quantificational property of determiners and the habitual suffix. The quasi-universal quantifier GEN located in the habitual phrase and realized by the habitual suffix encodes the relation between the sets of its restrictor and its nucleus. That was demonstrated with example (16), repeated below as (40), which is preferably interpreted to mean that when Jan sings, he sings mostly at night. That is, more than fifty percent of the restrictor set is included in the nucleus set.

(40) Jan zpív-á-vá v noci. (Czech)
Jan.NOM sing-TH-HAB in night
'Jan tends to sing at night.'

For the corresponding head D of the nominal domain, consider example (41), with the determiner *a*. The quantifier brings about the interpretation that at least one individual from the set of students must be present in the set of hardworking individuals.

(41) A student is hardworking. (English)

Regarding the morphosyntactic analogy, it was shown that the habitual suffix attaches after (i.e., is higher than) the secondary imperfective suffix; consider example (27), repeated below as (42).

(42) u-plác-á-vá-va-l-i (Czech)
at-slap-ITER-SI-HAB-PTCP-3.PL
'they tended to form sth. by slapping'

This is in line with relations in the nominal domain, where the D head (corresponding to Hab) is higher than the pluralizing head Num (corresponding to the iterative secondary imperfective). This is evident from example (21) = (43), in which the definite D *-te* is further from the root than the exponent *-e* of the plural head Num.

(43) $[_{DP}\ [_{NumP}\ [_{ClP}\ Cl\ [_{nP}\ n\ [_{\sqrt{P}}$ knjaz]]]-e]-te] (Bulgarian)
prince-PL-DEF
'the princes'

Furthermore, (42) shows that the habitual suffix precedes the agreement marker (and the participial suffix), which is in accord with the verbal structure in (12), where AgrP is higher than HabP. Analogously, in the nominal domain, the quantifying projection QP is higher than DP. The projection QP is occupied by quantifiers such as 'some', 'no', 'many', etc. Given the structural relations, such words precede words realizing the D head, such as 'the' in example (44) (see also Veselovská, 2018).

(44) Nějaký/ žádný/ mnohý/ veškerý/všechen ten (hrozný) nepořádek
some no many all all the terrible mess (Czech)

Thus, the agreement suffix *-i* in *uplácávávali* in (42) is a reasonable candidate for the verbal counterpart of the nominal Q because it is the highest suffix structurally and since it expresses number properties. This is in accordance with the proposal by Kratzer (2008), according to which plural DPs have a higher plural projection above DP and pluralize adjacent verbal projections. Hence, in contrast to the singular predicate *uplácávával*, 'he tended to form sth. by slapping', the plural form *uplácávávali*, 'they tended to form sth. by slapping', can have a distributive interpretation with two or more individuals habitually engaged in forming something by slapping.

From the cross-linguistic point of view, there are interesting parallels between verbal agreement and nominal agreement. In languages like Turkish, Hungarian and Yup'ik, agreement marking in the verbal domain and the nominal domain is very similar or identical in certain cases (e.g., see Abney, 1987; Kornfilt, 1984; Corver, 2013).

Only Czech and Slovak have dedicated habitual markers, which directly realize the habitual head and can co-occur with the secondary imperfective suffix. The other Slavic languages do not have specialized habitual suffixes and license the habitual head at distance. This means that, with respect to exponents of the habitual head, the proposed parallel is reasonable only for Czech and Slovak. However, with respect to structural parallelism, the current analysis is applicable to all Slavic languages.

A brief note on embedding is in order here. (Parts of) verbal or nominal structure can be embedded, also with parallels between the two. Consider the Polish example in (45).

(45)

Pukający	do	drzwi	kilkakrotnie	i	podjadający	ze	stołu
knocking	on	door	several.times	and	eating	from	table
truskawki	listonosz	dostarczył	w	końcu	paczkę.		
strawberries	postman	delivered	in	end	package		

'The postman, who knocked on the door several times and ate strawberries from the table, finally delivered the package.'

This example receives the structural analysis shown in (46). For our discussion, the properties of the coordinated phrases are crucial. Because of the adjectival agreement of the adjectival participles *pukający* and *podjadający*, I assume that two *a*Ps are coordinated (but nothing hinges on this categorization; note that there are also approaches arguing against the adjectival category or against adjectivizers, e.g., Mitrović & Panagiotidis, 2020). The entire coordinated phrase is topicalized and adjoined to AgrP, to which the subject also is moved.

(46) [$_{\text{AgrP}}$ [$_{\text{CoordP}}$ [$_{aP}$ Pukający do drzwi kilkakrotnie] i [$_{aP}$ podjadający ze stołu truskawki]] [$_{\text{AgrP}}$ listonosz dostarczył w końcu paczkę]].

Since present adjectival participles are derived from imperfective predicates in Polish, the participial heads *-ąc* merge with the corresponding AspPs of *pukający* and *podjadający*, whose reference time is identical (in both cases) with the reference time of the matrix predicate *dostarczył*. As for the aspectual analogies, the adjectival participle *pukający* is derived from *puka*(*-ć*), 'to knock repeatedly', with the iterative verbalizing *-a*. In contrast, *podjadający* is derived from the secondary imperfective predicate *podjada*(*-ć*), which contains the prefix *pod-* and the secondary imperfective *-a*, which brings about event-external pluractionality and is analogous to the nominal number head. The example shows that even if some constituents are coordinated and are embedded under identical heads, they do not have to contain identical aspectual morphemes and so identical analogies. Specifically, the first *a*P constituent, with *pukający*, features event-internal pluractionality brought about by the iterative verbalizing *-a* (analogous to the nominalizing *n*), whereas the second constituent, with *podjadający*, displays event-external pluractionality brought about by the secondary imperfective suffix, analogous to the nominal Num. In contrast, given that the object of *podjadający* is affected by the iterated event of eating, the presence of the secondary imperfective suffix enforces the presence of the plural Num in the case of objects like strawberries.

5. Conclusions

In this article, I discussed morphosyntactic analogies between the verbal and nominal domains in Slavic languages and the focus was mainly on aspectual properties of Slavic predicates. Building on syntactic and semantic properties of particular affixes and on the

previous literature, I argued for the following correspondences between verbal and nominal morphemes. The acategorial root can merge with the verbal categorizing *v* or with the nominalizing head *n*. I have argued that Slavic languages, too, have event-internal and event-external pluractionality and that the iterative suffix *-a* is related to event-internal pluractionality and spells out the verbal categorizing head.

In contrast, the iterative secondary imperfective morpheme is responsible for event-external pluractionality and can be viewed as a counterpart of the (pluralizing) number head of the nominal domain. Before the merger of a categorizing head, the acategorial root can merge with the semelfactive (diminutive) suffix *-n* or with its nominal counterpart, a singulative (diminutive) marker such as *-in* or *-ink*. The verbal categorizing head is then spelled out by the infinitival theme vowel—whose form depends on the particular Slavic language—e.g., by *-u* in Ukrainian, Russian and Serbo-Croatian, *-ą* in Polish, *-ou* in Czech, *-ú* in Slovak and *-i* in Slovenian.

For pluralization, applying the iterative secondary imperfective suffix, individuation is necessary. This effect is brought about by prefixes in the verbal domain, which quantize the predicate they attach to. Thus, with respect to individuation, verbal prefixes are analogous to classifiers of the nominal domain. Moreover, in their adverbial function, superlexical prefixes parallel adjectival modifiers of nouns. In contrast, I have treated lexical prefixes as the counterpart of nominal complement. To maintain the morphosyntactic (hence, compositional) analogy between classifiers and all verbal prefixes, I have assumed that verbal prefixes always enter the derivation after the categorizing head *v*, to which the root is adjoined.

As for the overt habitual morpheme present in North Slavic languages, I have analyzed it as the verbal parallel of the nominal determiner because of its quantificational properties and its high structural position.

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Abbreviations

The following abbreviations are used in this manuscript:

A	adjective
ACC	accusative
CL	classifier
D	determiner
DIV	division
HAB	habitual
INF	infinitive
IPF	imperfective
ITER	iterative
LP	lexical prefix
N	noun

Num	number
P	preposition
PF	perfective
PTCP	participle
Q	quantifier
SEML	semelfactive
SI	secondary imperfective
SP	superlexical prefix
TH	theme

Notes

[1] The elements are diachronically related; e.g., see Kuznecov (1953), Isačenko (1962) and Dahl (1985) for the claim that the secondary imperfective *-yva* evolved from the iterative *-a* in Russian.

[2] Notice that the expressive, intensive marker *-anu* (*-onu*) of some East Slavic semelfactive verbs is not composed of the iterative *-a* and the semelfactive *-nu* (e.g., see Isačenko, 1962 and Švedova, 1980 for Russian and Dickey, 2001 for East Slavic).

[3] There is also a striking phonological similarity between the semelfactive *-n* and the singulative *-in*.

[4] The present theme *-e* in cases like the Polish *puknę*, 'I will knock once', spells out the T head.

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