

Project Description – Project Proposals

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Project title: Aspectual cycles and inner-Slavic variation

1 Starting Point

1.1 State of the art and preliminary work

1.1.1 Observations motivating our approach

As is well known, Slavic aspectual coding is based on word formation processes, so-called derivational histories (Karcevskij 1927, Isačenko 1962). As for the best investigated languages Russian, Polish and Czech, much knowledge has meanwhile been accumulated on the rules of verb formation. Differences in aspect use between these languages are also well-studied. What has not yet received sufficient attention in the field of aspectology is morphosyntactic variation, specifically, differences in restrictions on the combinatorics of aspectual markers and their implications for the semantic interpretation in derivational histories. In our investigation, we will put a special emphasis on peripheral, less frequent grammatical phenomena because they are often understudied and it is in them in particular where inter-language variability manifests itself.

Observation 1: The iterative suffix

In contrast to Russian and Polish, Standard Czech productively forms imperfective iterative¹ forms like *psávat* ‘write repeatedly’ (Filip 1993, Esvan 2007, Nübler 2017, but see also Berger 2009). Russian counterparts like *pisyvat’* ‘write repeatedly’ are usually classified as colloquial or archaic (Isačenko 1962, Paducheva 2015, but see Tatevosov 2013) and in Polish iterative forms like *pisywać* ‘write repeatedly’ are restricted only to a few verbs (e.g. Laskowski 1979, Grzegorzczkova *et al.* 1984, Łaziński 2020). Russian and Polish also do not form iterative predicates from prefixed imperfective verbs. For instance, while Czech derives the iterative verb *zapisovávat* ‘write down repeatedly’ from the secondary imperfective form *zapisovat* ‘write down’, Russian cannot derive an iterative verb from the prefixed secondary imperfective counterpart *zapisyvát’* ‘write down’. Moreover, in Czech there are reduplicative forms, again using a marker homophonous to the secondary imperfective suffix (henceforth SI), which are usually described as expressive forms denoting a longer (or temporally distant; see Filip 1993) iterative event. Consider the following example, with the base form in (1a), the pure iterative (i.e. without the progressive reading) in (1b) and the more expressive reduplicated form in (1c).² Although reduplicative forms are not much frequent (which is in accord with their specific function), they need to be investigated firstly because through attaining knowledge of the periphery we get to know the center of the language system; and secondly because issues of the language system are in an orthogonal relation to frequency and usage characteristics of language items (e.g. function words are typically more frequent than autosemantic words but

¹ Various terms can be found in the literature: *iterative*, *frequentative*, *habitual* and *generic* forms. Without theoretical consequence, we use the term *iterative*. The term is meant not to include ‘normal’ imperfective verbs, which also can have an iterative meaning.

² The following abbreviations are used: INF=infinitive, IPF=imperfective, ITER=iterative, N=noun, SI=secondary imperfective (suffix), PART=participle (suffix), PF=perfective, TH=theme (vowel).

certain approaches do not grant conjunctions and prepositions an autonomous status in syntactic structure in contrast to autosemantic words).

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|--------|------------------------|----|---------------------------|----|-----------------------------------|
| (1) a. | řík-a-t ^{IPF} | b. | řík-á-va-t ^{IPF} | c. | řík-á-vá-va-t ^{IPF} |
| | tell-TH-INF | | tell-TH-ITER-INF | | tell-TH-ITER-ITER-INF |
| | ‘tell’ | | ‘tell repeatedly’ | | ‘tell repeatedly for a long time’ |

Given that inflectional affixes cannot be reduplicated (Haspelmath & Sims 2010, 98), the described asymmetry seems to suggest that the Czech suffix *-va-*, as in (1b) and (1c), is a derivational affix, whereas Russian *-yva-* has gained the status of an inflectional marker (Gorbova 2019).³ However, the view that Russian *-yva-* is an inflectional affix raises the question as to how it is possible that an imperfective marker occurs in a perfective form, e.g. in *zaotkryvat*^{IPF} ‘start opening’. In the present project, we are going to pursue the alternative hypothesis that Slavic-style aspect employs two cycles in the verb structure building, where the morphological aspect is assigned in the end of the first cycle. Slavic languages then differ in the way where particular (aspectual) markers are located with respect to this boundary. Given this, the Russian *-yva-* may be limited to the first (lower) cycle, whereas Czech has developed *-va-* in the second aspectual cycle in addition to the *-va-* in the first cycle. This is in compliance with the observation that the order of morphemes mirrors the hierarchy of syntactic structure (the Mirror Principle in Baker 1988) because the iterative affix is outside SI, as in the iterative *před-řík-á-vá-va-t*^{IPF} ‘audition repeatedly’, derived from the secondary imperfective *před-řík-á-va-t*^{IPF} ‘audition’.

Observation 2: The simultaneous interpretation

The Russian (2a) contains a coordination of three verbs that are perfective. Therefore, the sentence receives a sequential interpretation (e.g. Rassudova 1984, Comrie 1985), under which the events of coming, drinking and defeating occur one after the other. (2b) contains a coordination of three perfective verbs, too, however, the sentence allows a simultaneous reading in contrast to (2a), under which the three events occur together at a certain delimited time interval (cf. Dickey 2000, 224 for examples with inceptive *za-*).

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|--------|-----------------------------------|----|---|
| (2) a. | Přišli, vypili, pobedili. | b. | Popili, popeli, poeli. |
| | came drank conquered | | drank sang ate |
| | ‘They came, drank and conquered.’ | | ‘They drank, sang and ate for a while.’ |

If we assume that the Russian delimitative *po-*, as in (2b), merges in the higher aspectual cycle and that internal prefixes (see discussion below), as the ones in (2a), occur in the lower cycle, we receive a crucial structural difference, which will bring about the interpretational distinction, in connection with the possibility/impossibility of the prefixes to occur outside the coordination. So, in contrast to (2a), where there are coordinated three verbal phrases in the first cycle, each with its specific prefix, in (2b) the single prefix *po-* occurs above the coordination of the three verbal phrases and above the aspectual phrase (AspP), hence the prefix can delimit all three events with an identical time interval, resulting in the simultaneous reading.

Observation 3: Complex biaspectual verbs

There are morphologically complex verbs in Slavic that are biaspectual; consider the Czech verb *poodkrývat*, which can be either perfective with the distributive meaning (4d) or imperfective with the delimitative meaning (3d). This interpretational distinction nicely supports Zinova & Filip’s (2015) and Zinova’s (2016) analysis, under which complex biaspectual verbs in

³ From now on, we use *-va-* for all secondary imperfective and iterative allomorphs in Czech and *-yva-* for all secondary imperfective allomorphs in Russian.

Russian are structurally ambiguous. Specifically, *podkrývat* is derived either as shown in (3), with *po-* attaching before SI, or as illustrated in (4), with *po-* attaching after SI.

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|-----|----|-----------------------|----|-------------------------|----|-----------------------------|----|----------------------------------|
| (3) | a. | krý-t ^{IPF} | b. | od-krý-t ^{PF} | c. | po-od-krý-t ^{PF} | d. | po-od-krý-va-t ^{IPF} |
| | | cover-INF | | away-cover-INF | | by-cover-SI-INF | | by-away-cover-SI-INF |
| | | ‘cover’ | | ‘uncover’ | | ‘uncover a little’ | | ‘uncover a little (for a while)’ |
| (4) | a. | krý-t ^{IPF} | b. | od-krý-t ^{PF} | c. | od-krý-va-t ^{IPF} | d. | po-od-krý-va-t ^{PF} |
| | | cover-INF | | away-cover-INF | | away-cover-SI-INF | | by-away-cover-SI-INF |
| | | ‘cover’ | | ‘uncover’ | | ‘uncover’ | | ‘uncover one after another’ |

Using the idea with two aspectual cycles divided by AspP (whose head can be represented by SI), we can formulate the following generalization: A language can have a complex biaspectual verb with a certain prefix if the prefix (its phonological exponent) can occur in the lower cycle as well as in the higher cycle (which is in accord with conclusions drawn in Mueller-Reichau 2021, to appear). Again, this is one potential source of inner-Slavic variation. E.g. since in Russian the delimitative *po-* cannot attach to a perfective verb (Tatevosov 2008, 2013; see also Observation 2) in contrast to Czech and Polish (Wiland 2012) and cannot derive a form analogous to (3c), it also does not have a complex biaspectual counterpart of the Czech *podkrývat*.

1.1.2 Derivational histories and variations in prefixation and secondary imperfectivization

The base pattern of the aspectual derivation of Slavic verbs seems to be simple (Vinogradov 1952; Forsyth 1970; Švedova 1980; Grzegorzczkova, Laskowski & Wróbel 1984; Smith 1991; Karlík, Nekula & Rusínová 1995). Unprefixed verbs are mostly imperfective (e.g. Russian has approximately only fifty perfective unprefixed verbs); see (5a).⁴ When they are prefixed, they become perfective, as in (5b). When SI is attached, the verbs become imperfective again, as in (5c), and when the verbs become even bigger and another prefix is adjoined, the predicates are perfectivized; see (5d).

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|-----|----|----------------------|----|------------------------|----|----------------------------|----|------------------------------|
| (5) | a. | kry-t ^{IPF} | b. | ot-kry-t ^{PF} | c. | ot-kry-va-t ^{IPF} | d. | za-ot-kry-va-t ^{PF} |
| | | cover-INF | | away-cover-INF | | away-cover-SI-INF | | behind-away-cover-SI-INF |
| | | ‘cover’ | | ‘open’ | | ‘open’ | | ‘start opening’ |

The theoretical literature calls it *derivational histories* (e.g. Zinova & Filip 2015, Zinova 2016, Mueller-Reichau 2021), a concept being attributed to Karcevski (1927). The histories suggest that there are two sets of prefixes; the first one is added to the verb before and the second one after SI. Indeed, it has been argued that there are two natural classes of prefixes (Išačenko 1962; Petr 1986; Lehmann 1993; Schoorlemmer 1995; Babko-Malaya 1999; Dickey 2000; Ramchand 2004; Svenonius 2004; Arsenijević 2006; Romanova 2006; Richardson 2007; Szucsich 2014; Gehrke 2008; Tatevosov 2008; Žaucer 2009; Markova 2011; Gvozdanović 2012; Mende *et al.* 2012; Wiland 2012; Biskup & Zybatow 2015; Biskup 2017a, 2019). According to the most popular view, these differences are based on two different base positions of internal and external prefixes in the derivation (Svenonius 2004, Ramchand 2004, Romanova 2006, Richardson 2007, Gehrke 2008; but see also Biskup 2007, 2012; Tatevosov 2008; Žaucer 2009; Markova 2011 and Wiland 2012).

There are however important variations – also in external prefixes themselves – in a specific language as well as between particular Slavic languages, which need to be

⁴ Although *kryt’* does not belong to the most common Russian verbs, it belongs to Modern Russian and is included in standard Modern Russian dictionaries; see. e. g. Ožegov & Švedova (1992) and Efremova (2000). Given this and the fact that the meaning of *otkryt’* is transparent (cf. *zakryt’* ‘close’ or *prikryt’* ‘cover’), we analyze *otkryt’* as a prefixed verb.

investigated. As to the intra-language variation, SI (recall that it is a potential realization of the boundary between the two aspectual cycles) is attached to the verbal stem after external prefixes like completive *do-* ‘to’ and repetitive *pere-* ‘across’ in Russian, producing an imperfective form, as in (6c), whereas it attaches to the verb before external prefixes like the delimitative *po-* ‘by’ in the derivation (7), ending with the perfective form (see Tatevosov 2013 for the distinction between positionally and selectionally restricted external prefixes in Russian).

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|-----|----|--|----|---|----|--|
| (6) | a. | pis-a-t' ^{IPF}
write-TH-INF
'write' | b. | do-pis-a-t' ^{IPF}
to-write-TH-INF
'complete writing' | c. | do-pis-yva-t' ^{IPF}
to-write-SI-INF
'complete writing' |
| (7) | a. | ot-kry-t' ^{IPF}
away-cover-INF
'open' | b. | ot-kry-va-t' ^{IPF}
on-work-TH-INF
'open' | c. | po-ot-kry-va-t' ^{IPF}
by-work-SI-INF
'open for a while' |

With other external prefixes: inceptive *za-* ‘behind’, distributive *pere-* ‘across’ and cumulative *na-* ‘on’, SI can be added either before the prefix – see (5c) and (5d) – or after the prefix, as in (8).

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|-----|----|--|----|---|----|---|
| (8) | a. | pe-t' ^{IPF}
sing-INF
'sing' | b. | za-pe-t' ^{IPF}
behind-sing-INF
'start singing' | c. | za-pe-va-t' ^{IPF}
behind-sing-SI-INF
'start singing' |
|-----|----|--|----|---|----|---|

Such variations are usually analyzed in terms of selectional restrictions and in terms of different positions in clausal hierarchy; see Jabłońska (2007) and Wiland (2012) for Polish, Tatevosov (2008, 2015) for Russian and Biskup (2020a) for Czech. But the question is why cases like the inceptive *za-* can be imperfectivized in *zapeť* ‘sing’ in (8) but cannot in *zaguljat' ‘start walking’. *Zagulivat' can only have the meaning ‘get lost’, as a SI form of the internally prefixed verb *zaguljat' ‘lose’. Here, according to Zaliznjak *et al.* (2015), well-establishedness of the verbal concept plays a crucial role (on well-establishedness see also Mueller-Reichau 2015, 2018a).***

As to inter-language variability, e.g. Czech displays the same pattern with completive *do-* as the Russian (6) but in the case of delimitative *po-*, it behaves differently. While in Russian **pootkryť* with the delimitative *po-* is ungrammatical (in contrast to (7c)), in Czech the delimitative (attenuative) *po-* can attach to the perfective stem before SI, as shown in (3c-d).

Variable behavior can also be found in external prefix stacking. On one side of the stacking scale, there is Czech, which does not like stacking much, and on the other side, there would be Bulgarian. Russian and Polish are located between the two poles. E.g. in Russian and Polish, delimitative *po-* and completive *do-* can stack, as in (9a) and (9b), with the meaning ‘spend some time completing (writing)’, taken from Tatevosov (2008, 431) and Wiland (2012, 315), respectively. In contrast, in Czech, such stacking is ungrammatical, as shown in (9c).

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|-----|----|-------------------------------|----|-------------------------------|----|---|
| (9) | a. | po-do-pisyvat'
by-to-write | b. | po-do-kańczać
by-to-finish | c. | * po-do-hrát / po-do-hrávat
by-to-play |
|-----|----|-------------------------------|----|-------------------------------|----|---|

The goal here is to determine whether distinctions in stacking and in the possibility or impossibility of prefixed verbs to be imperfectivized can be traced back to structural differences, in addition to lexical factors. There is almost consensus in the literature that in contrast to external prefixes internal prefixes do not stack (for exceptional cases with resultative coordination see Žaucer 2009 and for exceptional cases in Bulgarian see Markova 2011).

1.1.3 The modular system and the relevance of morphophonology

Given that the project is going to analyze aspectual affixes and derivational histories – which proceed step by step – and given that there can be mismatches between the position of an

aspectual affix in a word and the place of its interpretation and its phonological realization (as discussed below), we need an approach first that is incremental; second that can conduct a full morphematic analysis of Slavic predicates and third that can also analyze words from the perspective of the three linguistic levels: morphosyntax, semantics and phonology. One of such approaches is the morphosyntactic minimalist approach, in which words are derived in the syntactic module (see e.g. Biskup 2019 for arguments that verbal prefixation in Slavic is a syntactic phenomenon) and in which the (morpho)syntactic derivation is then sent to the interfaces, where it is semantically and phonologically interpreted. In addition, the approach makes clear predictions that can be either verified or falsified by the data under investigation. For these reasons, we are going to adopt this theoretical framework in our project.

The question arises which status the particular aspectual morphemes have in the morphosyntactic part of the system: whether they are heads (Ramchand 2004, Romanova 2006, Markova 2011, Biskup & Zybatow 2015), phrasal specifiers (see Svenonius 2004 on prefixes), different types of phrases (see Starke 2018 on the difference between prefixes and suffixes) or morphological adjuncts (see Newell 2005 and Biskup 2008 for discussion of the adjunct status of prefixes), and whether particular Slavic languages differ in this respect. The structural status has consequences not only for the syntactic behavior of the particular morpheme (e.g. whether or not it is visible for certain syntactic processes) but also for the semantic module (which interpretational effects the morpheme has) and the phonological module (which phonological processes it can undergo).

In line with standard assumptions, we expect variations in the syntactic and phonological module; differences in interpretation are a consequence of differences in the morphosyntactic derivation and its mapping to the semantic module. E.g., the Czech SI is subject to a three-moraic templatic requirement (Scheer 2003) in contrast to the Russian imperfectivizing *-yva-*. This variation issue is directly related to the question to which extent the two aspectual cycles correspond with syntactic domains (phrases and phases) and how the particular derivational modules are mapped onto each other. Čaha & Ziková's (2016) analysis of the templatic behavior of prefixed verbs in Czech e.g. seems to prefer the option under which every merge produces a phase, which is directly sent to the interfaces (as in Bošković 2007; Biskup 2017b, 2020b), where it is phonologically interpreted among other things.

The structural status of aspectual markers is crucial for linearization. So, by which means is the particular marker attached in a specific language; is it head movement (Baker 1988), generalized head movement (Arregi & Pietraszko 2020), phrasal movement (Starke 2018), morphological merger (Matushansky 2006) or postsyntactic amalgamation (Harizanov & Gribanova 2019)? In this respect, the most interesting markers are external prefixes because the prevalent approach takes them to be higher heads, composed with the verb via verbal head movement. The question then arises why they are not placed to the right of the verbal root.

To understand the aspectual derivation, we need to explore what portion of the morphosyntactic structure particular aspectual affixes represent. This is not a trivial task because first, a morpheme – in its morphosyntactic position in the predicate – can be dissociated from its interpretation; see e.g. the discussion of the SI exponent in the end of 1.1.4 and the discussion of prefixed stem nominalizations in Russian in 1.1.5, and second, phonological processes make the output of the morphosyntactic derivation murkier in many cases. For instance, it has been proposed for SI in Russian that its underlying form is a back rounded yer (Matushansky 2009); that there can be a floating mora affix (Gribanova 2015); or that SI is a product of a reduplication process (Enguehard 2017).

The following example from Czech shows that phonologically suffixes behave differently from prefixes. (10b) demonstrates the insertion of the front glide between two vowels and is

contrasted with (10c), without *j*-insertion because of the root ending in consonant. (10d) shows that the prefix ending in vowel does not induce the glide insertion. In contrast, with SI in (10e), the hiatus-resolving strategy is again used and the allomorph *-va-* (instead of *-a-*) is attached.

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|---------------|--------------|------------|------------|---------------------|
| (10) a. krý-t | b. kry-j-u | c. nes-u | d. po-učit | e. za-krý-va-t |
| cover-INF | cover-j-1.SG | carry-1.SG | by-teach | behind-cover-SI-INF |
| 'cover' | 'I cover' | 'I carry' | 'teach' | 'cover' |

This different behavior is often taken as evidence for the distinct syntactic status of prefixes and suffixes; see e.g. Svenonius (2004), who analyzes verbal prefixes as prepositional phrases and SI as a head (however the approach treating Slavic verbal prefixes as a head on a par with suffixes is still more prominent). Consider also Pesetsky (1985), who argues that prefixes are structurally exterior to the rest of the verb in Russian, building on phonological processes like *yer*-lowering. This contrasts with Scheer (2001, 2003), Biskup (2008), Ziková (2012), who show that prefixes must be in a local phonological (templatic) domain with the root at least for the relevant moment of the derivation. See also 1.1.5 for a distinct phonological behavior of internal and external prefixes in nominalizations.

1.1.4 The relation between theme suffixes and the secondary imperfective morpheme

To determine the position of SI in the morphosyntactic module – as a potential realization of the boundary between the two aspectual cycles –, its position wrt. the theme vowel will be investigated. Note that theme suffixes interact with aspect; for this reason, it has been proposed they also may spell out Asp as a *span*; see e.g. Jabłońska (2007) for Polish and Caha & Ziková (2016) for Czech. In contrast to this, some data from Russian, Polish and Czech suggest that the theme morpheme is attached to the root before SI (which may instantiate Asp) because it is closer to it; see example (11), taken from Biskup (2019, 11).

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|------------------------|-----|-------------------|-----|--------------------|------|
| (11) a. za-bol-e-va-t' | (R) | b. prze-rab-i-a-ć | (P) | c. roz-děl-á-va-t | (Cz) |
| behind-pain-TH-SI-INF | | over-do-TH-SI-INF | | apart-do-TH-SI-INF | |
| 'become ill' | | 'alter, redo' | | 'disassemble' | |

Palatalization supports this conclusion because in forms like the Polish (12b) and the Czech (13b) the theme *-i-* (represented as \emptyset in the b examples) must be underlyingly phonologically present; otherwise, we could not account for the presence of the palatalized root consonants. This is meant synchronically: themes like *-i-* represent a certain piece of the morphosyntactic structure (concretely the verbalizing head; see below) in the synchronic derivation, which can but does not have to be spelled out overtly. Specifically, given phonological properties of the theme and properties of the co-occurring morphemes, morphological rules determine at the interface whether jotation with palatalization of the preceding consonant happens, as in (12) and (13), or whether the theme remains, i.e. spells out the verbalizing head, as in (11a) and (11c), where *-v-* is inserted to block hiatus.

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|----------------------------------|---|-----------------------|
| (12) a. wy-gas-i-ć ^{PF} | b. wy-gasz- \emptyset -a-ć ^{IPF} | |
| out-go.out-TH-INF | out-go.out-TH-SI-INF | |
| 'put out' | 'put out' | (Jabłońska 2007, 132) |
| (13) a. vy-vrát-i-t | b. vy-vrac- \emptyset -e-t | |
| out-back-TH-INF | out-back-TH-SI-INF | |
| 'disprove' | 'disprove' | |

Matushansky (2009) argues that Russian theme vowels do not behave identically. For instance, the theme suffix *-i-* occurs before SI, as in the palatalized *razgružat*^{IPF} 'offload' derived from

razgruzit^{PF}, analogously to the Polish (12), whereas the theme *-e-* exists in two variants. The first type of *-e-* is a verbalizing element (as is the theme *-i-*), which is part of the verbal stem and attaches before SI – see (11a) –, whereas the second *-e-* is a thematic suffix, not a verbal head, which disappears in SI forms like *zakupat*^{PF} ‘start boiling’, derived from *zakupet*^{PF}. If Matushansky is right, then theme suffixes are another important source of inner-Slavic variation. Given that theme vowels typically provide information about the syntactic category and determine the conjugation class, they are often treated as the verbalizing head *v* (Svenonius 2004; Ziková 2012; Enguehard 2015, 2017; Biskup 2019). This is also supported by the claims that theme vowels in Slavic introduce the argument structure (Taraldsen Medová & Wiland 2019), that certain theme vowels derive specific verb classes (Medová 2012), that roots select the theme vowel and that it is not a phonological process (Holaj 2018) and that themes may span several verbal projections; see e.g. Jabłońska (2007) and Caha & Ziková (2016).

A question that also needs to be answered is whether the vowel *-a-* in examples like (11) and (12b) indeed belongs to SI, as glossed there, whether it is a realization of Asp (Gribanova 2015) or whether it is just a conjugation marker; see discussion in Jakobson (1948), Feinberg (1980), Matushansky (2009) and Enguehard (2017).

The theme suffix *-nu-* (in Russian and its equivalents in other Slavic languages) displays a specific behavior. It strongly interacts with SI and in contrast to other aspectual suffixes, it can perfectivize the stem to which it attaches. It derives semelfactive and degree achievement verbs (see Taraldsen Medová & Wiland 2019 for Polish and Czech and for arguments that the semelfactive and the degree achievement *-nu-* are also synchronically related) and in both cases it cannot co-occur with SI on a verb. However, only in the case of semelfactive predicates, *-nu-* perfectivizes. The question is which analysis of the blocking effect is the most adequate, whether the one based on structural blocking (like Markman 2008, who proposes that in Russian the semelfactive *-nu-* and SI compete for the same structural position – the verbalizing head *v* – and the insertion depends on aspectual features of the head) or a semantic one (like Jabłońska 2007, who argues that the Polish *-n-* represents a verbalizing head and that semelfactives do not have a process part that would allow the progressive operator to include the reference time within the event time of the process). As to the perfectivizing behavior of *-nu-*, given the lexical aspect differences between the instantaneous semelfactives and degree achievements incorporating a scale, one may hypothesize that the morphological perfectivizing effect of the semelfactive *-nu-* is based on its lexical aspect properties.

The standard analysis of SI treats it as an exponent of Asp (usually placed above *vP*, see Ramchand 2004, Borer 2005, Gehrke 2008, Błaszczak & Klimek-Jankowska 2012; but cf. also MacDonald 2006 for AspP between *vP* and *VP*) because it has an imperfectivizing effect on the predicate; see Dimitrova-Vulchanova (1999), Svenonius (2004), Tatevosov (2008), Biskup (2019). However, we are going to subject this proposal to critical scrutiny because some data suggest that the imperfective interpretation can be dissociated from the SI exponent; thus, Romanova (2004), Tatevosov (2015) and Mueller-Reichau (2020) argue that SI attaches inside the verbal domain in Russian. In Czech, scope facts with cumulative *na-* also argue for a position of SI below the projection with the agentive argument (Biskup 2020a). If it proves correct, then we cannot identify the boundary between the two aspectual cycles with SI in these languages. This may be another source of variation between Slavic languages.

1.1.5 Variations in structural complexity and the presence/absence of AspP

In nominalizations and participles, certain aspectual distinctions become more prominent and also differences between particular Slavic languages seem to become bigger. For instance, following Svenonius (2004), Caha & Ziková (2016) argue that in root nominalizations only

internal prefixes can occur in Czech. Thus, the root nominalization *nálet* can only have the meanings shown in (14a) and the prefix *ná-* cannot bring about the cumulative meaning in contrast to *na-* in the verb (14b) and in the stem nominalization in (14c).

- (14) a. *ná-let* b. *na-lét-a-t^{PF}* c. *na-lét-á-n-í^{PF}* d. *na-lét-á-vá-n-í^{PF}*
 on-fly on-fly-TH-INF on-fly-TH-PART-N on-fly-TH-ITER-PART-N
 ‘(air) attack, self-seeding’ ‘fly a lot of sth.’ ‘flying a lot of sth.’ ‘frequent flying on sth.’

Morphosyntactic complexity goes hand in hand with phonological properties (driven by templates, see Scheer 2001, Ziková 2012): prefixes in root nominalizations have a long vowel, whereas prefixes in verbs and stem nominalizations have a short vowel; cf. (14a) with (14b), (14c) and (14d).⁵ These properties also correlate with the ability to express the morphological aspect. While root nominalizations do not bear aspectual information, stem nominalizations and verbs have aspectual properties, as shown in (14).

This contrasts with the claims that Russian stem nominalizations and certain participles do not have the semantic aspect (e.g. Schoorlemmer 1995, Gehrke 2008). The presence of aspectual morphology like prefixes is then taken as evidence for dissociating of aspectual markers from the semantic aspect, i.e. the position of AspP (Tatevosov 2011). According to Tatevosov, the lack of the semantic aspect can be demonstrated with the grammatical phrase *načal napísanie* ‘started writing’. The comparison with Czech supports the claim that in Czech stem nominalizations the semantic aspect is present because *začal vypisování^{PF}*, containing SI, is grammatical contrary to the ungrammatical *začal vypsání^{PF}* (cf. also Procházková 2006; for the presence of morphological aspect in Polish complex event nominals, see Rozwadowska 1995, 2000). This raises several questions. How complex are nominalizations in Russian versus Polish and Czech? Do Polish and Czech nominalizations include the higher aspectual cycle in contrast to Russian? Is the aspectual interpretation (hence AspP) located in the same position in the languages? What happens semantically in this projection?

Similarly, because of the higher structural position of external prefixes, it has been argued that they cannot occur in Russian passive participles (Romanova 2006, Gehrke 2008). Biskup (2012, 2016) shows that in Czech, external prefixes (and at least some of them in Polish and Russian) can form past passive participles and argues that AspP is located between *vP* and the participial phrase. Given the morphological make-up of Russian participles, one would expect *per analogiam* that AspP (and the corresponding interpretation) is present in Russian past passive participles. Given the distinction between lexical and morphological/grammatical aspect (Smith 1991; Filip 1999, 2012; Borik 2002; Dimitrova-Vulchanova 2012; Gvozdanović 2012; Oertle 2016), for some reason, prefixes in Russian participles (and stem nominalizations) are more important to the lexical aspect, which is primarily encoded by the verb and its arguments in *vP*, and less relevant to the grammatical aspect, encoded in the end of the first aspectual cycle in AspP. Thus, one can differentiate between aspectual markers that telicize and/or perfectivize – i.e. occur in the lower cycle – and markers that just have an aktionsart meaning, i.e. merge in the higher cycle above AspP and modify time properties of the predicate.

Consequently, the project needs to investigate the following questions. Is the structure of Russian participles smaller than participles in Czech, possibly containing only the lower aspectual cycle? Are AspP and (some) external prefixes indeed missing there? Building on the discussion of differences between external prefixes – also wrt. the two aspectual cycles – in a

⁵ The form in (14c) can also be imperfective, with the non-cumulative meaning ‘fly on sth., self-seed’. (14d) is derived from this imperfective verb by the iterative *-va-*.

specific language as well as across Slavic languages above, the project will ask whether the same differences in prefixation are also observable in participles.

1.2 Project-related publications

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2 Objectives and work programme

2.1 Anticipated total duration of the project

We apply for funding for one position, *eigene Stelle*, for a period of three years, with a possible extension for another three years for the second phase to extend the model and the methodology developed in the first phase to the other Slavic languages.

2.2 Objectives

The project has both empirical and theoretical objectives. On the empirical side, firstly, it is going to compare data from the three North Slavic languages (Russian, Polish, and Czech) wrt. topics discussed above. This will include data collected during the project as well as data already known from the literature. Note that not all topics were discussed exhaustively in the literature for all three languages and that not always were the three languages compared systematically wrt. the specific phenomena (e.g. there are works on prefix stacking and the interaction of prefixes with SI like Tatevosov 2013 for Russian, Wiland 2012 for Polish and Esvan 2007 for Czech, but there is not a full systematic comparison of the three languages wrt. such prefixal hierarchies). Thus, secondly, the project will collect new data on the behavior of the four aspectual markers and will compare them with the data already known from the literature. Then it will investigate whether and how the particular sets of collected data from the three languages correspond. The third empirical goal is to draw appropriate generalizations from it and determine empirical factors that affect the aspectual derivation and are relevant to the two aspectual cycles.

The main theoretical objective is to provide a morphosyntactic modular model of Slavic-style aspect that can treat intra-language and inter-language variability in the behavior of the four aspectual markers (SI, verbal prefixes, iterative suffixes and the semelfactive morpheme), including their distribution to the two aspectual cycles, their interaction, morphosyntactic properties, semantic import and phonological properties. In this respect, the project aims to contribute to our understanding of how particular modules are mapped to each other and by means of which operations morphemes combine with each other. A more specific goal is to provide an analysis of complex biaspectual verbs, the simultaneous interpretation of coordinated prefixed perfective verbs and derivational histories of Slavic predicates. This means that the project aims at answering the evergreen question of how perfectivity/imperfectivity is derived and how the aspectual value can change in the process of synchronic word formation. Since derivational histories will be investigated from the perspective of all three main linguistic levels – morphosyntax, semantics and phonology –, the project can make valuable contributions to our understanding of recently-observed mismatches between the place of specific aspectual markers in the word, their phonological realization and their dissociated interpretation. From the typological point of view, the project is going to test predictions of universalistic approaches to clausal structure like Cinque (1999) concerning the ordering and stacking of Slavic affixes.

2.3 Work programme including proposed research methods

As to the languages investigated, we include Russian because it is the best-studied Slavic language. Russian will be contrasted with two West Slavic languages, Polish and Czech. This set of languages is reasonable to start with: Russian as a prototypical representative of the eastern group, Czech as its western pendant and Polish in the transitional zone (Dickey 2000). Both investigators worked on these languages already and one of the principal investigators is a native speaker of Czech. Data for the project will be acquired from three sources: First, from dictionaries, the canonical/standard aspectual literature (e.g. Zaliznjak & Šmelev 1997 for Russian, Łaziński 2020 for Polish, Kopečný 1962 for Czech) and the literature on specific aspectual topics, e.g. as discussed above. We will also consult works with quantitative corpus data like Esvan (2007), Janda *et al.* (2013) and Wiemer, Wrzesień-Kwiatkowska & Łaziński (2020). The second source is online corpora, mainly national corpora of the three languages. For the topics of inter-language variation, also parallel corpora like ParaSol will be used. Here, we are going to profit from the cooperation with Roland Meyer. Since the national corpora are not large enough for certain topics (e.g. prefix stacking), we will also use Web corpora of the TenTen family, which in addition to their size (targeting 10 billions words per language), have the advantage important to inter-language variation that they are comparable. Third, for the data that are impossible to collect from the sources mentioned, we will use online questionnaires, so that participants can fill out them in their homes. They will contain acceptability judgements with a Likert scale and will be run with the L-Rex software (Starschenko & Wierzba 2021), which offers an automated randomization and distribution of data items to questionnaires with the Latin square design.

All parts of the project will be carried out in cooperation of the two applicants. Petr Biskup will primarily concentrate on the morphological and syntactic parts of the project and Olav Mueller-Reichau will be mainly responsible for the syntax-semantic interface and the semantics-pragmatics interface. The research on phonological properties of the aspectual derivation will be conducted in cooperation with Markéta Ziková from Masaryk University Brno.

The work program consists of six phases (two in each year), with appropriate aspectual phenomena and corresponding working steps.

Phase 1: Developing a theory of the secondary imperfective suffix

1. Consult the literature and analyze phonological and morphophonological properties of SI in the three languages (cf. 1.1.3 and 1.1.4). Interpret them wrt. possible morphosyntactic structures of Slavic predicates. Determine the relation between SI and theme suffixes (especially the semelfactive one; see 1.1.4) and develop structure of the verbal domain, with variations for particular languages.
2. Localize the position of SI and control whether SI is indeed dissociated from its meaning (i.e. the semantic aspect in Asp; see Tatevosov 2015, Biskup 2020a and 1.1.4). Evaluate the hypothesis that Slavic languages can differ wrt. whether or not SI spells out Asp.
3. Determine the meaning of SI by comparing aspectual properties of the three languages and deciding which type of the aspectual operator is appropriate (the viewpoint operator(s) as in Klein 1994, the partitive-homogenizing operator as in Łazarczyk 2010 etc.). We begin with the hypothesis that Slavic languages can differ wrt. the type of the operator present in AspP.
4. Evaluate the hypothesis that in cases where SI is dissociated from Asp, Slavic languages can differ wrt. the meaning of the SI exponent. So far, the hypothesis is supported by the fact that Tatevosov's (2015) eventizer analysis of the Russian SI cannot be applied to Czech.

Phase 2: The secondary imperfective suffix and the iterative morpheme

1. Compare phonological properties of SI and the iterative (and reduplicated) *-va-* (ITER) in Czech, using primarily Scheer (2001, 2003). Consult the empirical claims with native speakers.
2. Compare morphosyntactic properties of SI and ITER in Czech and compare it with other languages. Investigate the relationship between SI and ITER on the analogy of the relation between imperfectivity and iterativity (habituality).
3. Determine predictions of our hypothesis that ITER merges in the higher aspectual cycle (1.1.1) and evaluate them wrt. the ordering of morphemes and existing analyses of ITER (see e.g. overview in Berger 2009).
4. Provide a morphosyntactic and semantic analysis that can account for the distribution and interpretation of ITER as compared to SI. Test the hypothesis that ITER is a realization of the iterative AspP of Cinque's (1999) hierarchy. Since ITER behaves more regularly, e.g. phonologically, than SI and is higher in clausal architecture, we will also scrutinize the hypothesis that ITER is a result of a grammaticalization process, which would suggest approaches to grammaticalization like Roberts & Roussou (2003) and Van Gelderen (2011). The same hypothesis shall be tested for the remote past interpretation since tense phrases are immediately above AspPs.

Phase 3: The interplay between the secondary imperfective suffix and prefixes

1. Compare derivational histories e.g. in Zinova & Filip (2015) with the literature on prefixal hierarchies and stacking like Cinque (1999), Wiland (2012), Tatevosov (2013). Draw generalizations and determine the inventory of prefix kinds building on Tatevosov (2013). Check for attested formal combinations in large online corpora (TenTen) and if necessary, also with the help of questionnaires. Determine how the three languages differ wrt. the ordering of SI and a specific prefix (cf. the variable behavior of delimitative *po-* in 1.1.2). The empirical goal here is to clarify which factors affect the distribution, acceptability and interpretation of particular prefixes and prefix types.
2. Investigate phonological properties of prefixes; evaluate their analyses (e.g. Pesetsky 1985, Scheer 2003, Ziková 2012) and draw conclusions wrt. positions of specific prefixes.

3. Classify prefixes morphosyntactically, building on Petruchina (2000) and Tatevosov (2013), i.e. determine the inventory of selectionally restricted prefixes (prefixes that may attach above SI and apply only to imperfectives) and positionally restricted prefixes (which have an event-presuppositional meaning, attach after internal prefixes and below SI). Examine whether cases with positionally restricted prefixes above SI can be found and whether this option is licensed only if SI brings about an iterative meaning, as proposed by Mueller-Reichau (2021).
4. Evaluate proposals that there are two hierarchies of external prefixes (Markova 2011; cf. also Cinque 1999), as also suggested by the Russian inceptive *za-* in 1.1.2.
5. Develop a morphosyntactic and semantic analysis that can account for the distribution and interpretation of SI, particular prefixes and prefix types, with consequences for their structural status and linearization. Evaluate implications for the mapping of the syntactic module and the (im)possibility of post-syntactic operations (cf. 1.1.3).

Phase 4: Prefixes and the secondary imperfective suffix in complex biaspectual verbs

1. Evaluate the adequacy of the biaspectual generalization in Observation 3 by testing various homophonous prefixes. Building on Phases 1 (position of SI) and 3 (position of prefixes wrt. SI), we have tools for predicting possible biaspectual verbs. Test the predictions in annotated corpora and with standard aspectual tests. Evaluate differences between the three languages.
2. Test also cases where SI does not spell out the boundary (AspP) between the two cycles, both with SI occurring and not occurring between the two homophonous prefixes structurally.
3. Determine whether the (im)possibility of deriving biaspectual verbs is based on pure phonetic factors (homophony) or whether there are other important factors. If yes, isolate them. Evaluate whether there is a (cor)relation with Cinque's (1999) analysis of AspPs with two instantiations.
4. Compare the results with the literature on complex biaspectual verbs like Zinova & Filip (2015) and Zinova (2016).
5. The theoretical goal is to develop a morphosyntactic theory of biaspectual verbs. Scrutinize the relation between derivational histories and the syntactic derivation wrt. monotonicity, parallel derivations and the type of the spellout (spellout of terminals vs. phrasal spellout).

Phase 5: The simultaneous interpretation of coordinated prefixed verbs

1. The empirical objective is to isolate factors – syntactic, semantic and phonological – affecting acceptability of the simultaneous interpretation of coordinated perfective verbs. Test the following predictions of our proposal (Observation 2 in 1.1.1) in corpora and with native speakers, using questionnaires: First, given differences between particular languages wrt. the position of a specific external prefix (see 1.1.2 and Phase 3), only languages with the prefix occurring above the coordinated *v*P_s will allow the simultaneous reading. Second, internal prefixes merge low in *v*P, hence they do not allow the simultaneous interpretation. Given structural properties of coordinations, the third prediction is that if a distinct prefix occurs on the verb in the middle position of the coordination, no simultaneity effect will arise. Fourth, only external prefixes from the higher aspectual cycle – i.e. those that are able to modify temporal properties introduced in AspP – can induce the simultaneous reading.
2. Evaluate the results wrt. the question of how the presence of SI affects the availability of the simultaneous interpretation.
3. Examine whether “atelicity” (of the delimitative *po-*, which derives perfective but atelic verbs) is a relevant factor. So far, the simultaneous reading of verbs with inceptive *za-* (see Dickey 2000) tells against it because such inceptive verbs are usually considered to be telic.
4. Provide a morphosyntactic analysis and determine linearization and phonological properties of the coordination with the simultaneous reading, i.e. how the complex structure is spelled out.

Phase 6: Variations in structural and aspectual complexity

1. Consult the literature (e.g. Rozwadowska 1995, 2000), apply the tests and scrutinize whether stem nominalizations in Polish and Czech indeed have the semantic aspect. Compare it with the literature on Russian (wrt. the lack of semantic aspect in Russian, as in Gehrke 2008).
2. Consider phonological differences (in prefixal length) between internal and external prefixes in Czech nominalizations (Scheer 2001, Ziková 2012 and 1.1.5) and find out whether there is a similar phenomenon in the other languages. If yes, evaluate whether the distinction corresponds to complexity of the structure, and the presence/absence of AspP, as in Caha & Ziková (2016).
3. Repeat Step 1 for passive participles.
4. Use predictions from Phases 1 (position of SI) and 3 (position of prefixes wrt. SI) and test the possibility of the presence of SI and external prefixes in nominalizations and passive participles of the three languages (extending Biskup 2012, 2016), by examining dictionaries and online corpora. If there are not enough data, confront native speakers with questionnaires. Compare the results with results from Steps 1, 2 and 3 and draw conclusions wrt. the presence of the semantic aspect and the higher aspectual cycle, and wrt. the structural height of nominalizations and participles in the languages. Determine whether AspP is indeed missing in Russian or whether there is a “weaker” operator in AspP.
5. Develop a theory of nominalizations and participles, with interactions of the syntactic module with the semantic and phonological modules, which can account for the variable behavior of the specific languages.

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