Chapter 1

Aspect separated from aspectual markers in Russian and Czech

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This article is concerned with the derivation of morphological aspect in Russian and Czech. It investigates four aspectual markers: prefixes, the secondary imperfective suffix, the semelfactive marker, and the habitual suffix. It argues that not only in Russian (see Tatevosov 2011; 2015) but also in Czech aspect interpretation is separated from prefixes and the secondary imperfective suffix. Moreover, it extends the separation to the semelfactive suffix and the habitual marker. Specific morphological aspect properties of Russian and Czech predicates are derived by an Agree analysis with minimality based on dominance relations in the complex verbal head.

Keywords: Agree, aspect, prefixes, habitual suffix, secondary imperfective, semelfactive suffix

1 Introduction: Aspectual markers

This section introduces four aspectual markers: prefixes, the secondary imperfective marker, the semelfactive suffix, and the habitual suffix. I call these morphemes aspectual markers since they are relevant to morphological aspect (they can change the perfective/imperfective value of the base predicate) and/or since they are relevant to aspect more generally, e.g. because of bringing about (a)telicity, habituality or new aktionsart properties.

1.1 Prefixes

Lexical prefixes (also called internal, qualifying, resultative) as well as superlexical (external, modifying, aktionsart) prefixes almost always perfectivize the

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imperfective simplex verb (for discussion of the two types of prefixes, see e.g. Isačenko 1962; Petr 1986; Lehmann 1993; Schoorlemmer 1995; Babko-Malaya 1999; Svenonius 2004; Arsenijević 2006; Romanova 2006; Gehrke 2008; Tatevosov 2013; Szucsich 2014; Biskup & Zybatow 2015; Caha & Ziková 2016; Biskup 2019; Klimek-Jankowska & Błaszczak 2021; 2022). For the perfectivizing effect of lexical prefixes, see examples (1) and (2). [1]

(1)   a.   kleitʲ$^{\text{IPF}}$
          stick
          'to stick on'

       b.   na-kleitʲ$^{\text{PF}}$
          on-stick
          'to stick on'   (Russian)

(2)   a.   chovat$^{\text{IPF}}$
          raise
          'to raise'

       b.   vy-chovat$^{\text{PF}}$
          out-raise
          'to raise'   (Czech)

With respect to the perfectivizing effect of superlexical prefixes, consider examples (3) and (4).

(3)   a.   delatʲ$^{\text{IPF}}$
          do
          'to do'

       b.   na-delatʲ$^{\text{PF}}$
          CUM-do
          'to do a lot'   (Russian)

(4)   a.   plést$^{\text{IPF}}$
          knit
          'to knit'

       b.   do-plést$^{\text{PF}}$
          COMP-knit
          'to complete knitting'   (Czech)

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[1]Lexical prefixes are glossed with a meaning of the corresponding preposition and superlexical prefixes are glossed with the appropriate aktionsart abbreviation.

Both Russian and Czech also have simplex verbs that are perfective. If they combine with a lexical or a superlexical prefix, they remain perfective, as demonstrated by the Russian examples in (5) and the Czech examples in (6).

(5)   a.   [vy-[kupiť]^{PF}]^{PF}
          out-buy
          'to buy sb.'s freedom'

      b.   [na-[kupiť]^{PF}]^{PF}
          CUM-buy
          'to buy a lot'   (Russian)

(6)   a.   [do-[dat]^{PF}]^{PF}
          to-give
          'to deliver'

      b.   [do-[říci]^{PF}]^{PF}
          COMP-say
          'to say to the end'   (Czech)

Lexical and superlexical prefixes can co-occur, as shown by the following examples. Also in this case, the predicate remains perfective. In addition, it holds that the superlexical prefix must occur outside the lexical prefix, as demonstrated by the contrast between examples (7a), (8a) and examples (7b) and (8b).

(7)   a.   [pere-[vy-polniť]^{PF}]^{PF}
          EXC-out-fulfill
          'to overfulfill'

      b.   * [vy-[pere-polniť]^{PF}]^{PF} (Russian)
          out-EXC-fulfill

(8)   a.   [pře-[vy-chovat]^{PF}]^{PF}
          REP-out-raise
          'to re-educate'

      b.   * [vy-[pře-chovat]^{PF}]^{PF} (Czech)
          out-REP-raise

1.2 The secondary imperfective marker

In this section, I consider the effect of the secondary imperfective suffix on the morphological aspect of the base predicate. Let us begin with Russian.

     The secondary imperfective suffix derives an imperfective predicate from a perfective predicate, which can contain a lexical prefix, as in examples (9) and (10).

(9) a. [za-[rabot-a]^{IPF}]^{PF}-ť
behind-work-ᴛʜ-ɪɴꜰ
'to earn'

b. [[za-[rabat]^{IPF}]^{PF}-yva]^{IPF}-ť
behind-work-sɪ-ɪɴꜰ
'to earn'   (Russian)

(10) a. [po-[moč']^{IPF}]^{PF}
along-can
'to help'

b. [[po-[mag]^{IPF}]^{PF}-a]^{IPF}-ť
along-can-sɪ-ɪɴꜰ
'to help'   (Russian)

The imperfectivizing suffix can also derive an imperfective predicate from a perfective stem with a superlexical prefix, as in (11), or from a perfective stem without a prefix, as shown in (12).

(11) a. [za-[rabot-a]^{IPF}]^{PF}-ť
ɪɴᴄ-work-ᴛʜ-ɪɴꜰ
'to start working'

b. [[za-[rabat]^{IPF}]^{PF}-yva]^{IPF}-ť
ɪɴᴄ-work-sɪ-ɪɴꜰ
'to start working'   (Russian)

(12) a. [d-a]^{PF}-ť
give-ᴛʜ-ɪɴꜰ
'to give'

b. [[d-a]^{PF}-va]^{IPF}-ť
give-ᴛʜ-sɪ-ɪɴꜰ
'to give'   (Russian)

Certain superlexical prefixes can also attach outside the imperfectivizing suffix (see e.g. Ramchand 2004; Gehrke 2008; Tatevosov 2013; Szucsich 2014; Klimek-Jankowska & Błaszczak 2021; 2022) and they perfectivize the predicate again, as illustrated in example (13).

(13) a. [[vy-[talk]^{IPF}]^{PF}-iva]^{IPF}-ť
out-push-sɪ-ɪɴꜰ
'to push out'

b. [po-[[vy-[talk]^{IPF}]^{PF}-iva]^{IPF}]^{PF}-t'
   DIST-out-push-SI-INF
   'to push out one after another'   (Russian)

Some superlexical prefixes can occur both inside the imperfectivizing suffix, as the inceptive *za-* in (11), and outside the secondary imperfective marker, as the inceptive *za-* in the following example.

(14) a. [[ot-[kry]^{IPF}]^{PF}-va]^{IPF}-t'
         away-cover-SI-INF
         'to open'
      b. [za-[[ot-[kry]^{IPF}]^{PF}-va]^{IPF}]^{PF}-t'
         INC-away-cover-SI-INF
         'to start opening'   (Russian)

Standardly, the secondary imperfective suffix is taken to have three forms: *-yva-*/*-iva-*, as in (9b), (11b) and (13), *-va-*, as in (12b) and (14), and *-a-*/*-ja-*, as in (10b); see e.g. Vinogradov et al. (1952), but there are also alternative analyses like Isačenko (1962) and Matushansky (2009). A closer look at the data under discussion reveals that *v* is present in *-va-* because of blocking hiatus; compare examples (12) and (14) with example (10b).

In Czech, an analogous pattern is observed: the secondary imperfective suffix derives an imperfective verb from a perfective stem and the base predicate can contain either a lexical prefix or a superlexical prefix. Examples (15b) and (16b) show an imperfective predicate derived from a lexically prefixed verb.

(15) a. [za-[bí]^{IPF}]^{PF}-t
         behind-beat-INF
         'to kill'
      b. [[za-[bí]^{IPF}]^{PF}-je]^{IPF}-t
         behind-beat-SI-INF
         'to kill'   (Czech)
(16) a. [vy-[pros-i]^{IPF}]^{PF}-t
         out-beg-TH-INF
         'to beg'
      b. [[vy-[proš]^{IPF}]^{PF}-ova]^{IPF}-t
         out-beg-SI-INF
         'to beg'   (Czech)

In contrast, example (17b) demonstrates an imperfective predicate derived from a superlexically prefixed predicate.

(17) a. [do-[plés]$^{\text{IPF}}$]$^{\text{PF}}$-t
COMP-knit-INF
'to complete knitting'

b. [[do-[plét]$^{\text{IPF}}$]$^{\text{PF}}$-a]$^{\text{IPF}}$-t
COMP-knit-SI-INF
'to complete knitting' (Czech)

The imperfectivizing suffix can also derive an imperfective predicate from an unprefixed perfective verb, as illustrated in examples (18) and (19).

(18) a. [d-á]$^{\text{PF}}$-t
give-TH-INF
'to give'

b. [[d-á]$^{\text{PF}}$-va]$^{\text{IPF}}$-t
give-TH-SI-INF
'to give' (Czech)

(19) a. [vrát-i]$^{\text{PF}}$-t
return-TH-INF
'to return'

b. [[vrac]$^{\text{PF}}$-e]$^{\text{IPF}}$-t
return-SI-INF
'to return' (Czech)

In Czech, too, certain superlexical prefixes attach to the stem after the imperfectivizing suffix. Hence, they perfectivize the secondary imperfective predicate, as illustrated in the following example, based on example (15).

(20) a. [[za-[bí]$^{\text{IPF}}$]$^{\text{PF}}$-je]$^{\text{IPF}}$-t
behind-beat-SI-INF
'to kill'

b. [po-[[za-[bí]$^{\text{IPF}}$]$^{\text{PF}}$-je]$^{\text{IPF}}$]$^{\text{PF}}$-t
DIST-behind-beat-SI-INF
'to kill one after another' (Czech)

Some superlexical prefixes can attach to the verb both before the imperfectivizing suffix, as in (17), and after the imperfectivizing marker, as in (21c). Both examples contain an occurrence of the completive prefix *do-*. [2]

(21)   a.   [vy-[plés]$^{\text{IPF}}$]$^{\text{PF}}$-t
             out-string-INF
             'to string'

       b.   [[vy-[plét]$^{\text{IPF}}$]$^{\text{PF}}$-a]$^{\text{IPF}}$-t
             out-string-SI-INF
             'to string'

       c.   [do-[[vy-[plét]$^{\text{IPF}}$]$^{\text{PF}}$-a]$^{\text{IPF}}$]$^{\text{PF}}$-t
             COMP-out-string-SI-INF
             'to complete stringing'   (Czech)

It is obvious from the examples that there are three secondary imperfective markers in Czech: *-(v)a-*, present in (17), (18) and (21), *-ova-*, occurring in (16), and the suffix *-(j)e-*, which is present in (15) and (19) and which is not productive (see Petr 1986). The examples also suggest that *v* in *-va-* and *j* in *-je-* block hiatus; compare (18) with (17b) and (15b) with (19b). In fact, the pattern could be simplified if we decomposed *-ova-* and the Russian *-yva-/-iva-*. They follow the general Slavic *-Vva-* pattern, with a vowel, *-v-* blocking hiatus and (the iterative) *-a-* (see e.g. Kuznecov 1953 and Lunt 2001). For ease of exposition, I will treat the imperfectivizing markers as a whole in what follows.

    Thus, the relevant part of the linearized structure with aspectual markers and their aspectual effects looks like (22). *LP* stands for lexical prefixes, *SP* for superlexical prefixes and *SI* for the secondary imperfective suffix.

(22)   [SP$_{\text{higher}}$[[SP$_{\text{lower}}$[LP[√root]$^{\text{PF/IPF}}$]$^{\text{PF}}$]$^{\text{PF}}$SI]$^{\text{IPF}}$]$^{\text{PF}}$

Recall that some superlexical prefixes merge lower and others higher than the imperfectivizing suffix (and some of them can merge in a lower as well as in a higher position).

1.3 The semelfactive marker

The semelfactive suffix consists of *-n-* and some vowel in Slavic (the original form was *-nVn-*; see Wiemer & Seržant 2017). It selects a root with a punctual

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[2]In this respect, Czech differs from Russian, which only allows completive *do-* in the lower position (see Tatevosov's 2008 discussion of intermediate prefixes).

or instantaneous property and derives a perfective stem, as illustrated in the Russian example (23) and the Czech example (24).[3]

(23) a. krik
          shout
          'shout'
      b. krik-nu-t^{PF}
          shout-SEML-INF
          'to shout out'   (Russian)

(24) a. bod
          point
          'point'
      b. bod-nou-t^{PF}
          point-SEML-INF
          'to stab'   (Czech)

The semelfactive marker differs from the suffix *-nV-* present in other verbs like degree achievements. The degree achievement *-nV-* selects a root denoting a property and does not have a perfectivizing effect on the verb (see Taraldsen Medová & Wiland 2019 for the relation and differences between the two *-nV-* suffixes).

Since the semelfactive suffix attaches directly to the root and verbalizes it, as shown by the contrasts in (23) and (24), I assume that it spells out the verbalizing head *v*. If correct, then we expect the semelfactive suffix to be in complementary distribution with other themes representing the verbalizing *v*. This prediction is borne out, as demonstrated below. The examples in (25a) and (26a) show a grammatical combination of the root and a theme vowel, whereas the examples in (25b)–(25c) and (26b)–(26c) – based on grammatical forms (23b) and (24b) – demonstrate that the co-occurrence of the theme vowel and the semelfactive suffix leads to ungrammaticality in both orders.[4,5]

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[3]Some Russian verbs take the expressive, extended marker *-anu-* (and some both *-nu-* and *-anu-*); see e.g. Isačenko (1962) and Švedova (1980).

[4]A reviewer suggests analyzing the marker *-nu-* as a sequence of the semelfactive marker (with the perfective feature) and the theme vowel, which would have the advantage that all theme vowels would be analyzed identically: as verbalizers without aspectual features. The disadvantage, however, is that then the verbalizer (the theme vowel) would not be adjacent to the root, contrary to the standard assumption. In addition, the elements behave like a unit, e.g. with respect to elision; cf. the following Czech alternatives in the past tense: *tiskl/tisknul* 'printed'.

[5]To avoid hiatus, I insert /v/ between the semelfactive suffix and the theme vowel in (25b) and (26c), a strategy known from secondary imperfectives.

(25) a. krič-a-ť
          shout-TH-INF
          'to shout'

      b. * krik-nu-va-ť
          shout-SEML-TH-INF
          Intended: 'to shout out'

      c. * krič-a-nu-ť
          shout-TH-SEML-INF
          Intended: 'to shout out'   (Russian)

(26) a. bod-a-t
          point-TH-INF
          'to stab'

      b. * bod-a-nou-t
          point-TH-SEML-INF
          Intended: 'to stab'

      c. * bod-nou-va-t
          point-SEML-TH-INF
          Intended: 'to stab'   (Czech)

Given that the semelfactive marker represents the verbalizing head *v*, the complementary distribution of this suffix and the secondary imperfective marker – shown in (27) and (28) – cannot be based on structural blocking, as proposed e.g. by Markman (2008) for Russian.

(27) * krik-nu-va-ť
        shout-SEML-SI-INF
        Intended: 'to shout out'   (Russian)

(28) * bod-nou-va-t
        point-SEML-SI-INF
        Intended: 'to stab'   (Czech)

The reason for ungrammaticality of cases like (27) and (28) can be rather semantic. For instance, Jabłońska (2007) argues that semelfactives – being instantaneous – do not have a process part in their event structure, on which the progressive operator of secondary imperfectives could operate. Another possibility is to assume that the secondary imperfective suffix spells out an atelicizer/eventizer, which combines with complex events, i.e. accomplishments ($\lambda R.\lambda e.\exists s[R(e)(s)]$, see Łazorczyk 2010 and Tatevosov 2015). It is obvious that semelfactives are not of the

appropriate eventive type; they do not introduce a change of state (e.g. Smith 1991) and they are taken to be achievements by Vendler (1957).[6]

There is also a possibility to exclude cases like (27) and (28) by morphological blocking, where the existence of the simpler imperfective forms *kričať* in (25a) and *bodat* in (26a) prevents the use of the more complex forms (27) and (28). The advantage of the second and the third possibility is that in contrast to the argument by Jabłońska (2007) they can also answer the question of why (27) and (28) are not possible with the iterative (non-progressive) reading of the imperfectivizing suffix.[7]

As to structural properties of the semelfactive *-n(V)-*, it needs to be placed outside lexical prefixes, as demonstrated in (29), with SEML representing the verbalizing head *v*.

(29) $[\text{SP}_{\text{higher}}[[\text{SP}_{\text{lower}}[_v \text{ SEML } [\text{LP}[\sqrt{\text{root}}]^{\text{PF/IPF}}]^{\text{PF}}]^{\text{PF}}]^{\text{PF}}\text{SI}]^{\text{IPF}}]^{\text{PF}}$

The rationale behind is that root nominalizations can contain lexical prefixes but cannot include the semelfactive *-n(V)-*. As shown in (30) for Russian and in (31) for Czech, root nominalizations can contain lexical prefixes but can include neither lower superlexicals nor higher superlexical prefixes (see also Caha & Ziková 2016 for Czech data). The Russian *podkop* can only have the meaning 'tunnel'; the attenuative superlexical interpretation of *pod-* is not available in this case. Similarly in the Czech (31), *příkop* can only mean 'ditch' and the prefix *pří-* cannot have the attenuative interpretation.

(30) a. pod-kop
          under-dig
          'tunnel'

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[6]The second reasoning could also explain the incompatibility of the degree achievement *-n(V)-* with the imperfectivizing suffix in cases like (i.b). Alternatively, one may suggest that the ungrammatical status of (i.b) has an economy reason because degree achievement verbs like *sochnuť* in (i.a) are imperfective (without the imperfectivizing suffix).

(i) a. soch-nu-ť
         dry-DA-INF
         'to dry'

     b. *soch-nu-va-ť
         dry-DA-SI-INF
         Intended: 'to dry'   (Russian)

[7]As pointed out by a reviewer, the claim that the complementary distribution of the semelfactive suffix and the secondary imperfective marker is not based on structural blocking is also supported by the fact that in languages like South-East Serbo-Croatian, the two markers are combined quite productively, as in *tak-n-uje-m* 'I touch repeatedly'.

b. * pod-kop
    ATT-dig
    Intended: 'little kick'   (Russian)

(31) a. pří-kop
    at-dig
    'ditch'

b. * pří-kop
    ATT-dig
    Intended: 'little kick'   (Czech)

This means that the boundary of root nominalizations must be placed between the projection containing lexical prefixes and the projections with lower super-lexicals (and the projection with the semelfactive suffix) in (29).

There is, however, an interesting distinction between Russian and Czech with respect to nominalizations and the semelfactive suffix. While in Czech the suffix can be a part of stem nominalizations, in Russian it is not possible; consider the contrast between (32) and (33).

(32) * kop-nu-t-i-e
    dig-SEML-N/T-NMLZ-NOM.SG
    Intended: 'a dig/kick'   (Russian)

(33) kop-nu-t-í
    dig-SEML-N/T-NMLZ.NOM.SG
    'a dig/kick'   (Czech)

This can be related to the fact that in contrast to Czech nominalizations, Russian stem nominalizations are structurally less complex and do not contain the aspectual projection, as discussed in the next section.

As illustrated in (23) and (24), the semelfactive suffix perfectivizes the stem, as do prefixes. If both elements co-occur, then unsurprisingly the predicate remains perfective, irrespective of whether the prefix is lexical or superlexical. For a lexical prefix, consider the Russian example in (34) and for a superlexical prefix consider the Czech example (35), with an attenuative reading.

(34) [vs-[krik-nu-ť]^{PF}]^{PF}
    up-shout-SEML-INF
    'to give a scream'   (Russian)

(35)   [na-[prask-nou-t]$^{\text{PF}}$]$^{\text{PF}}$
       ATT-crack-SEML-INF
       'to crack partially'   (Czech)

Generally, it is difficult to find examples of semelfactive predicates with a su-
perlexical prefix. This results from the fact that semelfactive predicates refer to
bounded singleton events that are punctual, which clashes with the fact that
superlexical prefixes typically modify the spatiotemporal path of the event ex-
pressed by the base predicate. Moreover, the perfective aspect of semelfactive
verbs pose a problem for the imperfective selection properties of some superlex-
ical prefixes.

   As the comparison of (36a) and (36b) shows, the semelfactive *-n(V)-* is respon-
sible for the ungrammatical status of the verb prefixed by the delimitative prefix
po-.

(36)   a.   po-bod-a-t
            DEL-point-TH-INF
            'to stab to a certain extent several times'

       b. * po-bod-nou-t
            DEL-point-SEML-INF
            Intended: 'to stab in a short time frame'   (Czech)

Building on the data, I propose the following meaning for the semelfactive *-n(V)-*.

(37) $[\![\text{SEML}]\!] = \lambda P \lambda e [P(e) \wedge \text{ATOM}(e) \wedge \mu(e) = 1]$

It derives predicates with a single occurrence of the event (via the measure func-
tion μ: cardinality) described by the stem and the event is atomic. That is, there
is no proper part of the event (it is punctual), which means that the predicate is
not divisive, which in turn means that it is quantized (see Borer 2005). Because
of the minimal (atomic) property of the semelfactive *-n(V)-*, there is no path in
the event that could be accessible to the delimitative *po-* in cases like (36b).[8] The
ungrammaticality of (36b) cannot be based on unsatisfied selection properties of
the prefix *po-* if delimitative *po-* and attenuative *po-* form a natural class. Specifi-
cally, the attenuative prefix can also adjoin to perfective predicates in Czech, as
in [*po-*[*otevřít*]$^{\text{PF}}$]$^{\text{PF}}$ 'to open a little'.

   The single occurrence property of the semelfactive *-n(V)-* in (37) is responsible
for the fact that the iterative reading is not available in cases like *kriknuť* 'to shout

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[8]The minimal property is a (language) idealization; in the real world, there can be some trajec-
tory involved e.g. in the stab movement (cf. Rothstein 2004).

out' and *bodnout* 'to stab' in (23b) and (24b), respectively. In contrast, predicates with the identical root but without the semelfactive -*n(V)*- like *kričať* 'to shout' and *bodat* 'to stab' in (25a) and (26a) allow the iterative interpretation.[9]

1.4 The habitual marker

Russian habitual forms like (38b) – derived from (38a) – are classified as colloquial or archaic and it is often claimed that they only occur in the past tense (see Isačenko 1962; Zaliznjak & Šmelev 1997; Paducheva 2015, but see also Tatevosov 2013).[10]

(38)   a.   pis-a-ť[IPF]
             write-TH-INF
             'to write'

       b.   pis-yva-ť[IPF]
             write-HAB-INF
             'to write repeatedly'   (Russian)

In contrast, Czech derives analogous imperfective forms quite productively (Filip 1993; Filip & Carlson 1997; Esvan 2007; Nübler 2017, but see also Berger 2009); consider example (39). Certain authors even consider forms like (39b) to be an instantiation of a 'third aspect' (see e.g. Kopečný 1962).[11]

(39)   a.   ps-á-t[IPF]
             write-TH-INF
             'to write'

       b.   ps-á-va-t[IPF]
             write-TH-HAB-INF
             'to write repeatedly'   (Czech)

The examples above show that in both languages, the habitual suffix derives an imperfective verb from an imperfective base.

In Czech, there are also reduplicative forms like (40), which are usually described as expressive predicates denoting a longer (or temporally distant, see Filip 1993) habitual event. They are imperfective, too.

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[9]The single occurrence property can also be defined in terms of a maximality operator; see Egg (2018).

[10]I use the term HABITUAL but various terms can be found in the literature: "iterative", "frequentative" and "generic".

[11]Against expectations, Polish is even more restricted than Russian with respect to habitual forms like *pis-ywa-ć* 'to write repeatedly'. There are only a few verbs (see Grzegorczykowa et al. 1984 and Łaziński 2020).

(40) ps-á-vá-va-t$^{\text{IPF}}$
      write-TH-HAB-HAB-INF
      'to write repeatedly for a long time/long ago'   (Czech)

In contrast to Russian, it is also possible to derive a habitual predicate from a secondary imperfective verb in Czech, as shown by the pair in (41). The derived verb is again imperfective.

(41) a. vy-pis-ova-t$^{\text{IPF}}$
          out-write-SI-INF
          'to excerpt'
      b. vy-pis-ová-va-t$^{\text{IPF}}$
          out-write-SI-HAB-INF
          'to excerpt repeatedly'   (Czech)

Examples (39b) and (41b) show that the habitual marker is outside the theme and the imperfectivizing suffix, respectively. Building on the structural proposal in (29), that means that the habitual suffix must also be higher than lexical prefixes and lower superlexical prefixes.

In fact, the habitual marker is even higher than higher superlexical prefixes and the aspectual projection. The argument goes as follows. It has been argued that Russian *nie*-nominals are aspectless (see Švedova 1980; Schoorlemmer 1995; Gehrke 2008; Tatevosov 2011; 2020); hence phasal verbs can combine with prefixed nominals derived from a perfective stem like in (42).

(42) načal   na-pis-a-n-i-e
      started on-write-TH-N/T-NMLZ-ACC.SG
      'started writing'   (Russian; based on Tatevosov 2011: ex. (18))

On the contrary, Czech stem nominalizations have the morphological aspect (e.g. Procházková 2006). For this reason, the phasal verb is compatible with the imperfective nominals in (43a) and (44a) but is not compatible with the perfective nominals in (43b) and (44b).

(43) a. začal   vy-pis-ová-n-í
          started out-write-SI-N/T-NMLZ.ACC.SG
          'he started writing out'
      b. *začal   vy-ps-á-n-í
          started out-write-TH-N/T-NMLZ.ACC.SG
          Intended: 'he started writing out'   (Czech)

(44)   a.   začalo na-kup-ová-n-í
            started on-buy-SI-N/T-NMLZ.NOM.SG
            'buying started'

       b. * začalo na-koup-e-n-í
            started on-buy-TH-N/T-NMLZ.NOM.SG
            Intended: 'buying started'   (Czech)

Czech stem nominalizations can be prefixed with higher superlexical prefixes like the cumulative *na-* in example (45a), in contrast to Russian *-nie* nominals, which only allow superlexicals in the lower position (see Tatevosov 2011). Note that the prefix *na-* is indeed cumulative because the prefixed predicate can take a plural object like in *naházení židlí na něco* 'throwing chairs on sth.' but cannot combine with a quantized singular object like in *naházení židle na něco* 'throwing a chair on sth.'. Crucially, stem nominalizations cannot contain the habitual suffix, as demonstrated in (45b).

(45)   a.   na-ház-e-n-í
            CUM-throw-TH-N/T-NMLZ.NOM.SG
            'throwing a lot of sth.'

       b. * ps-á-vá-n-í
            write-TH-HAB-N/T-NMLZ.NOM.SG
            Intended: 'repeated writing'   (Czech)

This means that stem nominalizations include the structure in (29). Their structure includes higher superlexical prefixes but also the aspectual projection in Czech, which hosts the perfective or the imperfective operator responsible for the morphological aspect interpretation.[12] At the same time, the data suggest

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[12]In the case of the perfective operator, the event time is included in the reference time, as in (i.a), and with the imperfective operator, the reference time is included in the event time, as shown in (i.b) (both taken from Paslawska & von Stechow 2003: 322).

(i)   a.   PERFECTIVE = $\lambda P \lambda t \exists e. \tau(e) \subseteq t \wedge P(e)$
      b.   IMPERFECTIVE = $\lambda P \lambda t \exists e. t \subseteq \tau(e) \wedge P(e)$

For predicates with a result state introduced by a prefix, one can add the state variable and the trace function mapping the state to its time, as in (ii) (taken from Biskup 2019: 43).

(ii) PERFECTIVE = $\lambda R \lambda t \exists s \exists e [R(s)(e) \wedge \tau(e) \subseteq t \wedge \tau(e) \supset\subset \tau(s)]$

The presence of the appropriate operator is tested with the standard diagnostics for perfectivity and imperfectivity, i.e. (in)compatibility with the auxiliary 'to be', (im)possibility of the future interpretation of the present form, (in)compatibility with phase verbs and the formation of participles. Note that I follow the two-component approach to aspect and distinguish the morphological (grammatical, outer) aspect from the lexical (situation, inner) aspect.

that the habitual suffix is higher than superlexical prefixes and the aspectual projection.

The high position of the habitual affix finds support in the fact that the marker can scope over quantificational adverbs, which are very high in the clausal structure; consider the following example.

(46) Z   dovolené ps-á-va-l   velmi zřídka.
     from vacation write-TH-HAB-PART.M.SG very   rarely
     'It was almost always the case that when he was on vacation, he sent a letter very rarely.'   (Czech)

I assume for the time being that the meaning of the habitual marker is 'to tend to' or 'almost always', as shown in the translation in (46). The rationale behind is that the meaning of *always* is too strong. Given that sentence (47) is anomalous, the meaning of the habitual marker cannot be 'always'. That would derive a fully acceptable sentence.

(47) * Člověk bý-vá-Ø   smrtelný.
      man   be-HAB-3.SG mortal
      'Man is almost always mortal.'   (Czech)

Given the high structural position of the habitual marker, the question arises why it is not compatible with the semelfactive -*n(V)*-, as illustrated in (48) and (49). The answer is not complicated. The habitual suffix selects an imperfective predicate but the semelfactive affix derives perfective verbs.

(48) * krik-nu-va-ť
       shout-SEML-HAB-INF
       Intended: 'to shout out repeatedly'   (Russian)

(49) * bod-nou-va-t
       point-SEML-HAB-INF
       Intended: 'to stab repeatedly'   (Czech)

In both languages, the habitual suffixes are identical to the secondary imperfective suffixes. Russian mostly uses the marker -*yva-/-iva*-, as in (38b), but the markers -*va*- and -*a-/-ja*- can also be found; consider verbs in (50) and (51). These examples again suggest that -*va*- and -*a*- are phonologically conditioned allomorphs.

(50)   a. pe-t'$^{\text{IPF}}$
          sing-INF
          'to sing'

      b. pe-va-t'$^{\text{IPF}}$
          sing-HAB-INF
          'to sing repeatedly'   (Russian)

(51)   a. vid-e-t'$^{\text{IPF}}$
          see-TH-INF
          'to see'

      b. vid-a-t'$^{\text{IPF}}$
          see-HAB-INF
          'to see repeatedly'   (Russian)

In Czech, habitual suffixes form a subset of the secondary imperfective markers. Beside *-va-*, there is also its allomorph *-a-*, as in (52), and the marker *-e-*, which is not productive (see Petr 1986).

(52)   a. jís-t$^{\text{IPF}}$
          eat-INF
          'to eat'

      b. jíd-a-t$^{\text{IPF}}$
          eat-HAB-INF
          'to eat repeatedly'   (Czech)

In what follows, I argue that – albeit homophonous – the habitual markers are not secondary imperfective suffixes. First, there are morphological aspect differences. While the imperfectivizing suffix derives an imperfective predicate from a *perfective* verb, the habitual suffix derives an imperfective predicate from an *imperfective* base.

There are also interpretational differences. Secondary imperfective verbs can have the progressive interpretation, the iterative interpretation, the factual and the habitual/generic interpretation. In contrast, predicates with the habitual suffix can only have the habitual/generic interpretation, as demonstrated by the (*repeatedly*) translations in this section. An analogous distinction is observed in cases with iterative adverbs, as in (53). In sentence (53a), two interpretations are available: The first, cardinality interpretation has three iterated events of writing during one vacation. The second one is the habitual quantificational interpretation, which is probably stronger than the habitual interpretation of predicates

with the overt habitual marker. In contrast, with the habitual suffix, as in (53b), only the habitual interpretation is available, with *z dovolené psával* going to the restrictor and *třikrát* to the nucleus of the habitual quantifier ALMOST ALWAYS (or of the standard generic operator).

(53) a. Z   dovolené ps-a-l   třikrát.
        from vacation write-TH-PART.M.SG three.times
        'From vacation, he sent a letter three times.'
        'From vacation, he tended to send a letter three times.'

     b. Z   dovolené ps-á-va-l   třikrát.
        from vacation write-TH-HAB-PART.M.SG three.times
        'It was almost always the case that when he was on vacation, he sent
        a letter three times.'   (Czech)

The next argument is based on differences in nominalizations. As already shown by the ungrammatical form **psávání* in (45b), the habitual marker cannot be included in stem nominalizations. However, the secondary imperfective suffix can be a part of such nominalizations, as illustrated in (54b) (and simplex verbs can also be nominalized, as shown in (54a)).

(54) a. ps-a-n-í
        write-TH-N/T-NOM.SG
        'writing'

     b. vy-pis-ová-n-í
        out-write-SI-N/T-NOM.SG
        'excerpting''   (Czech)

As to phonological properties of the secondary imperfective suffix and the habitual marker, there are many similarities. Both affixes can induce a vowel change, most typically the change from the phoneme /o/ to /a/, which is a relic of the Proto-Indo-European vowel gradation (lengthening, see e.g. Nandris & Auty 1969). For the Russian imperfectivizing suffix, consider (55) and for the habitual marker, see (56).[13]

(55) a. s-pr*o*s-í-t$^{\text{PF}}$
        with-ask-TH-INF
        'to ask'

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[13] In the perfective form in (55a), the phoneme /o/ is reduced and surfaces as the phone [ɐ] given its positioning in the first pretonic syllable.

    b. s-pr*áš*-iva-t$^{\text{IPF}}$
        with-ask-SI-INF
        'to ask'   (Russian)

(56) a. ch*o*d-í-t$^{\text{IPF}}$
        walk-TH-INF
        'to walk'

    b. ch*áž*-iva-t$^{\text{IPF}}$
        walk-HAB-INF
        'to walk repeatedly'   (Russian)

The examples also show that both aspectual morphemes can shift the accent to the root and that the underlying front theme vowel can palatalize the root consonant in the derived forms in (55b) and (56b).

    Lengthening processes are observed in Czech, too. In (57) the imperfectivizing marker -(*v*)*a*- lengthens the preceding theme vowel. Similarly, in (58) the habitual marker -(*v*)*a*- lengthens the preceding theme -*i*-. This lengthening also applies in reduplicated form, as already shown in (39b) and (40) by the habitual form *ps-á-va-t* and the reduplicated *ps-á-vá-va-t*, respectively.

(57) a. vy-děl-*a*-t$^{\text{PF}}$
        out-make-TH-INF
        'to earn'

    b. vy-děl-*á*-va-t$^{\text{IPF}}$
        out-make-TH-SI-INF
        'to earn'   (Czech)

(58) a. chod-*i*-t$^{\text{IPF}}$
        walk-TH-INF
        'to walk'

    b. chod-*í*-va-t$^{\text{IPF}}$
        walk-TH-HAB-INF
        'to walk repeatedly'   (Czech)

However, there are differences between phonological effects of the two markers. The habitual marker lengthens the preceding vowel but does not induce transitive palatalization in contrast to the secondary imperfective suffix. Consider the following examples, with the root *pros*, which is palatalized by the theme -*i*- in (59a)–(59b) but is not affected in (59c)–(59d).

(59) a. vy-*pros*-i-t^{PF}
          out-beg-TH-INF
          'to beg'
      b. vy-*proš*-ova-t^{IPF}
          out-beg-SI-INF
          'to beg'
      c. *pros*-i-t^{IPF}
          beg-TH-INF
          'to beg'
      d. *pros*-í-va-t^{IPF}
          beg-SI-HAB-INF
          'to beg repeatedly'   (Czech)

This different behavior possibly results from a specific templatic properties of secondary imperfective verbs in Czech, which must weigh three morae without the prefix (see Scheer 2003; Caha & Scheer 2008; Caha & Ziková 2016 for templatic properties of Czech verbal forms). In fact, this is what we expect if the imperfectivizing suffix and the habitual marker are two different elements representing distinct pieces of structure that enter into relations with differently complex constituents.

Moreover, the Czech habitual marker does not induce the vowel gradation in the root (with transitive palatalization) in contrast to the imperfectivizing marker. Compare *chod-í-va-t* 'to walk repeatedly' from (58b) with the Russian *cháž-iva-ť* 'to walk repeatedly' in (56b) and with (60), which contains the /o/-/a/ alternation induced by the imperfective suffix.

(60) a. vy-*tvoř*-i-t^{PF}
          out-make-TH-INF
          'to make'
      b. vy-*tvář*-e-t^{IPF}
          out-make-SI-INF
          'to make'   (Czech)

Given the differences just discussed, I conclude that the imperfectivizing suffix and the habitual suffix are not identical elements. Yet, there can be one underspecified vocabulary item that spells out both elements, as shown in (61).

(61)   -*yva*- ↔ [ipf]

According to this rule, *-yva-* (which represents allomorphs of the habitual and the imperfectivizing suffix) is inserted into a morphosyntactic context specified as imperfective. That is, *-yva-* can realize the habitual and the imperfectivizing head, which both have the imperfective feature (for more discussion, see §3). The syntactic, semantic and phonological differences between the two suffixes then result from the fact that they represent distinct pieces of the morphosyntactic structure and consequently enter into relations with different elements.

To conclude this section, the linearized structure with the four aspectual markers and their morphological aspect effects looks like (62).

(62) $[[[\text{SP}_{\text{higher}} [[\text{SP}_{\text{lower}} [_v \text{ SEML } [\text{LP } [\sqrt{\text{root}}]^{\text{PF/IPF}}]^{\text{PF}}]^{\text{PF}}]^{\text{PF}} \text{ SI}]^{\text{IPF}}]^{\text{PF}} \text{ Asp}]$
       $\text{HAB}]^{\text{IPF}}$

Note that it is an overall picture that does not take into account selection properties and particular incompatibilities of the markers.

2 Aspect separated from the four aspectual markers

We have seen that the aspectual interpretation is determined by several elements, which can have opposite aspectual effects (perfective versus imperfective). The discussion of the four markers and their morphological aspect effects showed that the morphological aspect value of a predicate can change in the course of its derivation. That is, each new aspect marker adds a new aspect layer to the preceding derivation that covers the preceding aspect values. Recall that we have seen that the morphological aspect is determined by the last attached aspectual morpheme. I will call it *Morphological Aspect Generalization* (MAG); consider (63).

(63)   *Morphological Aspect Generalization*
       The morphological aspect is determined by the last attached aspectual morpheme.

I also showed that in certain cases aspectual markers do not change the morphological aspect interpretation. These facts are not new; see e.g. Karcevski (1927), Isačenko (1962), Zinova & Filip (2015) and Tatevosov (2020). Given these facts, we need a mechanism that can *inspect* all the relevant aspectual morphemes and can determine which of them is the final one.

The ideal candidate is the operation Agree. Given that it can establish a relation between the probe and the goal at a distance, it is suitable for cases where the interpretation is separated from the element that triggers it.

Tatevosov (2011) argues that prefixes are not morphological exponents of the perfective aspect. His argument is based on the fact that Russian stem nominalizations are aspectless although they are formed from prefixed stems. In other words, if prefixes were not dissociated from the perfective meaning, Russian *-nie* nominals would have to be interpreted as perfective. According to Pazelskaya & Tatevosov (2008) and Tatevosov (2011), Russian stem nominalizations include the projection with the secondary imperfective suffix at the most. As discussed in §1.4, Czech stem nominalizations also contain higher superlexical prefixes and the aspectual projection. Thus, the structures of the two languages differ in the presence/absence of higher superlexicals and the aspectual projection (i.e. the presence/absence of the aspectual interpretation), as shown in my notation in (64) and (65).

(64) $[[[[SP_{lower} [_v SEML [LP [\sqrt{root}]^{PF/IPF}]^{PF}]^{PF}]^{PF} SI]^{IPF} N/T] n]$ Russian

(65) $[[[[SP_{higher} [[SP_{lower} [_v SEML [LP [\sqrt{root}]^{PF/IPF}]^{PF}]^{PF}]^{PF} SI]^{IPF}]^{PF} Asp]$ $N/T] n]$ Czech

Now I will extend the separation argument to the semelfactive marker. Since Russian nominalizations generally disallow the presence of the semelfactive *-n(V)-* and Czech stem nominalizations (with or without SEML) always have the morphological aspect, we cannot construct a direct argument with aspectless nominals containing the semelfactive *-n(V)-*.[14] Recall that I argued in §1.3 that the semelfactive suffix spells out the verbalizing head *v*, as do other theme elements; consider (64) and (65) again. Given this and the fact that the aspectual projection occurs outside the projection with the imperfectivizing suffix (and also higher than projections with the *-n-/-t-* suffix and the nominalizing suffix in Russian, as shown in (64)), it is obvious that the semelfactive marker is separated from the perfective aspect. Below I will show that the semelfactive marker is also separated from the aspectual projection by the projection of Voice, which introduces the agent argument.

Note that it would not be reasonable to postulate another aspectual projection with the perfective interpretation specific to the semelfactive *-n(V)-* because of the reason of language economy and because of universality of the clausal hierarchy. Moreover, given that the perfectivity effect of the semelfactive *-n(V)-* is real – see the periphrastic future test in (66) and (67) – the analysis of the semelfactive marker cannot be based only on its inner aspect properties.

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[14]The question of exactly how the presence of Asp licenses the presence of the semelfactive marker in Czech, I leave for future research.

(66) a. budet krič-a-ť$^{\text{IPF}}$
          will   shout-TH-INF
          'it/(s)he will shout'

      b. * budet krik-nu-ť$^{\text{PF}}$
          will   shout-SEML-INF
          Intended: 'it/(s)he will shout out'   (Russian)

(67) a. bude bod-a-t$^{\text{IPF}}$
          will point-TH-INF
          'it/(s)he will stab'

      b. * bude bod-nou-t$^{\text{PF}}$
          will point-SEML-INF
          Intended: 'it/(s)he will stab'   (Czech)

Romanova (2004), Tatevosov (2015) and Mueller-Reichau (2020) argue for Russian that the imperfectivizing suffix merges inside the verbal domain. Thus, the secondary imperfective marker, too, is dissociated from its interpretation because the aspectual head responsible for the imperfective interpretation is located in a higher position above *v*P. According to Biskup (2020) – who uses a scope argument like the one in Tatevosov (2015) – scope facts with the Czech cumulative *na-* also suggest that the position of the imperfectivizing suffix is below the projection with the agentive argument. The same point can be done with the distributive prefix *po-*.

Concretely, cumulative *na-* and distributive *po-* can quantify over an object, as shown by the grammatical plural (non-quantized) object in (68a). The ungrammaticality of the quantized, singular object jablko 'apple' shows that the prefix *na-* is indeed cumulative and the prefix *po-* distributive. In contrast, the prefixes cannot quantify over an agentive subject, as demonstrated in (68b), where the plural subject is ungrammatical. Only if the object is plural, non-quantized, the sentence is grammatical, as demonstrated in (68c). This goes hand in hand with the fact that when we want to quantify over the agentive subject, the argument structure (including case properties) of the verb needs to be manipulated and the reflexive element must be added in the case of the cumulative *na-*, as shown in (68d).[15]

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[15]Also compare the following examples with 'self' and the cumulative/saturative *na-*, which can quantify over the subject.

(i) a. na-begat'-sja
          on-run-self
          'to have one's fill of running'   (Russian)

(68) a. po-/na-s-bír-a-t^{PF} {jablka / *jablko}
DIST-/CUM-with-take-SI-INF apples apple
distributive: 'to pick apples/*apple one after another'
cumulative: 'to pick amount of apples/*apple'

 b. * Sousedi po-/na-sbírali jablko.
neighbors DIST-/CUM-picked apple
Intended distributive: 'Neighbors one after another picked an apple.'
Intended cumulative: 'Amount of neighbors picked an apple.'

 c. Sousedi po-/na-sbírali jablka.
neighbors DIST-/CUM-picked apples
distributive: 'Neighbors picked apples one after another.'
cumulative: 'Neighbors picked amount of apples.'

 d. Sousedi se nasbírali jablek do sytosti.
neighbors self picked apples.GEN.PL to one's.fill
'Neighbors had their fill of picking apples.' (Czech)

Given that the perfective *nasbírat* is derived by attaching the cumulative *na-* and the distributive *po-* to the stem after the secondary imperfective suffix, the example suggests that higher superlexical prefixes like the cumulative *na-* and the distributive *po-* merge below the head introducing the agent and above the imperfectivizing suffix in Czech. Consequently, in the light of the fact that the aspectual projection is above the projection introducing the agent (e.g. Babko-Malaya 2003; Filip 2005; Błaszczak & Klimek-Jankowska 2012; Gribanova 2015), it is possible to conclude that the imperfective interpretation is separated from the imperfectivizing suffix.

At the same time, if it is correct that higher superlexical prefixes merge below the projection with the agent (VoiceP), we also have an argument for separating prefixes from the perfective interpretation occurring in the aspectual projection.

The following examples show that stem nominalizations like the Russian *-nie* nominals and the Czech *-ní* nominals can have an agent. The nominals can co-occur with an agent-oriented modifier, as in (69a) and (70a), and can be modified by an agentive *by*-phase, as shown in (69b) and (70b).

(69) a. umyšlennoe prestuplenie
deliberate delict
'a wilful delict'

 b. na-běhat se
on-run self
'to have one's fill of running' (Czech)

b. soveršenie   prestuplenija licom…
perpetration delict.GEN.SG person.INSTR.SG
'a perpetration of the delict by a person'   (Russian)

(70) a. úmyslné   poškození
deliberate damage
'a malicious damage'

b. spáchání   trestného   činu   osobou…
perpetration criminal.GEN.SG act.GEN.SG person.INSTR.SG
'a perpetration of the delict by a person'   (Czech)

Now let us combine it with the fact that Russian stem nominalizations are aspect-less (as discussed in §1.4). Applying the containment argument again, we conclude that (at least in Russian) the aspectual projection is indeed above VoiceP, as shown in (71).

(71) [[[SP$_{\text{higher}}$ [[SP$_{\text{lower}}$ [$_v$ SEML [LP [√root]$^{\text{PF/IPF}}$]$^{\text{PF}}$]$^{\text{PF}}$]$^{\text{PF}}$SI]$^{\text{IPF}}$]$^{\text{PF}}$ Voice] Asp]

Kwapiszewski (2021) argues for the position of the secondary imperfective suffix below Voice and in this way also for separating the imperfectivizing suffix from the morphological aspect in Polish. He builds on Baker & Vinokurova (2009) and draws a parallelism between English nominals in *-er* and Polish agent/instrument *-acz/-arka* nominals. He shows that Polish *-acz/-arka* nominalizations can contain the imperfectivizing suffix but do not embed the Voice projection since they do not allow the relevant modifiers.

The same argument can be done for the Czech counterpart: *-č* nominals (Russian does not have this form of nominals). The animate as well as the inanimate nominal contain the imperfectivizing suffix but do not allow agent-oriented modifiers, as demonstrated in (72).

(72) a. (*úmyslný) vy-jedn-a-va-č   (*, aby   zabránil válce)
deliberate out-one-TH-SI-NMLZ   so.that prevent war
Intended: 'someone who (deliberately) negotiates (in order to avoid a war)'

b. o-vlad-a-č   (*osobou)   (*s   cílem měnit programy)
about-rule-SI-NMLZ   person.INSTR.SG   with goal   switch channels
Intended: 'a remote control (used by a person) (for switching TV channels)'   (Czech)

Thus, in Czech, too, such nominalizations include the projection with the secondary imperfective suffix but are structurally smaller than VoiceP and by transitivity, also smaller than AspP. Beside separating the imperfective suffix from the imperfective interpretation, it also argues for the claim that prefixes are separated from the perfective interpretation in the aspectual projection. Because of the presence of the imperfectivizing suffix, at least lexical and lower superlexical prefixes are expected to be able to occur in this type of nominalizations. This seems to be correct, given the prefixed examples in (72).

If Baker & Vinokurova (2009) are correct in that agentive nominalizing morphemes like *-er* are nominal versions of the Voice head (having meanings similar to morphemes of Voice heads) that combine with the same complements as Voice does, then the order of the morphemes itself can be taken to mean that the projection of Voice is higher than the projection of the secondary imperfective suffix. The point is that the imperfectivizing suffix is always closer to the root than the agentive nominalizing morpheme.

It is possible to extend this reasoning to other agent nominalizations, e.g. to nominals ending in *-tel'* in Russian, *-tel* in Czech and *-ciel* in Polish and to Russian nominals with the suffixes *-(l')ščik* and *-čik*, which are counterparts of the Czech *-č* discussed above. Such agent nominalizations can contain the imperfectivizing suffix and the suffix is always closer to the root than the agentive morpheme, independently of whether the nominal is inanimate (instrument), as in (73a), or animate, as in examples (73b) and (74). [16]

(73) a. pere-gruž-a-tel'
         over-load-SI-NMLZ
         'a loader'

      b. ras-se-va-l'ščik
         apart-sow-SI-NMLZ
         'a sorter'   (Russian)

(74) o-šetř-ova-tel
      about-spare-SI-NMLZ
      'a keeper'   (Czech)

The consequences for dissociating prefixes and the secondary imperfective suffix from the corresponding morphological aspect interpretation are identical to those in the case of *-acz/-arka* and *-č* nominalizations discussed above.

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[16]The underlying theme vowel /i/ brings about the palatalization of the root consonant /z/ in (73a); compare: *peregruzit'* 'to transfer'.

The current analysis with AspP above VoiceP, as discussed wrt. (71), goes against analyses like Zdziebko (2017: 571, 585), who argues that in Polish, the agentive VoiceP is placed above the aspectual projection(s). According to a reviewer, data like (75) suggest that in Polish, VoiceP is also higher than HabP since the habitual -*yw*- is inside the passive -*n*-.

(75) Ta melodia jest / była grywana   w wielu rozgłośniach radiowych.
      this melody is   was played.ʜᴀʙ in many stations   radio.
      'This melody is/was played in many radio stations.'   (Polish)

However, I assume that -*n*- in fact projects a participial phrase, as in Biskup (2016) and Biskup (2019: Chapter 4). PartP then includes HabP. An argument for HabP above VoiceP could be based on the fact that stem nominalizations can be agentive but cannot contain the habitual morpheme, like the Russian *pisyvanie 'writing' and the Czech *psávání 'writing' in (45b). Since Polish habitual nominalizations like *pisywanie* 'writing' are grammatical, they can also contain HabP.[17]

Since the nominalizations under discussion typically refer to an instrument or an agent repeatedly performing the event expressed by the verb stem (they often contain the imperfectivizing morpheme, as in (72)–(74)), they are incompatible with the semelfactive suffix. Specifically, they conflict with the *cardinality one* property of the semelfactive morpheme, as defined in (37).

The next structural prediction is that the nominalizations under discussion cannot include the habitual marker for it is located above the aspectual projection. This prediction seems to be correct since e.g. the Czech National Corpus, SYN 8 (Křen et al. 2019) contains no agent nominalization that have the habitual marker and ends in -*vatel*.

Let us now consider the separation of the morphological aspect interpretation from the habitual marker. The habitual suffix is special. First, in contrast to the other aspectual markers, it occurs above the aspectual projection, as argued in

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[17]In addition, given the reasoning in §1.4 that HabP is above AspP, the 'be' auxiliary in constructions like (i) cannot be placed in AspP, contrary to Błaszczak & Klimek-Jankowska (2012) and Błaszczak et al. (2014). As to the Russian habitual *igryvať* 'to play repeatedly', it is standardly claimed that such forms are colloquial and used only in the past tense (see §1.4 again).

(i) a. Jan będzie grywać   w różnych lokalach w Londynie.   (Polish)
         Jan will   play.ʜᴀʙ in different pubs   in London.
     b. Jan bude hrávat   v různých hospodách v Londýně.
         Jan will   play.ʜᴀʙ in different pubs   in London.
         Both: 'Jan will play in London in various pubs.'   (Czech)

§1.4. Second, in contrast to the other markers, it does not reverse the morphological aspect value of the predicate to which it adjoins. Because of the second property, it in actuality does not have to be in a syntactic relation with the aspectual head. It suffices when it imposes the imperfective requirement on its complement. Moreover, given this selection property and the specific quantificational meaning of the marker, the habitual suffix can be treated as semantically independent from the aspectual head, which encodes the inclusiveness relation between the event time and the reference time.[18] Furthermore, since there are forms with the morphological aspect interpretation that exclude the habitual marker – recall the Czech stem nominalizations from §1.4 –, I conclude that the habitual marker can be separated from the aspectual phrase as well.

3 Deriving the morphological aspect value

As stated in the beginning of the preceding section, the operation Agree is very suitable for cases where a certain interpretation is separated from the element bringing out the interpretational effect. In our case, it is about perfective versus imperfective effects triggered by the four aspectual markers. For this reason, we need an interpretable unvalued aspect feature on the aspectual head and valued features on the aspectual markers. The feature on the aspectual markers (either perfective or imperfective) can value the unvalued feature on the head Asp and in this way, it can bring about the appropriate inclusiveness relation between the event time and the reference time.

In the current proposal, I follow the Agree analysis by Biskup (2020) and assume that the secondary imperfective marker has an uninterpretable aspect feature with the imperfective value (recall the imperfectivizing effect of this suffix from §1.2). In contrast, since prefixes perfectivize the base predicate, as we saw in §1.1, they bear an uninterpretable aspect feature with the perfective value. The same also holds for the semelfactive marker because it also has the perfective effect, as discussed in §1.3. With respect to the habitual head, I argued in the preceding section that it has an imperfective selection feature and that it does not have to enter into an Agree relation with the aspectual head. However, the habitual head bears the imperfective aspect feature, which ensures that the marker *-yva-* can spell out it in accordance with the rule (61).

If we make the standard assumption that lexical prefixes merge in the complement position of the root (e.g. Ramchand 2004; Svenonius 2004; Gehrke 2008;

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[18]For the specific aspectual operators, see footnote 12.

Biskup 2019), then the (non-linearized) hierarchy with the four aspect markers and their aspect features looks like (76).

(76)   [$_{HabP}$ HAB$_{ipf}$ [$_{AspP}$ Asp$_{asp\text{-}F:[\ ]}$][$_{VoiceP}$ Voice [$_{SPP}$ SP$_{pf}$ [$_{SIP}$ SI$_{ipf}$ [$_{SPP}$ SP$_{pf}$ [$_{vP}$ SEML$_{pf}$ [$_{\sqrt{P}}$ √ [$_{PP}$ LP$_{pf}$]]]]]]]]]

Assuming that morphemes are structurally heads, lexical prefixes head a prepositional phrase, the semelfactive marker heads the *v*P projection, superlexical prefixes head their own projection SPP and the habitual suffix heads the habitual projection. Superlexical projections can be iterated and occur either lower or higher than the projection of the imperfectivizing morpheme SIP.

The Agree analysis can successfully deal with the generalization MAG, that is, with the fact that the morphological aspect value is determined by the last attached aspectual morpheme. Specifically, using the standard operation of downward Agree, the last – structurally, the highest – aspectual marker can be determined on the basis of minimality, i.e. the structural distance from the probing aspectual head. The aspect feature of the closest marker will then value the unvalued aspect feature of the aspect head. Since only downward Agree is used, the habitual marker – occurring in a higher structural position – is not visible for the probing aspectual head. This, however, does not pose a problem because the marker cannot change the morphological aspect value, as already discussed above.

If it is correct that the verb moves to the head Asp, as argued by Gribanova (2013; 2015) for Russian, we receive the syntactic structure in Figure 1. Concretely, when the unvalued feature of the aspectual head probes, the complex verbal head is located in Voice. To determine the closeness of aspectual affixes and their features, I employ the concept of dominance. It is the head to which the moving element adjoins that projects, as demonstrated in the abstract structure in Figure 1. Since this head dominates the adjoined head, its features (among others, its valued aspect feature) are closer to the c-commanding aspectual head than the features of the adjoined head.

The complex Voice head in Figure 1 contains the following markers with their aspect features: a lexical prefix (the preposition), a lower superlexical prefix, the secondary imperfective suffix and a higher superlexical prefix. Therefore, the structure can represent predicates like the Russian *po-pere-za-pis-yva-t'* 'to re-record for a while'. The delimitative prefix *po-* merges in the higher superlexical position and the repetitive *pere-* merges in the lower superlexical position, i.e. below the secondary imperfective suffix *-yva-*. The lexical prefix *za-* is represented by the preposition in Figure 1. What is crucial here, is that the delimitative *po-*
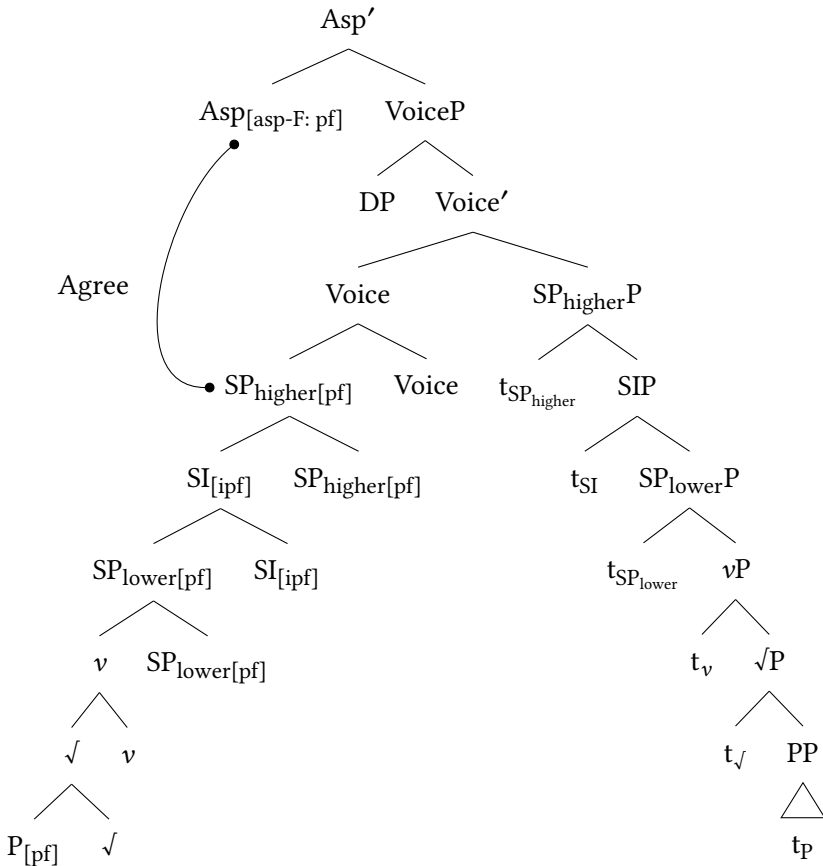
Figure 1: The derivation of the perfective morphological aspect

projects its perfective feature and dominates the SI constituent headed by *-yva-* with its imperfective aspect feature. Hence, it is the perfective feature of the de-limitative *po-* that is the closest aspect feature and values the unvalued aspect feature on Asp. Consequently, the predicate is interpreted as perfective.

Nothing changes on the result, if the lower superlexical prefix is missing like in the perfective Russian example *po-vy-talk-iva-t'* 'to push out one after another' from §1.2. The distributive *po-*, with its perfective aspect feature, spells out the higher SP in Figure 1 and it is again the closest element to the aspectual head.

In contrast, if a single superlexical prefix merges in the lower SP position like in the Czech predicate *do-plét-a-t* 'to complete knitting' in (17b), the imperfective feature of the imperfectivizing suffix will be the closest aspect feature to Asp. Consequently, the imperfective operator will be used for the aspectual head.

It is obvious from the discussion that there can be aspectual markers with valued, uninterpretable aspect features that do not enter into an Agree relation (recall also the habitual head, which is not c-commanded by the probing Asp and bears a valued, uninterpretable imperfective feature). To cope with this issue, I assume that for the semantic interface, only unvalued features (but not uninterpretable features) are offending. Concretely, the uninterpretable property of a feature just signals that the feature should not be interpreted at the semantic interface (cf. Zeijlstra 2009). In other words, the interpretable versus uninterpretable property can indicate where (i.e. which occurrence of) the feature should be interpreted in the structure.

In the case of predicates containing a lexical prefix and the imperfectivizing suffix like the Russian *za-rabat-yva-ť* 'to earn' in (9b) and the Czech *vy-proš-ova-t* 'to beg' in (16b), we also receive the imperfective aspect because the mother SI node, with its imperfective feature, unambiguously dominates the P element (lexical prefix); consider the structure in Figure 1 again.

If only a lexical prefix attaches to the predicate, as in *na-kle-i-ť* 'to stick on' in (1b) and *vy-chov-a-t* 'to raise' in (2b), the aspectual head probes the whole way down in the complex Voice head and finally finds the only available aspect feature on P. This brings about the perfective interpretation. Obviously, the same result is obtained if a superlexical prefix is added to the lexical one, as in the Russian *pere-vy-poln-i-ť* 'to overfulfill' in (7a) and the Czech *pře-vy-chov-a-t* 'to re-educate' in (8a). There, however, it is the perfective feature of the superlexical prefix that values the aspectual head.

Since lexical prefixes merge in the complement of the root and then adjoin to it, it must be the root that projects its features in the complex verbal head. From this and the fact that lexical prefixes perfectivize the base predicate, it follows that the root cannot have an imperfective aspect feature. For this reason, I assume that the morphological aspect of simplex verbs is derived by a default mechanism. Specifically, if the probing aspectual head does not find an aspect feature in its c-command domain, it will receive the imperfective aspect value when it is sent to the interfaces (see Preminger 2014 for the claim that the operation Agree can fail). Note that this proposal is in line with the standard approach to Slavic aspect, which takes imperfectivity to be the default aspect value (see e.g. Jakobson 1932; 1956; Comrie 1976; Nübler et al. 2017). As to the root of the exceptional perfective simplex predicates like the Rusian and Czech *kupiť*/*koupit* 'to buy' and *dať*/*dát* 'to give', it bears a perfective feature, which is found by the probing aspectual head. Concerning bi-aspectual verbs, I assume that their root can optionally have the perfective feature (in addition to applying the default mechanism resulting in imperfectivity) until the aspect value of the predicate is settled.

With respect to the semelfactive marker, it was shown in §1.3 that the suffix combines with prefixes but does not co-occur with the secondary imperfective suffix and the habitual marker. Given that the semelfactive marker also bears an aspect feature and spells out the verbalizing head *v*, its perfective feature will value the aspect feature of Asp in the case of lexically prefixed predicates like the Russian *vs-krik-nu-ť* 'to give a scream' in (34) and, of course, in the case of unprefixed semelfactive verbs like *krik-nu-ť* 'to shout out' in (23b), which were discussed in §1.3.

On the contrary, in the case of superlexically prefixed semelfactive verbs like the Czech *na-prask-nou-t* 'to crack partially' in (35), it will be the perfective feature of the superlexical prefix that values the aspectual head (independently of whether it is a lower or a higher superlexical prefix) since any SP projected by a superlexical prefix always dominates *v*.

As discussed in sections §1.3 and §1.4, Russian and Czech stem nominalizations differ in the complexity of their structure, specifically, in the presence or absence of higher superlexical prefixes and the aspectual projection. In the case of Czech *-ní* nominals – which can contain higher superlexicals and have the morphological aspect – the morphological aspect value on the aspectual head will be derived as described above. In the case of Russian *-nie* nominals there is no Agree operation because they are aspectless and include the projection with the imperfectivizing marker at the most, plus the projection with the suffix *-n-/-t-* and the nominalizing projection *n*P; see (64) again. Here, the assumption that the uninterpretability of features just signals whether or not the appropriate (instance of the) feature should be interpreted at the semantic interface is applicable. This reasoning applies to all forms that lack the aspectual projection but contain an aspectual marker with an aspect feature, e.g. to the root nominalizations discussed in §1.3, which can include a lexical prefix.

The proposal in Figure 1 derives the correct order for all morphemes except superlexical prefixes. Given that prefixes display a peculiar behavior more generally, I assume that they also have weak prosodic properties which force them to linearize to the left (see e.g. Caha & Ziková 2016, who argue for a proclitic character of short verbal prefixes in Czech, and Biskup et al. 2011, who discuss differences between prefixed verbs and particle verbs in German and argue that in prefixed verbs the prepositional phonological word is weak in contrast to particle verbs).

4 Conclusions

I have argued that the four aspectual morphemes (prefixes, the secondary imperfective suffix, the semelfactive marker and the habitual suffix) are not exponents of the morphological aspect in Russian and Czech; they just work as a trigger of the corresponding aspectual interpretation. However, this is not to say that the aspectual markers are meaningless. They have their own meaning, which can be inner aspectual, as proposed e.g. for the semelfactive suffix in §1.3. I have shown that the morphological aspect value is determined by the last attached aspectual marker. The aspect value, I have derived by means of the operation Agree, using the concept of closeness based on dominance relations in the moved verbal head. The last-attached aspectual marker is the closest element with a valued aspect feature.

Abbreviations

ACC	accusative	IPF	imperfective
ATT	attenuative	LP	lexical prefix
COMP	completive	NMLZ	nominalizing affix
CUM	cumulative	NOM	nominative
DA	degree achievement	PART	participle
DEL	delimitative	PF	perfective
DIST	distributive	REP	repetitive
EXC	excessive	SEML	semelfactive
HAB	habitual	SI	secondary imperfective
INC	inceptive	SP	superlexical prefix
INF	infinitive	TH	theme (vowel)

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