

An Agree analysis of the morphological aspect in Slavic

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Abstract

The literature on Slavic aspect uses the notion of “derivational history” (ascribed to Karcevski 1927) to connect derivationally verbs that have a related meaning but differ in the morphological aspect and in the presence of various aspectual morphemes. This article shows that this concept can be modeled in terms of a bottom-up morphosyntactic derivation of the minimalist approach. It proposes to derive the cyclic morphological aspect behavior of Slavic verbs with the operation Agree, in connection with minimality based on dominance relations in the verbal head. The analysis has the consequence that aspectual markers like prefixes, the imperfectivizing suffix and the semelfactive suffix are not exponents of the aspectual head; they only license the presence of the corresponding aspectual operator in the aspectual phrase. The proposal also argues for severing the verbalizing head from the head introducing the external argument.

1. Derivational histories

Morphological aspect is marked by various prefixes and suffixes in Slavic¹ and the important fact is that the morphological aspect value can be “overwritten” by the next morpheme added during the verb formation process. This is a consequence of the fact that the aspectual interpretation, i.e. the place where the morphological aspect value is interpreted, is dissociated from aspectual markers. This article proposes to derive the cyclic aspectual behavior of Slavic predicates with the operation Agree. There are some Agree type approaches to Slavic aspect; see e.g. Svenonius (2004), Borer (2005), Arsenijević (2007), Biskup (2019); but they do not offer an Agree analysis of all aspectual markers (in connection with derivational histories). There are also approaches arguing against the Agree analysis; see Tatevosov (2020).

The typical derivational history of Slavic predicates looks like the Slovak example in (1) (see also e.g. Vinogradov 1952, Forsyth 1970, Švedova 1980,

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¹I will call them aspectual markers.

Sekaninová 1980, Grzegorzczkova et al. 1984, Smith 1991, Karlík et al. 1995, Pashov 1999, Nicolova 2008, Łaziński 2020). Unprefixed verbs are imperfective in the vast majority, as demonstrated in (1a).² When they are prefixed, they become perfective; see example (1b).³ When the secondary imperfective suffix is attached, the verbs become imperfective again, as shown in (1c). When the verb becomes even bigger and another prefix is adjoined, the predicate is perfectivized, as illustrated in example (1d).

- | | | | | |
|-----|----|--|----|---|
| (1) | a. | kry-t' ^{IPF}
cover-INF
'to cover'
'to be covering' | b. | za-kry-t' ^{PF}
behind-cover-INF
'to cover' |
| | c. | za-krý-va-t' ^{IPF}
behind-cover-SI-INF
'to cover'
'to be covering' | d. | po-za-krý-va-t' ^{PF}
DIST-behind-cover-SI-INF
'to cover one after another' |

This cyclic behavior first shows that the morphological aspect value can change with the added aspectual morphology. Second, it demonstrates that the aspect value is determined by the last attached aspectual morpheme (let us call it *Morphological Aspect Generalization, MAG*). This was already observed e.g. by Karcevski (1927) and Isačenko (1962). Particular Slavic languages then differ with respect to which prefixes allow secondary imperfectivization (i.e., attach before the secondary imperfective suffix); how many superlexical prefixes can stack; and how the particular prefixes are ordered. These differences, however, are in accord with the MAG generalization, as demonstrated below.

²See also footnote 5. The following abbreviations are used: ACC = accusative, COMP = completive, CUM = cumulative, DAT = dative, DEL = delimitative, DIST = distributive, EXC = excessive, GEN = genitive, HAB = habitual, INF = infinitive, IPF = imperfective, LP = lexical prefix, NOM = nominative, PART = participle, PF = perfective, REP = repetitive, SEML = semelfactive, SI = secondary imperfective, SP = superlexical prefix, TH = theme (vowel). Lexical (internal) prefixes are glossed with the English prepositional meaning and superlexical (external) prefixes with the abbreviated aktionsart meaning in small capital letters. This is, however, not to say that the verbal prefix always bears the specific prepositional meaning.

³An exceptional behavior can be observed in case of prefixes borrowed from other language, like Latin and Old Church Slavonic, and in case of imperfective prefixed verbs originating from Old Church Slavonic like *závisiet* 'to depend', *podliehat* 'to be subject to' (cf. also e.g. the Russian *zaviset* 'to depend', *podležat* 'to be subject to').

For instance, Bulgarian allows massive stacking in contrast to e.g. Russian and Czech. According to Istratkova (2004), it allows up to seven superlexical prefixes. Such cases are rare but four prefixes can be found easily; consider (2).⁴ The example shows that every prefixation produces a perfective verb and if the secondary imperfective suffix *-va-* is added on top of the prefixes, the verb becomes imperfective.⁵ Thus, this behavior is in line with MAG.

- (2) a. raz-dam^{PF}
from-give
'distribute'
- b. pre-raz-dam^{PF}
REP-from-give
'redistribute'
- c. po-pre-raz-dam^{PF}
DEL-REP-from-give
'redistribute a little'
- d. iz-po-pre-raz-dam^{PF}
COMP-DIST/DEL-REP-from-give
'redistribute completely little by little'
- e. iz-po-pre-raz-da-va-m^{IPF}
COMP-DIST/DEL-REP-from-give-SI-1.SG
'redistribute completely little by little' (Istratkova 2004: 390)

The following derivational history shows that the Russian delimitative *po-* 'on' adjoins to the imperfective stem. It cannot attach before the secondary imperfective morpheme since the form **po-ot-kry-t'* is ungrammatical.

- | | | | |
|--------|--|----|---|
| (3) a. | kry-t' ^{IPF}
cover-INF
'to cover'
'to be covering' | b. | ot-kry-t' ^{PF}
away-cover-INF
'to open' |
| c. | ot-kry-va-t' ^{IPF}
away-cover-SI-INF
'to open'
'to be opening' | d. | po-ot-kry-va-t' ^{PF}
DEF-away-cover-SI-INF
'to open for a while' |

⁴The translations are taken from Istratkova (2004: 309); glosses are of my own.

⁵The unprefixed verb *dam* 'give' is perfective, as is in other Slavic languages. There are approximately fifty unprefixed verbs in Bulgarian that are perfective (Pashov 1999, Nicolova 2008).

In contrast, the Czech delimitative *po-* adjoins to the perfective verb, as in (4c), before attaching the secondary imperfective morpheme, as illustrated in example (4d). Such variations are standardly analyzed in terms of selectional restrictions and in terms of different positions in clausal hierarchy; see e.g. Jabłońska (2007) and Tatevosov (2008, 2015). Specifically, whereas the Russian delimitative *po-* selects imperfective stems, in Czech the delimitative *po-* does not have such a restriction.

- (4) a. krý-t^{IPF}
 cover-INF
 ‘to cover’
 ‘to be covering’
- b. od-krý-t^{PF}
 away-cover-INF
 ‘to uncover’
- c. po-od-krý-t^{PF}
 DEL-away-cover-INF
 ‘to uncover a little/for a while’
- d. po-od-krý-va-t^{IPF}
 DEL-away-cover-SI-INF
 ‘to uncover a little/for a while’
 ‘to be uncovering a little/for a while’

Since the verb in (3d) is perfective and the predicate in (4d) imperfective, the examples again show that the morphological aspect value is determined by the last attached morpheme. In fact, *poodkrývat* is biaspectual because if it has the distributive meaning ‘to uncover one after another’, it is perfective.⁶ This, however, does not tell against the MAG generalization because the derivational history of the perfective, distributive *poodkrývat* is then as shown in example (5). That is, first the imperfectivizing suffix is attached and only after it, the distributive *po-* is adjoined. This is in line with Zinova & Filip (2015), who argue that morphologically complex biaspectual verbs are structurally ambiguous.

⁶This biaspectuality differs from biaspectuality of verbs that are new in the language system (like loan words) and do not have the aspectual value established yet.

- | | | |
|-----|--|---|
| (5) | a. krý-t ^{IPF}
cover-INF
‘to cover’
‘to be covering’ | b. od-krý-t ^{PF}
away-cover-INF
‘to uncover’ |
| | c. od-krý-va-t ^{IPF}
away-cover-SI-INF
‘to uncover’
‘to be uncovering’ | d. po-od-krý-va-t ^{PF}
DIST-away-cover-SI-INF
‘to uncover one after another’ |

To demonstrate that the form *poodkrývat* is indeed bisapectual, consider the following examples, containing two standard perfectivity/imperfectivity diagnostics (see e.g. Filip 1999), the present tense test and the future auxiliary test. The delimitative *poodkrývat* in the present tense has the progressive interpretation, as shown in (6a). This is also confirmed by the compatibility of the verb with the adverbial *zrovna ted’* ‘right now’. From this, one concludes that *poodkrývat* with the delimitative meaning is imperfective. At the same time, the singular object excludes the possibility that that the prefix *po-* in the verb *poodkrývat* is distributive. Example (6b), with the future auxiliary *bude* ‘will’ and the delimitative interpretation of *poodkrývat*, confirms that the verb is imperfective.

- | | |
|-----|--|
| (6) | a. (Zrovna ted’) moderátor soutěžícímu pomalu poodkrývá
right now host.NOM contestant.DAT slowly uncovers
cíp slavného obrazu.
corner famous.GEN painting.GEN
‘(Right now) the host is slowly uncovering a corner of the famous
painting for the contestant.’ |
| | b. Moderór bude soutěžícímu cíp slavného
host.NOM will contestant.DAT corner famous.GEN
obrazu poodkrývat pomalu.
painting.GEN uncover.INF slowly
‘The host will slowly uncover a corner of the famous painting for
the contestant.’ |

Let us now consider the distributive *poodkrývat*. In contrast to the delimitative *poodkrývat* with the progressive interpretation, the present tense of the distributive *poodkrývat* brings about the future interpretation, as demonstrated in (7a). This is also supported by the fact that the predicate is compatible with

the adverbial *za pět minut* ‘in five minutes’. Given this, the conclusion is that the distributive verb is perfective. This in turn means that generally *poodkrývat* is biaspectual.

- (7) a. Podle plánu kurátor (za pět minut) poodkrývá
 according.to plan curator.NOM in five minutes will.uncover
 obrazy (jeden po druhém).
 paintings.ACC one after another
 ‘According to plan, the curator will uncover paintings (one after another) in five minutes.’
- b. Kurátor bude podle plánu poodkrývat
 curator.NOM will according.to plan to.uncover
 obrazy (jeden po druhém).
 paintings.ACC one after another
 ‘According to plan, the curator will uncover paintings a little (one after another).’

At first glance, it looks strange that the distributive interpretation is also possible with the future auxiliary, as shown in (7b). A closer look at the sentence however reveals that the verb *poodkrývat* has the delimitative meaning. That is, the paintings will be uncovered only to a certain extent. The distributive interpretation then is facilitated by the plural form of the object.⁷

To sum up, both derivational histories of *poodkrývat* – (4) and (5) – start with the imperfective *krýt* ‘to cover’; go through the perfective *odkrýt* ‘to uncover’; but they differ in the third (c) and the fourth (d) step. While in the derivational history of the delimitative *poodkrývat* in (4), the delimitative *po-* attaches before (is structurally lower than) the secondary imperfective suffix, in the derivational history of the distributive *poodkrývat* in (5), the distributive *po-* attaches after (is structurally higher than) the secondary imperfective suffix.

As to differences in the ordering of prefixes, distributive *po-* ‘on’ is the highest prefix in the prefixal hierarchy of Russian and Polish (see Tatevosov 2008 and Wiland 2012). In Polish, the completive *do* ‘to’ can only occur below

⁷The prefix *po-* can also have a surface spatial meaning with *krýt*; consider *po-krýt* ‘to cover, to spread over’. Since spatial prefixes like this *po-* are considered to be lexical, the prediction is that the verb can be imperfectivized by the secondary imperfective suffix. This prediction is borne out since *po-krý-va-t* ‘to (be) cover(ing), to (be) spread(ing) over’ is grammatical. It also follows that the spatial *od-* ‘away’ – being merged in a low position – cannot attach to this secondary imperfective verb: **od-po-krý-va-t*.

any instance of the superlexical prefix *po-*, as shown by example (8), in which the distributive or delimitative *po-* is outside the completive *do-*.

- (8) po-do-kańczać robotę
 DIST/DEL-COMP-finish work
 ‘to finish one’s work’ (Wiland 2012: 315)

In contrast, in Bulgarian, the completive (terminative) *do-* is higher than the distributive *po-* in the prefixal hierarchy, as argued by Istratkova (2004) and Markova (2011), and as demonstrated in (9), with the completive *do-* occurring further away from the root than the prefix *po-*.

- (9) do-iz-po-raz-pre-pro-dam
 COMP-COMP-DIST-EXC-REP-through-give
 ‘finish re-selling everything to the end’ (Istratkova 2004: 309)

Such differences again do not tell against the MAG (and the analysis below) because the verbs under discussion are perfectivized by the last prefix – by the distributive/delimitative *po-* in (8) and by the completive *do-* in (9)– regardless of the exact form of the prefixal hierarchy.⁸

2. Assumptions, minimality and the verbal structure

I adopt a morphosyntactic minimalist approach, in which the value of the morphological aspect is determined in the head of the aspectual phrase. The perfective value corresponds to the inclusion of the event time in the reference time (the INCLUDES operator) and the imperfective value corresponds to the inclusion of the reference time in the event time at the semantic interface (the INCLUDED operator; see e.g. Paslawska & von Stechow 2003). There is only one aspectual head responsible for interpretation and this head has an aspect feature. Following Müller (2010) and similar conventions in Roberts & Roussou (2002), Sternefeld (2006) and Heck & Müller (2007), I assume that there are two types of features, structure-building features triggering Merge operations, with bullets: [\bullet F \bullet], and probe features triggering Agree operations, with asterisks: [\ast F \ast]. Given this, the aspectual head has an aspect

⁸I remain agnostic as to which approach to the prefixal hierarchy is the most appropriate. There are several possibilities, e.g. Cinque’s (1999) approach, like in Markova (2011), a ternary distinction, as in Tatevosov (2008), and the nanosyntactic approach, as in Wiland (2012).

probe feature [**Asp**].⁹ I keep the derivational system as minimal as possible and assume that the operation Agree only proceeds in the downward direction and that there is no m-command. Since prefixes – both lexical and superlexical – have a perfectivizing effect, as demonstrated by the examples in the preceding section, I assume that they bear a perfective aspect feature [*Asp:pf*].¹⁰

In contrast, the secondary imperfective suffix has an imperfective aspect feature [*Asp:ipf*], given that it imperfectivizes the verbal stem, as shown in examples (1)–(5). Also this affix is not just agreement morphology since it has other semantic effects as well. The imperfectivizing effect of the imperfective feature – licensing the INCLUDED operator in the aspectual head – can go hand in hand e.g. with the partitive-homogenizing or eventizing meaning of the suffix itself; see discussion in Łazorczyk (2010) and Tatevosov (2015), respectively. Assuming the correspondence between the time of the attachment of a morpheme and its structural position (recall the MAG generalization, according to which the morphological aspect value is determined by the last attached aspectual morpheme), aspectual properties of Slavic predicates can be derived by minimality. That is, the morphological aspect value is determined by the element that is structurally closest to the aspectual head. Given that lexical prefixes are structurally lower than superlexical prefixes (see Babko-Malaya 2003, Svenonius 2004, Slabakova 2005, Richardson 2007, Markova 2011; and also examples (1)–(5); but see also Žaucer 2009 and Zinova 2016 for criticism of the lexical-superlexical distinction), the hierarchy relevant to the operation Agree, with appropriate aspect features, looks like (10). *SP* stands for a superlexical prefix, which can be iterated, *SI* for the secondary imperfective suffix and *LP* for a lexical prefix.¹¹

⁹The bullet features would be involved e.g. in selectional properties of particular prefixes. They could partially derive differences in the ordering of prefixes.

¹⁰The perfective feature of prefixes (triggering the INCLUDES interpretation of the morphological aspect in *Asp*) is related to prefixal lexical aspect properties. It is known that Slavic prefixes – besides their spatial meaning and the perfectivizing effect – bring about resultativity, telicity and quantificational meanings (for some recent proposal with respect to this relation, see e.g. Biskup 2019). In approaches assuming (un)interpretability of features, the perfective and imperfective features on aspectual markers would be interpretable. This would neutralize counter-arguments to the Agree-based analysis laid out by Tatevosov (2020).

¹¹The distinction between lexical and superlexical prefixes is not crucial to the analysis proposed. The analysis can derive the morphological aspect interpretation correctly irrespective of whether we choose the lexical-superlexical distinction, like Svenonius (2004), the tripartite distinction, as in Markova (2011), or any other more elaborated classification.

(10) [Asp*_{Asp*} [SP_{Asp:pf} [SI_{Asp:ipf} [SP_{Asp:pf} [LP_{Asp:pf}]]]]]

Building on the long-standing tradition of taking the secondary imperfective suffix to be an exponent of the imperfective aspect, formal approaches standardly treat the imperfective suffix as an exponent of the aspectual head Asp (e.g. Dimitrova-Vulchanova 1999, Pereltsvaig 2004, Ramchand 2004, Gehrke 2008). However, since there is no m-command Agree in the system proposed, the secondary imperfective marker cannot represent the aspectual head. If it were the case, we could not derive perfective predicates with superlexical prefixes merged higher than the imperfectivizing suffix, like in examples (1d), (3d) and (5d).

In addition, the derivational system would need a mechanism for overwriting of the imperfective value of the secondary imperfective aspectual head. The mechanism would be necessary in the strict derivational system also if the imperfectivizing suffix were lower and some superlexical prefixes higher than the aspectual head. Further, if the higher superlexical prefixes were further away from the aspectual head than the imperfectivizing suffix, the aspect value of the aspectual head could not be determined by minimality. Thus, all relevant aspectual affixes are lower than the aspectual head, as illustrated in (10).

Taking the empirical perspective now, there are data showing that the imperfective interpretation is dissociated from the secondary imperfective exponent. Romanova (2004), Tatevosov (2015) and Mueller-Reichau (2020) argue that the imperfectivizing suffix attaches inside the verbal domain in Russian. Using a scope argument similar to the one in Tatevosov (2015), I show below that the Czech cumulative *na-* also argues for the imperfectivizing suffix placed below the projection with the agentive argument. Specifically, the perfective form in (11a) is derived by attaching the cumulative *na-* to the verb with the imperfectivizing suffix in (11b), not by attaching the prefix to the verb without it, as demonstrated by the ungrammatical result in (11c).¹²¹³

¹²The “imperfective” selectional property of the cumulative *na-* could be based on the fact that the prefix encodes an extensive measure function that applies to non-quantized predicates, as proposed by Filip (2000, 2005).

¹³The imperfective form *s-bír-a-t* in (11b) is derived from the perfective *se-br-a-t* (contained in the ungrammatical **na-se-br-a-t^{PF}* in (11c)) by the secondary imperfective suffix *-a-*, which induces the lengthening of the root vowel ($\emptyset \rightarrow \acute{i}$, following the Proto Indo-European vowel-gradation; see e.g. Nandris 1069), in contrast to the theme vowel *-á-* in the simplex *br-á-t^{IPF}* ‘to take’, which itself is shortened by prefixation because of the templatic requirement, like in the grammatical *se-br-a-t^{PF}*, a part of **na-se-br-a-t^{PF}* in (11c).

- (11) a. *na-s-bír-a-t^{PF}* *něco* / *jablka* / **jablko*
 CUM-with-take-SI-INF something / apples / apple
 ‘to pick amount of something/apples/*apple’
- b. *s-bír-a-t^{IPF}*
 with-take-SI-INF
 ‘to pick’
 ‘to be picking’
- c. **na-se-br-a-t^{PF}*
 CUM-with-take-TH-INF

Furthermore, the prefix *na-* quantifies over the object, as shown in (12a) by the contrast between the ungrammatical status of the quantized, singular object *jablko* ‘apple’ and the grammatical status of the plural, non-quantized object and the pronoun *něco* ‘something’, which can also have the non-quantized interpretation. In contrast, the prefix does not quantify over an agentive subject, as shown in example (12), where the bare plural subject and the singular, quantized object induce ungrammaticality.¹⁴ Taken the two pieces together, this means that superlexical prefixes like the Czech cumulative *na-* attach below the head introducing the agent and above the imperfectivizing suffix. Then, given that the aspectual interpretation and the aspectual phase is usually taken to occur above the verbal projection (e.g. Babko-Malaya 2003, Borer 2005, Filip 2005, Błaszczak & Klimek-Jankowska 2012, Gribanova 2015), the conclusion is that the aspectual (here the imperfective) interpretation is dissociated from the imperfectivizing suffix.¹⁵

- (12) **Sousedi* *nasbírali* *jablko*.
 neighbor.NOM.PL picked.PL apple.SG

Given the fact that categorizing heads merge immediately above the $\sqrt{\text{root}}$ and given the presence of the imperfectivizing suffix and superlexicals like the cumulative *na-* below the head introducing the agent, it follows that the agentive head cannot be the verbalizing *v*. If correct, then we have another argument for severing *v* from the external argument introducing head

¹⁴The cumulative *na-* can however quantify over unaccusative subjects, as shown e.g. for Russian by Romanova (2004) and Schoorlemmer (1995). This does not pose a problem since such subjects merge in the structural position of the object.

¹⁵There are also empirical arguments for severing perfectivity from prefixes; see Tatevosov (2011).

(concretely, the Voice head); see e.g. Pylkkänen (2002), Collins (2005) and Harley (2013a). Furthermore, since theme vowels provide information about the syntactic category and determine the conjugation class in Slavic and since they are closer to the $\sqrt{\text{root}}$ than the secondary imperfective suffix, as shown in (13a) and (13b), they can be treated as the verbalizing head v .¹⁶ The semelfactive suffix, like *-nu-* in (13c) and (13d), can also be treated as a verbalizing theme.¹⁷ However, in contrast to the other themes, it has a perfectivizing effect, as shown in (13c) and (13d). Hence, it bears a perfective aspect feature.

- (13) a. *prze-rab-i-a-ć*
 REP-do-TH-SI-INF
 ‘to redo’
 ‘to be redoing’ (Polish)
- b. *do-hr-á-va-t*
 COMP-play-TH-SI-INF
 ‘to finish playing’
 ‘to be finishing playing’ (Czech)
- c. *krik-nu-t*^{PF}
 shout-SEML-INF
 ‘to shout out’ (Russian)
- d. *vy-krík-nu-t*^{PF}
 out-shout-SEML-INF
 ‘to give a shout’ (Slovak)

To sum up, the relevant piece of the verbal structure with appropriate aspect features looks like (14).

- (14) [_{AspP} Asp*Asp* [_{VoiceP} Agent [_{Voice} [_{SPP} SP_{Asp:pf} [_{SIP} SI_{Asp:ipf} [_{SPP} SP_{Asp:pf} [_{vP} v (SEML_{Asp:pf}) [_{\sqrt{P}} $\sqrt{\text{ }}$ [_{PP} LP_{Asp:pf}]]]]]]]]]]]

SPP is just an abbreviation for a superlexical prefix phrase. Since I follow the

¹⁶But see Matushansky (2009) for the claim that in Russian theme vowels do not behave identically; e.g. one type of the theme *-e-* is a verbalizing element and attaches before the imperfectivizing suffix, whereas the second theme *-e-* is not a verbal head and disappears in imperfectivized forms.

¹⁷The semelfactive suffix is incompatible with the imperfectivizing suffix in North Slavic but in some varieties of Serbo-Croatian, the two markers can co-occur. Then, the semelfactive suffix is inside the imperfectivizing suffix, as predicted.

standard approach, in which morphemes are heads structurally, superlexical prefixes head their own projections and consequently, the phrase SPP can be iterated. The higher SPP stands for phrases projected by superlexical prefixes like the Czech cumulative *na-* in (11), and the lower SPP represents phrases projected by superlexicals like the completive *do-* in (13b). LP stands for a lexical prefix, which merges in the complement of the verb or the verbal root (Ramchand 2004, Svenonius 2004, Gehrke 2008, Biskup 2019: see).¹⁸ Since the exact status of the verbal complement is not important for the analysis, I assume for simplicity that the lexical prefix is a preposition projecting a PP, as shown in (14). As discussed in section 1, languages vary with respect to stacking – i.e. how many times the phrases headed by superlexical prefixes (SPPs) are iterated – and the fact where particular superlexical prefixes are located – whether above or below the imperfectivizing projection SIP – and the fact in which order they occur, i.e. what selectional requirements are present in the particular language.¹⁹

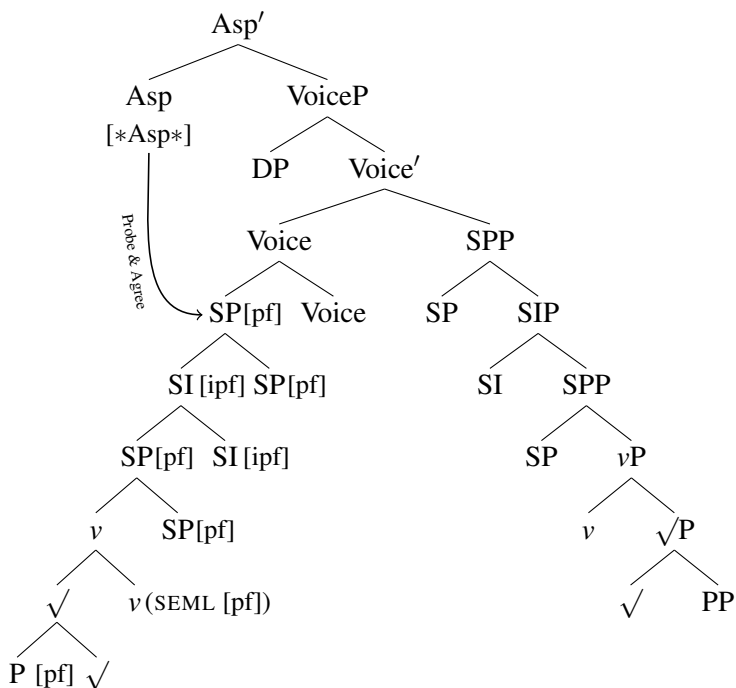
3. Deriving the aspect value: Head movement and dominance

Since I adopt a syntactic approach to morphology and employ head movement, we receive the derivation in (15), when the head Asp merges with its complement; see Gribanova (2013, 2015) for arguments that in Russian, the verb is composed via head movement to the aspectual head. This proposal also has the following advantage: If the projection introducing the external argument (i.e. VoiceP) is a phase and if head movement is used, there will be no problem for the probing aspectual head with respect to the Phase Impenetrability Condition (Chomsky 2001), in contrast to approaches that would leave the particular morphemes inside the phasal complement. Hence, when the aspect feature of Asp probes, the complex verbal head is already in the head Voice and therefore it is accessible for the operation Agree, as illustrated below.

(15)

¹⁸Given that there is only one structural complement position, it follows that there can be only one lexical prefix attached to a verb (but see also Žaucer 2009 for prefixed verbs containing coordinated constructions).

¹⁹An analysis of this variance is outside the scope of this paper.



The head movement operation will derive the desired relations if minimality is based on the dominance relation. The head to which the moving element adjoins projects – including its aspect feature, as shown above – i.e., it dominates the adjoined head; therefore it is closer to the c-commanding, probing aspectual head. Consequently, the aspect feature of the highest dominating head values the aspect feature of the aspectual head. It should be obvious now how this proposal derives the pattern from section 1, according to which the aspectual interpretation is determined by the last attached aspectual morpheme.

Specifically, in cases like the distributive *po-za-kry'-va-t'*^{PF} ‘to cover one after another’ in the Slovak example (1d), the highest head with an aspect feature (concretely, the perfective one) is the distributive *po-*, which spells out the higher superlexical head SP in (14) and (15). This head dominates all the other heads with an aspect feature in the complex Voice head in (15), hence the verb is perfective. Nothing changes on the aspect value in case of stacking of higher superlexical prefixes because they always have the perfective aspect feature. Simply, the highest one values the aspect feature of the aspectual head.

If there is no (higher) superlexical prefix in the verb, like in *za-krý-va-t*^{IPF} ‘to (be) cover(ing)’ in example (1c), the superlexical head (SP) is missing in the Voice head and the closest head relevant to the probing aspectual head is the secondary imperfective head (SI). Its imperfective feature determines the morphological aspect value of the aspectual head, deriving an imperfective predicate. The same result is obtained in cases where the imperfectivizing suffix co-occurs with a lower superlexical prefix (SP) – like the delimitative *po-* in *po-od-krý-va-t*^{IPF} ‘to (be) uncover(ing) a little/for a while’ in the Czech example (4d) – since the secondary imperfective suffix (SI), with its imperfective feature, dominates all other heads having an aspect feature. In the same way, an imperfective verb is derived if there are more superlexical heads (SP) dominated by the secondary imperfective suffix (SI), as in *iz-po-pre-raz-da-va-m*^{IPF} ‘redistribute completely little by little’ in the Bulgarian example (2e).

In verbs containing only a lexical prefix, like the Slovak *za-kry-t*^{IPF} ‘to cover’ in (1b), superlexical projections and the imperfectivizing projection are missing. Hence, the closest element in the head Voice in (15) having an aspect feature is the preposition P. Its value then determines the perfective aspect of the verb. Given that lexical prefixes perfectivize simplex verbs (which are mostly imperfective) and merge in the verbal complement – so it is the root that projects in the complex verbal head when it merges with P – the root cannot have an imperfective feature.²⁰ If it were the case, we would derive lexically prefixed imperfective verbs without the imperfectivizing suffix, contrary to the facts.

Hence, the morphological aspect value of simplex verbs like *kry-t*^{IPF} ‘to (be) cover(ing)’ in example (1a) will be derived by a default mechanism.²¹ Since the operation Agree can fail (Preminger 2011, 2014) and languages employ default values (like in the realm of case, where nominative is used as the default value in certain configurations), I assume that if the aspectual head does not find an aspect feature in its c-command domain, it receives the imperfective aspect value when it is sent to the interfaces. This is in accordance with the standard approach to Slavic aspect, which takes imperfectivity to be the default aspect value.

²⁰Only the root of the exceptional perfective simplex verbs like *dam* ‘give’ (see footnote 5) has an aspectual feature, the perfective one.

²¹Alternatively, one could assume that the root bears an imperfective aspect feature and that lexical prefixes merge structurally higher than the root (see Richardson 2007: 61–62).

In semelfactive predicates like the Russian unprefixated *krik-nu-t*^{PF} in (13c), the semelfactive suffix, projecting *v*, is the only element with an aspect (perfective) feature. Hence, the aspect value of the verb is perfective. If the semelfactive suffix co-occurs with a prefix, the predicate will be perfective, too. While in the case of a lexical prefix, like in the Slovak *vy-krik-nu-t*^{PF} in (13d), the aspect feature of Asp will be valued by the perfective feature of the semelfactive *v* head, in the case of a superlexical prefix, the aspect head will be valued by the perfective feature of the superlexical feature.

Slovak and Czech also productively form imperfective verbs by means of the habitual suffix, which attaches to primary or derived/secondary imperfective predicates; see (16a) and (16b), respectively. The examples show that the habitual marker occurs between the secondary imperfective suffix and the tense/infinitival suffix. In addition, interpretational properties of example (16c) show that the habitual operator scopes over negation, whose projection is standardly taken to occur higher than the aspectual projection.

- (16) a. *čít-a-va-t*^{PF}
 read-TH-HAB-INF
 ‘to tend to read’ (Slovak)
- b. *vy-jíd-á-va-t*^{IPF}
 out-eat-SI-HAB-INF
 ‘to tend to clear one’s plate’ (Czech)
- c. *Ne-brá-va-l s sebou žádné knihy.*
 NEG-take-HAB-PART with self none books
 *‘He did not tend to take any books with him.’ (Czech)

Thus, if it is correct that the habitual marker *-va-* in cases like (16a)–(16c) spells out the habitual head, which is higher than Asp, then it cannot participate in the valuation of the aspect feature of Asp. However, since the habitual marker does not change the morphological aspect value of the base predicate, it does not pose a problem for the current analysis.

As to linearization, head movement derives the correct ordering for all morphemes except superlexical prefixes. The derivation in (15) incorrectly predicts them to occur either between the theme vowel and the imperfectivizing suffix – for the low superlexical prefix – or between the imperfectivizing suffix and the infinitival ending – for the high superlexical prefix – as shown in (17)

for the Czech verb *po-od-krý-va-t*.²² Recall that this verb is either imperfective (4) or perfective (5), depending on whether *po-* is delimitative (i.e., a lower SP) or distributive (a higher SP), respectively. Example (17a) shows the incorrect, predicted order for the delimitative *po-* and example (17b) for the distributive *po-*.

- (17) a. *od-krý-Ø-**po**-va-t
 away-cover-TH-DEL-SI-INF
 intended: ‘to uncover a little/for a while’
 ‘to be uncovering a little/for a while’

There are at least three ways how to cope with this issue. The first option is to parametrize head movement and allow head adjunction to the right in the case of superlexical prefixes, with the assumption that syntax fully determines linearization. The second possibility is to assume that syntax derives only hierarchical structure; that linearization happens at the morphology-syntax interface and that morphemes themselves specify whether they are linearized to the left or the right (see Harley 2013b for Affix-Specific Linearization). In this case, prefixes would be specified for the linearization to the left in contrast to the other morphemes. The third possibility is to retain the standard head movement to the left and ascribe (superlexical) prefixes specific morphophonological properties that will force them to linearize to the left; see e.g. Caha & Ziková (2016) for discussion of the proclitic character of short verbal prefixes in Czech. Since the linearization issue is not crucial to deriving the morphological aspect value, I leave the final decision for future research.

4. Conclusions

Slavic languages display a cyclic morphological aspect pattern, in which the aspectual value of predicates can change with the added aspectual morphology and in which the aspectual interpretation is determined by the last attached aspectual morpheme (dubbed as derivational history). I have proposed to derive this aspectual behavior with the operation Agree, using minimality based on dominance relations in the verbal head composed by head movement. Under the current analysis, the last aspectual morpheme is the highest head in the complex verbal head that bears an aspect feature and is accessible to

²²The theme suffix – syntactically *v-* is null in this verb.

the aspectual head. Thus, aspectual markers like prefixes, the semelfactive suffix and the imperfectivizing suffix do not spell out the aspectual head; they only license the presence of the corresponding aspectual operator in the aspectual head. The habitual aspectual marker does not spell out the aspectual head, too, but given that it merges higher than the aspectual head, it does not participate in the aspectual Agree operation. It has been shown that certain morphologically complex verbs are biaspectual since they contain a homophonous prefix that can merge in distinct structural positions, either above or below the secondary imperfective suffix. This means that the verb can be derived in two different ways; it has two derivational histories.

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