

# **An Agree Analysis of the Morphological Aspect in Slavic\***

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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. In this squib, I show that this concept can be modeled in terms of the bottom-up morphosyntactic derivation and propose 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 composed by head movement.

Keywords: Agree, derivational history, head movement, minimality, morphological aspect, Slavic

## **1. Derivational Histories**

Morphological aspect is expressed by various prefixes and suffixes in Slavic and the typical derivational history of Slavic predicates looks like the Czech example (1) (see also e.g. Vinogradov 1952; Forsyth 1970; Švedova 1980; Sekaninová 1980; Grzegorzczkova, Laskowski & Wróbel 1984; Smith 1991; Karlík, Nekula & Rusínová 1995; Pashov 1999; Nicolova 2008; Łaziński 2020). Unprefixed verbs are imperfective in the vast majority, as in (1a).<sup>1</sup> When they are prefixed, they become perfective; see (1b).<sup>2</sup> When the secondary imperfective suffix is attached, the verbs become imperfective again, as in (1c). When the verb becomes even bigger and another prefix is adjoined, the predicate is perfectivized, as in (1d).<sup>3</sup>

- |        |                      |    |                        |    |                            |    |                              |
|--------|----------------------|----|------------------------|----|----------------------------|----|------------------------------|
| (1) a. | krý-t <sup>IPF</sup> | b. | za-krý-t <sup>PF</sup> | c. | za-krý-va-t <sup>IPF</sup> | d. | po-za-krý-va-t <sup>PF</sup> |
|        | cover-INF            |    | behind-cover-INF       |    | behind-cover-SI-INF        |    | DIST-behind-cover-SI-INF     |
|        | ‘cover’              |    | ‘cover’                |    | ‘cover’                    |    | ‘cover one after another’    |

From this cyclic behavior, one concludes that the aspectual interpretation can change with the added aspectual morphology and that it is determined by the lastly attached aspectual morpheme. Particular Slavic languages then differ in the fact which prefixes allow secondary imperfectivization (i.e., merge before the secondary imperfective suffix), how many superlexical prefixes can stack and in which order the prefixes occur on the verb. These differences, however, observe the generalization stated above, as demonstrated below.

For instance, Bulgarian allows massive stacking, up to seven superlexical prefixes (see Istratkova 2004) in contrast to e.g. Russian and Czech. As an illustration consider (2), in which every prefixation produces a perfective verb and if the secondary imperfective suffix -*va-* is added on top of the prefixes, the verb becomes imperfective, as expected.<sup>4</sup>

- |  |  |                                 |
|--|--|---------------------------------|
| (2) a. raz-dam <sup>PF</sup>               | b. pre-raz-dam <sup>PF</sup>               | c. po-pre-raz-dam <sup>PF</sup> |
| from-give                                  | REP-from-give                              | DEL-REP-from-give               |
| ‘distribute’                               | ‘redistribute’                             | ‘redistribute a little’         |
| d. iz-po-pre-raz-dam <sup>PF</sup>         | e. iz-po-pre-raz-da-va-m <sup>IPF</sup>    |                                 |
| COMP-DIST/DEL-REP-from-give                | COMP-DIST/DEL-REP-from-give-SI-1.sg        |                                 |
| ‘redistribute completely little by little’ | ‘redistribute completely little by little’ |                                 |
- (Istratkova 2004, 309)

The derivational history in (3) shows that the Russian delimitative *po-* ‘on’ attaches 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 <sup>IPF</sup> | b. ot-kry-t <sup>PF</sup> | c. ot-kry-va-t <sup>IPF</sup> | d. po-ot-kry-va-t <sup>PF</sup> |
| cover-INF                   | away-cover-INF            | away-cover-SI-INF             | DEL-away-cover-SI-INF           |

‘cover’

‘open’

‘open’

‘open for a while’

In contrast, the Czech delimitative *po-* adjoins to the perfective verb, before attaching the secondary imperfective morpheme, as shown in the following example.

- (4) a.  $\text{krý-t}^{\text{IPF}}$                       b.  $\text{od-krý-t}^{\text{PF}}$                       c.  $\text{po-od-krý-t}^{\text{PF}}$   
           cover-INF                              away-cover-INF                      DEL-cover-SI-INF  
           ‘cover’                                      ‘uncover’                              ‘uncover a little/for a while’
- d.  $\text{po-od-krý-va-t}^{\text{IPF}}$   
           DEL-away-cover-SI-INF  
           ‘uncover 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 lastly attached morpheme. In fact, *poodkrývat* is biaspectual because if it has the distributive meaning ‘uncover one after another’, it is perfective.<sup>5</sup> This, however, does not tell against the generalization because then the derivational history is as shown in (5), where 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.

- (5) a.  $\text{krý-t}^{\text{IPF}}$     b.  $\text{od-krý-t}^{\text{PF}}$     c.  $\text{od-krý-va-t}^{\text{IPF}}$     d.  $\text{po-od-krý-va-t}^{\text{PF}}$   
           cover-INF    away-cover-INF    away-cover-SI-INF    DIST-away-cover-SI-INF  
           ‘cover’            ‘uncover’            ‘uncover’            ‘uncover one after another’

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

completive *do-* ‘to’ can only occur below any instance of the superlexical prefix *po-*, as shown by (6), in which the distributive or delimitative *po-* is outside the completive *do-*.

- (6) *po-do-kańczać*      *robotę*  
DIST/DEL-COMP-finish    work  
‘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 by (7), with the completive *do-* occurring further away from the root than *po-*.

- (7) *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 affect the generalization above because the verbs are perfectivized by the last prefix – the distributive/delimitative *po-* in (6) and the completive *do-* in (7) – regardless of the prefixal hierarchy.

## 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. There is only one Asp responsible for interpretation and this head has an unvalued interpretable aspect feature. I keep the derivational system as minimal as possible and assume that 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 an uninterpretable aspect feature with the value [perfective]. In contrast, the secondary imperfective suffix has an uninterpretable aspect feature with the value [imperfective], given that it imperfectivizes the verbal stem, as shown in (1)-(5).

Assuming the correspondence between the time of the attachment of a morpheme and its structural position (recall the generalization that the morphological aspect value is determined by the lastly 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 Asp. Given that lexical prefixes are structurally lower than superlexical prefixes (see Babko-Malaya 2003, Svenonius 2004, Slabakova 2005, Richardson 2007, Markova 2011, among others, and also examples (1)-(5)), the hierarchy relevant to Agree, with appropriate aspect features, looks like (8). *SP* stands for a superlexical prefix, which can be iterated, *SI* for the secondary imperfective suffix and *LP* for a lexical prefix.

(8) [Asp<sub>unval asp-F</sub> [ SP<sub>val asp-F: pf</sub> [ SI<sub>val asp-F: ipf</sub> [ SP<sub>val asp-F: pf</sub> [ LP<sub>val asp-F: pf</sub> ]]]]]

The standard analysis of the secondary imperfective suffix treats it as an exponent of Asp because of its imperfectivizing effect on the predicate (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 Asp. If it were the case, we could not derive perfective predicates with superlexical prefixes higher than the imperfectivizing suffix like (1d), (3d) and (5d). In addition, the derivational system would need a mechanism for overwriting of the imperfective value of the secondary imperfective Asp. The mechanism would be necessary in the strict derivational system also if the imperfectivizing suffix were lower and some superlexical prefixes higher than Asp. Further, if the higher superlexical(s) were further away from Asp than the imperfectivizing suffix, the aspect value of Asp could not be determined by minimality. Thus, all relevant aspectual affixes are lower than Asp, as illustrated in (8).

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. In Czech, scope facts with cumulative *na-* also argue for a position of the imperfectivizing suffix below the projection with the agentive argument. Specifically, the perfective form in (9a) is derived by attaching the cumulative *na-* to the verb with the imperfectivizing suffix in (9b), not by attaching it to the verb without it, as in (9c).

- (9) a. *na-s-bír-a-t*<sup>PF</sup>                      něco            / jablka / \*jablko                      b. *s-bír-a-t*<sup>IPF</sup>  
          CUM-with-take-SI-INF    something / apples /    apple                                      with-take-SI-INF  
          ‘pick amount of something/apples/\*apple’                                      ‘pick’  
      c.\* *na-se-br-a-t*<sup>PF</sup>  
          CUM-with-take-TH-INF

Furthermore, the prefix *na-* quantifies over the object, as shown by the ungrammatical status of the singular quantized object in (9a), but does not quantify over the subject, as shown in (10), where the singular form of the subject is possible, too. This means that superlexicals like the cumulative *na-* attach below the head introducing the agent and above the imperfectivizing suffix. Then, given that the aspectual interpretation and AspP 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.<sup>6</sup>

- (10) Soused(i)                      něco            nasbíral(i).  
      neighbor.NOM(.PL)    something    picked(.PL)  
      ‘The neighbor(s) picked amount of something.’

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 distinguishing *v* from the external argument introducing head (Voice); 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 root than the secondary imperefective suffix, as in (11), they can be treated as the verbalizing *v*.<sup>7</sup>

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|---|--|
| (11) a. <i>prze-rab-i-a-ć</i><br>REP-do-TH-SI-INF<br>‘redo’                      (Polish) | b. <i>do-hr-á-va-t</i><br>COMP-play-TH-SI-INF<br>‘finish playing’              (Czech) |
|---|--|

To sum up, the relevant piece of the verbal structure with aspect features looks like (12).

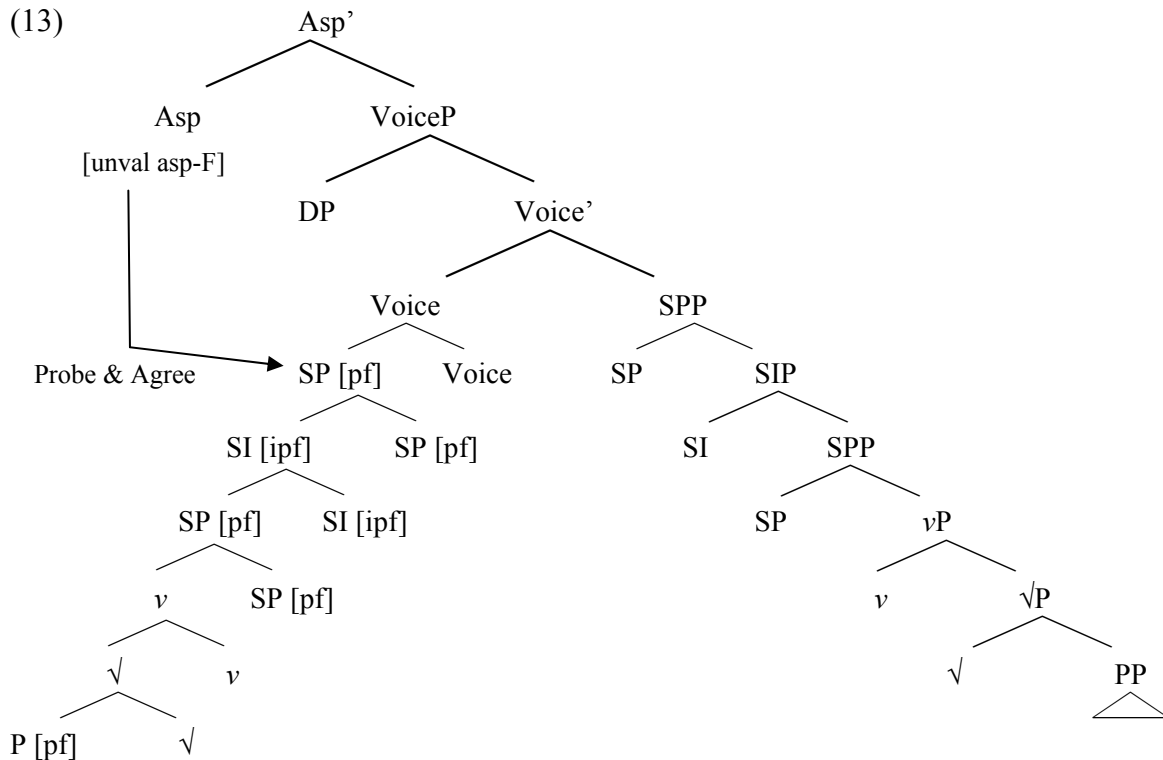
- (12) [<sub>AspP</sub> ASP<sub>unval asp-F</sub> [<sub>VoiceP</sub> Agent [<sub>Voice</sub> [<sub>SPP</sub> SP<sub>pf</sub> [<sub>SIP</sub> SI<sub>ipf</sub> [<sub>SPP</sub> SP<sub>pf</sub> [<sub>vP</sub> *v* [<sub>√P</sub>  $\sqrt{\text{ }}$  [<sub>PP</sub> LP<sub>pf</sub>]]]]]]]]]]]

*SPP* is just an abbreviation for a superlexical prefix phrase. Since I follow the standard approach, in which morphemes are structurally heads, superlexicals head their own projections and consequently, the SPP can be iterated. The higher SPP stands for phrases projected by superlexicals like the Czech cumulative *na-* in (9), and the lower SPP represents phrases projected by superlexicals like the completive *do-* in (11b). *LP* stands for a lexical prefix, which merges in the complement of the verb/verbal root (Ramchand 2004, Svenonius 2004, Gehrke 2008, Biskup 2019). Since it is not important for the argument how complex the verbal complement is, I assume for simplicity that the lexical prefix is a preposition projecting

a PP, as shown in (12). As discussed in section 1, languages vary with respect to stacking – i.e. how many times SPPs are iterated – and the fact where particular superlexicals are located – whether above or below the imperfectivizing projection SIP – and in which order they occur, i.e. what selectional requirements occur in the particular language.<sup>8</sup>

### 3. Deriving the Aspect Value: Head Movement and Dominance

Since I adopt a syntactic approach to morphology and employ head movement, we receive (13), when Asp merges with its complement; see Gribanova (2013, 2015) for arguments that in Russian, the verb is composed via head movement to Asp. Moreover, if the projection introducing the external argument (VoiceP) is a phase and head movement is used, there will be no problem for the probing Asp with respect to the Phase Impenetrability Condition (Chomsky 2001), in contrast to approaches that would leave the particular morphemes inside the phasal complement. So, when the aspect feature of Asp probes, the complex verbal head is already in Voice, hence it is accessible for Agree; see (13).





The head movement operation will derive the desired relations if minimality is based on dominance. 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 probe Asp. Consequently, the aspect feature of the highest dominating head can value the unvalued aspect feature on Asp. It should be obvious now how this proposal derives the pattern from section 1, according to which the aspectual interpretation is determined by the lastly attached aspectual morpheme.

Specifically, in cases like the distributive *po-za-krý-va-t*<sup>PF</sup> ‘cover one after another’ in (1d), the highest head with an aspect feature (concretely [perfective]) is the distributive *po-*, which spells out the higher SP in (12) and (13). This head dominates all the other heads with an aspect feature in the complex head Voice in (13), hence the verb (its Asp) is perfective.<sup>9</sup> Nothing changes on the aspect value in case of stacking of the higher superlexicals because they always have the value [perfective]: The highest one values the aspect feature on Asp.

If there is no (higher) superlexical prefix in the verb, like in *za-krý-va-t*<sup>IPF</sup> ‘cover’ in (1c), SP is missing in the Voice head and the closest head relevant to the probing Asp is the secondary imperfective (SI) head. Its [imperfective] feature values the aspect feature on Asp, deriving an imperfective predicate. The same result is obtained in cases where the imperfectivizing suffix co-occurs with a lower SP, like the delimitative *po-* in *po-od-krý-va-t*<sup>IPF</sup> ‘uncover a little/for a while’ in (4d), since SI, with its [imperfective] feature, dominates all other heads containing a valued aspect feature. In the same way, an imperfective verb is derived if there are more SP heads dominated by SI, as in *iz-po-pre-raz-da-va-m*<sup>IPF</sup> ‘redistribute completely little by little’ in (2e).

In verbs like *za-krý-t*<sup>PF</sup> ‘cover’ in (1b), with only the lexical prefix, superlexical projections and the imperfectivizing projection are missing. Hence, the closest element in Voice in (13) that has an aspect feature is the preposition P. Its value then determines the perfective aspect of the verb. Given that lexicals 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.<sup>10</sup>

If it were the case, we would derive lexically prefixed imperfective verbs without the imperfectivizing suffix, contrary to the facts.

Hence, the aspect value of simplex verbs like *krý-t*<sup>IPF</sup> ‘cover’ in (1a) will be derived by a default mechanism.<sup>11</sup> 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 Asp does not find an aspect value in its c-command domain, it receives the [imperfective] 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.

As to linearization, head movement derives the correct ordering for all morphemes except superlexical prefixes. (13) incorrectly predicts them to occur either between the theme vowel and the imperfectivizing suffix (for the low SP) or between the imperfectivizing suffix and the infinitival ending (for the high SP), as shown in (14) for the verb *po-od-krý-va-t*.<sup>12</sup> Recall that this verb is either imperfective (4) or perfective (5), depending on whether *po-* is delimitative (i.e., lower SP) or distributive (higher SP), respectively. (14a) shows the incorrect, predicted order for the delimitative *po-* and (14b) for the distributive *po-*.

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|--|--|
| <p>(14) a. * od-krý-Ø-<b>po</b>-va-t</p> <p style="padding-left: 40px;">away-cover-TH-DEL-SI-INF</p> <p style="padding-left: 40px;">intended: ‘uncover a little/for a while’</p> | <p>b.* od-krý-Ø-va-<b>po</b>-t</p> <p style="padding-left: 40px;">away-cover-TH-SI-DIST-INF</p> <p style="padding-left: 40px;">intended: ‘uncover one after another’</p> |
|--|--|

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. Conclusion**

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 lastly attached aspectual morpheme (dubbed as derivational history). I have proposed to derive this aspectual behavior with 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 a valued aspect feature and is accessible to Asp. Thus, aspectual markers – prefixes and the imperfectivizing suffix – do not spell out the aspectual head; they only license the presence of the corresponding aspectual operator in Asp. Certain morphologically complex verbs are biaspectual since they contain a prefix that can merge in distinct structural positions, either above or below the imperfectivizing suffix. This means that the verb can be derived in two different ways; it has two derivational histories.

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<sup>1</sup> The following abbreviations are used: COMP=completive, CUM=cumulative, DEL=delimitative, DIST=distributive, EXC=excessive, INF=infinitive, IPF=imperfective, LP=lexical prefix, NOM=nominative, PF=perfective, REP=repetitive, SI=secondary imperfective, SP=superlexical prefix, TH=theme (vowel).

<sup>2</sup> An 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 *záviset* ‘depend’, *podléhat* ‘be subject to’ (cf. also e.g. the Russian *zaviset* ‘depend’, *podležat* ‘be subject to’).

<sup>3</sup> Lexical prefixes are glossed with the English prepositional meaning and superlexical prefixes with the abbreviated aktionsart meaning in small capital letters.

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<sup>4</sup> The 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).

<sup>5</sup> This 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.

<sup>6</sup> There are also empirical arguments for severing perfectivity from prefixes; see Tatevosov (2011).

<sup>7</sup> But 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 secondarily imperfectivized forms.

<sup>8</sup> An analysis of this variance is outside the scope of this squib.

<sup>9</sup> Uninterpretable features on aspectual affixes that do not enter Agree are not problematic under the assumption that their uninterpretability just means that they cannot be read by the semantic interface (see Zeijlstra 2009). Thus, the only really offending feature is an unvalued feature.

<sup>10</sup> Only the root of the exceptional perfective simplex verbs like *dam* ‘give’ (see footnote 4) has an aspect feature, concretely with the value [perfective].

<sup>11</sup> Alternatively, 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).

<sup>12</sup> The theme suffix – syntactically *v* – is null in this verb.