Primary and secondary imperfectives in Russian: A cumulativity analysis

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1 Introduction

This paper analyzes the imperfective[1] in Russian in terms of the mereological[2] notion of cumulativity. I argue that positing a cumulative event structure as the semantic invariant of the imperfective allows for a uniform analysis of the readings, clearly contrasting perfective and imperfective forms in Russian. Based on the evidence that these readings are available for both primary (morphologically basic) and secondary (morphologically derived) imperfectives, this semantic invariant is taken to be independent from the aspectual morphology, i.e. it is posited for both morphological types of the imperfective. Thus, the proposed analysis advocates the necessity of treating primary and secondary imperfectives as a uniform semantic class (contra Borer 2005). The current analysis goes counter the view (expressed in Filip 2005 and in Borer 2005) that primary imperfective morphology is alighned with the level of inner aspect (the telic/atelic distinction), and secondary imperfective morphology with the level of outer aspect (the relation between event times and reference time). Instead it is proposed that both primary and secondary imperfectives contribute a cumulative event structure that can be interpreted at different levels of semantic derivation.

The paper is organized as follows: section 2 provides an overview of aspectual morphology in Russian and introduces the distinction between primary (morphologically basic) and secondary (morphologically derived) imperfective forms. Section 3 outlines theoretical issues relevant to this morphological distinction, relating it to a broader context of research on aspectual architecture in the field. In Section 4 I present the readings characteristic of the imperfective in Russian and show how this empirical

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[1] As an initial note on terminology, the perfective/imperfective distinction refers to a formal grammatical category overtly marked on the verb by morphological means, as is the case in Russian.
[2] Mereology is the logic of part-whole relationships.

evidence fits into the discussion of the theoretical issues. Section 5 provides a uniform cumulativity account of those readings common to primary and secondary imperfectives. In Section 6 I look at the constraints on the availability of readings, arguing that for both morphological types of the imperfective they are related to the cumulative event structure. Section 7 is a conclusion.

2 Aspectual morphology: primary vs. secondary imperfectives

The perfective/imperfective distinction in Russian is overtly marked on the verb by means of affixation. It can manifest itself in a number of ways. I will outline the morphological patterns relevant to the current analysis, namely primary and secondary imperfective.

2.1 Primary imperfective (absence of prefix in opposition to a prefixed perfective verb)

Primary imperfective is defined in a morphological relation to a perfective verb stem. The distinction between the imperfective and the perfective is marked by means of prefix on the latter. A prefix attaches to a bare imperfective form to produce a perfective form. In the traditional terminology the imperfective forms in this opposition are referred to as ***primary imperfectives.***

In the most transparent case the opposition of the forms appears to be purely aspectual. The imperfective form corresponds to an activity and the perfective form corresponds to a culmination point or result state, as illustrated in (1).

(1)   dela-t' (IMP1)[3] →   **s**-dela-t' (PERF)
       do-INF   PR-do-INF
       'to do'   'to have done, to accomplish'

In the vast majority of cases, however, the morphology is much less transparent. Apart from formally marking the opposition with a bare imperfective verb, prefixes add a variety of meanings. Typical meanings comprise preposition-like meanings (2a),[4] adverb-like meanings, manner component contributions (2b), and quantificational meanings, such as cumulativity of the direct object argument (2c).

(2)   a. bra-t' (IMP1) →   **za-**bra-t' (PERF)
          take-INF   PR-take-INF
          'to take'   'to take away'

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[3] I will be using the following abbreviations for glosses: ACC-accusative, ACM-accumulative prefix, DAT-dative, GEN-genitive, IMP1-primary imperfective, IMP2-secondary imperfective, INF-infinitive marker, PR-prefix, PERF-perfective verb form, SUF-suffix.

[4] It has been noted that verbal prefixes in Slavic are similar to Germanic in that they have meanings derived historically from that of locative prepositions.

    b. krasi-t' (IMP1) → **pro**-krasi-t' (PERF)
       paint-INF   PR-paint-INF
       'to paint'   'to cover with paint thoroughly'

    c. stroi-t' (IMP1) → **na-**stroi-t' (PERF)
       build-INF   ACM-PR-build-INF
       'build'   'to build a lot of smth'

The addition of a prefix can considerably affect the lexical meaning of the verb and can also alter its argument structure.

2.2   Secondary imperfective (imperfectivizing suffix on a perfective verb)

The imperfectivizing suffix -*va*[5] can attach to a prefixed perfective verb and render it imperfective. The contribution of the suffix is purely aspectual and does not affect the lexical meaning of the verb. In traditional grammatical descriptions the resulting imperfectivized forms are labeled ***secondary imperfectives***. An example of the "morphological chain" is given in (3).

(3)   li-t' (IMP1) →   **raz-**li-t' (PERF) →   **raz-**li-**va-**t' (IMP2)
       pour-INF   PR-pour-INF   PR-pour-IMP2-INF
       'to pour',   'to pour out',   'to pour out', 'to spill',
       'to be pouring'   'to spill'   'to be pouring out'

The evidence for the order of morpheme attachment comes from the absence in modern Russian of forms like **li-va-t'*.

3   The challenge of the aspectual morphology

The aspectual morphology described above implicates a number of potentially problematic issues:
1. The existence of two imperfective forms with different morphological history;
2. The apparent asymmetry of aspectual oppositions, contrasting the perfective with both primary and secondary imperfective;
3. The co-occurrence of perfective and imperfective morphology on the same form, precluding the possibility of treating perfective prefixes and the imperfective suffix –*va* as morphological exponents of the same aspectual head.

Consequently, any analysis of aspectual oppositions in Russian faces the following interrelated questions:
1. Is the semantic contribution of primary vs. secondary imperfectives different or the same?
2. How do we construct aspectual oppositions?

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[5] Allomorphy is possible

The basic idea underlying a number of treatments of aspectual morphology boils down to layering the prefixes and the imperfectivizing suffix, contrasting the level of inner aspect (roughly corresponding to the VP-level of eventuality and dealing with the telic/atelic distinction), and the level of outer aspect (a higher IP-level aspectual operator concerned with the relation between event time and reference time). Recent treatments of the imperfective along the lines of this aspectual architecture come from Borer (2005) and Filip (2005). It should be noted that both theories are primarily concerned with the perfective morphology (prefixation), so the analysis of the imperfective comes as a by-product of the analysis of prefixes.

On Borer's (2005) account, primary imperfectives stand in semantic opposition to the perfective prefixes. This opposition is resolved at the level of inner aspect corresponding to the telic/atelic (quantity/non-quantity in her terminology) eventuality distinction and is syntactically construed.[6] Secondary imperfective morphology, on the other hand, is treated as an exponent of outer aspect, relating eventuality times to reference times, and having "at least up to a point a progressive function" (p. 172). Thus, according to Borer, primary and secondary imperfectives by necessity form distinct semantic classes. Borer suggests that this solution might provide further argument for distinguishing between inner and outer aspect.[7]

On Filip's (2005) analysis the division between outer aspect and inner aspect in Slavic is encoded by distinct parts of verbal morphology (suffixation vs. prefixation). Filip claims that prefixes are not morphological exponents of the inflectional category of Perfectivity (the major arguments being lexical idiosyncrasy, non-compositionality, recursivity, influence on argument structure, and co-occurrence with the imperfective morphology on secondary imperfective forms).[8] Instead, prefixes are derivational morphemes functioning as modifiers of eventuality types at the VP-level. The presence vs. absence of prefixes affects the telicity of verbal predicates. The imperfective/perfective opposition is dealt with at the level of higher (IP-level) aspectual operators, which relate eventuality times to reference times, taking eventuality types (telic or atelic) as their input. Thus, the imperfectivizing suffix *-va* is treated as a spell-out of a higher aspectual operator IPF, which applies to a reference time requiring it to be contained in

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[6] "The reader should bear in mind that by (a)telic, we are referring here to the presence vs. absence of quantity as instantiated syntactically through the presence or the absence of a well-formed ASPq... I equated quantity (=telicity) with perfective marking, taking perfective marking to be the phonological realization of quantity range assignment to [ASPq <e>] and at times to [DP <e>] as well through specifier-head agreement...Primary imperfectives, I will suggest, are atelic (i.e. non-quantity) because they lack syntactic quantity structure" (Borer 2005: 161).

[7] "Should such a solution turn out to be workable, it would provide additional evidence for the distinction between outer and inner aspect, in showing them to be associated with distinct morphological marking and distinct morphological history" (Borer 2005: 172).

[8] Filip emphasizes that the connection between the presence of prefixes and telicity is not direct, and appeals to the culmination condition proposed in Kratzer (2004). As Filip (2005) points out, "the presence/absence of certain prefixes affects the quantity criterion QC (culmination condition), and consequently it is the telicity of complex verbal predicates, and not the relation between eventuality time and reference time, which characterizes the grammatical aspect."

the eventuality running time.[9] Being aware of the distributional similarities of primary and secondary imperfectives in Slavic, Filip is impelled to posit the same operator in the denotation of primary imperfectives.

On the analysis of the semantics of the imperfective in Russian proposed in the present paper, (i) primary and secondary imperfectives constitute a uniform semantic class; (ii) rather then relying on the relation between event times and reference times, the denotation of the imperfective is construed in terms of cumulative event structure that can be interpreted at different levels of semantic derivation, comprising both the level of eventuality (inner aspect) and the IP-level (outer aspect).

The present paper does not attempt an analysis of the perfective prefixes and is only a first step towards a model of aspectual oppositions. It should be explicitly stated, however, that this analysis differs from the proposals by Filip and Borer with regard to aligning the imperfective morphology with the inner/outer aspect division. Despite the differences in their approaches, both Borer and Filip contrast primary imperfectives with prefixes perfectives as affecting telicity at the level of inner aspect, and separate secondary imperfectives as dealing with the relation between event times and reference times at a higher level of outer aspect (as summarized in (4a)). On the current analysis the opposition between the presence of prefixes on the one hand, and the absence of prefixes and the imperfectivizing suffix on the other is resolved at both levels (as summarized in (4b)).

(4)   a.   Inner aspect (telicity): presence of prefixes vs. absence of prefixes
                (primary imperfective)

                Outer aspect (the relation between eventuality times and reference times):
                imperfectivizing suffix –*va* (secondary imperfective)

        b.   Inner aspect & outer aspect (quantized/cumulative property of the event):
                presence of a prefix vs. {absence of prefix, imperfectivizing suffix -*va*}

The treatment advocated in this paper of primary and secondary imperfectives in Russian as a uniform semantic class is prompted by the well-attested empirical evidence of their functional similarities, which I turn to in the next section.

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[9] On the treatments of the imperfective consistent with Borer's analysis, the denotation of the imperfective operator spelled out by the suffix –*va* would be the same as that of the English progressive, as given in (i):
(i)   **IMF = $\lambda P \lambda t \exists e$ [P(e) $\wedge$ t $\subset \tau$(e)]** (Kratzer 2004)
(i) creates a property that is true of any time t just in case t is **properly** contained in the time of the event. This denotation applies to a contextually relevant reference time to yield an on-going interpretation.
          Filip's (2005) denotation of IPF spelled out by the imperfectivizing suffix -*va* in Slavic is given in (ii).
(ii)   **IPF = $\lambda P \lambda t \exists e$ [P(e) $\wedge$ t $\subseteq \tau$(e)]**
This requires the reference time t to be contained in the time of the event.
          Filip assumes this denotation to be a semantic default consistent with a more contextually restricted progressive interpretation. The same denotation described as "INCLUDED" is posited by Paslawska and von Stechow (2003).

4   Readings of the imperfective in Russian

The imperfective in Russian has a number of systematic readings, where it contrasts with the perfective.[10]

1. The imperfective is used to report a single eventuality with no commitment to culmination. On this reading the contrast between perfective and imperfective forms is revealed in the ability to co-occur with *for*-durational adverbials. This reading, which I will refer to as the ***durative reading***, is illustrated in example (5a). Sentence (5a) means that he was engaged in the activity of painting a fence and it lasted for two hours. Normally sentences of this kind will be translated with simple past in English, but past progressive is also possible.

2. The imperfective form can give rise to an on-going event interpretation. In this case it describes the situation that is in progress at some contextually relevant time point (reference time). The reference time can come from adverbials like *now, at that moment, at 5 o'clock* etc, as well as from the discourse. This reading, which I will refer to as the ***in-progress reading*** of the imperfective, is illustrated in examples (5b) and is in fact parallel to the English progressive.

3. The imperfective in Russian systematically appears in contexts describing multiple occurrences, i.e. generic, habitual and frequent events. On this reading , further on referred to as the ***habitual reading***, it co-occurs with frequency adverbials like *always, often, usually, seldom* etc. The example of this reading is given in (5c).

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[10] The readings discussed here do not exhaust the full range of readings of the imperfective identified in Russian grammatical descriptions, nor do they maintain the fine-grained distinctions of the latter (see Paducheva 1998). The readings analyzed here do not constitute a random selection however. The guidelines I used for the proposed treatment of the readings were as follows:

-Those readings provide a diagnostic for aspectual oppositions (compatibility with for-durational adverbials, the ability to receive on-going event interpretation, multiple/single event interpretation of aspectual forms)

-Those readings are pertinent to the discussion of inner/outer aspect division. The uses of the imperfective, labeled further as *durative* and *in–progress* readings, are commonly brought up in literature on aspect in two contexts respectively: (i) atelicity of the imperfective vs. telicity of the perfective in the discussions of inner aspect; (ii) parallelism between the imperfective in Slavic and the progressive in English in the expression of the outer aspect. The reading referred to here as *habitual* although mentioned in literature, in most cases is discussed as unrelated to the other two.

- Those readings are more general than the finer-grained distinctions of grammatical descriptions. For example, Russian grammars identify several readings associated with multiple occurrences of event, I am glossing over those subtle differences and talk about *habitual reading* instead.

 - Only past contexts are discussed in order to avoid implicating tense/aspect correlations in Russian as well as modality of future tense. The perfective does not have present tense forms, the imperfective forms in the present tense can have both present and future interpretations. Also the imperfective takes auxiliary to compose a future tense form, while the perfective does not.   Thus, looking at the past tense readings helps to keep the oppositions parallel. It can be mentioned, though, that the past readings of the imperfective identified here have direct correlates in the present tense contexts.

(5)   a. On   dva   chasa **krasi-l**   zabor.   (durative)
           He   two   hours paint-PAST(IMP1)   fence-ACC.
           'He painted the/a[11] fence for two hours.'

        b. On v tot   moment   **krasi-l**   zabor.   (in-progress)
           He at that moment   paint-PAST(IMP1)   fence-ACC.
           'At that moment he was painting the/a fence. '

        c. On   chasto **krasi-l**   zabor.   (habitual)
           He   often paint-PAST(IMP1)   fence-ACC.
           'He often painted the fence.'

The examples in (6) with perfective verbs provide minimal contrasts to the examples in (5), aiming to illustrate aspectual oppositions. The sentence in (6a) shows that a perfective form is ungrammatical with the *for*-adverbial and would require the *in*-adverbial instead, yielding the interpretation of the event as culminated, i.e. 'He painted the fence in two hours'. The sentence in (6b) cannot receive the in-progress interpretation; instead it gives rise to a resultative interpretation: 'at that moment he was done painting the fence'. The co-occurrence of a perfective form with a frequency adverbial in (6c) results in ungrammaticality.

(6)   a. On *dva chasa/za dva chasa   **ras-krasi-l**   zabor.
           He two hours/in two hours   PR-paint-PAST fence-ACC
           'He painted the/a fence in two hours.'

        b. On v tot moment   **ras-krasi-l**   zabor.   (*in-progress)
           He at that moment   PR-paint-PAST fence-ACC
           'At that moment he had painted the/a fence.'

        c. *On chasto   **ras-krasi-l**   zabor.
            He often   PR-paint-PAST   fence-ACC
            'He often painted the fence.'

Note that the examples in (5) contain the primary imperfective form *krasi-t'*. In the examples in (6) the prefix *ras-,* in addition to marking aspectual opposition, contributes some sort of manner component, altering slightly the lexical meaning of the verb, i.e. 'paint in a certain pattern or motion'.[12] The perfective form can be further imperfectivized, resulting in the secondary imperfective *ras-krashi-va-t'*. Notably all the readings available with the primary imperfective form in (5) will be available with the

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[11] Russian lacks articles. The definite/indefinite interpretation of the direct object DP's will depend on contextual factors and on the aspect on the verb.
[12] In the translations in (6) I glossed over this lexical contribution of the prefix.

secondary imperfective form alike, as illustrated in examples in (7). The parallel sentences in (5) and (7) have the same truth conditions.

(7) a. On dva chasa   **ras-krashi-va-l**   zabor.   (durative)
        He two hours   PR-paint-SUF.IMP2-PAST   fence-ACC
        'He painted the/a fence for two hours.'

     b. On v tot   moment   **ras-krashi-va-l**   zabor.   (in-progress)
        He at that   moment   PR-paint-SUF.IMP2-PAST fence-acc
        'At that moment he was painting the/a fence.'

     c. On   chasto **ras-krashi-va-l**   zabor.   (habitual)
        He   often   PR-paint-SUF.IMP2- PAST   fence-ACC
        'He often painted the fence.'

These data suggest a number of important observations:

(i)   Both primary and secondary imperfectives are used in the same contexts, contrasting with the perfective. These distributional similarities impel treating the two morphological types of the imperfective as a uniform semantic class.

(ii)   The expression of the in-progress reading (corresponding to the outer aspect) is not restricted to secondary imperfectives. Nor is it the only reading associated with the secondary imperfective form. This leads to the conclusion that the status of the imperfectivizing suffix –*va* as a morphological spell-out of outer aspect might need reconsideration.

(iii)   Primary imperfectives are not confined to the durative reading (corresponding to a single event with no commitment to culmination and related to the inner aspect). This fact coupled with the facts in (ii) undermine the alignment of primary/secondary imperfective morphology with the inner/outer aspectual division.

(iv)   Both primary and secondary imperfective forms reveal systematic ambiguity; i.e. the absence of contextual triggers leaves open the possibility of any of the three readings. If the temporal adverbial modifiers in (5) and (7) are omitted, both primary and secondary imperfectives are ambiguous between any of the three interpretations.[13] This fact is obscured on an analysis that posits the denotation of an outer aspectual operator for the imperfective, narrowing it down to a particular reading and giving secondary imperfectives empirically unjustified priority. It also appears that on this approach the habitual reading would have to be treated as unrelated and would require a different denotation.

This paper proposes that the connection between the different readings as well as the distributional similarities of primary and secondary imperfectives are better captured with an appeal to event structure rather than to a relation between reference times and

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[13] I am going to address the constraints on the availability of readings later in Section 5.

event times. The event structure of the imperfective is characterized in terms of the mereological notion of cumulativity.[14]

5   A cumulativity analysis of the imperfective readings

The notion of cumulativity comes from mereology or the logic of the part-whole structure.

The formal definitions of quantized vs. cumulative predicates adopted from Krifka (1998) are given in (8).

(8)   a. $OUA(P) \leftrightarrow \forall x, y [P(x) \wedge P(y) \rightarrow \neg y < x]$
A predicate P is quantized iff, whenever it applies to x and y, y cannot be a proper part of x.

b. $CUM(P) \leftrightarrow \forall x, y [P(x) \wedge P(y) \rightarrow P(x \oplus y)] \wedge \exists x, y [P(x) \wedge P(y) \wedge \neg x = y]$
A predicate P is cumulative iff, whenever P applies to any x and y, it also applies to the sum of x and y, and P should apply to at least two distinct entities.

The opposition of quantized vs. cumulative properties formalizes the distinction between singular count nouns on the one hand, and bare plural and mass nouns on the other. In the case of a quantized property, no entity in the denotation of the whole can be described as having the property of the whole, for example, no subpart of a mango meets the denotation of *a mango*. By contrast, in the case of a cumulative property, the property of the whole applies to any two distinct subparts as well as their sum. Thus, if x can be described as *mangoes* and y can be described as *mangoes* then their sum also can be described as *mangoes*. When extended from the nominal domain to the domain of predicates and subsequently of events, the quantized vs. cumulative property distinction is most commonly used in discussions of telicity, to capture the difference of the subevental properties of culminated (telic) and non-culminated (atelic) eventualities.[15] A property of an event is quantized iff whenever it is true of an event it is not true of any of its proper subevents. A property of an event is cumulative just in case it is true of at least two subevents as well as their sum. Telic eventualities are characterized by the quantized property.[16] Atelic eventualities, in parallel with mass nouns and bare plurals,[17] are characterized by the cumulative property.

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[14] On an ontological level it might correspond to the absence of a change of state.

[15] As a note on terminology: in what follows a predicate describing a quantized/cumulative event will be referred to as a quantized/cumulative predicate, respectively. In the same way, a predicate describing a telic/atelic event will be referred to as telic/atelic.

[16] To be more precise, quantization is a stricter notion than telicity. All quantized predicates are telic, but not all telic predicates are quantized (for example, *run to the store*). On Kratzer's (2004) proposal, algebraic properties like quantization do not define [telic], but are used in defining the culmination conditions, i.e. what has to be the case for the event in question to culminate.

[17] For Borer (2005) bare plurals are quantities.

Consider the contrast between the imperfective forms on the durative reading and the perfective form as given in (5a), (6a), and (7a). The example with the primary imperfective is restated here as (9a), the example with the secondary imperfective as (9b), and the example with the perfective form as (9c).

(9) a. On dva   chasa **krasi-l**   zabor.
        He   two   hours   paint-PAST(IMP1)   fence-ACC.
        'He painted the/a fence for two hours.'

     b. On dva chasa   **ras-krashi-va-l**   zabor.
        He two hours   PR-paint-SUF.IMP2-PAST   fence-ACC
        'He painted the/a fence for two hours.'

     c. On *dva chasa/za dva chasa   **ras-krasi-l**   zabor.
        He   two hours/in two hours   PR-paint-PAST fence-ACC
        'He painted the/a fence in two hours.'

The imperfective forms in (9a) and (9b) express no commitment about culmination. Both sentences report an eventuality of him being engaged in the activity of painting the fence, which, as the adverbial says, lasted for two hours. Any chunk of this two- hour period will meet the denotation of the eventuality as a whole, namely of him *painting the fence*. Thus the eventuality described in (9a) and (9b) is characterized by the cumulative property. In contrast, the sentence in (9c) containing the perfective form commits to culmination. The sentence describes a telic event that culminates with the respect to the direct object argument. It entails that at the end of a two-hour period the fence was painted. The event in (9c) is quantized, as none of the subevents of him *painting the fence* would amount to him actually *having painted the fence*.

Consider now the in-progress reading in (5b) and (7b). This reading requires that the reference time be properly included in the eventuality time. The event of *painting the fence,* whether or not it eventually culminates, will then be presented as an on-going activity. Any subevent in the composition of this on-going event as well as the whole can be characterized by the cumulative property of *painting the fence*.

Finally, with the habitual readings in (5c) and (7c), the typical event of multiple occurrences is construed as the sum of individual fence-painting events as its subparts. The event is cumulative, since the sum event and the subevents in its composition all meet the denotation of *painting the fence*.

The account proposed here is consistent with the functional similarities between the primary and secondary imperfectives, as they both share the same semantic invariant: the cumulative event property. This semantic invariant of the imperfective allows for a uniform account of the readings arising with both morphological forms: primary and secondary imperfective. The imperfective invariably contributes a cumulative property of the event. The availability of different readings with the imperfective is due to the presence of semantic operators: sites in semantic derivation where a cumulative event structure can be generated or interpreted (PROGressive and GENeric being the most

obvious candidates[18]). The readings are context dependent. This is consistent with the fact pointed out in Section 3, that in the absence of time adverbials as triggers, the imperfective forms in (5) and (7) are ambiguous between the three readings.

       If this analysis is on the right track, then one might expect that possible constraints on the availability of readings would implicate the cumulative event property.

6   Constraints on the availability of readings

Consider the following set of Russian data. The verb *chitat'* 'to read' is a primary imperfective and has the three readings discussed earlier, as illustrated in examples (10a-c). The prefix *za*-derives a perfective form '*za-chit-at*',[19] lexically altering the meaning to *'to read out loud, usually in front of an audience'*. The corresponding secondary imperfective *za-chit-yva-t'* occurs on the same readings as the primary one, as illustrated by examples (11a-c). So the behavior of the primary and the secondary imperfective forms is the same as in the examples we saw above with *krasit'* 'to paint' in (5) and *raskrashivat'* in (7).

(10)   a. Ona chas   **chit-ala**   dnevnik   poeta.   (durative)
           She hour   read-PAST(IMP1)   diary-ACC   poet-GEN
           'She read the poet's diary for an hour.'

          b. Ona v tot moment **chit-ala**   dnevnik   poeta. (in-progress)
           She at that moment read-PAST(IMP1)   diary-ACC   poet-GEN
           'At that moment she was reading the poet's diary.'

          c. Ona redko **chit-ala**   dnevnik   poeta.   (habitual)
            She rarely read-PAST(IMP1)   diary-ACC   poet-GEN
           'She rarely read the poet's diary.'

(11)   a. Ona chas **za-chit-yva-la**   sobravshimsya dnevnik   poeta. (durative)
           She hour PR-read-IMP2-PAST   audience-DAT diary-ACC poet-GEN
           'She read the poet's diary to the audience for an hour'

          b. Ona v tot   moment   **za-chit-yva-la**   sobravshimsya dnevnik
           She at that moment   PR-read-IMP2-PAST   audience-DAT diary-ACC
           poeta.   (in-progress)
           poet-GEN
           'At that moment she was reading the poet's diary to the audience'

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[18] This is consistent with the clause architecture outlined in Ramchand 2004.

[19] Russian has a homophonous prefix *za-* which systematically contributes an inchoative meaning. The properties of the corresponding perfective form *zachitat'* 'to start reading' will be different from the ones described in this example.

    c. Ona   redko   **za-chit-yva-la**   sobravshimsya   dnevnik
        She   rarely   PR-read-IMP2-PAST   audience-DAT   diary-ACC
        poeta.   (habitual)
        poet-GEN
        'She would rarely read the poet's diary to the audience'

The prefix *pro-* added to the primary imperfective *chitat'* 'to read' derives a perfective form *pro-chitat'* with a resultative meaning 'to read to the end'. The corresponding secondary imperfective *pro-chit-yva-t'* can only give rise to a habitual interpretation, and fails to receive a single event interpretation, either in-progress or durative, as illustrated in (12).

(12)   a. *Ona chas   **pro-chit-yva-la**   dnevnik   poeta.   (*durative)
            She   hour   PR-read-IMP2- PAST   diary-ACC   poet-GEN
            'She read the poet's diary to the end for an hour.'

           b. *Ona v   tot   moment   **pro-chit-yva-la**   dnevnik   poeta. (*in-progress)
            She   at that   moment   PR–read-IMP2-PAST   diary-ACC   poet-GEN
            'At that moment she was reading the poet's diary to the end.'

           c. Ona   redko   **pro-chit-yva-la**   dnevnik   poeta. (habitual)
            She   rarely   PR-read-IMP2-PAST   diary-ACC   poet-GEN
            'She would rarely read the poet's diary to the end.'

The contrast between *za-chit-yva-t'* in (11) and *pro-chit-yva-t'* in (12) suggests that the availability of secondary imperfective readings hinges upon the contribution of the prefix. In (11) the prefix can be characterized as contributing a manner component, while in (12) the prefix has to do with a result state.

A direct parallel to the restriction on the availability of readings with secondary imperfective forms in (12) can be found with primary imperfectives as well. As already shown in (10), the primary imperfective *chitat'* 'to read' is open to all three readings discussed above. However, if a prepositional resultative phrase is introduced, the habitual interpretation is readily available, while the in-progress interpretation is blocked and the durative interpretation seems odd, as illustrated in (13).

(13)   a. ??Ona chas   **chit-ala**   dnevnik   poeta
            She   hour   read-PAST(IMP1)   diary-ACC   poet-GEN
            ot   korki do   korki.   (*durative)[20]
            from   cover to   cover
            'She read the poet's diary <u>from cover to cover</u> for an hour.'

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[20] On my intuition, sentences like (13a) are not strictly ungrammatical, but definitely odd on a single event reading. It seems much more natural to describe this type of situation with a perfective form and an *in* adverbial instead.

b. *Ona v tot moment **chit-ala** dnevnik poeta
   She at that moment read-PAST(IMP1) diary-ACC poet-GEN
   ot korki do korki. (*in-progress)
   from cover to cover
   'At that moment she was reading the poet's diary <u>from cover to cover</u>.'

c. Ona redko **chit-ala** dnevnik poeta
   She often read-PAST(IMP1) diary-ACC poet-GEN
   ot korki do korki. (habitual)
   from cover to cover.
   'She rarely read the poet's diary <u>from cover to cover</u>.'

The parallels between (12) and (13) suggest that the primary and secondary imperfective forms are subject to a similar constraint on the availability of readings and that this constraint is related to event structure. The prefix on the secondary imperfective form can delimit the event the same way as a resultative phrase in syntax with primary imperfectives. In those cases the event will be construed as telic (thus non-cumulative) and the possibility of the durative reading as well as the in-progress interpretation of the imperfective forms will be blocked. The habitual interpretation will be still available, as in this case the imperfective morphology marks the cumulative property of the sum (multiple) event that is not sensitive to the telic (quantized)/atelic (cumulative) characteristics of the single subevents in its composition.[21] Thus, examples with the secondary imperfective in (12c) and with the primary imperfective in (13c), both describe a cumulative multiple event, consisting of individual telic events of *reading the diary to the end*, while examples in (10c) and (11c) describe a cumulative multiple event consisting of individual atelic events of *reading the diary*.

The restriction on the availability of readings with the secondary imperfective in (12) would not be predicted on either Borer's or Filip's accounts of the imperfective,[22] where the presence or absence of prefixes is connected to telicity (inner aspect), and the suffix *-va* is a spell out of a higher aspectual operator (outer aspect). In the logic of such an alignment of morphology with inner and outer aspect one might rather expect the borderline of the availability of readings to cut between the durative reading and the other two (in-progress and habitual) – an expectation which is not borne out by the data. In addition treating the semantics of the imperfective as a relation between event times and reference times does not motivate the contrast observed between (11) and (12) due to the different contribution of the prefixes. On the cumulativity analysis of the imperfective proposed here, it is plausible to expect an interaction between the cumulative event structure and the prefix of the kind in (12), since the prefix relates to a result state and works as a delimiter. Such a prefix will induce a telic event interpretation incompatible

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[21] It should be noted that 'prototypical achievements' have imperfective forms in Russian, which in non-idiomatic usage appear odd on durative and progressive readings, but naturally receive a habitual interpretation. For example, *teryat'* (IMP) 'to lose', *nahodit'* (IMP) 'to find'.

[22] This does not mean to say that it is unanalyzable, though.

with durative and in-progress readings. The secondary imperfective marker can still be interpreted as a cumulative event higher in GENeric inducing the habitual reading and taking scope over the prefix. Other examples of secondary imperfectives with prefixation of this kind will include ***vy-pi-va-t' moloko*** 'to drink up milk', ***s'-ed-a-t' sup*** 'to eat up soup'. On the other hand, a prefix of the type in (7) and (11), characterizing a manner component, does not affect cumulative event structure, and thus predictably the secondary imperfective form is open to all three readings.

The prefixes with a resultative contribution are not the only type interacting with secondary imperfective morphology and constraining the availability of the readings. It has been noted (in particular by Filip 2004) that prefixes in Slavic predominantly contribute information which has to do with some quantifiable dimension of the described eventuality, including the distributivity of participants (both subjects and objects), cumulativity of the direct object argument, and vague measures (like 'a little'). If the semantics of the imperfective is treated in terms of cumulativity (non-quantity on Borer's terminology), it is plausible to expect interactions between prefixes associated with quantity and secondary imperfective morphology. The analysis of these interactions remains a matter for future research.

Note that on the present account the secondary imperfective does not undo what the perfective has already done, contrary to a number of proposals (for instance, Ramchand 2004). Nor does it invariably take an already formed telic form as input and return an atelic one as output. There is no single AspP responsible for the perfective/imperfective distinction. Instead, the presence of semantic operators in the structure allows for different configurations in the interpretation of aspectual morphology, contrasting the presence of prefixes with the absence of prefixes and the imperfectivizing suffix. Further research is needed to fill in the details of the scheme outlined here.

7   Conclusion

This paper provided a unified account of primary and secondary imperfectives in Russian in terms of the mereological notion of cumulativity. Both morphological forms correspond to the same semantic invariant – they mark a cumulative event property. The availability of different readings for the imperfective is due to the presence of semantic operators where such structure can be generated or interpreted. I discussed three characteristic readings (durative, in-progress, habitual) arising with both primary and secondary imperfectives. I used these readings to illustrate the functional similarities between the two morphological forms, thus motivating the necessity of treating them as a uniform semantic class, contrary to Borer's (2005) account. I relied on these readings to question the alignment of primary and secondary imperfective morphology with the inner/outer aspectual division, as proposed in Borer (2005) and Filip (2005). Both Borer and Filip contrast primary imperfectives (absence of prefixes) with the presence of prefixes in perfective forms as affecting telicity at the level of inner aspect, and separate secondary imperfective (imperfectivizing suffix) as dealing with the relation between event times and reference times at a higher level of outer aspect. On the current analysis

the opposition between the presence of prefixes on the one hand and the absence of prefixes and the imperfectivizing suffix on the other is taken to resolve at both levels. I then showed how the three readings of the imperfective can be accounted for in a unified way with appeal to the notion of the cumulative event property. Constructing the semantic invariant of the imperfective in terms of cumulativity, rather than in terms of the relation between event times and reference times, avoids positing a particular reading (progressive or otherwise) as basic and eliminates the need for positing a separate denotation for the habitual reading. Appealing to the cumulative event property allows us to motivate the constraints on the availability of readings arising with secondary imperfective forms in the presence of prefixes contributing quantization. The prefix on the secondary imperfective form can delimit the event just like a resultative phrase in syntax with a primary imperfective. In those cases a single event will be construed as telic (and thus non-cumulative), and the possibility of the durative reading as well as the in-progress interpretation of the imperfective forms will be blocked. The habitual interpretation will still be available with the imperfective morphology marking the cumulative property of the sum (multiple) event, regardless of the telic (quantized)/atelic (cumulative) characteristics of the single subevents in its composition. An analysis of the interaction of the perfective prefixes with the secondary imperfective morphology, as well as the aspectual architecture, remain directions for further research.

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