Why *kratnost'*? On Russian Factual Imperfectives

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Abstract

This paper is about a classic question of Russian aspectology. Why does the factual reading of the imperfective require the verbal predication to express a repeatable event? Or, which is the same: How comes that factual imperfectives can only be realized in contexts that support the feature '*kratnost'*"?[1] Different answers that have been given to that question will be discussed, and a decision will be made in favor of the following one: The *kratnost'*-effect derives from that the VP of a factual imperfective denotes an event type. A compositional semantics of factual imperfectives has been developed in compliance with two demands. First, it implements a systematic distinction between event types and event tokens. Second, it integrates into a more general, standard theory of Russian aspect.

1 The *kratnost'*-effect

Russian imperfective verb forms can be used to denote completed events. This reading of imperfective is traditionally called the general-factual interpretation (obščefaktičeskoe značenie), henceforth "OF". It is an unexpected outsider among imperfective readings insofar as reference to completed events is usually considered to be the function of perfective verb forms. The availability of two ways of referring to completed events in Russian is known as "aspectual competition" in the literature (e.g. Grønn 2004). (1) shows some standard examples of completed imperfectives:[2]

(1)   a.   "Konja   poil?"   –   "Poil."
             horse;acc;sg   water;ipfv;pst   water;ipfv;pst
             'Have you watered the horse? – Yes, I have.' (AG 1980)

        b.   Vy   zakazyvali?
             2pl   order;ipfv;pst;pl
             [in a restaurant:] 'Have you ordered?' (Comrie 1976)

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[1]   The Russian term *kratnost'* is difficult to translate into English. It roughly means 'repeatability' or 'replicability'. More on it below.

[2]   Abbreviations used in the gloss are: ipfv=imperfective, pfv=perfective, pst=past, prs=present, acc=accusative, gen=genitive, dat=dative, ins=instrumental, loc=locative, sg=singular, pl=plural, 1=1st person, 2=2nd person, 3=3rd person, spec=specific, nspec=non-specific, refl=reflexive, f=feminin, poss=possessive, foc=focus, imp=imperative.

    c. Ja   tebja   predupreždal!
       1sg   2sg;acc   warn;ipfv;pst
       'I have warned you!' (Zaliznjak & Šmelev 1997)

The topic of the present paper is one important constraint on the possibility of OF. As is well-known, imperfective reference to a completed event is possible only under a certain contextual condition. This is how Padučeva (1996, 58) describes that condition: "glagol NSV oboznačaet edinične sobytie; no ono rassmatrivaetsja na fone vozmožnogo povtorenija". Consider the two sentences under (2), which both report on a single completed historical event. Usually, as the first example shows, imperfective aspect is not acceptable in such a case. As the second example (adapted from Mehlig 2001) shows, however, imperfective becomes possible in a context where the historical event is conceptualized as being "principally repeatable".

(2)   a. Kolumb {otkryl/*otkryval}   Ameriku.
        K.   discover;{pfv/ipf};pst A.;acc
        'Columbus discovered America'

    b. Do   Kolumba naprimer ešče Eriksson otkryval   Ameriku.
        until K.   e.g.   yet   E.   discover;ipf;pst A.;acc
        'Before Columbus, also Eriksson discovered America'

In Russian, this requirement of OF is called *kratnost'*, which into English best translates as "repeatability" or "replicability". Traditionally, *kratnost'* is considered to be a semantic feature of OF (e.g. Glovinskaja 1982; Padučeva 1996). More recently, *kratnost'* is viewed as a pragmatic effect (Grønn 2004) instead.

Attempts to explain the *kratnost'*-effect have been made, of course. Unfortunately, however, the arguments that have been made in favor of this or that explanation do not seem to be conclusive. The matter must be decided. This is the goal of the present paper.

2 Previous attempts to explain *kratnost'*

Before I come to discuss previous proposals, I would like to point to a possible misunderstanding: *kratnost'* should not be conflated with pluractionality! Consider sentence (3). It expresses a repeatable event (*kratnost'* is satisfied), but it does not express a repeated event (no pluractionality). Both options, perfective and imperfective, are possible.

(3) Kolumb   {otkryl/otkryval}   okno.
     K.   open;{pfv/ipf};pst   window;acc
     'Columbus opened/was opening the window'

Compare this with (2a), which allows for perfective aspect only. It is with respect to *kratnost'* that (3) differs from (2a). The point is that, while there can be more than one event of opening the window in the world, there normally can be only one event of discovering America.

2.1 kratnost' as an effect of indefiniteness

There is a prominent proposal put forward by Leinonen (1982) and Dickey (2000), among others. These authors try to derive *kratnost'* from the (temporal) indefiniteness of the event. The background assumption is that the use of a Russian perfective verb form always signals definiteness of the event referent:

> [T]he pv signals a request on the part of the speaker that the [described event] be identified by the listener as an element of the shared knowledge (Dickey 2000, 121).

If the event in (2a) is definite, which is plausible enough given its uniqueness, it follows that such events must be encoded by means of perfective aspect. The approach encounters empirical problems though:

(4) "Krasivo ukrasili   elku." – "Kto   ukrašal?"
      beautiful   decorate;pfv;pst fir;acc   who   decorate;ipfv;pst
     'The Christmas tree has been beautifully decorated. – Who did it?'

Obviously, the event referred to by the speaker who is replying in (4) is "an element of the shared knowledge" of the two interlocutors. It refers back to the event that has been mentioned in the utterance beforehand. The reply thus constitutes the perfect context for the perfective if perfectivity would follow from definiteness – but the replyer uses the imperfective. What this shows is that perfectives are definite, but imperfectives can be definite too. This undermines an explanation in terms of indefiniteness.

Examples like (4) are not random, but widespread. They lead Grønn (2004) to exactly the opposite conclusion, namely that it is imperfectives (sic!) that serve to anaphorically relate the event to an "element of the shared knowledge". According to Grønn such imperfectives are presuppositional in the sense of Van der Sandt (1992) and Geurts (1999).

2.2 kratnosť as an effect of permanence

Grønn (2004) has developed an own explanation of why (2a) must be perfective, here is how it goes. Grønn assumes that there are predicates for which a target state is lexically defined. In the terminology of Klein (1994; 1995), we would say that such predicates have a "2-state-content". As for the meaning of the perfective operator, Grønn proposes the following:

(5)   PF $\Rightarrow \lambda P \, \lambda t \, [e \, |P(e), e \subseteq t, f_{end} (t) \subseteq f_{target} (e)/\text{if defined}]$

As can be seen, the perfective operator is sensitive to 2-state-contents. According to (5), the use of perfective morphology requires not only that reference is made to a single completed event but in addition that, with respect to 2-state-predicates, the assertion time ends when the target state is already in force. Now, Grønn says, if it happens that the target state of a 2-state-predicate must hold forever after, i.e. permanently, then the perfective semantics will unavoidably be met. There is no way round using the perfective. And this is what happens with predicates like *otkryvať/otkryť Ameriku*.

Yet this theory faces an empirical problem too. Consider the predicate *udaljať/udaliť appendicit*. It is clearly of 2-state-content. In the beginning, the appendix is in (source state), in the end it is out (target state). Imagine that this predicate is to be used to denote a single completed event. Obviously, the target state of the denoted event will be understood to hold forever after – it would be quite a bizarre scenario to reimplant the appendix. So according to Grønn's theory, we would expect that only the perfective can be chosen. However:

(6)   "Skažite, Vam uže   udaljali   appendicit?"
          tell;imp 2pl;dat already remove;ipfv;pst   appendix;acc
          "Udaljali.   Nedavno   kstati."
          remove;ipfv;pst recently   by_the_way
          'Has your appendix been removed already? – Yes. Not so long ago, by the way.'

As can be seen from (6), imperfective forms do appear together with permanent target states. This at least weakens Grønn's solution.

2.3 kratnosť as an effect of type-reference

For Mehlig (1998), the peculiarity of OF-imperfectives lies in that "the predication refers to a certain type of situation, and one instance of it is being introduced into the discourse" (Mehlig 1998, 293). This is supposed to explain why OF requires *kratnosť*:

> Type reference always presupposes that there is more than one entity in the relevant space. For situations as entities of time that means that the situation denoted must be potentially repeatable. (Mehlig 2011, handout).

In the present paper, I want to show that this solution is indeed correct. I will elaborate on Mehlig's argument explaining why type reference conflicts with uniqueness contexts like (2a). Moreover, I will spell out a compositonal semantic analysis of OF that maintains compatibility with other facts known about Russian aspect.

3 The proposal in a nutshell

Consider the following pair of examples:

(7)   a.   The hatchback car sells well in Europe.

       b.   [?]The hatchback car that has zebra-striped leather seats, an airbrush painting of a skull on the hood and a foxtail on the antenna sells well in Europe.

Why is (7b) considerably worse than (7a)? The answer is that the predicate in (7a) selects for a kind-level argument, and that the subject expression of (7b) badly qualifies for kind reference. But why is 'hatchback car that has zebra-striped leather seats, an airbrush painting of a skull on the hood and a foxtail on the antenna' not a good kind? Arguably, it is not a good kind because the description is so specific that we can hardly imagine that there can be more than one individual that would instantiate such a kind.

So it seems that there can be no kind with only one member. This rule can be traced back to the cognitive function of kinds (cf. Mueller-Reichau 2011): We establish kinds in order to categorize and, by way of categorization, identify individuals. A kind that necessarily has one member only would pragmatically conflict with this function of kinds. Given this, the following seems to be a valid generalization:

(8)   A kind must have, at least potentially, more than one member (relative to some world).

With respect to the topic of this paper, I follow Mehlig and propose that the event description in (2a) necessarily allows for one instance only, and that, as a consequence of that, OF-imperfectives are excluded because the OF-construction selects for an event kind.

Let me note that this sort of explanation has been applied elsewhere in linguistic theory. Arsenjević et al. (to appear) are concerned with the following contrast:

(9)   a.   George Washington was the father of America.

       b.   George Washington was the American father.

The authors observe that these two sentences are not equivalent. Unlike (9a), (9b) has a range of different possible interpretations. It can mean that Washington belonged to the class of fathers living in America, to the class of fathers born in America, to the class of fathers that are being fathers in an American way etc. Why does (9a) not show this range of readings? The answer that Arsenjević et al. give is that *the American father* is a kind term while *the father of America* is not. The latter expression cannot refer to a kind because "[i]t makes no sense for such a kind to exist because the father-offspring relation specifies a unique father for a specific offspring" (13). The authors remain silent about why it makes no sense for a kind which is restricted to a single member only to exist. Presumably, however, they presuppose a pragmatic restriction on kinds similar to the one stated in (8).

4 Explanation

The aim of the present paper is to develop an approach that implements the basic idea outlined in the previous section to account for the *kratnost'*-effect, at the same time accounting for other well-known linguistic peculiarities of OF-utterances. As is clear by now, the basic ingredient of such an approach is the notion of a kind.

4.1 The ontological background

It is taken for granted that there is a systematic two-way distinction in ontology. On the one hand, there is the set of kinds, and, on the other hand, there is the set of spatiotemporal realizations of kinds (e.g. Carlson 1977; Krifka et al. 1995; Šmelev 1996; Chierchia 1998). Henceforth I will use the terms "type" and "token" as synonyms for "kind" and "realization". The type/token-distinction was originally introduced to cope with linguistic facts in the nominal domain. Meanwhile it has been extended to the verbal domain, too. Event types are taken into account besides object types (e.g. Landman & Morzycki 2003; Gehrke 2012; Gehrke & McNally 2011). The following quote is programmatic:

> Event types are natural to expect if we assume that events form a subsort in our ontology of (token) individuals (Reichenbach 1947; Davidson 1967; Parsons 1990), that kinds or types form another subsort in that ontology (Carlson 1977) and that, as a rule, any token in the ontology should be the realization of some type in that ontology. (Gehrke & McNally 2011, 192).

With respect to nominal kinds, Mueller-Reichau (2011) presented linguistic arguments in support of the view that what referential semanticists call "kinds" corresponds to what cognitive psychologists call "categories". This view implies that the existence of a kind/type is something fundamentally different from the existence of an ordinary individual, i.e. a token. For a kind to exist means that it has realizations in the token domain. For a token to exist, by contrast, means that it occupies a spatiotemporal extension (within some world). This view furthermore implies that every common noun points to some kind (as it points to some category).

Kinds are known to come with a requirement of "well-establishedness" (cf. Krifka et al. 1995). This effect derives from that, if a common noun belongs to the shared lexicon of speaker and hearer, the kind pointed at will have to be shared knowledge too, i.e. belong to the common ground. The speaker can refer to a supposedly hearer-new kind only on condition that the kind-referring expression is not shared knowledge. Or, put differently, as long as the kind-referring expression is shared knowledge, the kind referred to cannot be hearer-new. These facts about nominal kinds should by analogy also hold for event kinds. Refering to an event kind by using a verb of the shared lexicon is always refering to a presupposed event kind.

To sum up these remarks, it is to be expected that a linguistic expression determines its denotation either in the kind/type domain or in the token domain (or both). As for nominals, this holds with respect to object types and object tokens. As for verbal expressions, this holds with respect to event types and event tokens. Object types and event types make up (an important part of) the taxonomically structured background knowledge against which the interlocutors communicate.

4.2 Underspecified lexical elements

In Russian, it is reasonable to assume that lexical nouns and verbs are semantically underspecified with respect to the type/token-distinction. Look at the following examples. Whether the respective nominal refers to a type or to a token cannot be told without considering the linguistic context within which it appears:

(10) a. Mamont   vymer.
        Mammoth   die_out;pfv;pst
        'The mammoth died out.'

     b. Mamont   umer.
        Mammoth   die;pfv;pst
        'The mammoth died.'

(11) a. Mersedes   u   menja   est'.
        Mercedes   at   1sg;gen   exist
        'I have a Mercedes.'

     b. Mersedes   u   menja.
        Mercedes   at   1sg;gen
        'I have the Mercedes.'

(12) a. Ivan   chočet   ženiťsja   na   kakoj-nibuď   francuženke.
        I.   want;ipfv;prs   marry;pfv;inf   to   some;nspec   french_woman;loc
        'Ivan wants to marry a French woman.'

     b. Ivan   chočet   ženiťsja   na   kakoj-to   francuženke.
        I.   want;ipfv;prs   marry;pfv;inf   to   some;spec   french_woman;loc
        'Ivan wants to marry a (specific) French woman.'

In (10), the selectional restrictions of the predicates decide about the interpretation of the nominal; with a kind-selecting predicate *mamont* is understood to refer to a kind, with an object-selecting predicate *mamont* is understood to refer to an object.[3] In (11), the presence or absence of the existence predicate *est'* signals whether the possessum nominal *Mersedes* actualizes a kind-level or object-level denotation (see Zybatow & Mueller-Reichau 2011 for details).

Similarly, *francuženke* in (12) by itself is capable of both interpretations, but the nature of the indefinite pronoun determines that reference targets an individual French woman in one case and French women in general in the other case.

In the present paper I want to argue that what is said here about Russian nouns can also be said about Russian verbs: they are underspecified with respect to the type/token-distinction, and it is their linguistic context that determines whether they will finally be interpreted at the type- or token-level.

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3   Admittedly, if presented out of the blue, (10a) sounds a bit weird. Russian speakers would prefer the use of the plural nominal. That this is a pragmatic rather than a semantic problem can be shown by contextualisation. Placed in the right context, the singular version can be attested too. E.g., *Mamont vymer v konce plejstocena v resul'tate izmenenija klimata…* (Boľšoj Ènciklopedičeskij Slovar').

4.3 The role of aspect

As far as the grammar of the verb is concerned, I assume that perfective morphology is a sufficient signal of token reference. In other words, perfective morphology creates a linguistic context within which a verb is always interpreted as referring to an event token. It should be noted, however, that I do not claim that imperfective aspect would be a necessary indication of type reference (contra to Hedin 2000). In the famous example (13) both verb forms *otkryl* and *otkryval* refer to one and the same event token, which shows that imperfectives are not limited to event type-reference:

(13) Kolumb byl   ščastliv ne   togda, kogda otkryl   Ameriku,
       K.   be;ipfv;pst happy   not   then   when   discover;pfv;pst A.;acc
       a   kogda otkryval   ee.
       but   when   discover;ipfv;pst 3sg;acc;f
       'Columbus was happy not when he had discovered America, but when he was discovering it.'

In (13), the difference in interpretation arises from that the perfective but not the imperfective entails "target state validity" (Grønn 2004). This means that the time immediately after the culmination of the event token must be relevant for the assertion made by the speaker.[4] In other words, the time of the target state must at least partly match the assertion time. Accordingly, the semantics of the perfective is informally as follows:

(14) (Perfective semantics:) A Russian perfective verb form expresses reference to a single event token such that the target state of the event token is relevant for assertion time.

With respect to imperfective aspect, I subscribe to the view according to which imperfectives are "semantically unmarked" (Jakobson 1932; Comrie 1976; Paslawska & von Stechow 2003). This means that "the imperfective doesn't express any particular notion" (Paslawska & von Stechow 2003, 324). Thus, whereas a perfective expresses (14), an imperfective expresses no signalization of (14). With respect to the interpretation of imperfective, this implicates the following:

(15) (Imperfective interpretation:) A Russian imperfective verb form is capable of expressing everything that a verb form can express except for what a perfective verb form expresses.

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[4]   Grønn's theory implements the one of Klein (1994, 1995).

Given (14) and (15), it is predicted that imperfective verb forms are used either in contexts where reference is made to multiple event tokens ("no singularity"), or in contexts where reference is made to single event tokens where only the source state is relevant as assertion time ("no target state relevance"), or in contexts where reference is made to event types ("no token reference"). (16) shows respective contexts of pluractionality, source state relevance (aka internal viewpoint) and type-reference:

(16) a. On   každyj   den'   gotovil   plov.
          3sg every   day   cook;ipfv;pst pilaf
          'He cooked pilaf every day.'

      b. Kogda ja   vošel,   on   gotovil   plov.
          when   1sg enter;pfv;pst 3sg cook;ipfv;pst pilaf
          'When I entered the room, he was cooking pilaf.'

      c. Ee   pervyj muž   gotovil   plov.
          3sg;poss;f first   husband cook;ipfv;pst pilaf
          'Her first husband was able to cook pilaf.'

5 The semantics of aspect

Let us assume that Russian syntax entertains a Functional Category AspP above VP but below TP (e.g. Schoorlemmer 1995; Junghanns 1995). Given the above made assumptions about aspect, AspP can have one out of two values perfective or imperfective with imperfective being "semantically unmarked" in the sense that it adds no own semantic condition to the interpretation. Note that this is not to say that the imperfective would have no meaning. Like the perfective, it serves to map properties of events onto properties of times. Unlike the perfective, however, it does so without specifying the bare "categorial meaning" with additional content. Here are semantic representations of the two aspectual operators for illustration. These representations are simplified in two respects. First, they are stated in terms of static semantics, but we will finally need a dynamic framework. Secondly, the type/token-distinction is not yet taken into account.

(17) a. IPF $\Rightarrow \lambda P \lambda t \exists e.\ P(e)\ \&\ e \circ t$

      b. PF $\Rightarrow \lambda P \lambda t \exists e \exists s.\ P(e)\ \&\ e \circ t\ \&\ result(e,s)\ \&\ s \circ t$

As can be seen, the semantics of IPF is included in the semantics of PF, the latter is more specific than the former.[5] In addition to what IPF requires, PF requires the existence of a target state s, and that the assertion time overlaps with the time of the target state. Importantly, s is an integral part of e (e is a "2-state event" in Klein's terminology). Therefore, the relation "s∘t" is a special case of "e∘t".[6] Given these assumptions about the two aspectual operators, let us now look at the structure over which they operate, i.e. the VP.

6 Dynamic meanings

Above I introduced event types as abstract entities in the ontology. On condition that this move is correct, we expect that VPs in general determine their denotation either within the domain of ordinary events (event tokens), or within the domain of event types. This situation would be in perfect analogy to (English) NPs under the "two-way distinction approach to genericity" (see Dayal 2004; Mueller-Reichau 2011).

(18) a. type-level VP $\Rightarrow \lambda e_k.\ \text{verb}(e_k)$

  b. token-level VP $\Rightarrow \lambda e \exists e_k.\ \text{verb}(e)\ \&\ R(e,e_k) \approx \lambda e.\ \text{verb}(e)$

Note that, as it is stated here, the token-level VP meaning in a way entails the type-level meaning. This reflects the fact that "any token should be the realization of some type" (Gehrke & McNally 2011).[7] Following Grønn (2004), I assume that the meaning of the VP is partitioned into background and focus material, and that the appropriate way to represent that is in terms of a dynamic semantic framework like DRT. As for the particular DRT-framework used in this paper, I can only give a minimum of background information due to lack of

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[5] As IPF and PF alternatively instantiate the category of aspect, one can analyze them as constituting two values on a Horn scale. Horn scales have been applied to the analysis of aspectual relationships before, e.g., Bickel (1996), Stoll (2001), Sonnenhauser (2006).

[6] The fact that IPF entertains the overlap relation "e∘t" does not contradict the claim that it is semantically unmarked. The overlap relation is indeed trivial (cf. Grønn 2004 for discussion). It trivially follows from two things. First, it follows from that aspect in general expresses a relation between assertion time and the run time of the event (Klein 1994). Secondly, it follows from that the speaker will always choose to denote an event that she wants to assert something about. Otherwise she would violate the Gricean maxim of relevance.

[7] See Mueller-Reichau (2011) for discussion on that issue.

space. The interested reader is referred to Grønn (2004, chapter 2) where technical details are carefully explained.[8]

Specifically, Grønn proposes that backgrounded information will be represented in the presuppositional part of the respective DRS, while focused information will end up in the assertion. For illustration, consider the following classic example. (19b) is the Grønn-style representation of the meaning of the imperfective sentence of (19a) at the level of VP:

(19) a.
V	ėtoj	porternoj	ja	napisal	pervoe	ljubovnoe
in	this	tavern;loc	1sg	write;pfv;pst	first	love

pis'mo	k	Vere.	Pisal	karandašom.
letter;acc	to	V.;dat	write;ipfv;pst	pencil;ins

'In this tavern I wrote my first loveletter to Vera. I wrote it in pencil.'

  b. VP $\Rightarrow \lambda$e [x | Instrument(e,x),pencil(x)] $_{[\ |write(e)]}$

The subscript DRS at the end designates the presuppositional part. From that the presupposition includes a condition imposed on the event argument we are entitled to conclude that the respective event is presupposed.[9]

When he comes to discuss the impact of the two aspects, Grønn (2004, 194) proposes the following "information structure principle of Russian aspect":

(20) Pf is drawn towards the assertoric content and prefers to see the event
      argument and aspectual configuration in the assertoric part, while Ipf
      is neutral w.r.t. the assertion/presupposition division.

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[8] It should be noted, however, that it is a "two-level version of DRT" in the sense of Geurts & Beaver (2011). This means that the full DRS is computed in two subsequent stages. In the first stage, a representation is projected from the sentence's lexical and morphosyntactic structure in line with the principle of compositionality. It is the computation at this stage that the explications presented in the present paper are concerned with. In the second stage, the sentence representation arrived at in the first stage will connect to the discourse representation that has been built up before, thereby taking into account context-dependent aspects of meaning.

[9] Wrt the notions of assertion and presupposition, I follow Grønn (2004) who follows Van der Sandt (1992) and Geurts (1999): "The difference between presupposition and assertion is that what is presupposed is taken for granted, and what is asserted is not. More accurately, to presuppose something is to represent oneself as assuming that the presupposition is already part of the common ground of assumptions that the interlocutors share between them. A presupposition is presented as 'an item of presumed background knowledge' (Stalnaker 1973, 450), and just as one can present old stories as hot news, a speaker can present new information as if it were already part of the common ground." (Geurts 1999, 12).

In that respect, I deviate from Grønn. Instead I propose the following two "principles" to direct the construction of the DRS of the VP:

(21) a. An event type discourse marker which is introduced by a lexical verb will appear in the presupposition.

   b. An event token discourse marker will appear in the presupposition if the VP is token-level.

This requires some comment. Principle (a) is motivated by that types referred to by lexical expressions belong to the common ground of speaker and hearer (recall section 4). Principle (b) is based on the reasoning that reference to the token domain trivially implies that there are tokens to refer to. Given (21), the meaning of the token-level VP that I gave in (18b) must now be restated in the following way:[10]

(22) token-level VP $\Rightarrow \lambda e$ [|] $[e_k \,|\text{verb}(e), R(e, e_k)]$

And the meaning of the type-level VP (18a) will take on the following form:

(23) type-level VP $\Rightarrow \lambda e_k$ [|] $[\,|\text{verb}(e_k)]$

Now we have to reformulate the semantics of the aspectual operators given in (17) in terms of DRT. As usual, and as explained above, the aspectual operators are functions that take properties of events to turn them into properties of times. These properties of times will later be the input to Tense, which takes them to be restrictions on its assertion time variable. Let us begin with PF:

(24) PF $\Rightarrow \lambda P \,\lambda t\, [e, s, e_k \,|\, P(e), R(e, e_k), \text{result}(e, s), s \circ t]$

PF takes a property of event tokens as input and maps it onto a property of times such that a time that has this property must overlap with the target state of the event token. Turning to IPF, we find that the situation is a little more complicated. Since IPF is conceived of here as the "semantically unmarked" member of the two aspectual values, its input is not limited to properties of event tokens only, as is the input of PF. The imperfective operator is semantically liberal enough to be applicable to properties of event types too. In particular, then, IPF can take on any of the following two meanings:[11]

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[10] There is a more simple alternative to (21). One could eventually state that everything at the VP-level is presuppositional. Accordingly, assertive information can only enter above VP.

[11] It is not a problem to give one underspecified representation of IPF. We would have to introduce a new variable subsuming "e" and "e_k", say "E". The domain $D_{<E>}$ will

(25) a. IPF $\Rightarrow \lambda P \lambda t$ [e,e_k |$P(e)$, $R(e,e_k)$, $e \circ t$]

   b. IPF $\Rightarrow \lambda P \lambda t$ [e,e_k |$P(e_k)$, $R(e,e_k)$, $e \circ t$]

In (25a) IPF selects for a property of event tokens, in (25b) it selects for a property of event types. The difference between these two manifestations of IPF is slight but important. As we will see, it causes a crucial effect in semantic composition. The question now is how these aspectual functions operate on the informationally structured VP-meanings introduced before.

7 Composition

To begin with, I propose two very simple construction rules.[12]

(26) a. Conditions that once entered the presupposition part of the DRS will remain there.

   b. Conditions that restrict the assertion time will be rewritten in the assertoric part of the DRS to be constructed.

Let the meaning of IPF (25a) apply to the meaning of the token-level VP (27a). In consideration of (26), the result will be the meaning of AspP as it is given in (27c):

(27) a. token-level VP $\Rightarrow \lambda e$ [|] [$_{e_k}$ |$verb(e),R(e,e_k)$]

   b. IPF $\Rightarrow \lambda P \lambda t$ [e,e_k | $P(e),R(e,e_k)$, $e \circ t$]

   c. AspP $\Rightarrow \lambda t$ [|$e \circ t$] [$_{e,e_k}$ |$verb(e),R(e,e_k)$]

The composition of the perfective AspP will be as stated in (28):

(28) a. token-level VP $\Rightarrow \lambda e$ [|] [$_{e_k}$ |$verb(e),R(e,e_k)$]

   b. PF $\Rightarrow \lambda P \lambda t$ [e,s,e_k |$P(e),R(e,e_k),result(e,s)$, $s \circ t$]

   c. AspP $\Rightarrow \lambda t$ [|$s \circ t$] [$_{e,s,e_k}$ |$verb(e),R(e,e_k)$, $result(e,s)$]

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accordingly be the union of the domains $D_{<e>}$ and $D_{<ek>}$. Given this convention, the aspectual operator IPF would translate as: $\lambda P \lambda t$ [e,e_k | $P(E)$, $R(e,e_k)$, $e \circ t$].

[12] These rules are indeed trivial. They are the reformulations of the two self-evident pragmatic prohibitions: Within one and the same statement, don't assert what you presuppose! Within one and the same statement, don't presuppose what you assert!

Now compare the two AspPs (27c) and (28c), and think again about the imperfective in (13), repeated here:

(29)   Kolumb byl ščastliv ne togda, kogda otkryl Ameriku, a kogda otkryval ee.

The imperfective expresses a progressive reading. Given the semantic procedures developed here, this empirical fact can be explained as resulting from an implicature. The explanation goes as follows: The imperfective in (29) is token-referring, so it forms the AspP (27c). This means that, as far as the semantics is concerned, its interpretation has to meet the requirement that the run time of the event token referred to must overlap with the assertion time. There is an alternative option under interpretation at the token-level, however, i.e. the perfective. This competition of forms brings it about that additional pragmatic constraints are imposed on the imperfective interpretation. As a comparison of (27c) and (28c) shows, and as discussed above, the perfective AspP is semantically more specific than the imperfective one. Therefore, the hearer is entitled to reason that, if the speaker had in mind that the time of assertion overlaps the time of the target state, she (the speaker) would choose the more specific option, i.e. the perfective. As the speaker does not do so, the hearer can be sure that the assertion time does not overlap with the target state. Since it must overlap with the event time, the hearer is automatically driven towards an internal viewpoint (here: progressive) interpretation.

There is one compositional possibility left to be noted. The aspectual operator can also apply to a type-level VP. As we saw, this option is available only for the imperfective operator IPF when it manifests itself as (25b).

(30)   a.   type-level VP $\Rightarrow \lambda e_k$ [|] $_{[\ |verb(e^k)]}$

       b.   IPF $\Rightarrow \lambda P \lambda t$ [e,e_k | $P(e_k)$, $R(e,e_k)$, $e \circ t$]

       c.   AspP $\Rightarrow \lambda t$ [e |$R(e,e_k)$, $e \circ t$] $_{[e_k\ |verb(e^k)]}$

To recapitulate, depending on whether IPF applies to a type-level or token-level VP, it will produce different AspP-structures. The difference concerns the place of the event token argument. If IPF applies to a token-level VP, the event token argument will end up in the presuppositional part of the DRS. By contrast, if IPF applies to a type-level VP the event token argument will land in the assertion.

If the conclusions that we arrived at were correct, we would expect that imperfectives in use display two major kinds of readings. One in which the event token is presupposed and, therefore, forms the background against which a claim (assertion) is made about some aspect of the presupposed event. And

another one in which the event token is claimed (asserted) to exist. In that second case the background of the existence assertion is constituted by a presupposed event kind. And indeed, there are these two kinds of readings, cf. (31). Note that I do not deny that many more fine-grained observations can be made about subreadings within these two general categories.

(31) a. Ivan byl   ščastliv ne togda, kogda otkryl   ėtot
       I.   be;ipfv;pst happy   not then   when   open;pfv;pst this
      sejf,   a   kogda   otkryval   ego.
      safe;acc but when   open;ipfv;pst 3sg;acc
      'Ivan was happy not when he had opened that safe, but when he was opening it.'

   b. Ivan otkryval   ėtot sejf.   On znaet   kak ėto
      I.   open;ipfv;pst this safe;acc 3sg know;ipfv;prs how this
      delaetsja.
      make;ipfv;prs;refl
      'Ivan has opened that safe. He knows how to do it.'

To sum up so far, according to the theory outlined in this paper, there are two major kinds of imperfectives (i.e. two families of imperfective readings). They can be traced back to two different VPs. In the first case, the VP is token-referring, and in the second case, which includes the factual reading, the VP is type-referring. The analysis presented here gives rise to certain predictions about OF-readings, some of which I will at least mention in the final part of this paper.

8 Predictions

Our starting point was the observation that OF-imperfectives give rise to the *kratnost'*-effect, recall (2). Now we know why. The effect shows up because OF-imperfectives are built on type-referring VPs, and because a type must by definition be able to include more than one token. Recall from above Mehlig's (2011) statement that type reference always presupposes that there is potentially more than one entity.

Another prediction that follows from that OF-imperfectives are built on type-referring VPs is that they should not be compatible with VP-adverbials that serve to modify a Davidsonian event.[13] And indeed, it is well-known that OF does not accept the temporal localization of the event. (32) is fine in the internal viewpoint reading, but impossible in the OF reading (cf. Grønn 2004):[14]

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[13]   Davidsonian events are spatiotemporal entities and, therefore, event tokens.
[14]   Framesetting temporal adverbials are possible in OF-readings, as in *V detstve ja čital 'Čudesa Indii'* (='In childhood I have read "Wonders of India" '). This is not a

(32) V   tri časa   ja   čital   'Čudesa Indii'
      at 3   clock 1sg read;ipfv;pst W.o.I.
      'At three o'clock I was reading 'Wonders of India'.'

As is also well-known, OF-imperfectives often show intonational focus on the verb. This comes as no surprise if we assume that what is expressed by in such a case is verum focus. Verum focus emphasizes the truth of an existence claim (cf. Höhle 1992), and OF comes with an existence claim:

(33) Ja   smoTREla   ėtot glupyj fil'm.
      1sg watch;ipfv;pst;foc this silly   movie;acc
      'I do have seen that silly movie.' (Glovinskaja 1982)

9 Summary

The reason why factual imperfectives come with the contextual requirement of *kratnost'* is because the factual reading is semantically based on a type-referring VP. Russian imperfectives have the capacity of type-level denotation because they form the "unmarked" aspect in comparison to the perfective, which is semantically restricted to token-reference. As types/kinds must potentially have more than one member, factual VP-predicates must potentially have more than one realization. From this it follows that factual imperfectives cannot be used to perform the act of referring to a historical event. Historical events are by definition events that take place only once, after all.

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counterargument, however, because framesetters appear high above VP in syntactic structure (cf. Maienborn 1996).

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