Past Participle Formation and the Eventive/Adjectival Passive in Russian[1]

Olga Borik – *Universitat Autònoma de Barcelona*

Abstract. The main question addressed in this article is how to explain the differences in the interpretation between short and long forms of past passive participles in predicative positions in Russian. The main observation is that short form participles in predicative position can yeild either an eventive or a stative passive interpretation, whereas long forms can only be interpreted statively. Apart from this, long and short participles exhibit a number of empirical differences, such as availiability of *un*-prefixation, various modifiers, etc. This paper proposes a formal compositional analysis of participle formation which involves two distinct operators in the derivation of long and short forms. An adjectivizing head A derives long participles and existentially binds an event variable of the underlying verb, whereas a participial head Prt derives short participles and existentially binds an external argument of the input structure. The proposed analysis accounts for the observed empirical differences between long and short past passive participles in Russian.

Keywords: past passive participle, eventive passive, adjectival passive, Russian.

1. Introduction

It is a well-known fact that participles in Russian, just like adjectives, can be used in a short or a long form (SF or LF) in predicative positions, which are exemplified in (1a) and (1b), respectively[2]:

(1) a. Dom   byl   pokrašen
       house.Nom was   pf.painted.PPP.SF
    b. Dom   byl   pokrašenn-yj/ym
       house.Nom was   pf.painted.PPP.LF-Nom/Instr
       'The house was painted'

This paper will address the question of the difference in the interpretation of the past passive participles in a predicative position in Russian, depending on their form. Note that the sentences in (1) do not differ much in their formal composition, apart from the form of the participle: in both cases the predicative part is formed by an auxiliary *byt'* (be) and a past passive participle (henceforth PPP). Semantically, however, these sentences differ. As a first approximation, let us describe the relevant interpretative difference as follows: sentence (1a) has a stative or eventive interpretation, whereas (1b) is purely stative. Given the overall similarity of the sentences, it is reasonable to suggest that this difference has to come from the semantic interpretation of SF vs. LF PPPs. The main goal of this paper is, thus, to model the interpretation of SF vs. LF in such a way that the relevant contrast is accounted for.

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[2] Long form participles are marked for case, either nominative or instrumental, but the case marking will not concern us here. This property is not specific for participles, any nominal predicate in Russian can be used in both nominative and instrumental cases. For the sake of uniformity, all the LF participles used in the examples in the rest of the paper will be in the instrumental case.

2. Restrictions on the PPP formation

Before we turn to the analysis of participial forms in sentences, let us first briefly consider some of the proposed restrictions on the PPP formation in Russian.

One of the most commonly discussed restrictions on the PPP formation in Russian is, undoubtedly, aspect. One of the generalizations proposed in the literature (e.g., Schoorlemmer 1995) is that the Russian PPPs are formed mostly from a subclass of perfective verbs, namely, those verbs which, in Schoorlemmer's terminology, obey compositional telicity. Since the generalization is stated only for a subclass of perfective verbs, we expect perfectivity to be a necessary, but not a sufficient condition for the PPP formation. Let me now re-assess this generalization made on the basis of aspect.

First of all, Schoorlemmer (1995:223-226) notices that there are well-known and often cited exceptions to the perfectivity restriction on the PPP formation, such as *bityj* (beaten), *mečenyj* (marked), etc. However, there seems to be a certain variation in acceptability of these forms, so Schoorlemmer concludes that the imperfective participles are rather marginal and "do not affect the grammatical system as such" (ibid:226).

However, there are reasons to question the statement that imperfective PPPs are only exceptions. As it turns out, PPPs are formed from imperfective verbs quite frequently, although there are, indeed, some poorly understood restrictions on the use of such PPPs in some syntactic positions. The following examples of the imperfective PPPs sound completely natural and, moreover, are all mentioned by existing dictionaries:

(2) slyšat' slyšannyj
    hear.Imp heard.LF.PPP
    balovat' balovannyj
    spoil.Imp spoilt.LF.PPP
    želat' želannyj
    wish.Imp wished/wanted.LF.PPP
    delat' delannyj
    do.Imp. done.LF.PPP
    krasit' krašennyj
    paint.Imp. painted.LF.PPP
    šit' šityj[3]
    sew.Imp sawn.LF.PPP

It should be noted that all the listed participles sound much more natural in adnominal rather than in a predicative position, but examples where imperfective PPPs are used predicatively are nevertheless attested, and the participle can be used in both LF, as in (3), and SF, as exemplified in (4)[4]:

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[3] This form is morphologically different from the other ones because it is formed by a suffix –t- rather than –nn-, as in all the previously mentioned PPPs in Russian. The difference, however, does not have any impact on the meaning of participles and will be disregarded.

[4] Both examples are found in the Russian National corpus.

(3) Yura ne   stremilsja svjazat' žizn' ni   s   odnoj iz   teh,   dlja kotoryh
Yura not   yearn   connect life not with one from those, for which
on byl, po Natašinomu   proročestvu, želannyj.
he was in Nataša's   prophesy,   wished.PPP.LF.Nom.
'Yura was not particularly keen on committing to either of those who, according to Nataša's prophesy, longed for him'

(4) Želanen   i   dostupen   byl   mjagkij svet čužih   abažurov
Wished.PPP.SF   and   accessible.SF was   soft   light strange lampshades
za   dymkoj zanavesej.
behind haze   curtains.Gen
'The soft light of other people's lampshades behind the haze of their curtains was welcome and accessible'

All these data indicate that imperfective PPPs are not so uncommon in Russian. The intuitive feeling of is that perfective verbs (not all of them, see below) lend themselves more readily to the PPP formation, but the existing imperfective participles are not perceived as exceptional either. Traditional grammars confirm this intuition: the Russian Academy grammar (AG, 1980) says specifically that imperfective transitive verbs have all four participial forms (AG 1980:§1580), PPPs being one of those four participial forms. Thus, the status of the imperfective PPPs does not seem to be recognized as exceptional in the traditional grammatical description.

To sum up this discussion on a possible aspectual restriction, it seems fair to conclude that aspect might be a factor in the distribution of participles (cf. the fact that imperfective PPPs are less common in predicative positions), but not a restriction on the PPP formation per se. A statistical analysis would help to determine the frequency of perfective vs. imperfective PPPs, but it is beyond the scope of this paper to conduct such an analysis. What I hope to have illustrated, though, is that verbal aspect can not be considered either a sufficient or a necessary condition for the PPP formation. This means that aspectual semantics, independently of its precise formalization, cannot serve as a basis for the semantics of the participles.

A genuine restriction on the PPP formation is transitivity (AG 1980, Schoorlemmer 1995, etc.): a verb that has a PPP will always be a transitive verb. However, not all transitive verbs form PPPs either. The contrast is exemplified in the following examples:

(5) a. Transitive verbs with PPPs:
balovat' (rebenka)   balovan(nyj)
spoil.Imp (child)   spoilt.PPP
napečatat' (vypusk)   napečatan(nyj)
print.Pf (issue)   printed-PPP
b. Intransitive verbs which block PPP:
guljat (*sobaku)   *guljan(nyj)
walk.Imp (dog)   walked.PPP
poguljat' (*sobaku)   *poguljan(nyj)
walk.Pf (*dog)   walked.PPP
c. Transitive verbs which block PPP:

        iskat' (knigu)   *iskan(nyj)
        look.for.IMP (book)   looked.for.PPP
        razgljadet' (bukašku)   *razgljaden(nyj)
        detect/discern.Pf (bug)   detected.PPP

This minimal set of examples illustrates a rather well-established fact that transitivity is a necessary (cf. (5b)), although not a sufficient (cf. (5c)) condition for the PPP formation in Russian. Thus, in order to form a PPP from a verb V, it is necessary to know that the verb is transitive, i.e. if it takes a direct object. The generalization is valid for both LF and SF participles of both aspects, so this condition should constrain the participle formation in all cases. This empirical observation will partially motivate the semantic account proposed for SF and LF participles in section 5, where it will also be specified which transitive verbs in particular can form PPPs.

3. Empirical differences between LF and SF PPPs

In this section I will examine some relevant empirical differences between LF and SF participles in Russian. The distinctions will be mostly familiar from the literature on verbal/adjectival passives, as well as different types of adjectival (or stative) passives and different types of passive participles (e.g., Kratzer 2000, Embick 2004, McIntyre 2012, among others). After reviewing all the relevant empirical facts which will be summed up at the end of this section, we will move to a theoretically oriented discussion in section 4.

The first difference between the LF and SF PPPs concerns the placement of negative elements. Russian negative prefix (i.e., the analogue of the *un*-prefix in English) easily combines with the LFs, whereas SF PPPs require a sentential negation:

(6) a. Dom byl ne-(po)krašenn-ym
         house.Nom was non-(pf.)painted.PPP.LF.Instr
         'The house was unpainted'
     b. Dom byl (ne) pokrašen
         house.Nom not was (not) pf.painted.PPP.SF
         'The house was not painted'

Although the negative prefix in (6a) and the negation marker in (6b) are homophonous, prefixes in Russian cannot be separated from the stem, hence, if the negative marker *ne* in (6b) was a prefix, it would have to be adjoined to the stem of the SF PPP *pokrašen*[5]. The example in (6a) further illustrates that the negative marker can be prefixed to a PPP independently of the aspect, i.e. both perfective and imperfective PPPs can take a negative prefix.

Negative prefixation is considered an important empirical difference between so-called adjectival and verbal passives (cf. Kratzer 1994, 2000, Embick 2004, Alexiadou and Anagnostopoulou 2008), although the interpretation of this particular test differ from one author to the other (cf., for example, Embick 2004, Alexiadou and Anagnostopoulou 2008,

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[5] In many cases the complex spelling rules postulated by prescriptive grammars can obscure the facts concerning negative markers in Russian, but the crucial factor for us is that *ne* can never be prefixed to the SFs.

McIntyre 20012). I will come back to the results of the neg-prefixation test in Russian in section 5 and show how these results are compatible with the analysis that will be proposed in the same section.

One more observation with respect to the participles with the *ne*-prefixe is that they are more common and sound more natural with other verbs than the copula 'be', i.e. *remain* (illustrated in (7)), *stay, stand, lie,* etc.

(7) Zadanije ostalos'   ne-sdelannym/ne-dodelannym/ne-ispravlennym/ne-proverennym
    task   remained   un-done.PPP/un-finished.PPP/un-corrected.PPP/un-checked.PPP

The second difference between LF and SF PPPs in Russian is the lack of event-related modification, such as, for instance, temporal or manner adverbials, with the LFs, but not with the SFs. The relevant examples are given in (8):

(8) a. Dom   byl   pokrašenn-ym   (*za 2 časa/   *bystro).
       house.Nom   was   pf.painted.PPP.LF-Instr   (*in 2 hours/   *quickly)
    b. Dom   byl   pokrašen   za 2 časa/   bystro.
       house.Nom   was   pf.painted.PPP.SF   in 2 hours/   quickly
       'The house was painted in two hours/quickly'

The third property of constructions with LF PPPs in Russian is a lack of agentivity. This is to say, sentences with LF participles do not allow for by-phrases, instruments or agent-oriented modification (see (9a)). The restrictions do not hold for the participles in a SF, as witnessed by the example in (9b):

(9) a. *Portret   byl   narisovanny-ym   karandašom/izvestnym hudožnikom/special'no
        portrait.Nom was   painted.PPP-Instr   pencil.Instr/famous.Instr artist.Instr/on purpose
    b. Portret   byl   narisovan   karandašom/izvestnym hudožnikom/special'no
       portrait.Nom was   painted.PPP.SF   pencil.Instr/famous.Instr artist.Instr/on purpose
       'The portrait was pained with a pencil/by a famous artist/on purpose'

Thus, examples (8) and (9) illustrate that with the SF PPPs we can always have by-phrases, as well as various types of agent-oriented and event modification, but the LFs render these options impossible.

The last observation that I would like to make in this section is that LF PPPs appear in predicative position less freely than their SF counterparts. In other words, the only restriction on the use of a SF participle is the availability of the participle in principle, but some LF participle seem to display additional poorly understood restrictions in predicative uses. Compare the following examples:

(10) a. ?*Vor byl zaderžann-ym
          thief.Nom was detained.PPP-Instr
     b. Tort byl zamorožen-ym
         cake.Nom was frozen.PPP-Instr

To conclude this section, let me summarize the main empirical differences between LF and

SF PPPs described in this section in Table 1.

Table 1: Empirical differences between LF and SF PPPs.

property	LF PPPs	SF PPPs
ne-prefixation	√	*
event modification (temporal and manner adverbials)	*	√
by-phrases and agent-oriented modification	*	√
restrictions on use in predicative position	some	none

Since the aim of this paper is to account for different interpretations that SF and LF yield, the differences in the behavior of the two forms listed above can serve as a starting point for an analysis. I will come back to the empirical facts once the formal proposal has been presented. Let us consider now some possible theoretical explanations of the observed differences between two different participle forms in Russian.

4. PPPs and types of passive

The empirical facts discussed in the previous section suggest that, for the theoretical interpretation of the data, one hypothesis worth considering is that the differences in LF vs. SF reflect the semantic difference between adjectival and eventive passives, respectively. Adjectival passives have received a lot of attention in the recent semantic literature (cf. Kratzer 2000, Maienborn 2009, Gehrke 2012, McIntyre 2012, etc.), and have also been discussed in relation to Russian, most notably in Schoorlemmer (1995) and Paslawska and von Stechow (2003).

Even though the eventive/adjectival passive distinction is the first one that comes to mind, it should be noted that the difference between LF and SF does not exactly boil down to two different types of passive. Thus, adjectival passives do allow for some modification, most notably, manner, but also temporal modifiers, as well as for some types of by-phrases, as shown by the German examples provided below (cf. Kratzer 2000, Maienborn 2009):

(11) a. Das Haar war   schlampig gekämmt.
        the hair was sloppily   combed
        'The hair was combed in a sloppy way'
     b. Das Manuskript   ist in einer Nacht   geschrieben.
        the manuscript   is in one   night   written
        'The manuscript is written in one night'
     c. Das Manuskript   ist von Chomsky   zitiert.
        the manuscript   is by Chomsky   cited
        'The manuscript is cited by Chomsky'

Russian, however, as we have seen in section 3, rules out any modification in the LF participle constructions, including the types just illustrated for German:

(12) a. *Volosy/mal'čiki   byli nerjašlivo   pričesannymi.
         Hairs/boys   were sloppily   combed.PPP.LF

   b. *Rukopis'   byla   napisannoj   za odnu noč.
      manuscript was   written.PPP.LF in one   night
   c. *Rukopis'   byla   procitirovannoj Xomskim
      manuscript was   cited.PPP.LF   Chomsky.Instr

In all these cases, a SF participle has to be used in order to render the examples in (12) acceptable. In any case, the contrast between the German examples in (11) and the corresponding Russian ones in (12) indicate that it is not plausible to simply assume a straightforward correspondence between adjectival passives and LF participles in Russian, on the one hand, and eventive passives and SF PPPs, on the other.

What seems to be needed is more fine-grained distinctions in the domain of participles. Actually, several such distinctions have been made in the literature, such as, for instance, target vs. resultant states (Kratzer 2000), or stative vs. resultative participles (Embick 2004). Kratzer's and Embick's distinctions are, in principle, not incompatible, and it has been argued in the literature that there are languages that manifest a three way distinction in the domain of participles (Alexiadou & Anagnostopoulou 2008 for Greek). In this section, I will first discuss the LF participles and their possible theoretical classification and then move on to the SFs.

4.1. LF participles

An immediate observation is that, empirically, the properties of the LF PPPs in Russian seem to be reminiscent of the Greek *–tos* participles as described by Alexiadou & Anagnostopoulou (2008). Thus, both types of participles do not take any modifiers, including manner modifiers, reject by-phrases and easily combine with negative prefixes. However, an additional remark made by Alexiadou and Anagnostopoulou (2008) (henceforth A&A) reveals a difference between the relevant participle forms of the two languages. Consider (13) from Greek (A&A, 2008:34)

(13) a. #Afti I   varka ine   fusko-**men**i   alla   den tin exi   fuskosi kanis akoma
      this   the   boat is   pumped   but   not it has   pumped noone yet
      'The boat is pumped but no one has pumped it yet'
   b. Afti   I   varka ine   fusko-**t**i alla den tin   exi   fuskosi kanis akoma
      this   the   boat is   pumped but not it   has   pumped noone yet
      'The boat is of the type that can be pumped up but no one has pumped it up yet'

As indicated by the translation, the *–tos* participle in (13b) refers to an 'underived state', i.e. the property ascribed to the boat that does not have to result from any prior event. A&A's interpretation of this fact is that a *–tos* participle 'does not entail the existence of a prior event' (ibid.:34). Note that the English translation of (13b) underscores the same thing: the boat does not have to be inflated, although it is inflatable. Consider now a similar example from Russian with the LF participle:

(14)   Lodka byla uže   nadutoj,   hotja   nikto   eje (*esče) ne naduval.
       boat   was already inflated.PPP.LF though no one her (*yet) not inflated
       #'The boat is of the type that can be pumped, although no one has pumped it up yet'
       ok: 'The boat has been pumped, although no one has pumped it up'

Although the sentence in (14) is grammatical (at least without the adverb 'yet'), the interpretation attributed to (13b) is not available in (14). That is, the boat has to have been inflated at some point, but the sentence only refers to the consequent state of the inflating event. The eventive part cannot be specified in any sense, so modifiers and by-phrases are not compatible with (14), but it cannot be said that the reference to the event has never been there either. To render the interpretation of (13b) in Russian a full-fledged adjective is needed, which is different in form from the participle:

(15)   Lodka byla naduvnoj,   no   nikto   eje (esče) ne   naduval.
        boat   was   inflatable.LF but   no one   her (yet) not   inflated.
        'The boat was inflatable, but no one has inflated/pumped it up yet'

Note also that the adverb 'yet', which is very difficult to accommodate in (14), becomes acceptable in (15), just like in (13b). The explanation of this fact is beyond the scope of this paper and has to involve the sematic analysis of 'yet', but intuitively, if 'yet' in (14) would imply that the inflation event has never taken part before, which contradicts the information contributed by the participle: the boat has to have been inflated, but we do not know when, how and by whom.

Thus, as the result of comparing LF PPPs in Russian with the Greek –tos participles, we can conclude that they behave the same in rejecting any type of event-related modification but not in implying a prior event: Russian LF PPPs presuppose that the relevant event has taken place at some point. This observation will be reflected in the analysis of the LF PPPs which I will provide in section 5.

However, before we turn to the semantic analysis of participles, let us first consider the possible interpretations of the SF participles and try to determine if they can be unambiguously associated with the adjectival or eventive passives.

4.2. Interpretation of SFs

There is not a lot of discussion of the semantics of Russian PPPs in the literature, but the few existing analyses do not seem to agree on what kind of passive meaning the SF PPPs contribute: Schoorlemmer (1995) supports the claim that the constructions with SF PPPs are ambiguous between a stative and eventive readings, just like in English, whereas Paslawska & von Stechow (2003) argue that Russian participial passives are unambiguously stative.

In this section, I will argue in favour of Schoorlemmer's (1995) hypothesis and examine if there are any finer differences that can be drawn between different types of the SF participles, such as, for instance, the target vs. resultant participles (Kratzer 2000).

There is one strong argument in favour of the ambiguitiy hypothesis advocated by Schoorlemmer, namely, that passives formed by SF PPPs in Russian allow for both event-related and a consequent-state related modification, as illustrated in (16):

(16)   Vorota (byli) otkryty storozhem rovno v 6 utra na 2 chasa.
        Gates (were) open.PPP watchmen.Instr exactly in 6 morning for 2 hours
        The gates were open by the watchman exactly at 6 in the morning for 2 hours.

The sentence in (16) easily admits a temporal modifier of an event of the gate opening, which took place at 6 in the morning, and a temporal modifier indicating that the consequent state of the gates being open lasted for 2 hours. The presence of both modifiers indicates that in this type of construction both an event variable and a state variable are available for temporal modification.

The argument that Paslawska and von Stechow (2003) (henceforth P&S) give against treating participial passives in Russian as eventive is based on the possibility to drop a copula verb in the passive sentences. Consider the following example:

(17)   Ėtot dom (byl) postroen v prošlom godu.
        this house (was) built.PPP in last year
        'This house was built last year'

The copula verb in (17) can easily be omitted, which is, in principle, characteristic of the present tense copula in Russian copula sentences. (18a) illustrates the same type of phenomenon with a predicative adjective, but in this case the copular verb is obligatorily omitted. In the past tense, however, the omission of the copula verb renders a sentence ungrammatical, cf. (18b):

(18) a. Irina segodnja (*est') grustnaja.
         Irina today   (*is)   sad.
         'Irina is sad today'
    b. Irina včera   *(byla) grustnaja.
        Irina yesterday *(was)   sad.
        'Irina was sad yesterday'

It should be noted that the parallelism between (17) and (18a) is not complete: in regular copular sentences the use of the present tense copula is basically impossible[6], whereas in passive sentences it is indeed only optional. Nevertheless, P&S (2003) claim that the optional copula omission in participial passives indicate that these sentences do not have a past meaning, hence, they cannot refer to an even that took place in the past and hence, they are not eventive.

There are several facts that cast doubt on P&S's conclusion. The first one is that if there is no reference to a past event in sentences with SFs, than modification of the event in examples like (16) above would appear to be impossible. Yet, the participial passives in Russian easily admit both event-related and agent-related modification, as was discussed in detail in section 3[7]. The second argument is that, as I just pointed out, the parallelism with present copular sentences is incomplete, and a possible omission of the copular verb in participial passive might be due to the fact that the participle itself already bears past related reading, so the copula is not necessary to support the past morphology/meaning. Moreover, if it is accepted that SF participles are ambiguous between a stative and an eventive reading, there is a

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[6] Apart from stylistically marked uses, to imitate archaic style, for instance.
[7] Modifiers like *za dva mesjaca* (in two months), *v avguste prošlogo goda* (in August last year) are also possible in (17).

potential explanation of the pattern in (17)-(18) which captures the facts better than the proposal of P&S. In a stative reading, a SF participle is semantically closer to an adjective and this is what allows for a copula omission, following the pattern of (18a). However, since SF participles also have an eventive reading, the verb is never obligatorily omitted, assuming that an eventive reading relies on the presence of the copula.

P&S do not discuss event modifiers, but they explicitly mention the fact that the Russian participial passives are different from English and German ones in allowing for agentive by-phrases:

(19)   Ètot dom postroen izvestnym arhitektorom.
          this house built.PPP famous.Instr architecht.Instr
          'The house was built by a famous architect'

To account for this fact, P&S propose a Result-parameter, which relies on the highly influential and by now commonly accepted hypothesis advanced in Kratzer (1994) that external arguments are introduces syntactically in a Voice projection. The proposal of P&S (2003:347) with respect to the Russian participles is that they are built on top of the VoiceP, whereas the English and German participles are built on the basis of agentless VPs, as represented in (20) and (21), respectively:

(20)   Russian: [$_{Part}$ TARGET] selects a VoiceP [+passive]
(21)   English/German: [$_{Part}$ TARGET] selects an agentless VP

Again, there are several arguments against this hypothesis. First of all, one of the main empirical differences between eventive and adjectival passives in languages like English and German is that the former, but not the latter, allows for the presence of by-phrases. Assuming that the presence of a by-phrase is associated with the presence of the VoiceP in the syntactic structure, the difference between the eventive passives in English/German and the Russian participial passives, which, according to the proposal of P&S, are adjectival, remains unexplained. Basically, one construction that we call 'eventive' in a language like English, becomes 'adjectival' in a language like Russian. At the same time, the obvious empirical differences between the adjectival passives in English/German and the 'adjectival' passives in Russian, such as the availability of event and agent related modification, remain unaccounted for.

Thus, I conclude on the basis of the above discussion that SF PPPs should be seen as ambiguous, just as was proposed by Schoorlemmer (1995). In the next subsection, I will examine the question of whether a more fine grained distinction is needed for SF PPPs in Russian.

4.2.2. Types of SF participles

Let us once again compare Russian to Greek. In Greek, as argued by A&A (2008), there is a difference between target and resultant state participles (Kratzer 2000), even though both types of participles are expressed by the same morphological form. Given that the comparison of Russian and Greek participles proved useful in the case of the LFs, we will look at whether the Russian SF PPPs also show a contrast similar to the Greek participles.

The main test Kratzer (2000) proposes for distinguishing between target and resultant states is the compatibility of the former type with 'immer noch' (still):

(22) a. Die Geisslein   sind   immer noch   versteckt.   *target state passive*
         the little goats are   still   hidden
         'The little goats are still hidden'
     b. Das Theorem   ist   (*immer noch)   bewiesen.   *resultant state passive*
         the theorem   is   (*still)   proven
         'The theorem is proven'

My doubts with respect to this test are based on the observation that if *immer noch* is not compatible with the (target) state expressed by *bewiesen*, it seems to be perfectly compatible with the state expressed by the negated participle *unbewiesen*, as also noted by Gehrke (2012):

(23)   Das Theorem   ist   immer noch   unbewiesen.
        the theorem   is   still   unproven

Thus, according to the *immer noch* test a participle *unbewiesen*, as opposed to *beweisen*, should be a target state[8], a result that seems doubtful.

The second test that Kratzer mentions is that only the verbs that form target states allow for modification by the temporal *für-PP*s in German (cf. also example (16) above):

(24) a. Wir werden das Boot für ein paar Stunden aufpumpen.
         we will the boat for a few hours up-pump
         'We will inflate the boat for a couple of hours'
     b. *Wir   werden den Briefkasten für drei Tage leeren.
         we   will the mailbox for three days empty
         'We will empty the mailbox for three days'

Even though the test applies to verbs, not participles, and the distinction made on the basis of this observation should in principle be further supported by an independent test for participles[9], for the sake of the argument it can still be shown that Russian SF PPPs will not be uniformly target or resultant according to the type of modification allowed by a verb. Consider the following examples:

(25) a. Tort   zamorozili na   3 časa
         cake.Acc froze   for   3 hours
         '(They) froze the cake for 3 hours'
     b. Tort   byl   zamoróžen

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[8] As Kratzer (2000:10) points out, a target state does not necessarily have to be provided by the verb itself, since in her analysis, target state participles are formed by stativizing the whole verb phrase. It seems to me, however, that it would be difficult to provide a clear motivated explanation of why a negative prefix should have an effect of providing a target state where it was not available before. See Gehrke (2012) for more criticism of the target vs. resultant state distinction and Kratzer's analysis of it.

[9] Which, as I just said, should not be the *immer noch* test.

        cake.Nom   was   frozen.PPP.SF
        'The cake was frozen'

(26) a. Rebenka privozili k babuške na   leto/   na   dva časa
        child.Acc brought to granny for   summer/for   two hours
        '(They) brought the child to the granny for summer/for two hours'
     b. *privožen
        *brought.PPP.SF

(27) a. ??Okna   razbili   na   neskol'ko časov
        windows.Acc   broke   for   several   hours
        #'(They) broke the windows for several hours'
     b. Okna   byli   razbity.
        windows.Nom   were   broken.PPP.SF
        'The windows were broken'

The sentences in (25) fit the pattern described by Kratzer for target states: the verb *zamorozit'* (to freeze) is compatible with the *for*-type modifier which measures the duration of the target state during which the cake remains frozen. The corresponding participle can be successfully formed, as shown in (25b), and the same modifier could even be used with the participle. However, (26) provides an example of a verb which allows for the required type of modification ((26a)), although the corresponding PPP cannot be formed ((26b)). In (27) the opposite situation obtains: the verb rejects the required modifier in (27a)[10], but the PPP is grammatical. Thus, the conclusion seems to be that the SF PPPs in Russian cannot be associated to either target or resultant states as conceived by Kratzer (2000). Rather, a reasonable proposal to make with respect to SF PPPs in Russian would be that they uniformly characterize a consequent state in a more general sense of the word and their meaning can be accounted for in terms of a uniform semantic representation (cf. Maienborn 2009, Gehrke 2012 for similar conclusions for German).

5. Semantic composition

Let me now propose an analysis for LF and SF PPPs in Russian. In what follows, I will rely on two assumptions that are by now widely accepted in the literature. The first one is that participles can be formed on the basis of different syntactic structures (cf. Kratzer 2000, Paslawska & von Stechow 2003, Embick 2004 among many others). Thus, I will assume that the syntactic input for participle formation can be a verbal root or a phrasal category, i.e. vP/VoiceP. Another assumption that I am going to make in order to develop the analysis of the PPPs is that external arguments are introduced not by a verb itself, but a specific functional head, i.e. in a vP/VoiceP projection merged on top of the verbal root (Kratzer 1994). This means that a (relatively) extended verbal structure is needed to accommodate the presence of an external argument.

The essence of the analysis is the following. I propose that LF and SF PPPs are built independently by means of different semantic operations. Syntactically, the proposal implies

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[10] The only interpretation available for (27a) is that the windows were broken on purpose for a couple of hours and then repaired. All example sentences in (25a)-(27a) are impersonal.

that there are different heads/projections involved in the derivation of the PPPs, although I will leave the details of the syntactic analysis aside. I suggest that LF PPPs are build by an adjectival head/operator A, which takes a verbal root as a complement and existentially binds the event argument introduced by a verbal root, whereas SF PPPs are built by a participial head Prt, which is combined with a vP/VoiceP. In other words, LF participles are derived by combining an adjectival head directly with a verbal root, which is lexically specified as transitive, but lacks any functional structure which would introduce the external argument. The early existential closure of the event variable done by the A operator renders it inaccessible for modification in subsequent derivation.

SF participles, on the other hand, are formed on the basis of the verbal functional structure, including the vP/VoiceP projection necessary to accommodate an external argument. The Prt head, involved in the derivation of the SF PPPs, existentially binds an external argument. The event (and the state) variable in the derivation of the SF participles remains accessible for modification until it gets existentially bound by an independent mechanism of existential closure over events, standardly assumed in (neo-)Davidsonian event semantics (Davidson 1967, Parsons 1990).

Note that, to derive a LF PPP, an adjectival head A needs to combine with a transitive verbal root, which, moreover, expresses a complex event with a consequent state. The requirement for the presence of an internal argument is lexically specified, hence the verbs that A combines with are necessarily transitive. This explains a transitivity restriction on the PPP formation in Russian (a necessary, but not sufficient condition).

An implicit assumption here is that participle formation is further limited only to those verbs which lexically introduce a (potential) consequent state. This assumption is based on a descriptive observation that the stative property expressed by a participle is usually predicated over an internal argument introduced by the verb. It should be added that Russian introduces various complications with respect to the realization of a consequent state due to the influential role of the perfective/imperfective aspectual distinction in the verbal system. As we have seen in section 2, imperfective PPPs can be formed in Russian, and it is for the sake of these participles that I will use the modifier 'potential' in the description of the lexical requirement for a consequent state, since it is plausible to assume that a potentially realized state specified for an imperfective verb becomes realized and asserted in the case of a perfective one. Undoubtedly, a potentially realized consequent state is a notion which remains to be precisely defied, but for now I assume this state to be a part of lexical semantics of a verb. At the same time, as I have argued in section 2, aspect cannot be considered a limiting factor for PPP formation in general. Thus, having a consequent state (ConST) and (im)perfective aspect are two independent properties, which are not directly related to each other.

Let me now spell out the semantic composition of the LF and SF participles in Russian. LF participles are formed on the basis of the transitive verbs with lexically specified ConST, which can be formally represented as follows:

(28) Input: a transitive verbal root with a (potentially realized) ConST
      $||\sqrt{v}||$: $\lambda x.\lambda s.\lambda e [\sqrt{v}(e) \,\&\, Th(x,s) \,\&\, ConST (e,s)]$

LF PPP in Russian are formed by an adjectival head A that attaches to a verbal root. The semantics of the adjectival head is given in (29):

(29) $\|A^0\|$: $\lambda R.\lambda x.\lambda s.\exists e\ [R(e)(s)(x)]$

The semantics of the LF PPPs, i.e. the result of composition of the adjectival head with a verbal root, is computed as follows:

(30) $\|LF\ PPP\|$: $\|A^0\|\ (\|\sqrt{}v\|)$
        $\lambda R.\lambda x.\lambda s.\exists e\ [R(e)(s)(x)]\ (\lambda x.\lambda s.\lambda e\ [\sqrt{}v(e)\ \&\ Th(x,s)\ \&\ ConST\ (s,e)]) \rightarrow$
        $\lambda x.\lambda s.\exists e\ [\sqrt{}v(e)\ \&\ Th(x,s)\ \&\ ConST\ (s,e)]$

(30) represents a formal compositional analysis of LF PPPs in Russian. The adjectival head A^0, with the semantics specified in (29), applies to a verbal root formally represented in (28). The result that we get in the last line of (30) is the representation of the meaning of the LF PPPs. According to this representation, LF PPPs express a consequent state of some previously occurred event which holds of an argument that was introduced as an internal argument of the original verbal root. The event itself, however, is no longer accessible in the semantic representation of the participle, hence this analysis immediately explains the absence of event related modification with the LF participles.

Moreover, this proposal also captures the following facts. First of all, since LF PPPs are derived directly from the verbal roots without any additional functional layers, and the external arguments, following our assumptions, are introduced in a separate functional projection, it follows that LFs will never allow for by-phrases or any other type of agent oriented modification. The agentive layer is simply not present in the structure of the LF PPPs.

Secondly, this analysis does explain the difference between LF PPPs in Russian and *–tos* participles in Greek, discussed in the previous section. If we adopt A&A's stative analysis of the *–tos* participles, they are, indeed, predicted to be more 'adjectival', as indicated in the discussion around example (13b). Russian participles, on the other hand, necessarily presuppose the existence of some prior event. This explains why a purely adjectival, non-event related meaning is not accessible with the Russian participles.

There are two more properties of LF PPPs that were mentioned in Table 1 in section 3. The fact that LF PPPs can easily appear with negative prefixes in Russian is fully compatible with the present proposal, although the detailed analysis of the *un*-prefixation (or *ne*-prefixation in the case of Russian) would depend on the precise syntax to be associated with the present proposal. In particular, one of the relevant questions is whether the proposed derivation of LF PPPs in Russian is a lexical or a syntactic process.[11] Should the LF participle formation be a lexical process, we can just follow Kratzer (1994) in assuming that *un*-prefixation (in English and other languages) is only compatible with lexical adjectivization. However, as assumed by Embick (2004), negative prefixes can also be attached to syntactically formed participles (his

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[11] One of the most important factors to consider before arriving at any conclusions on the issue is the behavior of LF PPPs in comparison to normal adjectives like *happy*.

resultative participles). In this case, a syntactic analysis of *un*-prefixation will be needed, but the key observation here is that the negative prefix in Russian is only compatible with adjectives, but not with verbs, hence the absence of verbal structure in syntax (including VoiceP) seems to be a required constraint on *un*-prefixation. In the proposed analysis, LF PPPs are formed from a verbal root, hence the derivation will not contain any verbal functional structure and the LF participles should freely combine with negative prefixes, which is indeed the case.

Finally, the last property of LF PPPs which was mentioned at the end of section 3 is that their distribution in the predicative position is more restricted than that of the SFs. Note that according to the analysis presented here, the event is only implied but since it is existentially quantified by the adjectivizing operator, it cannot be accessed or specified in any sense. There is also no specific connection expressed by a LF participle with an underlying event, i.e. it can be *some* event that led to a given state, but we do not know *which*. Due to this weakened connection between the state expressed by the participle and the underlying event, I suggest that the use of LF PPPs in the predicative position is only allowed if a consequent state is in some sense 'detachable' from the event part of the complex event. In particular, no agent/initiator participant can be inferred from the LF participle. Thus, the cake in example (10b) may be frozen without anybody freezing it, but it is hard to be detained without anybody detaining you, as in (10a). A cake being frozen is just a result of some prior unspecified event of becoming frozen.

Thus, all the properties listed in Table 1 for the LF PPPs either directly follow from or are compatible with the proposed analysis.

Let me now turn to the formation of SF PPPs. For the derivation of these forms, I adopt the hypothesis of P&S that SF PPPs are build on a phrasal layer with an external argument already introduced (cf. P&S 2003). (31) provides a semantic characterization of such a phrasal category, which I will continue calling vP/VoiceP:

(31)   Input: a transitive vP/VoiceP with both an external and internal arguments
       $\|vP\|$: $\lambda x.\lambda s.\lambda e.\exists y\ [\sqrt{v}(e)\ \&\ Ag(e,x)\ \&\ Th(y,s)\ \&\ ConsST(e,s)]$

As has already been indicated, I propose that a SF participle is derived by a head/operator, which is different from the adjectivizing operator employed for the derivation of LFs. Let me call this operator Prt. It is defined as follows:

(32) $\|Prt^0\|$: $\lambda R.\lambda s.\lambda e.\exists x\ [R(e)(s)(x)]$

The participial head attaches to a vP to form a SF participle. The result of this application is a participle with the following semantics:[12]

(33) $\|SF\ PPP\|$: $\lambda s.\lambda e.\exists x.\exists y\ [\sqrt{v}(e)\ \&\ Ag(e,x)\ \&\ Th(y,s)\ \&\ ConsST(e,s)]$

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[12] I do not provide a detailed derivation here. The reader is invited to prove that the result of applying (32) to (31) is indeed (33).

The resulting representation for SF PPPs reflects that SFs allow for both an event and a state part of the complex event structure to be modified. The external argument is existentially closed, as is commonly assumed for passives. This representation renders passive constructions with SFs participles in Russian ambiguous between stative (adjectival) and eventive passives, just like was proposed in Schoorlemmer (1995), since it includes both a state and an event variable which can be further modified.

The analysis also explains all the empirical differences between LF and SF PPPs which were discussed in section 3. Apart from modification, which, as I just said, is predicted to be available for both an event and a consequent state, the negative prefixes cannot be attached to SF participles because they are derived from a vP/VoiceP and the negative prefix is incompatible with the verbal functional structure. The same functional structure allows for any type of agent oriented modification. Moreover, the event is not needed to be 'detachable' from the state part since it can be further modified and specified, so there is no restriction on the occurrence of the SF forms in a predicative position.

One question that arises with respect to the proposed analysis is whether it is feasible to have two independent derivations for long and short forms, whereas when we look at the morphological composition of LF and SF participles in Russian, it seems obvious that there is a morphological relation between the two. To try to answer this question, let me illustrate a compositional problem that arises if the morphological relation is assumed to be parallel to a semantic one.

As the empirical discussion in section 3 of this paper suggests, the SF PPPs are functionally 'richer' since they allow for more things than the LFs, both syntactically and semantically. In particular, SFs allow for by-phrases, event and agent modification, which is completely disallowed in the constructions with LFs. Semantically, thus, it seems that LFs cannot be derived on the basis of SFs because once a modification of the event is allowed, it is practically impossible to exclude it in a subsequent semantic composition. Morphologically, however, it looks like LFs are 'richer' than the SFs, which lack adjectival inflection and have a 'truncated' form of the participial morphology, at least in the case of –enn-/-en suffix:

(34)   narisova-t'   narisova-nn-yj   narisova-n
        pf.paint-INF   pf.paint-Part-Infl   pf.paint-Part

Thus, from the point of view of morphology, it seems that the LF should be derived from a SF, whereas semantically, SFs are definitely more 'developed' with respect to the LFs. The problem thus seems to be how to reconcile a richer morphological structure with poorer semantics.

The solution that I propose in this paper is to treat the forms independently, at least from the semantic viewpoint. In other words, I do not assume that the forms which are more complex morphologically necessarily involve more semantic (or syntactic, for that matter) content. LF PPPs are, in my analysis, both syntactically and semantically simpler than the SFs. If we want to keep morphological, syntactic and semantic derivations absolutely parallel, we will have to say that SF are morphologically derived, whereas LFs are basic. This seems to be, indeed, the view implicitly assumed in traditional Russian grammars. However, this would mean that, for instance, an external argument needs to be introduced after the adjectival head has already

been attached to the verbal root to form a LF participle. There are many details of a potential analysis along these lines that remain unclear to me at this point, so that the solution adopted in this paper, namely, to treat the two forms independently, seems more justified at the moment. Hopefully, in the course of further research that remains to be carried out on the topic, these matters will be settled in a satisfactory way.

6. Conclusions and further issues

This paper proposed a formal analysis of LF and SF PPPs in Russian in predicative position. In particular, it was argued that LF and SFs are derived independently by means of two different operators: an adjectival operator A applies to a verbal root to yield a LF participle, whereas a participial operator Prt applies to a vP/VoiceP to derive a SF participle. The input requirements in each case involve a transitive verb which lexically specifies a potentially realized consequent state. Both LF and SF PPPs can be derived from both perfective and imperfective verbs, although imperfective participles do not often occur in predicative positions. I have also shown how the proposed analysis accounts for empirical differences between LF and SF PPPs.

One issue that remains for future research is the behavior of the two participial forms in adnominal positions. In principle, short forms cannot directly modify a noun, but they do appear in relative clauses. It should be mentioned that participles behave just like adjectives in this respect, so the similarities and differences between participles and adjectives need to be further investigated. The observation is not new and has been made in many works on adjectives and participles (cf., for instance, Babby 1973 among many others), but the existing analyses have mainly concentrated on adjectives, not participles (e.g., Geist 2010 and references cited therein).

Let me illustrate the phenomenon briefly, although there will be no solution proposed in this paper. I will start with adjectives, which, as is well known, also come in short and long forms. SF adjectives, however, cannot be used in adnominal position (cf. (35b)), but can be used in relative clauses (cf. (36b), examples from Babby 1973:358).

(35) a. bol'noj anginoj mal'čik / mal'čik, bol'noj anginoj
     ill.LF quinsy.Instr. boy   boy ill.LF quinsy.Instr.
     'a boy ill with quinsy'
   b. *bolen anginoj mal'čik / *mal'čik, bolen anginoj
     ill.SF quinsy.Instr. boy   boy ill.SF quinsy.Instr.
     'a boy ill with quinsy'

(36) a. Volk, kotoryj (byl) vysležen   ohotnikom, …
     wolf which (was) tracked.down.SF.PPP.   hunter.Instr
   b. Volk, ~~kotoryj byl~~ vysležennyj   ohotnikom,…
     wolf   tracked.down.LF.PPP. hunter.Instr
     'The wolf which was tracked down by a hunter…'

A part of the relative clause, consisting of the wh-word and the copula verb, has to be deleted if the LF participle is used, which motivated an analysis of a 'reduced relative clause' for this type of constructions. The pattern is repeated with participles, so in this case, both adjectives

and participles seem to behave completely parallel. However, these constuctions have never been addressed in semantic literature on participles, so what remains to be seen is what kind of semantic ramifications the reduced relative clause analysis will have in this case. As I already pointed out, this problem will be addressed in future research.

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