

Constraining the distribution of the delimitative

Problem. In Russian, formation of the delimitative verbs with the prefix *po-* is constrained in a variety of ways: contextually, (1), lexically, (2), by the properties of the internal argument, (3), by the animacy of the external argument, (4). The goal of this paper is to develop an analysis from which this apparent diversity follows. (Below, the meaning of the delimitative is approximated as ‘spend some time doing V’.)

- (1) Scenario 1. The lock in the door is broken. The agent tries to open the door with the key, then applies a picklock, then uses a crowbar, then tries to disassemble the lock, etc. At some point, he gives up.
 *Scenario 2. The door is opened by typing a code that consists of a sequence of numbers, e.g., 1-2-3-5-5-6-7-8. After typing “5”, the agent stops.
 Vasja **po-otkr-yva-l** dver’
 V. PFV_{DLM}-open-PART-PST door
 ‘Vasja spent some time opening the door’
- (2) ??Vasja **po-zapi-va-l** tabletk-u (pjat’ minut i brosil).
 V. PFV_{DLM}-wash.down-PART-PST pill-ACC 5 minutes and gave up
 ‘Vasja spent five minutes washing the pill down (and gave up).’
- (3) Vasja **po-čita-l** ^{OK}roman / ^{OK}stat’ju / ^{OK/?}pis’mo / [?]zapisku /
 V. PFV_{DLM}-read.PART-PST novel article letter note
^{???}abzac / ^{??}predloženie / ^{???}slovo / *bukvu
 paragraph sentence word letter
 ‘Vasja spent some time reading a novel/article/ letter/ note/ paragraph/ sentence/ word/ letter’
- (4) *Veter **po-otkr-yva-l** dver’
 wind PFV_{DLM}-open-PART-PST door
 ‘The wind spent some time opening the door’

The data in (1)-(4) evoke a broader theoretical problem: derivation of non-culminating accomplishments (NCAs), instantiated by the delimitative in Russian. In many languages, perfective sentences based on accomplishment event descriptions do not entail culmination. There are several analyses of this phenomenon (Koenig & Muansuwan 2000, Bar-el et al. 2005, Tatevosov & Ivanov 2009, Martin & Schäfer 2012, a.o.), as well as specific analyses of the delimitative (Filip 2000, 2005 and elsewhere, Dickey 2000, 2006, Mehlig 2006, 2012, a.o.). However, most researchers preoccupied themselves with what happens when you have a non-culminating accomplishment. The question of what happens when you cannot have it has not been sufficiently addressed.

Structure of NCAs. Unlike in many other languages discussed in the literature (Thai, St’át’imcets, Turkic, and others) where NCAs are morphologically identical their culminating counterparts, in Russian NCAs involve two steps of derivation. In (1)-(4), the morpheme glossed as PART (= the (secondary) imperfective in the traditional terminology) and the prefix *po-* glossed as PFV_{DLM} subsequently merge with a verb stem. I propose, following Bar-el et al. 2005 and Tatevosov & Ivanov 2009, that this morphology renders two operations on the original extension of the event predicate (and assume that in other languages the same operations apply without being phonologically spelled out):

- (5) $\| V. \text{ open the door } \| = \lambda e. \exists e' [\text{open}_A(\text{Vasja})(e) \wedge \text{open}_{CS}(\text{door})(e') \wedge \text{cause}(e')(e)]$,
 where the relations open_A and open_{CS} are activity and change of state components of event structure.
- (6) $\| \text{PART} \| = \lambda P. \lambda e. \exists e' [e < e' \wedge P(e) \wedge \neg \text{FIN}(e')(e)]$
- (7) $\| \text{PFV}_{DLM} \| = \lambda P. \lambda t. \exists e [t \supseteq \tau(e) \wedge P(e) \wedge \text{Process}(P)]$

The PART operator extracts proper non-final parts of an event from the extension of an event predicate. For simplicity, I ignore issues surrounding the Imperfective Paradox; the full version of the analysis is to be couched in modal terms (Dowty 1979, Landman 1992, Portner 1998 a.o.; see the recent discussion in Altshuler 2013). I also follow Bar-el et al. 2005 and Tatevosov & Ivanov 2009 in assuming that PART by itself is neutral wrt to the viewpoint aspect (cf. Bar-el *et al*’s “inertia modality” operator); the result of its application is, in our case, taken by PFV_{DLM} as an argument. PFV_{DLM} introduces Klein’s (1994) perfectivity and an additional requirement that its first argument (that is, the PART+P predicate) denotes a process. (I depart from Pinon 1994 and Filip 2000 who analyze the delimitative *po-* as a measure function, whose lexical meaning is similar to ‘a little’, ‘for a while’, etc. In taking this stand, I follow Mehlig 2006, 2010 who argues that the meaning of the delimitative is neutral with respect to duration of an event, quantity of the internal argument involved, etc.) It is the Process modifier in (7) that bears the main burden of explanation for the phenomena in (1)-(4).

Processes. The combination of PART and the predicate in (5) denotes non-final parts of an activity that leads to the culmination where the door gets open.

$$(8) \quad \parallel \text{PART [V. open the door]} \parallel = \lambda e. \exists e' \exists e'' [e < e' \wedge \neg \text{FIN}(e')(e) \wedge \text{open}_A(\text{Vasja})(e') \wedge \text{open}_{CS}(\text{door})(e'') \wedge \text{cause}(e'')(e')]$$

The overall idea behind (7) is: at the stage of derivation where PFV_{DLM} applies, we need a process predicate. To be a process predicate means to contain a part *not ordered by the relation of necessary temporal precedence* (NTP):

$$(9) \quad \forall P [\text{Process}(P) \leftrightarrow \exists Q [\neg \text{NTP}(Q) \wedge Q \subseteq P]$$

To see what NTP is, consider (1) again. On the scenario 2, the activity component e of an opening event consists of contextually relevant parts: $e_1 =$ typing of 1, $e_2 =$ typing of 2, and so on; $e = e_1 \oplus \dots \oplus e_n$. The intuition is as follows: for such an event e to be in the extension of a predicate of opening activities in (8) on the scenario 2, subevents must be uniquely arranged by temporal precedence. If e_2 (typing of 2) occurs after e_3 (typing of 3), e is no longer an activity that leads to opening of the door, hence is not in the extension of (8). The definition of NTP is given in (10):

$$(10) \quad \forall P [\text{NTP}(P) = 1 \text{ iff } \forall e \forall w [P(e)(w) \wedge \exists \mu_w [\mu_w(e) = \text{the set of non-overlapping parts of } e \text{ such that } e = e_1 \oplus \dots \oplus e_n \text{ in } w, n > 1] \rightarrow \exists ! e' \in \mu_w(e). \text{INI}(e)(e') \text{ in } w \wedge \forall e'' \in \mu_w(e). \exists ! e'' \in \mu_w(e). e' <_T e'' \text{ in } w]]$$

In prose: A predicate P is ordered by necessary temporal precedence iff whenever an event e falls under P in a world w and **is divided in w into contextually identifiable non-overlapping parts, there is exactly one way for e to start in w and for any contextually identifiable part of e there is exactly one follow-up in w .**

PFV_{DLM} in (7) wants its argument (e.g. (8)) to be a process predicate, that is, to contain at least some non-NTP subset. I argue that all unacceptable sentences in (1)-(4) are bad because PFV_{DLM} fails to find such a subset, since they all denote NTP predicates, and the application of PFV_{DLM} creates an empty set of times.

Explaining the data. The verb *zapivat'* in (2) ‘wash down (of food, medicine, etc.)’ is a lexical NTP predicate. Any activity from its extension consists of subevents whose temporal order is fixed (‘take a container with some liquid’, ‘lift the container’,...). Therefore, (2) is out because (9) fails on it.

In (1), on the scenario 2 the NTP character of the activity is contextually entailed, which leads to the same failure as in (2). Lexically, however, ‘open the door’ is not an NTP predicate. As (1) shows, it is compatible with non-NTP scenarios, where either the green or the brown part of (10) or both are not met. In (1) on the scenario 1, specifically, applying a crowbar does not have to follow using a picklock, and so on.

In (3), acceptability decreases with the “size” of the internal argument. This can be naturally attributed to the fact that the smaller the size of what we read is, the more difficult it is to come up with a partition of an activity into contextually relevant parts (see Rothstein 2004 for related observations). Unlike reading a novel, reading a word or a single letter does not involve identifiable phases. Therefore, on ‘read a letter’ and similar examples the blue part of (10) fails, and the predicate comes out as trivially having the NTP property.

Finally, I argue that the same mechanism lies behind the unacceptability of NCAs with natural forces like (4) and other entities incapable of goal-oriented behavior. Workings of natural forces are not divisible into identifiable phases. Therefore, the blue part of (10) fails on (4), and we end up with a predicate trivially satisfying NTP.

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