Result states and their descriptive properties: on the meaning of some prefixes in Russian

Overview. The topic of this paper lies at the intersection of two partially unrelated areas of inquiry. The first area involves the question how result states are introduced into the event structure, get modified, and targeted by semantic operations; it covers a broad range of phenomena from the meaning of the perfect (e.g., Kamp et al. 2011) to the structure of resultatives (e.g., Levin & Rappaport Hovav 2001). The other area studies cases where the descriptive content of derivational morphology co-varies with the interpretation of a lexical host (e.g., van Geenhoven 2005). In this paper, I address the meaning of a class of verbal prefixes in Russian which arguably introduce result states into the semantic representation of a complex verbal predicate (see Žaucer 2009 for a recent discussion and references therein). But descriptive properties of the result state vary along with the event type introduced by the stem. I propose that prefixes have parameterized choice functions of type <<<v,t>,t>,<v,t>> (where v is type of eventualities) as part of their denotation that apply to a set of properties of states and choose a state predicate according to the event type denoted by the verb stem.

The problem. I illustrate the problem by taking into account so called "pure aspectual" prefixes (Shvedova (ed.) 1980) like *na-* in *napisat'* in (1). Evidence from the scope of negation in (1) and of adverbials like 'almost' in (2) (going back to Dowty 1979) suggests that while morphologically simplex stems involve a simplex event structure, prefixed stems are associated with a complex one. In (1b.2), the negation can take narrow scope over the result state only, while in (1b.1) the scope includes both the activity and result state components of the overall eventuality. No ambiguity can be detected in (1a). Other usual diagnostics for subevental content of event descriptions (repetitive/restitutive ambiguity of adverbials like 'again', argument realization, evidence from participial passives, to be presented in the full version of the paper) point towards the same conclusion.

Therefore, in the event semantic framework non-prefixed transitive stems like *pisa-* can be analyzed as three-place relations between two individuals and events in (3a), while the prefixed stem denotes a four-place relation between two individuals, events and states in (3b). This is where a problem lies.

To derive compositionally (3b) from (3a) the prefix is to be analyzed as in (4). (4) cannot be correct, however, since for any stem other than *pisa'* (e.g., for *risova-* 'paint' in (5)) it yields a relation involving a wrong property of states. Applying (4) to (5) creates (6) where painting events lead the theme argument to the state of being written, which does not make any sense. The problem is: While the very presence of a result state in the semantic representation has to do with the prefix, the descriptive content of that state is determined by the stem, hence cannon be part of the meaning of the prefix. Attempts to improve the analysis in (4) by assigning the prefix denotations in (7) or (8) where the variable over properties of states either gets existentially bound, (7), or is free and interpreted by the assignment function, (8), do not yield the desired result either. (7)-(8) do not guarantee that a property of events is coupled with a right of property of states, 'write' with 'be written', 'paint' with 'be painted', etc. (9), where the descriptive content of the result state is fully underspecified, is problematic, too. All we know about the result state in (9) is that it is a state of the internal argument brought about by writing activity. Obviously, more than one state-type fits into this description.

Solution. For the sake of clarity, I only provide an outline of the analysis for "pure aspectual" prefixes; extensions of the analysis to other classes of resultative prefixes seems straightforward and is left for the full version of the paper. Also, I am abstracting away from the grammatical ("viewpoint") aspect, imperfective for *pisat'* and perfective for *napisat*, which is irrelevant for the argument.

I argue that if prefixes like *na-* in *napisat'* are analyzed as denoting a parameterized choice function of type <<<v,t>,t><v,t>>, the problem just outlined is effectively solved. Choice functions (of type <<σ, t>, σ>, where σ is a type) apply to a non-empty set and yield a member of this set as a value. In much recent literature (Winter 1997, Reinhart 1997, Kratzer 1998, von Stechow 2001, a.m.o), choice functions have revealed their explanatory potential as to the difference between scopal behavior of indefinites and other quantifiers. Specifically, Kratzer (1998) introduces parameterized choice functions (PCF), where a variable occurring in an (implicit) argument position can be bound by a quantifier, hence the choice function is made dependent on that quantifier.

It is this latter aspect of PCFs, namely, that their interpretation varies according to how the implicit argument is construed, plays a crucial role in the semantics in (10). In (10), f is a partial function that takes an event description λe.S(y)(x)(e) based on the relation S provided by the verb stem and maps it to a choice function $f_{\lambda e.S(y)(x)(e)}$. $f_{\lambda e.S(y)(x)(e)}$, then, is only defined for one argument, the set of properties of all states $\mathscr{P}$, and picks out a particular property of states, the one containing states brought about by events from the extension of λe.S(y)(x)(e). Having combined the prefix in (9) with

the verb stems in (3a) and (5) through the functional application, we get four-place relations in (11)-(12). The choice function $f_{\lambda e'.write(e') \wedge agent(x')(e') \wedge theme(y')(e')}$ in (11) yields a property of states of being written, while $f_{\lambda e'.paint(e') \wedge agent(x')(e') \wedge theme(y')(e')}$ in (12) picks out a property of states of being painted, as required.

Examples

(1) a. Vasja ni razu ne pisa-l pis'mo.
field not.a.single.time not $write_{PST.M}$ $letter_{ACC}$
'Vasja has never written a letter.' → 1. There has been no writing activity.
→ 2.*The letter has not been written to completion.

b. Vasja ni razu ne *na*-pisa-l pis'mo.
field not.a.single.time not $_{PRF}write_{PST.M}$ $letter_{ACC}$
'Vasja did not *na*-write a lettter.' → 1. There has been no writing activity.
→ 2. The letter has not been written to completion

(2) a. Vasja (uže) počti pisa-l pis'mo.
field already almost $write_{PST.M}$ $letter_{ACC}$
'Vasja almost wrote/was writing a letter.' → 1. V. was about to start writing.
→ 2.*V. was about to complete writing.

b. Vasja (uže) počti *na*-pisa-l pis'mo.
field already almost $_{PRF}write_{PST.M}$ $letter_{ACC}$
'Vasja almost *na*-wrote a letter.' → 1. V. was about to perform the whole writing event.
→ 2. V. was about to complete writing.

(3) a. $\| pisa \| = \lambda y \lambda y \lambda e [write(e) \wedge agent(x)(e) \wedge theme (y)(e)]$

b. $\| napisa \| = \lambda y \lambda x \lambda e \lambda s [write(e) \wedge agent(x)(e) \wedge theme (y)(e) \wedge CAUSE(s)(e) \wedge written(s) \wedge arg(y)(s)]$

(4) $\| na- \| = \lambda S_{<e, <e, <v,t>>>} \lambda y \lambda x \lambda e \lambda s[S(y)(x)(e) \wedge CAUSE(s)(e) \wedge written(s) \wedge arg(y)(s)]$

(5) $\| risova- \| = \lambda y \lambda x \lambda e [paint(e) \wedge agent (x)(e) \wedge theme (y)(e)]$

(6) $\| na\text{-}risova- \| = \lambda y \lambda x \lambda e \lambda s[paint(e) \wedge agent(x)(e) \wedge theme (y)(e) \wedge CAUSE(s)(e) \wedge written(s) \wedge arg(y)(s)]$

(7) $\| na- \| = \lambda S_{<e, <e, <v,t>>>} \lambda y \lambda x \lambda e \lambda s \exists P[S(y)(x)(e) \wedge CAUSE(s)(e) \wedge P(s) \wedge arg(y)(s)]$

(8) $\| na- \| = \lambda S_{<e, <e, <v,t>>>} \lambda y \lambda x \lambda e \lambda s[S(y)(x)(e) \wedge CAUSE(s)(e) \wedge P(s) \wedge arg(y)(s)]$

(9) $\| na- \| = \lambda S_{<e, <e, <v,t>>>} \lambda y \lambda x \lambda e \lambda s[S(y)(x)(e) \wedge CAUSE(s)(e) \wedge arg(y)(s)]$

(10) $\| na- \| = \lambda S_{<e, <e, <v,t>>>} \lambda y \lambda x \lambda e \lambda s \exists f_{<<v,t>,<<<v,t>,t>,<v,t>>>} \exists \mathscr{P}_{<<v,t>,t>}[S(y)(x)(e) \wedge CAUSE(s)(e) \wedge (f_{\lambda e'.S(y')(x')(e')}(\mathscr{P}))(s) \wedge arg(y)(s)]$

(11) $\| na\text{-}pisa \| = \lambda y \lambda x \lambda e \lambda s \exists f \exists \mathscr{P}[write(e) \wedge agent (x)(e) \wedge theme (y)(e) \wedge CAUSE(s)(e) \wedge (f_{\lambda e'.write(e') \wedge agent(x')(e') \wedge theme(y')(e')}(\mathscr{P}))(s) \wedge arg(y)(s)]$

(12) $\| na\text{-}risova \| = \lambda y \lambda x \lambda e \lambda s \exists f \exists \mathscr{P}[paint(e) \wedge agent (x)(e) \wedge theme (y)(e) \wedge CAUSE(s)(e) \wedge (f_{\lambda e'.paint(e') \wedge agent(x')(e') \wedge theme(y')(e')}(\mathscr{P}))(s) \wedge arg(y)(s)]$

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