EMBEDDED ASPECT. A RUSSIAN PERSPECTIVE.

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[1] DESIDERATA

(1) podumalipast-pf, čto kozakigotovilis'past-impf sdelat'inf zasadu
thought that Cossacks prepared to do ambush
[Eng.] it was thought that the Cossacks were preparing an ambush
[Russian National Corpus; Gogol]

(2) on uvidelpast-pf, kaka vyechalapast-pf so dvora
he saw how she rode-out from courtyard
[Eng.] he saw her riding out of the courtyard.
[Wassmo; RuN-Euro parallel corpus]

(3) On znalpast-impf, čto onastoitp-res-impf u okna. (stojalapast-impf)
He knew that she stands by window (stood)
[Eng.] He knew she was standing there.
[Wassmo; RuN-Euro parallel corpus]

[2] PLOT

· explain these challenges to Russian as a non-SOT language

  – the puzzle (Altshuler 2008) of the imperfective past with a simultaneous interpretation in (1).

  – the puzzle of the perfective past with a simultaneous interpretation in (2).

  – explain the apparently free alternation (Khomitsevich 2007) in (3).

· revise the semantic type of aspect in order to account for

  – tense/aspect under perception verbs

  – tense/aspect under factive verbs

· the analysis is joint work with Arnim von Stechow, see (Grønn & von Stechow 2010).
3. **TENSE UNDER ATTITUDES (TRADITIONAL STORY)**

- English is an **SOT**-language
- Russian is a non-**SOT**-language

(4) **On skazal**, čto živet pod Moskvoj. he said that lives outside Moscow

[Eng.] He said he was living just outside Moscow.

(Виктор Пелевин, “Поколение P”) [RuN-Euro parallel corpus, Univ. of Oslo.]

**Figure 1:** Simultaneous interpretation under past attitude verb

- past under past ⇒ simultaneous interpretation (English)
- present under past ⇒ simultaneous interpretation (Russian)

(5) **Ona sprosila**, spal li on. she asked slept if he

[Eng.] She asked him if he had slept. (Лев Толстой, “Anna Karenina”)

**Figure 2:** Backward shifted interpretation under past attitude verb

- past under past + have ⇒ Backward shifted interpretation (English)
  But: *Mary thought Bill left.*
- past under past ⇒ Backward shifted interpretation (Russian)
TENSE AND ASPECT UNDER PERCEPTION VERBS

Simultaneous interpretation of Russian imperfective present under past

Altshuler (2004):

Dina vidēlPAST-IMPF, čto (kak) voda lētsjaPRES-IMPF iz vedra.

‘Dina saw that (how) water pours from basket.’

Simultaneous interpretation of Russian (im)perfective past under past

Well-known puzzle from the traditional literature on Russian as a relative tense language.

Dina vidēlPAST-IMPF, kak (čto) voda lilas’PAST-IMPF iz vedra.

‘Dina saw that (how) water poured from basket.’

on uvidēlPAST-PF, kak ona vyechalaPAST-PF so dvora

[Eng.] he saw her riding out of the courtyard.

[Ger.] er sahPAST, daß sie fortrittPAST.

[Fr.] il la vitPAST-PF partirINF [Wassmo; RuN-Euro parallel corpus]

TENSE AND ASPECT UNDER FACTIVE VERBS

Imperfective present under past with simultaneous interpretation in Russian

On znalPAST-IMPF, čto ona stoitPRES-IMPF u okna. (stojalas’PAST-IMPF)

He knew that she stands by window (stood)

[Eng.] He knew she was standing there.

[Ger.] Er wußtePAST, daß sie dort standPAST.

[Fr.] Il savaitPAST-IMPF qu’elle étaitPAST-IMPF là.

[Wassmo; RuN-Euro parallel corpus]

Imperfective past under past with simultaneous interpretation in Russian

On ponjałPAST-PF, čto ona echalaPAST-IMPF v Ergušovo

[Eng.] He understood that she was driving to Ergushovo

(Lev Tolstoj, “Anna Karenina”)

(Im)perfective past under past with backwards shifted interpretation

rodnye znaliPAST-IMPF, čto on sdalPAST-PF svoj poslednij ėkzamen.

family knew that he passed his final exam

[Eng.] they knew he had taken his final examinations at last.

[Ger.] sie wuβtenPAST, daß er endlich sein Abschlußexamen gemachtPART
Russian imperfective with a complete event interpretation (Grønn 2003) can be backward shifted:

(12) On znal_{PAST-IMPF}, čto na požare igral_{PAST-IMPF} samuju važnuju rol’. He knew that in fire played most important role
[Eng.] He knew he had done more than anyone else to save the barn.
[Ger.] Er wußte_{PAST}, daß er bei den Rettungsarbeiten der Wichtigste gewesen_{PART} war_{PAST-AUX}.
[Fr.] Il savait_{PAST-IMPF} qu’il avait_{PAST-IMPF-AUX} eu_{PART} le rôle le plus important dans la lutte contre le feu.
(Herbjørg Wassmo, “Dinas bok”)

[6] THE SYSTEM (WITHOUT EVENTS)

\[
\begin{array}{c}
\text{TP} \\
\text{T-shifter} \\
\{ P(\text{AST}) \} \\
\{ F(\text{UTURE}) \} \\
\text{T-centre} \\
\{ N(\text{OW}) \} \\
\{ \text{Tpro} \} \\
\{ \text{TPRO} \} \\
\text{AspP} \\
\{ \text{PF} \} \\
\{ \text{IP} \} \\
\text{VP} \\
\end{array}
\]

**FIGURE 3: Architecture of Tense and Aspect.**

(13) \[ N(\text{ow}) \] = \( \lambda w. \) the time of the utterance context; written as \( s^* \). (feature: in = interpretable now)

(14) \[ TPRO \] = undefined!
\((\text{sot languages} \Rightarrow \text{featureles}; \text{non-sot languages} \Rightarrow \text{the feature in.})\)

(15) \[ P(\text{ast}) \] = \( \lambda w\lambda t\lambda P_{it}.(\exists t' < t)P(t') \) type (i(it,t))
\( \text{feature: ip} \)

(16) \[ F(\text{uture}) \] = \( \lambda w\lambda t\lambda P_{it}.(\exists t' > t)P(t') \) type (i(it,t))
\( \text{feature: if} \)
[6.1] Temporal LFs

(17) Maša spala.
    ‘Mary slept.’

(18) \([\text{sleep/sleeps/slept/spat’/spit/spala}] = \lambda w \lambda t \lambda x.x \text{ sleeps in } w \text{ at time } t\]

\[
\begin{array}{c}
\text{TP} \\
\text{t} \\
\text{t}_{[\text{IP}]} (i)t \\
\text{it} \\
\lambda_1 \text{ PRO} \\
\text{VP} \\
\text{t} \\
\text{e} \\
\text{et} \\
\text{Mary} \\
i(et) \\
i \text{slept}_{[\text{UP}]} \\
i \text{t}_{[\text{UP}]} \\
\end{array}
\]

Figure 4: LF of Mary slept.

[6.2] Verbal Quantifiers

(19) A verb \(\alpha\) is a verbal quantifier if and only if
    (i) \(\alpha\) can be inflected with tense morphology (\(\alpha\) has its own verbal morphology)
    (ii) \(\alpha\) controls the reference time of the embedded verb (\(\alpha\) is a temporal quantifier).

(20) \([\text{budet}_{\text{Rus}}/\text{will}]] = \lambda w \lambda t \lambda P_{it}. (\exists t' \succ t) P(t')\]
    feature of temporal argument of the auxiliary: un.
(21) \[ dumaet_{\text{Rus} / \text{thinks}} \] type (s(it)\), (i(et))
\[ = \lambda w \lambda t \lambda y. (\forall w_1)(\forall t_1)[(w_1, t_1) \text{ is compatible with everything } y \text{ believes of } (w, t) \text{ in } w \text{ at time } t \rightarrow P(w_1)(t_1)] \text{ (Lewis 1979)} \]
(feature of temporal variable of the attitude verb: un).

(22) Dolli podumaet_{FUT-PF}, čto ja ostavljaju_{PRES-IMPF} vtorogo muža.
Dolly will-think that I leave second husband
(“present under perfective future”)

Dolly will think I’m leaving my second husband.
(“present under will”)

(Lev Tolstoj, “Anna Karenina”).

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**Figure 5:** Simultaneous interpretation under future attitude

[6.3] **The SOT Parameter (new formulation, 2015)**

(23) A language \( L \) is an SOT language if and only if
(i) verbal quantifiers without their own temporal i-features transmit temporal features.
(ii) The highest TPRO in the scope of a verbal quantifier does not carry the feature in (interpretable now).
(24) Vanja dumal, čto Maša spit.
‘Vanja thought that Masha was asleep.’ (literally: sleeps)

**Figure 6:** Simultaneous Complements in Russian.
[7] Integrating Aspect

[7.1] Embedded imperfective past with simultaneous interpretation

Altshuler (2008) objects against the traditional view that “past under past” means backward shifting in non-sot languages like Russian. He says that embedded imperfectives in the past can have a simultaneous or a backward shifted reading.

(25) podumali_{PAST-PF}, čto kozaki gotovilis'_{PAST-IMPF} sdelat'_{INF} zasadu  
thought that Cossacks prepared do ambush  
[Eng.] it was thought that the Cossacks were preparing an ambush  
[Russian National Corpus; Gogol]

[7.2] Aspect and features

(26) Vanja el arbuz. (imperfective simplex verb)  
‘Vanja was eating/used to eat/ate a melon.’

(27) Vanja s”el arbuz. (prefixed perfective verb)  
‘Vanja ate (up) a melon.’

(28) Vanja s”edal arbuz. (secondary imperfective)  
‘Vanja was eating/used to eat/ate (up) a melon.’

(29) Vanja s”est arbuz. (prefixed perfective verb)  
‘Vanja will-eat (up) a melon.’

(30) $[[el]] = \lambda w \lambda e \lambda x \lambda y. y \text{eats } x \text{ in } e \text{ in } w$  
features of variables: [up], [uip]

(31) $[[s”el]] = \lambda w \lambda e \lambda x \lambda y. y \text{eats up } x \text{ in } e \text{ in } w$  
features of variables: [up], [upf]

(32) $[[s”edal]] = \lambda w \lambda e \lambda x \lambda y. y \text{eats up } x \text{ in } e \text{ in } w$  
features of variables: [up], [uip]

(33) $[[s”est]] = \lambda w \lambda e \lambda x \lambda y. y \text{eats up } x \text{ in } e \text{ in } w$  
features of variables: [un], [upf]

(34) The feature combination [un, upf] has to be licensed by the presence of the operators $f$ and $pf$.

(35) $[[PF]] = \lambda t \lambda P_{vt}. (\exists e) \tau(e) \subseteq t \& P(e)$  
type (i(vt,t))

(36) $[[IP]] = \lambda t \lambda P_{vt}. (\exists e) t \subseteq \tau(e) \& P(e)$  
type (i(vt,t))

[1] The reason for this coercion to a future tense is that the perfective temporal configuration $\tau(e) \subseteq s^*$, does not make sense semantically. On the assumption that the speech time $s^*$ denotes a minimal interval, it cannot include the event time.
[TP N λ₁ p(t₁) λ₂ [AspPF(t₂) λ₃[VP Vanja ar buz s”el(e₃)]]]

(∃e)(∃t ≺ s*) Vanja eats a melon in e & τ(e) ⊆ t

FIGURE 7: Combined Feature Checking of Tense and Viewpoint Aspect.

(37) N λ₀ p(t₀) λ₇ PF(t₇) λ₁ podumali(e₁) PRO₂ p(t₂) λ₄ IP(t₄) λ₅ gotovilis’(e₅)

= λw.(∃t ≺ s*)(∃e₃)[τ(e₃) ⊆ t & e₃ is a thinking in w
[λt₁ λw₁.(∃t₂ ≺ t₁)(∃e)[t₂ ⊆ τ(e) & e is preparing of an ambush in w₁]]]
[7.3] *A side remark: Sequence of Aspect?*

What would a sequence-of-aspect-language look like?

- identity between embedded event and higher event?
- inheritance of reference time and aspectual configuration from higher tense/aspect
- no encoding of temporal relation between embedded event and embedded reference time (there cannot be an embedded reference time in absence of semantic aspect)
[8] **UNDER PERCEPTION VERBS**

- **Khomitsevich (2007):** “past under past” expresses simultaneity in perception constructions even for embedded achievements or accomplishments.

- On the default, direct perception reading the event perceived must be simultaneous with the perception.

- With a “present under past” in Russian, the perception verb construction is reminiscent of verbs of attitudes. The perspective is not that of the speaker, but of the perception holder.

Below is the analysis given in (Grønn & von Stechow 2010):

- direct perception from the speaker’s perspective (⇒ “past under past”)

- visual/acoustic alternatives from the perception holder’s perspective (⇒ “present under past”).

A toy example from Altshuler (2004):

(38) Dina videla_{PAST}, čto voda l'ëtsja_{PRES-IMPF} iz vedra. (lilas'_{PAST-IMPF})  
Dina saw that water pours from basket (poured)  
‘Dina saw that water was pouring from the basket.’

[8.1] **Analysis of past under past perception verb**

Higginbotham (1983) analyses perceptions as a relation between an individual and an event:

(39) There was a water pouring $e$ & Dina saw $e$.

Two independent deictic pasts with **consequences for the compositional semantics of aspect**.

(40) $\lambda w(\exists e)(\exists t < s^*)[t \subseteq \tau(e) \& \text{water pouring}_w(e)]$  
& $(\exists t_1 < s^*)(\exists e_1)[t_1 \subseteq \tau(e_1) \& \text{see}_w(Dina, e_1, e)]$

We have to modify the logical type of the aspectual operator:

(41) usually: $\llbracket \text{IP} \rrbracket = \lambda w \lambda e \lambda t \lambda e. (\exists e)[P(e) \& t \subseteq \tau(e)]$  
type (vt, it)  
here: $\llbracket \text{IP} \rrbracket = \lambda w \lambda e \lambda t \lambda e. P(e) \& t \subseteq \tau(e)$  
type (v(i(vt,t)))

usually: $\llbracket \text{PF} \rrbracket = \lambda w \lambda e \lambda t \lambda e. (\exists e)[P(e) \& \tau(e) \subseteq t]$  
type (vt, it)  
here: $\llbracket \text{PF} \rrbracket = \lambda w \lambda e \lambda t \lambda e. P(e) \& \tau(e) \subseteq t$  
type (v(i(vt,t)))

The complement clause is headed by “kak” (“how”), analysed as an existential quantifier over events (Grønn & von Stechow 2010):
(42) \([\text{kak}] = \lambda_{\text{vt}} \lambda_{\text{vt}} Q_{\text{vt}}(\exists e)[P(e) \& Q(e)]\)  

\[
\begin{tikzpicture}
    \node (vt,t) at (0,0) {vt \((\text{vt},t)\)};
    \node (vt) at (0,-1) {vt \((\text{vt},(\text{vt},t))\)};
    \node (kak) at (-1,-2) {\text{kak}_\exists};
    \node (3) at (0,-3) {\lambda_3 \(t\)};
    \node (it,t) at (0,-4) {it \((\text{it},t)\)};
    \node (p(n)) at (0,-5) {p(n)};
    \node (2) at (0,-6) {\lambda_2 \(t\)};
    \node (vt,t) at (0,-7) {vt \((\text{vt},t)\)};
    \node (imf(e_3)(t_2)) at (0,-8) {\text{imf}(e_3)(t_2)};
    \node (1) at (0,-9) {\lambda_1 \(voda \text{ lilas’}(e_1)\)};
    \node (1) at (0,-10) {\(t\)};
    \node (1) at (0,-11) {\(voda \text{ lilas’}(e_1)\)};
    \node (1) at (0,-12) {\text{water was pouring}};
\end{tikzpicture}
\]

\textbf{FIGURE 9:} Compositional derivation of a past complement under a perception verb

(43) \([\text{videla}^1] = \lambda_w \lambda_{e_1} \lambda_{e_2} \lambda_x e_2 \text{ is a seeing of } e_1 \text{ by } x \text{ in } w\)  

In order to be able to have the “kak/how”-clause as an object, we must QR the generalised quantifier from the object position.

\[
[\text{CP KAK}_\exists \lambda_3 \ p(n) \ \lambda_2 \ \text{ip-new}(e_3)(t_2) \ \lambda_1 \ voda \text{ lilas’}(e_1)]
\]

\[
\begin{array}{cccc}
\text{ip} & \text{iip} & \text{up} & \text{up, uip}
\end{array}
\]

\[
\lambda_4[s \ p(n) \ \lambda_5 \ \text{ip-old}(t_5) \ \lambda_7 \ Dina \ \text{videla}(e_4)(e_7)]
\]

\[
\begin{array}{cccc}
\text{ip} & \text{iip} & \text{up} & \text{up, uip}
\end{array}
\]

\textbf{FIGURE 10:} LF of past under past with temporal and aspectual features

[8.2] \textit{Analysis of present under past perception verb}

Past perception verbs with subordinate present are verbal quantifiers:
\[ \text{videla}^2 = \lambda w \lambda P(w) \lambda t \lambda x. (\forall w_1)(\forall t_1)[(w_1, t_1) \in \text{Acc}_x(w, t) \rightarrow P(w_1)(t_1)], \]

where \( \text{Acc}_x(w, t) \) are the world-times compatible with the visual evidence that \( x \) has in \( w \) at time \( t \).

“kak/čto” is here a complementiser without meaning.

\[ \text{pres under past-construction} = \lambda w. (\exists t)[t \prec t_0 \& (\forall w_1)(\forall t_1)[(w_1, t_1) \in \text{Acc}_{\text{Dina}}(w, t) \rightarrow \text{water is pouring out of the basket in } w_1 \text{ at } t_1]] \]

[9] UNDER FACTIVE VERBS

- Khomitsevich (2007): embedded past/present are freely interchangeable.
- Our claim: The derivation at LF must still be different.
- A semantics for factives:

(46) John knew that it was raining. Kratzer (1990)

(47) (a) There was a state/event \( e \), which was a raining, and  
     (b) John was acquainted with \( e \), and  
     (c) John believed of \( e \) the property of raining.

- (a) is a purely extensional environment \( \Rightarrow \) the past tense is independent of 
  the tense of the main clause.
- (c) is an intensional environment \( \Rightarrow \) the complement clause serves for the 
  description of a tenseless property (a zero tense).

We face a dilemma of expressibility:

- If the complement is in the past, it can describe only condition (a).
- If the complement is in the present, it can describe only condition (c).

(48) On znal_{PAST-IMPF}, čto \quad ona \quad stojala_{PAST-IMPF} \quad u \quad okna.  
He knew \quad that \quad she \quad stood \quad by \quad window

- In the complement, we need the new version of aspect where the event 
  argument is not locally bound.
- In the matrix, aspect has its traditional logical type.
Analysis of past under past

The relevant semantic rule is this:

\[(49) \quad \text{de re knowledge } 1 \quad \text{[knowledge}_1^1] = \lambda w \lambda e \lambda Pw.t \lambda x. (\exists e_1) [P(w)(e_1) \& \text{acquainted}(x, e_1, w) \& \text{believe_of}(x, e, e_1, Q, w)]\]

\[(50) \quad \lambda w. (\exists t \prec s^*) (\exists e) [(\tau(e) \supset t) \& (\exists e_1) (\exists t_1 \prec s^*) [(\tau(e_1) \supset t_1 \& \text{stand_at_window}(she, e_1, w)] \& \text{acquainted}(he, e_1, w) \& \text{believes_of}(he, e, e_1, Q, w)]\]

The relation \text{believes_of}(he, e, e_1, Q, w) can be paraphrased roughly as “he believed being in a state of acquaintance with a situation that was a standing at the window of her”.

Analysis of pres under past

See (Grønn & von Stechow 2010).

References


