Where does Russian aspect come from?

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The problem

“Imperfective”	**“Perfective”**	**“Imperfective”**
	da-t’ ‘give’	da-va-t’
pisa-t’ ‘write’	na-pisa-t’	
	za-pisa-t’ ‘record’	za-pis-yva-t’
čita-t’ ‘read’	pro-čita-t’	pro-čit-yva-t’

The problem

- When do aspectual operators enter the derivation in Russian?

(1) Vasja **na-pisa-l** pis'm-o.
V. PRF-write-PST.M letter-ACC
'Vasja wrote a letter.'

(2) Aspect-low theory
a. $[_{CP} \dots [_{F_{i+1}P} \dots [_{F_iP} \dots [_{F_{i-1}P} \dots [_{VP} \dots [_{V}$ **PFV na**-pisa]]]]]]
b. $[_{CP} \dots [_{F_{i+1}P} \dots [_{F_iP} \dots [_{F_{i-1}P} \dots [_{VP} \dots$ **PFV na-**$\dots [_{V}$ pisa-]]]]]]

(3) Aspect-high theory
$[_{CP} \dots [_{F_{i+1}P} \dots [_{F_iP} \dots$ **PFV** $[_{F_{i-1}P} \dots [_{VP} \dots [_{V}$ napisa-]]]]]]

The problem

- Aspect-low theories:
  - aspectual morphology directly renders semantic aspects or
  - semantic aspects are sufficiently local to it
- Aspect-low theories recognize "perfective" and "imperfective" verbs
- Traditional Russian/Slavic Aspectology
- Altshuler 2009, Dickey 2000, Dimitrova-Vulchanova 1996, Gronn 2003, Klein 1995, Krifka 1992, Filip 1993/1999, 2000, 2001, 2004, 2005a,b, 2008, Filip, Carlson 1997, Filip, Rothstein 2005, McDonald 2008, Mezhevich 2008, Pereltsvaig 2002, Piñon 2001, Ramchand 2004, Slabakova 2005, Verkuyl 1999

The problem

- Aspect-high theories:
  Verbs (and VPs) are aspectless
- Semantic aspects appear in the functional domain of a clause
- Paslawska, von Stechow 2003, Gronn, von Stechow 2009, Tatevosov 2011

The problem

- **In this talk:**
- Two arguments supporting an aspect-high theory
- Aspectual interpretation is not part of the meaning of "aspectual morphology"; verbs and verb phrases are aspectless
- "Aspectual morphology" does get interpreted in a position where it is merged, but grammatical aspect is not part of its meaning
- Elements that provide a clause with aspectual interpretation are phonologically silent
- They are located in the functional domain of a clause

(4) [… PFV … [$_{vP}$ … [… **na-**pisa …]]]
(5) [… IPFV … [$_{vP}$ … [… **yva** … […]]]

The problem

- **In this talk:**
- Neo-Kleinean approach

- Semantic aspects are sensitive to event-structural properties of event descriptions (in the spirit of Klein 1995)

- Simplex stems (1-state descriptions): properties of events
- Prefixed stems (2-state descriptions): relations between events and states
- "Secondary imperfective" stems (derived 1-state descriptions): properties of events

- 1-state descriptions come out imperfective,
- 2-state descritpions come out perfective (cf. Bohnemeyer and Swift 2004)

Argument 1: Perfectivity

- **Argument 1: prefixed "perfective" verbs are aspectless (Tatevosov 2011)**
- **Argument in a nutshell:**

1. Aspect-low and aspect-high theories make different predictions
   - Aspect-high theory predict that there is a stage of syntactic derivation, call it α, where the stem *napisa-* is already there, but perfectivity is not.

(6) **The "perfective stem" is part of α, but perfectivity is not**

[… […] […] **PFV** […] **[α … [V *napisa-*]]**]]]

   - Aspect-low theories predict predict that there is no such a stage.

Argument 1: Perfectivity

2. Find a configuration that shares α with a fully inflected clause, but lacks some of the clausal functional projections.

$[_{CP} \dots [_{F_{i+1}P} \dots [_{F_iP} \dots \quad [_{\alpha} \dots [_{VP} \dots [_{V}$ PFV-napisa]]]]]]

$[_{CP} \dots [_{F_{i+1}P} \dots [_{F_iP} \dots$ PFV $[_{\alpha} \dots [_{VP} \dots [_{V}$ napisa]]]]]]

- If we do not find perfectivity effects in such **a structurally deficient configuration**, this can only happen because PFV is not there
- Strong evidence in favor of an aspect-high theory

Argument 1: Perfectivity

3. A relevant configuration is provided by **argument supporting deverbal nominals (ASNs)**.

- ASNs give us an opportunity to see properties of vPs/VPs/verbs at early stages of syntactic derivation, when (at least some of) **the clausal structure is not yet there**. In ASNs characteristics of uninflected vPs/VPs/verbs are more transparently visible.
- ASNs do not exhibit perfectivity effects, hence aspect is not part of the structure they share with fully inflected clauses.
- Aspectual operators come into play at later stages of derivation, when the functional structure is built that nominals **do not share** with clauses

Argument 1: Perfectivity

Perfectivity effects

- Morphosyntactic distribution
- Reference time
- Culmination/telicity
- Aspectual composition

Argument 1: Perfectivity

- **Morphosyntactic distribution**

(7) Periphrastic Future

*Vasja	bud-et	**na-pisa-t'**	pis'm-o
V.	AUX-3SG	PRF-write-INF	letter-ACC

'Vasja will write a letter.'

(8) Complement of phasal verbs

*Vasja	nača-l	**na-pisa-t'**	pis'm-o
V.	start-PST.M	PRF-write-INF	letter-ACC

'Vasja started writing a letter.'

Argument 1: Perfectivity

- **Reference time**

(9) Kogda ja priše-l, Vasja **na-pisa-l** pis'm-o.
when I come-PST V. PRF-write-PST letter-ACC
1. 'When I came, Vasja wrote a letter'
2. *'When I came, Vasja was writing a letter'

(10) e_1 = V. wrote a letter
e_2 = I came

(11) a. $\tau(e_2) \ll \tau(e_1)$
b. $*\tau(e_2) \subset \tau(e_1)$

Argument 1: Perfectivity

- **Telicity: time-span adverbials**

(12) a. Vasja **na-pisa-l** pis'm-o
V. PRF-write-PST.M letter-ACC
za dva čas-a.
in two.ACC hour-GEN
'Vasja wrote a letter in two hours.'

b. *Vasja **na-pisa-l** pis'm-o
V. PRF-write-PST.M letter-ACC
dva čas-a.
two.ACC hour-GEN
'Vasja wrote a letter for two hours.'

Argument 1: Perfectivity

- **Telicity: conjunction criterion** (Verkuyl 1972)

(13) Vasja **na-pisa-l** pis'm-o v
V. PRF-write-PST:M letter-ACC in
dva čas-a i v tri čas-a.
two hour-GEN and in two hour-GEN
'Vasja wrote a letter at 2 p.m. and at 3 p.m.'

OK: two distinct events
NOT OK: a single continuous event

Argument 1: Perfectivity

- **Aspectual composition**

(14) Vasja **na-pisa-l** pis'm-a…
V. PRF-write-PST.M letter-ACC.PL
1. 'Vasja wrote (all) the letters.'
2. *'Vasja wrote letters.'

(15) ...*no osta-l-o-s' ešče mnogo.
but remain-PST-N-REFL more a.lot
'… but there are a lot more (letters to write).'

Argument 1: Perfectivity

- **Argument-supporting** nominals
- Abney 1987, Alexiadou 2001, 2007, 2009, 2010, Alexiadou *et al.* 2010, Fu et al. 2001, Harley 2009, van Hout, Roeper 1998, Roeper 1987, 2004

- Deverbal nouns in *-nie-/-tie-* in Russian

(16) na-pisa-n-ij-e pis'm-a
PRF-write-N/T-NOUN-NOM letter-GEN
'writing (of) a/the letter'

Argument 1: Perfectivity

- ASNs are structurall deficient
- Fully-inflected clauses

$[_{CP} \dots [_{F/P} \dots [_{F2P} \dots$	$[_{F1P} \dots [_{vP} \dots [_{VP} \dots V \dots]]]]]]$
$[_{DP} \dots D [_{NP} \dots N \dots$	$[_{F1P} \dots [_{vP} \dots [_{VP} \dots V \dots]]]]]$

- ASNs

Argument 1: Perfectivity

- If PFV is a component of functional structure not present in deverbal nominals, deverbal nominals will never show perfectivity effects

$[_{CP} \dots [_{FiP}$ **PFV** $[_{F2P} \dots$	$[_{F1P} \dots [_{vP} \dots [_{VP} \dots V \dots]]]]]]$
$[_{DP} \dots D$ $[_{NP} \dots N \dots$	$[_{F1P} \dots [_{vP} \dots [_{VP} \dots V \dots]]]]]$

- The crucial argument for the high aspect theory

Argument 1: Perfectivity

Perfectivity effects in ASNs

- Morphosyntactic distribution
- Reference time
- Culmination/telicity
- Aspectual composition

(17) na-pisa-n-ij-e pis'm-a
PRF-write-N/T-NOUN-NOM letter-GEN
'writing (of) a letter'

Argument 1: Perfectivity

- **Morphosyntactic distribution**

- Complement of aspectual verbs

(18) *Vasja nača-l **na-pisa-t'** pis'm-o
V. start-PST.3SG PRF-write-INF letter-ACC
'Vasja started writing a letter.'

(19) Vasja nača-l **na-pisa-n-ij-e** pis'm-a
V. start-PST.3SG PRF-write-N/T-NOUN-ACC letter-GEN
'Vasja started writing a letter.'

Argument 1: Perfectivity

- **Reference time**

(20) Ja priše-l vo vremja
I come.PFV-PST in time
na-pisa-n-ij-a pis'm-a
PRF-write-N/T-NOUN-GEN letter-GEN
'I came at the time of writing a letter.'

(21) **na-pisa-n-ij-e** pis'm-a v
PRF-write-N/T-NOUN-GEN letter-GEN in
moment moego prixoda
moment.ACC my-GEN coming-GEN
'writing of a/the letter at the moment of my coming.'

(22) OK: τ(coming) $\subset$ τ(writing)

Argument 1: Perfectivity

- **Telicity: conjunction criterion** (Verkuyl 1972)

(23) **na-pisa-n-ij-e** pisem v dva
PRF-write-N/T-NOUN-NOM letter-GEN:PL in two
čas-a i v tri čas-a.
hour-GEN and in three hour-GEN
'writing (the) letters at 2 p.m. and at 3 p.m.'

OK: two distinct events
OK: a single continuous event

Argument 1: Perfectivity

- **Aspectual composition**

(24) **na-pisa-n-ij-e** pisem
PRF-write-N/T-NOUN-NOM letter-GEN:PL
1. 'writing (all) the letters'
2. 'writing letters'

- The definite (unique maximal) interpretation is not obligatory

Argument 1: Perfectivity

- Aspectual composition

(25) N**a-pisa-n-ij-e** pisem
PRF-write-N/T-NOUN-NOM letter.GEN.PL
prodolža-l-o-s' ves' den' …
last-PST-N-REFL whole day
'Writing letters lasted for the whole day long...'

(26) ... [OK]no osta-l-o-s' ešče mnogo.
but remain-PST-N-REFL more a.lot
'but there are a lot more (letters to write).'

Argument 1: Perfectivity

- No perfectivity effects in ASNs
- Whatever part of the clausal structure, XP, is embedded within nominalizations, PFV merges outside that XP

$[_{CP} \dots [_{Fi}P$ **PFV** $[_{Fi-1}P \dots$ $[_{XP} \dots V \dots]]]]$

$[_{DP} \dots D \dots [_{NP} \dots N \dots$ $[_{XP} \dots V \dots]]]$

Argument 1: Perfectivity

- Argument supporting nominalizations

(27) na-pisa-n-ij-e (pis'm-a)
PRF-write-N/T-NOUN-NOM letter-GEN
'writing (of) a//the letter'

$[_{NP}$ -ij- $[_{n/tP}$ -n- $[_{XP}$ … napisa …]]]

- XP=?

Argument 1: Perfectivity

- Nominalization in Russian and a few other Slavic languages
- **XP=V:** Rappaport 2000, 2001 for Russian
- **XP=VP:** Rappaport 2000, 2001 for Polish, Schoorlemmer 1995 for Russian
- **XP=AspP:** Schoorlemmer 1995 for Polish, Prochazkova 2006 for Czech, Markova 2007 for Bulgarian

Argument 1: Perfectivity

- A few diagnostics for the structure of nominalizations
- Temporal adverbials, agent-oriented adverbials, aspectual adverbials
- Purpose adjuncts
- Pazelskaya, Tatevosov 2005, 2008, Tatevosov 2008, Pazelskaya 2009

Argument 1: Perfectivity

- **Temporal adverbials**

(28) jest' pokazani-ja dlja **okaza-n-ij-a**
exist.PRS indication-PL for render-NMN-N-GEN
pomoshch-i *nemedlenno*.
assistance-GEN immediately
'There are reasons for rendering assistance immediately.'

- Evidence for VP

Argument 1: Perfectivity

- **Agent-oriented adverbials**

(29) **nanes-en-ij-e** sebe *umyshlenno*
inflict-NMN-N-NOM oneself.DAT deliberately
telesn-yx povrezhden-ij
bodily-GEN.PL injury-GEN.PL
'inflicting injuries upon oneself deliberately'

- Evidence for *v*P

Argument 1: Perfectivity

- **Purpose adjuncts**

(30) **otkry-va-n-ij-e** okn-a,
PRF.open-2IPF-N/T-NOUN-NOM winsow-GEN
čtoby vpusti-t' *svež-ij* *vozdux*
so.that let.in-INF fresh-ACC air.ACC
'opening the window the let the fresh air in'

- Evidence for *v*P

Argument 1: Perfectivity

- If the above reasoning is correct, and process nominals can contains as much as *v*P, then PFV, which does not show up in nominals, must merge outside *v*P

$[_{CP} \ldots [_{Fi\text{P}}$ **PFV** $[_{Fi\text{-}1\text{P}} \ldots$

$[_{DP} \ldots D \quad [_{NP} \ldots N \ldots$

$[_{vP} \ldots \quad [_{VP} \ldots V \ldots]]]]$

$[_{vP} \ldots \quad [_{VP} \ldots V \ldots]]]]$

- This makes a theory of Russian aspect (some variant of) the high aspect theory

Argument 1: Perfectivity

- **A note on superlexical prefixes**
- Prefixes like na- in napisat' we have seen so far are what is traditionally called pure aspectual prefixes, which form a subclass of lexical prefixes
- There are more classes, however.
- To make the argument fully work we have to see that the above generalizations extend to there classes, too

Argument 1: Perfectivity

- Lexical vs. superlexical prefixes: Arsenijevic 2007, 2012, Babko-Malaya 1999, Ramchand 2004, Romanova, 2004, 2007, Svenonius 2004, 2009, Tatevosov 2008, 2009, 2013, Žaucer 2009, 2010
- **Superlexicals merge outside lexical prefixes**
  [Superlexical prefixes […. [Lexical prefixes]]]
- **A superlexical: completive *do*-**

do-pisat'	'finish writing'
do-*na*-pisat'	'finish writing'
do-*za*-pisat'	'finish recording'
do-*pod*-pisat'	'finish signing'

Argument 1: Perfectivity

- I have shown that the position of PFV is higher than the position of pure aspectual prefixes, which form a subclass of lexical prefixes.
- Now we have to exclude (31) in favor of (32):

(31) **PFV is as high as SLPs**
[... [... PFV SLP ... [... [... LP ...]]]

(32) **PFV is higher than SLPs**
[... [... PFV ... [... SLP ... [... [... LP ...]]]

Argument 1: Perfectivity

- **Generalization** (Tatevosov 2013): for stems based on superlexicals, nominalizations differ from fully inflected clauses in exactly the same way as for pure aspectual prefixes
- With superlexicals, the same pattern obtains as with lexical prefixes. Hence,
- **The position of the perfective semantic aspect is outside the position of any prefixes.**

Argument 2: Imperfectivity

- **"Imperfective aspectual morphology":** the "secondary imperfective" morpheme -(yv)a(j)-, *yva* henceforth.
- Aspectual morphology and aspectual interpretation at a distance

(33) [… IPFV … $[_{XP}$ [… yva ...]]]

- To argue for (33), find an XP and show that *yva* is inside XP but IPFV is outside
- IPFV = the imperfective operator (or a family of operators if one assumes with, e.g., Paslawska, von Stechow 2003 that Slavic Imperfective is ambiguous)
- Ideally, XP = vP, since we have already seen that PFV is outside vP

Argument 2: Imperfectivity

- **Structure of the argument**

1. yva is below vP

1.1. *yva* can below a class of superlexical prefixes including the distributive *pere*$_{DISTR}$-

1.2. *pere*$_{DISTR}$- is below vP

(34) [$_{vP}$ … [… *pere*$_{DISTR}$- … [… yva …]]]

2. IPFV is above vP

Argument 2: Imperfectivity

- **1.1. yva is below SR-prefixes**
- There is a class of superlexical prefixes called Selectionally restricted prefixes (SR-prefixes) in Tatevosov 2009, 2013
- SR-prefixes can merge outside *yva*, provided that relevant structural conditions are met

(35) [… SR-prefix … [… yva …]]

Argument 2: Imperfectivity

- **yva is below SR-prefixes**
- SR-prefixes
  - Delimitative *po-*
  - Distributive *pere-*
  - Cumulative *na-*
  - Inchoative *za-*

Argument 2: Imperfectivity

(36) Лишь под пару песен мне удалось ***немного пооткрывать*** рот, подпевая.
'I only had a chance to open my mouth for a while'

(37) Я пока ждал машину из сервиса - пересидел во всех машинах в зале, ***переоткрывал*** все, что хотел
'opened all I wanted, one thing after another'

(38) Не знаю, кто как, но я ***наоткрывал*** штук двадцать потенциально интересных постов во вкладках браузера
'I opened about 20 interesting posts in my browser,'

(39) Хрустнули ребра, выдавился последний воздух из легких, и мальчишка ***заоткрывал*** рот, как рыба
'and the boy started opening his mouth like a fish'

Argument 2: Imperfectivity

- **Structure of the stems in (36)-(39)**

(40) **po**-[[ot-kry]^{P} -va]^{I}-t'
'spend some time trying to open sth.'

(41) **pere**-[[ot-kry]^{P}-va]^{I}-t'
'open one by one'

(42) **na**-[[ot-kry]^{P} -va]^{I}-t'
'open a quantity of sth.'

(43) **za**-[[ot-kry]^{P} -va]^{I}-t'
'start opening'

Argument 2: Imperfectivity

- Structure of superlexically prefixed stems in (40)-(43)

(44) [SR-prefixes [yva [otkry]]]

- Of the four prefixes on the list, the distributive *pere*$_{DISTR}$- is of special interest, since it takes scope, and we can make use of this fact to detect its position

Argument 2: Imperfectivity

- ***pere*$_{DISTR}$- is below vP**
- Subject-object asymmetry

(46) Razbojnik **pere-otkry-va-l** (vse) dveri.
thief pereDISTR-open-yva-pst-pl all doors
'The thief opened all the doors one by one.'

(47)??Razbojniki **pere-otkry-va-l-i** Sezam.
thieves pereDISTR-open-yva-pst-pl Sesame
'The thieves opened Sesame one by one.'

Argument 2: Imperfectivity

- The subject DP is outside the scope of *pere*$_{DISTR}$-.
- Therefore, *pere*$_{DISTR}$- appears below the external argument (EA)
- On the standard assumption that EA originates within vP, it follows that *pere*$_{DISTR}$- is below vP

(48) [… [$_{vP}$ … EA … [pere$_{DISTR}$ …]]]

Argument 2: Imperfectivity

2.2. IPFV is above vP

- So far we have:

(49) v > pere$_{distr}$- > -yva-

- The second part of the arguments aims at showing that

(50) IPFV > v

- Assume to the contrary that

(51) v > IPFV

- We have to figure out what kind of interpretation (51) predicts

Argument 2: Imperfectivity

- **The line of reasoning:**
- *v* introduces an activity subevent
- If IPFV were below *v*, the activity subevent would have been outside of the scope of the IPFV
- This would be interpretable, but the interpretation would come out wrong
- Therefore we conclude that IPFV is outside of *v*P

Argument 2: Imperfectivity

- Assume that v introduces an activity subevent and its participant
- Predicate decomposition (starting at least from Dowty 1979)
- The same head introduces both the external argument and an activity subevent (Folli 2002, Ramchand 2008)
- Arguments based on the tests for subevental complexity (Dowty 1979, von Stechow 1996, Rapp, von Stechow 1999)
- Arguments from causativization (Pylkkanen 2002 and elsewhere)
- Arguments from non-culminating accomplishments (Tatevosov 2008)

Argument 2: Imperfectivity

- Decomposition in one example

(52) || John opened the door || = $\lambda e \exists e' \exists e'' [e = e' \oplus e'' \wedge open_A(e') \wedge agent(John)(e') \wedge open_{CS}(e'') \wedge theme(the.door)(e') \wedge R(e'')(e')]$

where $open_A$ is a predicate of opening activities, $open_{CS}$ is a predicate of processes in which the theme is getting opened; R is a relation between subevents most commonly conceived of as CAUSE.

Argument 2: Imperfectivity

(53) agent's activity > IPFV > change of state of the door

(54) $\lambda e \exists e' \exists e'' [e = e' \oplus e'' \wedge open_A(e') \wedge agent(John)(e') \wedge R(e'')(e') \wedge IPFV(\lambda e'''. open_{CS}(e''') \wedge theme(the.door)(e'''))(e'')]$

- The set of events in which a complete activity performed by the agent brings about **a stage** of change of state of the theme
- The change of state e'' continues and culminates in the worlds on a continuation branch for e'' in w_0. (Landman 1992)
- Events in which the agent did something to the door and the door is getting opened

Argument 2: Imperfectivity

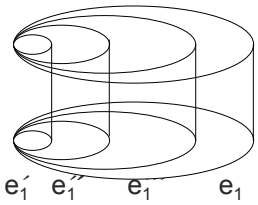
- What is wrong with this semantics?
- I have two reasons to believe that the Activity > IPFV > Change of state ordering makes wrong predictions.
- Incremental predicates
- Failing attempt scenarios

Argument 2: Imperfectivity

- **Incremental predicates**
- There are predicates that entail the incremental relation between activity and change of state subevents (Rothstein 2004)
- ‘read a novel’, ‘eat a sandwich’, ‘assemble a model’, ‘tell a fairy tale’

Argument 2: Imperfectivity

e_2' e_2'' e_2''' e_2 Change of state subevent



Activity subevent

- NB: Rothstein’s incrementality is not to be confused with Krifka’s incrementality, which is a property of relations between individuals and events

Argument 2: Imperfectivity

- *Incremental relation between (sub)events* (Rothstein 2004)
- INCR(e1, e2, C(e2)) (e1 is incrementally related to e2 with respect to the incremental chain C(e2)) iff there is a contextually available one-one function μ from C(e2) onto PART(e1) such that $\forall e \in C(e2).\tau(e) = \tau(\mu(e))$
- *Incremental chain*
  C(e) is a set of parts of e such that
  (i) the smallest event in C(e) is the initial bound of e,
  (ii) for every e1, e2 in C(e) e1 $\leq$e2 or e2$\leq$e1, and
  (iii) e is in C(e)

Argument 2: Imperfectivity

(55) Vasja rasskaz-**yva**-l skazku
V. tell-SI-PST.M fairy.tale-ACC
'(When I came in,) Vasja was telling a fairy tale.'

(56) $\lambda e \exists e' \exists e''$ [e = e′ $\oplus$ e″ $\wedge$ tellA(e′) $\wedge$ agent(V)(e′) $\wedge$ INCR(C(e″))(e″)(e′) $\wedge$ IPFV($\lambda e'''$. tellCS(e‴) $\wedge$ theme(fairy.tale)(e‴))(e″)]

- The set of events which consist of a complete telling activity a (proper) stage of an event in which the fairy tale gets told.

Argument 2: Imperfectivity

- For any predicate, the analysis predicts that there are parts of a change of state that are not mapped to an activity.
- For the fairy tale example, this means at least part of the fairy tale gets told without corresponding telling activity
- The incremental relation entails exactly the opposite.
- We predict, therefore, that the imperfective gets us into trouble when it tries to combine with an incremental predicate. But it does not.
- Therefore, we have one argument against the v > IPFV ordering

Argument 2: Imperfectivity

- Ongoing attempt scenarios
- Non-incremental predicates where the change of state happens at a minimal final part of the activity

(57) Context: the lock in the door is not functioning properly, and the Agent tries to open the door and get in:

Vasja	otkry-va-et	dver'
V.	open-SI-PRS.3SG	door

'V. is opening the door.'

Argument 2: Imperfectivity

- Again, the analysis predicts that there is a complete activity that brings about a stage of the change of state
- However, (57) means something very different: there is a stage of opening activity (which will eventually culminate in relevant worlds) and no change of state at all.
- We can conclude that the Activity > IPFV > Change of state ordering leads to unwelcome empirical consequences

Argument 2: Imperfectivity

- None of this problem appears if IPFV takes scope over the whole complex eventuality:

(57) IPFV > Activity > Change of State

(58) $\lambda e.\ IPFV(\lambda e' \exists e'' \exists e''' [e' = e'' \oplus e''' \wedge tell_A(e'') \wedge agent(V.)(e'') \wedge INCR(C(e'''))(e''')(e'') \wedge tell_{CS}(e''') \wedge theme(fairy.tale)(e''')])(e)$

The set of stages of a complex event consisting of an activity and a change of state, incrementally related = the set of stages of a complete telling of a fairy tale

Argument 2: Imperfectivity

(59) IPFV > Activity > Change of State

(60) $\lambda e.\ IPFV(\lambda e' \exists e'' \exists e''' [e' = e'' \oplus e''' \wedge open_A(e'') \wedge agent(V.)(e'') \wedge CAUSE(e''')(e'') \wedge open_{CS}(e''') \wedge theme(door)(e''')])(e)$

The set of stages of a complex event consisting of an opening activity and a change of state where the door gets opened. Since the activity that aims at opening the door, but has not yet brought about any change, does count as a stage of a complex event, (60) does capture the meaning of the imperfective under the ongoing attempt scenario.

Argument 2: Imperfectivity

- Activity > IPFV > Change of state: wrong predictions
- IPFV > Activity > Change of state: right predictions
- If activity subevents originate within vP, IPFV is outside vP
- From the previous reasoning, we maintain that *yva* is inside vP
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- It follows than (61) holds:
- (61) [… IPFV … [vP … [… yva …]]]

Neo-Kleinean approach

- If pieces of aspectual morphology like prefixes do no render aspectual operators, how to account for the very fact that verb stems where the last step of derivation is prefixation come out perfective?

(62) **Perfective prefixed stem: OK**
[… [… PFV … [Prefix […]]]]

(63) **Imperfective prefixed stem: ☠**
[… [… IPFV … [Prefix […]]]]

- **Similarly for yva**

- **Possible answers**
  - Prefix wants a higher operator to be perfective
  - Perfective operator wants a lower stem to be prefixed

Neo-Kleinean approach

- Answer 1 implies that perfectivity is a formal property of prefixes (while imperfectivity is a similar property of the SI morpheme).

- This leads naturally to suggesting that aspectual morphology bears uninterpretable valued aspectual features (in the sense of Pesetsky, Torrego 2007).

- The phonologically null Asp contains interpretable unvalued aspectual features. Asp probes its c-commanding domain, and as soon as an appropriate goal is found, it gets valued via agree.

Neo-Kleinean approach

(64) **Prefixed stem: perfective**
[… [$_{AspP}$ Asp … [… [… Prefix … […]]]]]
*i*Asp [1] *u*Asp pfv[1]

(65) **Secondary imperfective stem: imperfective**
[… [$_{AspP}$ Asp … [… [… yva … […]]]]]
*i*Asp [1] *u*Asp ipfv[1]

- With respect to Asp, aspectual morphology is agreement morphology.

Neo-Kleinean approach

- Arsenijevic (2012) argues, for independent reasons, that prefix is a phonological signature of an agreement relation between the verb stem, preposition and aspectual head. In his system, aspect is uninterpretable on the verb and on the preposition, but is interpretable (but unvalued) on Asp.
- **A problem.** What happens to *u*Asp in nominalizations, where there is no *i*Asp for it to agree with? Why does *u*Asp not cause the derivation to crash when the structure is sent to LF?

(64) [$_{N}$ …-ij- [$_{Nominal}$ -n- … [… [… Prefix … […]]]]]
- *u*Asp pfv

Neo-Kleinean approach

- **The second answer** ("Perfective operator wants a lower stem to be prefixed") implies some kind of selectional relation between the higher aspectual operator and lower configuration. Something must go wrong if the perfective operator applies to an "imperfective stem" and if the imperfective operator takes a prefixed stem as an argument.
- Klein's (1995) theory of aspect
- Semantics of the perfective and imperfective aspect is such that an operator is only able to combine with a subpart of event descriptions generated at earlier stages of derivation.

Neo-Kleinean approach

- 1-state vs. 2-state event descriptions
- 2 state descriptions consist of a source state an target state
- PERFECTIVE: Assertion time **overlaps** with the **source state** and assertion time overlaps with the **target state**
- IMPERFECTIVE: Assertion time overlaps with the **distinguished state** and does not overlap with the target state
- The **distinguished state**: the only state of **1-state expressions**; the source state of **2-state expressions**, if this is explicitly marked (by the secondary imperfective)
- As a result, PERFECTIVE only combines with 2-state descriptions (prefixed verbs), IMPERFECTIVE only takes simplex stems and "secondary imperfective" verbs

Neo-Kleinean approach

(65) **Klein's perfective operator for Russian**

$|| PFV || = \lambda R_{<v,<v,t>>} \lambda t \exists e \exists s [R(s)(e) \wedge \tau(e) \otimes t \wedge \tau(s) \otimes t]$

(66) **Klein's imperfective operator for Russian**

$|| IPFV || = \lambda P_{<v,t>} \lambda t \exists e [P(e) \wedge \tau(e) \otimes t]$

where *v* is the type of eventualities, both events and states, τ is a temporal trace function, "$\otimes$" is an overlap relation;

- This guarantees that, for type reasons,
  - PFV only combines with 2-state descriptions
  - IPFV only combines with 1-state descriptions

Neo-Kleinean approach

- Simplex unprefixed ("imperfective") stems like *pisa-* 'write': 1-state descriptions; only denote the "source state"
- Prefixed ("perfective") verbs like *napisa-* 'write': 2-state descriptions; denote source state and target state
- Since the assertion time introduced by the perfective must overlap with the target state, the expression it combines with must be 2-state. This explains why simplex unprefixed stems cannot end up perfective.
- The assertion time introduced by the imperfective must overlap with the only state of 1-state descriptions, hence the imperfective is incompatible with 2-state descriptions

Neo-Kleinean approach

- This naturally translates to event-semantic format

(67) **1-state expression = simplex unprefixed stem = a property of events**

a. Vasja **pisa-l** pis'm-o.
V. write-PST.M letter-ACC
'Vasja was writing a letter.'

b. || [*v*P Vasja *pisa-* pismo] || = λe [write(e) ∧ agent(Vasja)(e) ∧ theme(letter)(e)]

- NB. We have in mind that an eventuality in the extension of the predicate is decomposed into an activity and change of state subevents; so (67) is a simplification for the sake of exposition

Neo-Kleinean approach

(68) **2-state expression = prefixed stem = a relation between events and states**

a. Vasja **na-pisa-l** pis'm-o.
V. PRF-write-PST.M letter-ACC
'Vasja wrote a letter.'

b. || [$_{vP}$ *Vasja na-pisa- pismo* || = λsλe [write(e) ∧ agent(Vasja)(e) ∧ theme(letter)(e) ∧ cause(s)(e) ∧ written(s) ∧ arg(letter)(s)].

- *Napisa-* involves a complex event structure consisting of two causally related subevents, the activity subevent, and the result state subevent. Subevents share a theme participant.
- The contribution of the prefix is a result state

Neo-Kleinean approach

- **Evidence for higher subevental complexity of prefixed verbs**
- There exist operators that can take scope over one of the components of a complex event structure not affecting another component. Combined with prefixed predicates, these operators are scopally ambiguous. Non-prefixed predicates, which lack a result state are unable to give rise to scope ambiguities.
-
- For the sake of space, I only show the range of interpretations of *pisa-* and *napisa-* under negation.

Neo-Kleinean approach

(69) **Prefixed stem under negation: ambiguous**

Vasja	ni razu	ne
V.	not.a.single.time	neg
na-pisa-l		kursov-uju.
PRF-write-PST.M		term.paper-ACC

'Vasja has never written a term paper.'

1. No writing activity has ever been performed.
2. No writing activity has ever been completed.

Neo-Kleinean approach

(70) **Non-prefixed stem under negation: unambiguous**

Vasja ni razu ne
V. not.a.single.time not
pisa-l kursov-uju.
write-PST.M term.paper-ACC
'Vasja has never written his term paper.'
1. No writing activity has ever been performed.
2. *No wiring activity has ever been completed.

Neo-Kleinean approach

- For *napisa-*, the standard ambiguity whereby the negation can scope either above or below the eventive component of event structure.
  - On the wide scope reading, the sentence indicates that neither component has occurred.
  - On the narrow scope reading, the result state only falls under the scope of negation.
- For *pisa-* no such ambiguity can be detected.

Neo-Kleinean approach

- If *pisa-* is a predicate of events, but *napisa-* is a relation between events and states, we have a principled account for the observed pattern. The relation between events and states, but not the property of events provides the negation with a subevental content that introduces different scope possibilities.
- *Pisa-* only combines with IPFV, and *napisa-* with PFV

Neo-Kleinean approach

- **Secondary imperfecitve**
- Klein for IMPERFECTIVE: Assertion time overlaps with the **distinguished state** and does not overlap with the target state
- The **distinguished state**: the only state of **1-state expressions**; the source state of **2-state expressions**, if this is explicitly marked.
- "Explicit marking" is done by the secondary imperfective morpheme

Neo-Kleinean approach

- What does it mean for the SI-morpheme to mark a source state (the eventive part of an event description) as distinguished?
- The natural answer is that “marking” amounts to existential binding of the state variable and turning a relation between events and states into a property of events.

(71) $\| \text{yva} \| = \lambda R_{<v,<v,t>>} \lambda e \exists s [R(e)(s) \ldots]$

- *yva* is thus Paslawska and von Stechow ’s Eventizer
- Hypothesis to be explored in the future: eventization is all yva does.

Neo-Kleinean approach

(72) **Secondary imperfective = a derived 1-state description = a proprety of (causing) events**

a. Vasja za-pis-yva-l diski
V. PRF-write-YVA-PST.M CDs
‘Vasja was recording CDs’

b. $\| [_{vP} [\text{yva} [\text{V. zapisa- diski }]] \| = \lambda e \exists s[\text{record}(e) \wedge \text{agent}(\text{Vasja})(e) \wedge \text{theme}(\text{CDs})(e) \wedge \text{cause}(s)(e) \wedge \text{recorded}(s) \wedge \text{arg}(\text{CDs})(s)]$

- Secondary imperfectives are thus derived 1-state expressions. As such, they cannot combine with the perfective operator and end up being interpreted imperfectively after combining with IPFV.

Neo-Kleinean approach

- Evidence that *yva* existentially binds the state argument: perfective passive participles (PPPs)
- PPPs denote result states

(73) Dver' otkryta
door open-PPP-F
'The door is in a state of having been opened' = 'The door is open'

Neo-Kleinean approach

- No PPPs from "secondary imperfective" stems

(74)

Verb	Passive participle
a. otkry(-t')	otkry-t
b. otkry-va(-t')	*ot-kry-va-n/t

- The problem with (74b) is not that the PPP is phonologically illicit.

Neo-Kleinean approach

- PPPs and nominalizations share morphology:

(75)	Verb	Passive participle	Nominalization
a.	otkry(-t')	otkry-t	otkry-t-i-e
b.	otkry-va(-t')	*ot-kry-va-n	otkry-va-n-i-e

- Nominalizations derived from the stem from which PPPs fail to be derived are ok.
- This suggests that PPPs like *ot-kry-va-n* are bad for semantic reasons.

Neo-Kleinean approach

- Assuming that *yva* existentially binds the state variable predicts exactly this pattern.
- PPP is a Stativizer:

(76) $\| \text{PPP} \| = \lambda R_{<v,<v,t>>} \lambda s \exists e [R(e)(s) \ldots]$

- When we try to apply PPP to a secondary imperfective stem, the state variable has already already been bound, and the whole expression does not have a matching logical type.
- We can conclude that there are good empirical reasons to believe that *yva* binds the state variable

Summary

- Neo-Kleinean approach
- Semantic aspects are sensitive to event-structural properties of event descriptions (in the spirit of Klein 1995)
- Simplex stems (1-state descriptions): properties of events
- Prefixed stems (2-state descriptions): relations between events and states
- "Secondary imperfective" stems (derived 1-state descriptions): properties of events
- 1-state descriptions come out imperfective
- 2-state descriptions come out perfective (cf. Bohnemeyer and Swift 2004)

Summary

- This architecture is supplemented by the observation semantic aspects are not part of the meaning of "aspectual morphology"; verbs and verb phrases are aspectless
- "Aspectual morphology" does get interpreted in a position where it is merged, but grammatical aspect is not part of its meaning
- Elements that provide a clause with aspectual interpretation are phonologically silent
- They are located in the functional domain of a clause

[… PFV … [$_{vP}$ … [… **na-**pisa …]]]
[… IPFV … [$_{vP}$ … [… **yva** … […]]]

Thank you!