

How temporal is telicity?

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1. PREMISES

PREMISE I: Some Slavic verbs are lexically marked for a culmination point.

Młynarczyk (2004): formationally-driven classification of Polish verbs

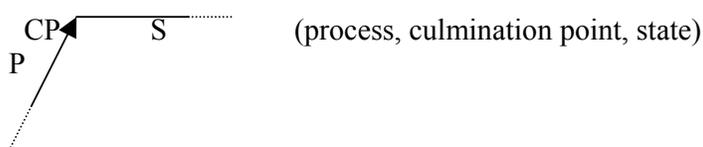
	‘empty prefix’	<i>po-</i>	semelfactive <i>-ną-</i>	morphological change ¹
class₁	yes			
class₂		yes		
class₃	yes	yes		
class₄	yes	yes	yes	
class₅				yes

morphological classification mirrored in the semantics:

	IMPERFECTIVES	PERFECTIVES
class 1	statives and ongoing gradual transitions	inchoatives and completed gradual transitions
class 2	ongoing processes	completed processes
class 3	ongoing culminating processes	completed culminated processes
class 4	ongoing unitisable processes	completed non-culminated culminating processes completed arbitrary unitisable processes completed non-minimal unitisable processes completed minimal unitisable processes
class 5	ongoing culminations	completed culminations

Moens & Steedman’s (1988) nucleus

- “a single elementary contingency-based event structure comprising a culmination, an associated preparatory process, and a consequent state”



can be (more or less) carried over to Russian (and Czech), examples:

class 1	<i>(u)videt’</i> – ‘see’	class 3	<i>(na)pisat’</i> – ‘write’
	<i>(po)krasnet’</i> – ‘become red’		<i>(po)pisat’</i>
class 2	<i>(po)sidet’</i> – ‘to sit’	class 4	<i>(po)kričat’</i> – ‘shout’
			Czech <i>(za)kričet</i>
			<i>kričat’</i> – <i>krik-nu-t’</i>

¹ morphological change: to a great extent suffixation, less often vowel alternation.

- (1) *On u-bilʹ svoju ženu.* (Russian class 5 verb)
 he kill.PAST his-wife.ACC
 ‘He killed his wife.’

- (2) *On u-bi-va-lʹ, no ne u-bilʹ svoju ženu.* (Russian class 5 verb)
 he kill.IPF.PAST but not kill.PAST his-wife.ACC
 ‘He tried to kill his wife, but didn’t.’

PREMISE II: The culmination point is marked by internal prefixes.

Di Sciullo & Slabakova (forthcoming): internal vs. external prefixes

Di Sciullo & Slabakova: Prefixes can combine with verbs at different syntactic levels:

- (3) [TP External T [vP [VP Internal T]]]

External [T] feature in T° – BOUNDEDNESS

Internal [T] feature in v° – TELICITY

internal prefixes: part of the argument structure, prepositional properties

external prefixes: show no effect on the argument structure, adverbial properties

internal prefixes

Młynarczyk’s class 5 verbs are perfective base verbs that derive imperfectives by morphological change (‘secondary imperfectives’).

Class 5 verbs usually contain prefixes (in the lexicon).

- internally prefixed verbs are always lexically distinct from the unprefixed verb
- the semantic contribution of the prefix is highly idiosyncratic (⇒ lexical)
- show argument structure effects

external prefixes

po-: applies at a higher level in the syntax

- Application of external prefixes leads to a predictable meaning change.
- Show no argument structure effects.
- Perfective verbs with external prefixes do not derive secondary imperfectives.

PREMISE III: Internal but not external prefixes induce telicity.

- Intransitive verbs with internal prefixes are unaccusative verbs, those with external prefixes unergative verbs (cf. Schoorlemmer (2004) on Russian).
- Only verbs with internal but not external prefixes can derive complex event nominals.

- interaction with temporal adverbials: Russian externally prefixed Perfective verbs with *po-* are only compatible with for-adverbials but not with in-adverbials:

(4) *On po-spal^P (*za) dva časa.* (Russian external prefix)
 he PO-sleep.PAST (*in) two hours

‘He slept (in / for) two hours.’

(5) *On u-bil^P svoju ženu *(za) dva časa.* (Russian internal prefix)
 he kill.PAST his-wife.ACC *(in) two hours

‘He killed his wife (in / for) two hours.’

PREDICTIONS

- Internally prefixed verbs should conform with the general diagnostics for telicity.
- External prefixes can stack on internal ones but not vice versa.

2. FILIP (2004)

semantic approach

Main aim of the paper: to show that Slavic prefixes

- a) are not markers of perfective aspect
- b) do not necessarily induce telicity / quantizedness

definitions for telic (quantized) and atelic (homogeneous) predicates

- (6) A predicate P is **quantized** iff,
 whenever it applies to x and y, y cannot be a proper part of x.
- (7) A predicate is **homogeneous** iff it is both divisive and cumulative:
 A predicate is **divisive** iff, whenever it applies to x, then it must also apply to any y that is properly included in x.
 A predicate P is **cumulative** iff, whenever it applies to any x and y, it also applies to the sum of x and y, and P should apply to at least two distinct entities.

Filip’s empirical claim I

Czech verbs with source-oriented prefixes like *vy-* – ‘out’ (*vyjít* – ‘to go out, leave’) can still be combined with measuring expressions like *metr* – ‘a metre’ or the prefix *po-* supplying the additional meaning ‘a bit’. Both are odd on verbs with goal-oriented prefixes.

(8) *Po-vy-táh^P káru z příkopu.*
 PO-OUT-pull.PAST cart.ACC from ditch.GEN

‘He pulled the cart out of the ditch a bit.’

**Po-do-táh^P káru do příkopu.*
 PO-(IN)TO-pull.PAST cart.ACC (in)to ditch.GEN

‘He pulled the cart (in)to the ditch a bit.’

- (9) *Od-skočil* *metr od okna.*
 AWAY-jump.PAST.3SG metre.ACC from window.GEN
 ‘He jumped a metre away from the window.’

Při-skočil ??*metr k oknu.*
 TO-jump.PAST.3SG metre.ACC to window.DAT
 ‘He jumped a metre to the window.’

“The Single Delimiting Constraint

The event described by a verb may only have one measuring-out and be delimited only once (Tenny (1994), p. 79).”

“The telicity constraint

Telicity modifiers express functions that map atelic (homogeneous) predicates onto telic predicates: $\lambda P\lambda e[P(e) \wedge \text{HOM}(P)(e)] \rightarrow \lambda P\lambda e[P(e) \wedge \text{TEL}(P)(e)]$. E.g.: *to the store, for an hour, a mile, flat.*”

“Goal-Source telicity asymmetry

The spatial orientation of directional modifiers determines the telicity status of a derived predicate. Source-modifiers form atelic (homogeneous) predicates. Goal-modifiers form telic predicates.”

QUESTION: If source-prefixes do not induce telicity, are they external prefixes?

Problems:

- Both source- and goal-prefixes affect the argument structure of the base verb:
- (10) *táhnout něco* – ‘draw, pull, drag s.th.’
dotáhnout něco do čeho – ‘IN-pull s.th. into s.th.’
vytáhnout něco z čeho – ‘OUT-pull s.th. out of s.th.’
- Verbs containing source-prefixes still imply a distinct culmination point.
 - Verbs with source-prefixes regularly derive secondary imperfectives.

CONCLUSION: Both source- and goal-prefixes are internal prefixes.

Filip’s empirical claim II

Prefixes can stack and they can stack either way, with source- but not with goal-prefixes:

- (11) root *skočit* – ‘to jump’:
po-od-skočit, od-po-skočit (AWAY-jump)
**po-při-skočit, *při-po-skočit* (TO-jump)
- (12) root *sednout si* – ‘to sit down’:
po-od-sednout si, od-po-sednout si (AWAY-sit-down)
**po-při-sednout si, *při-po-sednout si* (TO-sit-down)

Czech judgments:

- agree: *po-* can only apply to verbs with source- but not with goal-prefixes
- majority disagrees: *Přiskočil metr k oknu.* is as good as *Odskočil metr od okna.*
- disagree about the order of stacking: None (!) liked the order where *od-* applies after *po-*.

CONCLUSIONS

It is not true that internal prefixes can stack on external ones.

It is not true that verbs with goal-prefixes are not compatible with spatial modifiers.

It is true that *po-* can only attach to verbs with source- but not to those with goal-prefixes.

REMAINING QUESTIONS

A What is the difference between spatial and temporal modifiers?

B Why is *po-* compatible with source- but not with goal-prefixes? How does it differ from lexical spatial modifiers?

3. TEMPORAL AND SPATIAL MODIFIERS

Hypothesis 1: Telicity is a temporal notion; spatial expressions cannot test for telicity.

(13) ?*Er verließ das Haus zwei Stunden (lang).*
he.NOM left the-house.ACC two hours.ACC (long)

‘He left the house for two hours.’

(14) *Er verließ das Haus für / auf zwei Stunden.*
he left the house for / on two-hours.ACC

(15) ?*Er rennt zwei Stunden (lang) zum Auto.*
he runs two hours (long) to-the car.DAT

(16) ?*Er geht zwei Stunden lang aus dem Raum / in den Raum.*
he goes two hours long out the room.DAT / in the room.ACC

⇒ ‘temporal delimiters’ are odd with telic predicates

(17) *Er rennt zwei Meter zum Auto.*
he runs two metres to-the car.DAT

(18) *Er geht zwei Meter aus dem Raum / in den Raum.*
he goes two metres out the room / in the room

⇒ ‘spatial delimiters’ are compatible with telic predicates

intersective modification: MOD: $\lambda Q\lambda P\lambda x [P(x) \wedge Q(x)]$ (cf. Maienborn (2003))

(19) *for two hours:* $\text{dur}(x) \geq 2 \text{ hours}$
in two hours: $\text{dur}(x) \leq 2 \text{ hours}$

(20) *a metre:* $\text{length}(x) = 1\text{m}$

QUESTION: Is this really a spatial delimiter or just a (further) specification of the path?

comparable to:

- *He read the book.* vs. *He read the 200 pages of the book.* (or: *two litres of the water*)
- temporal specifications that are not delimiters: *between 5 and 6, in 2 hours*
- discourse relation ‘elaboration’ that can hold between two events (no movement of R)

CONCLUSION: Filip’s claims are too strong: Her ‘spatial delimiters’ can also zoom in on a situation otherwise described by a telic predicate.

Hypothesis 2: Temporal and spatial modifiers are base-generated in different positions.

Telicity is a property of VPs: only VP-adjuncts should be able to test for telicity.

The spatial modifiers in the above cases are adjoined to V. The temporal adverbials above are VP (or even CP) adjuncts but never V adjuncts.

locative internal vs. external event modifiers (Maienborn (2003))

event-external modifiers: VP adjuncts, relate to the full eventuality

event-internal modifiers: V adjuncts, relate to some integral part of the eventuality

(21) *Luise hat auf der Treppe gepfiffen.*

Luise has on the stairs whistled

Luise hat [_{VP} [_{PP} auf der Treppe] [_{VP} [_V gepfiffen]]]

(22) *Luise hat auf den Fingern gepfiffen.*

Luise has on the fingers whistled

Luise hat [_{VP} [_V [_{PP} auf den Fingern] [_V gepfiffen]]]

(23) a. MOD*: $\lambda Q\lambda P\lambda X [P(x) \wedge R(x,v) \wedge Q(v)]$

b. Condition of the application of MOD*:

If MOD* is applied in a structural environment of categorial type X, then R = PART-OF, otherwise (i.e. in an XP-environment) R is the identity function

Can such an analysis be carried over to the temporal and spatial modifiers above?

(24) for two hours: $\lambda P\lambda X [P(x) \wedge \text{dur}(x) \geq 2 \text{ hours}]$

(25) two metres: $\lambda P\lambda X [P(x) \wedge R(x,v) \wedge \text{length}(v) = 2\text{m}]$

4. WHY IS PO- COMPATIBLE WITH SOURCE- BUT NOT WITH GOAL-PREFIXES?

Coming and leaving

mirror images of their nuclei – come: (P+) CP (+S) and leave: (S+) CP (+P)

Without further specification, both behave the same linguistically:

- are marked by internal prefixes in Slavic languages
- refer to a culmination point
- the same when it comes to discourse relations (both move R)

Czech po- - ‘a bit’ primarily gets a spatial reading.

Russian po-: supplies external temporal boundaries to the right and to the left (‘for a while’).

⇒ should not be compatible with either goal- or source-prefix: both lexicalize a culmination point (interpreted as a temporal boundary to the right or the left, respectively)

(26) **Povytaščiľ* *teležku iz jamy.*
PO-OUT-pull.PAST cart.ACC from ditch.GEN
‘He pulled the cart out of the ditch (for a while).’

**Pozataščiľ* *teležku v jamu.*
PO-TO-pull.PAST cart.ACC into ditch.ACC
‘He pulled the cart into the ditch (for a while).’

Bulgarian po- is compatible with both prefixes. (cf. Di Sciullo & Slabakova (forthcoming))

Russian judgments:

- *On pripriygnul metr k oknu.* – ‘He TO-jumped a metre to the window.’ - out for all
BUT: *On otpriygnul metr ot okna.* – ‘He AWAY-jumped a metre from the window.’ is equally out – in again with *na metr* (and *za metr, v metr*)

compare to: time frame adverbials *za / v sekundu*
 German *auf / für zwei Stunden* with telic predicates

- *On povytaščil teležki iz jamy.* (‘carts’ - dispreferred but not absolutely out)
On povytaščil vse/vešči/musor iz jamy. (‘everything/things/garbage’)

BUT: *On pozataščil teležki v jamu.* equally ok

- *popriprygivat’, pootpriygivat’*: equally out for most speakers (if ok then distributive with both!)
popriprygnut’, pootpriygnut’: equally out for most speakers (if ok then distributive with both!)
- *pripopriygivat’, otpopriygivat’*: totally out for all speakers
pripopriygnut’, otpopriygnut’: totally out for all speakers

5. REFERENCES

- Di Sciullo, A.M. and R. Slabakova (forthcoming). Quantification and Aspect. To appear in van Hout, A., H. de Swart and H.J. Verkuyl (eds.). *Perspectives on Aspect*. Dordrecht: Kluwer.
- Filip, H. (2004). Prefixes and the delimitation of events. To appear in a special issue of *Journal of Slavic Linguistics*, ed. by Wayles Browne and Barbara Partee.
- Gehrke, B. (2002). *Systemhafte Unterschiede im Aspektgebrauch zwischen dem Russischen und dem Tschechischen*. Magisterarbeit, Institut für Slawistik, Humboldt-Universität zu Berlin.
- Maienborn, C. (2003). Event-internal modifiers: Semantic underspecification and conceptual interpretation. In Lang, E., C. Maienborn and C. Fabricius-Hansen (eds.). *Modifying Adjuncts*. Berlin: Mouton de Gruyter, 475-509.
- Młynarczyk, A. (2004). *Apectual Pairing in Polish*. Utrecht: LOT.
- Moens, M. and M. Steedman (1988). Temporal Ontology and Temporal Reference. *Computational Linguistics* 14.2, 15-28.
- Schoorlemmer, M. (2004). Syntactic Unaccusativity in Russian. In Alexiadou, A., E. Anagnostopoulou and M. Everaert (eds.). *The Unaccusativity Puzzle. Explorations of the Syntax-Lexicon Interface*. Oxford: University Press, 207-242.

6. APPENDIX

formal definitions of quantized and homogeneous predicates in Filip (2004)

QUA(P) $\leftrightarrow \forall x,y[P(x) \wedge P(y) \rightarrow \neg y < x]$

'<': the proper part relation: $\forall x,y \in U[x < y \leftrightarrow x \leq y \wedge x \neq y]$

'≤': the part relation: $\forall x,y \in U[x \leq y \leftrightarrow x \oplus y = y]$

'⊕': the binary sum operation, a function form $U \times U$ to U , it is idempotent, commutative, and associative.

HOM(P) \leftrightarrow DIV(P) \wedge CML(P)

a. DIV(P) $\leftrightarrow \forall x,y[P(x) \wedge y < x \rightarrow P(y)]$

b. CML(P) $\leftrightarrow \forall x,y[P(x) \wedge P(y) \rightarrow P(x \oplus y)] \wedge \exists x,y[P(x) \wedge P(y) \wedge \neg x = y]$

Further motivation for internal vs. external prefixes

- Externally prefixed verbs cannot occur as infinitival subjects. Infinitives of these are always dependent on some other verbal form: *Nado po-govorít^p s nim.* – 'It is necessary to (have a) talk with him.'
- Only external prefixes can stack (on top of internal or external ones) but not internal ones.
- differences among particular Slavic languages w.r.t. external but not internal prefix usage:
 - Czech external prefixes are used less often and do not act as Aspect markers but fulfil certain adverbial functions.²
 - Russian external prefixes mark temporal boundaries and act as Perfectivity markers on atelic (or at some higher level unbounded) predicates. (cf. Gehrke (2002))

e.g. *po-* - 'a bit'³:

Czech spatial: *po-o-točila^p křeslo* – 'she turned the chair a bit'; *po-klek-^p* – 'he kneeled a bit'

(27) *Pak holička po-od-stoupila^p [...]* (Czech original)
then hairdresser.NOM PO-FROM-step.PAST

'Then the hairdresser stepped aside a little bit.'

Potom parikmaxerša oto-šla^p čut' [...] (Russian translation)
then hairdresser.NOM FROM-go.PAST bit

Russian temporal: *po-* (*pro-*, *za-*) primarily to mark grammatical aspect and to move R

(28) *On pomolčal^p nekotoroje vremja v smjatenii, vsmatrivajasⁱ v lunu,*
he PO-be-silent.PAST for a while in confusion IN-look.IPF.PART in moon.ACC

plyvuščuju za rešetkoj, i zagovoril^p: [...] (Russian original)
swimming behind bars and ZA-speak.PAST

'Bewildered, he was silent for a while and looked at the moon. Then he said: [...]

Chvíli zaraženě mlčelⁱ, sledovalⁱ plující měsíc za mříží,
a-while bewildered be-silent.PAST follow.PAST swimming-moon.ACC behind bars

a pak se zepta^p: [...] (Czech translation)
and then SE PF-ask.PAST

(29) ... *že jsemⁱ u něho bylaⁱ celou hodinu a o jeho ústavu*
that AUX.ISG at him be.PAST whole-hour.ACC and about his institute

jsem vědělaⁱ tolik co předtím... (Czech original)
AUX.ISG know.PAST so much what before

'...that I spent a whole hour with him and about his institute I knew as much as before...'

... *čto ja protorčala^p u nego bityj čas i ušla^p,*
that I pro-be-(located).PAST at him beaten-hour.ACC and away-go.PAST

tak i ne uznavⁱ dlja sebja ničego novogo... (Russian translation)
so also not PF-know.PART for oneself nothing new

² Secondary Imperfectives, instances of grammatical Imperfectivity, are also less often used than in Russian.

³ Other external prefixes: Russian *pro-* (~ 'a long time') hardly used / ingressive *za-* non-existent in Czech.