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## The aspectual nature of Slavic prefixes

### 0 OUTLINE OF THE TALK

- ⇒ background assumptions: inner and outer aspect
- ⇒ Slavic VP-internal and -external prefixes:  
internal prefixes are resultative (telic), external prefixes fulfil certain adverbial functions
- ⇒ account for the syntactic and semantic role of Slavic internal prefixes in event structure in terms of first phase syntax (Ramchand 2005) and vector space semantics (Zwarts & Winter 2000, Zwarts 2005)
- ⇒ apparent problem: the goal-source asymmetry in Czech (Filip 2003)
- ⇒ the goal-source asymmetry in Germanic (Nam 2004)
- ⇒ conclusions

### 1 INNER AND OUTER ASPECT

- ⇒ **inner aspect**: predicates at VP level that are atelic or telic (lexical aspect)
- ⇒ **outer aspect**: temporal boundedness at sentence level (e.g. grammatical aspect)

**Slavic**: obligatory grammatical verbal category of aspect

#### criteria to set perfective and imperfective verbs apart:

- ⇒ **only imperfective but not perfective verbs can combine with phase verbs:**

- (1) *On načal pisat' / \*na-pisat' / \*po-pisat' pis'mo.* Russian  
he began.PF write.IPF / \*ON-write.PF / \*PO-write.PF letter.ACC  
'He began writing a / the letter.'

- ⇒ **only imperfective but not perfective verbs derive periphrastic future forms:**

- (2) *On budet pisat' / \*na-pisat' / \*po-pisat' pis'mo.* Russian  
he will write.IPF / \*ON-write.PF / \*PO-write.PF letter.ACC  
'He will write a / the letter.'

#### aspectual information on the verb:

- ⇒ perfectivizing prefixes
- ⇒ imperfectivizing suffixes (vowel alternation)
- ⇒ most morphologically simple verbs are imperfective

- (3) a. ipf. *spat'* > pf. *po-spat'* – 'to sleep' Russian  
ipf. *pisat'* > pf. *po-pisat'* – 'to write'  
ipf. *pisat' pis'mo* > pf. *na-pisat' pis'mo* – 'to write a / the letter'
- b. pf. *dat'* > ipf. *da-va-t'* – 'to give'  
pf. *pod-pisat'* > ipf. *pod-pis-yva-t'* – 'to sign (lit. under-write)'  
pf. *iz-dat'* > ipf. *iz-da-va-t'* – 'to edit (lit. out-give)'
- c. ipf. *vy-da-va-t' knigi* > pf. *po-vy-da-va-t' knigi* – 'to give out / distribute (the) books'
- d. Czech pf. *od-stoupit* > pf. *po-od-stoupit* – 'to step aside (a bit)'

#### no uniform marking of the perfective or the imperfective aspect

- ⇒ not every perfective verb form contains a prefix
- ⇒ not every imperfective verb form contains a suffix
- ⇒ prefixes do not exclusively mark perfectivity
- ⇒ prefixes do not exclusively mark telicity

**telicity:**

- ⇒ property of the VP, which constitutes an event
- ⇒ one instantiation of telicity: resultativity

**2 SLAVIC INTERNAL AND EXTERNAL PREFIXES**

di Sciullo & Slabakova (to appear): internal vs. external prefixes

Jabłońska / Milićević / Ramchand / Romanova / Svenonius (2004): lexical vs. superlexical prefixes

Isačenko (1962): qualifizierende vs. modifizierende Verbalpräfixe

**internal prefixes:**

- ⇒ internally prefixed verbs are lexically distinct from their non-prefixed counterparts
- ⇒ semantic contribution of an internal prefix is often idiosyncratic

**external prefixes:**

- ⇒ predictable meaning effect, similar to adverbial modifiers on the meaning of the whole VP
- ⇒ do not derive new lexical items

- |     |    |   |                  |
|-----|----|---|------------------|
| (4) | a. | Russ. pf. <i>pod-pisat'</i> – ‘to sign’ (lit.: under-write) | <b>internal</b>  |
|     | b. | Russ. pf. <i>po-pisat'</i> – ‘to write (for a while)’       | <b>externals</b> |
|     |    | Russ. pf. <i>za-pisat'</i> – ‘to (begin to) write’          |                  |

**(5) internal vs. external prefixes in Russian and Czech**

	internal prefixes	external prefixes
argument structure effects possible	+	–
derive SECONDARY IMPERFECTIVES	+	–
derive event nominals and participles	+	–
stacking	–	+

⇒ **argument structure effects**

- |     |                                |  |                  |
|-----|--------------------------------|--|------------------|
| (6) | pf. <i>dat' komu čto</i>       | – ‘to give <b>whom what</b> ’  | Russian          |
|     | pf. <i>iz-dat' (*komu) čto</i> | – ‘to publish ( <b>*whom what</b> )’ (lit.: out-give)                | <b>internal</b>  |
| (7) | ipf. <i>sidet' (gde)</i>       | – ‘to sit (where)’:  | Russian          |
|     | a.                             | pf. <i>po-sidet' (gde) dolgo</i> – ‘to sit (where) for a long time’  | <b>externals</b> |
|     |                                | pf. <i>pro-sidet' (gde) dolgo</i> – ‘to sit (where) for a long time’ |                  |
|     | b.                             | pf. <i>po-sidet' *čto, *kogo / *čemu, *komu</i>                      | <b>externals</b> |
|     |                                | PO-sit.INF *what.ACC, *who.ACC / *what.DAT, *who.DAT                 |                  |
|     |                                | pf. <i>pro-sidet' *čto, *kogo / *čemu, *komu</i>                     |                  |

⇒ **secondary imperfectivization**

- |     |                     |   |                               |         |
|-----|---------------------|---|-------------------------------|---------|
| (8) | a. <b>internal:</b> | pf. <i>iz-dat'</i> – ‘to publish’             | > ipf. <i>iz-da-va-t'</i>     | Russian |
|     |                     | pf. <i>pod-pisat'</i> – ‘to sign’             | > ipf. <i>pod-pis-yva-t'</i>  |         |
|     | b. <b>external:</b> | pf. <i>pro-sidet'</i> – ‘to sit (for longer)’ | > ipf. <i>*pro-siž-iva-t'</i> |         |
|     |                     | pf. <i>za-pisat'</i> – ‘to (begin to) write’  | > ipf. <i>*za-pis-yva-t'</i>  |         |

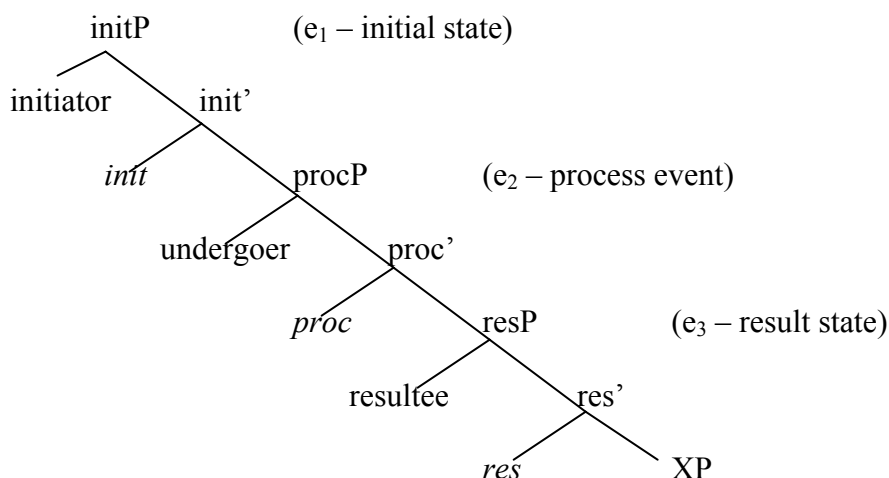
⇒ **deverbal derivations**

- |     |    |  |                     |                  |
|-----|----|--|---------------------|------------------|
| (9) | a. | ipf. <i>čitat' (čto)</i> – ‘to read (sth.)’    | > <i>čtenie</i>     | Russian          |
|     |    | pf. <i>pro-čitat' čto</i> – ‘to read sth.’     | > <i>pro-čtenie</i> | <b>internal</b>  |
|     | b. | pf. <i>po-čitat'</i> – ‘to read (for a while)’ | > <i>*po-čtenie</i> | <b>externals</b> |
|     |    | pf. <i>za-čitat'</i> – ‘to (begin to) read’    | > <i>*za-čtenie</i> |                  |



#### 4.1 event structure and Ps

##### (16) The syntax / semantics of the first phase (Ramchand 2005)



##### (17) Event Composition Rule (Ramchand 2005, p. 37)

$e = e_1 \rightarrow e_2$ :  $e$  consists of two subevents,  $e_1$ ,  $e_2$  such that  $e_1$  causally implicates  $e_2$ .

#### different roads to telicity:

##### a. resultativity

###### identifiers of resP:

- ⇒ particle or object of Germanic verb-particle construction (particle shift)
- ⇒ resP verbs like *find*, semelfactive *jump* etc.
- ⇒ resultatives: *He hammered the metal flat*.

**Ramchand & Svenonius (2002)**: English particles as particle phrases (PrtPs) in complement to RP [resP]

##### (18) *throw the dead rat out*

- a.  $[_{VP} \text{ AGT throw-}v [_{VP} \text{ UNDRG } t_V [_{RP} \text{ HOLDR out-R } [_{PrtP} \text{ the rat } [_{Prt} t_{Prt} ]]]]]]$
- b.  $[_{VP} \text{ AGT throw-}v [_{VP} \text{ UNDRG } t_V [_{RP} \text{ the rat R } [_{PrtP} t_{DP} [_{Prt} \text{ out} ]]]]]]$

##### b. homomorphism between events and scales

with verbs that do not directly identify resP telicity can arise due to a homomorphism between the domain of objects and the domain of events (Krifka 1998): *He wrote the letter* vs. *He wrote letters*.

homomorphism relation generalized to other elements that provide a scale along which the event can be measured out (Hay, Kennedy & Levin 1999, Beavers to appear, among others)

###### scales can be provided by:

- ⇒ incremental themes
- ⇒ adjectives underlying the verbal denotation in degree achievements, e.g. *widen*
- ⇒ spatial domain provided by directional PP (incremental paths)

**suggestions for the syntactic role of Slavic internal prefixes**: identify a result state subevent

- ⇒ option 1: identify the result state subevent directly as  $\text{res}^\circ$  (Romanova 2004, Ramchand 2004)<sup>1</sup>
- ⇒ option 2: PPs in complement to resP, just like Germanic particles
- ⇒ option 3:  $\text{loc}^\circ$  (interpreted as the final location) in a tripartite prepositional structure

**option 1 or 2**: for most of the internal prefixes discussed in the previous section, e.g. *na-pisat'* 'on-write', *pro-čitat'* 'through-read', *pod-pisat'* 'sign' (lit. under-write), *ot-kryt'* 'open, discover' (lit. away-cover), *za-kryt'* 'close' (lit. in-cover), *iz-dat'* 'edit' (lit. out-give), *pro-dat'* 'sell' (lit. through-give) etc.

**option 3**: for those prefixes that obligatorily co-occur with PPs (usually motion events)?

<sup>1</sup> But see Svenonius 2004 for evidence for phrasal movement of these Slavic prefixes.

## 4.2 vector space semantics and prepositional aspect

- Zwarts (2005): locative (stative) vs. directional (dynamic) prepositions
- Zwarts & Winter (2000): semantics of locative prepositions

### example: locative PP *behind the house*

set of vectors that go from the house to points behind it

location function assigns any physical entity in D its location in space – to derive sets of located vectors, mapping an e-type denotation of the reference object to a vector that describes its location or dimension

⇒ **non-projective locative Ps:** *in, on, at*

require only spatial knowledge about the location of figure and ground with respect to one another; defined as boundary vectors on sets of points:

- (19) a.  $\mathbf{in}' = \lambda A. \lambda \mathbf{v}. \mathit{int}(\mathbf{v}, A)$  (Zwarts & Winter 2000, p. 4)  
 b.  $\mathbf{at}' = \mathbf{on}' = \lambda A. \lambda \mathbf{v}. \mathit{ext}(\mathbf{v}, A) \wedge |\mathbf{v}| < r_0$   
 (with  $r_0 \approx 0$ ,  $A$  as a set of points,  $\mathbf{v}$  as a boundary vector of  $A$ )

⇒ **projective locative Ps:** *over, under, behind*

involve a certain axis modelled along the lines of three orthogonal unit vectors in the vector space V for *up, right* and *front*:

- (20) a.  $\mathbf{under}' = \lambda A. \lambda \mathbf{v}. \mathit{ext}(\mathbf{v}, A) \wedge c(-up, \mathbf{v}) > |\mathbf{v}_{\perp-up}|$   
 b.  $\mathbf{behind}' = \lambda A. \lambda \mathbf{v}. \mathit{ext}(\mathbf{v}, A) \wedge c(-front, \mathbf{v}) > |\mathbf{v}_{\perp-front}|$

⇒ **directional Ps**

map the reference object to a set of sequences of vectors (paths), each of these sequences determines a potential change in position of the figure.

- (21) A **path** is a function of type  $iv$  from the real interval  $[0,1] \subset \mathbf{R}$  (type  $i$ ) to vectors (type  $v$ ).  
 (22) A PP is **bounded (telic)** iff it does not have cumulative reference  
 (23) A set of paths  $\mathbf{X}$  is **cumulative** iff  
 (i) there are  $\mathbf{p}$  and  $\mathbf{q} \in \mathbf{X}$  such that  $\mathbf{p}+\mathbf{q}$  exists and  
 (ii) for all  $\mathbf{p}, \mathbf{q} \in \mathbf{X}$ , if  $\mathbf{p}+\mathbf{q}$  exists, then  $\mathbf{p}+\mathbf{q} \in \mathbf{X}$ .

**concatenation:** partial operation subject to the condition that the second path starts where the first path ends

**atelic PPs are closed under sums, telic PPs are not**

- (24) a. *bounded, telic:* to, into, onto, from, out of, off, away from, past, via  
 b. *unbounded, atelic:* towards, along  
 c. *(un)bounded, (a)telic:* across, around, down, over, through, up

**goal and source prepositions:** transitions from one phase to another (Zwarts 2005):

- (25) {  $\mathbf{p}$ : there is an interval  $I \subset [0,1]$  including...  
 ... 0 and consisting of all the  $i \in [0,1]$  for which  $\mathbf{p}(i)$  is **at** x } = [[ from x ]]  
 ... 0 and consisting of all the  $i \in [0,1]$  for which  $\mathbf{p}(i)$  is **on** x } = [[ off x ]]  
 ... 0 and consisting of all the  $i \in [0,1]$  for which  $\mathbf{p}(i)$  is **in** x } = [[ out of x ]]  
 ... 1 and consisting of all the  $i \in [0,1]$  for which  $\mathbf{p}(i)$  is **at** x } = [[ to x ]]  
 ... 1 and consisting of all the  $i \in [0,1]$  for which  $\mathbf{p}(i)$  is **on** x } = [[ onto x ]]  
 ... 1 and consisting of all the  $i \in [0,1]$  for which  $\mathbf{p}(i)$  is **in** x } = [[ into x ]]

### 4.3 Slavic prefixes as Ps

#### (26) Russian and Czech goal and source prepositions:

Russian	Czech	
<i>do</i> (+ GEN), <i>k</i> (+ DAT)	<i>do</i> (+ GEN), <i>k</i> (+ DAT)	to
<i>k</i> (+ DAT)	<i>k</i> (+ DAT), <i>vůči</i> (+ DAT)	towards
<i>v</i> (+ ACC)	<i>do</i> (+ GEN)	into
<i>na</i> (+ ACC)	<i>na</i> (+ ACC)	onto
<i>ot</i> (+ GEN)	<i>od</i> (+ GEN)	(away) from
<i>iz</i> (+ GEN)	<i>z</i> (+ GEN)	out of

#### exclusively directional:

- ⇒ Russian and Czech *k* (+ DAT) ‘to(wards)’ and *na* (+ ACC) ‘onto’
- ⇒ Czech *vůči* (+ DAT) ‘towards’
- ⇒ Russian *v* (+ ACC) ‘into’

#### exclusively locative:

- ⇒ Russian and Czech *v* (+ PREP) ‘in’
- ⇒ Russian and Czech *na* (+ PREP) ‘on’

#### (27) Russian and Czech goal and source prefixes:

Russian	Czech	
<i>do-</i> , <i>pri-</i> , * <i>k-</i>	<i>do-</i> , <i>při-</i> , * <i>k-</i> , * <i>vůči-</i>	to
<i>v-</i> , <i>za-</i>	<i>do-</i>	in(to)
( <i>na-</i> )	( <i>na-</i> )	(on(to)) <sup>2</sup>
<i>ot-</i> , <i>u-</i>	<i>od-</i> , <i>u-</i>	(away) from
<i>iz-</i> , <i>vy-</i>	<i>vy-</i>	out of

#### prepositional counterparts of additional prefixes:

- ⇒ *pri* (*při*) (+ PREP) ‘at, by’
- ⇒ *za* (+ ACC) / (+ INSTR) ‘within’ / ‘behind, at, with, ...’
- ⇒ *u* (+ GEN) ‘at’
- ⇒ Old Slavonic *vъn* (+ GEN) > Modern Russian / Czech adverbial *von* / *ven* ‘outside’

contra Filip (2003), among others, with Žaucer (2004):

#### Slavic internal prefixes are locative Ps, identifying a result state subevent

- ⇒ no prefixal counterparts to exclusively directional prepositions
- ⇒ prefixal counterparts to purely locative prepositions
- ⇒ the prefixes are stative and license / identify a result state subevent
- ⇒ such prefixed predicates are always telic

#### possibility: Slavic internal prefixes on motion verbs as loc<sup>o</sup> in a tripartite prepositional structure

- ⇒ a PP can be maximally decomposed into initial, process (path) and locative part (recall (25))
- ⇒ Slavic (internal) prefixes on motion verbs identify the locative part which is interpreted as the final location

#### (28) [ pP [ pathP [ locP ] ] ]

**goal phrases:** pathPs with embedded loc

**atelic pathPs** involving *towards*: no embedded loc

**source phrases** involving *from*: complex pP + pathP but no embedded locP – no final location, but still definite transition point of the event

<sup>2</sup> The prefix *na-* is only found on the motion verb *idti* / *jít* ‘go’. *Najti* and *najít*, however, do not convey the meaning of a motion on foot onto something but have the different lexical meaning of ‘find’. To describe a motion onto something, other prefixes are used depending on the particular perspective such as Russian *so-jti* ‘descend’ (lit. down-go) or Czech *vze-stoupit* ‘ascend’ (lit. up-step).

## 5 AN APPARENT PROBLEM: THE GOAL-SOURCE ASYMMETRY

syntactic and semantic asymmetries between goal and source Ps

### • Nam (2004)

- (29) a. *Sharon kicked the ball **under** the table.* (goal / \*source)  
 b. *Hugrín jumped **in** the lake.*
- (30) a. *\***Onder** welke brug **door** is het vliegtuig gevlogen?* Dutch  
 under which bridge through is the plane flown  
 b. ***Van** welke brug ben jij gelopen?*  
 from which bridge are you walk
- (31) a. *The store can be run **to** / \***from** in a matter of minutes.*  
 b. *The boat is jumped **into** / \***from**.*  
 c. *The house is moved **into** / \***from**.*
- (32) a. *Mary ran **to** the store **in** / \***for ten minutes**.*  
 b. *Mary ran **from** the library \***in** / **for ten minutes**.*

- ⇒ goal PPs are generated under the lower VP of the extended VP structure composing a result state subevent  
 ⇒ source PPs are generated under the higher VP, modifying a process subevent  
 ⇒ goal-oriented PPs induce telicity whereas source-oriented ones do not

### • Filip (2003)

- ⇒ Czech source prefixes grammatical with measure expressions  
 ⇒ Czech goal prefixes ungrammatical with measure expressions

- (33) a. ***Po-vy-táhl** káru z příkopu.* (= (49) b. in Filip 2003, p. 94)  
 PO-OUT-dragged.PF cart.ACC out-of ditch.GEN  
 ‘He dragged the cart out of the ditch a bit.’  
 b. *\***Po-do-táhl** káru do příkopu.* (= (50) b. in Filip 2003, p. 94)  
 PO-(IN)TO-dragged.PF cart.ACC (in)to ditch.GEN  
 ‘He dragged the cart (in)to the ditch a bit.’

### (34) The Telicity Constraint (Filip 2003, p. 63)

Telicity modifiers<sup>3</sup> express functions that map atelic (homogeneous) predicates onto telic predicates:  $\lambda P\lambda e[P(e) \wedge \text{HOM}(P)(e)] \rightarrow \lambda P\lambda e[P(e) \wedge \text{TEL}(P)(e)]$ .

### (35) Goal-Source Telicity Asymmetry (Filip 2003, p. 79)

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.

### (36) Filip (2003), p. 61: A verbal predicate is **telic** if it denotes either

(i) a set  $P_C$ , i.e., a set of single atomic events contextually restricted by  $t$  (a time index) and  $M$  (a measure statement for  $P$ ), or

(ii) a plural set of atomic events of a definite cardinality.

Otherwise the predicate is atelic.

$M: \forall e [P(e) \wedge Q(e) \rightarrow |e| = 1]$ , where  $Q$  is a context-dependent variable.

### two options to fit these data into the system outlined so far:

- a. source prefixes are VP-external, goal-prefixes are VP-internal  
 b. both are VP-internal, but internal prefixes fall into two groups, one being resultative and thus inducing telicity, the other modifying procP

<sup>3</sup> Filip provides the following examples for telicity modifiers: directional PPs with motion verbs (e.g. *to the store*), temporally delimiting adverbials (e.g. *for an hour*) and resultatives (e.g. *to hammer the metal flat*).

## 5.1 Russian and Czech goal and source prefixed predicates are internal

- (37) a. *skočit* – ‘jump’ Czech  
*při-skočit k čemu / komu* – ‘TO-jump to s.th. / s.o.’  
*od-skočit od čeho / koho* – ‘AWAY-jump from s.th. / s.o.’  
 b. *táhnout něco* – ‘draw, pull, drag s.th.’  
*do-táhnout něco do čeho* – ‘IN-drag s.th. into s.th.’  
*vy-táhnout něco z čeho* – ‘OUT-drag s.th. out of s.th.’
- (38) a. *při-skočit<sup>p</sup>* > *při-skákat<sup>i</sup>* – ‘TO-jump’ Czech  
*od-skočit<sup>p</sup>* > *od-skákat<sup>i</sup>* – ‘AWAY-jump’  
 b. *do-táhnout<sup>p</sup>* > *od-tahovat<sup>i</sup>* – ‘IN-drag’  
*vy-táhnout<sup>p</sup>* > *při-tahovat<sup>i</sup>* – ‘OUT-drag’
- (39) a. past passive participle *do-táhnutý* > *do-táhnutí* – ‘IN-dragging’ Czech  
 b. past passive participle *vy-táhnutý* > *vy-táhnutí* – ‘OUT-dragging’
- (40) a. past passive participle *při-skočený* > *při-skočení* – ‘TO-jumping’  
 b. past passive participle *od-skočený* > *od-skočení* – ‘FROM-jumping’
- (41) root *skočit<sup>p</sup>* – ‘to jump’: (Filip’s claim for Czech)  
 a. *po-od-skočit<sup>p</sup>*, *od-po-skočit<sup>p</sup>* (AWAY-jump + *po-*)  
 b. *\*po-při-skočit<sup>p</sup>*, *\*při-po-skočit<sup>p</sup>* (TO-jump + *po-*)
- (42) root *sednout<sup>p</sup> si* – ‘to sit down’: (Filip’s claim for Czech)  
 a. *po-od-sednout<sup>p</sup> si*, *od-po-sednout<sup>p</sup> si* (AWAY-sit-down + *po-*)  
 b. *\*po-při-sednout<sup>p</sup> si*, *\*při-po-sednout<sup>p</sup> si* (TO-sit-down + *po-*)
- (43) a. *\*od-po-sednout si* (Czech judgments)  
 b. *\*při-po-sednout si*
- (44) a. *po-od-sednout si* (Czech judgments)  
 b. *\*po-při-sednout si*

## 5.2 Russian and Czech goal- and source-prefixed predicates are telic

- (45) a. *On při-lete<sup>p</sup> v Moskvu \*den’ / za den’ (do prazdnika).* Russian  
 he TO-flew in Moscow.ACC \*day.ACC / in day.ACC to holiday.GEN  
 ‘He arrived in Moscow (by plane) \*for a day / a day before the holiday.’  
 b. *On u-lete<sup>p</sup> iz Moskvy \*den’ / za den’ (do prazdnika).*  
 he AWAY-flew out-of Moscow.GEN \*day.ACC / in day.ACC to holiday.GEN  
 ‘He left Moscow (by plane) \*for a day / a day before the holiday.’
- (46) a. *On při-lete<sup>p</sup> v Moskvu.* ==> *On už ne při-letaet<sup>i</sup> v Moskvu.* Russian  
 he more not TO-fly.PRES in Moscow  
 b. *On u-lete<sup>p</sup> iz Moskvy.* ==> *On už ne u-letaet<sup>i</sup> iz Moskvy.*  
 he more not AWAY-fly.PRES out of Moscow
- (47) a. *Vy-táh<sup>p</sup> káru z příkopu \*(za) hodinu.* Czech  
 OUT-dragged cart.ACC out-of ditch.GEN \*(in) hour.ACC  
 ‘He dragged the cart out of the ditch (in / \*for) an hour.’  
 b. *Do-táh<sup>p</sup> káru do příkopu \*(za) hodinu.*  
 (IN)TO-dragged cart.ACC (in)to ditch.GEN \*(in) hour.ACC  
 ‘He dragged the cart (in)to the ditch (in / \*for) an hour.’
- (48) a. *Vy-táh<sup>p</sup> káru z příkopu.* ==> *Už ne-vy-tahuje<sup>i</sup> káru z příkopu.* Czech  
 anymore not-OUT-drag.PRES cart out of ditch  
 b. *Do-táh<sup>p</sup> káru do příkopu.* ==> *Už ne-do-tahuje<sup>i</sup> káru do příkopu.*  
 anymore not-(IN)TO-drag.PRES cart into ditch



## 6 THE NATURE OF THE GOAL-SOURCE ASYMMETRY

Zwarts & Winter (2000): not all locative PPs can be modified by measure phrases

- (49) **Modification Condition:** A set of located vectors  $W \subseteq V \times V$  satisfies the modification condition iff  $W$  is  $\text{VMON}\uparrow$ ,  $\text{VMON}\downarrow$  and non-empty.
- (50) **vector monotonicity:** Let  $P$  be a prepositional function and  $X \subseteq D_{pt}$ .
- $P$  is **upward vector-monotone** over  $x$  ( $\text{VMON}\uparrow$ ) iff  
 $\forall A \in X \forall \mathbf{u}, \mathbf{v} \in D_v [\mathbf{u} \leq \mathbf{v} \rightarrow (P(A)(\mathbf{u}) \rightarrow P(A)(\mathbf{v}))]$ .
  - $P$  is **downward vector-monotone** over  $x$  ( $\text{VMON}\downarrow$ ) iff  
 $\forall A \in X \forall \mathbf{u}, \mathbf{v} \in D_v [\mathbf{u} \leq \mathbf{v} \rightarrow (P(A)(\mathbf{v}) \rightarrow P(A)(\mathbf{u}))]$ .
- (51) **Universal:** All simple locative prepositions in natural language are downward monotone.
- (52)  $\text{VMON}\uparrow$ : in front of, behind; above, over, below, under; beside; outside  
not  $\text{VMON}\uparrow$ : near, on, at; inside, in; between

**Slavic prefixes as locative Ps identify the result state subevent, predicated over an event participant:**

- *he dragged the cart into the ditch*  $\approx$  *dragging*, *he caused the cart to be **inside** the ditch*
- *he dragged the cart out of the ditch*  $\approx$  *dragging*, *he caused the cart to be **outside** the ditch*

**PO- MODIFIES THE RESULT STATE DENOTED BY THE SOURCE PREFIX, A LOCATIVE PP**

- $\Rightarrow$  only the result state of the source-oriented VP (e.g. *outside the ditch*) is upward monotone, hence only this VP can be modified by *po-*
- $\Rightarrow$  goal-oriented VPs cannot combine with *po-*: their result states (e.g. *inside the ditch*) are not upward monotone
- $\Rightarrow$  both events are telic and contain a result state subevent

**further support for po- as modifier of the result state:**

neither imperfective source-prefixed nor imperfective goal-prefixed verbs can combine with *po-*:

- (53) *\*po-vy-tahovat<sup>p</sup>*, *\*po-do-tahovat<sup>p</sup>* – pull + out / in (imperfective) with *po-*  
*\*po-od-skákat<sup>p</sup>*, *\*po-při-skákat<sup>p</sup>* – jump + away / to (imperfective) with *po-*  
*\*po-od-sedět<sup>p</sup>*, *\*po-při-sedět<sup>p</sup>* – sit down + away / to (imperfective) with *po-*

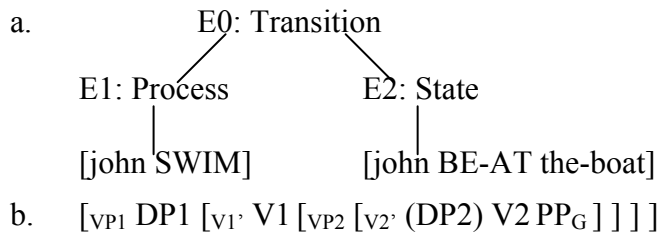
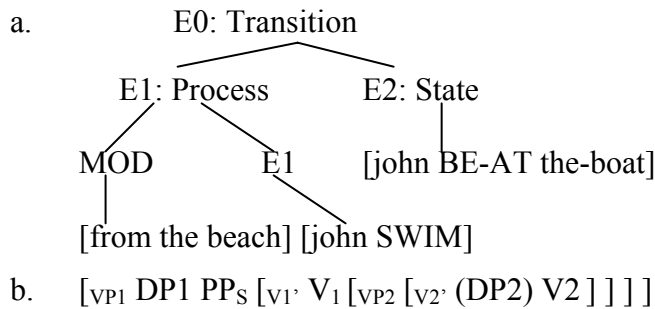
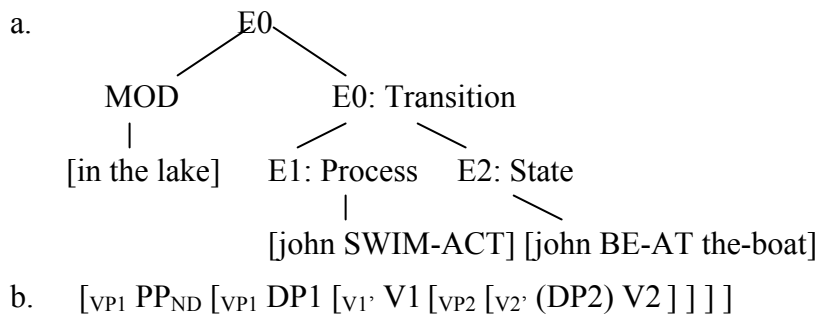
explanation: if the imperfective operator brings about that the result state subevent cannot be accessed anymore (Arsenijević 2004), this result state subevent can also not be modified by *po-* anymore

**interim summary**

- $\Rightarrow$  Slavic prefixes and prepositions constitute a single category P
- $\Rightarrow$  Slavic prefixes can be divided into VP-internal and -external ones with the former being resultative (and hence telicizers) and the latter fulfilling certain adverbial functions
- $\Rightarrow$  Slavic predicates containing either goal or source prefixes are telic since the particular prefixes are internal and thus identify the result state subevent
- $\Rightarrow$  asymmetries between sources and goals are not aspectual in nature
- $\Rightarrow$  the particular asymmetry between Czech source and goal prefixes (i.e. only source- but not goal-prefixed predicates can combine with measure phrase modifiers) is due to different topological properties of the particular result states
- $\Rightarrow$  different PP-internal structure for goals and sources?

## 7 IS THERE A DIFFERENCE IN THE WAY GOALS AND SOURCES RELATE TO THE EVENT IN GERMANIC?

## Nam (2004)

(54) **goal PPs**, e.g. *John swam to the boat*.(55) **source PPs**, e.g. *John swam to the boat from the beach*.(56) **non-directional PPs**, e.g. *John swam to the boat in the lake*.7.1 Nam's claim: prepositions that are ambiguous between a locative and a directional reading such as *under*, *behind*, *in* and *on* are exclusively goal-oriented when directional**contra** (see also Thomas 2001, 2003; Folli & Ramchand to appear):

- ⇒ goal readings with all of these Ps readily available only with resP verbs (e.g. *jump*, *kick*, *put*, *fall*, *throw*) but not with more general motion verbs like English and Dutch *run* / *rennen*, *crawl* / *kruipen*, *walk* / *lopen*, *swim* / *zwemmen*, *go* / *gaan*, *drive* / *rijden* (57)
- ⇒ German: all of these Ps only goal-oriented with accusative case (59), (63)
- ⇒ English *under*, *behind*: (unless with resP verbs) never goal but only trajectory reading (57) a.
- ⇒ Dutch *under*, *behind*: (unless with resP verbs) only locative; trajectory reading with additional postpositional element *door* 'through' (58)
- ⇒ *in*, *on*: goal reading only postpositionally (Dutch) / with additional *to* (English) (60), (61), (62)

(57) a. *The plane **flew under** the bridge.* (locative / trajectory) English  
 b. *Sharon **kicked** the ball **under** the chair.* (goal)

(58) a. *Het vliegtuig vloog **onder** de brug.* (only locative) Dutch  
 the plane flew under the bridge  
 b. *Het vliegtuig vloog **onder** de brug **door**.* (only trajectory)  
 the boat floats under the bridge through  
 c. *\*Het vliegtuig vloog de brug **onder**.* (\*directional)

- (59) a. *Das Flugzeug flog **unter der** Brücke.* (only locative) German  
 the plane flew under the.DAT bridge  
 b. *Das Flugzeug flog **unter der** Brücke **durch / lang**.* (only trajectory)  
 the plane flew under the.DAT bridge through / along  
 c. *Das Flugzeug flog **unter die** Brücke.* (only goal)  
 the plane flew under the.ACC bridge
- (60) a. English: *Rick swam **in** the lake.* (only locative)  
 b. Dutch: *Rick zwom **in** het meer.*
- (61) a. English: *Rick jumped **in** the lake.* (ambiguous between locative and goal)  
 b. Dutch: *Rick sprong **in** het meer.*
- (62) a. English: *Rick swam **into** the lake.* (only directional-goal)  
 b. Dutch: *Rick zwom het meer **in**.*
- (63) a. *Rick schwamm **im** See.* (only locative)  
 Rick swam in-the.DAT lake  
 b. *Rick schwamm **in den** See.* (only directional-goal)  
 Rick swam in the.ACC lake

- ⇒ none of the English or Dutch locative prepositions can have a goal reading in isolation  
 ⇒ the only asymmetry between goals and sources: Dutch postpositional PPs, English PathPs headed by *to* and German accusative PPs always get a goal but never a source interpretation  
 ⇒ goal reading needs extra marking (movement, additional structure, and / or case)  
 ⇒ the data rather suggest a PP-internal difference between locative PPs and directional-goal PPs  
 ⇒ a PP-external difference between sources and goals (affecting the way in which the PPs are linked to the event) is not deducible from these data

## 7.2 Nam's claim: In Dutch, pied-piping and PP-over-V mvt is possible with sources but not with goals

- (64) a. *\***Onder** welke brug **door** is het vliegtuig gevlogen?* Dutch (Koopman 1997)  
 under which bridge through is the plane flown  
 'Which bridge did the plane fly under?'  
 b. *\***Welk** bos **in** ben jij gelopen?*  
 which forest in are you walk  
 'Which forest did you walk into?'  
 c. ***Van** welke brug ben jij gelopen?* Dutch (Nam / Koopman p.c.)  
 from which bridge are you walk  
 'Which bridge did you walk from?'
- (65) a. *\*Zij zijn **gelopen** het bos **in**.*<sup>4</sup> Dutch (Nam / Koopman p.c.)  
 they are walked in the forest  
 'They walked into the forest.'  
 b. *(?)Zij zijn **gelopen** **van** Amsterdam.*  
 they are walked from Amsterdam  
 'They walked from Amsterdam.'

### contra: these are not minimal pairs

- ⇒ contrast rather between prepositions and postpositions / circumpositions / particles  
 ⇒ bare *from*-phrase by itself dispreferred (66), (67)  
 ⇒ goal and source particles / postpositions behave alike (68), (69), (70)

<sup>4</sup> The grammatical and directional version is *zij zijn het bos in gelopen*.

- (66) a. ???*Willemijn loopt van een brug.* Dutch  
 Willemijn walks from a bridge  
 b. *Willemijn loopt van een brug af.*  
 Willemijn walks from a bridge off  
 c. *Gert Jan springt van een brug.*  
 Gert Jan jumps from a bridge
- (67) a. ???*Anca en Shakuntala zijn gelopen van Amsterdam.* Dutch  
 Anca and Shakuntala are walked from Amsterdam  
 ‘Anca and Shakuntala walked from Amsterdam.’  
 b. *Anca en Shakuntala zijn gelopen van Amsterdam naar Utrecht.*  
 Anca and Shakuntala are walked from Amsterdam to Utrecht  
 ‘Anca and Shakuntala walked from Amsterdam to Utrecht.’
- (68) a. \**Welke stad uit ben jij vertrokken?* Dutch  
 which city out are you departed  
 ‘Which city did you depart from?’  
 b. \**Welk bos uit ben jij gelopen?*  
 which forest out are you walked  
 ‘Which forest did you walk out of?’
- (69) a. *Welk bos in / uit ben jij komen lopen?* Dutch  
 which forest in / out are you come.PRT walk.INF  
 ‘Which forest did you walk into / out of?’  
 b. *In / uit welk bos ben jij komen lopen?*  
 in / out which forest are you come.PRT walk.INF
- (70) a. *Kriszta en Giorgos \*zijn / #hebben gelopen in het bos.* Dutch  
 Kriszta and Giorgos \*are / have walked in the forest  
 ‘Kriszta and Giorgos walked in(\*to) the forest.’  
 b. *#Kriszta en Giorgos zijn gelopen uit het bos.*  
 Kriszta and Giorgos are walked out the forest  
 ‘Kriszta and Giorgos walked out of the forest.’

⇒ asymmetry between Dutch *in* and *uit* in the availability of a directional reading (see auxiliary selection)?

**alternative question: which Ps can appear postpositionally and which ones cannot?**

- ⇒ *onder* ‘under’, *over* ‘over’, *achter* ‘behind’ cannot appear in postposition  
 ⇒ *in* ‘in’, *op* ‘on’, *uit* ‘out’ can appear in postposition  
 ⇒ exclusively directional PPs containing source-oriented *van* ‘from’ as well as goal-oriented *naar* ‘to(wards)’ cannot appear postpositionally  
 ⇒ **Can only those Ps appear in postposition that are (homophonous to) particles?** (see den Dikken 2003)

**7.3 Nam’s claim: Dutch goal Ps, but not source Ps can incorporate into V**

- (71) a. ... *dat zij de jas over de stoel hebben heen gelegd* Dutch (Nam / Koopman 1997)  
 that they the jacket over the chair have down put  
 ‘... that they put the jacket over the chair’  
 b. ... *dat dit boek (van) onder het bed is (?\*vandaan) gekomen*  
 that this book (from) under the bed is (?\*from) come  
 ‘... that this book disappeared from under the bed’

**contra: these are not minimal pairs**

- ⇒ contrast rather between morphologically simple and complex particles (see also Koopman 1997, den Dikken 2003)  
 ⇒ simple goal and source particles behave alike

- (72) a. ... *dat zij de mensen de kamer hebben uit gegooid* Dutch  
that they the people the room have out thrown  
'... that they threw the people out of the room'  
b. ... *dat Brigit de tas van mij heeft weg genomen / af gepakt*  
that Brigit the bag from me has away taken  
'... that Brigit took the bag away from me'

### interim summary for Dutch:

- ⇒ there is no general syntactic asymmetry between Dutch goal and source PPs
- ⇒ all asymmetries that Nam addressed can be derived from other asymmetries (morphologically simple vs. complex particles, prepositional phrases vs. postpositional phrases and particles)
- ⇒ postpositional phrases can involve both sources and goals (*zij zijn het bos in / uit komen lopen* 'they walked into / out of the forest')
- ⇒ there are both source and goal PPs that cannot appear postpositionally (*\*zij zijn de winkel van / naar gelopen* 'they walked from / to the store')

### open issues:

- ⇒ which Ps can appear on postposition: only those that are (homophonous to) particles?
- ⇒ difference between *from* / *van* and other source Ps
- ⇒ difference between *in* and *uit*, where a directional reading is more easily available with the latter

### 7.4 Nam's claim: English prepositional (pseudo-) passive ok with goals but not with sources

- (73) a. *The store can be run to / \*from in a matter of minutes.* (Nam)  
b. *The boat is jumped into / \*from.*  
c. *The house is moved into / \*from.*

### contra (data from Couper-Kuhlen 1979):

- ⇒ there are prepositional passives with both source and goal Ps (74)
- ⇒ there are cases where the prepositional passive is out with goal Ps (75)
- ⇒ there are prepositional passives with 'atelic' (non-resultative) PPs (76)

- (74) a. *This jail has never been escaped from.*  
*Martha hasn't been heard from recently.*  
*John didn't believe that people should be begged from.*  
*The horse was sprung from with alacrity.*  
*As the branch was swung from, it broke.*  
b. *It is dangerous to ride unsaddled horses – they can be so easily tumbled off.*  
*If the platform is not stepped off carefully, it may tip over.*  
*The balcony has a railing around it to keep it from being fallen off.*
- (75) a. *\*The floor was crashed to by the dishes.*  
*\*The ground was fallen to by the injured bird.*  
*\*His feet were sprung to.*  
*\*London is gone to by this road.*  
*\*Death was slowly being bled to.*  
b. *\*The distance was being stared into.*  
*\*The lock won't be gone into by the key.*  
*\*The well was fallen into by a large tree.*  
*\*The house had been blown into by dust.*

(76) *Act towards others as you would be acted **towards**.*

- (77) a. *The prison was run **from**.*  
 b. *The store can be run **out of**.*  
*This boat may not be jumped **out of**.*  
*The house was moved **out of**.*

- ⇒ it is unclear what governs the possibility of deriving prepositional passives (not restricted to goal Ps, resultative Ps, Ps that can be used as particles, nor argument PPs, see also Abels 2003)  
 ⇒ the data from prepositional passives do not support Nam's claim of a syntactic goal-source asymmetry

### 7.5 Nam's claim: English goal PPs are oriented to object arguments, source PPs to subject arguments

- (78) a. *John loaded the hay **from** the ground **onto** the truck.*  
 b. *John loaded the hay **onto** the truck **from** the ground.*

most natural reading of a.: *from the ground* refers to the position of the hay (irrelevant where John is)  
 most natural reading of b.: *from the ground* specifies the position of John (different intonation: could also refer to the position of the hay)

- ⇒ *from the ground* in a. forms a complex predicate with *onto the truck* and only modifies the internal argument (contra Nam)  
 ⇒ Nam's claim seems correct for b.; however: a source PP and a goal PP can form a complex PP, modifying the same element iff both paths can be concatenated – the second path has to start where the first path ends  
 ⇒ concatenation is only possible if the source path precedes the goal path but not vice versa  
 ⇒ the particular source PP does not denote a cumulative path (recall (23)): a set of paths is cumulative iff two elements from this set can be concatenated and the sum of these is still in the same set. Here, though we concatenated a path from one set with a path from another set.  
 ⇒ contra Nam: both these sub-paths modify one and the same domain  
 ⇒ open question: why can goal-PPs not be VP-external modifiers (contra *from*-phrases)?

### 7.6 Nam's claim: English predicates containing goal PPs are complex, telic events (transitions), those containing source PPs are simple atelic events (processes)

- (79) a. *John drove **to** New York **again**.* ambiguous  
 b. *John drove **from** New York **again**.* repetitive
- (80) a. *Mary ran **to** the store **in** / \***for ten minutes**.*  
 b. *Mary ran **from** the library \***in** / **for ten minutes**.*

contra:

- (81) a. *Nino drove **away from** Aix-en Provence **again**.* ambiguous / repetitive  
 b. *Nino sent Cem **away again**.* ambiguous  
 c. *Nino went **away again**.* ambiguous  
 d. *???Nino drove **from** Aix-en Provence.*
- (82) a. *Jakub drove **towards** Groningen **again**.* repetitive  
 b. *Jakub drove **to** Groningen **again**.* ambiguous
- (83) a. *Anna ran **towards** the store \***in** / **for ten minutes**.*  
 b. *Anna ran **away from** the car ???**in** / **for ten minutes**.*  
 c. *???Anna ran **from** the car.*
- (84) a. *Janneke ran **to** the store **in** / \***for ten minutes**.*  
 b. *Janneke ran **away in** / \***for ten minutes**.*

- ⇒ difference between preposition *from* and particle *away*  
 ⇒ difference between Germanic particle *away* (+ *from*-phrase) and Slavic internal prefix *u-* 'away' (+ *ot* / *od*-phrase) wrt temporal adverbial test

## 8 CONCLUSIONS

There are undoubtedly asymmetries between goals and sources, at least at the conceptual level. However, these do not manifest themselves PP-externally, i.e. in the way they relate to the event structure. Rather, these asymmetries are PP-internal or maybe even just conceptual in nature. Hence, they are also not aspectual and do not affect the telicity status of the event itself. The apparent differences between sources and goals that Nam relies on to argue in favour of an aspectual difference between goals and sources are deducible from other asymmetries that are not aspectual in nature. These include directional vs. locative Ps, prepositions vs. postpositions, arguments vs. adjuncts and maybe even PPs (or transitive Ps) vs. particles (intransitive Ps).

### open issues:

- ⇒ which Dutch Ps can appear in postposition: only those that are (homophonous to) particles?
- ⇒ difference between *from* / *van* and other source Ps: Why are bare *from* / *van*-phrases dispreferred?
- ⇒ difference between Dutch *in* and *uit*, where a directional reading is more easily available with the latter
- ⇒ Why do *under* / *behind* differ from *in* / *on* in the availability of a directional reading?
- ⇒ Why can only *from*-phrases appear as VP-external modifiers?
- ⇒ What happens when the verbs do not have a resP and (a)telicity results from the homomorphism between the event and the scale provided by the PP?
- ⇒ Why is the parallel between Slavic internal prefixes and English particles not perfect (recall temporal adverbials data in (83) b.)?

## 9 REFERENCES

- Abels, Klaus (2003). Successive Cyclicity, Anti-locality, and Adposition Stranding. Ph.D. thesis, University of Connecticut.
- Arsenijević, Boban (2004). *Slavic verb prefixes are resultative*. Ms. Leiden University.
- Beavers, John (to appear). Scalar Complexity and the Structure of Events. In Johannes Dölling and Tatjana Heyde-Zybatow (eds.). *Event Structures in Linguistic Form and Interpretation*. Berlin: Mouton de Gruyter.
- Borik, Olga (2002). *Aspect and Reference time*. Utrecht: LOT.
- Couper-Kuhlen, Elizabeth (1979). *The Prepositional Passive in English. A semantic-syntactic analysis, with a lexicon of prepositional verbs*. Tübingen: Niemeyer. (=Linguistische Arbeiten 81).
- Cresswell, M.J. (1978). Prepositions and points of view. *Linguistics and Philosophy* 2, 1-41.
- den Dikken, Marcel (2003). *On the syntax of locative and directional adpositional phrases*. Ms. CUNY.
- Dowty, David (1991). Thematic proto-roles and argument selection. *Language* 67.3, 547-619.
- Filip, Hana (2003). Prefixes and the delimitation of events. *Journal of Slavic Linguistics* 11.1, 55-101.
- Folli, Raffaella and Gillian Ramchand (to appear). Prepositions and Results in Italian and English: An Analysis from Event Decomposition. In Angeliek van Hout, Henriëtte de Swart and Henk J. Verkuyl (eds.). *Perspectives on Aspect*. Dordrecht: Springer.
- Gehrke, Berit (2005). The prepositional aspect of Slavic prefixes and the goal-source asymmetry. In Proceedings of the *ESSLLI workshop on Formal Semantics and Cross-Linguistic Data*.
- Hay, Jennifer, Chris Kennedy and Beth Levin (1999). Scalar structure underlies telicity in “Degree Achievements”. In Tanya Matthews and Devon Strolovitch (eds.). *Proceedings of SALT IX*. CLC Publications, Ithaca, 127-144.
- Hale, Ken and Jay Keyser (1993). On argument structure and the lexical expression of syntactic relations. In Ken Hale and Jay Keyser (eds.). *The view from Building 20: Essays in Honor of Sylvain Bromberger*. Cambridge: MIT Press.
- Isačenko, Aleksandr Vasil’evič (1962). *Die russische Sprache der Gegenwart. Formenlehre*. München: Max Hueber Verlag.
- Jabłońska, Patrycja (2004). When the prefixes meet the suffixes. In Svenonius, Peter (ed.). *Nordlyd* 32.2. *Special issue on Slavic prefixes*, 363-401.
- Jackendoff, Ray (1983). *Semantics and Cognition*. Cambridge: MIT Press.

- Koopman, Hilda (1997). *Prepositions, Postpositions, Circumpositions and Particles: The Structure of Dutch PPs*. Ms. UCLA.
- Krifka, Manfred (1998). The Origins of Telicity. In Rothstein, Susan (ed.). *Events and Grammar*. Dordrecht: Kluwer, 197-235.
- Maienborn, Claudia (2003). Event-internal modifiers: Semantic underspecification and conceptual interpretation. In: Ewald Lang, Claudia Maienborn and Cathrine Fabricius-Hansen (eds.). *Modifying Adjuncts*. Berlin: Mouton de Gruyter, 475-509.
- Matushansky, Ora (2002). On formal identity of Russian prefixes and prepositions. In Anikó Csirmaz et al. (eds.). *Phonological Answers (and their corresponding questions)*. MIT Working Papers in Linguistics, 217-253.
- Milićević, Nataša (2004). The lexical and superlexical verbal prefix *iz-* and its role in the stacking of prefixes. In Svenonius, Peter (ed.). *Nordlyd 32.2. Special issue on Slavic prefixes*, 279-300.
- Nam, Seungho (2004). *Goal and Source: Asymmetry in their Syntax and Semantics*. Paper presented at the Workshop on Event Structures in Linguistic Form and Interpretation, Leipzig, 18-3-2004.
- Ramchand, Gillian (2004). Time and the Event: The Semantics of Russian prefixes. In Svenonius, Peter (ed.). *Nordlyd 32.2. Special issue on Slavic prefixes*, 323-361.
- Ramchand, Gillian (2005). *Verb Meaning and the Lexicon*. Ms. University of Tromsø.
- Ramchand, Gillian and Peter Svenonius (2002). The lexical syntax and lexical semantics of the verb-particle construction. In Line Mikkelsen and Chris Potts (eds.). *Proceedings of WCCFL 21*. Somerville, MA: Cascadilla Press, 387-400.
- Romanova, Eugenia (2004). Lexical vs. Superlexical Prefixes. In Svenonius, Peter (ed.). *Nordlyd 32.2. Special issue on Slavic prefixes*, 255-278.
- di Sciullo, Anna-Maria and Roumyana Slabakova (to appear). Quantification and Aspect. In Angeliek van Hout, Henriëtte de Swart and Henk Verkuyl (eds.). *Perspectives on Aspect*. Dordrecht: Springer.
- Smith, Carlota S. (1991/97). *The Parameter of Aspect*. Dordrecht: Kluwer.
- Součková, Kateřina (2004a). Measure prefixes in Czech: Cumulative *na-* and delimitative *po-*. Unpublished master thesis, University of Tromsø.
- Součková, Kateřina (2004b). There's only one *po-*. In Svenonius, Peter (ed.). *Nordlyd 32.2. Special issue on Slavic prefixes*, 403-419.
- Starke, Michal (2001). *Move Dissolves into Merge*. Ph.D. Thesis, University of Geneva.
- Svenonius, Peter (2004). Slavic prefixes inside and outside VP. In Svenonius, Peter (ed.). *Nordlyd 32.2. Special issue on Slavic prefixes*, 205-253.
- Talmy, Leonard (1985). Lexicalization patterns: semantic structure in lexical forms. In Timothy Shoen (ed.). *Language Typology and Syntactic Description III: Grammatical Categories and the Lexicon*. Cambridge: Cambridge University Press, 57-149.
- Tenny, Carol (1994). *Aspectual roles and the syntax-semantics interface*. Dordrecht: Kluwer.
- Thomas, Emma (2001). On the expression of directional movement in English. In *Essex Graduate Student Papers in Language and Linguistics IV*, 87-104.
- Thomas, Emma (2003). Manner-specificity as a factor in the acceptance of *in* and *on* in directional contexts. In *Essex Graduate Student Papers in Language and Linguistics V*, 117-146.
- Žaucer, Rok (2002). *The Role of Verbal Prefixes in Slavic: Evidence from Slovenian Locative Denominal Verbs*. Unpublished master thesis, University of Ottawa.
- Žaucer, Rok (2004). Slavic prefixes as State morphemes. From State to change-of-state and perfectivity. To appear in Dressler, Wolfgang U. et al. (eds.). *Morphology and its demarcations. Selected papers from the 11<sup>th</sup> Morphology Meeting, Vienna, February 2004*. Benjamins.
- Zwarts, Joost (2005). Prepositional Aspect and the Algebra of Paths. To appear in *Linguistics and Philosophy*.
- Zwarts, Joost and Yoad Winter (2000). Vector Space Semantics: a Modeltheoretic Analysis of Locative Prepositions. *Journal of Logic, Language and Information* 9.2, 169-211.