



# Pro-verbs in Russian

## A tool for singling out the most salient submeaning of a prefix

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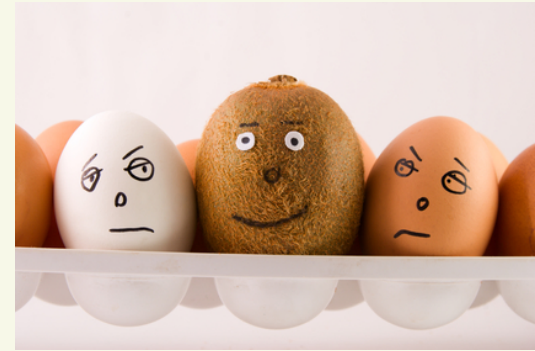
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# Pro-forms



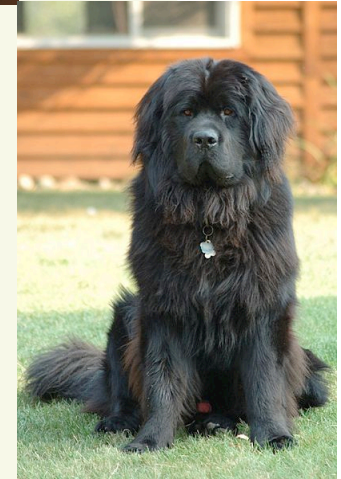
- Pro-form is a form that stands for another form (word, phrase, sentence)
- Pronouns substitute NPs *Susan loves **her big brother** > Susan loves **him***
- Placeholder names can be used for something which name is unknown: *whatchamacallit* (from *what you might call it*), *whatsit*, *John Doe*
- Pro-verbs stand for any verb: *He asked me to leave, so I **did so***



# Pro-verbs in Russian



- Roots are derived from taboo words and names of animals
  - the verb *figačit'* derived from *figa* 'fig sign'
  - the verb *sobačit'* derived from *sobaka* 'dog'
- The meaning of the root changes depending on the construction used in the sentence.
- Distribution of 100 examples of



Verb Class	Number of verbs	Illustrative Example
impact	45	<i>Ja daže molotkom <b>figačil</b> po udarniku</i> 'I even <b>hit</b> the trigger with a hammer.'
move	21	<i>Avtobus <b>figačil</b> po vstrečnoj</i> ' The bus was <b>driving</b> in the oncoming traffic lane.'
work/function	14	<i>Vsju noč' nad laboj <b>figačil</b></i> 'All night [I] <b>worked</b> on the lab experiment.'
other	11	-

# Verbal prefixes and prefixed pro-verbs



- Pro-verbs themselves contribute minimal meaning to their prefixed forms
- The meaning of the prefixed pro-verbs reveals the most salient submeaning of the prefix
- Saliency is important in establishing a prototypical submeaning
- Each prefixed verb with the the past tense base *figačil*
  - 100 examples attested in the results of the Yandex search engine
  - tagged according to submeanings (as presented in Janda et al. 2013)

# Prefixed pro-verbs and productivity of the prefix



- Productivity of the prefix *za-*:  $P^*$  (*za*) = number of hapaxes with the prefix *za-*/number of hapaxes in the corpus (Baayen 1993)
- Number of examples with the past tense base *figačil* correlates with productivity of a prefix ( $r=0.63$ )

Prefix	Schema	Examples with the base <i>figačit'</i>	Productivity of the prefix ( $P^*$ )
<i>za-</i>	'deflect/cover'	~74000	0.068
<i>na-</i>	'surface'	~5000	0.049
<i>pro-</i>	'through'	~4000	0.048
<i>ot-</i>	'depart'	~4000	0.044
<i>raz-</i>	'apart'	~2000	0.042
<i>po-</i>	'some'	915	0.041
<i>pri-</i>	'arrive'	569	0.037



# Prefixes and the verb *figačit'*

- Prefixes with clear preference for one submeaning (7 prefixes)
  - *za-*, *na-*, *raz-*, *pri-*, *o-*, *v-*, *ob-*
- Prefixes with several centers of attraction (6 prefixes)
  - *ot-*, *pro-*, *po-*, *u-*, *pere-*, *s-*
- Prefixes with very few examples (4 prefixes)
  - *pod-*, *iz-*, *vy-*, *v(o)z-*



# Prefixes with preference for one submeaning



- *za-*, *na-*, *raz-*, *pri-*, *o-*, *v-*, *ob-*
- These prefixes have clear preference for one submeaning and it combines well with impact verbs

Submeaning	Description	# OF OCCURRENCES
1. APART	Separate, move in different directions, break into pieces	0
2. CRUSH	Destroy by crushing	100
3. SPREAD	Distribute smth without excess, all over	0
4. SWELL	Get larger in size	0
5. SOFTEN/ DISSOLVE	Lose qualities, get softer	0
6. EXCITEMENT	Get excited	0



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# Prefixes with several foci

- *ot-, pro-, po-, u-, pere-, s-*
- These prefixes have several centers of attraction
- The verb *ufigačit'* can mean 'move away' and 'harm'



Submeaning	Description	# of occurrences
1. MOVE AWAY	Leave some place, become inaccessible, disappear from sight	41
2. MOVE DOWNWARDS	Move smth down, also not intentionally	1
3. CONTROL	Bring under control	0
4. REDUCE	Lessen, make smaller, become less active	1
5. HARM	Do harm to smb	54
6. PERCEIVE	Detect a sensorial input	0
7. PLACE/FIT	Place smth/smb somewhere, pack	0
8. KEEP/SAVE	Save a position/quality of smth intact	0
9. COVER COMPLETELY	Cover with smth bigger than the object covered	2
10. DEPART FROM NORM	Change the normal features	1

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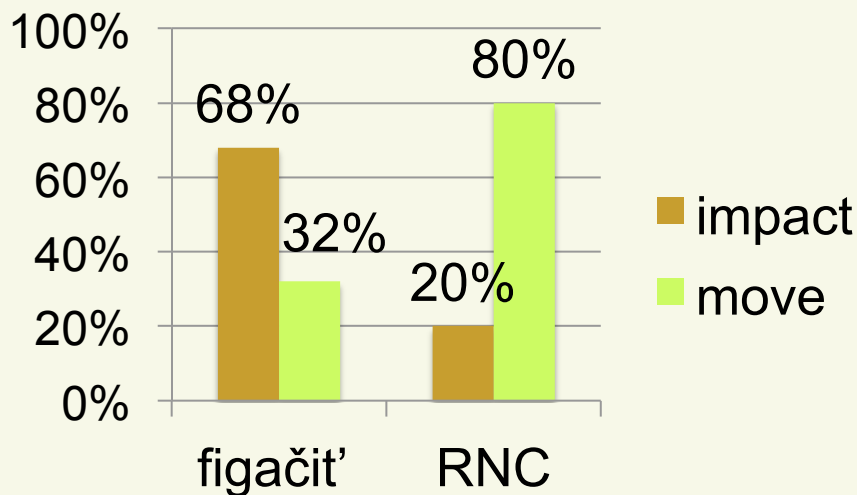


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# Pro-verbs can have semantic preferences



- Distribution of the tags *impact* and *move* is different in the RNC



- *Figačit'* shows clear preference towards aggressive impact
- Aggression is associated with slang and low-style



# One focus: aggressive impact



- Prefixes with preference for one submeaning combine well with aggressive impact
  - *Prifigačit'* has 99 examples of 'attach' (impact) and only one example of 'arrive' (movement)

MOVE: ARRIVE (1)	IMPACT: ATTACH (99)
<p><i>A tut porval ja svjazki na kolene, <b>prifigačil</b> v gipse domoj.</i></p> <p>‘And here I tore a ligament on the knee, and <b>arrived</b> home in a cast.’</p>	<p><i>Na čerenok lopaty ... <b>prifigačil</b> slomavšujusja ručku ot drelj.</i></p> <p>‘To the shaft of the shovel I <b>attached</b> the broken handle from the drill.’</p>

# Several foci: aggressive impact and aggressive movement



- Prefixes with several foci are compatible with both aggressive impact and aggressive movement
  - *Ufigačit* can mean 'move away' (41) and 'harm' (52)

move: MOVE AWAY (41)	impact: HARM (52)
<p><i>Lexa <b>ufigačil</b> v London k sestri.</i> 'Lexa <b>drove away</b> to his sister in London.'</p>	<p><i>...Kogda ja sebe toporom po ruke <b>ufigačil</b>.</i> '... When I <b>hit</b> my hand with an axe.'</p>



# Prefixes with very few examples



- *pod-*, *iz-*, *vy-*, *v(o)z-*
- Distribution of prefixed pro-verbs is affected by semantic compatibility between the base and the prefix
- These prefixes share a similar property in their semantic schema



Prefix	Schema	Examples with the base <i>figačit'</i>	Productivity of the prefix (P*)
<i>pod-</i>	'apply to bottom'	20	0.019
<i>iz-</i>	'out of a container'	15	0.019
<i>vy-</i>	'out of a container'	7	0.041
<i>v(o)z-</i>	'move upward'	1	0.011

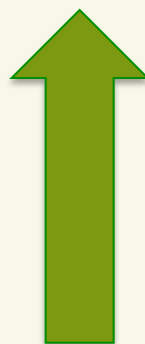
# Semantic schemas of *pod-*, *vy-*, *iz-*, *v(o)z-*



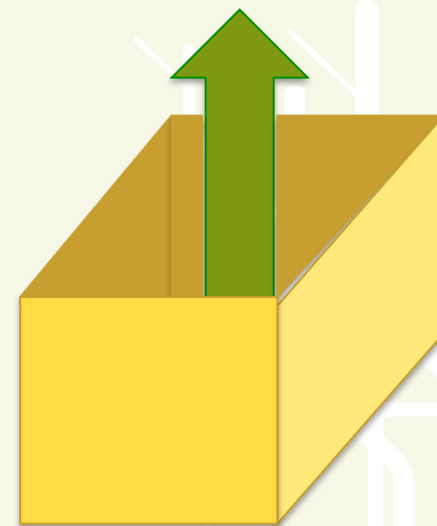
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'apply to bottom'



*v(o)z-*  
'move upward'



*vy-/iz-*  
'out of a container'

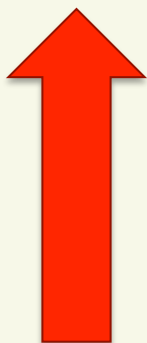
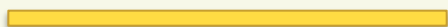


# Semantic schemas of *pod-*, *vy-*, *iz-*, *v(o)z-*

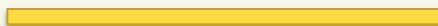
- These semantic schemas contain vertical movement
- Vertical force works against gravity, so movement up is slow
- Slow motion is repulsed from the base verb *figačit*



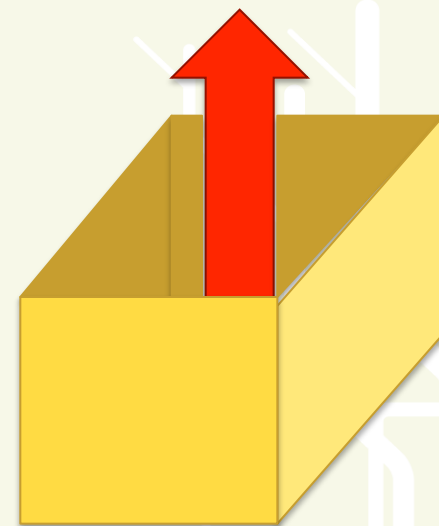
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*v(o)z-*  
'move upward'



*vy-/iz-*  
'out of a container'



# Productivity and semantic preference



- Similar productivity: semantic compatibility plays a role
- The prefixes *raz-*, *po-* and *vy-* have productivity of  $P^* \approx 0.04$

Prefix	Schema	Examples with the base <i>figačit'</i>	Productivity of the prefix ( $P^*$ )
<i>raz-</i>	'apart'	~2000	0.042
<i>po-</i>	'some'	915	0.041
<i>vy-</i>	'out of a container'	7	0.041

- *Raz-* 'apart' attracts aggressive impact
- *Po-* 'some' is neutral towards aggression
- *Vy-* 'out of a container' includes a vertical movement and is repulsed from the base verb *figačit'*

# Conclusions

- The distribution of prefixed verbs with the base *figačit'* is affected by two factors: productivity and semantic compatibility
  - The number of prefixed verbs correlates with the productivity of the prefix ( $r=0.63$ )
  - For prefixes with similar productivity, it is semantic compatibility that affects the frequency of the prefixed verb
- The pro-verb *figačit'* has semantic preference for aggressive impact and fast movement
- The prefixed verbs with the base *figačit'* can have one or several foci, depending on how well the semantic schema of a prefix is compatible with aggression
- The submeaning chosen by a prefixed pro-verb shows the most salient submeaning, but may be affected by semantic preferences of the pro-verb



# References

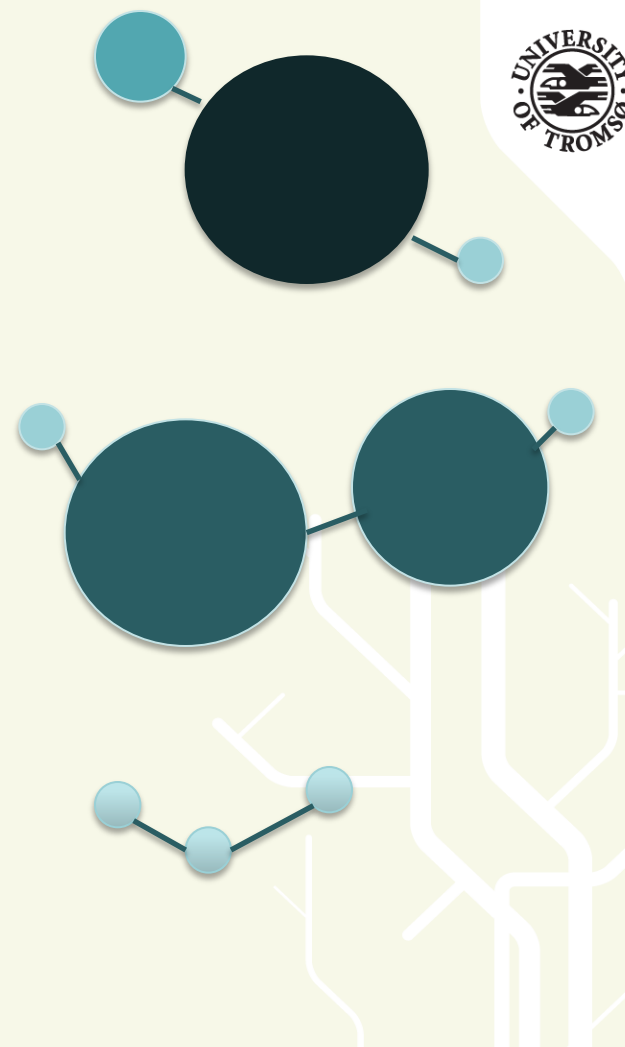
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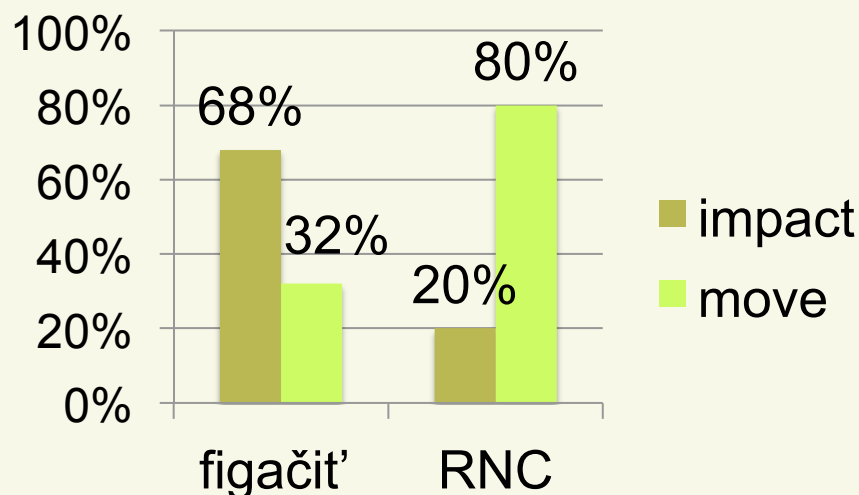
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  - IZ-, POD-, V(O)Z-, VY-



# Pro-verbs can have semantic preferences



- Distribution of the tags *impact* and *move* is different in the RNC



- *Figačit'* shows clear preference towards aggressive impact
- Aggression is associated with slang and low-style
- Prefixes with preference for one submeaning combine well with aggressive impact, whereas prefixes with several foci are compatible with both aggressive impact and aggressive movement (*ufigačit'* can mean 'move away' and 'harm')

