"Grammatical Profiles: What Inflectional Forms Tell us about Lexicon and Grammar"

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Introduction

What is a Grammatical Profile?

Tense, Aspect and Mood in Russian

2 Studies of TAM in Russian

Study 1: prefixes and suffixes

Are pairs formed via both prefixes and suffixes?

Study 2: TAM and outlier verbs

What verbs are most attracted to TAM combinations?

Conclusion

Perfective vs. imperfective pairs formed with prefixes and suffixes behave the same way

Grammatical "idioms" in interaction of aspect and inflection

Grammatical Profile =

Relative frequency distribution of the inflected forms of a word in a corpus

TAM in Russian

Tense: Past vs. Non-Past (imperfective = present, perfective = future)

Aspect: Imperfective vs. Perfective "paired" verbs (residue of biaspectuals)

Mood: Indicative, Infinitives in modal constructions, Imperative

Study 1: prefixes and suffixes

Major Patterns of aspectual morphology:

Simplex verbs -- nearly all imperfective (delat' 'do')

Prefixed verbs (prefix + simplex) -- nearly all perfective (sdelat' 'do', peredelat' 'redo')

Prefixed and suffixed verbs (prefix + simplex + suffix) -- secondary imperfectives (*peredelyvat*' 'redo')

p-partners (Natural Perfectives): simplex & prefixed (*delat*' 'do' & *sdelat*' 'do') **s-partners** (Specialized Perfectives): prefixed & prefixed and suffixed (*peredelat*' 'redo' & peredelyvat' 'redo')

Traditional Hypothesis: both p-partners and s-partners form aspectual pairs Isačenko Hypothesis: only s-partners form aspectual pairs

	Imperfective			Perfective				
	Ipfv_	Ipfv_	Ipfv_	Ipfv_	Pfv_	Pfv_	Pfv_	Pfv_
	ÑonPast	Past	Inf	Împer	NonPast	Past	Inf	Imper
both p-	1,330,016	915,374	482,860	75,717	375,170	1,972,287	688,317	111,509
& s-	47.4%	32.6%	17.2%	2.7%	11.9%	62.7%	21.9%	3.5%
partners								

Table 1: Grammatical profiles of imperfective vs. perfective verbs

Statistically significant: chi-squared = 947756, df = 3, p-value < 2.2e-16

With nearly 6M datapoints, too much statistical power

Effect size moderate/large: Cramer's V = 0.399

(0.1 = small, 0.3 = moderate, 0.5 = large)

In other words, imperfective verbs behave differently than perfective verbs.

	Ipfv_	Ipfv_	Ipfv_	Ipfv_	Pfv_	Pfv_	Pfv_	Pfv_
	NonPast	Past	Inf	Imper	NonPast	Past	Inf	Imper
p-	475,893	397,409	195,926	36,427	,	317,570	114,460	24,280
partners	43%	35.9%	17.7%	3.3%		60.1%	21.6%	4.6%
s-	854,123	517,965	286,934	39,290	,	1,654,717	573,857	87,229
partners	50.3%	30.5%	16.9%	2.3%		63.2%	21.9%	3.3%

Table 2: Grammatical profiles of p-partners vs. s-partners

Imperfectives: chi-squared = 16155.13, df = 3, p-value < 2.2e-16, but Cramer's V = 0.076, **below "small"**

Perfectives: chi-squared = 4365.078, df = 3, p-value < 2.2e-16, but Cramer's V = 0.037, **below "small"**

In other words, p-partners do not behave differently from s-partners, not in terms of imperfectives, nor in terms of perfectives.

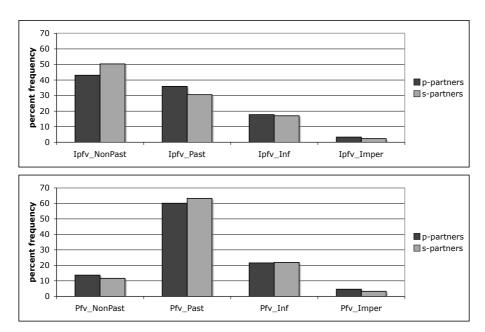


Figure 1: Distribution of of p-partner (dark grey) and s-partner (light grey) forms

Study 2: outlier verbs

Imperfective imperative "be doing X!"

Hypothesis:

- categorical negation
- politeness
- insistence (rudeness)
 Hypothesis confirmed, but other findings too

Over 200 outliers

- Polite: guest knows what to expect: razdevajtes' 'take off your coat', sadites' 'sit down', prisoedinjajtes' 'join in', zakusyvajte 'eat a chaser', zakurivajte 'have a smoke', zaezžajte 'stop by', zalezajte 'get into the car'
- Insistence: hearer is hesitant: stupajte 'get going', gljadite 'look', zabirajte 'take'
- Insistence: hearer has not behaved properly (connection with negation): *provalivaj* 'get out of here', *končaj* 'stop', *ne perebivaj* 'don't interrupt', *ne prikidyvajsja* 'don't

pretend to be something you aren't', ne peredergivaj 'don't distort the facts', otvalivaj 'get out of here'

Other findings

- Polite requests: *vyručajte* 'help'
- Kind wishes: vyzdoravlivajte 'get well'
- Conventional construction: davajte 'let's/let me' (posmotrim 'take a look', pomogu 'help', rasskažu 'tell', pokažu 'show', sdelaju 'do')
- Idiomatic/culturally anchored: proščaj(te) 'farewell', soedinjajtes' 'unite' (slogan), obogoščajsja 'be prosperous' (NEP), zapevaj 'sing' (army), ne pominaj lixom/kak zvali 'bear no ill will/they just vanished', spasajsja, kto možet 'every man for himself', na čužoj karavaj rot ne razevaj 'don't take others' belongings'

Perfective imperative "make X happen!"

Hypothesis

- Rude
- Instructions
- Warnings

Hypothesis confirmed for rude and instructions, but not for warnings, and there are other findings too

Over 300 outliers

- Rude: otstan' 'leave me alone', otpustis' 'let me go', perestan' 'stop it'
- Instructions: (cooking) *vskipjatite* 'boil', (exercising) *sognite* 'bend', (official transactions) *raspišites*' 'sign for', (text instructions) *rassmotrite* [grafik x] 'see [figure x]'
- Additional findings
- Polite expressions: *izvinite* 'excuse me', *poterpite* 'please be patient', *predstav'te* 'imagine'
- Attention-directing: posmotrite 'look at', vslušajtes' 'listen to', ponjuxajte 'sniff', ugadajte 'guess'
- Discourse markers: *požaluj* 'perhaps', *razrešite* 'allow', *podskažite* 'prompt, tell', *uvol'te* 'spare'
- Religious: Gospodi pomiluj 'Lord have mercy', blagoslovi otče 'Father bless'
- Conventional construction: dajte 'let me' (poceluju 'kiss', posmotrju 'take a look', vzgljanu 'take a peek'
- Idioms: xot' zalejsja/zavalis' 'a very large amount', ne razlej voda 'really close friends', čert razderi 'to hell with it'

Imperfective non-past "is doing X"

Hypothesis

- On-going processes
- Concrete processes with a duration
- Simultaneous processes
- Repeated actions

Hypothesis NOT confirmed – gnomic situations instead

verb (3sg)	gloss	raw freq	% freq
javljat'sja (javljaetsja)	'be'	39543	92%
okazyvat'sja (okazyvaetsja)	'turn out to be'	10869	85%
podtverždat'sja (podtverždaetsja)	'be confirmed'	677	83%
vyjasnjat'sja (vyjasnjaetsja)	'be explained'	805	89%
kasat'sja (kasaetsja)	'concern'	9719	87%
isčerpyvať (isčerpyvaet)	'exhaust'	100	89%
predopredeljat'sja (predopredeljaetsja)	'be predetermined'	34	85%
objazyvat'sja (objazyvaetsja)	'be obliged to'	480	92%
zatrudnjat'sja (zatrudnjaetsja)	'be made difficult'	275	86%
vleč' (vlečet)	'entail'	1555	85%

~ l ~ t' (~ l ~ ~ t)	(1, , , , ,)	1	0%
1 (10 (7)) 1 (10 (7)) 1 1	i near		1 10%
I Si vaai (Si vaaci)			

Table 3: Imperfective verbs with very high or low incidence of non-past forms

10+1 outlier verbs (*slyxat*' 'hear' lacks non-past) 10 used in gnomic constructions:

- diskussija vsegda javljaetsja naibolee produktivnoj formoj naučnogo obsuždenija problemy 'a discussion is always the most productive form for scholarly debate on an issue'
- dannoe obstojatel'stvo <u>vlečet</u> za soboj negativnye posledstvija 'this situation entails negative consequences for the clients'
- *okazyvaetsja* 'turns out to be'; *vyjasnjaetsja*, *čto* 'it turns out that'; *čto kasaetsja* 'as far as X is concerned'; *storony objazujutsja* 'the parties are obliged to'; *zatrudnjajus' otvetit*' 'not sure'

Perfective non-past "will get X done"

Hypothesis

- Predicted actions
- Promised actions

Hypothesis is confirmed, but there are other findings too

84 outlier verbs

- Predictions: prevysit 'will exceed', umen' šitsja 'will decrease', prodlitsja 'will last', naladitsja 'will work out well', vyzdoroveet 'will get well', zatrudnit 'will make things difficult', razoritsja 'will go broke', potrebuetsja 'will be necessary', podoxnet 'will die', pridetsja 'will be necessary', (ne) obojdetsja (bez) 'will (not) manage (without)'
- Promises: *upravitsja* 'will take care of something', *postaraetsja* 'will try', *rasterzaet* 'will tear to pieces', *prokljanet* 'will curse'
- Performatives: osmeljus' 'I will take the liberty of', procitiruju 'I quote'
- Idioms: ne pridereš'sja 'don't find fault with', ostal'noe priložitsja 'the rest will come', ot tebja ne ubudet 'nothing is going to happen to you', vragu ne poželaeš' 'I wouldn't wish it on my worst enemy'

Imperfective infinitive "to be Xing"

2 hypotheses

- Šmelev & Zaliznjak (2006): Imperfective used when action is controllable
- Divjak (2009): Imperfective has generic interpretation

Divjak's hypothesis is confirmed

freq
65%
66%
64%
61%
57%
66%
57%
58%
59%
60%
63%
66%
(

Table 4: Imperfective verbs with very high incidence of infinitive forms

12 outlier verbs

- 1 is idiomatic: *mne plevat*' 'I don't give a damn'
- Others used in modal constructions

- Our data supports Divjak
- outlier verbs include uncontrollable actions: *vvjazyvat'sja* 'get mixed up in', *raspoznavat*' 'recognize, identify', *soglasovyvat*' 'conform to, agree with'
- outlier verbs target conformist behavior: *sobljudat*' 'conform to', *peredelyvat*' 'redo', *ispravljat*' 'repair', *učityvat*' 'take into account'

Perfective infinitive "to get X done"

2 hypotheses

- Šmelev & Zaliznjak (2006): Perfective used when action is controllable
- Divjak (2009): Perfective has specific interpretation; also used with "tentative verbs", *čtoby* 'in order to' construction and adverbs describing difficulty/importance of achieving X

Divjak's hypothesis is confirmed

verb	gloss	raw freq	% freq
naplevat'	'spit'	860	89%
sovmestit'	'combine'	385	87%
predotvratit'	'prevent'	792	86%
vossozdat'	'reconstruct'	248	84%
pomyslit'	'contemplate'	129	84%
sobljusti	'observe, conform to'	200	84%
sootnesti	'correlate'	118	84%
vozmestiť	'compensate'	304	83%
vospolnit'	'fill in'	171	80%
podrabotat'	'earn additionally, work up'	91	80%
srazit'sja	'fight, join in battle with'	108	80%
ustranit'	'remove'	686	80%

Table 5: Perfective verbs with very high incidence of infinitive forms

12 outlier verbs (*mne naplevat*' 'I don't give a damn')

- Modal uses for specific situations
- Tentative verbs:
 - Poètomu my popytaemsja vospolnit' ètot probel, opirajas' na fakty i cifry. 'That is why we are trying to fill in that gap, relying on facts and figures.'
- *Ctoby* 'in order to' construction:
 - Posle zanjatija možno vypit' vody, <u>čtoby vospolnit'</u> ee poterju. 'After working one can drink some water <u>in order to make up for</u> its loss.'
- Adverbs describing difficulty/importance
 - Fruktami istinnyj deficit kalija <u>vospolnit' očen' tjaželo, praktičeski</u> <u>nevozmožno</u>. 'It is <u>very difficult, practically impossible, to make up for</u> a real calcium deficit by [eating] fruit.'

Imperfective past "was X-ing"

Hypothesis

- Durative past actions
- Repeated past actions

Hypothesis is confirmed, but there are other findings too

verb	gloss	raw freq	% freq
slyxat' (slyxal)	'hear'	1161	93%
slyt' (slyl)	'have a reputation for'	212	72%
prosiživat' (prosižival)	'sit up repeatedly'	123	67%

proxaživat'sja (proxaživalsja)	'go for strolls'	207	69%
belet' (belel)	'show white'	366	70%
mračnet' (mračnel)	'show dark, glower'	99	75%
černet' (černel)	'show black'	348	75%
svešivat'sja (svešivalsja)	'hang, dangle'	105	74%
nadvigat'sja (nadvigalsja)	'be approaching'	260	66%
pomyšljat' (pomyšljal)	'think, dream of'	189	69%
unimat'sja (unimalsja)	'be stoppable'	381	82%
ščurit'sja (ščurilsja)	'squint'	196	67%
otšučivat'sja (otšučivalsja)	'make joking replies'	80	74%

Table 6: Imperfective verbs with very high incidence of past tense forms

13 outlier verbs

- Evidentials: *slyxal*, *slyl* 'heard'
- Defective paradigms: 10 of these verbs have no imperative
- Narration of observations: *belel* 'showed white', *černel* 'showed black', *mračnel* 'showed dark', *svešivalsja* 'hung, dangled'
- Negation for categorical statements: *ne pomyšljal* 'not thought about, dreamt of', *ne unimalsja* 'there was no stopping X'
- Behaviors accompanying dialog: *ščurilsja* 'squinted', *otšučivalsja* 'made joking replies', *mračnel* 'glowered'

Perfective past "Xed, got X done"

no outlier verbs

Conclusions

- Aspectual pairs behave similarly, regardless of whether they are formed via suffixation or prefixation
 - It may be that meanings of prefixes and verbs overlap
- Outlier verbs support some previous scholarship, but also present new insights and challenges
- Imperfective imperative
 - extend list of typical polite and rude expressions; added familiar uses
- Perfective imperative
 - new details on rude and neutral uses; added polite uses and use for attention-directing
- Imperfective non-past
 - gnomic reference (instead of ongoing-durative)
- Perfective non-past
 - predictions of improvements/problems, threats, promises, performatives
- Imperfective & Perfective infinitive
 - Mainly modal uses
 - Imperfective infinitives express generic circumstances
 - Perfective infinitives express specific situations (both circumstances and physical necessity/capacity); constructions with tentative verbs, adverbs, *čtoby* 'in order to'
- Imperfective past
 - evidentials, habituals, narration of observations

Impact

- Better linguistic analysis
- Pedagogical applications

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