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

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Cognitive Linguistics: Empirical Approaches to Russian
Overview

• 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
Introduction

• Why use grammatical profiles?
  • Subset of behavioral profiles (Divjak & Gries 2006, Gries & Divjak 2009)
  • Some verbs used in some forms more frequently than others (Šteinfeldt 1970)
  • Differences are relevant to TAM
Introduction

• What is a grammatical profile?
  • Relative frequency distribution of the inflected forms of a word in a corpus
  • Take verb X (e.g., *delat’* ‘do’) and find out how many times it appears in various forms in a corpus and calculate percentages
  • For example, the mean distribution of imperfective verbs in the Russian National Corpus is:
    • non-past  42%
    • past  30%
    • infinitive  15%
    • imperative  2%
    • gerund  5%
    • participles  6%
Tense in Russian

- Past
- Non–Past
  - Imperfective = Present tense
  - Perfective = Future tense
Aspect in Russian

• All forms of all verbs express aspect
  • (residue of biaspectual verbs are syncretic)

• Two types of verbs in Russian, often referred to as “paired”:
  • Perfective
  • Imperfective
Mood in Russian

• Infinitives used in modal constructions
• Russian lacks modal verbs
• Mood in Russian can be:
  • Indicative
  • Infinitive + modals
  • Imperative
2 Studies of TAM in Russian

• Insights into Russian aspect
  • Are aspectual pairs formed only by suffixation (Isačenko) or by both suffixation and prefixation (traditional view)?
  • Which verbs characterize various TAM intersections?
    • For example, which verbs are used most in a given TAM combination, such as perfective imperative or imperfective non–past?
Level of Analysis

• Subparadigm level (non–past, past, infinitive, imperative) is optimal for study of Russian aspect because it
  • yields 85% of total data for verbs after participles and gerunds are excluded
  • includes categories acknowledged to interact with aspect (finiteness, mood, tense)
  • excludes categories not acknowledged to interact with aspect (person, number, gender)
Major Patterns of Russian 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’)

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Aspect Study 1: prefixes & suffixes

• Study 1 involves only aspectual “partners”
  • **p–partners** (Natural Perfectives):
    • *delat* ‘do’ & *sdelat* ‘do’
  • **s–partners** (Specialized Perfectives):
    • *peredelat* ‘redo’ & *peredelyvat* ‘redo’

• Study 1 excludes
  • habituvals (*govarivat* ‘talk, say habitually’)
  • semelfactives (*čixnut* ‘sneeze once’)
  • stacked prefixes (*poperepisyvat* ‘spend some time rewriting’)
  • suppletive pairs (*govorit*–*skazat* ‘say’)

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Aspect Study 1: prefixes & suffixes

- **Traditional hypothesis**
  - both p-partners and s-partners form aspectual pairs

- **Corollary**
  - p-partners and s-partners should behave the same

- **Isačenko hypothesis**
  - only s-partners form aspectual pairs

- **Corollary**
  - p-partners and s-partners should behave differently

The corollaries can be tested empirically
Aspect Study 1: prefixes & suffixes

• Databases of p–partners and s–partners
  • Based on Modern subcorpus (1950–2007; 92M words) of Russian National Corpus
  • Excludes all verbs with <100 attestations

• p–partners: 264 pairs, over 1.6M forms
  • Based on Exploring Emptiness database at UiT
  • Excludes verbs with multiple prefixes, biaspectual verbs, homonymy

• s–partners: 1,311 pairs, over 4.3M forms
  • Based on Zaliznjak 1980
Aspect Study 1: prefixes & suffixes

- Table 1: Imperfective vs. Perfective verbs

- **Statistically significant**: \( \chi^2 \) = 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)
Aspect Study 1: prefixes & suffixes

- Table 2: 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”**
- (0.1 = small, 0.3 = moderate, 0.5 = large)

- See Figure 1 on handout (p. 2)
Aspect Study 1: prefixes & suffixes

- No real difference between p-partners and s-partners
- No support for Isačenko hypothesis
- Since p-partners and s-partners behave the same, we merge data from both types in Study 2.
Aspect Study 2: TAM & outlier verbs

- Hypothesis for each TAM combination based on previous scholarship
- We look at outlier verbs for each combination of imperfective vs. perfective with imperative, non-past, infinitive, and past
- Outlier verbs are statistically deviant, strongly attracted to (or repulsed by) a given TAM combination
- We also sampled verbs from mid- and bottom-range
median

interquartile range

+ 1.5 times interquartile range

median

- 1.5 times interquartile range

outliers

interquartile range

outlier

Proportion of Imperfective NonPast
Imperfective imperative “be doing X!”

- Hypothesis:
  - In comparison with Perfective imperative, it denotes
    - categorical negation
    - politeness
    - insistence (rudeness)

✔ Hypothesis confirmed, but other findings too
Proportion of Imperfective Imper
Imperfective imperative

- Over 200 outliers
- 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’
Imperfective imperative

• Other findings
  • Polite requests: vyrůčajte ‘help’
  • Kind wishes: vyzdoravljajte ‘get well’
  • Conventional construction: davajte ‘let’s/let me’ (posmotrim ‘take a look’, pomogu ‘help’, rasskažu ‘tell’, pokazu ‘show’, sdelaju ‘do’)
  • Idiomatic/culturally anchored: proščaj(te) ‘farewell’, soedinjajtes’ ‘unite’ (slogan), obogoščajsa ‘be prosperous’ (NEP), zapevaj ‘sing’ (army), ne pominaj lijom/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
Perfective imperative

- Over 300 outliers
- Rude: otstan’ ‘leave me alone’, otpustis’ ‘let me go’, perestan’ ‘stop it’
- Instructions: (cooking) vskipjitite ‘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’
Perfective imperative

- Additional findings, cont’d.
- 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
Imperfective non–past

• 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 vlečet 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
Proportion of Perfective NonPast
Perfective non-past

- 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
Proportion of Imperfective Inf
Imperfective infinitive

• 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
Perfective infinitive

- 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.’
- Čtoby ‘in order to’ construction:
  - Posle zanjatija možno vypit’ vody, čtoby vospolnit’ ee poterju. ‘After working one can drink some water in order to make up for its loss.’
- Adverbs describing difficulty/importance
  - Fruktami istinnyj deficit kalija vospolnit’ očen’ tjaželo, praktičeski nevozmožno. ‘It is very difficult, practically impossible, to make up for 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
Imperfective past

- 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
Proportion of Perfective Past
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
Conclusions

• 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
Conclusions

• 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