Factual Imperfectives in Russian: A picture-selection task

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INTERMET Online Conference

29 May 2026

OVERVIEW

1. Theoretical Background
    1.1. Aspect
    1.2. Factual Imperfectives
2. The Present Study
    2.1. Methodology
        2.1.1. Participants
        2.1.2. Design
        2.1.3. Procedure
3. Results
4. Discussion

1. Theoretical Background

ASPECT

IMPERFECTIVE (IPFV)

- event as an in-progress activity
- process of the event is focused
- reference time included in the event time
  - $t \subseteq e$

PERFECTIVE (PFV)

- often associated with event completion or boundedness
- result of the event is focused
- runtime of event contained in reference time
  - $\tau(e) \subseteq t$

ASPECT

Russian verbs form aspectual pairs.
All verbs marked for aspect.

IPFV: (often) considered the unmarked form, and may not carry overt aspectual morphology

PFV: (often) derived from the unmarked form via prefixation (perfectivizing prefixes)

IPFV	PFV
1. čitat’	2. pro-čitat’
to read.IPFV	PFV-to read

FACTUAL IMPERFECTIVES

3. Zimnij Dvorec **stroil** Rastrelli.
   Winter.ACC palace.ACC built.IPFV Rastrelli.NOM
   ‘It was Rastrelli who built the Winter Palace.’
   (Glovinskaja, 1981)

GRØNN 2004

IPFV is underlyingly underspecified. It can be mapped to either a *true imperfective* or a *factual imperfective*.

Factual imperfectives have the same semantics as perfectives. They **entail event completion**.

Semantic entries:

$[[PFV]] = \lambda t.\lambda e.e \subseteq t$ $[[IPFV_{factual}]] = \lambda t.\lambda e.e \subseteq t$

Context and **word order** map IPFV to either a true imperfective or a factual imperfective.

2. The Present Study

PREDICTIONS

1. Preceding context establishing event completion (using PFV aspect) and non-canonical word order should assign the factual imperfective interpretation.

2. Once the factual imperfective interpretation is assigned, the semantics should be identical to perfectives. There should be no ambiguity with the process reading.

MOTIVATION FOR THE STUDY

Minor et al. (2022, 2023) successfully used images depicting an event in progress and a completed event to analyze prototypical uses of PFV and IPFV aspect in Russian.

These experiments used eye-tracking, but participants were also asked to select the picture that best fit a sentence. The click data suggested that participants select the picture that best fits the semantic meaning of each aspect.

A similar methodology should be able to be used to investigate factual imperfectives.

RESEARCH QUESTIONS

1. Do preceding context (in the imperfective or perfective) and word order (SVO or OVS) trigger factual imperfective interpretations? Are the descriptions provided in Grønn (2004) experimentally verifiable?

2. Is there any ambiguity in Russian factual imperfectives, or is their interpretation categorical?

2.1 Methodology

PARTICIPANTS

- Forty native Russian speakers
  - mean age = 34.15, age range = 18-77
- Participants were recruited in Moscow via snowball sampling
- The study was approved by the College of Staten Island Institutional Review Board (IRB) and conducted in accordance with the ethical principles of the Declaration of Helsinki

DESIGN

- 2x2 design
  - effect of the **preceding context** (PFV or IPFV)
  - **word order** of target sentence (OVS or SVO)
- 20 test scenarios
- A scenario consisted of two to three total sentences
  - one or two sentences made up the preceding context
  - while the final sentence of the scenario was the target sentence with IPFV verb, varied in word order

- Visual stimuli depicted
  - 1. the **process** part of an event, with the agent in the middle of an action
  - 2. the **result** part of an event, with an agent having completed an action
- Prompting question: '*Which picture (or pictures) best represent(s) the situation immediately after the context you have read?*'
  - designed to have participants adopt a **retrospective viewpoint** (Padučeva, 1996)

SAMPLE ITEM

SAMPLE PRECEDING CONTEXT

PERFECTIVE	IMPERFECTIVE
V XIII veke naš gorod byl okružen krepostnoj stenoj s pjat'ju dozornymi bašnjami. Odnu iz nix **soorudili** bliže vsego k reke.	V XIII veke naš gorod byl okružen krepostnoj stenoj s pjat'ju dozornymi bašnjami. Odnu iz nix **sooružali** bliže vsego k reke.
'In the 13th century, our city was surrounded by a fortified wall with five watchtowers. One of them was **erected.PFV** closest to the river.'	'In the 13th century, our city was surrounded by a fortified wall with five watchtowers. One of them was **erected.IPFV** closest to the river.'

SAMPLE TARGET SENTENCES

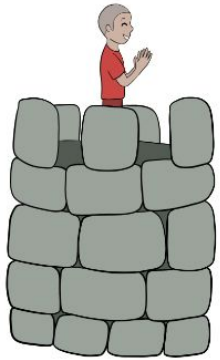
OVS

(4) Bašnju stroil Ivan.
tower.ACC build.IPFV.PST.M Ivan
'Ivan built the tower.'

SVO

(5) Ivan stroil bašnju.
Ivan build.IPFV.PST.M tower.ACC
'Ivan built the tower.'

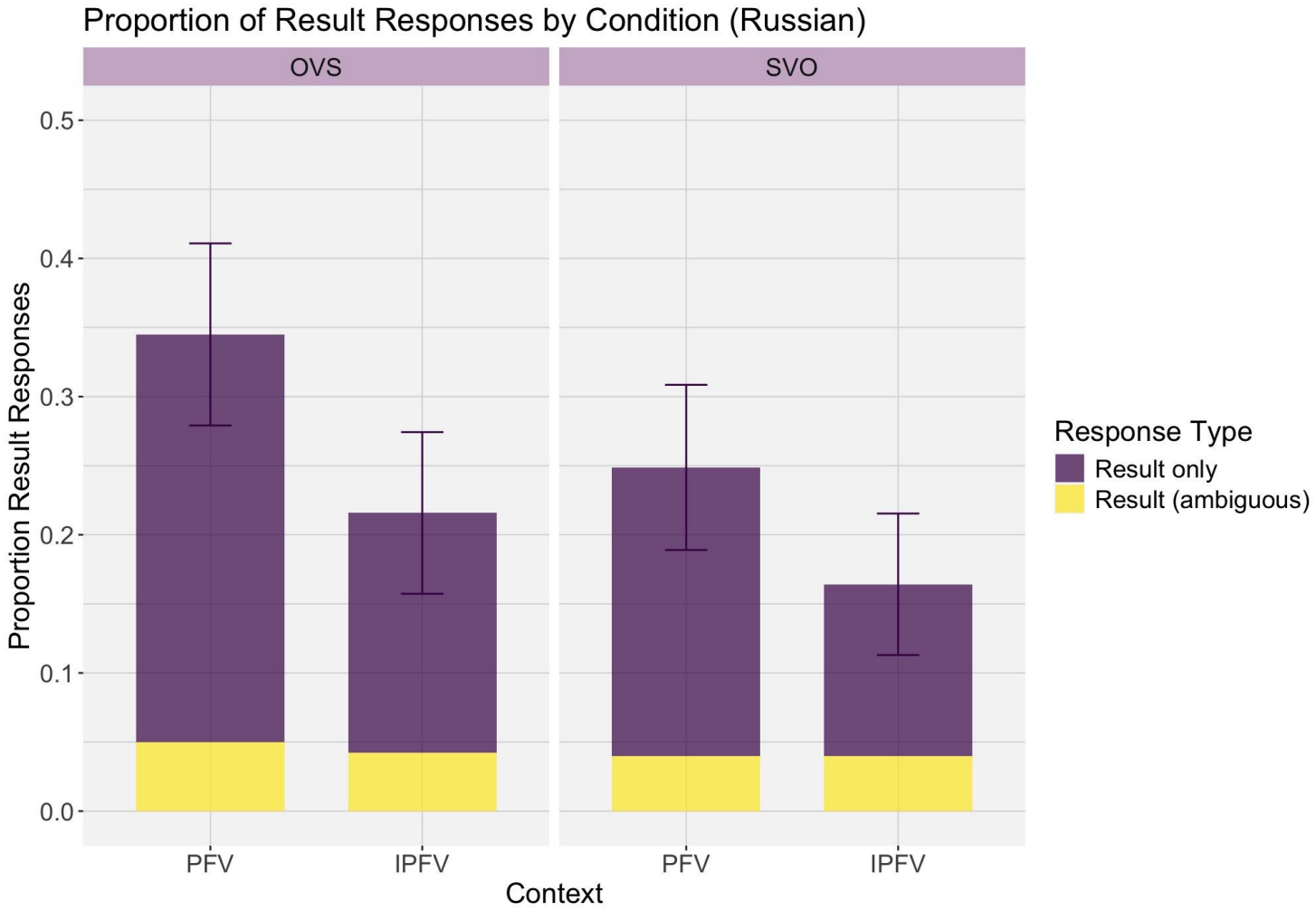
SAMPLE PICTURE RESPONSE CHOICES

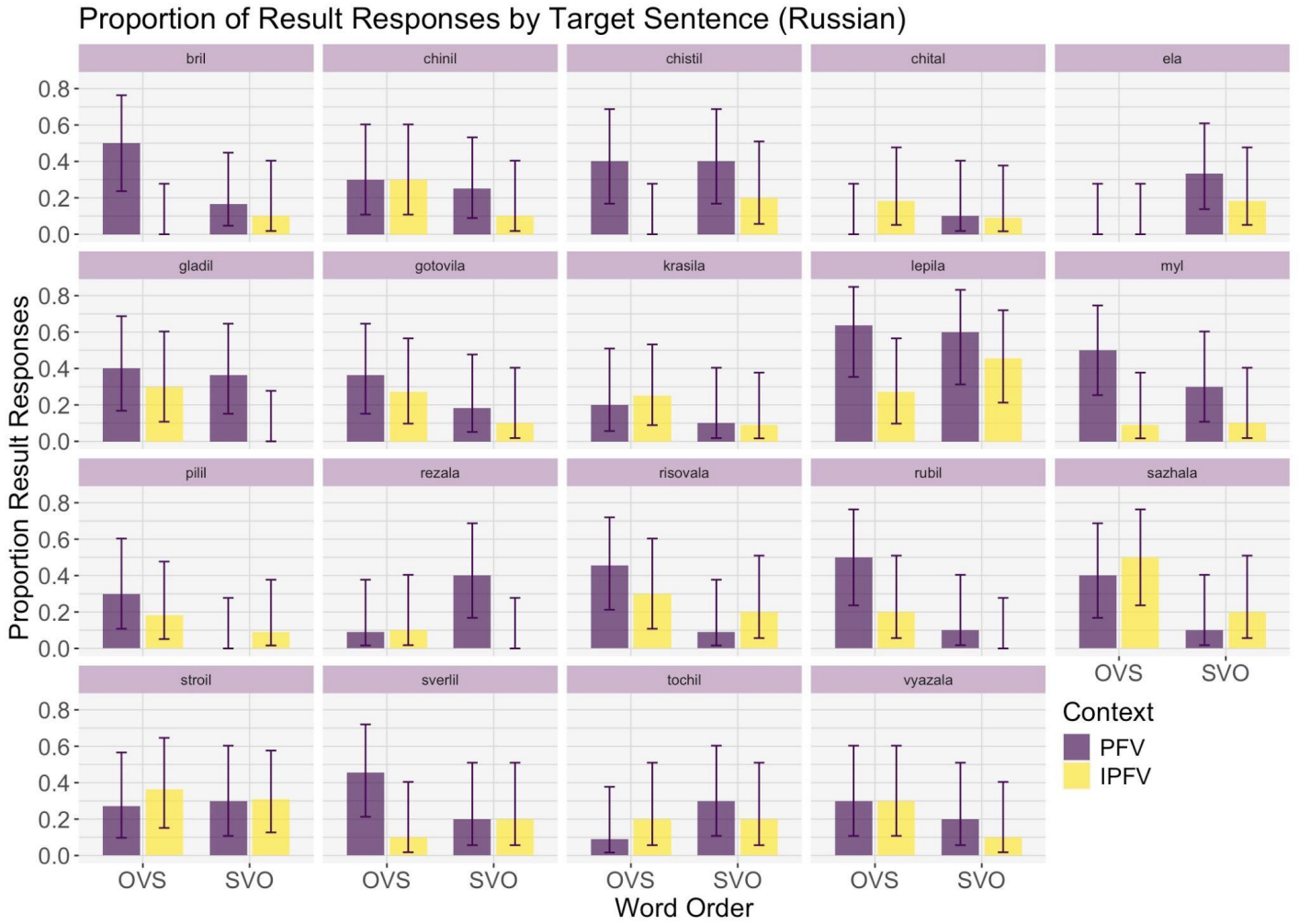
Process	Result
	

PROCEDURE

- The survey was designed in FindingFive and distributed via an online link
- Demographic questions verified an individual's status as a native Russian speaker
- There was one short training item for participants to familiarize themselves with the task
- Participants were randomly assigned to one of four lists
    - Within each list, items were pseudorandomized within 5 blocks to ensure no conditions appeared next to each other
    - Blocks presented in randomized order
- 40 total items; 20 test items and 20 fillers
- The survey took about 15 minutes

3. Results


Proportion of Result Responses by Condition (Russian)
OVS
SVO
0.5
0.4
0.3
0.2
0.1
0.0
Proportion Result Responses
PFV
IPFV
PFV
IPFV
Context
Response Type
Result only
Result (ambiguous)

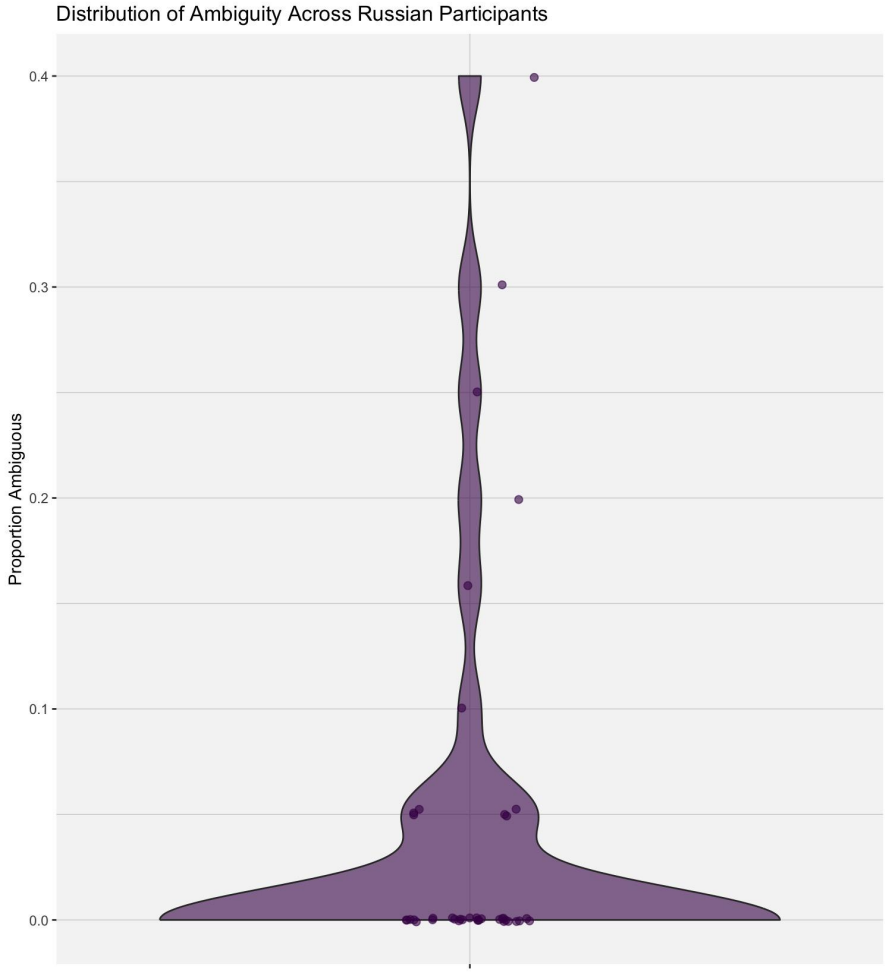

Proportion of Result Responses by Target Sentence (Russian)
bril
chinil
chistil
chital
ela
gladil
gotovila
krasila
lepila
myl
pilil
rezala
risovala
rubil
sazhala
stroil
sverlil
tochil
vyazala
Proportion Result Responses
0.0
0.2
0.4
0.6
0.8
OVS
SVO
Word Order
Context
PFV
IPFV

ANALYSIS OF RESULT RESPONSES

Sum-coded logistic mixed effects model:
word order: OVS = 1, SVO = -1; context: perfective = 1, imperfective = -1

*Table 1: Mixed-effects logistic regression: Russian result responses. OVS word order and perfective context both significantly increased result responses. N = 824 obs. *p<.05, **p<.01, ***p<.001.*

Predictor	**Est.**	**SE**	***z***	***p***
Intercept	−2.109	0.380	−5.556	< .001***
Word order	0.366	0.107	3.413	< .001***
Context	0.467	0.109	4.292	< .001***
Trial (scaled)	−0.266	0.108	−2.476	.013*
WO×Ctx	−0.004	0.106	−0.041	.967


Distribution of Ambiguity Across Russian Participants
Proportion Ambiguous
0.4
0.3
0.2
0.1
0.0

ANALYSIS OF AMBIGUITY

- 2 logistic regression models
  - one mixed-effects model that examined **ambiguity** as a **response** to **word order, context, and trial number** (centered and scaled), **with a random intercept for participant**
  - one fixed-effects model with **word order, context, and trial number** (centered and scaled) as predictors, but **without the random effect of participant**
- The model that included the random intercept for participant substantially outperformed the fixed effects model
  - ($\Delta AIC = 46.74$, $\chi^2(1) = 48.75$, $p < .001$)
  - ambiguous responses in Russian primarily driven by individual variation

4. Discussion

EVALUATING GRØNN 2004

- Both word order and context condition the factual imperfective interpretation in Russian
  - Non-canonical word order (OVS) increases factual imperfective interpretations
  - Preceding context in the perfective increases factual imperfective interpretations
- This theoretical account largely appears to work

CONSIDERING AMBIGUITY

- While many Russian speakers never allowed for a factual imperfective reading to be ambiguous with a true imperfective, half of participants allowed for ambiguity
- Additionally, there is between-speaker variation
    - Russian speakers do not agree on contexts where factual imperfective readings are assigned
- More variation exists with factual imperfectives in Russian than predicted

Acknowledgments

I am grateful to **Irina Sekerina** for constructing the contexts for this survey. I would also like to thank **Irina Sekerina**, **Valeriia Modina**, and **Yana Miroshnychenko** for their Russian judgments. Finally, I would like to acknowledge **the INTERMET program** for their courses and guidance; particularly the training with R.

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