

## Introduction

Russian verbs are marked for both **tense and aspect** → **temporal characteristics of a situation**

**Tense** --> **time reference = grammatical category, uses predominantly morphological inflection**

**inconsistency** between a temporal adverb and a following verb **regarding time reference** --> **LAN effect** (Baggio, 2008) + **P600 effect** (Baggio, 2008; Dragoy et al., 2012)

= detection of (morpho)syntactic anomalies and sentence reanalysis and repair processes (Coulson et al., 2008; Osterhout & Holcomb, 1992)

**Aspect** --> **internal temporal consistency of a situation, not a purely grammatical category**

It uses derivational morphology, i.e., **perfective and imperfective** counterparts of a verb --> **different lexical entries**

**Research goal:** investigate neurophysiological mechanisms of aspect processing in Russian

## Methods

### Participants

18 healthy right-handed Russian speakers aged 18–31 years (mean = 20 years; 10 females)

### Materials: balanced design

40 **congruent** sentences vs. 40 **incongruent** sentences --> **incongruency** between a temporal adverb and a following verb **regarding internal temporal characteristics** of a situation

40 sentences with perfective verbs + 40 sentences with their imperfective counterparts

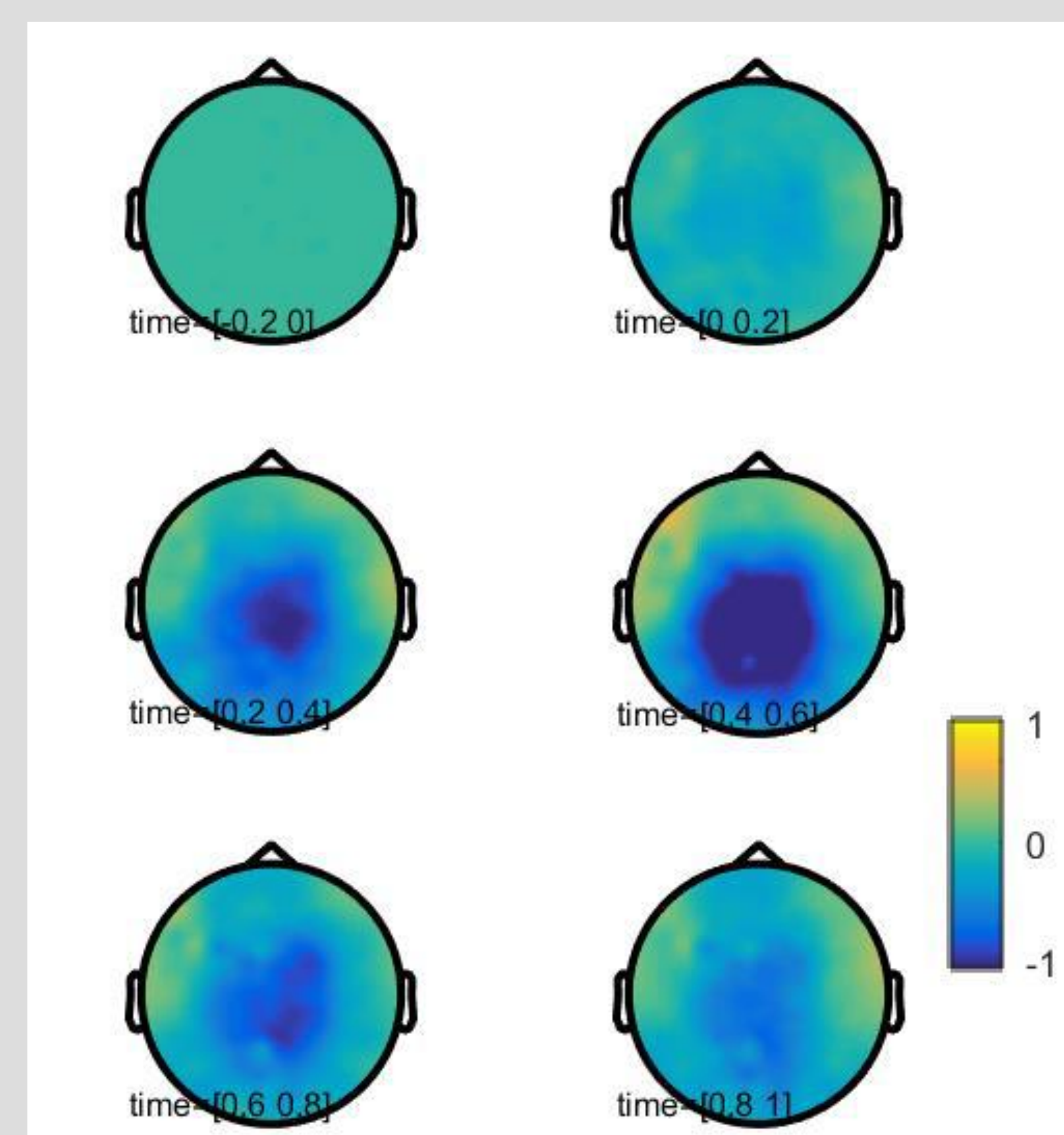
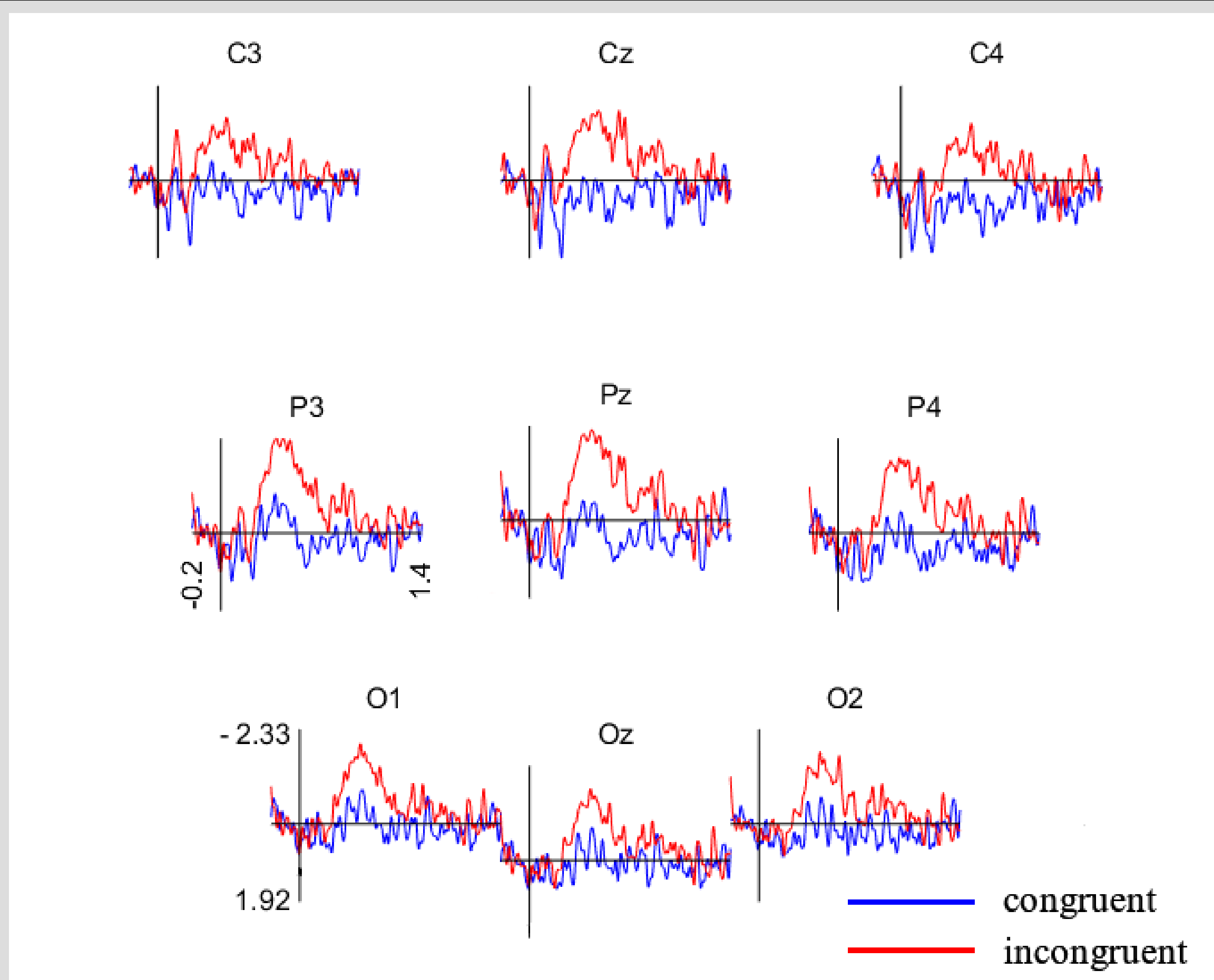
**Perfective verb:** Proshloy vesnoy **v odnu sekundu/\*minut dvadtsat'** uchenitsa **nachertila** kvadrat bez lineyki.  
*Last spring **in a second/\*about twenty minutes** the girl **drew** a square without a ruler.*

**Imperfective verb:** Proshlym letom **tri mesyatsa/\*v dva scheta** arhitektor **chertil** plan dlya zakazchika.  
*Last summer **three months long/\*in no time** the architect **was drawing** a plan for a client.*

### Procedure, EEG recording and analysis

- participants listened attentively to the sentences and judged the presence/absence of a word in the preceding sentence after 25% of stimuli
- 128 high-impedance active electrodes (Electro-Cap International Inc.)
- cluster-based permutation test with 1000 repetitions

## Results



a significant negative cluster for sentences with aspect incongruency as compared to their correct counterparts in the 300-600 ms time window ( $p < 0.05$ )

## Discussion

- in contrast to tense violations, the incongruency between verb aspect and preceding context **elicited an N400 effect** (a negative deflection significant in the 300-600 time window)
- it is **a marker of semantic processing** and integration (Kutas & Hillyard, 1980; Wicha et al., 2004)
- the results reflect the **lexical nature of verb aspect** in Russian: it confirms the approach according to which perfective and imperfective counterparts belong to different lexical entries