

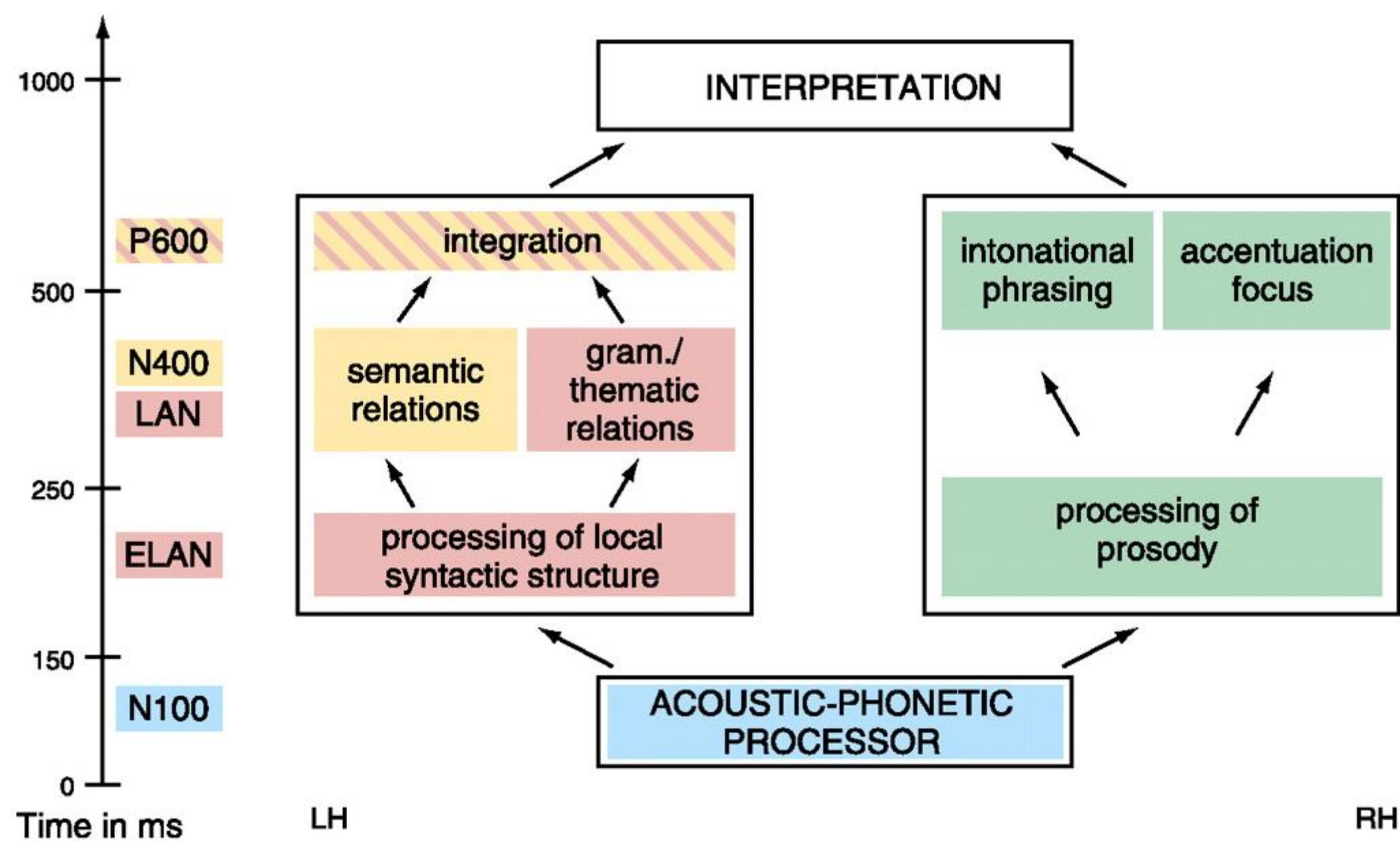
Semantic and syntactic processing in Russian sentences: an ERP study with balanced design

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INTRODUCTION

Three-phase model of language comprehension [Friederici, 2002]: early syntactic processing

Problem: ELAN effect may be an artifact [Steinhauer & Drury, 2012]

We use **symmetrical (balanced) design**, control for target and contextual differences

METHOD

- EEG recording:
 - 128 active electrodes
 - 10-20 system
 - imp. < 20k Ω
- Auditorial stimuli
- 24 participants (right-handed healthy L1-s)

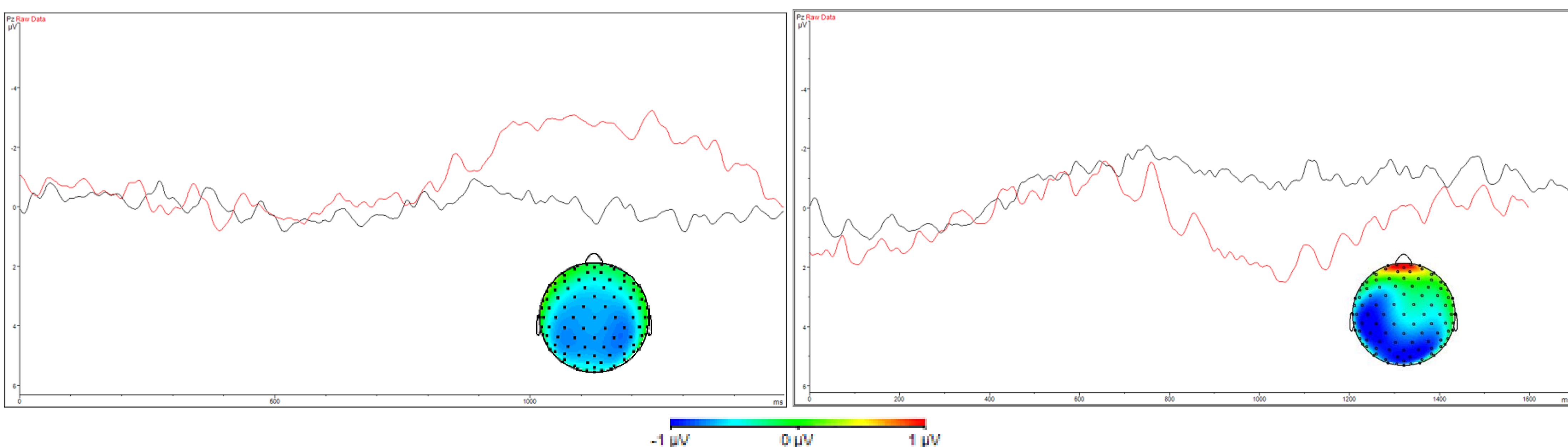
MATERIALS

- 2 sub-experiments: semantic and syntactic
- 40 quadruples (a-b, c-d) of Russian sentences in each part
- a. Аспирант провалил зачёт / *жилет по химии.
- b. Спасатель застегнул жилет / *зачёт на ребёнке.
- c. Крестьяне ведут заготовку / *заготовить грибов на зиму.
- d. Хозяин старается заготовить / *заготовку дрова до осени.
- Balanced experimental lists:** 2 lists, each list = 80 experimental sentences + 160 fillers, Latin square principle
- Task for maintaining attention after 1/3 of all sentences

RESULTS

Semantic incongruence: N400 effect

Syntactic violation: P600 effect, no ELAN



DISCUSSION

Semantic and syntactic processing in Russian is characterized by standard ERP markers (N400 and P600 effects), no early negativity (ELAN) was found for syntactic violations. Our results do not support the hypothesis about early syntactic processing.

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