



THE RUSSIAN OBJECT AND ACTION NAMING TEST

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1. BACKGROUND

- **Intraoperative speech mapping** with direct electrical stimulation of the brain during tumor resection has been shown to help maximize tumor resection, preserve brain functionality, and improve quality of life post-operatively [Duffau, 2014]
- Until recently, **a test of automatic speech** has been used to map speech in Russian-speaking patients with brain tumors
- It has been argued that the test of automatic speech does not reveal **the complexity** of the language functions [De Witte et al., 2015]

2. GOAL

- **To design a standardized Russian test (object and action naming) for intraoperative speech mapping in Russian-speaking patients with gliomas and for evaluation of language function pre- and post-operatively**

3. RESEARCH QUESTION

- **Do reorganization capacities (due to neuroplasticity) of frontal and temporal areas differ for object and action processing?**

4. PATIENTS

N= 18 patients

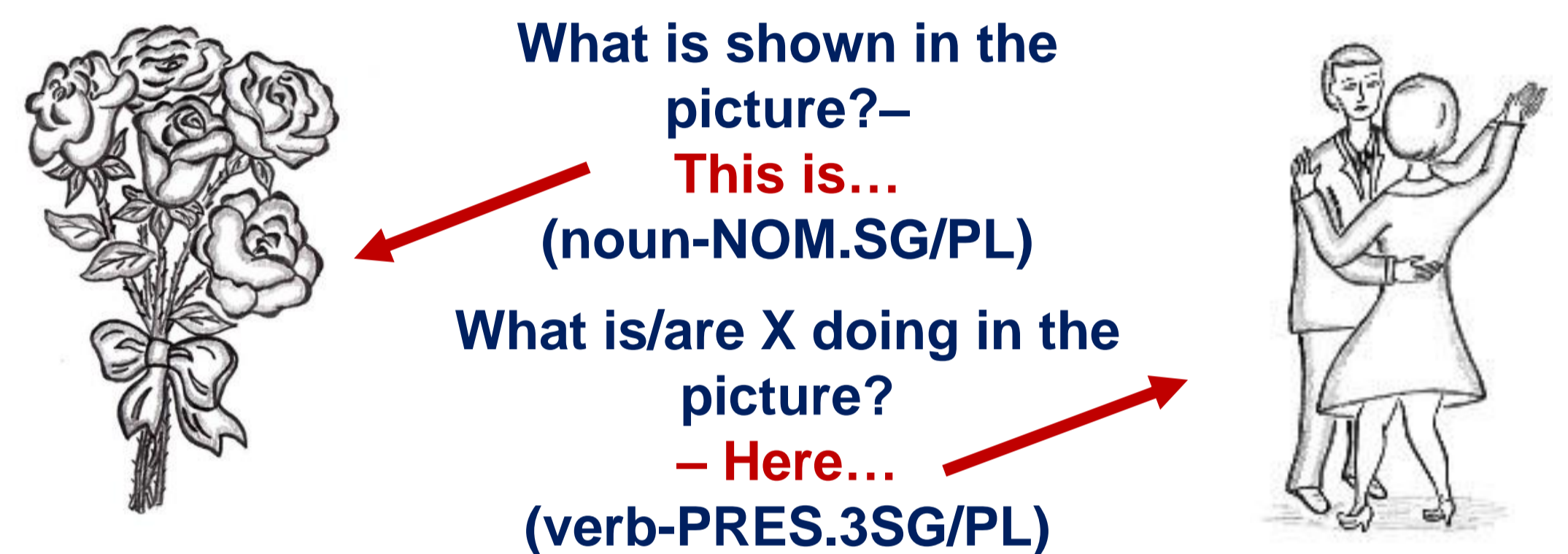
- native Russian
- right-handed
- tumor in the temporal (n=9) and frontal (n=9) lobe

5. METHOD AND MATERIALS

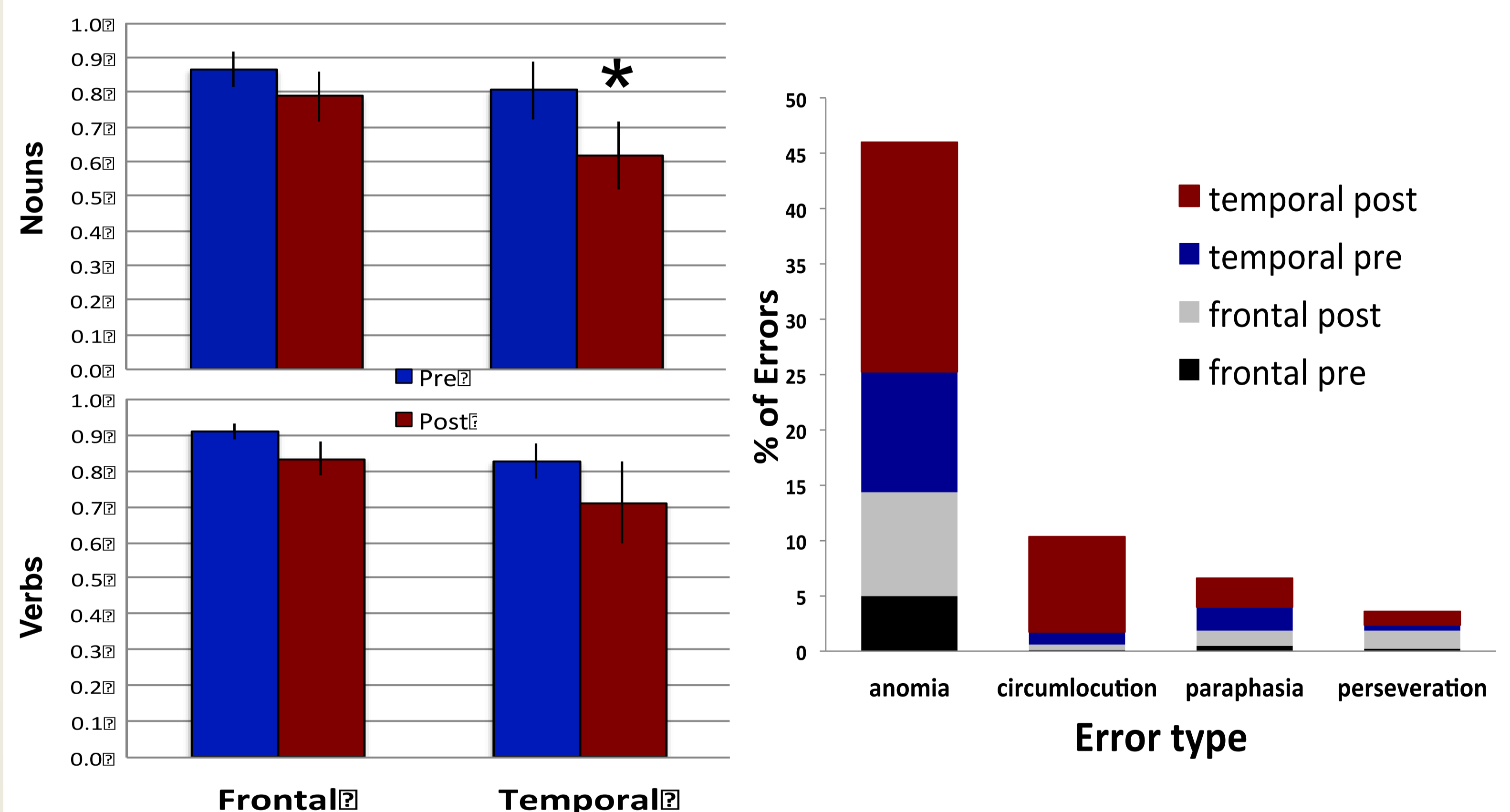
Russian Object and Action Naming Test (administered pre-, intra-, post-operatively)

- routinely used in DES language mapping;
- appropriate for tumor patients because word-finding difficulties are the most common linguistic symptoms;
- involves various cognitive sub-processes (object/action recognition, memory recall, lexical retrieval, phonological encoding, etc.)

Design: 50 object & 50 action b/w pictures; controlled for psycholinguistic parameters; display interval = 3s



6. RESULTS



7. SUMMARY AND CONCLUSIONS

- The present test is **the first naming test** developed for Russian-speaking patients with brain tumors that can be used intra-operatively during awake craniotomy
- The use of **the Russian object and action naming test** intraoperatively has allowed successful speech mapping of eloquent brain areas in 18 patients, and has enabled extensive resection of tumor in 14 out of 18 patients without subsequent severe language deficits
- The mere fact of glioma in the eloquent cortices—IFG and STG—does not cause a significant deterioration of naming → **effect of neuroplasticity**
- Post-op mean accuracy rate differs in the two groups of patients: ‘frontal’ patients do not show a sig. accuracy drop for either action or object naming, ‘temporal’ patients perform worse on both nouns (a sig. drop of 23%) and verbs (a drop of 14%) → **linguistic functions that are grounded in the temporal lobe are less reluctant to reorganization than those based in the frontal areas**