

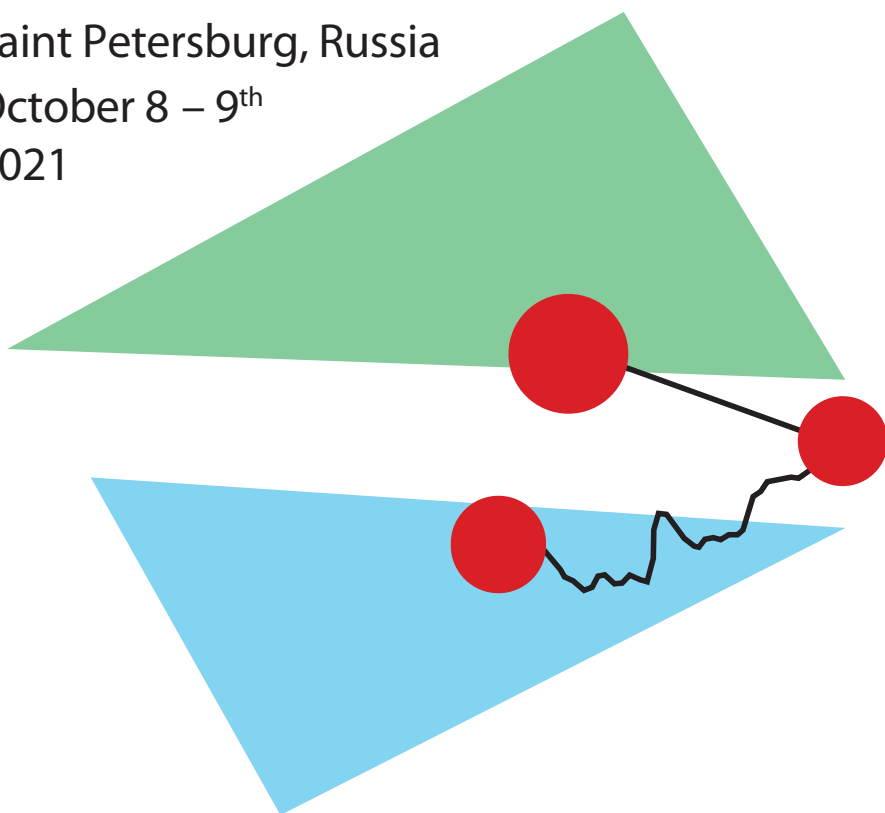
*Proceedings of the 5<sup>th</sup> International Conference on*

# **NEUROBIOLOGY OF SPEECH AND LANGUAGE**

Saint Petersburg, Russia

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Organised by the Laboratory of  
Behavioural Neurodynamics,  
Saint Petersburg State University

Government of the Russian Federation  
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evaluation by Russian participants within the psycholinguistic parameters of size, emotionality, location in space, manipulability, knowing and temperature), which include 200 verbs, 195 nouns, 194 adjectives. The databases were created at the Laboratory of Linguistic Anthropology TSU. Authors based on the theoretical foundations and methods of well-known psycholinguistic databases (Balota, 2002; Alexeeva et al., 2016; Miklashevsky, 2018).

We collected 133626 assessments. For all word classes, the significant correlations were found between emotionality and size (0.22 the more emotional the more size related word is (general) and 0.15 the more positive the bigger word is(particular)), emotionality and location in space (0.45 for the general and 0.38 for the particular). Among adjectives, words show the strongest correlations (between emotionality and location in space 0.6 for general and 0.53 for particular). We inspected how grammatical classes influence emotionality in words. Abstract nouns are better connected with emotionality than concrete ones ( $p = .001$ ). Qualitative adjectives are better connected with emotionality than relative ones ( $p = .00$ ). Intransitive verbs are better connected with emotionality than transitive ones ( $p = .001$ ).

The results of the study show that there is a correlation between emotionality, size, and position in space as well as there is a dependency on grammatical classes. The mutual influence of linguistic formalization and psycholinguistic assessments correlate with the hypothesis of linguistic relativity and the theory of embodied cognition.

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## **The influence of differences in grammatical categorization on the conceptualization of objects: Russian-French language interaction**

Categorization of the grammatical gender is associated with biological sex and is stated to be language-specific (Segel, Boroditsky, 2011; Vitevitch et al., 2013; Rezanova, Ershova, 2017; Maciuszek et al., 2019). Speakers of a

language with a category of gender endow feminine objects with “feminine” characteristics, and masculine objects with “masculine” characteristics. Previous studies in bilinguals demonstrated that the abstract grammatical properties of the native language affect the ability of gender attribution in the target language (Herschensohn, 2007).

The interaction between the three-gender system of the Russian language and the two-gender system of French is an insufficiently studied issue in the topic of the conceptualisation of objects. The aim of this study is to examine the influence of differences in the grammatical categorization of nouns on object perception of Russian-French bilinguals when assessing the similarity of images.

The experiment involved 11 Russian-French bilinguals ( $M = 22.45$ ;  $SD = 1.21$ ). All participants estimated their French proficiency level to be not less than B1 (intermediate). The linguistic base of the experiment consisted of preselected nouns, the gender of which either coincided or did not coincide in the studied languages. The participants’ task was to assess the similarity of two images presented on the screen on a scale from 1 to 7. Counterbalanced stimulus pairs were formed using an image of either a man or a woman, and an illustration of an object from the linguistic base.

For stimuli with the same gender in Russian and French languages, the coincidence of the gender of the object and the sex of the person in the image led to the significantly highest average estimates of the similarity of images ( $p < .001$ ). At the same time, depending on the case of the coincidence of the gender of a noun in two languages and the coincidence of the word gender and a person’s sex, the average estimates of the similarity differed significantly ( $p < .001$ ).

Thus, we observed that the grammatical category of gender, which differs in Russian and French, influences the perception of objects by bilinguals. The present preliminary data have proven the influence of grammatical gender on the conceptualization of objects. For our upcoming developments, we plan to add a control group of French native speakers to provide better control of the interaction of the analyzed influence with the factor of bilingualism.