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Interaction between event-related potentials as response to self- and other-referenced adjectives and subject's personality traits

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Event-related potentials (ERPs) represent different phases of external signal recognition. The aim of our research was to compare the responses to adjectives referenced to self and other among subjects who differ in their personalities. 42 Novosibirsk State University students, all healthy and right-handed, were invited as participants (mean age is 22.6 years). All of them replied to psychological questionnaires defining their personality traits. 90 words in Russian describing people's personalities were used. They were divided into 3 equal categories: emotionally neutral, positive and negative. Subjects were asked to consistently attribute each word to four people: self, loved one, unpleasant one and neutral one. EEG was recorded on a 128-channel Brain Products amplifier, Germany. Event-related potentials were chosen as a measure of brain activity in the condition of a task execution. We showed that P300 component reflects reference to one of four people. The largest amplitude was observed when subjects matched adjectives to an unpleasant person. N600 component reflects the emotionality of the word itself. The largest amplitude of this component was observed in response to emotionally positive words. The amplitudes of these components correlated with such personality characteristics as extraversion, agreeableness, and neuroticism measured by the Goldberg's questionnaire. In conclusion, ERPs reflect both semantic peculiarities of recognized words and subject's personality in self- and other-referenced adjectives recognition task. The study was supported by the Russian Science Foundation, grant 17-18-01019.

Biography

Mariya Kilina is an ungraduated student at the Humanitarian Institute of Novosibirsk State University. Alexander Savostyanov has completed his PhD at the age of 24 years from Institute of Physiology and Basic Medicine and Scientific Doctor Degree at the age of 31 years from Saint-Petersburg State University. He is the Full Professor at the Novosibirsk State University, and the head of laboratory of Psychological Genetics at the Institute of Cytology and Genetics of SB RAS, and the staff-leading scientist at the Institute of Physiology and Basic Medicine, Novosibirsk, Russia. He has published more than 50 papers in reputed journals.

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