

1. Research goal and research hypothesis

In research in the field of cognitive neuroscience, we can distinguish 3 debates about the nature of neuronal consciousness correlates (NCC). They concern the questions: are the neural correlates of consciousness global (involved in the processing of all types of content) or local (associated with processing in a given sensory cortex); is early or late neuronal activity associated with the formation of NCC; what is the way of the transition of our experiences from unconscious to conscious- is it graded or dichotomous?

However, science has not yet answered this questions. This project suggests that finding the answer to a question whether the NCCs are specific for a given modality or generalized for different modalities plays a key role in our understanding of perceptual awareness. **The goal of this project is therefore to provide knowledge about the neural correlates of auditory awareness, which can lead to the development of debates about the nature of subjective conscious experience in different modalities.**

2. Research methodology

This project will primarily use brain activity measurement using electroencephalography while performing computer tasks. Three experiments are planned to identify ERPs for the perceptual awareness of auditory stimuli. The first line of research aims to check whether early or late neuronal activation is associated with auditory awareness, auditory change detection task will be used. The second part will be aimed at verifying whether auditory NCCs are involved in the processing of all types of content, or are associated with processing in a given sensory cortex, in this case task-relevance methods will be used. The third line of this project is designed to check the way of transition of subjective experience from unconscious to conscious, tone detection task will be prepared. The perceptual awareness scale will be used during each task. **EEG data will be analysed in terms of event-related potentials which will make it possible to relate the results obtained to previous experiments' results.** More details on the methods of data analysis can be found in the summary and detailed description.

3. The importance of the project

Research within this project will provide new data on the neuronal mechanisms of auditory consciousness and consciousness in general. Importantly, they will provide new arguments in the debates about the nature of the NCC. The research methodology will allow to obtain more precise information on the conscious processing of auditory stimuli.

The novelty of this project lies in the plan for obtaining NCC auditory data that can be compared with results obtained in visual modality. **This will answer the question of whether the observed NCCs are so-called "true" neural correlates of consciousness, or are only observed in connection with the presentation of stimuli from a particular sensory modality.** Developing a discussion about the nature of conscious perception is a key challenge for understanding the subjective experience of man.