

Purpose of the visit

The aim of the visit was to meet the other proponents in order to define the last details of the protocol and to verify the general development of the project.

Work during the visit

Due to technical issues the method that will be used to temporally interfere with the cortical activity has been changed. The Transcranial Direct Current Stimulation (tDCS) will replace the TMS. tDCS modulates regional brain activity by altering the membrane potential of neurons. The effects of tDCS on a population of neurons are determined by the polarity of stimulation – anodal stimulation increases excitability and cathodal stimulation decreases excitability. The change of the transcranial technique does not affect the purpose of the study nor the main predictions; nevertheless, it required us to adapt the experimental design. For example, with the tDCS the brain is stimulated during the experimental session while the TMS has to be applied before the session. One subject can be stimulated with the tDCS for a maximum of 25 minutes and this constraint makes difficult to stimulate both the target region and the shame for each subject. Therefore, we decided to employ a between subject design in which the tDCS is applied alternatively on the target region or on the shame.

During the visit we also solved a couple of issues that have affected the script that will be employed to run the experiment. Moreover, we ran one pilot subject on the behavioral version of the test to verify the presence of further problems.

The next step of the project will be to test 10 subjects in the behavioral version of the study in order to verify if the translation in Hebrew of the stimuli provides the same results of the original version. We will also check the literature on the tDCS to verify if the between subject design is applicable to studies that use that technique.

The visit has been necessary to decide how to modify the design because the crucial competences are spread among the proponents of the project. Ira Noveck and Nicola Spotorno developed the study that is on the basis of the present project and they are more updated on the research on language processing. On the contrary, they have no experience with the transcranial techniques but this is a critical expertise of Simone Shamy-Tsoory.