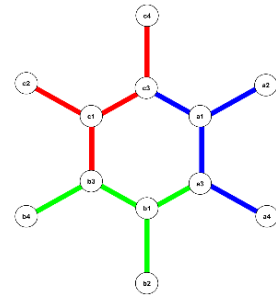




Student project in spatial cognition

The effect of sleep on categorical spatial knowledge



Background. Spatial navigation is a complex process that includes the integration of different sources of information and draws on different memory systems. Semantic structures form a superordinate pattern that is not defined at the level of distances and directions but rather arises from the semantic context of each location, e.g. a street pertaining to old-town, downtown, or the university campus. Research has shown that such semantic structures can bias spatial decisions. This is called “region-effect” (Wiener & Mallot, 2003).

Project. In this project, the effect of sleep on the abstraction and consolidation of implicit semantic structures from a simple virtual environment will be investigated. To this end, participants will have to do several way-finding tasks in 4 consecutive sessions. Sleep will be manipulated by the time of the 12h retention intervals. Participants will sleep over the night in the sleep condition and wake over the day in the wake condition. The influence of semantic structures will be assessed by looking at decision making during the way-finding tasks.

Methods. MatLab programming, statistical analysis.

Level. The project is currently planned as a BSc-project. It is a cooperation between the Institute for Cognitive Neurosciences and the Institute for Medical Psychology and Behavioral Neurobiology.

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References

Wiener, J.M. & Mallot H.A. (2003). ‘Fine-to-coarse’ route planning and navigation in regionalized environments. *Spatial Cognition and Computation*, 3(4), 331-358.

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