

The neural coding of numerical, spatial and sensory magnitudes in the human and non-human primate brain

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Extending classical observations from neuropsychology, the recent years have provided refined evidence from functional neuroimaging in humans and single unit recordings in non-human primates that numerical information is represented and processed by regions in the frontal and parietal lobes. In the parietal lobe, three nodes have been identified that constitute a numerical cognition network. Yet, both the detailed functional anatomy of these brain regions and the response properties of the neurons they house are still not well understood. The goal of this project is to clarify the respective contributions of different neural substrates to numerical competence. To that end several levels of analysis will be used with methods ranging from single cell recordings in awake behaving monkeys, over psychophysical and functional neuroimaging studies in healthy humans to neuropsychological and lesion imaging in patients with parietal lobe damage. The particular aim is to elucidate the behavioural and neural relations between the representations of numerical, spatial and sensory magnitude formats.

Projektbeteiligte

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