講演会のお知らせ

視覚認知研究の若手の気鋭の研究者お二人をお迎えし、講演会を開催いたします。講演者の Leber 博士は視覚的注意に関する多くの興味深い実験研究を展開してこられた方で、今回は、課題切り替えの成功・不成功を課題以前の fMRI 活動から予測するという話をしていただきます。Golomb 博士は Yale 大学の Marvin Chun の研究室で視覚認知の神経科学研究を進めている方で、今回はサッカードの直後には眼球運動と視覚的注意の間に乖離が生じているという話をされます。参加費は無料です。お気軽にご来聴ください。

日時：2007 年 10 月 24 日（水）　　午後 4 時 30 分―6 時 30 分
場所：京都大学大学院人間・環境学研究科棟３階３３３演習室
　　http://www.h.kyoto-u.ac.jp/access/

講演者：Andrew Leber 博士（New Hampshire 大学）
　　Julie Golomb 博士（Yale 大学）
講演のタイトルとアブストラクト
Talk 1. Predicting cognitive control from behavior and fMRI
　　Andrew Leber (University of New Hampshire)
アブストラクト: Goal-directed, or "top-down," control allows us to flexibly adjust how we process and respond to external stimuli in the world. Despite the ever-growing research focus on this area, much remains unknown about how control is implemented successfully. In an effort to begin filling this gap, my recent research has probed two general questions about control. First, what factors predict the choice of top-down strategy? Consider a fan at a baseball game trying to locate the ball; he can either search for, say, white things or fast moving things. Which strategy will he choose? A series of experiments designed to ask this question shows that learning from past experience plays a fundamental role. Such learning persists for at least 1 week and survives the changing of low-level stimulus features used in our displays, suggesting that the learning is high-level in nature. The second general question relates to control success, and it is one that bears considerable practical relevance to our increasingly multitask-filled lives: when we need to switch from one strategy to another, what determines how successful we will be? Further, does our degree of success fluctuate over time? Here, I describe a neuroimaging analysis technique (using fMRI) that my colleagues and I have used to identify distinct brain regions involved in task

switching success. Specifically, by measuring neural activity before each trial begins, we have been able to predict observers' task switching success from moment to moment. Predictive regions include the basal ganglia as well as lateral prefrontal, anterior cingulate, and parietal cortices. In my concluding remarks, I will discuss the implications of these results and talk about future directions in my work.

Talk 2. Spatial attention remains in retinotopic coordinates immediately following saccadic eye movements

Julie Golomb (Yale University)

アブストラクト：During everyday natural behavior, we cannot process every detail in our visual environment. Attention and eye movements are two mechanisms that can select and enhance processing of the most relevant inputs. Attention and eye movements are often tightly coupled, but what if we attend to one location, while moving our eyes to other parts of a scene? Our image of the world shifts on the retina with each eye movement. What, then, happens to our internal representation of the attended location? I will present data from a novel behavioral paradigm designed to measure how a locus of sustained spatial attention is represented at various times following a saccadic eye movement. Immediately following an eye movement, spatial attention is maintained in retinotopic coordinates (relative to the eye), even though there is no behavioral advantage associated with facilitation at this location. This residual retinotopic facilitation is robust but transient, decaying over the first 100-200ms following the saccade. If behavioral relevance is attributed to the retinotopic coordinates, however, attentional facilitation at this location can persist for much longer. Thus, despite previous evidence to the contrary, attention can be dissociated from oculomotor planning and maintained across multiple saccades, primarily in retinotopic coordinates.

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