

Development of consciousness symposium

Date: 17:00 - 19:10, Nov 30th (JST)

Language: English

Schedule:

17:00-17:05 Introduction

17:05-17:35 Talk 1: Dr. Yumiko Yoshimura, "Roles of visual experience in maturation of neural responses in rat visual cortex"

17:35-18:05 Talk 2: Dr. Yusuke Nakashima, "Absence of visual backward masking in early infancy"

18:05-18:35 Talk 3: Dr. Louise Goupil, "Core and situated metacognition."

18:35-19:05 Talk 4: Dr. Yusuke Moriguchi, "Representing an invisible agent during early childhood."

19:05-19:10 Closing

Talk1: Roles of visual experience in maturation of neural responses in rat visual cortex

Yumiko Yoshimura (National Institute for Physiological Sciences)

Early visual experience is crucial for maturation of visual perception. However, in the primary visual cortex of non-human primates and rodents, visual response selectivity of individual neurons is established by the time postnatal visual experiences commence. Thus, visual experience may play an essential role in developing neural functions other than selectivity. In this presentation, I will introduce the effect of early visual experience on maturation of synchronized firing of adjacent neurons in rat primary visual cortex. I would like to discuss the mechanisms for linking neuronal responses in the primary visual cortex to visual perception with consciousness.

Talk 2: Absence of visual backward masking in early infancy

Yusuke Nakashima (Chuo University)

Visual backward masking is a phenomenon in which a visual stimulus is rendered invisible by a following mask, possibly because of the disruption of recurrent processing in the visual cortex. I will present our study on the development of recurrent processing in infants using object substitution masking, a type of backward masking. We found that masking does not occur in infants under 7 months of age and that they can perceive stimuli that older infants cannot because of masking. I will discuss drastic developmental changes in the mechanisms of visual perception during the second half of the first year.

Talk 3: Core and situated metacognition.

Louise Goupil (University of East London)

My talk will start from two observations: 1) children younger than 4 typically provide inaccurate metacognitive judgments when prompted to do so verbally; 2) starting around 1 year of age, young children already deploy core metacognitive competences when they perform simple tasks. I will present a model that attempts to explain how children progress from these core abilities to sophisticated forms of metacognition allowing them to communicate metarepresentations to others through language. This involves at least five developmental processes whereby children learn to use core metacognitive signals as a function of their situation within a specific environment and socio-cultural setting.

Talk 4: Representing an invisible agent during early childhood

Yusuke Moriguchi (Kyoto University)

Young children often verbally report that they enjoy interacting, playing, and talking with an invisible agent or imaginary companion. We assume that this phenomenon may reflect children's unique subjective experiences. However, little is unknown about how children represent an invisible agent. In this talk, I introduce research that examines 1) whether young children's representations of an invisible agent is similar to those of a real human and 2) whether young children have realistic perceptual—rather than conceptual—experiences of an invisible agent.