International Symposium on Neurocognitive Architecture for Human Language

Date/Time

September 16 (Friday) 2022 13:30-17:00

Venue

Meeting Room #2, Building 55N, Nishi-Waseda Campus, Waseda University

Participation

Free to perticipate
Please fill in the form from the link below for advance registration.
We will send you the zoom link for participation to your mailing address by September 15.
Rregistration Page(GoogleForm)

Organizers

Waseda University Interdisciplinary Fusion Brain Science Institute
Center for English Language Education in the Faculty of Science and Engineering, Waseda University
Mental Architecture for Processing and Learning of Language (MAPLL) 2022 Organization Committee

Support

This event is sponsored by:
JSPS Grant-in-Aid for Challenging Exploratory Research (#18K18515: PI Hiromu SAKAI)
JSPS Core-to-Core Program A - Advanced Research Networks
"International Research Network for the Human Language Faculty"
(#JPJSCCAJ221702004: PI Yoichi MIYAMOTO)
JSPS grant-in-aid for Specially Promoted Research (JP20H05617: PI Reiko MAZUKA)
Sumitomo Heavy Industries Ltd.

Schedule

13:30-13:40
Opening Remarks and Introduction to Waseda University Interdisciplinary Fusion Brain Science Institute TBA

13:40-14:10
Neural Decoding of Human Language Processing using MEG
Hiromu Sakai (Waseda University)

14:10-14:50
The retrieval of hierarchical information in mental representations of action and its segregation from language
Giorgio Papitto (Max Planck Institute for Human Cognitive & Brain Sciences Leipzig)

14:50-15:30
How supramodal is the language network? The view from sign language
Patrick Trettenbrein (Max Planck Institute for Human Cognitive & Brain Sciences Leipzig)

15:30-16:00 Coffee Break (Sponsored by Sumitomo Heavy Industries Ltd.)

16:00-17:00 Plenary Talk
Neural, behavioural, and evolutionary aspects of the combinatorial linguistic brain
Emiliano Zaccarella (Max Planck Institute for Human Cognitive & Brain Sciences Leipzig)

Abstract

Neural Decoding of Human Language Processing using MEG
Presenter: Hiromu Sakai (Waseda University)

It is said that the basis of cognitive abilities characteristic of humans, such as language, reasoning, and judgment, lies in the use of symbols (defined as "a combination of form and meaning" following the tradition in linguistics). This presentation reports a part of the project investigating when, where, and how symbols, i.e., the dynamic connection between speech and meaning, are established in the course of human language processing using the neural decoding of MEG signals.

The retrieval of hierarchical information in mental representations of action and its s from language
Presenter: Giorgio Papitto (Max Planck Institute for Human Cognitive & Brain Scienc

Action and language have been proposed to rely on similar hierarchical principles of structural complexity. The assumed similarities across these domains have usually been inferred either from formal comparisons between the abstract structures of language and action or from the observation that both recruit partially overlapping neural resources, especially in the inferior frontal cortex. Recent work has called these assumptions into doubt, both on formal and neuroanatomical grounds (Papitto et al., 2020; Zaccarella et al., 2021). In this talk, I will discuss the similarities and differences between language and action, mainly focusing on their differential involvement of the frontal cortex.

How supramodal is the language network? The view from sign language
Presenter: Patrick Trettenbrein (Max Planck Institute for Human Cognitive & Brain Leipzig)

One of the major insights of modern linguistics has been that the human capacity for language is not bound to speech but may also be externalized and perceived in the visuo-spatial modality of sign language. Neuroimaging evidence indicates that signed, spoken and, written language is processed in a partially overlapping primarily left-hemispheric fronto-temporal network (Trettenbrein et al., 2021, Human Brain Mapping). Against this background, this talk will review to what extent and on what grounds anatomical and functional components of the language network can or should reasonably be considered supramodal.

Neural, behavioural, and evolutionary aspects of the combinatorial linguistic b

Presenter: Emiliano Zaccarella (Max Planck Institute for Human Cognitive & Brain S Leipzig)

A distinctive feature of the human species is the ability to share complex states of affairs by combining words into structures. Central questions concern the nature of the combinatorial linguistic brain and how this is reflected in development and evolution. In this talk, I discuss behavioural and functional findings regarding automaticity, driving features, network connectivity, causality, modality independence and domain specificity of this capacity. I then examine the emergence of combinatorial processing in children and the primitive mechanisms non-human primates (captive chimpanzees) use when combining calls into sequences. I conclude with a working hypothesis on combinatorial linguistic specificity in humans.