

Language and the brain – lecture series (16910)

by Pia Knoeferle and Friedemann Pulvermüller

Berlin School of Mind and Brain

Time: Monday 12:30-2:00pm; start: 24 April 2016

Venue: Lecture Hall of the Bernstein Center for Computational Neuroscience, Philippstraße 12, Haus 6, 10115 Berlin

Dates and Time: Monday 12:15-13:45; start: 24 April 2017

Venue: Lecture Hall of the Bernstein Centers for Computational Neuroscience, Philippstraße 13, Haus 6, 10115 Berlin; note that this is at the Berlin School of Mind and Brain, Humboldt University

Language has been investigated from a range of perspectives. Linguists have described it as a formal system focusing on levels that range from phonology to syntax, semantics and pragmatics. Both linguists and psychologists worked on models focusing on the time course of linguistic processing in production and understanding, so that these psycholinguistic models could be tested in behavioral experiments. Most recently, neuro- and cognitive scientists attempt at spelling out the brain mechanisms of language in terms of neuronal structure and function. These efforts are founded in neuroscience data about the brain loci that activate when specific linguistic operations occur, the time course of their activation and the effects of their specific lesion. The lecture series will provide a broad introduction into these linguistic, psycholinguistic and neurolinguistics research streams and highlight a range of cutting edge behavioral and neuroscience findings addressing a broad range of linguistic issues, including, for example, the recognition of words, the parsing of sentences, and the computation of the meaning and communicative function of utterances. Language development and language disorders caused by disease of the brain will also be in the focus. The experimental approaches under discussion will range from behavioral (reaction time studies, eye tracking) to neuroimaging methods (EEG, MEG, fMRI, NIRS) and neuropsychological ones (patient studies, TMS, tDCS). A discussion of major theoretical approaches to language in the human mind and brain will round up the lectures.

Complementing the lecture series, a tutorial will be offered by Ms Tally McCormick-Miller, an advanced PhD student at the Berlin School of Mind and Brain. The tutorial will deepen the lecture contents, in part by discussing specific relevant articles with theoretical and experimental focus. In doing so, it will highlight findings about aspects of language-related behavior and brain imaging results on the background of theory-driven hypothesis and brain language models. Together with the lectures, the tutorial will familiarize students with current research questions in the field of language and the brain and with current ongoing research addressing these questions.

This lecture series is open to students at the Berlin School of Mind and Brain as well as for students of linguistics at both HU and FU Berlin.

Readings (for preparation):

Pulvermüller, F., & Fadiga, L. 2016. Brain Language Mechanisms Built on Action and Perception. In G. Hickok & S. Small (Eds.), *Handbook of Neurobiology of Language*, Elsevier, Amsterdam, pp 311-324. doi: 10.1016/B978-0-12-407794-2.00026-2

Knoeferle, P. & Guerra, E. 2016. Visually situated language comprehension. *Language and Linguistics Compass*, 10, 66-82.

Lecture Series "Language and the Brain"

Berlin School of Mind and Brain, Summer Term 2017

Lecturers: Pia Knoeferle (PK) & Friedemann Pulvermüller (FP)

01.	PK	Intro Ling: From Sounds to Communication	24.4.
02.	FP	Intro Neuro: From Brain Structure to Function	8.5.
03.	PK?	Neuro-/Psycholinguistic Methods	15.5.
04.	FP	Phonetics and phonology	22.5.
05.	PK	Word Structure and Word Recognition	29.5.
06.	FP	Lexical and Semantic Word Categories	12.6.
07?.	PK	Semantic interpretation	
##.	FP	Neurobiology of Storage vs. Combination	
07?.	PK	Syntactic structure and Sentence Processing	19.6.
08.	FP?	Speech Acts and Grice's approach	26.6.
09.	PK	Language Acquisition	3.7.
10.	FP	Language Breakdown and Therapy	10.7.
11.	FP/PK	Final exam	17.7.