

Prof Dr Dr Friedemann Pulvermüller
Freie Universität Berlin
SS 2014
Progress in Brain Language Research
Tue, 2-4pm ct, JK 31/122

Graduate Course/Seminar *Progress in Brain Language Research*

Introduction

This colloquium will focus on recent advances in the investigation of brain mechanisms of language. It is designed for students and young researchers of all scientific backgrounds who are interested in an explanation of how the brain controls speech production, realises language comprehension and connects linguistic symbols with meaning and human interaction. The field of neurolinguistics will be broadly covered, with possible foci on phonological, lexical, syntactic, semantic and pragmatic questions. Further topics will be neurological language deficits, the neuroplastic changes following lesion of language relevant areas of the brain and the learning and relearning of language both in an experimental/language teaching context and in neurorehabilitation. A focus will be on explicit explanatory models of language mechanisms in the human brain.

The colloquium will cover cutting edge publications in the brain language domain and current research projects, including those currently underway at the Brain Language Laboratory of the Freie Universität Berlin. Ideal participants will aim at a BA, MA or PhD in the brain language sciences and may come from linguistics, psychology, neuroscience, or medicine. Participants may *review a recent research publication* or will be given an opportunity to *present their own research plan* or ongoing research project. In addition, *presentations of guest scientists* will be part of this course.

Recommended readings

Kiefer, M., & Pulvermüller, F. (2012). Conceptual representations in mind and brain: Theoretical developments, current evidence and future directions. *Cortex*, 48(7), 805-825. doi: 10.1016/j.cortex.2011.04.006

Pulvermüller, F. (2013). How neurons make meaning: Brain mechanisms for embodied and abstract-symbolic semantics. *Trends Cognit Sci*, 17(9), 458-470. doi: 10.1016/j.tics.2013.06.004

Technicalities

The course is part of the teaching offered by the Cluster of Excellence *Languages of Emotion*. It is open to interested students from all departments. It will be offered by Friedemann Pulvermüller together with Guglielmo Lucchese, MD under the admin support of Sabina Mollenhauer, MA.

To obtain a certificate of attendance, it is necessary to

- attend most of the sessions (maximum misses: three),

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- pre- and reprocess the session content by reading the recommended key papers, and
- present a key paper in current brain language research or, alternatively, a detailed research plan or report of own research.

Presentations should last about 30' and be supported by a powerpoint presentation and handouts to participants. If you are interested in presenting, please discuss your plan with FP directly (preferably during office hours, Wednesdays, 12-1pm, room JK 31/232).

To register for the course, please put your name down on the signup sheet provided at the first session. We will be happy to discuss any questions you may have regarding this course, be it about formalities, your presentation or wider research interests. Please contact one of us:

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Friedemann Pulvermüller

Office: Raum JK 31/232
Sprechstunde: Mi 12-13 Uhr

More Info and updates at:

http://www.geisteswissenschaften.fu-berlin.de/v/brainlang/teaching/WS1314/WS13_14/Progress_in_Brain_Language_Research.html

and

<http://www.geisteswissenschaften.fu-berlin.de/v/brainlang/Talks>

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Dates and Topics

08.04. (4-6pm ct , ROOM JK 28/130)

Toshimune Kambara. JSPS, Keio University

Neural Changes for Association between Single Word Forms and Multiple Referents.

Markus Ostarek, University College London

Embodied semantics and a multimodal approach to language processing.

Bora Meraj, University of Oxford

Delusions of alien control and language disturbance in schizophrenia.

15.04.

Opening session

Introduction, Seminar planning

Paper discussion led by Dr. Cora Kim on:

Bird, C. M., Berens, S. C., Horner, A. J., & Franklin, A. (2014).

Categorical encoding of color in the brain.

Proceedings of the National Academy of Sciences of the United States of America.

doi:10.1073/pnas.1315275111

29.04.

Conference planning

Tally Miller, Verena Büscher et al., Brain Language Lab, FU Berlin

NBL, Lange Nacht, Institutestag

Invited Talk:

Dr. Rachel Moseley, Autism Research Centre, Cambridge University

Testing theories of autism through brain categorisation of sounds and language

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12.05. **Guest Lecture (6-8pm ct, ROOM JK 28/130):**

Prof. Dr. Detlef H. Heck. Dept. of Anatomy and Neurobiology, University of Tennessee Health Science Center, Memphis, TN

Breathing controls brain activity: Neocortical oscillations phase-locked to respiration

13.05. **Paper discussion**

Sergio Quiroz, Berlin School of Mind and Brain

Wilson-Mendenhall, C. D., W. Kyle Simmons, A. Martin, and L.W. Barsalou (2013) **Contextual processing of Abstract Concepts Reveals Neural Representation of Nonlinguistic Semantic Content** J Cogn Neurosci. 2013 Jun;25(6):920-35

Dr. Max Garagnani, Brain Language Lab, FU Berlin

Tecumseh Fitch, W. **Toward a Computational Framework for Cognitive Biology: Unifying approaches from cognitive neuroscience and comparative cognition.** Phys Life Rev. In press

20.05. **Research talk**

Dr. Guglielmo Lucchese, Brain and Language Lab, FU Berlin

Syntax and Semantics in healthy and aphasic brains: an EEG investigation.

27.05. **Guest Lecture (6-8pm ct, ROOM JK 29/118):**

Prof. Dr. Erich Schröger Institute of Psychology, University of Leipzig.

Attention and Prediction in Audition

03.06. **Research talk**

Malte Schomers, Brain Language Lab, FU Berlin

Network connectivity structure and its functional effects

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10.06. **Research talk**

Felix Dreyer, Brain Language Lab, FU Berlin

Semantic word category processing investigated with TMS

16.06. **4pm ct, Grad School of Mind and Brain, Humboldt Universität, Luisenstr. 56, Raum 144**

Prof. Dr. Dr .Friedemann Pulvermüller, Brain Language Lab, FU Berlin

Brain connections of language and action / Verbindungen der Sprach- und Handlungsmechanismen im menschlichen Gehirn

24.06. **Research talk**

Dr. Luigi Grisoni, Brain Language Lab, FU Berlin

The sounds of meaning – from English to Italian

01.07. **Research talk**

Dr. Jeff Hanna, Brain Language Lab, FU Berlin

TBA

Dr. Cora Kim, Brain Language Lab, FU Berlin

Evidence for constructional meaning

02.07. **Guest Talk**

Dr Henny Yeung, CNRS (Laboratoire Psychologie de la Perception), Université Paris Descartes

How learning to talk can influence (audiovisual) speech perception in infancy.

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08.07 Recommended talk in the context of the Potsdam Embodied Cognition Colloquium (Campus Golm, House 14, Room 0.45, 14h):

Prof Maurizio Gentilucci

On gestures and spoken word

more details under:

http://www.psych.uni-potsdam.de/cogsciences/files/FoKo_SoSe14.pdf

15.07

Vorträge zu entstehenden DAF MA Arbeiten (in German OR English)

Fang Xiu

Derivational affixation in second language learners (preliminary title)

Anett Hoffmann

Factors influencing success in second language acquisition (preliminary title)

Closing session

Discussion, Seminar evaluation, Future planning

Recent papers for discussion:

1. Bedny M, Caramazza A, Pascual-Leone A, Saxe R. 2012. Typical neural representations of action verbs develop without vision. *Cereb Cortex*. 22:286-293.
2. Hickok G. 2012. Computational neuroanatomy of speech production. *Nature reviews Neuroscience*. 13:135-145.
3. Hickok G, Houde J, Rong F. 2011. Sensorimotor integration in speech processing: computational basis and neural organization. *Neuron*. 69:407-422.
4. Pickering, M. J., & Garrod, S. (2013). An integrated theory of language production and comprehension. [Research Support, Non-U.S. Gov't]. *Behav Brain Sci*, 36(4), 329-347. doi: 10.1017/S0140525X12001495
5. Yeung, H. H., & Werker, J. F. (2013). Lip Movements Affect Infants' Audiovisual Speech Perception. *Psychological Science*, in press.