

Colloquium/Seminar

## **Progress in Brain Language Research**

Friedemann Pulvermüller

2 SWS, Seminar/Colloquium, WS 2021

Zeit/Time: Mi/Wed 16-18 h (start: 16:15h)

Ort/Location: FU Berlin, room JK 31/102 (Habelschwerdter Allee 45)

On Webex: <https://fu-berlin.webex.com/fu-berlin-en/j.php?MTID=m0de0adddc97332de28f1f1f273f5225f>

### **Colloquium/Seminar *Progress in Brain Language Research***

This research seminar focuses on reviewing and discussing recent progress in the cognitive neuroscience of language and in the field of semantics/pragmatics. The seminar has four main strands:

1. BA and MA candidates working in the field of semantics, pragmatics or brain language research will present their work plans and first results,
2. Researchers at the FU Berlin's Brain Language Laboratory will present their ongoing work and explain their recent findings and publications,
3. Recently published research articles in the domain of semantics, pragmatics and brain language research will be reviewed by the participants to highlight the latest progress in the field,
4. National and international invited speakers will present their research in the fields of semantics, pragmatics and the neurobiology of language.

Several sessions of the upcoming seminar will focus on a new major research project, the just starting ERC Advanced Grant *Material Constraints Enabling Human Cognition (MatCo)*, where we are trying to specify the mechanistic neurobiological basis of human language. Ongoing research from a range of other current research endeavors will also be featured, including the project *Symbolic Materials* of the Cluster-of-Excellence *Matters of Activity*, the EU's International Training Network *Conversational Brains (CoBra)*, the French-German research initiative on *Phonological Networks in Speech Production and Understanding (PhoNet)*, and the DFG-projects on *Brain Signatures of Communication (BraiSiCo)*, *The Sound of Meaning (SOM)* and *Intensive Language Action Therapy of Aphasia (ILAT)*. Generous funding support by the European Research Council, the European Union and the Deutsche Forschungsgemeinschaft is kindly acknowledged.

Presentations will be given in English or German.

Students and researchers who are interested to participate in this colloquium are kindly requested to contact [Verena.Arndt@fu-berlin.de](mailto:Verena.Arndt@fu-berlin.de) and/or talk to Friedemann Pulvermüller in his office hour.

#### **Topic related recent publications:**

Boux, I., Tomasello, R., Grisoni, L., & Pulvermüller, F. (2021). Brain signatures predict communicative function of speech production in interaction. *Cortex*, 135, 127-145. doi: 10.1016/j.cortex.2020.11.008

Carota, F., Nili, H., Pulvermüller, F., & Kriegeskorte, N. (2021). Distinct fronto-temporal substrates of distributional and taxonomic similarity among words: evidence from RSA of BOLD signals. *Neuroimage*, 224, 117408. doi: 10.1016/j.neuroimage.2020.117408

Grisoni, L., Tomasello, R., & Pulvermüller, F. (2021). Correlated Brain Indexes of Semantic Prediction and Prediction Error: Brain Localization and Category Specificity. *Cerebral Cortex*, 31(3), 1553-1568. doi: 10.1093/cercor/bhaa308

Henningsen-Schomers, M. R., & Pulvermüller, F. (2021). Modelling concrete and abstract concepts using brain-constrained deep neural networks. *Psychological Research*, in press.

Pulvermüller, F., Tomasello, R., Henningsen-Schomers, M. R., & Wennekers, T. (2021). Biological constraints on neural network models of cognitive function. *Nature Reviews Neuroscience*, 22(8), 488-502. doi: 10.1038/s41583-021-00473-5

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### **Technicalities**

The course is part of the teaching offered by the Freie Universität's FB Philosophy and Humanities and by the Berlin School of Mind and Brain at the Humboldt Universität. It is open to interested students from all departments. It will be chaired by Friedemann Pulvermüller under the admin support of Verena Arndt.

To obtain a certificate of attendance, it is necessary to

- attend most of the sessions (maximum misses: three),
- pre- and reprocess the session content by reading the recommended key papers, and
- present a key paper, own research or a research plan addressing language related topics.

Contact and more information:

Verena Arndt (Sekretariat), online or rm JK 31/234; phone: +49 (0)30 838 58140 E-mail:

[verena.arndt@fu-berlin.de](mailto:verena.arndt@fu-berlin.de)

Friedemann Pulvermüller, online or rm JK 31/232; Office hour: Wed 12-13 h

For more information and updates, please visit:

<http://www.brainlang.fu-berlin.de/teaching>

<http://www.geisteswissenschaften.fu-berlin.de/v/brainlang/teaching/index.html>

### **Comments on the Seminar Program**

This term, we will have a mix of in-presence and virtual seminars. We will start with a session on Webex (<https://fu-berlin.webex.com>). In preparation, please install the free version of 'Cisco Webex Meetings' available from the FU website if you haven't already done so, and make sure that you have communicated your email address to [verena.arndt@fu-berlin.de](mailto:verena.arndt@fu-berlin.de)!

For non-virtual 'in Präsenz' sessions of this seminar, the following time slot and room have been reserved: **Wednesdays, 16:15 – 17:45 h, in room JK 31/102 of the main building of the Freie Universität Berlin, Habelschwerdter Allee 45, 14195 Berlin**. For lectures with external speakers, other locations may be booked (see list below). At the moment, it looks like all external speakers will visit us in reality, not virtually, and therefore the guest lecture will be real.

#### ***Webex link to the colloquium:***

<https://fu-berlin.webex.com/fu-berlin-en/j.php?MTID=m0de0adddc97332de28f1f273f5225f>

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**Seminar Program (sessions will be virtual or real, see preliminary comments)**

**20.10. Introduction, Seminar Planning (via webex)**

**Introduction and Planning of this semester's colloquium program**

**27.10. Research talk by Luigi Grisoni (via webex)**

**Prediction potentials, N400 and N-400: When the brain anticipates prediction error**

**03.11. Guest lecture (in real life)**

**Prof Dr Günther Palm, Neuroinformatik, Universität Ulm  
How to compute with cell assemblies and phase sequences**

**10.11. Project presentation by Salomé Antonine**

**Prediction in comprehension and production in a dual EEG interactive communication study**

**17.11. Guest lecture (in real life)**

**Dr Anna Kuhlen, Humboldt-Universität zu Berlin  
More than speaking: language production in social interaction**

**24.11. Research talk by Johanna Knechtges (via webex)**

**Clarifying misunderstanding: a questionnaire-based assessment of the communicative strategies of aphasics' relatives**

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**01.12. MatCo research meeting for MatCo researchers – guests from the colloquium are welcome!**

**Friday, 03.12., room JK 26/101, Guest lecture (in real life)**

**Prof Guillaume Thierry, School of Psychology, Bangor University,  
Language is not magic: Towards an integrated account of linguistic relativity and  
embodiment theory in the human brain**

**08.12. Project presentation by Laura Ciaccio (via webex)**

tbc

**Project presentation by Emilia Kerr, Aix-Marseille University**

**15.12. Research talk – OR maybe Christmas gettogether? (in real life)**

**05.01. Paper presentation by Laura Ciaccio (Sassenhagen et al)**

**Di, 11.01., 16h, online (link TBC): Guest Lecture jointly with the Dahlem Lectures in  
Linguistics:**

**Prof Daniela Sammler, MPI for Empirical Esthetics, Frankfurt  
Making sense of social sounds: The neuropragmatics of prosody**

**12.01. Research talk by Catharina Villani, Giulio Perticari & Rosario Tomasello (via webex)**

**Prosodic distinction between questions and statements in Italian: a gating study**

**19.01. - no seminar -**

**26.01. Research talk by Sepehr Mahmoudian (via webex)**

**Studying natural language with spiking neural networks**

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**Research proposal by Maxime Carriere**

**Preliminary Results on the Time Course Activation of the Spiking Model: Actions vs Nouns**

**02.02. Guest lecture (via Webex)**

**Dr Helen Blank, Universität Hamburg**

**How expectations influence perception in human communication**

**09.02. Research talk by Isabella Boux (via webex)**

**Paper presentation “Decoding the Information Structure Underlying the Neural Representation of Concepts” (Fernandino, Tong, Conant, Humphries, Binder)**

**Research talk by Malte Schomers-Henningsen**

**Time-course of conceptual pattern processing in a brain-constrained network model of verbal labels and concepts**

**16.02. Guest Lecture – postponed to summer term!**

**Prof Marcelo Berthier, University of Malaga**

**Behavioural and Biological Treatments for Post-stroke Aphasia and Related Disorders: The Importance of Multidomain Outcomes**