

Colloquium/Seminar

16791, Progress in Brain Language Research

Friedemann Pulvermüller

2 SWS, Seminar/Colloquium, SoSe 2024

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

Ort/Location: FU Berlin, room JK 26/035 (Habelschwerdter Allee 45)

On Webex: <https://fu-berlin.webex.com/fu-berlin-en/j.php?MTID=mcad4f6d717bda8348bb40b6f7c7e8e04>

Meeting number (access code): 2792 521 9196 | Meeting password: kv8yjJJHc93

Colloquium/Seminar *Progress in Brain Language Research*

This seminar is for BA, MA and PhD students and for researchers interested in language science. The course will focus on reviewing and discussing recent progress in the cognitive neuroscience of language and in the fields of semantics and 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 or summarize their recent publications,
3. Recently published remarkable research articles in the fields of brain language research, semantics and pragmatics will be reviewed by the participants to highlight the progress in the field,
4. National and international expert speakers will present their research in cognitive neuroscience of language and linguistics.

This term, there will be a focus on research related to the ongoing ERC Advanced Grant Project *Material Constraints Enabling Human Cognition (MatCo)*, where we are trying to specify the mechanistic neuronal circuits underlying human language use. Ongoing research from a range of other current research endeavors will also be featured. Work from the EU's International Training Network *Conversational Brains (CoBra)* and the French-German research initiative on *Phonological Networks in Speech Production and Understanding (PhoNet)*, will be in focus in two sessions jointly held with Prof Kristof Strijker's group at the CNRS Laboratoire Parole et Langage of Université Aix-Marseille. In addition, work from the DFG-projects on *Brain Signatures of Communication (BraiSiCo)*, *The Sound of Meaning (SOM)* and *Intensive Language Action Therapy of Aphasia (ILAT)* will be covered. Generous funding support by the European Research Council, the European Union and the Deutsche Forschungsgemeinschaft is kindly acknowledged.

Most presentations will be given in English, but presentations in German are welcome too. Students and researchers who are interested to participate in this colloquium are kindly requested to contact Verena.Arndt@fu-berlin.de or Friedemann Pulvermüller.

Seminar related recent publications:

Dobler, F. R., Henningsen-Schomers, M. R. & Pulvermüller, F. (2024). Temporal dynamics of concrete and abstract concept and symbol processing: A brain constrained modelling study. *Language Learning*, in press.

Grisoni, L., Boux, I. P., & Pulvermüller, F. (2024). Predictive brain activity shows congruent semantic specificity in language comprehension and production. *Journal of Neuroscience*, in press.

Nguyen, P. T. U., Henningsen-Schomers, M. R., & Pulvermüller, F. (2024). Causal influence of linguistic learning on perceptual and conceptual processing: A brain-constrained deep neural network study of proper names and category terms. *Journal of Neuroscience*, in press.

Pulvermüller, F. (2024). Neurobiological Mechanisms for Language, Symbols and Concepts: Clues From Brain-constrained Deep Neural Networks. *Progress in Neurobiology*, in press, 102511. <https://doi.org/10.1016/j.pneurobio.2023.102511>

Tomasello, R., Carrière, M., & Pulvermüller, F. (2024). The impact of early and late blindness on language and verbal working memory: A brain-constrained neural model. *Neuropsychologia*, in press.

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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

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

Johanna Knechtges, email: j.knechtges@fu-berlin.de

Fynn Dobler, email: fynn.dobler@fu-berlin.de

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, most of the seminars will be held at the Freie Universität 'in-presence'; however, some sessions where speakers cannot come to Berlin **will be 'virtual' seminars (as indicated by blue text)**. 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! There are also free versions of Webex which are available online.

You can partake in the virtual sessions by clicking the link:

<https://fu-berlin.webex.com/fu-berlin-en/j.php?MTID=mcad4f6d717bda8348bb40b6f7c7e8e04>

For non-virtual 'in Präsenz' sessions of this seminar, the following time slot and room have been reserved: **Wednesdays, 16:15 – 17:45 h, room JK 26/035 (alternative: KL 29/239) of the main building of the Freie Universität Berlin, Habelschwerdter Allee 45, 14195 Berlin.**

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Seminar Program

sessions will be **virtual only (blue)** or in real life ('in presence'). Real-life sessions may be broadcasted via webex, too, but will not necessary.

Webex link to the colloquium and lecture room: see header above.

17.04. Introduction, Seminar Planning (via webex)

Introduction and planning of this semester's colloquium program

24.04. Research talk by Anna-Thekla Jäger, Dr Effy Ntemou, Milena Osterloh, Dr Laura Ciaccio & Dr Luigi Grisoni:

Planning of MatCo EEG and fMRI Experiments: Discussion of the designs

01.05. No colloquium, bank holiday

08.05. Research talk by Maxime Carrière, BLL

TBC

15.05. Guest lecture

PD Dr. Patrick Krauss, Universität Erlangen Nürnberg (hosted by Friedemann Pulvermüller)

Large language models as tools to investigate language processing

Friday, 17.05. 14hct via webex (virtual only!): PhoNet/CoBra joint lab meeting with Dr Kristof Strijkers' group, CNRS Aix-Marseille University

Research talk by Salomé Antoine, BLL FU Berlin

Cortical sources underlying prediction in communication

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Dr Kristof Strijkers, CNRS Laboratoire Parole et Langage, UAM, Aix en Provence

The same phonological networks are recruited for the perception and production of language

22.05. no colloquium (postponed to Friday)

Friday, 24.05. 16hct: Guest lecture

Dr. Alessio Quaresima, Donders Institute, Nijmegen (hosted by Maxime Carriere)

Dendritic computations support word recognition: insights from a biologically constrained neural network model

29.05. Research talk by Tally Miller-Jochaud (?)

TBC

Journal club by Maxime Carriere, TBC

05.06. Guest lecture

Prof. Hans Ekkehard Plesser, Norwegian University of Life Sciences and Forschungszentrum Jülich (hosted by Maxime Carriere)

70 Years of Spiking Network Simulations: Past, Present, and Perspectives

12.06. no colloquium

19.06. Guest lecture

Dr. Panos Athanasopoulos, Centre for Languages and Literature, LAMiNATE research group, Lund University (hosted by Tally Miller)

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Neural correlates of language-perception interactions: Evidence from ERPs

26.06., 12:15h, Research talk by Friedemann Pulvermüller at Universität Erlangen-Nürnberg – lifestream link will be communicated

Fri, 28.06., 14h: Journal club (target papers will be circulated beforehand by the presenters)

Fynn Dobler on Wong et al. 2024: Grounded language acquisition in a single child

Agata Feledyn on Rey 2024: Unified radical associationism

03.07., 12:15h Research talk by Friedemann Pulvermüller at Universität Marburg - lifestream link will be communicated

05.07. (optional additional session)

10.07. Project presentation by Effy Ntemou

Presentation on lesion effect study in tumor and stroke patients?

Project presentation by Lorenzo Stroppa and Fynn Dobler

Developmental trajectories of concrete and abstract concepts in BCN networks

Friday, 12.07. 14hct via webex (virtual only!): PhoNet/CoBra joint lab meeting with Dr Kristof Strijkers' group, CNRS Aix-Marseille University

Research talk by Dr Luigi Grisoni:

4way PhoNet experiment

Plus Research talk by Emilia, CNRS, Aix?

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TBC

17.07. Research talks

Tally Miller – practice talk of viva presentation (ca 30min plus discussion)