

Colloquium/Seminar

## **Progress in Brain Language Research**

Friedemann Pulvermüller

2 SWS, Seminar/Colloquium, SS 2022

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=m502fa70e7e60fdb8d2064f357626bab2>

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

This seminar is for students interested in linguistic research and 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.

This term, there will be a focus on external speakers, several international research leaders speaking in the colloquium. Berlin work covered will come from the 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:**

- 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
- 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
- Henningsen-Schomers, M. R., & Pulvermüller, F. (2022). Correction to: Modelling concrete and abstract concepts using brain-constrained deep neural networks. *Psychol Res*. doi: 10.1007/s00426-022-01657-z
- Margiotoudi, K., Bohn, M., Schwob, N., Tagliatela, J., Pulvermüller, F., Epping, A., Schweller, K., & Allritz, M. (2022). Bo-NO-bouba-kiki: picture-word mapping but no spontaneous sound symbolic speech-shape mapping in a language trained bonobo. *Proc Biol Sci*, 289(1968), 20211717. doi: 10.1098/rspb.2021.1717
- Pulvermüller, F., Tomasello, R., Henningsen-Schomers, M. R., & Wennekers, T. (2021). Biological constraints on neural network models of cognitive function. *Nat Rev Neurosci*, 22(8), 488-502. doi: 10.1038/s41583-021-00473-5

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Tomasello, R., Grisoni, L., Boux, I., Sammler, D., & Pulvermüller, F. (2022). Instantaneous Neural Processing of Communicative Functions Conveyed by Speech Prosody. *Cereb Cortex*. doi: 10.1093/cercor/bhab522

### 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 likely 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)!

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

<https://fu-berlin.webex.com/fu-berlin-en/j.php?MTID=m502fa70e7e60fdb8d2064f357626bab2>

We aim at having as many live, in person sessions as possible. 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). It may be possible to attend in-presence sessions via webex.

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**Seminar Program**

sessions will be **virtual only (blue)** or in real life ('in presence')

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

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

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

**27.04. Research talk by Tally Miller, BLL:**

**Neurolinguistic investigations of causal links between the mechanisms for language and perception**

**04.05. Guest lecture by Dr Claudia Gianelli, University of Messina:**

**Multimodal action processing**

**Fri, 06.05., 17 hct: PhoNet/CoBra shared lab meeting with Dr Kristof Strijkers' group, CNRS Aix-Marseille University (via webex or zoom):**

**Dr Luigi Grisoni: What is coming next? Differences and similarities between brain correlates of predictions in speakers and listeners**

**Xenia Dmitrieva: Comparing phoneme categories between perception and production with fMRI: preliminary analysis.**

**11.05. Guest lecture by Dr Fritz Günther, Humboldt Universität zu Berlin:**

**Symbol grounding-by-language: Computational and behavioral investigations**

**18.05. No colloquium**

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**25.05. Guest lecture by Prof Marcelo Berthier, University of Malaga:**

**Behavioural and biological treatments for post-stroke aphasia and related disorders: The importance of multidomain outcomes**

**Tue, 31.05., 16 hct, Hörsaal/lecture hall 2; jointly organized with the Dahlem lectures in linguistics:**

**Guest lecture by Dr Rachel Moseley, University of Bournemouth:**

**Sensorimotor 'grounding' of emotion words: lessons from the autism spectrum**

**08.06. MatCo meeting – colloquium participants are welcome**

**10.8., 12hct, room JK 29/118:**

**Guest lecture by Prof Martin Pickering, University of Edinburgh**

**How do people interpret implausible sentences?**

**15.06. Project presentation by Fynn Dobler & Dr Malte Henningsen-Schomers, BLL:**

**Modelling the dynamics of concrete and abstract representations with and without linguistic labels**

**Project presentation by Phuc Thu Uyen Nguyen & Dr Malte Henningsen-Schomers, BLL:**

**Modelling the learning of proper names and category terms**

**22.06. Discussion of research manuscript and referee comments by Dr Luigi Grisoni:**

**Brain indexes of phonological priming**

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**Fri., 24.06., 14 hct: PhoNet/CoBra shared lab meeting with Dr Kristof Strijkers' group, CNRS Aix-Marseille University (via webex or zoom):**

**Emilia Kerr: Semantic prediction and alignment during conversational games**

**Salome Antoine: Brain mechanisms underlying predictions during interactive communication**

**29.06. Guest lecture by Prof Dr Sonja Kotz, Maastricht University:**

**'Little brain' but big contributions – reflections on cerebellar circuitry in action, perception, and cognition**

**06.07. Guest lecture by Prof Yury Shtyrov, Center of Functionally Integrative Neuroscience, Aarhus University: **postponed to winter semester****

**Rapid word acquisition in the brain: functional, structural and neuromodulatory evidence**

**Fri, 08.07., 16 hct, room JK 31/101: Guest lecture by Dr Olaf Hauk, MRC Cognition and Brain Sciences Unit, Cambridge University:**

**Spatiotemporal dynamics in semantic brain networks**

**13.07. Guest lecture by Prof Guillaume Thierry, Bangor University:**

**First impressions: On the importance of early language experience**

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**20.07. Project presentations by Kay Shaman & Dr Rosario Tomasello, BLL:**

A simulation study of language and colour perception: the case of Italian/Russian/Greek blues

**Paper presentation by Sabrina Nieswand, BLL:**

Falk Huettig, Jenny Audring, Ray Jackendoff, 2022: A parallel architecture perspective on pre-activation and prediction in language processing, *Cognition*, 224, 2022, 105050, <https://doi.org/10.1016/j.cognition.2022.105050>

**Course evaluation, planning of future seminar program**