Gefördert durch
DFG Deutsche Forschungsgemeinschaft

Universität Potsdam

SFB 1287 Limits of Variability in Language
Cognitive, Grammatical, and Social Aspects

SFB Mercator Fellow Lecture

Wednesday, 10 April 2019, Campus Golm, House 14, Room 2.15-16

10.15 – 11.45 am

As Mercator Fellow of the SFB 1287

Prof. Dr. Evelina Fedorenko (MIT) will give a talk on

The human language system

Human language surpasses all other animal communication systems in its complexity and generative power. I use a combination of behavioral, brain imaging, and computational approaches to illuminate the functional architecture of language, with the ultimate goal of deciphering the representations and computations that enable us to understand and produce language.

In this talk, I will discuss three discoveries my group has made over the last decade. ***First***, I will show that the language network is selective for language processing over a wide range of non-linguistic processes that have been argued to share computational demands with language, including arithmetic, executive functions, music, and action/gesture observation. ***Next***, I will consider the distinction between the lexicon (word meanings) and syntax (the rules for how individual words can combine to create phrases and sentences). Much prior theorizing and empirical work has focused on syntax, and most current proposals of the neural architecture of language argue that syntax is cognitively and neurally dissociable from meaning. I will challenge this view. In particular, I will show that syntactic processing is not localized to a particular region within the language network, and that every brain region that responds to syntactic processing is at least as sensitive to word meanings,

including when probed with a high-spatial/high-temporal-resolution method (ECoG). Further, many brain regions show stronger responses to word meanings than to syntactic manipulations, with no regions showing the opposite preference. ***Finally***, I will provide evidence that stimuli that are not syntactically well-formed but allow for meaning composition (operationalized within an information-theoretic framework) elicit as strong a response as intact sentences, suggesting that semantic composition may be the core driver of the response in the language-selective brain regions. Taken together, these results argue against an abstract and domain-general syntactic processing mechanism, and support strong integration between the lexicon and syntax. They further suggest that the language network is more concerned with meaning than structure, in line with the primary function of language – to share meanings across minds.

Please note that there will be two additional talks:

Wednesday, 10 April, 4.15 – 5.45 pm, Campus Golm, House 14, Room 2.15-16

PRIM-Colloquium: Language processing in the brains of bilinguals and polyglots

And

Thursday, 11 April, 10.15 – 11.45 am, Campus Golm, House 14, Room 2.15-16

Neurolinguistics-Colloquium: Can neuroimaging help aphasia researchers?

Times for individual meetings:

Wednesday, 10. April, 1.30 – 4 pm

Thursday, 11 April. 1 – 4 pm

Please write an email to Michaela Schmitz (mschmitz@uni-potsdam.de) with your name, the topic, the time and an approx. duration for a meeting with Ev Fedorenko.

Everyone is cordially invited.