LANGUAGE CYCLES
MAX PLANCK RESEARCH GROUP

Wednesday, 05 April 2023, 11:00 (CET)

Wilhelm-Wundt-Room

Language Circle

Dr. Anne Keitel
University of Dundee, Scotland, UK

Cortical tracking of speech and its relationship with intrinsic brain rhythms

Recent years have seen tremendous progress in showing how the human brain analyses continuous, natural speech and attributes meanings to this acoustic signal. Brain rhythms seem to play a major, mechanistic role in this process. The main idea is currently that oscillations in the auditory cortex (and beyond) track rhythmic fluctuations in speech. I would like to highlight some of the prevailing assumptions regarding such oscillatory mechanisms of speech perception, and suggest answers based on work from our lab. First, the neural tracking of speech through intrinsic oscillations requires these oscillations to be present in the absence of speech (intrinsic brain rhythms). We have recently quantified the rhythmic fingerprints of individual brain areas during rest, and these results suggest that the auditory cortex has a spectral profile that is remarkably well suited to track human speech. Second, there should be top-down mechanisms that can influence the timing of speech tracking. In line with this, we showed that frontal beta power and central alpha power modulate speech tracking. Third, speech tracking should predict single-trial comprehension. We showed that this is the case for the tracking of words and phrases, but not syllables and phonemes. Last, previous work focussed on generic brain processes while neglecting inter-individual variability. However, recent research points towards an important role of individual differences in intrinsic brain rhythms that influences speech perception in challenging listening situations. Our results emphasise the remarkable capability of the human brain to process speech, while also highlighting open questions for further research.

Join online:

https://zoom.us/j/95065830000
Meeting-ID: 950 6583 0000

MAX PLANCK INSTITUTE
FOR HUMAN COGNITIVE AND BRAIN SCIENCES

For more information, please contact Caroline Duchow: duchow@cbs.mpg.de