discourse involves a distributed network of brain regions and distinct sub-processes recruit different pool of neural resources. Core network of discourse comprehension (the default network) interacts with other networks (the attention networks and the executive control networks) to establish successful comprehension. Keywords: discourse comprehension, neuroimaging, meta-analysis, brain networks.

**D6 Simulation and mental imagery of complex events: differences and communalities.** *Franziska Hartung[1], Peter Hagoort[1,2], Roel M. Willems[1,2]; [1]Max Planck Institute for Psycholinguistics, [2]Radboud University Nijmegen, Donders Institute for Brain, Cognition and Behaviour*

How do our brains construct a narrative when reading fiction? The nature of mental representations, e. g., when comprehending language is a highly debated issue. Despite sometimes being considered controversial, effects of mental simulation are a robust and frequent finding in neuroimaging and behavioral research. Yet, which underlying processes those effects reflect is a matter of dispute. It is often assumed that simulation is a reduced form of mental imagery. However, experimental evidence suggests that imagery and simulation do not necessarily recruit the same brain regions (Willems et al 2009). It is reasonable to assume that simulation plays a relevant role in language comprehension at the discourse level, where more complex information needs to be integrated in order to construct situation models. Moreover, contextually embedded information is likely to decrease variance between subjects in event representations, e.g. throwing without context can activate very different action representations, while throwing a dart or throwing a tennis ball reduces the probability that subjects activate different types of events. Especially stories seem to be highly appropriate to test simulation in language comprehension, as they promote situation model construction and deep-level processing while warranting adequate similarity across individuals. In the present study, we used functional MRI to investigate simulation during natural listening to literary stories compared to mental imagery in 1st and 3rd person perspective. First, subjects (N=60) listened to two literary stories without a specific task. Then, they listened to the stories again and were asked to 'imagine being the main character' (1st person imagery) and 'imagine being an uninvolved observer' (3rd person imagery) in two subsequent runs. A baseline condition with unintelligible speech was used to subtract irrelevant activation for all conditions in the data analysis. The order of tasks was counterbalanced across participants. In the analysis, we used an event related design with action and mentalizing events as canonical examples of simulation to compare brain activations in natural comprehension with imagery. The results show partial overlap of the brain regions activated in simulation and imagery. Listening shows recruitment of additional areas in frontal and temporal regions compared to the two imagery tasks, whereas activation patterns during mental imagery averaged across perspective are to a large degree included in the network active when subjects listen to a story without task. Looking at 1st and 3rd person perspective imagery separately reveals a more differentiated picture: 1st person imagery shares substantial overlap in activation with listening, whereas in 3rd person imagery temporal regions are less pronounced and additional left posterior middle frontal regions are recruited. Comparing the two imagery conditions confirms this finding that 1st person imagery is more associated with temporal regions while 3rd person imagery is more associated with posterior middle frontal regions in story comprehension. Our results give evidence that simulation in language processing partially overlaps with mental imagery. Simulation during natural story comprehension shows a more global network distribution whereas imagery tasks recruit specific areas. Moreover, participants seem to prefer 1st person perspective when engaging with stories without task requirements.

**D7 The language network and the Theory of Mind network show synchronized activity during naturalistic language comprehension** *Alexander Paunov[1], Idan Blank[2], Evelina Fedorenko[3]; [1]Massachusetts Institute of Technology*

Introduction Abundant evidence now suggests that the human brain is comprised of a number of large-scale neural networks, i.e., sets of brain regions that show similar functional profiles and synchronized activity during naturalistic cognition, and are anatomically connected (Power et al., 2011; Hutchison et al., 2013). Although the number and functional interpretation of these networks remain open questions, a number of networks emerge consistently across studies, including i) the fronto-temporal language network whose regions selectively engage during language processing (e.g., Fedorenko et al., 2011), and ii) the system that supports social cognition, including, critically, Theory of Mind (our ability to think about other people's thoughts), comprised of bilateral regions in the temporo-parietal cortex and a number of medial cortical regions (e.g., Saxe & Kanwisher, 2003). Both of these systems have been implicated in human communication. However, communicative success plausibly requires not only the proper functioning of each system, but also some degree of coordination (information passing) between them. One way to implement such coordination is via temporary synchronization in neural activity between the regions of one system and those of the other system (e.g., Cole et al, 2013). Here, we asked whether the language and Theory of Mind (ToM) systems are synchronized during language understanding. Method Twelve participants were scanned with fMRI while listening to naturalistic narratives. Preprocessed blood oxygenation level dependent time series were extracted from each participant's regions of interest in the language and ToM networks, functionally defined using "localizer" tasks that have been extensively validated in prior work