

Research Seminars in General Psychology and Cognitive Neuroscience
 ("Forschungskolloquium für Absolventen, Doktoranden, und Mitarbeiter")

„General Psychology and Cognitive Neuroscience“

(Prof. Dr. Stefan R. Schweinberger)

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<http://www2.uni-jena.de/svw/allgpsy/researchseminars.htm>

Event Schedule

08.07.2013	Martin Fischer, Wermsdorf	How reliable is the classification of cognitive impairment across different criteria in early and late stages of multiple sclerosis?
01.07.2013	Franziska Krahmer, Jena	Konfigurale Verarbeitung des eigenen und eines unbekanntes Gesichts bei körperdysmorpher Störung – Eine EEG Studie zum Inversionseffekt
24.06.2013	Helene Kreysa, Jena	Pupillary responses to perceived gaze direction and facial attractiveness
17.06.2013	Gregor Volberg, Jena/Regensburg	Attention and automaticity in visual perceptual grouping
10.06.2013	Stella J. Faerber, Jena	Dynamic interplay of attractiveness and typicality in face space
27.05.2013	Pia Knoeferle, Bielefeld	Visually situated language comprehension: ERP evidence from picture-sentence verification
13.05.2013	Rob Jenkins, York	How many faces do people know?
06.05.2013	Helen Blank, Leipzig	Processing of Faces and Voices during Human Communication
29.04.2013	Holger Wiese, Jena	Own-group biases in face memory: Using ERPs to disentangle relative contributions of perceptual expertise and socio-cognitive factors
08.04.2013	Stefan R. Schwein- berger, Jena	Initial Meeting

Martin Fischer

Wermsdorf

How reliable is the classification of cognitive impairment across different criteria in early and late stages of multiple sclerosis?

Multiple sclerosis (MS) is a chronic and disabling disease that attacks the central nervous system and which interindividually varies with respect to symptoms, progression and severity of the disease (DeLuca & Nocentini, 2011). The disease mechanisms involve inflammation, demyelination and remyelination, oligodendrocyte depletion and astrocytosis, and neuronal and axon degeneration and lead to the formation of the sclerotic plaque (Compston & Coles, 2008). Many different neurological symptoms can occur, of which cognitive dysfunction (CD) is common (Langdon, 2011). The reported prevalence rates of CD vary between 40 and 80 %. Two factors that potentially influence prevalence rates are sample composition and neuropsychological assessment (Benedict, 2009). However, the issue of classification criteria has hardly been addressed (Hoffmann, Tittgemeyer, & Von Cramon, 2007). For the first time, we provide an overview of common classification strategies for CD in MS and compare their usability in samples of late and early MS. Twenty-five patients with early MS (disease duration ≤ 2 y), 51 patients with late MS (≥ 12 y), and matched controls underwent a comprehensive neuropsychological test battery, assessing alertness, divided attention, flexible attention, verbal and visual learning, verbal and visual long-term memory, and visuo-constructional skills. Patients were classified as cognitively impaired based on criteria published in the past 10 years. Outcomes were prevalence and concordance rates. We found a substantial effect of classification criteria with prevalence rates ranging from 0 to 79% in early MS and 4 to 92% in late MS. Results were different in early and late MS. The cut-off for abnormal performance (i.e., 1, 1.5, or 2 SD) only played a minor role. Our results show that clinicians and researchers have to carefully consider their classification criteria in diagnosing and quantifying CD in patients with MS. Moreover, the data help identifying the favoured strategy for an optimal sensitivity and specificity of test performance at different disease stages.

Benedict, R. H. B. (2009). Standards for sample composition and impairment classification in neuropsychological studies of multiple sclerosis. *Multiple sclerosis* (Houndmills, Basingstoke, England), 15(7), 777–8. doi:10.1177/1352458509106713

Compston, A., & Coles, A. (2008). Multiple Sclerosis. (C. Livingstone, Ed.) *Multiple Sclerosis*, 372(9648), 1502–17. doi:10.1016/S0140-6736(08)61620-7

DeLuca, J., & Nocentini, U. (2011). Neuropsychological, medical and rehabilitative management of persons with multiple sclerosis. *NeuroRehabilitation*, 29(3), 197–219. doi:10.3233/NRE-2011-0695

Hoffmann, S., Tittgemeyer, M., & Von Cramon, D. (2007). Cognitive impairment in multiple sclerosis. *Current Opinion in Neurology*, 20, 275–280.

Langdon, D. W. (2011). Cognition in multiple sclerosis. *Current Opinion in Neurology*, 24(3), 244–249. doi:10.1097/WCO.0b013e328346a43b

Pia Knoeferle

Bielefeld

Visually situated language comprehension: ERP evidence from picture-sentence verification

Extant accounts of visually situated language processing do make general predictions about visual context effects on incremental sentence comprehension; these, however, are not sufficiently detailed to accommodate potentially different visual context effects (such as a scene-sentence mismatch based on actions versus thematic role relations). Some theoretical accounts postulate a single comparator mechanism for any kind of verification (e.g., Carpenter & Just, 1975) or mismatch (Kolk, Chwilla, Van Herten, & Oor, 2003); however, most are merely underspecified with respect to the relative time courses and/or natures of various visual scene-sentence mismatch effects. To provide additional data for theory development and/or constraint, we collected event-related brain potentials (ERPs) as participants read a subject-verb-object sentence (500 ms SOA in Experiment 1 and 300 ms SOA in Experiment 2), and post-sentence verification times indicating whether or not the verb and/or the thematic role relations matched a preceding picture (of two participants engaged in an action). Though incrementally processed, these two types of mismatch led to different ERP effects. Role-relation mismatch effects emerged as anterior negativities to the mismatching subject noun, and preceded action mismatch effects manifest as centro-parietal N400s (greater to the mismatching verb), regardless of SOAs. These two types of mismatch manipulations also yielded different effects post-verbally, correlated differently with a participant's mean accuracy, verbal working memory and visual-spatial scores, and differed in their interaction with SOA. Taken together these results clearly implicate more than a single mismatch mechanism for picture-sentence processing.

Rob Jenkins

University of York, UK

How many faces do people know?

Despite decades of psychological research into face perception, no one has attempted to estimate the number of faces that individuals know. It is perhaps surprising that such a basic question has gone unaddressed for so long. Vocabulary size has been intensively studied in linguistics, and has clear implications for word reading and other outcomes. By analogy, one's Vocabulary of Facial Identities may be a critical determinant of face recognition ability. In this talk I will describe very recent work in which we estimate the size of this vocabulary for the first time. I will report likely upper and lower bounds for the estimate as well as large individual

differences. Attendees are encouraged to guess these numbers before the talk, and compare their guesses with the data.