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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Event Schedule

25.01.2010	Holger Wiese, Jena	Processing Facial Age
18.01.2010	Werner Sommer, Berlin	How Automatic is the Processing of Emotional Facial Expressions?
11.01.2010	Henk Aarts, Utrecht, Niederlande	Unconscious Motivation and Adaptation of Goals and Experiences
14.12.2009	Steffi Schuldt, Magdeburg	Neuronal Correlates of Audiotactile Illusions -- an fMRI Study
30.11.2009	Michael Schäfer, Magdeburg	Body in Mind - Die Wahrnehmung des eigenen Körpers
23.11.2009	Romi Zäske, Jena	Voice Aftereffects of Adaptation to Speaker Identity
19.10.2009	Roxane J. Itier, Waterloo, Canada	The role of eyes and configuration in face perception and learning assessed by eye movement monitoring
23.09.2009	Hideki Kawahara, Wakayama, Japan	Exploratory research tools for speech perception: TANDEM-STRAIGHT, morphing and new GUI

Werner Sommer
Institut für Psychologie, Humboldt Universität zu Berlin

How Automatic is the Processing of Emotional Facial Expressions?

We investigated the question whether the processing of emotional facial expressions proceeds automatically or whether it requires central attention. In a first series of experiments different tasks were performed on faces that displayed smiling, threatening, or neutral facial expressions. In a second series, the availability of central attention was limited by temporal overlap with a primary task. Effects of emotion were assessed by recording event-related brain potentials. Surprisingly, early emotional effects were observed when processing of the face was either extremely easy or when the availability of central attention was scarce.

Henk Aarts
Utrecht University

Unconscious Motivation and Adaptation of Goals and Experiences

Experimental research has discovered that human goal pursuit can emerge in the absence of conscious awareness. Whereas these goal priming effects are commonly explained in terms of habitual automatic processes, recent studies shed new light on the matter. Building on this recent work, this presentation attempts to promote a more comprehensive understanding and examination of the potential mechanisms that enable people to pursue their goals in a nonconscious fashion and how such nonconscious goal pursuit may be related to people's conscious experiences of selfagency or willfully pursuing goals. Specifically, it addresses (1) the human capacity to pursue goals without awareness of the activation and operation of the goal, even when habits are inadequate; (2) the fundamental role of positive affect in nonconsciously modulating the motivation of goals and their pursuit; and (3) the process that may connect nonconscious goal pursuit to the conscious experience of self-agency.

Michael Schaefer
Universität Magdeburg

Body in Mind - Die Wahrnehmung des eigenen Körpers

Das Verhältnis zu unserem Körper ist immer schon von hoher Bedeutung und Problematik für uns gewesen. Es kann als eine Fassung des bekannten Leib-Seele-Problems formuliert werden: Einerseits hat man einen Leib, andererseits ist man aber auch sein Leib. Der Vortrag thematisiert einen speziellen Bereich des Verhältnisses vom Geist zum Leib. Es geht um die Wahrnehmung unseres Körpers und die Untersuchung von neuronalen Korrelaten dieser spezifischen Wahrnehmung. Dabei konzentriere ich mich insbesondere auf die Rolle des primären somatosensorischen Kortex (SI). Schon in den 30er Jahren des vergangenen Jahrhunderts konnte Penfield in seinen aufsehenerregenden Studien zeigen, dass in SI die Körperoberfläche funktionell-topographisch repräsentiert ist. In der traditionellen Sichtweise wurde diese Körperrepräsentation als unveränderbar angesehen. Neuere Studien führen nun zu einer Revision dieser Sichtweise und deuten auf eine viel komplexere Rolle für SI hin. So konnten wir zeigen, dass die funktionell-topographische Anordnung in SI nicht unveränderbar ist, sondern das aktuell *wahrgenommene* Körperbild widerspiegelt. So hinaus scheinen selbst einfachste visuelle Manipulationen oder ‚Verkleidungen' auszureichen, um das Körperempfinden und damit verbunden auch die Topographie in SI zu modulieren. Unsere Studien deuten darauf hin, dass SI nicht die physikalische Stimulation an der Körperoberfläche, sondern vielmehr das wahrgenommene Körperschema repräsentiert. Wir gehen damit davon aus, dass sich in SI ein erstes dynamisches frühes Körperschema abbildet.

Romi Zäske
Jena

Voice Aftereffects of Adaptation to Speaker Identity

While adaptation to complex auditory stimuli has traditionally been reported for linguistic properties of speech, the present study demonstrates non-linguistic highlevel aftereffects in the

perception of voice identity following adaptation to voices and faces of personally familiar speakers. In Exp. 1, prolonged exposure to speaker A's voice biased the perception of identity-ambiguous voice morphs between speakers A and B towards speaker B (and vice versa). Significantly biased voice identity perception was also observed in Exp. 2 when adaptors were videos of speakers' silently articulating faces though effects appeared reduced in magnitude relative to those seen in Exp. 1. By contrast, adaptation to an unrelated speaker C elicited an intermediate proportion of speaker A responses in both experiments. Unlike crossmodal aftereffects (Exp. 2), unimodal aftereffects (Exp. 1) were still measurable a few minutes after adaptation. These novel findings suggest contrastive coding of voice identity in long-term memory with at least two mechanisms of voice identity adaptation: one related to unimodal coding of voice characteristics, and another related to multimodal coding of familiar speaker identity.

Roxane J. Itier
University of Waterloo, Waterloo, Canada

The role of eyes and configuration in face perception and learning assessed by eye movement monitoring

The way the human face is perceived and processed has been extensively studied in the past years using many different approaches such as behaviour, patient work, neuroimaging (PET/fMRI) and temporal imaging techniques (EEG/MEG). Although not a new technique, eye movement monitoring has recently regained interest in the study of human face perception. Past research has shown that the internal features of faces are explored more than the external features, with a predominant role of eyes. In this talk I will present new eye tracking data further investigating the precise role of eyes and other facial features in face perception and learning. Subjects freely viewed human face photographs, presented four seconds upright or inverted with or without eyes. Face identities in each condition repeated over blocks without subjects knowing. We tracked the perception and exploration of these faces and the implicit learning over blocks by measuring the proportion of fixations landing in predefined areas of interest and fixation duration. We will discuss the implications of the findings for current views of face processing in normal controls and pathological populations.

Hideki Kawahara
Wakayama, Japan

Exploratory research tools for speech perception: TANDEM-STRAIGHT, morphing and new GUI

A speech analysis modification and resynthesis system TANDEM-STRAIGHT enables precise parameter control of synthetic speech while preserving comparable quality with actual human voice. This feature promotes exploratory investigations on relations between speech perception and their physical correlates. Speech morphing algorithms based on STRAIGHT provides means to perform sensitivity analysis of perceptual attributes by introducing perturbation of physical parameters. Recent extension to temporally variable multi-aspect morphing with new GUIs make exploratory research phase efficient. Introduction of these methods from underlying principles to implementation level will be presented with interactive demonstrations.