Keynote lectures

Decoding thoughts from brain imaging signals: What does(n't) this mean for experimental psychology?

John-Dylan Haynes

Bernstein Center for Computational Neuroscience, Charité – Universitätsmedizin Berlin

haynes@bccn-berlin.de

In recent years it has become possible to decode a person's thoughts by applying classification techniques to brain imaging signals. Even though a "universal thought reading machine" is still science fiction, considerable progress has been made in decoding such diverse mental states as visual percepts, unconscious representations, memories, intentions, action plans and emotions. This talk will give an overview of this research field, along with a discussion of the main successes, but also of the challenges, limitations and ethical concerns. Importantly, the implications of brain reading for experimental psychology will be highlighted. A severe limitation in training mental state classifiers lies not only in the limited resolution of neuroimaging signals, but also in the limitations of introspective techniques. Furthermore, despite a number of potential neurotechnological applications, mental state decoding is unlikely to replace standard psychological techniques for probing a person's thoughts in the near future.

Understanding the Mind by examining the Brain

Ernst Fehr

Department of Economics, University of Zurich

ernst.fehr@econ.uzh.ch

Most research in psychology and economics makes inferences about the human mind on the basis of behavioral data. The development of noninvasive imaging and brain stimulation techniques, however, offers the promise of a deeper understanding by combining brain data with behavioral data. We illustrate this potential of brain research by designing an experiment in which different motives drive behaviorally equivalent altruistic acts. Because the altruistic behaviors are behaviorally equivalent, behavioral measures of altruism are – by definition – incapable of discovering the underlying motives. We show, however, that the connectivity patterns of brain data help us predict the different motives with high accuracy. In addition, the brain data provide important insights into the nature of altruistic motives such as empathy and reciprocity. We also show that neural measures of altruistic preferences outperform behavioral measures in out-of-sample predictions of altruistic behaviors. If we add the neural measure as an explanatory variable, the explained variance in out-of-sample predictions greatly increases and the behavioral measure becomes insignificant.

The (dis-)unity of implicit and explicit theory of mind

Hannes Rakoczy

Georg-Elias-Müller-Institut, für Psychologie, Georg-August-Universität Göttingen

hrakocz@uni-goettingen.de

The most pressing question in recent theory of mind research is how to square two sets of findings: on the one hand, a huge body of evidence from traditional explicit tasks revealing competence at ascribing false beliefs and related propositional attitudes around age 4, and on the other hand new findings from more implicit tasks that suggest some competence dramatically earlier. Two-system-theories aim at resolving this tension in the following way: they claim that the capacities tapped in early implicit tasks are fundamentally different conceptual capacities (subserved by System 1) from those tapped in explicit tasks (subserved by System 2) (Apperly & Butterfill, 2009). System 1 is early-developing, fast, and relatively independent of central cognitive resources such as executive function. However, it is inflexible and has well defined signature limits: it allows the tracking of belief-like states but not of beliefs proper, and level-I but not level-II perspective-taking. System 2, in contrast, is flexible, dependent on central resources (language, executive function) and allows for the ascription of beliefs and other propositional attitudes proper. In this talk, I will present recent findings from our lab that speak in favor of the 2-systems account: Children from age 2 to 5 were confronted with implicit and explicit versions of false belief tests with varying form and content. Basically, the results suggest that the early precocious capacities tapped in implicit tasks show clear signature limits. Toddlers' performance thus reveal a striking dis-unity in that only some false belief tasks with a narrow range of topics and form are mastered. The performance of older children in explicit tasks, however, shows an even greater unity than previously assumed. When suitably modified, the performance of 4-and 5-year-olds on diverse false belief tasks that had dissociated in previous research turned out to be equally difficult and strongly related.

Symposia

SYMPOSIUM: Kognition und Emotion in der Mensch-Technik-Interaktion

Stefan Brandenburg, Nils Backhaus, (M. Thüring)
Technical University Berlin
nils.backhaus@tu-berlin.de

Die zunehmende Verbreitung digitaler Systeme in unserem Alltag verändert die Art wie wir unsere Umwelt wahrnehmen und mit ihr interagieren. Gegenstand dieses Symposiums ist die Untersuchung der Auswirkung und Bedeutung verschiedener technologischer Einflussgrößen auf das Erleben und Verhalten des Menschen. Die Beiträge beleuchten dabei eine Vielzahl unterschiedlicher Kontexte und psychologischer Aspekte der Mensch-Technik-Interaktion. Der Beitrag von Trapp und Pohl nutzt das Paradigma der visuellen Suche zur Analyse der optimalen Gestaltung von Smartphone-Icons. Bei Minge, Wagner und Thüring bzw. Bürglen steht der Einfluss von Technik auf ältere Nutzer im Mittelpunkt, insbesondere in Bezug auf sozial-emotionale Komponenten wie z. B. positive Emotionen. Sicherheits- und Vertrauensaspekte moderner Technologien werden im Beitrag von Bär und Furnell beleuchtet, der sich mit den Anforderungen von Passwortrichtlinien auf Webseiten befasst. Der Beitrag von Becker, Backhaus und Schwaninger befasst sich mit den besonderen Arbeitsanforderungen von Sicherheitskontrolleuren an Flughäfen und deren Auswirkungen auf die Leistung. Der Beitrag von Fricke und Kollegen beleuchtet die Fahrer-Fahrzeug-Interaktion und bezieht sich insbesondere auf den Einfluss moderner Automations- und Assistenzsysteme. Die verschiedenen Beiträge zeigen, dass es eine Vielzahl von Möglichkeiten für den Einsatz kognitionspsychologischer und emotionspsychologischer Grundlagen und Befunde gibt um Technik effektiv und nutzerfreundlich zu gestalten.

SYMPOSIUM: Effects of healthy aging on attentional and cognitive control as revealed by event related brain potentials

Stefan Berti[1], Stephan Getzmann[2]
[1]*Johannes Gutenberg-University Mainz;* [1]*Leibniz Research Centre for Working Environment and Human Factors*
berti@uni-mainz.de

Demographic change poses a major challenge for western societies. The mechanisms underlying age-related changes in cognitive functioning have therefore become the focus of a general research interest. Importantly, in recent years the focus shifted from the view that aging was regarded as a type of neuro-degenerative process to the effects of healthy aging as a central aspect of lifespan development. Substantial progress in the understanding of healthy aging was achieved due to the application of event-related brain potentials (ERPs). The symposium will summarize recent results on the influence of healthy aging on attentional and cognitive control: Stefan Berti will report age differences in automatic change detection as a basis of effective behavioral adaptation in dynamic environments. Tina Schwarzkopp and colleagues will present a study of aging and visual working memory and ERP evidence for an age-specific delay in filtering. Tina Möckel and colleagues will address age-related effects of mental fatigue. Hannah Schmitt and colleagues will focus on influences of motivation on cognitive control and on differential incentive effects in younger and older adults. Finally, Stephan Getzmann will address age-related issues of speech processing under dynamic "cocktail-party" conditions.

SYMPOSIUM: Cognitive Control

Nicola Kristina Ferdinand
Saarland University
n.ferdinand@mx.uni-saarland.de

Cognitive control has been generally defined as the ability to guide thoughts and actions in accord with external and internal task goals. This ability is required when we need to flexibly adapt to changes in our environment. It involves the switching and selection between multiple tasks, the maintenance of task-relevant and the inhibition of task-irrelevant information, as well as monitoring for error and conflict information and processing of feedback.This symposium wants to address different environmental variables, as well as emotional and motivational factors that possibly influence our ability to exert cognitive control. Specifically, the presentations are going to deal with the question of whether task complexity or uncertainty modulate our brain's ability to monitor the environment and to exert cognitive control during task switching. We also investigate whether experimentally induced positive or negative mood can influence feedback processing. Additionally, we are interested in age-related changes in these cognitive processes and whether motivational factors, like a motivating game setting, can enhance the outcome of a cognitive control training in middle-aged children.

SYMPOSIUM: The Reproducibility Project: Estimating the Reproducibility of Psychological Science

Susann Fiedler
Max Planck Institute for Research on Collective Goods
susann.fiedler@gmail.com

Reproducibility is a defining feature of science. However, because of strong incentives for innovation and weak incentives for confirmation, direct replication is rarely practiced or published. The Reproducibility Project is an open, large-scale, collaborative effort to systematically examine the rate and predictors of reproducibility in psychological science administered by the Open Science Collaboration (OSC). Since forming in November 2011, the project has involved more than 260 volunteer researchers from over 70 institutions conducting more than 114 replications of studies published in ther prominent psychological journals in 2008. As an open Project, new contributors join and additional replications begin each month. Representatives of the OSC will present the motivation for the project, an overview of the research design, an interim report of the results, the implications of the results for psychological science. A better understanding of reproducibility will improve confidence in scientific methodology and findings.

SYMPOSIUM: A Multimethod Approach to Measure Risk-Taking Behavior

Renato Frey[1,2], Andreas Pedroni[2]
[1]*Max Planck Institute for Human Development, Berlin;* [2]*University of Basel*
renato.frey@unibas.ch

Risk-taking preferences have traditionally been assessed by means of monetary lotteries. Based on the observed choices, researchers could gauge participants' willingness to take risks. More recently, however, alternative approaches to measure risk taking have been established, including decomposing the observed behavior in laboratory tasks by means of cognitive modeling, assessing risk taking in real-life situations such as in traffic, identifying the neural correlates of risk taking by means of neuroimaging studies, or using large-scale surveys to examine risk-taking propensities in representative samples, which allows investigating shifts across the life-span (to mention just one example). The Basel-Berlin Risk Study comprises such a multimethod approach to assess risk-taking behavior with a sample of 1,500 participants. In this symposium, we present the core projects of this study as well as related projects that make use of these different methodologies. Then, a discussant will assess the implications of the findings, review the challenges and opportunities of the different methodologies, and discuss the importance of a multimethod approach for advancing our understanding of risk taking.

SYMPOSIUM: Social Influence on Decision-Making: Recent Findings from Neuro-cognitive, Developmental and Animal Research

Markus Germar
University of Hildesheim
germar@uni-hildesheim.de

One of the most fundamental questions in social psychology is which cognitive processes mediate social influence on decision-making and how these processes are shaped by motivational or developmental factors. In our symposium we bring together recent findings that address this question. On the basis of a diffusion model analysis, the first talk will summarize evidence from multiple experiments testing whether social influence can induce a perceptual bias and how informational versus normative influence contributes to this effect. The second talk will integrate evidence from event-related potentials and a diffusion model analysis to uncover the time course of this perceptual bias. Differentiating between low versus high autonomous participants, the third talk will present evidence supporting the idea that early visual processing is more altered in the former group. The fourth talk will summarize evidence showing that social influence can lead to superficial structural encoding of faces indicated by the N170. In the fifth talk, we will turn to a developmental perspective. Over different age groups, we show a developmental increase in reported perceptual bias in favor of social advice. Finally, the last talk will report evidence from a study testing whether dogs stick to their learned behavior or follow their conspecifics.

SYMPOSIUM: The binding mechanism: Recurrent themes and new insights

Carina Giesen[1], Birte Moeller[2]
[1]University Jena; [2]Trier University
moellerb@uni-trier.de

Responding to a stimulus results in short lived bindings between stimulus- and response features that are integrated in a so called event file (Hommel, Müsseler, Aschersleben, & Prinz, 2001). Repeating any part of an event file on a later occasion can influence subsequent responding via retrieval of other integrated parts. Effects of stimulus-response (S-R)-binding and retrieval, which play a dominant role for the automatic, stimulus-based control of behavior, have been widely investigated for the last two decades. To date, a burgeoning amount of evidence documents that principles of S-R binding and retrieval are pervasive and apply to a broad scope of stimuli, responses, and modalities. However, despite the vast increase in our understanding of the mechanisms and scope of S-R binding and retrieval processes, several issues remain unresolved to date. These for instance concern questions regarding the automaticity of the binding process, its influence on decision making, the relation between short- and long-term associations as well as its relation to other influential effects and experimental paradigms (e.g., task switching, negative priming, etc.). The present symposium aims to collect recent findings that reveal new insights into these questions, and provides and in-depth discussion of their implications.

SYMPOSIUM: Language and Emotion: More than just words

Cornelia Herbert[2], Johanna Kissler[1]

[1]*University of Ulm, University of Tübingen, University of Würzburg,* [2]*University of Bielefeld*

cornelia.herbert@psychologie.uni-wuerzburg.de

We post, blog, chat, twitter and tweet. Social media is increasingly dominating communication behavior and affecting the way we verbalize our emotions. This symposium discusses how emotions are decoded from written words in social interactions and investigates the extent to which these processes are influenced by contextual factors including perceived sender-observer relationship on the one hand and embodied processes on the other. Firstly, neurophysiologic data will be presented showing that words related to the reader's own emotion re-enact emotional and motivational systems in the brain and the body differently from words describing other people's emotions. Secondly, it will be shown that our semantic interpretations take into account observed facial expressive behaviors and that semantic autobiographical information shapes the perception of faces in our brains. The self-reference of a message, the communicative context in which it is embedded, the anticipation of a real sender or a virtual other can affect the affective quality of simple words and influence their attention capture in visual and semantic brain processing regions. Together, the results confirm that the relationship between language and emotion is embodied and socially embedded. The consequences of this "social embodidness" of language can be explained from neuroscientific and psychological viewpoints.

SYMPOSIUM: Group Performance and Collective Decision-Making

Joachim Hüffmeier

Federal Institute of Occupational Safety and Health, Dortmund, Germany, and Technical University Dortmund, Germany

hueffmeier@uni-muenster.de

Current group performance and collective decision making research is set out for new shores and accordingly characterized by the following developments: (i) differentiation between the individual and group level, (ii) focus underlying processes in addition to outcomes, (iii) realization that groups can both, fall short of and exceed reasonable potential productivity baselines (generate process losses and gains), (iv) embedment of studies in frequent conditions of everyday life (including altered mental states such as sleep-deprivation or alcohol intoxication), and (v) overcoming paradigmatical constraints. The contributions of the proposed symposium closely reflect these developments. Burtscher et al. study group-level effects of regulatory focus theory – a theory that has hitherto only been investigated at the individual level. Schultze et al. probe groups' rationality in advice-taking and illuminate when groups take less advice and come to more accurate decision than individuals. In one of the first studies on sleep-deprivation and decision making, Häusser et al. analyze advice-taking behavior of sleep-deprived participants. Mojzisch et al. introduce a new theoretical account for the sampling-bias in group-decision making and systematically test it. Hüffmeier and Schultze finally focus on group members' compensatory motivation following incidences of unintentional group norm violations – a previously uninvestigated motivational phenomenon in groups.

SYMPOSIUM: Cognitive Modeling in Memory and Decision Making

David Kellen[1], Thorsten Pachur[2], Henrik Singmann[3]
[1]*University of Basel;* [2]*Max Planck Institute for Human Development;* [3]*University of Zürich*
davekellen@gmail.com

Formal modeling has a long tradition in psychology (e.g., Estes, 1950). But only recently has this approach become popular and widespread to study the cognitive processes underlying behavior (e.g., Busemeyer & Diederich, 2009; Lee & Wagenmakers, 2013; Lewandowsky & Farrell, 2010). The increasing use of formal modeling in cognitive psychology has been accompanied by a recent flurry of developments of methods, philosophies and techniques. This symposium aims to provide an overview of the range of current modeling approaches by bringing together recent work from two important (and closely related) areas of psychology: Memory and decision making. The research in both areas share common problems and goals that make this type of gathering particularly timely and relevant. Given the breadth of the intended perspective, the symposium is planned as a two-part event, with each part including 5-6 contributions. The first part will feature work from the field of memory; the second part focuses on decision making. To encourage a constructive discussion among the modeling approaches, the symposium will be concluded by comments from Christoph Klauer.

SYMPOSIUM: Neurocognitive Approaches to Decision Making

Patrick H. Khader[1], Thorsten Pachur[2]
[1]*Ludwig-Maximilians-Universität München;* [2]*MPI for Human Development, Berlin*
Khader@lmu.de

Judgment and decision making have been investigated mainly with behavioral measures. However, in recent years more and more studies include neurophysiological methods, especially functional magnetic resonance imaging, to inform these processes from a neuroscience perspective. Our symposium presents a selection of these innovative attempts to show that the inclusion of neuroscience methods can bring about fascinating insights into the mechanisms underlying judgment and decision making. The studies by Gluth, Fechner, and Khader investigate memory-based decision making. Here, relevant brain structures that mediate the retrieval of attributes related to the decision options have been identified in the hippocampus and ventral striatum, as well as in a fronto-parietal control network mainly consisting of the lateral prefrontal and posterior parietal cortex. Furthermore, the studies by Helversen and Fechner show that decision strategies can be successfully dissociated with neural measures, improving classifications based on behavioral data alone. Finally, the studies by Horr and Peters show that the orbitofrontal cortex contributes to intuitive decision making and that prospection abilities (i.e., projecting oneself into the future) can impact decision processes, with such interactions involving brain regions implicated in episodic memory.

SYMPOSIUM: Numerical Cognition

André Knops
Department of Psychology Humboldt-Universität Berlin
andre.knops@hu-berlin.de

The ability to perceive, comprehend and manipulate numerical information plays a pivotal role in today's society. Despite its relevance the underlying cognitive and neural mechanisms remain elusive. The diversity of approaches for investigating these issues has often resulted in subsuming numerical cognition under 'generic umbrellas' such as 'reasoning', 'vision' or 'memory', precluding in-depth discussion. The proposed symposium is seeking to provide a common platform where these questions can be bundled and coherently discussed. The symposium will comprise contributions that tackle the principles of perceiving and manipulating numerical information at different scales. These include the investigation of basic behavioral and neural principles of conscious and unconscious single number perception (Cavdaroglu, Hesselmann, Valsecchi, Vogel), and the role of motor codes in number priming (Sixtus). To better understand the formation of arithmetic knowledge one contribution will discuss the effects of non-invasive brain stimulation on the acquisition of arithmetic knowledge (Grabner). Once acquired, arithmetic knowledge comprises conceptual, procedural and semantic aspects. Two contributions will address the question how adequate arithmetic strategies can spontaneously be recognized (Godau) and what role fluid intelligence plays in strategy use (Dix). The neural connectivity of simple and complex mental arithmetic will be addressed (Katz). Further contributions come from Heim/McMillan/Grossman, Schroeder/Nuerk/Plewnia, and Weis/Estner/vanLeeuwen/Lachmann.

SYMPOSIUM: Vestibular Cognition: Affect, Space and Body Representation

Fred W. Mast
University of Bern Department of Psychology
fred.mast@psy.unibe.ch

A growing number of studies report the involvement of vestibular information in tasks that are – at first glance – remote from its classical functions like gaze control and upright stance. A case in point is the high comorbidity between vestibular disorders and psychiatric symptoms, showing the existence of vestibulo-affective connections. This becomes evident in Acrophobia that leads to impaired exploration and balance (Thomas Brandt, München), and in altered vestibular thresholds during simultaneous processing of emotional information (Nora Preuss, Bern). Vestibular information contributes to spatial aspects of bodily self-consciousness and multisensory integration (Christian Pfeiffer, Lausanne). We rely on an internal model of gravity for motor actions, perceptual estimations and imagined spatial transformations. Heiko Hecht (Mainz) has investigated whether dynamic motion extrapolation is based on body- or gravitational reference frames. This symposium shows the three major emerging areas of vestibular cognition, and an integrative view including modeling will be presented (Fred Mast, Bern). Vestibular information has widespread cortical projection areas, and in combination with behavioral research we will better explore the functions and networks. The field of embodied cognition will benefit from a more profound understanding of vestibular involvement in the processing of emotions, spatial transformations and the representation of the body.

SYMPOSIUM: R: Statistics at your command

Meik Michalke
Heinrich-Heine-Universität Düsseldorf Institut für Experimentelle Psychologie Abt. für Diagnostik und Differentielle Psychologie
meik.michalke@hhu.de

R is a free software package (and programming language) for statistical analyses and graphics. Over the past years, the acceptance of R has grown noticeably in the field of psychology: Insitutes consider its use as a cost-free replacement for SPSS, some have already accomplished this, and the number of releases of specialised psychology-related R packages is increasing. This symposium shall help provide visibility to the trend. Its contributions are addressed to both, interested novices and R professionals: From graphical user interfaces, which help teaching statistics, to tools, which assist your writing of articles or R packages, to concrete implementations of statistical methods you vainly look for in other statistical software.The symposium emerged on the initiative of of the German-speaking "psych-useRs" mailing list, which is open to all psychologists with an interest in R:https://wwwmail.uni-duesseldorf.de/mailman-lists/listinfo/psych-users

SYMPOSIUM: Breaking the rules:
Cognitive mechanisms and behavioral signatures of non-conformity

Roland Pfister[1], Robert Wirth[1], Aiste Jusyte[2]
[1]*Julius-Maximilians-Universität Würzburg;* [2]*LEAD Graduate School, University of Tübingen*
roland.pfister@psychologie.uni-wuerzburg.de

Social norms and rules are a cornerstone of human societies and ensure order and functioning. Yet, not all rules can be obeyed at all times, and the corresponding non-conformity comprises a large behavioral repertoire, including such behaviors as stealing, cheating, rule-breaking, lying, and deceiving. Research across different fields has devoted continued effort to uncover the predictors that render non-conformity more or less likely; by contrast, however, the cognitive representations and mechanisms guiding these different forms of non-conformity are only barely understood. The proposed symposium aims at gathering experimental psychologists from different communities at one table – with work on rule-breaking in healthy individuals as well as convicted criminals, unethical behavior in economic bargaining situations, as well as research on lying and lie-detection. The submitted talks thus provide a remarkable coverage of recent progress towards understanding the representations and mechanisms underlying different faces of non-conformity and the interrelations of converging lines of research.

SYMPOSIUM: Prioritization in Dual-Task Control

Aleksandra Pieczykolan[1], Tilo Strobach[2]
[1]University of Würzburg; [2]Humboldt Universität zu Berlin
aleksandra.pieczykolan@uni-wuerzburg.de

Dual-task research is characterized by investigating dual-task costs resulting from the execution of two concurrent tasks. Classical dual-task models, e.g. structural bottleneck or content-based interference accounts, usually explain these costs with rather rigid, inflexible processing mechanisms. However, more recent accounts place more emphasis on the notion of flexible and/or strategically adjustable processes. The present symposium brings together researchers, who study dual-task control under the aspect of flexible resource adjustments. Using a variety of experimental paradigms, they focus on such adjustments during the processing of two component tasks with different priorities or with improved task control as a result of practice. Specifically, the talks will address the limits of introspection about one's own dual-task costs in the PRP paradigm (Bratzke & Bryce) and how the combination of response modalities influences processing priorities (Pieczykolan & Huestegge). Furthermore, it is discussed how task prioritization is induced by explicit instruction (Steinborn & Huestegge) and how task order is modulated by task control processes such as inhibition (Cichecki, Nolden, & Koch). Finally, the effects of dual-task training on the efficiency of task control are presented (Strobach & Schubert).

SYMPOSIUM: Spatial cognition – Wayfinding

Florian Röser
Experimental and cognitive Science Justus-Liebig-University Giessen
florian.roeser@psychol.uni-giessen.de

In everyday life we need to find our way with the help of our innate navigation system: the (spatial) cognitive system. Therefore, it is important to understand the perceptual, cognitive, and neural processes underlying spatial abilities. Here, we want to focus on human wayfinding. In this symposium we will bring together interdisciplinary experimental research from various fields, such as wayfinding, spatial learning, mental mapping, ageing effects on route memory, and language in mental representation of space.

SYMPOSIUM: Prospective Memory – Current Trends and Theoretical Advances

Philipp Schaper, Tobias Grundgeiger
Julius-Maximilians-Universität Würzburg
philipp.schaper@uni-wuerzburg.de

Prospective memory (PM) refers to the memory of tasks which are to be executed in the future. Because PM failures account for more than 50% of all everyday memory problems (Crovitz & Daniel, 1984) factors affecting PM performance are of major interest. Research on PM was nearly nonexistent until 1990 but has now caught and kept interest of researchers worldwide resulting in a steadily rising number of publications (Einstein, 2014). The field has also diversified, encompassing several different established paradigms and areas of interest. This diversity is also represented in this symposium. While Walter and Meier present a study on PM performance differences due to absolute and relative importance instructions, Rummel et al. investigate the influence of the necessary interruption of the ongoing task to execute the delayed intention. Furthermore the time of day as indicator for on-peak and off-peak performance in PM tasks will be presented (Rothen & Meier). After completion of PM tasks the intentions should be deactivated, yet they can resurface and cause commission errors and interference on ongoing task performance. Schaper and Grundgeiger present research on commission errors using the delayed execute paradigm, while Möschel et al. present a set of studies on task interference of former intentions and their decay over repeated exposure rather than over time.

SYMPOSIUM: Neural bases of predictive processing in speech and language

Mathias Scharinger, Alessandro Tavano
Biocog – Cognitive incl. Biological Psychology University of Leipzig Germany
mathias.scharinger@uni-leipzig.de

When we listen to speech or read, our brains constantly process and monitor the available sensory information and benefit from predictive mechanisms allowing a specific language context to generate expectations about upcoming information (words, speech sounds etc.). The aim of this symposium is to bring together researchers with a genuine interest in how predictive mechanisms support the processing of spoken and written language in normal and adverse listening situations. The contributors of this symposium approach the topic from various angles, employ state-of-the art neuro-scientific methodologies, and try to further the understanding of how predictive mechanisms contribute to speech and language processing and which neural bases they draw on. In this respect, Ediz Sohoglu highlights the importance of fronto-temporal regions for perceiving and learning of degraded speech, while Corinna Bonhage employs a multi-modal experimental design to examine the neural bases of predictive mechanisms in reading. Johanna Rimmele and Mathias Scharinger bring together neural oscillatory dynamics and predictive processing with respect to speaker identification and speech sound categorization. Gesa Hartwigsen examines how the temporary disruption of language-related brain areas affects predictive processing, and Alessandro Tavano dissects top-down predictions from bottom-up predictions error propagation during speech perception.

SYMPOSIUM: What you ever wanted to know about eye-tracking but were afraid to ask

Michael Schulte-Mecklenbeck[1], Susann Fiedler[1], Frank Renkewitz[2], Jacob Orquin[3], Felix Henninger[4]

[1]Max Planck Institute for Human Development; [2]University of Erfurt; [3]Aarhus University; University [4]of Mannheim

schulte@mpib-berlin.mpg.de

In the last five years the number of studies in the field of judgment and decision making which employ eye tracking methodologies has almost doubled. However, in spite of this explosion of interest in the role of directed attention in the preference construction process most studies are limited to choices between two options; routinely risky prospects or common goods. Furthermore, such studies in general use very rudimentary analysis techniques, failing to take advantage of the tremendous amount and quality of data generated. This symposium will focus on ways in which both the data generated using eye tracking methodologies and the methodologies themselves can be advanced to expand our knowledge of directed attention's role in information acquisition, cognitive processes, judgment, and choice. Specifically, this symposium will include talks in which the link between attention and choice (Orquin) as well as preference construction (Henninger) is reviewed; the role of memory processes and their innovative study (Renkewitz) as well as the inference from observed fixation data to cognitive processes (Schulte-Mecklenbeck) will be discussed. Finally, an analysis and suggestion on how to report eye-tracking studies in a transparent manner (Fiedler) will open a broad discussion of these timely issues.This symposium provides an overview of the current affairs of eye tracking methodologies with succinct suggestions in which such methodologies can be improved.

SYMPOSIUM: How do we solve demanding situations – a discussion on driver skills and abilities

Maximilian Schwalm, Stefan Ladwig

RWTH Aachen University, Institut für Kraftfahrzeuge ika, Dpt Driver Experience and Performance,

ladwig@ika.rwth-aachen.de

During the past decades automobiles have grown to become one of the indispensible means of transportation in our daily life. Our today´s driving situations are characterized by high levels of traffic, the presence of additional information through information- or assistance systems as well as the availability of mobile devices. All of this makes driving a car a challenging and multidimensional task. This is why we have an important and significant body of research already available dealing with the negative correlation between driver distraction and the risk of driving failures. However, while drivers commonly perform other activities besides the sheer driving task severe traffic accidents are scarcely the consequence. It is to be assumed that there is a whole range of skills and abilities that normally enable drivers to solve even the most demanding driving situations successfully. The present symposium is to approach and discuss these skills and abilities in the dynamic interplay of driver and driving situation by inviting talks from both basic as well as applied research.

SYMPOSIUM: Attention and time in perception and action

Verena Carola Seibold[1], Bettina.Rolke[1], Ingrid Scharlau[2]
[1]*Eberhard Karls Universität Tübingen;* [2]*Leuphana Universität Lüneburg*
verena.seibold@uni-tuebingen.de

To successfully live within a rapidly changing environment, humans not only focus on currently relevant information, but also use of their ability to estimate time in order to attend to upcoming stimuli and prepare for future actions. On the one hand, for instance, the conductor of an orchestra must be able to dynamically deploy his attention within time and adjust his movements accordingly so that the orchestra members match the beat of the music. On the other hand, physical stimulus properties of the environment and current cognitive states modulate attentional deployment over time and influence time perception and estimation. For instance, time seems to fly when being engaged in a stimulating task but creeps when waiting at the bus stop in rainy weather. Not surprisingly, the investigation of both attention and time are central topics in Cognitive Psychology. The symposium combines behavioural, psychophysical, and modeling accounts to examine temporal aspects of information processing. Specifically, we present six studies focusing on how temporal attention influences perception or action, how it interacts with specific modes of attention (e.g., modality-specific attention), and how cognitive states (e.g., mood, arousal) modulate temporal attention and alter time perception.

SYMPOSIUM: How and What Am I Doing? New Findings on Metacognitive Monitoring and Control

Monika Undorf[1], Beatrice Kuhlmann[2]
[1]*University of Mannheim;* [2]*Heinrich-Heine-Universität Düsseldorf*
undorf@psychologie.uni-mannheim.de

Research on metacognition examines people's knowledge and assessment of their own cognitions (monitoring component) as well as their strategic approach to cognitive tasks (control component; cf. Nelson & Narens, 1990). In this symposium, new research on both components from a wide array of cognitive-experimental paradigms will be presented. Regarding metacognitive monitoring, the identification of specific influences on memory predictions is of great interest to the field. In the first talk, Eftychia Volz-Sidiropoulou will present evidence that item retrievability – but not item recognition – influences item memory predictions (delayed Judgments of Learning [JOLs]). Then, Monika Undorf will provide conclusive evidence that the experience of perceptual fluency, caused by an item's physical size, influences JOLs. The following talks will address the interplay of monitoring and control. In the third talk, Beatrice Kuhlmann will demonstrate the influence of presentation volume on predictions of source memory (Judgments of Source [JOS]) and on source-monitoring performance through metacognitively controlled guessing. In the fourth talk, Elisabeth Pieger will discuss the role of (dis)fluency for metacognitive monitoring and control in the domain of text processing. Finally, Barbara Drüke will explore metacognition in the domain of attention (Stroop task) and draw comparisons to findings from the memory domain.

SYMPOSIUM: Automatic processing of emotional stimuli: Evidence from new variants of priming tasks

Dirk Wentura, Michaela Rohr
Saarland University, Saarbrücken
wentura@mx.uni-saarland.de

An enduring topic of the cognition-&-emotion field is the fast, effortless, unintentional, potentially unconscious (viz. "automatic") extraction of evaluative features from emotional stimuli, which is typically explored with the priming paradigm. During recent years, several new questions came to the foreground. Four talks are considered with the question whether more than valence is automatically extracted from emotional stimuli. Kozlik and Neumann examined whether there is evidence for an authenticity check, i.e., whether authentic emotional expressions can be differentiated from simulated ones. Rohr and colleagues report about experiments with masked pictures of emotional scenes and explore the differentiation of automatic evaluation. Neumann presents data that show that the second dominant of Osgood's dimensions, i.e., potency, is automatically extracted. Burghardt explored whether automatic valence processing is mediated by semantic meaning. Two further talks deal with the processes of automatic evaluation. Recently, de Paula Couto and Wentura introduced a new variant of the evaluative priming paradigm, that is, a go/no-go version. In the talk they provide evidence that this version is based on different processes than the standard task. Recent evidence suggests a close link of priming and working memory research. Scherer and Wentura present first evidence on this issue.

SYMPOSIUM: Intuition and insight: Two fundamentally different non-conscious (solution) processes?

Thea Zander, Kirsten G. Volz
Centre for Integrative Neuroscience, University of Tübingen
thea.zander@cin.uni-tuebingen.de

It seems as if there is consensus that intuition precedes insights and therewith fuels insight-based problem solving. Yet, research on intuition and insight developed mostly independently using different paradigms and referred to one another only marginally. It is now about to tackle this issue. The symposium will therefore focus on the relationship between intuition and insight. While intuition has been defined as a non-conscious, experience-based and gradual process resulting in a strong tendency towards a hunch or a hypothesis, insight processes have been characterized by a representational change of the problems' elements resulting in a sudden insight into the solution (accompanied by an "aha!"-experience). Thus, both instances may be conceived of as a special type of problem solving, namely when approaching an idea occurs by sensing and solutions cannot be found through analytical processing. Both processes, however, may be discerned according to their underlying mechanisms. It is suggested, that they differ to the extend that solutions can be consciously verbalized, regarding their gradual versus discontinuous unfolding, and whether and how feelings are involved (feeling of warmth versus "aha!"-experience). Based on this suggestion, the symposium aims to disentangle similarities and differences of intuition and insight from different perspectives.

Talks and posters

Can actor gaze modulate the recent event preference during spoken sentence comprehension?

Dato Abashidze, Pia Knoeferle
Cognitive Interaction Technology Excellence Cluster, Department of Linguistics, Bielefeld University
dabashidze@cit-ec.uni-bielefeld.de

Visual-world eye-tracking studies show rapid visual-context effects on spoken comprehension. Participants prefer to inspect the target of a recently depicted event over the target of a future event when they listen to a related sentence (NP1-VERB-ADV-NP2), and this holds even when most sentences refer to the future events. In two eye-tracking studies (each N=32) we tested to what extent the recent-event preference is modulated by a situational cue such as gaze, which rapidly directs visual attention. An Actor performed one recent action before and one future action after the sentence. The sentences about these events were equally often in the future and past tense. In half of the trials, the actor gazed at the target object (Experiment 1: 380 ms after verb onset; Experiment 2: at verb onset). Results: Gaze modulated the recent-event preference earlier during the verb region than in previous studies, and more in the future condition than in the past, thus mitigating the preference. However the preference for the recent target replicated throughout the sentence irrespective of gaze and tense. We propose that what underlies the recent event preference is an epistemic preference for assertions about past events (McFarlane 2003; see Staub & Clifton, 2001).

Affective responses to emotion words are boosted in communicative situations

Rasha Abdel Rahman, Lana Rohr
Humboldt-Universität zu Berlin
rasha.abdel.rahman@hu-berlin.de

Emotional verbal messages are typically encountered in meaningful contexts, for instance, during face-to-face communication in social situations. Yet, they are often investigated by confronting single participants with isolated words on a computer screen, thus potentially lacking ecological validity. In the present study we recorded event-related brain potentials (ERPs) during emotion word processing in communicative situations provided by videos of a speaker, assuming that emotion effects should be augmented by the presence of a speaker addressing the listener. Indeed, compared to non-communicative situations or isolated word processing, emotion effects were more pronounced, started earlier and lasted longer in communicative situations. Furthermore, while the brain responded most strongly to negative words when presented in isolation, the same words yielded a positivity bias with more pronounced emotion effects for positive words in communicative situations. These findings demonstrate that communicative situations – in which verbal emotions are typically encountered – strongly enhance emotion effects, underlining the importance of social and meaningful contexts in emotion processing.

Practice with Bandwidth-Feedback Facilitates Automatization in Motor-Learning

Manfred Agethen, Daniel Krause
University of Paderborn
manfred.agethen@upb.de

For most motor skills, the level to which the movement is controlled automatically is crucial (James, 1890). Feedback is of particular interest, when it comes to motor learning (Marschall et al., 2003), but the influence of informative content, frequency and timing of feedback on automatization is widely unknown. Based on the assumptions that positive feedback has crucial effects on motor learning (Schultz, 2002) and that errors during motor learning provoke explicit hypothesis testing and therefore explicit learning (Masters & Maxwell, 2004), it is believed that positive feedback as well as the reduction of error-feedback facilitates automatization of motor skills. In the present study the influence of bandwidth-feedback (qualitative positive feedback within a certain bandwidth of performance and quantitative error-feedback outside of this bandwidth) on the automatization (dual-task cost reductions) of an arm-movement-sequence was examined. The results indicate that the bandwidth-feedback leads to a greater increase of automatic control compared to a group with 100% feedback frequency. The comparison of the bandwidth-group to a yoked-control group (same error-feedback frequency without positive qualitative feedback) shows group differences by tendency. These tendencies indicate that the feedback of positive results as well as a reduction of feedback frequency has a positive influence on automatization.

Embodiment im Zweitspracherwerb: Erfahrungsspuren bei der Verarbeitung von Präpositionen

Daniela Ahlberg
Eberhard Karls Universität Tübingen, Graduiertenschule LEAD
daniela.ahlberg@uni-tuebingen.de

Ein neueres Konstrukt der Sprachverarbeitung ist die sogenannte verkörperte Kognition, oder auch Embodiment, in dem Motorik und Wahrnehmung eng mit der Sprachverarbeitung verknüpft sind (Barsalou, 1999). Innerhalb dieses Ansatzes existiert die spezifische Theorie der Erfahrungsspuren, oder auch Experiential-Traces-Theory genannt (Zwaan & Madden, 2005), nach der Sprachverarbeitung auf der Reaktivierung von Erfahrungsspuren basiert, die durch Erfahrungen mit den korrespondierenden Objekten, Zuständen oder Ereignissen gebildet wurden. Während diese Theorie im Erstspracherwerb viel Anklang und Bestätigung erfahren hat (Jirak, Menz, Buccino, Borghi & Binkofski, 2010; Glenberg, A. M., Goldberg, A., Zhu, X., 2011) bleibt unklar inwiefern sie auf den Zweitspracherwerb zu übertragen ist. In dieser Studie soll mit Hilfe einer Adaptation des Stroop-Paradigmas (siehe Lachmair, et al. 2011) der Einfluss der körperlichen Erfahrungen auf den Zweitspracherwerb von räumlichen Präpositionen untersucht werden. Hierzu sollen verschiedene Werkrealschüler der Klassen 5-9 mit unterschiedlichen Sprachhintergründen untersucht werden. Zusätzlich werden auch noch weitere Einflussfaktoren wie das Erwerbsalter, Migrationshintergrund und die allgemeine Sprachkompetenz in die Untersuchung einbezogen. Durch diese Studie erhoffen wir uns erweiterte Kenntnisse darüber, inwiefern es sinnvoll ist die Bildung von Erfahrungsspuren im Zweitspracherwerb aktiv durch entsprechende Trainings zu unterstützen.

Social Influence on Perceptual Decision-Making: Integrating Evidence from Event-related Potentials and a Diffusion Model Analysis

Thorsten Albrecht[1], Markus Germar[2], Andreas Mojzisch[2]
[1]*Georg-August University of Göttingen;* [2]*University of Hildesheim*
Thorsten.Albrecht@biologie.uni-goettingen.de

Recent research in social neuroscience provides first evidence that social influence can alter early visual processing (e.g., P1; Trautmann-Lengsfeld & Herrmann, 2013). However, it remains unclear how these early effects can contribute to changes on the behavioral level (i.e., responding conform vs. non-conform). Following a diffusion model approach, Germar, Schlemmer, Krug, Voss and Mojzisch (2014) disentangled the cognitive processes underlying the speeded binary decisions in a perceptual-decision making task. In accordance with the findings from social neuroscience, they revealed that social influence can alter the uptake of sensory information. However, since a diffusion model analysis is based on behavioral parameters (i.e., response time distributions), the neural processes underlying the effect found are still to be uncovered. In the present study we used event-related potentials and a diffusion model analysis to bring together the two lines of research. We found that social influence can alter early visual processing (P1, N1), but that these effects were not related to changes in the parameters of the diffusion model. Additionally, we explored the correlations between diffusion model parameters and later ERP components (P3, LRP). We will discuss the relations between ERPs and diffusion model parameters and their implication for further research on social influence.

The influence of practice on individual differences in metacontrast masking

Thorsten Albrecht, Uwe Mattler
Georg-August University Göttingen
Thorsten.Albrecht@biologie.uni-goettingen.de

In metacontrast masking the visibility of a briefly presented target stimulus is reduced by a subsequent masking stimulus whose contours fit snugly around those of the target stimulus. Depending on stimulation parameters discrimination performance either increases (type-A) or decreases (type-B) with stimulus onset asynchrony (SOA) between target and mask. But even under identical stimulation conditions, some participants exhibit type-A masking and some exhibit type-B masking. Although these differences are enhanced over the course of an experiment by perceptual learning, it is still unclear if they result from initial differences in stable dispositions or if situational variables determine which masking type is learned. We present studies investigate (1) how individual masking functions evolve with longer practice and (2) if participants can be forced to develop one or the other type of masking function by training with particular SOAs. Results show that practice over five sessions left the masking type unchanged. Rather, individual masking functions even got more pronounced. Moreover, training with only one short or one long SOA did not affect the resulting type of individual masking functions. Thus, individual masking functions seem to be determined more by preferences or dispositions than by practice in the particular task.

N400 modulations underlying repeated prime presentation in associative priming paradigm

Alisa Aleshkovskaya, Michail Sopov
Saint Petersburg State University
a.aleshkovskaya@mail.ru

In the current study we used event-related potentials (ERPs) to examine special features of prime processing in associatively related or unrelated prime-target word pairs (associative priming paradigm). It is assumed that preceded prime presentation leads to improvement of related target processing efficiency if compared to unrelated target. We made an assumption that not only preceded prime presentation effects target processing, but also target presentation initiates rearrangement of prime representation. This assumption was confirmed by experiment results: repeated presentation of primes from non-associated word pairs, which were presented a day earlier, is accompanied by increase of ERPs positivity in 350-550 ms temporal window (N400 ERP component) as compared to primes from associated word pairs (differences are statistically reliable in C3, Cz, C4 locations). Decrease of N400 amplitudes is connected with improvement of stimuli processing efficiency in identification tasks (Gotts et al., 2012). We consider obtained results as a confirmation for the idea of proactive brain, which continuously generates predictions concerning subsequent stimulation (Friston, 2003; Bar, 2009). Priming can be regarded as a prediction error minimization caused by “obtruding” a definite prediction via prime presentation. Mismatch of such prediction and sensory input causes rearrangement of prime representation.

Crossmodal odor-taste congruence – matching, liking & knowing

Sherlley Amsellem, Kathrin Ohla
German Institute of Human Nutrition, Potsdam-Rehbrücke, Nuthetal, Germany
sherlley.amsellem@dife.de

During food ingestion both, olfactory and gustatory percepts are elicited and bimodal memories formed. Prior experiences allow us to assess the congruence of odor-taste combinations, i.e. how well they correspond. Whether the distinct sensory events are perceived as one coherent entity likely shapes the hedonic experience and subsequent food choice. The effects of congruence on the perceptual experience of odor-taste combinations are still unknown and were investigated in the present study. We hypothesized that the degree of odor-taste congruence influences multisensory integration processes and thereby aspects of the perceptual experience. To test this hypothesis, we presented odor-taste pairs of varying degrees of congruence, spaning from fully congruent to fully incongruent. Participants rated stimulus intensity, pleasantness, familiarity and congruence using visual analog scales. To assess the degree of odor-taste integration we measured response times to the bimodal pairs and their unimodal constituents. Familiarity and pleasantness ratings changed as a function of perceived odor-taste congruence. Stimulus intensity, in contrast, was strongest for congruent and incongruent and dampened for ambiguous odor-taste pairs. Response time data suggest that odors and tastes were indeed integrated. These results suggest that cross-modal odor-taste percepts are modulated by learned associations and perceived congruence between the sensory inputs.

Inter-Trial Contingencies of Cueing Effects

Ulrich Ansorge
Fakultät für Psychologie Universität Wien
ulrich.ansorge@univie.ac.at

We tested for variations of attentional and response-activation effects following experienced conflict between attention shifts and response activations (so-called 'Gratton effects'). We found that congruence effects based on response activations were stronger following congruent than incongruent trials. An analogous pattern was replicated for attentional validity effects that were stronger after validly than invalidly cueing the target. However, conflict in preceding incongruent trials had no influence on the validity effect in subsequent trials, and conflict in preceding invalid trials did not diminish the congruence effect in a following trial. This was found with a dual-task (Experiment 1) and a single-task procedure (Experiment 2). Results suggest that attention plays no role in Gratton effects based on response activations.

The Generalized Context Model provides a single-process account of two-dimensional false recognition data

Roscoe F. J. W. Araujo, Frederik Aust, Christoph Stahl
University of Cologne
frederik.aust@uni-koeln.de

Research on false recognition of items and events, often accompanied by strong subjective feelings of confidence, has informed the study of the structure and processes of episodic memory (Gallo, 2006). Double dissociations between true and false recognition (e.g., Stahl & Klauer, 2008) have been difficult to account for by single-process models of memory and have been invoked as argument for the existence of two separable mnemonic processes (e.g., Brainerd & Reyna, 2005). In two false recognition experiments, we varied target repetitions and the number of lures in study lists and demonstrate the two-dimensionality of old-new responses through state-trace analysis. We then fit the Generalized Context Model (GCM, Nosofsky, 1989)–a member of the larger class of single-process global matching models that predict performance based on inter-item similarities (e.g., REM, Shiffrin & Steyvers, 1997)–to these data. The model was able to reproduce the two-dimensional pattern of old-new responses. GCM and global matching models, thus, provide a single-process account of false recognition: mnemonic activation of targets and lures differs as a function of inter-item similarities. We discuss criterion shifts as alternative explanation and the implications of our findings for dual-process accounts of false memory.

TreeBUGS: A Tool for Hierarchical MPT Modeling using BUGS

Nina Rebecca Arnold[1], Denis Arnold[2]
[1]*University of Mannheim;* [2]*Eberhard-Karls-Universität Tübingen*
niarnold@mail.uni-mannheim.de

Multinomial processing tree (MPT) models are a class of models that can be applied to categorical data to determine underlying cognitive processes. Traditionally, MPT models are applied to aggregated data thereby ignoring heterogeneity in participants and items. This can lead to biased parameter estimates. Recently, hierarchical extensions have been proposed to incorporate heterogeneity and yield individual parameter estimates. This makes them applicable to even more research questions. Programs like WinBUGS (Spiegelhalter, Thomas, Best, & Lunn, 2003) can estimate hierarchical models by using Markov chain Monte Carlo methods. There exist WinBUGS implementations for the beta-MPT approach (Smith & Batchelder, 2010) and the latent-trait approach (Matzke, Dolan, Batchelder, & Wagenmakers, 2013) for the pair-clustering MPT model that can be adapted to other models but still require a certain amount of programming knowledge. TreeBUGS is an R package that can translate commonly used model files (eqn-files) into WinBUGS code for beta-MPT modeling and calls WinBUGS with only little additional information needed. It provides estimates of the individual and group parameters and their variability. Extensions for the latent-trait approach and other Gibbs samplers are planned.

The benefits of outcome variability on adaptation to change

Nathaniel James Siebert Ashby, Cleotilde Gonzalez
Carnegie Mellon University
nathaniel.js.ashby@gmail.com

Our decisions often involve repeated choices between options which contain several possible outcomes, and where possible outcomes can change over time, though such decisions are rarely investigated in the lab. Therefore, in the current studies we examined the impact of payoff variability on adaptation to changes in a non-stationary-decisions-from-experience paradigm (cf. Rakow & Miler, 2009). In Study 1 participants made repeated choices between low or high-payoff variability options and received immediate outcome feedback. After 50 choices one option's value changed such that it became (non-)dominant. We found that rates of maximization were higher before the change in the low-payoff variability option. However, the direction of change had a greater impact on the low-payoff variability option, with decreases in value being adapted to more readily than increases. Study 2 increased the number of choices made before the change occurred and found that increased experience reduced adaptation. Study 3 employed several levels of payoff-variability and found that low and no-payoff variability options led to greater rates of maximization before the change, while following the change low to moderate-payoff variability led to the greatest rates of adaptation. Thus it appears that payoff-variability acts as a double-edged sword, stymieing initial learning, while facilitating adaptation.

The two faces of selective memory retrieval: Earlier decline of the beneficial than the detrimental effect with older age

Alp Aslan[1], Andreas Schlichting[2], Karl-Heinz T. Bäuml[2]
[1]Martin-Luther-University Halle-Wittenberg; [2]Regensburg University
alp.aslan@psych.uni-halle.de

Depending on the degree to which the original study context is accessible, selective memory retrieval can both impair and improve recall of other memories. Here, we examined age-related differences in these two faces of memory retrieval. In Experiment 1, younger and older adults studied a list of target and nontarget items and, thereafter, received a cue to either forget or continue remembering the list. Later, memory for the target items was tested, either with or without preceding retrieval of the nontarget items. Whereas preceding nontarget retrieval impaired recall of (easy-to-access) to-be-remembered targets in both age groups, it improved recall of (hard-to-access) to-be-forgotten targets in younger, but not in older adults. Experiment 2 was similar to Experiment 1 except that we manipulated the accessibility of the study context by varying the delay (short vs. long) between study and test. Preceding nontarget retrieval impaired recall of (easy-to-access) targets in the short-delay condition, regardless of age; in contrast, it improved recall of (hard-to-access) targets in the long-delay condition in younger, but not in older adults. The results suggest an age-related dissociation between the two faces of memory retrieval, indicating earlier decline of the beneficial than the detrimental effect of selective retrieval.

Implicit and explicit attitudes toward the ex-partner after (ex-)partner schema activation

Ursula Athenstaedt
Institute of Psychology, University of Graz
ursula.athenstaedt@uni-graz.at

What individuals deliberately think about their ex-partner might not always be resembled by unconscious processes. Especially, when one is confronted with thoughts of the ex-partner (i.e., activates this mental representation) automatic and reflective processes might not converge. Two studies investigated implicit and explicit attitudes after the activation of the ex-partner schema vs. current partner schema (vs. control group). More specifically, participants had to answer different questions concerning their ex-partner (vs. their partner vs. a comic figure) before the attitude measurement. We expected implicit attitudes to be less affected by schema activation than explicit attitudes. In Study I, 90 women participated. Study II used the same methodology for 114 men and women to examine possible gender differences. Implicit attitudes were measured with a single category IAT, explicit attitudes with a questionnaire. The results confirmed the hypotheses for women. Men seem to have generally more positive attitudes toward their ex-partners. The found effects of the schema activations were additionally moderated by several variables as, for instance, anxious attachment representations. However, the importance of these variables differed for the two attitude measures. The results give new insights in conscious and unconscious processes individuals undergo after the separation from an intimate partner.

The Effects of Saturation on Web Site Trustworthiness, Appeal, and Perceived Usability

Yannik Augustin, Alexander Skulmowski, Simon Pradel, Günter Daniel Rey
E-Learning and New Media, Institute for Media Research, TU Chemnitz
yannik.augustin@s2011.tu-chemnitz.de

Previous research on the perception of web sites has shown that users' impressions of web sites generated in very short presentation durations (50 ms) correlate with their assessment after longer presentation durations. On the basis of the importance of saturation in the design of web sites, we present a 2x3 study design in which participants either assessed highly saturated or de-saturated versions (between-subjects) of 50 web sites coming from 10 content domains. All web sites were presented three times to each participant in varying durations (50 ms, 500 ms, and 10 s) and each site was rated regarding its trustworthiness, appeal, and perceived usability. Based on differences caused by the saturation manipulation, we propose a temporal model in which users first evaluate the appeal of a web site, followed by its usability, and lastly its trustworthiness. Our results have broad implications for the design and presentation of information using digital media.

papaja: Create publication-ready manuscripts in R

Frederik Aust, Marius Barth
University of Cologne
frederik.aust@uni-koeln.de

Recently, growing attention has been drawn to the large number of scientific findings that are not reproducible. One aspect of this worrisome state of affairs, which is not limited to the field of psychology, is non-reproducibility of statistical analyses and scientific computations. Given that raw data are available, the reproducibility of analyses should be considered a minimum standard for judging scientific claims (Peng, 2011). Two obvious reasons for non-reproducibility of analyses are incorrect and incomplete reporting of methods and statistics. A review of psychological journal articles found that 18% of the statistical results were reported incorrectly; these errors lead to incorrect inferences in 15% of surveyed articles (Bakker & Wicherts, 2011). Dynamic documents that merge reports and analysis scripts are an effective way to avoid erroneous statistical reporting (Gandrud, 2013). We introduce 'papaja', a package for the R Statistical Environment (R Core Team, 2014) that provides a framework to create dynamic documents that adhere to American Psychological Association (APA) guidelines (https://github.com/crsh/papaja). The papaja package is tailored to the needs of experimental psychologists: we supply convenience functions to report statistics in accordance with APA guidelines in a way that ensures reproducibility of analyses and facilitates future synthesis of results.

Flugzeuglärm und Leistungsveränderungen bei der Gepäckkontrolle am Flughafen

Nils Backhaus, Katharina Becker
Technical University Berlin
nils.backhaus@tu-berlin.de

Mit den gestiegenen Sicherheitsanforderungen und der Zunahme an Flugbewegungen nehmen auch die Anforderungen an die Arbeitsplätze in der Luftverkehrsbranche zu. Dabei ist der Arbeitsplatz von Luftsicherheitsfachkräften in der Gepäckkontrolle durch Fluglärm und Fluggastgeräusche (insbesondere Sprache) besonders beeinträchtigt. Diese Umweltfaktoren der Arbeitsplätze wurden aber bislang noch nicht empirisch untersucht. Um die Bedeutung der Wirkung dieser Einflussgrößen auf die Leistung abschätzen zu können wurde ein Laborexperiment durchgeführt. 18 Luftsicherheitsfachkräfte absolvierten eine Gepäckkontrollaufgabe mit einem simulierten Röntgenscanner, in der sie verbotene Gegenstände aus Gepäckstücken auf Bildern erkennen sollten. In unterschiedlichen Durchgang wurden die äußeren Bedingungen durch eingespielten Fluglärm und Umgebungsgespräche variiert und die Auswirkung auf die Leistung in der Aufgabe gemessen. Als abhängige Maße wurde die Reaktions- bzw. Suchzeit bis zur Entscheidung, ob ein gefährdendes Objekt (nicht) vorlag, erfasst. Zudem wurden zentrale Maße der Signalentdeckungstheorie (Sensitivitätsmaße, Trefferraten, Falsche Alarme) aus den Verhaltensdaten der Probanden berechnet. Die Ergebnisse zeigen, dass es bei Lärm zu einer signifikanten Leistungsverbesserung der Luftsicherheitsfachkräfte kam. Diese – zunächst paradoxen – Effekte können vor dem Hintergrund der Theorie der kompensatorischen Kontrolle (Robert & Hockey, 1997) interpretiert werden: Scheinbar wissen die Probanden über die Beeinträchtigung durch den Lärm und mobilisieren daraufhin verfügbare Ressourcen für die Erledigung der Aufgabe. Fraglich bleibt, wie lange die kompensatorischen Effekte wirken und wie belastend die Situation für die Versuchspersonen empfunden wird.

Einfach und doch sicher: Die Wirkung von Passwortrichtlinien auf Websites

Nina Bär[1], Steven Furnell[2]
[1]TU Chemnitz; [2]Plymouth University, Plymouth, UK
nina.baer@psychologie.tu-chemnitz.de

Passwörter sind sehr beliebt, um den Zugang zu IT-Systemen gegenüber Unberechtigten zu schützen. Obwohl diese Authentifizierungsform überaus geläufig ist, klaffen das vermeintliche Wissen der Nutzer und die tatsächliche Passwort-Praxis weit auseinander. Die Verantwortung hierfür trägt nicht allein der Nutzer, auch Serviceanbieter sind in der Pflicht, Sicherheitskonzepte möglichst einfach umzusetzen. Um zu prüfen, ob dafür bereits einfache Maßnahmen wie die Bereitstellung von Passwortrichtlinien und eines Passwort-Meters auf Websites effektiv sind, wurden in einem Experiment (N = 41) zwei Versionen derselben Website getestet. In der Experimentalbedingung enthielt die Website ausformulierte Hinweise zur Gestaltung sicherer Passwörter mit Beispielen sowie ein interaktives Feedback zur Sicherheitsstufe des gewählten Passworts. In der Kontrollbedingung enthielt die Website lediglich den Hinweis, ein möglichst sicheres Passwort zu generieren. In keiner der beiden Bedingungen gab es eine systemseitig erzwungene Korrektur des Passwortes. Erfasst wurde neben der Passwortsicherheit die subjektiv vom Nutzer empfundene Einfachheit der Passworterstellung. In der Experimentalbedingung generierten die Probanden Passwörter höherer Sicherheit. Gleichzeitig fiel ihnen die Erstellung eines guten Passworts leichter, wenn Passwortrichtlinien vorhanden waren. Daraus ergibt sich, dass Website-Provider allein durch das Anbieten derartiger Richtlinien die Sicherheit ihrer Nutzer unterstützen können.

The effect of canned laughter on film perception

Andreas Michael Baranowski, Heiko Hecht
University of Mainz
baranowski@uni-mainz.de

Laughter is contagious and TV shows have made use of this by adding so-called canned laughter to their shows. Past research has explored under what conditions a laugh track makes material seem funnier. However, the theoretical foundations of why a laugh track might work have escaped scientific scrutiny in the past. We designed a series of experiments with a total of 110 subjects to test the two main competing theories against each other. The social proof theory explains the effect of a laugh track by the social proof consumers get from the people audible on the laugh track. The social facilitating theory, on the other hand, explains the effect with the social function of laughter to facilitate group building and bonding. We introduced a scream track in addition to the laugh track, which should mirror the function of canned laughter if social proof theory was right. We found that this was only the case when real people were present, but not for the pre-recorded audience reactions. We conclude that the social facilitating theory explains our data best for the laugh track, but social proof has an additive effect when a live audience is present.