



TeaP 2012

Abstracts

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Abstracts
of the
**54. Tagung experimentell
arbeitender Psychologen**

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in Mannheim

edited by
Arndt Brüder, Edgar Erdfelder, Benjamin E. Hilbig,
Thorsten Meiser, Rüdiger F. Pohl, and Dagmar Stahlberg



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Foreword

Welcome to the 54th *Tagung experimentell arbeitender Psychologen* (TeaP) 2012 in Mannheim. This traditional meeting of experimental psychologists dates back to 1959 when it first took place in Marburg with about 35 participants following an invitation of Heinrich Düker. It was a starting point of the growing influence of experimental approaches to psychology in the German speaking countries. The TeaP has been held annually ever since, and it became one of the largest psychology conferences in Europe. It has always been organized by active researchers at the respective hosting universities, thus enabling low conference fees and a unique informal character including the participation of many junior scientists. This year, the TeaP is hosted by the University of Mannheim for the first time.

A total of 794 scientific contributions were accepted, organized in symposia, thematic sessions, and poster sessions. These submissions cover a broad range of psychological topics, the common denominator of which is the experimental method for empirical investigation. We are confident that the variety represented in the conference will allow for a lively scientific exchange between researchers.

This year's organizers have introduced English as the official conference language intending to broaden the scope and possibilities for exchange between researchers from many countries -- reflecting the high degree of international collaboration in modern science, and resulting in a relatively high number of presenters and co-authors from other European countries and the U.S..

The large number of contributions naturally resulted in a rather tough schedule with a lot to offer each day. We hope that all visitors will spend three stimulating and enjoyable days in Mannheim - in terms of scientific exchange and beyond.

The organizers:

Arndt Bröder

Edgar Erdfelder

Benjamin E. Hilbig

Thorsten Meiser

Rüdiger F. Pohl

Dagmar Stahlberg

Keynote lectures

Query Theory and deciding what we choose

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Many psychologists and behavioral economists agree that many of our preferences are constructed, rather than innate or pre-computed and stored. Little research, however, has explored the implications that established facts about human attention and memory have when people marshal evidence for their decisions. This talk reviews query theory, a psychological process model of preference construction, and uses it to explain a range of phenomena in intertemporal choice, including our impatience when we are asked to delay consumption. Behavioral data in combination with neuroscience evidence (fMRI and TMS) provides support for query theory's assumptions about the processes underlying intertemporal preference construction. We also talk about query theory and choice architecture, in particular applications to attribute labeling, default effects, and increasing patience.

Levels of mental construal

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I will present the current view of Construal Level Theory (Liberman & Trope, 2008; Trope & Liberman, 2010; Shapira, Liberman, Trope and Rim, in press) according to which forming a higher-level construal is an act of retaining primary, defining features and omitting secondary, mutable features. For example, "food" as opposed to "potatoes" renders function primary and other attributes, such as color, shape and price secondary. A higher level construal is a statement that two situations separated from each other by time, space, or social perspective would be similar to each other as long as they share high level features. In that sense, higher level constructs bridge across distances. For example, construing an object as "food" rather than "potatoes" makes it possible to connect between socially more distal people and between worlds that are more distal from each other in time and space. In my talk, I would like to present different types of high-level construals, which correspond to different principles of reduction: forming broader categories, perceiving gestalts, identifying a figure on a ground, identifying relations of subordination, forming theories and forming symbolic representations. I will show research or (when research does not exist) make predictions on how these are related to psychological distance.

Adaptive memory: Evolutionary constraints on remembering

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Human memory evolved subject to the constraints of nature's criterion—differential survival and reproduction. Consequently, our capacity to remember and forget is likely tuned to solving fitness-based problems, particularly those prominent in the ancestral environments in which memory evolved. Do the operating characteristics of memory continue to bear the footprint of nature's criterion? This is ultimately an empirical question. I will present evidence suggesting that our memory systems may indeed be “tuned” to fitness-relevant dimensions, including survival, animacy, and the presence or absence of contamination. I'll conclude by discussing the inherent difficulties that surround evolutionary accounts of cognition. Given there are no fossilized memory traces, and only incomplete knowledge about ancestral environments, is it possible to develop an adequate evolutionary account of remembering?

Are there multiple memory systems? A new theoretical framework for implicit and explicit memory

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We have recently developed a new framework, based on signal detection theory, for understanding the relationship between explicit (e.g., recognition) and implicit (e.g., priming) memory. Within this framework different assumptions about sources of memorial evidence can be framed. Application to experimental results provides robust evidence for a single-system model in preference to multiple-systems models. This evidence comes from several sources including studies of the effects of amnesia and aging on explicit and implicit memory.

Symposia

Dual processes in episodic memory: Evidence from reversed associations

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Fuzzy trace theory proposes the existence of two separable and independent memory traces: gist and verbatim memory. Empirical dissociations of these two dimensions have been demonstrated repeatedly. However, the single- or double-dissociation approach does not provide unequivocal evidence for the existence of two separable underlying dimensions. Here, we used a reversed association approach to test whether the findings can be explained by one-dimensional models. This approach amounts to testing whether, between two dependent variables, positive as well as negative relations can be obtained across conditions; such a pattern could not be accounted for by a single underlying parameter. Using various stimuli (category and DRM word lists; pictures of objects and scenes), we demonstrated reversed associations between measures of verbatim and gist memory. These findings provide considerable support for a two-dimensional nature of episodic memory.

A hierarchical MPT modeling approach to investigating the relationship between prospective memory and working memory

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We reanalyzed two studies to examine the relationship between working memory (WM) and prospective memory (PM). Both studies used the MPT model of PM to disentangle prospective and retrospective components. Study 1 (Smith & Bayen, 2005) originally assigned 20 participants to higher vs. lower working memory span group according to median split in a counting span task. Study 2 (Smith et al., 2011) used a much larger sample size (413 participants), and the authors used an extreme group design with only the 25 % of the lowest scores and the 25 % of the highest scores used for the analysis. While standard MPT aggregate over participants and items, we are able to estimate individual model parameters with the Beta-MPT and thus avoid disadvantages of groupwise analyses. We found a relationship between WM and the prospective component of PM with two different measures of WM.

Contact experiences for those who avoid it. Imagined contact effects on authoritarians and social dominators

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Intergroup contact is among the most effective ways to improve intergroup attitudes. According to a Dual Process Model perspective, intergroup contact should be particularly effective for people high in Right-Wing-Authoritarianism (RWA), but not for those high in Social Dominance Orientation (SDO), because of different underlying motivational goals. In two studies we confirmed the hypotheses that high-RWAs, but not high-SDOs, show less negative emotions toward Turks (Study 1; $N = 118$) and more willingness to engage in future contact with Gypsies (Study 2; $N = 81$) after imagined contact, that is, the mental representation of a positive encounter with an outgroup member. The second study also indicated that imagining a positive encounter between two outgroup members does not increase future contact intentions. The possible role of imagined contact as a first step in contact intervention programs for highly biased individuals will be discussed.

The role of attention and perspective in the valuation of risky prospects

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In this paper we present three studies in which we test predictions derived from Decision Field Theory (DFT) (Busemeyer & Townsend, 1993) and general evidence accumulation models. In Study 1 we find that attentional focus is driven in part by probabilities as predicted by DFT. Furthermore, we find that valuations are significantly predicted by attentional focus as suggested by general evidence accumulation models. Study 2 serves to replicate and extend these effects by showing that differences in valuation between perspectives (i.e., the endowment effect) can also be partially explained by differences in attentional focus. Study 3 replicates the effects found in Studies 1 & 2 while controlling for possible confounds. Taken as a whole the three studies presented here lend support to DFT and general evidence accumulation models by showing that such models can readily be fit to decisions involving valuation while accounting for differences in perspective.

Helping one while neglecting others: The role of attention in donation decisions involving multiple targets

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Recent literature has shown that visual attention plays a pivotal role in the formation of preference and in the construction of value. In two experiments we extend these findings by examining the impact of attentional allocation in donation decisions through the use of eye-tracking methodologies. In both experiments participants were required to select one individual they wished to donate to from two, three, or four potential recipients. In Experiment 1 we find that increased attention to an eventually selected recipient led to significant decreases in donations. In Experiment 2 we attempted to explain this finding by including several measures of emotional regulation which have previously been shown to explain both affective responses and cognitive processes. In Experiment 2 we find that individual differences in cognitive and affective processing influence the impact of attention in donation behavior as predicted.

The affective tuning hypothesis: Implicit affective responses to real and anticipated cognitive demands

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Over the past twenty years, a substantial body of research has been accumulated in support of the "cognitive tuning hypothesis" that cognitive processes are automatically adapted to meet environmental demands as signalled by affective states (i.e., Schwarz & Clore, 1983; 2002). The present research investigates the flip-side of this hypothesis; that affective states are automatically adapted to meet environmental demands as signalled by cognitive processes. This "affective tuning hypothesis" is tested in four experiments that investigate the impact of a variety of anticipated and actual cognitive processing styles (local vs. global, relational vs. referential, abstract vs. concrete thinking) on implicit affective states. Using a variety of implicit affect measures, the present research demonstrates that implicit positive affect is increased in response to anticipated or actual demands for global, relational, and abstract thinking, while implicit negative affect is increased in response to anticipated or actual demands for local, referential, and concrete thinking.

Are lie judgments inherently evaluative? Evidence for embodied components in credibility attribution

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Traditional accounts of human lie-detection and credibility attribution focus on observers' integration of verbal, nonverbal and paraverbal cues to deception, typically depicted as a 'cold' cognitive process. As an addition to cue-oriented accounts, we propose that lie/truth judgments, in part, reflect a basic evaluation of the 'goodness' or 'badness' of the communicator. The hypothesis was tested in an experiment manipulating observers' embodied evaluative state (approach vs. avoidance) while watching videotaped deceptive and true statements. In line with predictions, communicators were judged as less deceptive by observers who viewed the statements in an approach (vs. avoidance) state. However, the effect was present only for participants low, and not for those high, in the need for cognition, presumably reflecting a difference in the reliance on feelings. The findings are discussed in terms of multiple routes to credibility judgments and the adaptive significance of such judgments.

The two faces of memory retrieval in children

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Retrieval of a subset of to-be-remembered items generally impairs later recall of the nonretrieved items (retrieval-induced forgetting). Recent work with adults indicates that this detrimental effect of selective memory retrieval can reverse for to-be-forgotten material, and that retrieval of some to-be-forgotten items can improve later recall of the nonretrieved items (retrieval-induced facilitation). In the present study, we replicated the two opposite effects of selective memory retrieval with young adults, and extended them to seventh grade children. In addition, we found that although the detrimental effect of memory retrieval was present from second grade on, even fourth graders failed to show the facilitatory effect of memory retrieval. The findings suggest a developmental dissociation between the two retrieval effects, thus supporting the proposal of the existence of two different faces of memory retrieval.

Collective wrong-doings: The dual-natured effects of group-level perspective taking

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We investigated the effects of group-level perspective taking on the willingness to compensate a victimized out-group for historical wrong-doings committed by the in-group. We used the events during the German colonisation of Namibia and during the German occupation of Poland as the historical background for three experiments. The results reveal that group-level perspective taking increases willingness to compensate. Additional mediation analyses suggest that this is due to an increase in collective guilt. Group-based perspective taking may also have unwanted side effects. Moderated regression analyses revealed a significant interaction of collective guilt with identity threat. Group-level perspective taking may not only increase feelings of collective guilt but also feelings of collective identity threat. Collective identity threat, in turn, may significantly reduce the effectiveness of collective guilt as a motivator of out-group compensation. The theoretical and practical implications of the dual nature of the effects of group-level perspective-taking will be discussed.

Developmental evidence that causal learning relies on inferential reasoning, not association formation

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Cue competition effects in causal learning have been taken as evidence for the idea that human causal learning relies on automatic and hard-wired associative processes. We will present a series of developmental studies that aimed to probe the involvement of working memory abilities and inferential reasoning competence in the emergence of blocking and other cue competition effects with age. Our results indicate that effects of age on forward blocking in a causal learning task are mediated by modus tollens reasoning ability and working memory capacity. Training of modus tollens reasoning ability moreover increased the degree of forward blocking in young children. Collectively, these data suggest that cue competition effects in children reflect inferential reasoning, not (just) associative processing.

Body integrity under conditions of congruent and incongruent multisensory input

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The perception of one's own body requires the involvement of several sensory modalities, which might be the prerequisite for the experience of body integrity. Previous studies showed that congruent visual, tactile, and proprioceptive input can lead to the experience of illusory ownership of external objects as a substitute for own body parts. However, recent studies indicate that even incongruent input can alter the perception of the bodily self. In its most extreme form, this conflict can even lead to the sensation of additional body parts, suggesting a large degree of flexibility of body representation. In this talk, the importance of congruent and incongruent multisensory stimulation for a coherent body perception will be reviewed on the basis of recent empirical findings. Finally, we will introduce a new cognitive model describing the experience of body integrity by merging of multiple sensory representations of the body.

Smiling cheaters are better remembered: A test of the emotional incongruence hypothesis

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Evolutionary psychologists have proposed that people have cognitive modules that help them to detect and remember cheaters in social exchange. Consistent with this hypothesis, it has been observed that people have enhanced source memory for faces of cheaters, that is, better memory for the cheating context in which the faces were encountered. In the present experiments, we examined how source memory for cheaters and cooperators is modulated by people's expectancies. Faces were paired with cheating or cooperative behavior in a cooperation game. Source memory was enhanced for cheaters with likable faces and for cooperators with unlikable faces. Smiling cheaters were better remembered than cheaters with an angry facial expression. Focusing on expectancy-incongruent social information may represent an adaptive strategy, which may be more beneficial than focusing exclusively on cheaters.

The function of sleep spindles and slow oscillations in memory consolidation – insights from multimodal imaging and transcranial brain stimulation.

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Newly acquired declarative memories are initially labile and rely on the hippocampus but with time become consolidated and transferred to the neocortex for long-term storage. This hippocampo-neocortical dialog takes place preferentially during non-rapid eye movement (NREM) sleep and it has been proposed that NREM sleep-specific neuronal oscillations actively mediate the reactivation and redistribution of new memory traces (Diekelmann & Born, *Nat Rev Neurosci* 2010): The neocortical slow oscillation (<1Hz) initiates and orchestrates the synchronized interplay of thalamocortical sleep spindles (~10-16Hz), neocortical gamma activity (~40-100Hz), and hippocampal sharp wave-ripples (>100Hz). I will report and discuss evidence for this model from studies simultaneously combining electroencephalography (EEG) and transcranial magnetic stimulation (TMS) as well as EEG and functional magnetic resonance imaging (fMRI) in sleeping humans to investigate the function of slow oscillations and spindles in the temporal organization of information processing and the reactivation of memory traces.

On the concept of human voice aesthetics

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Work on the conceptual, knowledge-based structure of aesthetical categories has provided a useful explorative framework for investigating the underlying determinants of aesthetic judgment. However, knowledge concerning the conceptual structure of voice aesthetics is currently limited. Regarding vocal attractiveness acoustical parameters based on vocal frequency, intensity and articulation speed as well as perceptual parameters like hoarseness, breathiness and throatiness have been used. Here, data on the "aesthetics of voice" were collected from 226 non-artist German college students in a timed verbal association task. The adjective pairs low/high, loud/quiet and gentle/rough were named most often and formed the sole center of a 2-dimensional multidimensional scaling representation. Therefore, in contrast to the aesthetics of objects, for example, it appears that aesthetic judgments on voices use descriptive rather than evaluative factors as the most important underlying concept. Further analysis of individual and group preferences using an adapted judgment -analytical framework is planned.

Sank you for travelling. Acoustic similarity or linguistic experience - what matters in prelexical processing?

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Speakers often approximate speech sounds of a second language by using a close relative from their native language. We examined whether processing of such mispronounced speech segments is driven by acoustic similarity with the standard pronunciation or by one's experience. Using an identity Mismatch Negativity (iMMN) design, we compared the English standard pronunciation of the interdental fricative in the pseudoword 'thond' to deviant pronunciations 'tond' and 'sond' in both German and Dutch second-language learners. Germans frequently substitute 'th' with /s/, while Dutch tend to use /t/. Acoustically, /s/ is always more similar to 'th' than /t/. In Dutch and German participants, both substitutions for 'thond' elicited a significant iMMN and consecutive P2. The pattern of the size of the components suggests that acoustic distance influences prelexical processing in non-native listeners, whereas linguistic experience may have an impact downstream.

Hindsight bias and learning: A theoretical introduction

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Hindsight bias has been considered by many to be a major obstacle to learning from experience: if one (mistakenly) believes one had known it all along, why change one's views about something upon receiving new (e.g. outcome) information? On the other hand, some researchers (e.g., Hoffrage, Hertwig & Gigerenzer, 2000) have argued that hindsight bias may actually be a by-product of adaptive learning. Amazingly, very little empirical work has addressed this issue. This introduction - apart from giving a brief overview of the work that does exist - seeks to make sense of the seemingly contradictory positions by elaborating on different meanings/types of (adaptive) learning and their relations to (different types of) hindsight bias: Under which conditions and in which ways hindsight bias and learning can be expected to be negatively related, positively related or unrelated? Finally, the symposium talks are briefly introduced.

The role of temporal attention on the discrimination of intervals in isochronous sequences

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Presenting multiple standard intervals can enhance duration discrimination (Drake & Botte, 1993; Miller & McAuley, 2005). Despite this positive effect performance in isochronous sequences can be a lot worse than in pairwise-comparison-tasks in which just one standard interval is presented (e.g. Blaschke, 2009; Weber fraction 0.16 vs. Rammsayer, 2010; Weber fraction 0.10). Our Experiments revealed that this is caused by an attention effect: Participants had to judge the duration of a temporally deviating interval in an otherwise isochronous sequence of five intervals. If we oriented attention to the deviating interval using a valid cue performance was very good (Weber fraction 0.06), even better than in a pairwise-comparison-task. An invalid cue, on the other hand, reduced performance remarkably (Weber fraction 0.15) below that of a pairwise-comparison-task. Thus, orienting attention in time is necessary for accurate time perception especially in sequences.

IPANAT-4EM: Structural and temporal aspects of a novel test for assessing discrete emotions

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Affect influences cognition, social interactions, and health. Yet, most affect measures available to experimental psychologists are inadequate for assessing affect due to being based on explicit self-report, which is vulnerable to a number of biases, and due to their inadequate temporal resolution. The original variant of the implicit positive and negative affect test (IPANAT) offers an alternative to explicit self-report measures; however, it only distinguishes positive and negative affect. We introduce a new IPANAT variant that is adapted for the measurement of implicit happiness, anger, fear, and sadness that can also be used for a more fine-grained temporal analysis of affective changes. We further provide evidence that affect measured with this variant does show the expected four component structure and that the measure is valid for the assessment of the time course of emotions.

When relative is absolute: On the interpretation of relative risk reductions

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Risk communication in health is often described as biased and misleading. For instance, communicating treatment effects in terms of relative risk reduction compared to absolute risk reduction or number needed to treat leads to more favorable evaluations of the treatment. The shortcomings of relative risk reductions are that they invite recipients to misinterpretations due to their ambiguity and usually omit base rate information. In this study, we presented subjects the relative risk reduction of a treatment and manipulated the format in which the base rate was represented. Subjects showed higher proportions of misinterpreting the relative risk reduction when the base rate was framed in percentage compared to frequencies. The most frequent misinterpretation was the understanding of the relative risk reduction as an absolute risk reduction, leading to an overestimation of the treatment effect. We argue to consistently use transparent formats as a basis for informed decision making.

Prosocial effects of music facilitated by values: Experimental evidence across domains and cultures

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Music is a powerful prosocial resource. This presentation adds a new theoretical perspective to the study of musical prosociality arguing that a range of prosocial effects are based on values conveyed by music. We propose that a) social bonding is facilitated by musically conveyed value-fit, and b) prosocial behaviour is promoted via prosocial values. Two online experiments found that shared music preferences create social bonds via conveyed value similarity among German (Study 1) and intercultural (Study 2) music fans. A longitudinal study 3 conducted with Taiwanese students revealed that values communicated through music facilitate social attraction and prosocial behaviour tendencies. Experiment 4 showed that listening to prosocial music primes prosocial values, which in turn promote prosocial behaviours among New Zealanders. These findings support the potential of music as a prosocial resource across cultures and different prosocial behaviours. Furthermore, this line of research advances a musical prosociality theory based on values.

Boundary conditions of context-context binding: A formal model-based study of episodic memory

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There is converging evidence that the feeling of conscious recollection is usually accompanied by the bound retrieval of context features of the encoding episode (e.g., Meiser, Sattler, & Weisser, 2008). In these studies, 'remember' judgments are usually accompanied by stochastically dependent (i.e., "bound") and 'know' judgments by independent retrieval of context features. Recently, however, research has identified limiting conditions for the binding among context features in episodic memory. For example, focusing on the semantics of the stimuli during study eliminates binding among perceptual context features (Meiser & Sattler, 2007). In the present research we aimed at identifying further boundary conditions such as attentional focus during encoding, cognitive aging, and spacing the presentation of features in time. Multidimensional source memory was analyzed with a reparameterized variant of the multinomial processing-tree model for multidimensional source memory to incorporate a direct measure of bound retrieval for two context features.

Age and decision making under risk conditions: The impact of executive functions and logical thinking

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In recent decades, there has been increasing interest in investigating decision-making abilities in patients with neuropsychological impairments. However, relatively little is known about how and why decision-making competence declines with age and whether decision-making competences in older adults co-vary with executive functioning. 813 healthy subjects (18-80 years) were examined with the Game of Dice Task (GDT), assessing decisions under risky conditions, and additional tasks measuring executive functions and logical thinking. Age was inversely and executive functioning positively correlated with GDT performance. The interaction between age and executive components ($p < .05$) indicates that older subjects with good executive functioning perform well on the GDT, comparably to young subjects. The same pattern was seen for the interaction of age and logical thinking. Results are in line with recent theoretical approaches on decision making in older aged individuals and demonstrate that age and specific cognitive functions act in concert in predicting decision-making abilities.

Learning a nocebo response – classically conditioned hyperalgesia

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Evidence suggests that expectation and conditioning cause nocebo effects, but it is still unclear if conditioning alone can induce these effects. In the presented studies, a classical conditioning procedure was used to induce nocebo-hyperalgesia, i.e. to increase pain sensitivity. Nocebo effects were found in subjective pain ratings and in behaviorally measured pain perception in a subgroup of participants. However, the results suggest that conditioned nocebo responses depend on the perceived intensity of the stimuli: behaviorally measured nocebo effects occurred only with stimuli subjectively perceived as painful. Further, subjective and behavioral measures may cover different aspects of perception and nocebo/placebo responses and can even dissociate.

Semantic-episodic interactions and the impact of "retrieval errors" during learning

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Whilst the advantages of retrieving over re-studying during learning are well described, the impact of retrieving incorrectly during learning is less well established. Some reports indicate that making errors during learning leads to poorer later memory performance, while one recent study claims that retrieval boosts learning even if errors (with feedback) are made on every trial. In a series of behavioural experiments, this discrepancy is shown to be a function of the extent to which stimuli allow the elaboration of pre-existing semantic associations during retrieval and how memory is tested finally. A modified task showed that the errorful-learning advantage is abolished when self-generated errors are intermixed with self-generated correct trials, highlighting the role of control and meta-mnemonic processes in determining whether retrieval errors appear to help final learning. Together, the data stress the role of pre-existing semantic networks for learning and indicate that unsuccessful retrieval attempts alone cannot boost learning.

Subliminally induced stress increases cardiovascular activity and implicit affect

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Goals: To test whether subliminal presented stressful stimuli increase cardiovascular (CV) activity, and whether these effects are mediated by implicit stressful affect. If 'unconscious' stress can influence health-relevant physiological activity it would support a theoretically expected role for

'unconscious' cognition in the stress-health link. Methods: Following Hull et al. (JPSP 83:406-24), in 67 students, the words 'angry' (n = 34) and 'relaxed' (n = 33) were subliminally presented 100 times, while blood pressure (BP), heart rate (HR) and total peripheral resistance (TPR) were measured, as was explicit affect, and implicit affect (happiness, anger, anxiety, sadness) by the implicit positive and negative affect test (IPANAT). Results: The anger primes increased BP, HR and TPR as well as implicit anger and decreased implicit happiness, but did not change explicit affect. Implicit affect mediated the CV effects. Conclusion: Unconscious stress, induced and measured by the IPANAT, can increase CV activity, and may therefore be relevant for health.

Cognitive economic principles in spatial belief revision

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Reasoners have to revise their beliefs about the state of the world when confronted with contradicting evidence. In the spatial context, belief revision is assumed to be accomplished by variation of initially constructed spatial mental models. The revision process includes decisions about which part of a model to retain and which one to modify. Usually, there are several alternatives for model variation that re-establish consistency within belief sets. Frequently, these alternatives are logically equivalent. Nevertheless, human reasoners show clear preferences for certain alternatives. The assumption is that the preferences result from the application of principles that are cognitively more economic compared to others. In a series of experiments, we investigate how the number of objects involved in the model variation process affects preferences in model variations during spatial belief revision and discuss how the results can be explained in terms of cognitive economy.

Effects of acute stress on economic decision making under risk

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Many decisions have financial implications and economic theory provides a good framework for studying decision making processes. Economic decisions are often made in stressful situations (e.g., at the stock market), but the effects of stress on economic decision making have not been systematically investigated so far. The present study examines how acute stress influences economic decision making under risk using financially incentivized lotteries. We varied the domain of decision making (gains only, losses only, or mixed) as well as the advantageousness of the risky prospect. In a preliminary sample of 63 healthy young participants, 37 of whom underwent a stress induction protocol (Trier Social Stress Test for groups), we observed increased risk seeking in cortisol responders regardless of domain and advantageousness. This result shows

that acute psychosocial stress affects economic decision making under risk and points to the importance of cortisol as a mediator of this effect.

Long-term representations in melody cognition: Influences of tempo, musical expertise and cultural background

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We often only need a few tones from the beginning of a melody to anticipate its continuation. The less known a melody is, however, the more tones are required to decide upon its familiarity. Dalla Bella et al. (2003) tested this idea in an experiment where participants with different musical backgrounds were asked to judge melody beginnings regarding their point of identification as familiar or unfamiliar. The results reveal expected influences of musical expertise but also show similarities in the cognitive representation of melodic material, regardless of musical expertise. In our experiment we replicated and extended this paradigm focusing on a) musical tempo as another potential influence on the recognition process and b) a comparison between the cultural backgrounds of Franco-Canadian listeners in the original experiment and German listeners in the present study. Results are currently analyzed and will be presented in the symposium.

Red - take a closer look

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Efficient processing of social and biological stimuli associated with threat is important for survival. Therefore, such stimuli capture visual attention and delay the disengagement of attention from their location. Also, it is known that the color red carries meaning, based on societal and biological associations. However, previous studies concerning this so called "attentional adhesion" did not account for the influence of red in terms of such stimuli. Using the dot probe paradigm, a visual measure of attentional bias, participants responded to red and pale emotional faces. Even though, described stimuli are expected to come along with enhanced attentional adhesion, red stimuli lead to decreased attentional adhesion, highlighting the influence of the color red on avoidance behavior. Results will be discussed with an approach to motivation and social cognition and will emphasize the importance of using clear evolutionary associative stimuli in further investigations.

A matter of time: Use of the recognition heuristic

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According to the recognition heuristic (RH) theory, when comparing pairs of objects and given that one is recognized and the other is not, the recognized option should be chosen. The RH is considered a very simple and fast strategy, relying on one piece of information only (one-reason decision making). We report two experiments testing whether, due to its simplicity, the RH will be more often used under time pressure (TP). In the first experiment, we found a significant increase in RH-use with TP. In a second experiment, the role of TP was traced more closely, using three conditions that manipulated the degree of TP (no TP, implicit/mild TP, and explicit/strong TP). Again, a significant increase in RH-use was observed across these conditions. The results show that with time pressure RH-use prevails to some extent, suggesting that in such conditions participants tend to base their inferences more on mere recognition.

Love at first feature learning: Salience and its impact on subjective informational value

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Both the anticipated information from possible eye movements and the intrinsic salience of parts of a visual scene influence where people look. What features do people look at, and what do they perceive as informative, if one object feature is physically more salient yet another feature is objectively more useful? Do feature salience and usefulness interact to determine when visual features are learned? We addressed this with a multiple cue probability learning task, recording eye movements throughout. In a learning phase, participants discovered two cues (visual features) and their probabilistic relationship to object (simulated plankton) categories. In a test phase, participants could select only a single feature to view. Many participants preferentially viewed a first-learned, more-salient feature, rather than a subsequently-learned, more-informative feature. These results demonstrate that even after apparent mastery of environmental probabilities, a feature's salience can influence its perceived informational value.

Perception of direction and velocity of linear and circular motion patterns affects human performance

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In six reaction time experiments we evaluated whether stimulus-response compatibility effects occur for linear and circular moving stimuli with different complexity and velocities. The stimuli consisted of moving geometrical objects (disks that are moving linearly in two different directions - left/right (E1) and towards/away from the observer (E2) - and in a circular motion (E3)) and of displays from a person walking from one side to the other (E4), walking towards or away from the observer (E5) and performing a giant swing on a high bar (E6). Results show that SR-compatibility effects based on the direction of motion resp. on the sense of rotation occur in linear (E1, E2, E4 & E5) and circular motions (E3 & E6). Velocity has no modulatory impact on the compatibility effect via the movement direction, but even though affects reaction times.

Spatial characteristics of gaze behavior in goal-directed scene encoding

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Within two experiments we investigated the influence of instruction on attention allocation, i.e. temporal and spatial characteristics of gaze behavior while inspecting visual scenes. Participants were given different memory tasks while they viewed the stimuli. The first study contrasted a merely focal (features of objects) vs. ambient (spatial scene layout) encoding strategy, a straightforward implementation of previous results (cf. Velichkovsky, Joos, Helmert, & Pannasch, 2005). The second experiment supplemented this approach with different levels of processing (based on Craik & Lockhart, 1972), i.e. subjects were instructed to attend to sensoric, semantic, and meta-cognitive aspects of a set of digitized paintings. Our results show that gaze is clearly modulated by viewers' mnemonic tasks. However, common temporal measures (e.g. fixation durations) tend to be insensitive / nonspecific in such scenarios. The consideration of spatial characteristics such as attentional maps (descriptively and inferentially) leads to more distinct and stable patterns of encoding behavior.

Genetic modulation of training and transfer in older adults: BDNF Val66Met polymorphism is associated with wider useful field of view

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Western society has an increasing proportion of older adults. Increasing age is associated with a general decrease in the control over task-relevant mental processes. In the present study we investigated the possibility that successful transfer of game-based cognitive improvements to untrained tasks in elderly people is modulated by preexisting neuro-developmental factors as genetic variability related to levels of the brain-derived neurotrophic factor (BDNF), an important neuromodulator underlying cognitive processes. We trained participants, genotyped for the BDNF Val66Met polymorphism, on cognitive tasks developed to improve dynamic attention. Pre-training (baseline) and post-training measures of attentional processes (divided and selective attention) were acquired by means of the Useful Field of View (UFOV) task. As expected, Val/Val homozygous individuals showed larger beneficial transfer effects than Met/-carriers. Our findings support the idea that genetic predisposition modulates transfer effects.

Age-related changes on grouping by closure and collinearity in visual search for a Kanizsa-type target configuration

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Perceptual grouping supplies an effective mechanism by which complex visual scenes are structured. Among the various principles that support element integration, closure and collinearity may be regarded a main determinant of shape formation. Here, we investigated whether basic grouping operations are subject to age-related changes in a Kanizsa-figure visual search task (Conci, Müller & Elliott, 2007, *Perception & Psychophysics*). Our results from two experiments show that old volunteers (mean age: 63 years) are slowed relative to the young volunteers (mean age: 26 years), with a particular decline in search efficiency when observers are required to group by means of closure. By contrast, grouping by collinearity was equally efficient in both young and old observers. This reduction in the ability to group fragments into coherent wholes reveals a decline in integrating global objects. In sum, our findings suggest that the extraction of global, salient regions becomes more inefficient with increasing age.

How emotional word content modulates activation of the non presented language in bilingual word recognition. Evidence from ERPs

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To investigate the role of conflicting emotional connotations across languages we conducted an ERP Experiment where German second language learners of Spanish were presented with Spanish and German words in a lexical decision and an emotion rating task. Half of the presented words involved cross-language differences in emotional valence, whereas emotional connotations were closely comparable across the two languages for the other half. We observed a negative component peaking around 250ms at fronto-central electrodes for words from the cross language emotion conflict condition, only when presented in the second language and only during lexical decision. For the same group of words, ERP-effects were also observed around 600ms in both the lexical decision and the rating task – being strongest when explicit emotion processing was required in the latter. Results are discussed within a framework of simultaneous two-language activation in bilingual language processing highlighting a special role for emotion processing.

In or out of control: The nature of action primes on experiences of agency

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Though sense of agency has been shown to be easily influenced by several factors, a major part of the action sequence, planning and selection, has only scarcely received attention in this domain. This is surprising considering there are often situations in which other individuals make suggestions or give commands. In three studies we investigated sense of agency using a paradigm in which agency could also be attributed to another agent. We subsequently manipulated the nature of an action prime (subliminal vs. supraliminal), and the freedom of choice to follow a prime. We additionally looked at experienced agency with regards to the congruency of the action prime with the final action. Our results suggest that our sense of agency is not only affected by the factors under investigation, but also highly dependent on the specific interplay between these factors.

Successful goal pursuit completion and illusions of agency

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Illusions of agency reflect inferences of personal responsibility for behavior outcomes that people had actually no control over. Research shows that these illusions are facilitated when people have a focus on the outcomes of their actions. Outcome representations are typically activated while people pursue a goal and direct purposeful behavior towards its completion; but they are diminished after goal pursuit has been successfully completed. Based on this reasoning, I will present two studies where participants who had the impression that they successfully completed goal pursuit – either because they received success (vs. failure) feedback on their performance in a flanker task (Study 1) or recalled a personal experience of successful (vs. failed) goal pursuit (Study 2) – displayed reduced illusions of agency in a subsequent unrelated task. Thus, the impression of successful goal-directed action can reduce people's susceptibility to illusions of agency.

Dissecting activation-based memory

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The view that the contents of short-term memory is the activated part of long-term memory has a chequered past. A thorny issue is that when taking a closer look at the literature, a variety of theories exist that are activation-based. In this talk, I will attempt to classify the various theoretical views and compare their accounts of working memory capacity limitations. The theories can be roughly divided into functional-activation models and functional-structural models. Sources of capacity limitations are either passive, i.e., fixed capacity, or active, i.e., adapted to the task demand. A first attempt is made to include in the classification the dimension of modality and the various known differential effects of modality on short-term memory performance. Finally, I will address why there is even a need of a capacity-limited working memory (instead of zero-capacity or unlimited capacity), using a dynamical adaptive version of an activation-based model.

Memory consolidation by offline reactivation of stimulus-specific activity

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In rats, it has been shown that a specific firing sequence of hippocampal place cells is replayed during subsequent resting state and sleep. In humans, presentation of an odor during a learning

task and again during slow-wave sleep leads to reactivation of the hippocampus and improved subsequent memory recall. However, no previous study investigated whether neuronal representations of specific stimuli are reactivated during resting state and sleep in humans, and whether such replay predicts subsequent memory. Here, we use multivariate pattern analysis (MVPA) on a declarative memory task to investigate reactivation of neuronal activity patterns related to specific memory items in (1) simultaneous EEG/fMRI recordings of healthy participants and (2) intracranial EEG in patients undergoing presurgical monitoring for pharmaco-resistant epilepsy. Both methods provide converging evidence for replay of stimulus-specific activity patterns and show that such replay predicts later memory performance.

When more information hurts: The effects of unpacking in donation requests

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Solicitations for humanitarian aid often provide detailed information about the charitable cause to increase donations. However, it is possible that more detail does not always lead to higher financial contributions. In three studies donation requests for different charitable causes and countries in West Africa were presented at varying levels of detail and participants' willingness to contribute was measured. Results show that (1) unpacking general donation requests into several specific causes and countries significantly reduces willingness to contribute, (2) depicting graphical representations of target countries with more detail decreases aid, and (3) specifying a particular target country increases donations only when the sample of countries is known. The effects of unpacking seem to depend on the level of abstraction at which information is processed.

Zur Optimierung der Zeiteffizienz beim computeradaptiven Testen

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Computeradaptive Tests wählen bei der Itemselektion meist dasjenige Item, das für den aktuellen Fähigkeitsschätzer die meiste Information liefert. Anstatt die Information pro Item zu maximieren, kann zur Optimierung der Zeiteffizienz alternativ auch eine Maximierung der Information pro Zeit angestrebt werden. Durch die Wahl von Items mit einem günstigen Verhältnis zwischen Information und Bearbeitungszeit kann in konstanter Testzeit eine größere Zahl von Items vorgegeben und damit mehr Information gesammelt werden als bei alleiniger Beachtung des Informationsgewinns. Mit Hilfe von Computersimulationen wurde geprüft, ob und unter welchen Bedingungen die Wahl zeiteffizienter Items bei konstanter Testzeit mehr Information zu liefern und die Testgüte zu verbessern vermag.

See what you feel behind: Looking at their own back reduces experimental pain intensity in chronic back pain patients

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The body image which is often taken for granted is disrupted in patients with chronic back pain. The back is normally a rather unknown area of the body. Until now nothing is known about the influence of seeing one's own back during painful stimulation. We tested 17 patients with chronic back pain and 17 healthy controls by implementing online video feedback of the veridical, enlarged and shrunken back compared to feedback of the dorsum of the hand during pressure pain and subcutaneous electrical stimulation on the musculus trapezius. Subjects had to rate pain intensity. Patients with chronic back pain reported significantly higher pain ratings compared to healthy controls. Visual feedback of the back reduced perceived pain intensity compared to feedback of the hand. This finding raises the possibility that training of the body image or visual feedback of the pain region may help patients with chronic pain.

What can we learn from congenital prosopagnosia? – The example of a faceblind visual expert

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Congenital prosopagnosia (CP) describes an impairment in recognizing familiar persons without known cause. We will present evidence that it makes indeed sense to think of persons with CP as being part of the lower end of a normal distribution. Nevertheless, we will show on the example of a "faceblind" person with high visual expertise in a non-face domain what we can learn about normal cognitive and neural processing from CP. We will demonstrate that he generates an M170 not for faces, but for his field of expertise, however, with remarkable differences to the M170 generators of controls. We show this based on magnetoencephalographic data using distributed source models on realistic cortical constraints. Thus, even though the participant with CP developed high expertise in a visual domain and generates an M170 for this domain, the underlying processing seems to differ from the normal case.

Dissociating beneficial and detrimental effects of selective memory retrieval

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Research of the past four decades has repeatedly shown that selective retrieval of some (nontarget) memories can impair subsequent retrieval of other (target) information, a finding known as retrieval-induced forgetting. More recently, however, there is evidence that selective retrieval can both impair and enhance recall of related memories. To identify possible experimental dissociations between the detrimental and the beneficial effects of memory retrieval, we examined retrieval dynamics in listwise directed forgetting varying the delay between preceding nontarget and subsequent target recall. When target recall followed nontarget recall immediately, we replicated the prior work and found detrimental effects of memory retrieval on to-be-remembered items but beneficial effects on to-be-forgotten items. In contrast, when a delay was introduced between nontarget and target recall, the detrimental effects were present but the beneficial effects were absent. The results demonstrate a first experimental dissociation between the two effects of memory retrieval.

From the bottom to the top: Non-social salient action events induce referential coding in a go-nogo Simon task

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In contrast to the social-co-representation-account, recent findings suggest that a joint-go-nogo-Simon-Effect (joint-cSE) may result from salient events that provide a reference for spatially coding one's own action. Here, we aimed to justify this interpretation by manipulating the salient-nature of reference-inducing-events. By implementing non-social action events, ranging from movement events to events that contain only auditory-rhythmic-features, in an auditory-go-nogo-Simon-task, we were able to show that a cSE can be induced under solo conditions. That is, the cSE occurred whenever agents coded their own action in reference to another salient event. These events do not necessarily require social (Experiment-1) nor movement-features (Experiment-2). As long as events attract attention in a bottom-up-fashion (e.g., auditory-rhythmic-features; Experiment-3 and 4), alternative events in a go-nogo-Simon-task seem to be represented irrespective of the agent or object producing these events. In line with the low-level-feature-binding-framework, the present findings suggest that referential-coding can induce a cSE in a bottom-up-fashion.

Attention to angry faces in Borderline Personality Disorder

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Patients with borderline personality disorder (BPD) often show difficulties regulating their emotions in social interactions. The present study investigated whether BPD patients show an attentional bias towards facial cues of anger. In a modified dot-probe task, happy, angry and neutral facial expressions were shown for 100, 600, or 1200 ms to assess covert and overt allocation of visual attention towards these social cues in three groups of participants: BPD patients, clinical controls, and healthy controls. The results so far suggest increased attention for angry facial expressions in BPD patients compared to the control groups. However, this effect was strongest in the 600 ms condition. Thus, it seems that both covert as well as overt processes of visual attention to angry faces might play a role in social interaction in BPD. The limitations of the dot-probe task for the assessment of attentional processes in clinical sample will be discussed.

Are narcissists sexy? - Zeroing in on the link between trait self-enhancement and mate appeal

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Interpersonal effects of self-enhancement (i.e. the propensity to overestimate ones abilities and qualities) are a topic of controversial debate. Recent research has demonstrated that narcissism, a personality trait characterized by strong self-enhancement, is linked to self-reported quantitative mating success. The current studies were aimed to directly test the association between self-enhancement and mate appeal. We predicted that self-enhancing individuals are high in mate appeal. Moreover, we predicted that low inhibition in mating situations accounts for this effect. Results from one study based on video observation of self-enhancing individuals behavior (Study 1), one study experimentally manipulating the self-enhancement levels of fictitious persons (Study 2) and of an online survey including self- and peer-report data (Study 3) support these predictions: A positive association between self-enhancement and mate appeal was partially mediated by low shyness in mating situations. Potential evolutionary implications of these findings will be discussed.

Intuition - just a consequence of implicit learning?

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Although intuition is widely used, no generally accepted definition exists. Common features of various definitions are that intuition is based on automatic processes, emerges without awareness, and leads to a feeling of confidence. However, these features are not sufficiently empirically tested. The present approach examined if intuition can be captured as the feeling of confidence that accompanies the acquisition of implicit knowledge. Thus, with increasing knowledge about the regularity hidden in an implicit learning situation, subjects should rely more on intuition. Intuition was assessed by interspersing of ambiguous stimuli and a subsequent judgment of the basis (guessing, intuition, or knowledge) for the response to this stimulus. If intuition arises with the emergence of implicit knowledge then intuition judgments should increase in frequency over time and coincide with indicators of implicit knowledge (e.g., regular responses to ambiguous stimuli). Results are discussed with regard to their implication for the concept of intuition.

Observational practice and aging

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The main purpose of the present experiment was to determine age-related effects on observational practice. To this end, older adults (OA) and younger adults (YA) were instructed to observe a learner model of their respective age group whilst practicing for 11 blocks during the acquisition phase. The task participants observed was a 1300ms spatial-temporal pattern of elbow flexions and extensions. Approximately 30 min after the last acquisition block, all participants returned for a physical retention test. The results indicated that OA increased their movement performance during acquisition and at the retention test. Regardless of the factor age, physical practice participants showed superior performance compared to the observational practice participants. Interestingly, OA who practiced the task physically performed equally to young observers. Results will be discussed by referring to the general motor slowing down phenomenon that accompanies healthy aging.

Messung binauraler Lautheit durch Einfachreaktionszeiten

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Die Möglichkeit, überschwellige Empfindungsstärke durch die Messung einfacher Reaktionszeiten zu quantifizieren, wurde anhand der binauralen Lautheit untersucht. Dazu wurden 20 Vpn 1-kHz-Sinustöne unterschiedlichen Schallpegels (45-85 dB SPL) sowohl monaural als auch binaural dargeboten und jeweils die Einfachreaktionszeit auf das Einsetzen des Tons gemessen. Es ergab sich eine nahezu lineare Verbesserung der Reaktionszeit mit wachsendem Schallpegel und ein kleiner (5 ms) aber statistisch signifikanter Effekt binauraler Lautheitssummutation. Unter der Annahme, dass gleiche Reaktionszeiten gleiche Lautheit implizieren, entspricht dieser Effekt einer binauralen Verstärkung von ca. 3-6 dB. Dieses Ergebnis wird im Hinblick auf seine Implikationen für konkurrierende Lautheitsmodelle diskutiert sowie generell bezüglich der Möglichkeit, psychophysische Zusammenhänge durch Reaktionszeitmessungen zu quantifizieren.

Serotonin and attentional control: Genetic impact on gamma-band activity in humans

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While central serotonergic neurotransmission (5-HT) is a widely accepted constituent of emotion regulation in humans, its role in executive functioning is less well understood. In 130 volunteers we examined the contribution of genetic polymorphisms of two key genes: a serotonin transporter polymorphism (5-HTTLPR) and a variation of the TPH2 gene (TPH2 -703 G/T) coding for the rate-limiting enzyme of central 5-HT synthesis. Recent data suggest both to explain variance in executive processes and to cause genotype-specific differences in brain morphology and function. We applied the Attention Network Test to tap the efficiency of attentional systems. Event-related gamma band activity that is associated with top-down attentional selection served as intermediate phenotype. Genotype-dependent impact on performance was revealed and marked differences were observed for oscillatory gamma-band activity. Those genotypes that have been recently associated with superior performance showed increased gamma-band synchronization which likely facilitates to focus on relevant information increasing task efficiency.

Enhanced implicit memory for cheaters?

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Previous research has shown superior source memory for cheaters: In explicit source memory tests, humans are better at discriminating actual cheaters from trustworthy persons than at discriminating persons that are actually trustworthy from cheaters. This result is consistent with evolutionary accounts claiming that human memory has evolved to solve specific adaptive problems of our ancestors such as recognizing that a person cheated in previous encounters. However, if enhanced source memory for cheaters indeed evolved a long time ago in the phylogeny of mankind, it should show up not only in explicit but also in implicit memory tests that do not require any verbal categorizations. We therefore tested implicit memory for different types of cheaters and trustworthy people, making use of the "Who-said-what?" paradigm that enables indirect measurement of memory for cheaters based on source-confusion errors. The results are discussed with respect to their implications for evolutionary accounts of human memory.

Neurocognitive mechanisms of inhibitory control

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The ability to inhibit inappropriate responses is a key function of the prefrontal cortex and an important feature of cognitive control. In this talk I will present recent evidence which aimed to characterise the neurocognitive mechanisms of motor and oculomotor inhibition. Behavioural evidence confirms that the ability to inhibit unwanted saccades to visual targets in the antisaccade task is associated with the facility with which these are generated in conditions where they are appropriate. Neuroimaging studies suggest that oculomotor and motor response inhibition tasks share the recruitment of dorsal fronto-parietal areas. Additionally, while the stop-signal and go/no-go paradigms both show striatal activation during successful compared to unsuccessful inhibition, a dissociation of these neural mechanisms is observed following administration of methylphenidate, a compound that leads to increased striatal dopamine levels. Overall these studies contribute towards mapping the heterogeneous construct of response inhibition within the framework of prefrontally driven cognitive control.

Reassurance of ingroup's warmth and competence by the outgroup differentially affects low- and high-status group members' intergroup attitudes

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The present study aimed to clarify whether acknowledgement of competence improves out-group attitudes of low status group members because it signals a change of the status quo towards equality, or because this acknowledgement reduces identity threat among low status group members. 133 participants were randomly assigned to membership in high or low status groups based on false feedback. Subsequently participants received two messages from the outgroup, either emphasizing in-group's warmth or competence. The effects of message content on outgroup attitudes and collective action tendencies were moderated by status as predicted. Importantly, the low status group showed more positive out-group attitudes when the high status group affirmed its competence regardless of a change in the status quo, but not when the high status group was willing to change the status quo irrespective of the low status group's competence. The pattern for collective action was similar.

Calibration and the avoidance of extreme judgments in the beginning of serial evaluations

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We investigated the influence of the expectation of a series of judgments on the first judgment. According to the calibration hypothesis (Unkelbach & Memmert, 2008), judges avoid extreme judgments in the beginning of evaluation sequences to preserve their judgmental degrees of freedom. In a first experiment, one group expected to assess a series of sport performances, the other group expected to judge one performance. Both groups rated the same performance, only the expectation differed. Participants who expected a series made average judgments more frequently. A second experiment with a 2x2 design (expecting a series vs. one single judgment x assess a high vs. low test result), supports these results. Participants expecting a series show a bias of more average grades. This bias was shown for both stimuli, but only significant for the low result. However, the results support the calibration idea as one alternative to explain biases in serial evaluations.

Enhancing reconciliation by remembering in-group's perpetrated transgressions:
A field-experiment in Liberia

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In the aftermath of the Liberian civil wars we investigated whether and how remembering wrongdoing committed by one's in-group can enhance intergroup reconciliation. In a field-experiment, 146 participants between 16-51 years were randomly assigned to think about transgressions during the war that were either committed by fellow in-group members (perpetrator focus) or against fellow in-group members (victim focus). Adopting a perpetrator focus led, as predicted, to greater readiness for reconciliation, greater need for acceptance, and greater intergroup empathy. However, the focus manipulation did not affect participants' need for empowerment. Strong support was found for the novel hypothesis that need for acceptance results in a greater willingness to approach the former adversary. The hypothesis that need for empowerment results in lesser willingness to approach the former adversary was only partially supported. Theoretical and practical implications of the field research are discussed.

Twenty-question games in sheep's clothing: Effects of object representations on
categorization performance

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The Twenty-Question game is a sequential binary categorization task which entails making decisions or choices by ruling out alternatives in sequential inquiry processes. Although formally identical to real life problems such as medical diagnoses and preferential choices, each implementation differs in "set-up", that is, representation of the objects, attributes, and relations to reason about. To investigate the effect of representation on categorization performance, we compared three age groups with respect to (1) two object domains - animals versus professions - with natural versus socially defined object relations, and (2) three ways of representing objects and attributes: (a) basic-level objects (e.g., "dog"); (b) attribute-specified basic-level objects (e.g., "dog, kennel, wagging, collar"); and (c) subordinate-level objects (e.g., "Dalmatian"). We analyzed inquiry strategies in terms of amount, kind, and information gain of questions asked and found that basic-level objects result in most robust performance across outcome measures, age groups, and domains.

"Heating-up" vs "cooling-down" in children's, adolescents', and adults' risky choice

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We investigated "heating-up" versus "cooling-down" in risky choice in preadolescents, adolescents, and adults. Participants completed the hot and cold Columbia Card Task (CCT), either in a "heat-up" (hot after cold) or "cool-down" (cold after hot) condition. In all age groups, hot CCT had stronger effects on cold than the reverse regarding risk-taking, decision quality, and responses to losses, suggesting that "heating-up" is easier than "cooling-down." Age differences were consistent with neurodevelopment of control areas, but only partially consistent with hypothesized age differences in affective processing. Results suggest that particularly adolescents' and adults' "hot" risky choices benefit from prior "cold" choices.

Value of information overlaps with cortical and subcortical reward structures

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Finding useful information is critical for perception and cognition. Categorizing visual objects requires directing the eyes to features that are anticipated to be useful. What are the neural substrates assess features' expected usefulness? We addressed this with a probabilistic categorization task in which simulated plankton stimuli (each with two features) are classified as species A or B, using experience-based learning. The more- and less- useful features lead to 85% and 60% accuracy, respectively. Since all combinations of features occur in both species, 100% accuracy is not possible. After training, in an event-related fMRI experiment, subjects were cued to anticipate the more or less useful feature, without yet being able to categorize. Expectation of useful compared to less useful information led to greater activation in the ventral striatum, amygdala, hippocampus, and cerebellar vermis. We discuss possible relationships between expectation of information and reward.

Involuntary musical imagery – structural patterns reveal the 'stickiness' of earworms

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Involuntary Musical Imagery (INMI) or 'earworms' describes the prevalent phenomenon whereby tunes get stuck in one's head. INMI appears spontaneously and repeatedly, triggered by a variety of mental or environmental stimuli. To our knowledge, this is the first study using computational analysis to investigate structural aspects of INMI tunes. Our aim is to develop a statistical model that can distinguish between INMI and non-INMI songs on the basis of unique musical features. Our present modelling results have a prediction accuracy of 72%. We are currently improving the model by using a larger corpus of songs as well as employing more powerful classification techniques from the machine learning field (e.g. random forests). The present approach promises new insights into the cognition of music in everyday life using quantitative methods. We hope to address the role of memory and emotions on INMI in the future.

Numerical cognition: Grounded, embodied and situated

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The traditional symbol manipulation approach to cognition gives way to an embodied stance. This change of perspective even holds for numerical cognition, a stronghold of the traditional view. In this presentation I will outline a hierarchical proposal for grounded, embodied and situated numerical cognition. Examples from the recent literature will illustrate how this approach might yield novel predictions.

Effects of pseudocontingency learning on decision behavior

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Inferring contingencies from inadequate information, e.g., from univariate base rates or pairwise correlations with a context variable instead of from joint observations, can result in a contingency illusion that is usually referred to as a pseudocontingency. So far, a large body of empirical studies have demonstrated pseudocontingency effects in various social judgment situations. Going one step further, we analyze pseudocontingencies in the domain of decision-making under risk and show that pseudocontingencies do not only manifest themselves in participants' probability estimates in a trivariate stimulus distribution learned by observation, but are also reflected in actual decision behavior with immediate monetary consequences. In a series

of experiments, we further examine the role of context variables in the learning phase, such as effects of supplementary learning support, and in the decision phase, such as effects of allowing for decision avoidance.

Cooperation in risky environments

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Cooperation often takes place in environments where outcomes are uncertain. We investigate how cooperation is shaped by the way people acquire information about such environments (from description or from experience), and by systematic changes in the involved risk. Drawing on research from risky choice, we compare choices in stochastic social dilemmas with those in lotteries with identical environmental risks. Cooperation rates in games were sensitive to risk differences across decision situations with the same expected outcomes and thereby mimic behavior in lotteries. However, the way risk information is acquired only affected choices in lotteries, yet it did not affect decisions in the stochastic games. Exploratory data suggests that in the stochastic social dilemmas people are less sensitive to probabilities than in the lotteries.

Action video games and their transfer effect to attentional control: Behavioral and neural bases

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Recent studies have shown that those who play action video games have enhanced top-down attentional control (Hubert-Wallander et al., 2010). These aspects of attention changed for the better include sustained attention and the ability to select a target among distractors. Crucially, the impact of action video game in such attentional enhancements has been established through training studies. These behavioral enhancements appear mediated, at least in part, by a greater suppression of cortical responses to distractors as well as an enhanced neural response to targets during decision-making processes. Additionally, the fronto-parietal network associated with effortful, attention-demanding processes showed lesser recruitment as attentional demands increased in gamers as compared to non-gamers, in accord with more efficient attention allocation in gamers. Action games may, therefore, allow efficient filtering of irrelevant information thanks to a greater automatization of attentional control.

What we know about non-evaluative conditioning: Current findings and theory

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Non-evaluative conditioning (NEC) refers to the attribute transfer from stimuli representing an attribute (USs) to initially neutral stimuli (CSs) through repeated pairing of those stimuli. Thus, NEC provides an intriguing expansion of the mere valence transfer through evaluative conditioning (EC). As this conditioning beyond valence is quite new in learning literature, we will provide an overview of findings about NEC. This includes conditioning of attributes like athletic, healthy and gender using diverse stimulus types. Moreover, we demonstrate that NEC can be used to create specific brand image by using celebrity USs. Finally, potential boundary conditions and underlying processes will be discussed; theoretical implications for EC research and practical ones for marketing are reconsidered.

Subjective fluency and aesthetic preference

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Whether we like someone or something can often be judged based on the fluency of the perceptual process. In the processing fluency account, which states that more fluently processed stimuli are preferred (Reber et al., 2004), the subjective feeling of ease of processing is considered important, but has not been directly tested in the realm of aesthetic preferences. In two experiments, we manipulated fluency with subliminal priming and varying presentation durations (as in Reber et al., 1998). Our results show that more fluently processed images were judged as subjectively more fluent and were liked more. Moreover, beyond effects due to objective fluency, we also found that splitting between subjectively more and less fluently processed images showed even stronger effects on preference. Findings of the two studies reveal that the feeling of fluency can be explicitly measured and is an important source for aesthetic judgments.

Where did you look? Scenes, scanpaths and similarity in recognition memory for pictures

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When learning and recognizing natural scenes, observers make a series of fixations on different locations in the image (a scanpath). It has previously been argued that the similarity between a person's scanpath at learning and test may reflect, or even cause, successful recognition. However, this proposal has not been tested directly and is complicated by the difficulty in

measuring scanpath similarity between and across individuals. In the present work, participants were asked to recognize previously seen images based on a series of patches that could be drawn from the regions fixated at encoding or from elsewhere. They were also asked to explicitly recognize their own eye movements. Scene recognition was better when fixated regions were shown at test. However, there was no advantage for re-viewing one's own scanpath over someone else's, even though participants could discriminate between the two.

Prefrontal activation and semantics in dreams

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The aim of this exploratory study is to find correlations between reported dream content and neurophysiological markers of cortex activity. It is hypothesized that a higher amount of meaningfulness attributed to the subjects' own dream content correlates with higher cortical coherence, a higher 40 Hz EEG band. Evidence for a link between 40 Hz activity and meaningfulness will be provided. The results are counter-intuitive – but only at first glance.

Decisions from experience in the wild: The influence of affective states on information search and decision making

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People are constantly in one of many affective states like happiness, sadness, fear, or anger. Do affective states influence decision making under risk and uncertainty, in particular, how people make decisions from experience? Affect-as-information theory predicts that affective states serve as information to guide behavior. For example, fear (in contrast to happiness) triggers high perceived uncertainty, high anticipated effort, and low perceived personal control. In a field study in contexts where fear and happiness naturally occur, we tested the predictions that fear and happiness influence the search and decision processes in decisions from experience. We found that fearful participants searched for substantially more information before making risky decisions compared to happy participants. Fearful participants also switched substantially less between options during the search process compared to happy participants. In turn, the different search behaviors affected the final choices.

Lexical decision latencies underestimate lexical activation: Evidence from ERPs

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We tracked competition effects for target words in auditory-visual fragment priming. The primes were either the onsets of the target words (full overlap condition; ano-ANORAK), unrelated to the targets (control condition; paste-ANORAK), or differed from the targets in the nucleus of the second syllable and activated better matching competitors of the target words (partial overlap condition; ana-ANORAK where the prime is the onset of ANANAS). Event-related brain potentials (ERPs) for partial overlap were in-between those elicited by the full overlap condition and the control condition. This indicates that partial mismatch does reduce but not disrupt activation of lexical representations. Lexical decisions were slowest and least correct for partial overlap. This indicates that partial mismatch inhibits the behavioural decision. Together the results are evidence for less competition at the lexical level than at the decision level.

Alterations in pain and perception thresholds in unilateral arm amputees

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Both amputations and chronic pain can lead to alterations in the representation of the body. Hence, the comparison between arm amputees with and without phantom limb pain offers the possibility to observe the interplay of these factors and shed light on their differential contribution to changes in body and pain perception. Sensory testing provides well-established, economic and valid measures of somatosensory sensitivities related to the representation of the body on the brain level. We applied sensory testing to unilateral arm amputees with and without phantom limb pain and healthy controls. Preliminary results support our expectations that intraindividual comparisons between the body-halves and interindividual comparisons between sub-groups of amputees and healthy controls are useful to dissect the contribution of the different factors. In addition, linking these alterations to changes in the brain can further deepen our understanding of underlying processes and give valuable hints to therapeutic interventions.

Transfer across stimulus- and response properties in implicit sequence learning

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Even though instructions render implicit sequence learning tasks as (stimulus-based) choice reaction tasks, learning can lead to anticipation-based performance (based on sequence knowledge concerning actions). As both stimuli as well as actions can be represented in terms of visual features, sequence learning and action control might be tied to specific features irrespective of whether they are present in the stimuli or the responses. To test this conjecture, we investigated transfer of sequence knowledge between stimulus and response features in the current study. S-R mappings between gray shapes and responses were either explained in terms of the color of the response keys or in terms of the position of the response keys. Color instructions led to color-sequence learning that transferred from the responses to the stimuli. The results link models that assume common representational bases for perception and action to the acquisition and control of sequential behavior.

What you know now: Is evaluative conditioning modulated by contingency awareness during learning or during valence measurement?

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Evaluative conditioning (EC) is the valence change of a neutral stimulus that is due pairings with a valent stimulus. In several previous studies EC effects were found only if participants remembered which stimuli were paired. In most of these studies, conditioning, valence measurement, and memory assessment took place shortly after each other. The relation between EC and memory could therefore either indicate that knowledge about the pairings is necessary at some point in time or that it is necessary during valence measurement. We disentangled these options in a study that encompassed two sessions. After a learning phase in the first session, the valence of the CSs was measured in a second session several days later. Contingency awareness was measured both during the first and the second session. We found that only memory in the valence measurement phase and not memory in the learning phase was relevant for EC effects.

An experimental analysis of defeasible reasoning in law

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The area of "defeasible reasoning" is concerned with inferences that are withdrawn in the light of additional information. The aim of our project is to study such inferences with problems with legal content. In our experiments we presented legal cases by providing legal rules phrased as conditionals followed by additional information concerning the case. Participants were asked to decide whether or not a suspect should be punished. By manipulating the quality of the additional information, we analyzed what kind of information has stronger defeasible power. Thus we can see if the legal system really represents the opinion of the general population. Pilot studies have already shown that legally relevant information must not necessarily be assumed as being relevant by lay people. We present the results of our experiments and discuss some implications for the psychology of legal reasoning as well as for everyday reasoning.

Self-centrality breeds self-enhancement: A principle of cross-cultural universality

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Humans self-enhance on dimensions central to the self. William James was the first to note this. Research in Western societies buttressed this Self-Centrality Breeds Self-Enhancement (SeCeBreSE) principle. The cultural movement, however, questions the cross-cultural universality of self-enhancement and, hence, the status of the SeCeBreSE as a universal principle. The presented studies provide firmest evidence to date that the SeCeBreSE is a universal principle. It is evident in individualist cultures and in collectivist cultures alike. For example, in collectivist cultures, communal self-aspects (warmth, compliance, nurturance) are more central than agentic self-aspects (competence, uniqueness, ambition). Hence, collectivists (East-Asians) self-enhanced more strongly on communal self-aspects than on agentic self-aspects. Furthermore, collectivists' heightened communal self-enhancement emerged as a major process explaining why collectivists are particularly prosocial. This showcases the explanatory power of SeCeBreSE and suggests that collectivists' prosociality is no expression of genuine altruism, but a manifestation of the universal tendency to self-enhance.

Die Wahrnehmung der Helligkeit von natürlichen Objekten

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Die Oberfläche homogen reflektierender natürlicher Objekte weist Leuchtdichteunterschiede auf, die auf Beleuchtung, Schattierung und andere Faktoren zurückzuführen sind. Wir konnten experimentell nachweisen, dass Beobachter sich bei der Einschätzung der Helligkeit solcher Objekte überwiegend an der maximalen Leuchtdichte orientieren. Gleichzeitig tendieren sie dazu, während der Durchführung der Aufgabe diese hellen Punkte am Objekt zu fixieren. In einem zweiten Experiment wurden die Beobachter mittels einer blickabhängigen Darbietung gezwungen, entweder helle oder dunkle Objektbereiche zu fixieren. Dies wirkte sich kausal auf die Wahrnehmung aus. Das Objekt wurde heller eingeschätzt, wenn Beobachter helle Bereiche fixierten. Anhand von Simulationen konnten wir nachweisen, dass die maximale Leuchtdichte ein idealer Schätzwert für die Helligkeit des Objekts ist. Das visuelle System wählt also bei der Einschätzung der Helligkeit von Objekten den idealen Schätzwert aus, und diese Strategie wird durch die Auswahl an Fixationen vom Augenbewegungssystem unterstützt.

What type of rectangle is a square?

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Since Mach (1886), the phenomenal shape of the square has intrigued scientists interested in perceptual organization. I will argue that bisection – a classical psychophysical method (Plateau 1872) – can shed light on the inner structure of phenomenal shape. Consider the family of rectangles with vertical/horizontal sides and variable aspect ratio, including the square as a singularity. Participants were required to adjust a variable rectangle until its size appeared intermediate between those of two extreme rectangles (one about three times larger than the other). Two adjustment continua were contrasted: constant aspect ratio vs. grassfire. Surprisingly, bisection of the square (whose size change is compatible with both continua) was inconsistent with the bisection of constant-ratio rectangles, while fully consistent with that of grassfire rectangles. The phenomenal shape of the square seems related to an implicit growth that destroys form while maintaining *Ebenbreite* (Morinaga 1941; Metzger, 1953).

Exploring aesthetics using facial-EMG

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Aesthetic evaluations are characterized by a complex interplay of cognitive and emotional factors. We employed facial-EMG and overt measures to test whether aesthetic evaluations differ between stimulus classes (Study 1) or with expertise (Study 2). Study 1 showed that attractive stimuli of two stimulus classes, faces and abstract patterns, resulted in higher zygomaticus activations, indicating positive affect, while non-attractive stimuli resulted in higher corrugator activations, indicating negative affect. However, fluency effects due to longer presentation durations were only found for the abstract patterns. Study 2 employed contemporary artworks and found that art expertise modulated overt responses and to some extent the affective reactions during the first seconds of stimulus presentation measured by facial EMG, demonstrating the influence of art expertise on aesthetic evaluations. Together these studies demonstrate that facial-EMG is a useful and sensitive method to gain deeper insights into cognitive and emotional factors influencing aesthetic evaluations. **KEYWORD:** Experimental Aesthetics

I like E.T. - and E.T.'s planet as well? Generalization effects in evaluative conditioning

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Research on evaluative conditioning (EC) has so far been restricted to the investigation of the effects that a valenced stimulus (US) has on a contingently presented neutral stimulus (CS). What hasn't been considered yet is that CSs often belong to certain categories and are therefore associated with other category exemplars. Accordingly, does the evaluative conditioning effect generalize to other stimuli of the CS category and even to the category itself? In an experiment, we paired exemplars of two fictitious categories (i.e., extraterrestrials) with either positive or negative stimuli. This conditioning not only led to a valence transfer from the USs to the CSs. Rather, we found this effect to generalize to other category exemplars that had never been presented before, and to the category as a whole. These innovative findings encourage the idea that EC can play an important role in changing attitudes towards whole categories such as social groups.

Empirical investigations of decision models for risky choices

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In a first study we examined the parameter stability in cumulative prospect theory (CPT), arguably the most widely used framework to model decisions under risk. Specifically, we examined the temporal stability of CPT's parameters; and how well versions of CPT with different numbers of adjustable parameters predict individual choice. CPT was fitted to each participant's choices in two separate sessions, which were one week apart. All parameters were substantially correlated across time, in particular when using a simple implementation of CPT. CPT allowing for individual variability in parameter values predicted individual choice better than both an implementation with fixed parameters and various simple heuristics. In further studies using eye-tracking we find that simple serial implementations of CPT, however, do not account well for the underlying processes. In light of this evidence alternative process models relying on parallel constraint satisfaction, evidence accumulation, and simple serial heuristics are briefly discussed.

Experience counts: A cross-cultural study of counting biases in children

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Western children predominantly count objects from left to right. This preference might be influenced by the culturally imposed direction of reading. We tested counting preferences in children from left-to-right, right-to-left and mixed reading cultures before and after reading acquisition. Culture-specific counting biases existed before reading acquisition in children as young as three years. Most pre-schoolers counted left-to-right in left-to-right reading cultures but right-to-left in right-to-left reading cultures. In a second study pre-school children from a left-to-right and a right-to-left reading culture were asked to count before and after a 5 min reading activity in which the direction of reading was either consistent or inconsistent with their culturally predominant reading direction. Results showed that the direction of counting was easily modified by the spatially inconsistent reading activity. Thus, seeing and acting in physical space transmits and shapes cognitive skills.

Feature overwriting as a limiting mechanism in spatial working memory

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Working memory is limited in capacity. The Interference model of Oberauer and Kliegl (2006) assumes that when two items share a feature the repetition of this feature in item $n+1$ weakens

the temporary bindings of this feature within the representation of item *n*. This overwriting mechanism leads to a degraded representation of item *n* compared to a situation where the two items do not share a feature. Overwriting could be shown to reduce capacity of working memory within the verbal domain (Lange & Oberauer, 2005). The present experiment tested feature overwriting in a spatial recall task. Dot coordinates appeared in three grids. The coordinates of one grid were repeated in the intermediate task and thus should be overwritten (overwriting grid). Coordinates of another grid were never repeated (non-overwriting grid). Memory for the overwriting compared to the non-overwriting grid was worse. Hence, feature overwriting limits working memory also within the spatial domain.

Intentional learning of the correct judgment: Effects on hindsight bias

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In the hindsight bias memory paradigm, several strategies can be used to recall one's estimate, including recollection and reconstruction strategies (Erdfelder & Buchner, 1998, Hawkins & Hastie, 1990). This study investigated the intentional learning of the solution and thus a strategy that is used before attempts to recollect or reconstruct one's earlier estimate. Forty-eight participants provided numerical estimates to 96 difficult almanac questions that had to be recalled after a retention interval. One third of the questions each appeared without solution (control items), along with the solution (experimental items), or upon request only (choice items). The proportion of requested choice items was positively correlated with the amount of hindsight bias. Multinomial-modeling analyses revealed that the probability of a reconstruction bias was higher for participants who frequently requested to see the solution compared to those who did not. Solution requests were unrelated to intelligence, field-dependency, and motivation to complete the task.

That's how we roll – learning the kayak roll improves the ability to mentally rotate objects

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The present study investigated the effects of motor rotation training on mental rotation performance. Therefore, we collected data before and after a six week training program of the Kayak roll. In the condition "human bodies", participants were presented with pictures of a male canoeist. Left / right button presses were required, depending on whether the canoeist was paddling with the right or left arm. In the condition "flags", participants made left/right judgments on pictures of a flag waving to either the left or right side. Stimuli were presented randomly rotated in picture plane. We predicted better performance in both mental rotation tasks

after the training period. The results showed that motor rotation training significantly decreased response times (RT) in both mental rotation conditions. We conclude that motor training of body rotations generally helps to align the cognitive framework of body and space with that of perceived rotated objects.

My effect was earlier than yours

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Action effects are perceived earlier than events occurring independent of actions. We investigated how the belief to control the occurrence of action effects changes the perceived time of effect stimuli. Two participants working on separate screens each performed an action, rescuing a swimmer by releasing life preservers, as fast as possible. After ca. 500 ms, a red and a yellow life preserver appeared as effects separated by a temporal delay of 0 to 50 ms. One group of participants believed to control either the red or the yellow effect while another group believed that each participant controlled both effects. The different causal beliefs changed the perceived time of the effects' appearance relative to each other. When participants believed to cause only one effect, their "own" effect was perceived earlier than the other participant's effect (Experiment 1) and the effects were less frequently judged to have appeared simultaneously (Experiment 2).

Ethical consequences when selecting a supplier: To what extent do people care about shareholder value and stakeholder interests?

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Managerial decisions usually have consequences for various groups in society. About which of these consequences should a good manager care? The most prominent normative organizational theories that address the responsibilities of business are shareholder value orientation and stakeholder theory. But can and do people really decide consistent with one of these theories? To answer these questions, we aimed at identifying cognitive strategies in a supplier selection task. Participants took the role of a manager and had to choose among two suppliers, each described in terms of the consequences that choosing this supplier would have for shareholders (financial consequences), the supplier himself, customers, employees and society as a whole. Experimental manipulations include characteristics of the company (e.g., for-profit vs. non-profit), and the depths of added value of the company (manufacturing vs. trading). We discuss the implications of our findings for normative theories of the firm.

Causal reasoning in repeated judgment and choice

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Many theories of repeated decision making assume that people learn about exemplars or induce abstract rules from the observations made (Juslin et al., 2003). Causal model theories claim that people use observable cues and previous knowledge to infer the causal structure underlying a decision problem (Sloman & Hagmayer, 2006). Based on these causal assumptions they decide on subsequent interventions. To differentiate between these theoretical accounts, two experiments were conducted. Participants' causal assumptions and the actual causal structure were manipulated. No causal hypotheses were provided in control conditions. The results showed that participants considered initial hypotheses even after extensive learning and contradictory evidence. They also showed that participants engaged in causal induction when no hypothesis was provided. An exemplar, a linear and a causal-model model were fitted to participants' answers. The latter predicted participants' judgments and choices best. These findings indicate that people may rely on causal models when making repeated decisions.

I like it, but I don't know that I know why: A process dissociation approach to examine the relation between contingency awareness and evaluative conditioning

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Evaluative conditioning (EC) refers to changes in liking of neutral stimuli due to their contingent pairing with (dis)liked stimuli. The most debated question in EC research is whether the effect requires conscious knowledge (i.e., awareness) of the underlying contingencies. Contingency awareness is almost exclusively assessed in tests of contingency memory. However, memory reports confound conscious and unconscious memory processes, and thus the presumption of a one-to-one mapping between reporting contingencies and contingency awareness is unwarranted. Remediating the present situation we introduce process dissociation (Jacoby, 1991) as a means to disentangle conscious and unconscious processes in contingency memory. In two experiments both conscious and unconscious memory processes were identified as determinants of reported contingencies. Most importantly, EC effects were obtained for both consciously and unconsciously remembered contingencies. The role of awareness in EC and implications for future research are discussed.

The pleasure of being moved: An experimental perspective on the 'sad-film-paradox'

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This presentation investigates the role the negative emotion of sadness plays in aesthetic experience. We conducted two studies using film clips as sadness-eliciting stimuli. The participants watched 38 clips containing variations of a single sad scenario: a character, or a group of characters, learns about the death of a close person. The study yielded two important results. There was a highly significant positive correlation between sadness and enjoyment. This correlation was fully mediated by the feeling of being moved. We conclude that sadness plays a vital role for the enjoyment of melodramas and other sad genres by contributing to the feeling of being moved. However, it is the feeling of being moved – a complex emotional state with a long tradition in aesthetics largely overlooked in psychological research – that recipients of sad films enjoy. These findings are significant for the study of aesthetic pleasure in negative emotions.

The relevance of de-synchronization for episodic memory encoding

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Previous EEG/MEG studies mostly focused on the role of synchronization in the theta (~ 5 Hz) and gamma frequency bands (~ 40 Hz) for memory encoding. However, several studies demonstrated that de-synchronization of cortical cell assemblies in the alpha (~10 Hz) and beta (~15 Hz) range, as measured with brain oscillatory power, also plays a crucial role for memory formation. In this talk, the results of recent EEG and combined EEG-fMRI studies will be presented showing that decreases in alpha and beta power predict successful formation of episodic memories, and are tightly coupled to the BOLD signal in task active regions. These results support the view that alpha and beta band de-synchronizations play a very active role for memory formation. A framework which is based on information theory will be presented that tries to explain how such de-synchronization processes could serve memory encoding at the neural level.

Electrophysiological correlates of the implicit positive and negative affect test

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EEG recordings were used to investigate the neural activity elicited by the visual presentation and completion of the Implicit Positive and Negative Affect Test (IPANAT), a tool for the indirect assessment of positive and negative affect. The test comprises a series of judgments about the extent of acoustic congruence of an emotional adjective and an artificial nonsense word. Event-related potentials were calculated for both visual presentations of emotional and neutral adjectives as well as for subsequent presentation of artificial words. In addition, event-related potentials were calculated based on the judgments and the individual affectivity. The waveforms for the emotional primes were in line with prior research, namely with higher P100 potentials for emotional primes compared to neutral ones. Potentials depending on the responses exhibited differences in the late positive potentials and reflected the IPANAT judgments given afterwards. Further findings, implications and limitations of this research will be discussed.

The effect of common identities on adversaries willingness to reconcile: The contribution of third party intervention to intergroup conflicts

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This talk deals with the question in how far third-parties are effective in reconciliation processes. Existing literature suggests that third-parties should be neutral to successfully promote conflict resolution. However, when it comes to reconciliation, neutral third-parties should be less effective than third-parties who share a common identity with the other-involved party. We tested this prediction in two studies. In each study, participants were randomly assigned to the role of either victims or perpetrators. Then they received empowering or accepting messages from the other-involved or from a third-party. In Study 1, the third party was neutral; in Study 2, the third party was either neutral or shared a common identity with the other-involved party. As predicted, messages from neutral third-parties satisfied the conflicting parties' needs as good as messages from each adversary. However, only messages from the other-involved and common identity third-party, but not a neutral third-party, successfully increased reconciliation.

Visual information and rubber hand embodiment differentially affect reach-to-grasp actions

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Evidence as to whether the rubber hand illusion (RHI) affects hand action is mixed. Here, the perceived size of one's own hand was affected by the size of the artificial hand used to elicit the illusion. We then tested transfer of the RHI to a reach-to-grasp action. Hand transport (i.e., reach) errors after RHI induction were independent of artificial hand size, showing that the relevant parameter for these reaching errors was the hand's perceived location. Thus, the RHI affects not only perceptual, but also action processing. In contrast, grip aperture was affected by artificial hand size independent of the RHI, suggesting that visual information about hand size affects grasping independent of embodiment of the artificial hand. Grip size increased with artificial hand size; this effect is explained by higher reliance on proprioceptive information during blind reaching after receiving distorted visual information.

The influence of features on motion correspondence: Limited to short distances in the Ternus display but long-range in split motion

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Many studies have reported that features (e.g., surface polarity or orientation) do not bias the motion seen in ambiguous split or quartet motion displays. In contrast, features strongly influence correspondence in the Ternus display -- but only over short distances, equal to about twice the width of the moving tokens. Perhaps the absence of feature bias in the previous tests was due to the larger displacements inherent in the split and quartet motion stimuli. To test this, we compared the influence of distance on feature biases in split motion and the Ternus display. Surprisingly, we found strong feature effects in both displays, but this effect decreased with distance only in the Ternus display, whereas it remained robust at all distances in the split motion display. We speculate that feature biases take time to develop so that our repeating display reveals them whereas the single trials of previous studies did not.

Die Mitte zwischen Schwarz und Weiß: Zur Psychophysik der achromatischen Farben

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Plateau (1872) berichtet über einen Versuch, bei dem acht Künstler zu jeweils einer weißen und einer schwarzen Farbscheibe in ihren Ateliers ein genau in der Mitte dazwischen liegendes Grau ermischen sollten. Trotz der unterschiedlichen Beleuchtungsbedingungen waren die resultierenden grauen Farbscheiben praktisch nicht unterscheidbar. Dieser Befund kann als Invarianzeigenschaft der Wahrnehmung achromatischer Farben bei sukzessiver Beleuchtungsänderung interpretiert werden. Es war Hans Jägle, der die zentrale Bedeutung derartiger psychophysischer Invarianzen für die Theorienbildung im Bereich der Helligkeitswahrnehmung herausgestellt hat (z.B. Jägle, 1991, 1992, 1998). Ganz in diesem Sinne werden die theoretischen Implikationen der von Plateau beobachteten Beleuchtungsinvarianz der Mittenbildung untersucht und die Ergebnisse entsprechender Experimente berichtet.

Selective semantic memory retrieval: Electrophysiological correlates of interference

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Selective memory retrieval involves the control of interference from competing related memories. Inhibitory control mechanisms are considered to be recruited to resolve such interference by reducing the accessibility of competing memories. In the present event-related potential (ERP) study, we investigated the neural correlates of interference and cognitive control by manipulating interference levels during selective semantic memory retrieval. Replicating previous studies, selective retrieval induced forgetting of related, previously studied items. Importantly, this forgetting effect was larger for studied items with strong compared to weak cue-item association strength. Analysis of ERPs recorded during selective semantic memory retrieval showed a sustained more positive-going deflection in the high-interference condition compared to the low-interference condition over anterior sites. Further analysis revealed that this frontal positivity was related to ensuing forgetting. These findings provide further evidence for a relationship between frontal ERPs during selective retrieval, interference and forgetting by contrasting conditions within the same retrieval task.

Early action understanding and later theory of mind: A longitudinal study
controlling for the quality of mother-infant interaction

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Aim of the present study was to longitudinally assess a continuity hypothesis in the development of intentional action understanding from infancy to childhood. Seventy-seven children participated at 6 months of age in a looking time study on early action understanding. At 5 years of age, their Theory of Mind competence, general cognitive abilities and language development was assessed. Results showed a positive relation of degree of dishabituation to a change in action goal and false-belief understanding for a subsample. This relation was no longer significant when IQ and language development was controlled for. Further results point to an influence of maternal interaction style. Findings are discussed also with regard to continuity and change in longitudinal designs.

On the cognitive processes underlying the open sampling advantage

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It is commonly claimed that decision makers are unable to treat small probabilities in risky choice appropriately, implying suboptimal behavior. However, a more favorable picture emerges once using the recently introduced Open Sampling presentation format, in which many single outcomes are presented simultaneously. This format allows not only for more appropriate probability weighting, but also for faster choices, as compared to decisions from descriptions and from experience. These advantages have been attributed to automatic sampling processes; however, conclusive tests for this assumption are missing. Therefore, we test these proposed processes underlying Open Sampling. Specifically, we show that Open Sampling is hardly affected by the amount of information presented, and that, compared to decisions from descriptions, Open Sampling is less affected by the complexity of information (i.e. the number of distinct outcomes per gamble). The findings generally support the hypothesis that automatic processes account for the advantages of Open Sampling.

Covert and overt visual encoding of verbal and spatial information

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Visual information processing is guided by an active mechanism generating saccadic eye movements to salient stimuli. Here we investigate the specific contribution of saccades to memory encoding of verbal and spatial properties. Digits were presented visually at different locations on the screen. Either the numeric identities (verbal task) or the spatial positions (spatial task) had to be recalled in serial order. Verbal memory encoding was characterized by moving the gaze to stimuli. However, during spatial encoding saccadic activity was suppressed, indicated by reduced saccade amplitudes and fixation probability on memory items. We observed that saccading to targets increasingly impaired spatial but not verbal memory performance. This correlative result was tested experimentally in a follow-up study. We conclude that optimized encoding strategies for verbal and spatial features are underlying memory performance in serial recall.

Time and moral judgment

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Do moral judgments hinge on the time available to render them? According to a recent dual-process model of moral judgment, moral dilemmas that engage emotional processes are likely to result in fast deontological gut reactions. In contrast, consequentialist responses that tot up lives saved and lost in response to such dilemmas would require cognitive control to override the initial response. Cognitive control, however, takes time. We manipulated the time available to arrive at moral judgments in two ways: by allotting a fixed short or large amount of time, and by nudging people to answer swiftly or to deliberate thoroughly. Faster responses indeed lead to more deontological responses among those dilemmas in which the killing of one to save many necessitates manhandling an innocent person and in which this action is depicted as a means to an end. These results demonstrate that inhibiting cognitive control through manipulating time alters moral judgments.

The microstructure of motion correspondences revealed by the Ternus-Pikler display

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The Gestaltists were the first to investigate the rules of grouping by asking observers about subjective percepts. Here, we propose an indirect approach. We investigated the motion correspondence problem using the Ternus-Pikler display. Three lines were presented, followed by an ISI, and then moved by one line spacing. Apparent motion is perceived and a non-retinotopic reference is established between lines. Interestingly, a Vernier offset presented at the central line in the first frame is perceived at the central line of the second frame- according to the unambiguous, non-retinotopic line-to-line mapping. To understand the microstructure of motion correspondences, we tested Vernier offset attribution as a marker for grouping in displays with ambiguous correspondences, for example, by presenting first three and then four lines. We found clear-cut Vernier offset attribution between outer lines suggesting that these play a critical role in motion grouping, which is otherwise difficult to access using subjective reports.

On the specificity of face cognition across adult age

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Face cognition is a specific human ability. Its specificity is primarily supported by neuro-cognitive research, but recently also from an individual differences perspective. No comprehensive behavioral data are available, which would allow estimating lifespan changes of the covariance structure of face cognition, object recognition and general cognitive functioning as well as age-differences in face cognition after accounting for variability in general cognition. The present study aimed to fill this gap. We use Locally Weighted and Latent Moderated Structural Equation Models to investigate factorial dedifferentiation of face cognition and fluid abilities across age (18-82 years). We found no factorial dedifferentiation between face and general cognition. Age-related differences in face recognition are still salient after taking into account changes in general cognitive functioning. Accuracy measures of face and object cognition are distinguishable and slightly dedifferentiated across the adult lifespan. Implications will be discussed.

Befragungen mit dem stochastischen Lügendetektor

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In Umfragen zu sensiblen Merkmalen, wie zum Beispiel Untreue in Partnerschaften oder Vorurteilen gegenüber Minderheiten, ist die Validität von Selbstauskünften fraglich. Durch unehrlich antwortende Merkmalsträger kann es zu einer Unterschätzung der Prävalenz sensibler Merkmale kommen. Die Randomized-Response-Technik (RRT) garantiert durch eine Zufallsverschlüsselung die Anonymität individueller Antworten, um so die Kooperationsbereitschaft von Merkmalsträgern zu steigern. Eine kürzlich vorgestellte neue Variante der RRT, der stochastische Lügendetektor (SLD), versucht durch die Unterscheidung ehrlicher und unehrlicher Merkmalsträger die Validität von Prävalenzschätzungen in Dunkelfeldern zu steigern. Berichtet werden an großen Stichproben durchgeführte Validierungsexperimente, die prüfen, ob das neue Verfahren diesem Anspruch im Vergleich zu direkten Befragungen und konkurrierenden Techniken gerecht zu werden vermag.

Take him or leave him: Children's decisions in an ethical dilemma situation

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What determines and moderates altruistic behaviour and how strong are the relative effects of some of these variables? To answer this question, we conducted an experiment in a mixed adult-children group setting (165 groups; 75.2% of the 903 participants were younger than 12 years). Participants were cued into the perspective of a member of Ulysses' crew. On their way home from Troy they met Aisibios, a shipwrecked person who asked to be taken on board. We manipulated (1) whether Aisibios was personally recognized, (2) belonged to the own ethnic group, (3) was known to be selfish or social, and (4) which decision the experimenter suggested. A stacked model in two age groups (13 years or below or above 13 years) showed that only Aisibios' character (standardized $b = .27$, $p < .001$) and the experimenter's suggestion (standardized $b = .25$, $p < .001$) were significant predictors.

Viewing a needle pricking an incorporated hand modulates anticipatory brain responses to forthcoming pain

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Most people prefer to look away when receiving an injection, but it is unclear how seeing a needle prick influences pain processing and perception. Sensory inputs presented in peripersonal space often interact across modalities, especially if they are threatening. Here, we presented video clips of a hand being pricked by a needle or touched by a Q-tip while delivering spatio-temporally aligned painful and non-painful electrical stimuli. Participants had the impression of looking at their own hand, i.e. they incorporated the hand on the screen. High-density EEG, pupil dilation response (PDR) and intensity and unpleasantness ratings were monitored. When a needle compared to a Q-tip was presented, electrical stimuli were perceived as more unpleasant, an effect that was paralleled by PDR, event-related potentials and oscillatory responses. Our study demonstrates that viewing a needle pricking an incorporated hand enhances anticipatory physiological activity, which impacts on the processing and perception of subsequent pain.

The paradoxical impact of sexual desire on self-other integration and mutual trust

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Love and friendship make people perceive self and other as more similar, which leads to greater inclusion of the other into one's self-concept and to more interpersonal trust. Here we show that sexual desire, induced by exposing women to a putative pheromone (δ 4,16-androstadien-3-one) has the opposite effect by reducing self-other integration in a Social Simon task and mutual trust. This suggests that the affective benefits of bodily attraction come with cognitive and motivational costs.

Enhanced prospective memory for cheaters?

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Prospective memory (PM) involves self-initiated retrieval of intended actions at some point in the future (e.g., remembering to give someone a message). From an evolutionary perspective, cognitive functions are adaptive, shaped for social exchange, and may include a module serving

to enhance memory for cheaters (Cosmides & Tooby, 2005). We suggest that PM tasks are particularly sensitive and ecologically valid in this regard, given the high importance for any future interaction to remember and avoid cheaters. In our experiments, participants first encoded faces of persons who are associated with either cheating, trustworthy, or neutral behavior. In a subsequent event-based PM task, faces of these individuals appeared as target events. Compared with neutral faces, PM performance was higher for both the faces of cheaters as well as trustworthy individuals. These findings highlight the adaptive nature of PM and are in line with accounts of reciprocal altruism.

Eye movements as a gatekeeper for memorization: Evidence for the persistence of attentional sets

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Attention serves several goals, including information selection for further perceptual analysis (selection for perception) and for goal-directed behaviour (selection for action). Here, we study the role of eye movements as a gatekeeper for memorization (selection for memorization). Subjects memorized multidimensional stimulus displays and subsequently indicated whether a probe item was present. In Experiment 1 we utilized an incidental learning setting where in the beginning only a subset of display stimuli was relevant. In a transfer block all stimuli served as possible probe items. Experiment 2 examined explicit learning. RTs and gaze patterns indicated that subjects learned to ignore irrelevant stimuli. This suggests that complex feature binding processes in peripheral vision served to guide overt attention, which eventually contributed to filtering out irrelevant information even in complex displays. Interestingly, gaze patterns indicated that attentional control settings persisted even when they were no longer useful.

Language-mediated prediction is related to reading ability and formal literacy

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We investigated whether levels of reading expertise attained through formal literacy are related to anticipatory language-mediated eye gaze. In Experiment 1, Indian low (2 years of schooling) and high literates listened to spoken sentences containing a target word (e.g., "door") while looking at a visual display of four objects (the door, and three distractors). Sentences were constructed so that participants could use semantic and syntactic information from preceding adjectives to predict the upcoming targets. High but not low literates looked at target objects before target word onset. In Experiment 2 and 3, low literates with 5 years of schooling participated. High literates used both types of information but low literates only used syntactic information for prediction. This suggests that formal schooling and reading aptitude are related to language-

mediated prediction. Moreover, it appears that some linguistic information is used earlier than others for anticipatory processing during the course of literacy development.

Changes in goal-directed actions modulate visual attention over time

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Changes in goal-directed actions constitute important points in time. Recently, we demonstrated that the processing of such changes is related to demands on visual attention. We presented short visual probes in the heads of soccer players during short soccer scenes. Probe detection performance was lower at the time of ball possession changes than during regular attacks. In the present study, we examined the spatial distribution of attention at the time of changes in goal-directed actions. We presented visual probes on the soccer field either in the old or in the anticipated new direction of the game play. At the time of ball possession changes we observed a shift in the spatial distribution of visual attention. Probe detection performance increased in the anticipated new direction of the game play. Our results suggest the flexible allocation of visuo-spatial attention over time according to changes in goal-directed actions.

What is learned from evaluative conditioning? Distinguishing between evaluative identity conditioning and evaluative cue conditioning

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The investigation of evaluative conditioning (EC) has been mainly concerned with Evaluative Identity Conditioning (EIC). That is, a concrete stimulus (conditioned stimulus, CS) is paired with valent information (unconditioned stimulus, US) and consequently acquires the valence of that stimulus. Evaluative Cue Conditioning (ECC), on the other hand, refers to a feature shared by all CSs that is correlated with the US. The focus of attention determines which contingencies are learned in a multiple-cue situation. The attentional focus can, for example, be manipulated by the stimulus material chosen. In our experiments we therefore compare EIC and ECC effects for photographic faces, which should be processed holistically, and schematic faces, which should be processed in an analytic fashion. The results confirm that EIC can only be observed in photographic stimuli and ECC can primarily be observed in schematic stimuli. Implications pertaining to the generalization of the different EC effects will be discussed.

The attention window: Measuring the maximum breadth of attention

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The experiment measured the maximum spatial attention window, defined by a 75%-correct criterion, at which people can judge the similarity of two peripheral objects. Most studies of multiple-object identification have explored the ability to detect a peripheral stimulus while maintaining attention at fixation (UFOV; Ball et al., 1993). However, such measures may not optimally measure the maximum attention breadth because fixation may be prioritized. In addition, many real-world tasks require attention to multiple peripheral stimuli rather than one fixated and one peripheral stimulus. A new measure of attention breadth was introduced including two peripheral objects. Both performance of sports experts ($n = 13$) and sports novices ($n = 11$), and performance of younger ($n = 12$) and older adults ($n = 12$) were compared. Experts showed greater attention windows than novices, and younger adults showed greater attention windows than older adults. Adding this new measure to more traditional attention breadth measures might enhance the prediction of real-life performance.

Prepared learning – situational context effects in evaluative conditioning

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Individuals may differ in the acquisition of object-valence associations depending on the context. More specifically, it may be the specific person-by-CS interaction that may help explain under which circumstances attitudes are acquired. Informed by a framework of evolutionary psychology we argue that individuals are prepared to learn that potential mates are positive if a sex context is activated. In line with this hypothesis, the results of a study with heterosexual men and women ($N = 51$) using an affective priming measure as DV showed that heterosexual male participants exhibited EC effects for female CS in a sex context but not for male CS and vice-versa for heterosexual female participants. In contrast, in a negotiation context, only same-sex CS acquired the valence of the UCS. No specific effects were found in a neutral context. The robustness of these results will be critically discussed.

Comparing fractions and proportions. Evidence for different roles of the left and right parietal lobe in quantity processing

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Comparing fractions is difficult even for adults. Especially children often confuse the overall size of the numerals used in a fraction with the fractions real value. This so-called whole-number bias is presumably caused by the integer number concept that children acquire previously. It is unclear, however, if a similar bias is observable when proportions are compared. To investigate how fractions and proportions are represented and processed in the brain, we used a fraction and proportion comparison task in an fMRI study. Fraction and proportion comparison activated the intraparietal sulcus bilaterally, with stronger right-hemispheric activation for proportions. This activation was inversely related to the distance between the real values of the two fractions and proportions compared. The size of the numerals or set-sizes used influenced both comparison tasks. These results point to basic processing differences between fractions and proportions and to a common origin of the whole number bias.

Reference frames in children's spatial representations

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Children (aged 3 to 6 years) can remember an object's location within an array and can retrieve it from a novel viewpoint after they have moved around the array. If, however, the array is rotated by the same amount compensating the children's movement, spatial memory performance is impaired. Either the children's movement induces automatic spatial updating of a spatial memory representation, which then diverts from the rotated array, or the object's location was encoded with respect to the surrounding environment and this relation is disturbed by the rotation. To decide between these possibilities, we rotated children together with the occluded array within a room, thus excluding spatial updating by self-motion. Four-year-olds' spatial memory was impaired suggesting that they encoded object locations with respect to the environment. Children aged 5 to 6 years seemed to use an array-relative representation, which was robust against rotation.

Haptic exploration and aesthetic appreciation

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The question about what we appreciate or prefer and why, was examined by using a variety of approaches in the visual domain. Nevertheless, the aesthetic of objects is not limited to the visual sense – haptic perception is also involved in the formation of preferences. Systematic research of underlying features is still missing. Consequently, we report three series of experiments testing a) low-level features (shape and complexity), b) familiarization effects (mere exposure paradigm) and c) context – dependent effects (scenario-based touching) in relation with aesthetic judgments. Our findings revealed similarities to the preference formation in the visual domain and provide valuable hints for future research and applied fields.

Doing justice to Benjamin Franklin's ideas: Overestimation of the usage of heuristics caused by wrong implementations of weighted compensatory strategies

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In his Moral Algebra Franklin suggests that decisions should be made in a way that can be formalized as weighted compensatory integration of all pros and cons. We show that commonly used implementations of Franklin's rule are flawed and lead to systematic underestimations of the degree to which people use weighted compensatory or Bayesian strategies. Reanalyses of previous studies demonstrate strong illusory adherence and misclassification rates in favor of fast-and-frugal heuristics. Model recovery simulations show that using the problematic implementation of Franklin's rule leads to misclassification of a majority of completely rational participants as users of fast-and-frugal heuristics in many environments. We argue that developing a "New Framework of Rationality" in the sense of psychologically plausible process models for decision making requires as a first step a rigorous reanalysis of the large strand of papers with flawed implementations of Franklin's rule to determine to which degree past conclusions are valid.

Age-related differences in filtering, attentional control, and working memory capacity

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While it is well-known that working memory (WM) functions decline with age, the functional reasons for this decline are not well understood. A factor that has proven critical for general

individual differences in visual WM capacity is the efficiency of filtering irrelevant information. In a series of experiments we examined by means of ERPs and behavioural data to what degree this factor is also responsible for age differences. In a short-term-memory task, relevant, to-be stored information was presented along with irrelevant material. Moreover, in some trials a flexible adjustment of filter settings was required. The results indicate that here filtering is more demanding, and older adults were less efficient in ignoring no-longer relevant material, suggesting a decreased flexibility in filtering. All in all, the findings show that separable components of filtering contribute to variations in WM capacity and that older adults are not simply like less efficiently performing young adults.

Implicit and explicit positive and negative affect and well-being among Singaporeans

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The study examines relationships of implicit (IPANAT) and explicit (PANAS) positive (PA) and negative (NA) affects in the sample of 92 Singaporean athletes (45 males, 42 females) with average age of 24. Construct validity of the IPANAT was analyzed by using exploratory factor analysis (adequate loading to appropriate factors with high internal consistency of IPA and INA, however with cross-loadings of up to .30); such an effect might be attributed to acquiescence of the collectivist Southeast Asian culture. Overall, participants reported higher IPA than INA, which were lower than explicit ones. Negative affect in implicit and explicit conditions were related. Finally, discordance between PA and NA revealed an effect on well-being of athletes ($\beta = -.19$, $t(92) = -2.07$, $R^2 = .22$, $p \leq .05$): people with high profile on positive implicit affect and negative explicit affect reported low symptoms of emotional and physical exhaustion (a burnout constitute measured with ABQ).

Placebo and nocebo effects – the roles of expectancy and conditioning

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In this talk we will examine the underlying psychological principles that are thought to mediate placebo analgesia and nocebo hyperalgesia. Two explanatory psychological mechanisms have been discussed: expectancy theory and classical conditioning. Expectation is defined as cognitions about treatment outcome, while conditioning describes the effect of former experiences in terms of associative learning. Previous experience with medication or drugs also plays an important role in placebo analgesia. Colloca and colleagues (2006) showed in several studies the impressive impact of previous experience (pre-conditioning with effective analgesic treatments in different learning conditions such as classical conditioning, social observational

learning on the following placebo / nocebo response. Overall, these findings indicate that prior positive experience plays a key role in maximizing placebo responses (behavioral and neurophysiological) and it is likely that similar mechanisms operate for nocebo hyperalgesic effects. This introduction thus lays the foundation for the following talks, which will examine the two principles in detail in healthy controls and patients regarding placebo analgesia and nocebo hyperalgesia.

Who benefits the most? Individual differences in the transfer of executive control training in younger and older adults

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Executive control training can result in significant improvements on the training task that can be transferred to new, untrained tasks in younger and older adults. However, less is known regarding the individual factors that contribute to the success of a training intervention. Why do some individuals benefit more than others? Evidence from memory-training studies indicated that the efficacy of the intervention is reduced in older age and for individuals with lower cognitive abilities. In the present study, we investigated transfer of task-switching training in younger and older adults (N=84) in a pretest-training-posttest design. Both age groups showed training-related benefits that were transferred to a structurally similar switching task. Transfer was larger in older adults than in younger adults. Across both age groups, individuals with lower task-switching abilities at pretest showed the largest benefits. Intelligence and working memory contributed to the training success in younger adults but not in older adults.

Does evaluative conditioning occur with negative CS-US contingencies?

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It is well accepted that Pavlovian conditioning is a function of the statistical contingency between the conditioned (CS) and the unconditioned stimulus (US). Previous studies on evaluative conditioning (EC), however, suggest that this form of learning does not depend on contingency, but rather on subjective beliefs about the stimulus relations. The present study tested whether EC can occur with CSs that signalize the absence of a US given that some contiguous CS-US pairings have occurred. CS-US contingency was manipulated within-subjects by varying the number of (additional) trials in which the CS was not followed by a US. Afterwards, the participants were asked to judge the strength of each contingency relation. EC occurred with positive and negative contingencies, but the effect size increased with the number of pairings. Furthermore, the relation between contiguity and EC was mediated by the

participants' contingency judgments, indicating that subjective appraisal rather than objective contingency is crucial.

Effects of caricaturing face shape in poor and good face recognizers

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Previous findings demonstrated that increasing face distinctiveness by means of spatial caricaturing improves face learning and results in a larger ventral temporal N250, an event-related-potential (ERP) correlate associated with face learning and recognition. The current study investigated individual differences in the effects of spatial caricaturing on face learning. The Bielefelder-Famous-Faces-Test was applied to subdivide a group of 28 participants into good and poor face recognizers (split-half). Overall, the results replicated a learning benefit for caricatured faces. In addition, we found evidence for larger reaction time and N250 effects of caricatured compared to veridical faces in poor face recognizers, indicating that these participants profited disproportionately from exaggerated face shape. We suggest that spatial caricaturing helps poor face recognizers accessing critical idiosyncratic shape information necessary for the construction of an initial identity representation. Our results might provide a basis for developing training-programs for people with difficulties in face recognition.

The flexibility of models of recognition memory: An analysis by the minimum-description length principle

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The question of model selection has occupied a central role in the field of recognition memory, with several continuous, discrete, and hybrid approaches being proposed in the literature. Evaluating differences in model flexibility among these candidates is rather difficult given that the majority of them have the same number of parameters, rendering traditional model selection measures such as AIC and BIC ineffective. One solution to this problem is the use of measures emerging from the Minimum Description Length framework, like Normalized Maximum Likelihood or the Fisher Information Approximation. Ten continuous, discrete, and hybrid models of recognition memory are evaluated with these measures in the traditional paradigm with manipulation of response bias via base-rates or payoff schedules.

Control without consciousness?!

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Visual stimuli presented very shortly are not seen consciously. Nevertheless, such subliminal stimuli bias behavior. Here we ask which cognitive control processes can be prompted by subliminal stimulation. Interestingly, some instances of cognitive control, like inhibiting a prevalent response tendency or activating a task-set, are induced by subliminal stimuli. At the same time, evidence for other instances of cognitive control such as adaptations to recent, frequent, or context-specific conflict is less compelling. To account for these inconsistencies, we suggest to discriminate between explicit and implicit control cues. Control processes are invoked, when a subliminal cue explicitly calls for a control process. When the need for cognitive control is merely implied by some unconscious event, cognitive control is less likely invoked.

Measuring cognitive conflict in judgments of truth

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Recent methodological advances in analyzing response dynamics are used to gain deeper insight into the cognitive processes underlying judgments of truth. In an experiment, the mouse movements of participants judging the truth status of neutral trivia statements and statistical statements framed positively or negatively were recorded. Different measures derived from this paradigm are interpreted regarding the cognitive conflict that precedes judgments. In line with the assumption that people mainly search for evidence confirming a statement, cognitive conflict was higher when a statement was eventually rated as false. Besides, the latter effect was more pronounced for negatively framed statements. This is consistent with recent findings implying that it is easier to generate evidence for negatively framed statements. This, consecutively, can explain why negatively framed statements receive higher truth ratings. In light of the current results and novel insights, the utility of assessing response dynamics in judgment and decision making is discussed.

The influence of semantic priming on episodic retrieval: A developmental ERP study

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Most models of long-term memory assume that semantic and episodic memory are two distinct memory subsystems. We investigated how semantic priming during encoding impacts episodic

memory retrieval and examined developmental differences in the interaction between both memory systems. Children (8-11 yrs) and young adults performed a recognition memory experiment while EEG was recorded. In the study phase, target pictures were presented which were preceded by either semantically related (priming condition) or unrelated pictures (non-priming condition). In the test phase, participants made old/new decisions for single target pictures. Adults reached higher memory accuracy accompanied by an increased ERP correlate for recollection for primed than for unprimed pictures. The ERP correlate of familiarity was not modified by priming. Children did not show corresponding differences in memory accuracy or ERP measures. Thus, for adults, semantic priming during encoding improves episodic memory mainly by enhancing recollection. However, children do not benefit from semantic priming.

The effect of oxytocin on neural and behavioral phenotypes associated with autism

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Oxytocin (OT) is known as a neuropeptide associated with social motivation, especially in the context affiliation. Autism is a condition where these social processes are impaired. Endocrinological, genetic and pharmacological studies indicate an impaired OT system in autism. Here we report results from a functional magnetic resonance imaging (fMRI) study on the effect of oxytocin on social processing and its modulation by genetic variants associated with autism. Data from 55 healthy young men were acquired in a double-blind placebo-controlled design. Participants received either placebo or OT via intranasal application prior to scanning. During scanning they performed two tasks targeting functions of social processing. The autism associated genotypes were found to influence the activation of different structures of the social brain (Amygdala, fusiform gyrus) as well as their modulation by OT during the processing of socially relevant stimuli. The results further emphasize the importance of the OT system for social motivation.

Trial-by-trial adjustments of cognitive control during selective long-term-memory retrieval

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We studied control mechanisms during selective long-term memory (LTM) retrieval with event-related potentials (ERPs) and behavioral measures by systematically manipulating changes and repetitions of retrieval targets on a trial-by-trial basis. Response times showed clear repetition benefits the more recent the repetition ($i-1$ to $i < i-2$ to $i < \text{no repetitions}$). We found two

temporally and spatially distinct modulations of slow ERPs that covaried with the "level of priming" of the retrieval target. One posterior effect, 600-900 ms after stimulus onset, showed a relative decrease of negative amplitude the stronger the priming of the retrieval target, while an opposite later effect, 1000-3000 ms over right-frontal electrodes, showed a relative increase of negative amplitude. We suggest that these effects reflect two distinct mechanisms that aid selective LTM retrieval by enhancing the contrast between relevant and irrelevant representations: posterior attentional processes that enhance target representations plus right-frontal inhibition of retrieval competitors.

Same numbers, different meanings: How numeracy influences the importance of numbers for pro-social behavior

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In requests for charitable giving, three numerical cues in the donation description are of particular importance: the number of potential donation recipients, the number of people in need, and the proportion of recipients to people in need. In three studies, we examined the effects of numeracy on the weight given to these numerical cues in donations. Study 1 contrasted the importance of a higher number of recipients with a higher proportion of help. In Study 2, we investigated the effects of different sizes of the number of people in need and Study 3 was designed to focus on the impact of the number of donation recipients. The results revealed a consistent pattern, demonstrating that higher numerate individuals donate more for projects with higher proportional help, whereas individuals with lower numeracy use the number of people in need as decision cue.

Interactions in sport

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The present study examines Fitts' Law for complex interpersonal interactions. Experiment 1 required two actors to throw softballs into a plastic box, which was placed in the middle between them. The orthogonal combination of three throwing distances (100, 150, and 200 cm) and three box sizes (25, 37.5, and 55 cm) resulted in nine different indices of difficulty (ID), ranging from 1.2 to 3.4. Experiment 2 demanded two actors to pass a basketball through a target rectangle on the floor. The orthogonal combination of three passing distances (100, 150, and 200 cm) and three target sizes (25, 50, and 75 cm) resulted in nine different IDs, ranging from 1.4 to 4.0. For both experiments, regression analyses revealed that movement times (MT) increased linearly with

higher IDs, whereas performance errors (PE) increased exponentially. According to these results, complex interactions in sport may be described by Fitts' Law.

The importance of intention planning for age effects in intention initiation

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Previous research on prospective memory (PM) has largely ignored intention formation. The purpose of the present study was to investigate whether future thinking instructions in the process of forming an intention can improve older adults' PM performance. To this end, a task with a strong planning component was applied. 40 younger ($M = 23.80$, $SD = 3.31$ years) and 40 older adults ($M = 71.93$, $SD = 5.76$ years) were asked to prepare a breakfast comprising event- and time-based PM tasks. Overall, participants showed more correct PM responses under future thinking instructions than in the control condition. Moreover, younger adults completed more PM tasks than older adults and participants had more correct event- than time-based PM responses. Importantly, regarding differential age effects, the age deficit was eliminated under future thinking instructions, but only for event-based tasks. Findings are discussed in the context of recent phase models of age-related PM performance.

Eccentricity effects on temporal perception

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Stimulus characteristics like complexity or size influence the subjective duration of visual stimuli. Furthermore, spatial influences are observed. Following Ornstein's "metaphor of required storage size" (1969), it can be assumed that the more eccentric a stimulus the shorter its duration should be perceived, since less stimulus information has to be processed because of declining acuity. In order to explore the influence of stimulus eccentricity on perceived duration, subjects compared the duration of two disks in a 2AFC-task. In a series of experiments one stimulus was flashed foveally, whereas another was flashed on different locations in the periphery. Our results show that growing eccentricity reduces perceived duration. In further experiments using m -scaled stimuli, we showed that this can only be partially explained by smaller retinal stimulus size or cortical representations. Effects of the spatial extent of the region of interest are discussed.

Evidence for neural plasticity and associated changes in positive affect after compassion training

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Compassion allows us to relate to the suffering of others in a positive, prosocially-oriented way. To study the functional neural plasticity of compassion, we compared fMRI responses in a group of female participants receiving compassion training to a control group undergoing memory training. Before and after training, participants completed a newly developed Socio-affective Video Task optimized for the repeated measurement of empathy, positive and negative affect to distress witnessed in others. Compassion training compared to memory training increased neural activity in medial orbitofrontal cortex along with putamen, pallidum and ventral tegmental area – key regions involved in the experience of positive social affect in general and affiliation in particular. Compassion training also augmented the subjective experience of empathy and positive affect. These findings suggest that cultivating compassion offers a new coping strategy that fosters resilience and allows individuals to respond to distressing situations with other-oriented positive affect.

Delineating predictive processes in situated language comprehension

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Findings from both eye-tracking and event-related brain potential studies have revealed the important role of prediction in situated language comprehension. I will review recent research that delineates prediction in comprehension. When people listened to a sentence in which the verb could either refer to a real-world action they had recently seen, or to another, equally plausible, future action, they preferred to look more at the recent action target. This happened even when recent vs. future action events were equally frequent within the experiment, suggesting that recency can outweigh prediction. Further studies examined visual anticipation of objects during comprehension of spatial language. The gaze pattern confirmed that while listeners anticipated the target of a spatial preposition (e.g., the clock in The vase is above the clock), their next inspection went to the vase even as the clock was mentioned. These findings situate prediction as one of several conspiring mechanism in situated language comprehension.

Lexical prosody influences the monitoring of number information

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Prediction is an important (feedforward) mechanism that is complemented by feedback mechanisms which are thought to serve the monitoring functions. Recently, we proposed that the language production system serves a predictive function for speech comprehension, if the speech is task-relevant, e.g. if the speaker is involved in a communicative act (Schiller et al., 2009). In order to test the behavioural relevance of prosodic information for linguistic monitoring, participants had to judge the number agreement between determiners and single nouns. Nouns could agree or not in number with the determiners; independently, the nouns had either a single noun prosody or a compound prosody indicating an initial constituent. Analyses of reaction times by means of mixed-models suggest that prosody has a profound influence on the monitoring performance, delaying judgements for the compound prosody by about 200 ms (plus an agreement effect). The results suggest that lexical prosody is employed during linguistic monitoring.

Don't think about it: A verbal overshadowing effect in the decisions of soccer referees

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Training programs for soccer referees frequently include exercises in which the referees have to provide justifications for their decisions. However, it has been shown that providing reasons for a decision can impair decision quality (Wilson & Schooler, 1991). In this study, we tested whether such a "verbal overshadowing effect" can also be shown for decisions of soccer referees. Professional soccer referees watched 35 video-taped incidents from real soccer matches and were asked to decide what type of referee decision the situation demanded (e.g., foul vs. no foul, yellow card vs. no card). Half of the participants had to provide justifications for their decision immediately after each trial, the other half did not. It turned out that referees in the justification condition made significantly fewer correct decisions than the referees who did not have to justify their decisions. The effect was more pronounced for decisions with higher uncertainty.

Localizing mnemonic neglect: Is selective encoding or selective retrieval driving the effect?

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People typically try to view themselves as good and they use various strategies to uphold their positive self-view. For example, after receiving mixed positive and negative self-relevant feedback they tend to forget the bad stuff—a phenomenon called the mnemonic neglect effect. Two experiments investigated the mechanisms underlying the effect. In Experiment 1, participants received information telling them about the effect after they had received mixed feedback. However, this debiasing did not reduce the effect. In Experiment 2, after having received the mixed feedback participants learned that it was in fact random and not based on their initial responses. In other words, detaching the self from the threat eliminated the mnemonic neglect effect. Furthermore, in both experiments reading time of the positive (vs. negative) feedback was measured and no differences were found. Together these results indicate that mnemonic neglect is driven by selective retrieval (vs. encoding).

Induction of altered states of consciousness via low voltage alternating current stimulation (tACS)

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In lucid dreaming, the sleeper becomes aware of being dreaming. This dissociation is accompanied by distinct brain physiology, showing increased coherence and elevated 40 Hz activity in anterior parts of the brain and REM-like activity in posterior regions. But is the increase in 40 Hz activity causally related to lucid dreaming or only correlational? Using the method of brain stimulation, transcranial alternating current stimulation (tACS), the hypothesis was tested that application of 40 Hz alternating current at frontal sites of the brain would induce lucid dreaming. In a double blind study different frequencies were stimulated during REM-sleep. Sleepers were awakened following stimulation and asked to describe their dream and answer the Lucidity Scale. Results show that specific kinds of stimulation lead to specific changes in EEG and dream content. This demonstrates the possibility to alter conscious awareness in a state that is usually considered unconscious: sleep. Methodological issues will be discussed.

"Although quite nice, the person somehow did not arouse my interest": Pictures of already romantically committed opposite-sex others fail to produce positive evaluative conditioning effects in single participants

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Individuals who are motivated to find a romantic partner do not only have to initiate encounters with potential mates, but also have to prevent that they don't invest too much effort into unpromising contacts. We therefore argue that a self-regulatory mechanism protects individuals from becoming overly interested in already committed opposite-sex others by modulating cognitive processes involved in attitude formation. Specifically, we hypothesized that while uncommitted participants show typical evaluative conditioning effects for opposite-sex facial photos (CS) of other singles when these pictures are paired with positive trait adjectives (US), they fail to show this effect for faces of other persons who are presented as being in a romantic relationship. No modulating effect of relationship status was expected when faces are combined with negative adjectives. Results were in line with the assumptions and provide evidence that the basic EC mechanism is flexibly adapted to superordinate self-regulation requirements.

Memory mechanisms in repeated visual search

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Consecutive search for different targets in the same display is supported by a short-term memory mechanism: Distractors that were recently inspected in a previous search are found more quickly in a subsequent search when they become the target (Experiment 1). Here we report some properties of this memory process. We show that this recency advantage is robust to a delay between the two searches (Experiment 2) and that it is not disrupted by a concurrent secondary task (Experiment 3). The short-term memory mechanism that supports visual search in this context appears to have an interesting combination of characteristics. It is robust to disruption by either time or interference. It codes a complex combination of item identity and location but is an automatic process.

Brain structure predicts representational biases in number cognition

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Previous research has claimed that number processing is based on spatial codes. Recently, however, more and more authors criticized this notion and emphasized the importance of non-

spatial, magnitude-related sensorimotor codes for number representations. The current study demonstrates that behavioural interferences between number processing and spatial (left-right) or non-spatial (response force modulation) responses vary strongly across individuals. We further investigated brain correlates of these persistent individual biases in number coding. A Voxel-Based Morphometry (VBM) analysis of the participants' anatomical brain scans revealed that individual differences in spatial and non-spatial number-response compatibility effects can be predicted by two distinct regions in the parietal lobe (right Precuneus and left Angular Gyrus, respectively). Our data suggests that the way we process numbers is not only determined by situational task requirements, but also by persistent individual differences that seem to have structural correlates in the brain.

The role of neural adaptation in the change-deafness effect

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It has been shown that the ability to detect changes in disrupted pure-tone chords drops significantly if there is a gap as short as 80 ms. This change-deafness effect increases for longer gap durations. The hypothesis that this effect is a result of decaying neural adaptation was tested. Change detection performance was measured for monaurally presented chords switching ears during the disruption, thus preventing change detection from relying on neural adaptation. This was compared to chords that did not switch ears. Change detection was significantly poorer when ears were switched. Also, gap duration did not affect performance in the ear-switch condition, whereas it did when ears were not switched. These findings support the neural-adaptation hypothesis, yet not ruling out the possible influence of disrupted attention. This is discussed in the context of simulating the ear-switch by means of an interaural time difference.

Are the relevance ratings essential for the survival processing effect?

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Naïme et. al. (2007, 2008) discovered a strong and rather general memory advantage for word-material processed in a survival-related encoding context. Based on this very stable effect they claim that nature specifically "tuned" our memory systems to process and remember fitness-relevant information. Kroneisen and Erdfelder (in press) argued that it is not survival processing per se that facilitates recall but the richness and distinctiveness with which information is encoded. Given this assumption is correct, the relevance rating should be crucial for the survival processing effect. If the relevance rating leads participants to think about a number of different functional object features or other possible associations to an item, these associations can be used as a retrieval cue later on. By changing this relevance rating into a different task this process

is no longer possible. Our findings provide evidence for this idea. Implications for theories of the survival-processing effect are discussed.

Last minute intrigue

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In the canonical prisoner's dilemma, cooperation violates traditional rationality, according to which defection is the dominating strategy. If people assume by social projection that others will probably respond to the game like they themselves do, they may conclude that the expected value of cooperation is higher than the expected value of defection. We present the findings of three studies designed to test unique predictions derived from the projection model. Participants were given the opportunity to reverse their decisions with or without (i.e., "last minute intrigue") corresponding reversals of partner decisions. As predicted, participants were sensitive to changes in expected values as mediated by projection and the type of switching (unilateral vs. bilateral). Theories assuming that cooperation is morally motivated or the result of cognitive illusions failed to predict the empirical pattern.

Cooperation makes it happen: Imagined intergroup cooperation enhances the positive effects of imagined contact

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Imagined intergroup contact represents a new indirect contact strategy to reduce intergroup bias. Extending the literature on imagined contact, we tested whether the inclusion of an intergroup cooperation into the imagined contact scenarios would outperform the standard imagination tasks used in previous research. 87 participants were instructed to imagine a neutral vs. a positive vs. a cooperative interaction with an out-group member. As predicted, after imagining a cooperative intergroup interaction, participants showed reduced prejudice and intergroup anxiety. Moreover, they reported more empathy and trust toward the out-group than participants in the remaining experimental conditions. Implementing cooperation in the imagined contact paradigm thus reduced intergroup bias, above and beyond basic imagined contact effects. Finally, the perceived quality of the imagined interaction with an out-group member mediated the experimental effects. Theoretical and practical implications of these novel findings will be discussed.

Integrated memories are resistant to retrieval-induced forgetting – but not when tested in negative affective states

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In achievement settings, negative affect is common, especially during test taking. We investigated how negative affect influences the memory consequences of test taking. Testing is known to be a powerful way of improving memory; however, this improvement can come at the cost of retrieval-induced forgetting (i.e., impaired memory for non-tested materials). Recent findings indicate that interconnections between learning contents can prevent testing from causing forgetting. As negative affect is known to promote item-specific processing, we hypothesized that negative affect during test taking reduces the effects of integration, leading to reoccurrence of forgetting. The findings of two experiments using short (10 minutes) and long delays (24 hours) were consistent with this hypothesis. No subsequent forgetting was observed when memory was tested in neutral states, whereas forgetting occurred with testing in negative states, independent of delay. These findings suggest that educators should use tests as a tool to improve memory with care.

Hindsight bias and adaptive learning: A pilot study using a transfer paradigm

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Hindsight bias is often viewed as preventing learning from experience. In an alternative view, outcome information is used to update our knowledge base, rendering former knowledge states irrelevant and disposable (Hoffrage, Hertwig & Gigerenzer, 2000) and turning hindsight bias into a by-product of adaptive learning. To empirically address the hindsight bias-learning relation, we extended the hindsight bias design by additionally measuring adaptive learning (operationalised as the transfer of newly acquired knowledge to similar problems). Our test material consisted of pictures of mammals. Participants received randomly assembled groups of three and had to identify the two that are closer evolutionary cousins (relative to the third). Following the conventional hindsight bias design phases (baseline, feedback and recall), a final phase with new arrangements of triples tested if participants had learned from the solution feedback and showed transfer. We report findings bearing on hindsight bias, adaptive learning, as well as their relation.

Brain correlates of sexual desire: Beyond valence and arousal

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Previous studies investigating affective reactions to pictures have focused mainly on the dimensions arousal, valence. In the present work, we propose the additional motivational dimension desire and investigate if this dimension is linked to specific EEG components. Male participants viewed arousing pictures depicting either erotic, nude women or extreme sports, as well as control pictures of either dressed women or daily activities. In addition, participants rated their affective reactions with respect to arousal, valence, and the degree to which they would like to be in the scene (desire). Ratings of states evoked by the two kinds of arousing stimuli differed with respect to desire but not arousal or valence. Erotic pictures differed from extreme sport pictures with respect to both increased ERP amplitudes and relative left-frontal brain activity as indicated by reduced alpha power. The findings suggest that desire must be considered when investigating psychophysiological reactions to affective-motivational stimuli.

Aftereffects induced by transformed movements: An overview

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In tool use non-corresponding proximal and distal action effects appear to have solid impact on motor performance. We will present former findings providing empirical evidence of this impact as well as recent experiments, which were to aim at the impact of proximal and distal action effects on the visuo-spatial system. Basically, we set up a simple drawing task where different transformations perturbed the relation between covert hand movements on a digitizer tablet and resulting cursor movements on a screen. The task was to either replicate an initially performed hand or an initially seen cursor amplitude in a subsequent motor or visual replication phase. In general, results showed that replicated amplitudes varied as a function of the induced transformations. Intramodal replications were less susceptible to perturbed feedback than crossmodal replications. That is, intramodal information is supposed to be immediately available while crossmodal information has to be translated in adequate codes first.

Mechanisms of active causal learning

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Existing causal learning research has typically focused on highly constrained problems, usually framed within familiar, generically causal, contexts. Here we describe experiments investigating

how people solve more complex causal structure learning problems; and whether they can identify contextual cues to facilitate learning. Participants inferred the causal structure underlying probabilistic patterns of node activations through free selection of interventions and multiple tests. Their intervention choices and resulting structure judgments were measured against those of an efficient Bayesian active learning benchmark model. Successful participants were systematic and efficient in their interventional patterns, and often used simple intervention-attribution strategies. These strategies are independently analysed, and individual participants are assessed for coherence with them. Overall, we find evidence that causal-structure learning is largely achieved through simple action-selection and causal attribution mechanisms. We further suggest that individual differences in these mechanisms may underlie deep differences in individuals' ideologies.

Exploring variation in face recognition ability

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Relatively little research has looked at individual differences in face recognition. However, Megreya and Burton (2006) showed large individual differences in unfamiliar face matching and moderate correlations between face matching and various components of visual short-term memory, cognitive style and perceptual speed. Li et al. (2010) found that extroverts who have better social skills performed better in a face recognition memory task compared with introverts. Burton et al. (1999) found that police officers were no better at identifying people from CCTV compared with unfamiliar participants. We describe a number of face perception experiments, conducted with police officers and controls, looking at the effect of expertise and individual differences. Results suggest that fingerprint experts and facial image comparison experts perform better than controls on a CCTV face array task. We also discuss the range of performance across a student population on both face recognition and face matching tasks.

Attentional capture can (but doesn't have to) affect memory encoding

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How is attentional allocation related to memory encoding and retrieval? Digits were presented visually at different locations on the screen. Either the numeric identities (verbal task) or the spatial positions (spatial task) had to be recalled in serial order. Concurrently, a distractor flashed at one position and changed its position rarely throughout the experiment. The distractor was either visually similar or dissimilar to the memory items. Eye movement recordings demonstrated that the gaze was captured in all tasks and distractor conditions. The critical variable for an effect on memory performance was not whether the gaze was captured, but whether attending the distractor could potentially create interference. Attentional engagement was reflected in the recall

output: distractor features (e.g. its position) intruded erroneously. But both, temporal dynamics of the gaze and related memory errors did not fully explain memory impairment, showing associations and dissociations between attentional allocation and memory performance.

Pump up the jam: Comparing effects of temporal attention and tone intensity on early auditory processing

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Event-related potential (ERP) studies showing a larger N1 to tones presented at an attended versus unattended time point provide evidence that temporal orienting enhances early stages of auditory processing. However, it is still unknown what this enhanced electrophysiological activity signifies at a functional level. The present study took an indirect approach to address this question: Temporal attention was manipulated while simultaneously varying a physical stimulus feature with a known effect on the auditory N1: Intensity. If temporal orienting and stimulus intensity had a conjoint influence on the N1, a common perceptual mechanism could be concluded. Such a pattern would provide evidence in favor of a simple gain control mechanism of temporal orienting, meaning that temporal orienting acts as if it increased a tone's intensity. However, the present data were inconsistent with this notion: Both intensity and temporal attention increased N1 amplitudes, but these effects were independent, suggesting separate mechanisms.

Are you good? Are you superior? Intra- and interpersonal forms of self-evaluation

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We investigated the predictive validity two different forms of self-evaluation with regard to (a) psychopathology and (b) intellectual self-enhancement. Participants who reported having positive views of themselves tended to overestimate their own performances in intelligence tests, and reported experiencing fewer psychopathological problems in the past. Participants who viewed themselves as superior to others also overestimated their intelligence test performances. Notably, the two forms of self-evaluation were orthogonal, so their effects were additive (i.e., the highest amount of intellectual self-enhancement was found for participants who viewed themselves positively AND as superior to others). A substantial number of participants viewed themselves as superior to others, but were not particularly fond of themselves at the same time. The findings are discussed in reference to the debate over the relationship between "narcissism" and self-esteem.

Second language errors and the perception of corrective input: An ERP study

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A persisting mystery of second language (L2) acquisition is that even experienced adult L2 learners usually continue to make grammatical errors, often despite their exposure to ample correct L2 input. In a series of ERP experiments, we investigated how L2 learners process L2 input that deviates from their own, possibly incorrect, representations. German learners of Dutch read Dutch sentences that did or did not contain 'subjective' determiner errors, i.e. violations of the participants' intuitions about the noun's gender. A P600, the most established ERP response on syntactic violations, was observed only when the input was 'unreliable', i.e. contained many obvious errors. However, when the presented sentences were (objectively) correct, subjectively incorrect determiners did not cause a P600, not even when participants explicitly attended to and learned from the presented determiners. These results suggest that, probably due to their grammatical uncertainty, L2 learners process syntactic errors differently from native speakers.

Does indirect contact improve ethnic attitudes: A meta-analysis

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The present meta-analysis tests the effectiveness of interventions that are based on the intergroup contact theory and implemented indirect contact to improve interethnic relations. Three types of indirect contact strategies (i.e., extended, imagined, and virtual contact interventions) are included and compared. The considered primary studies were either conducted in the laboratory or in field settings and in the context of a (former) intractable conflict or in regions that are not marked by such a conflict. As hypothesized, results indicate that indirect contact interventions improve ethnic attitudes. In addition, the impact of these programs is meta-analytically compared to the outcome of interventions that are based on direct (i.e., face-to-face) contact. Furthermore, findings concerning moderating influences of intervention characteristics (e.g., length of treatment, status position of the involved groups) are presented. Results, directions for future research on indirect contact as well as implications for policy and practice are discussed.

The color green and its positive effect on creative performance

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Previous research has demonstrated that color may serve as a subtle implicit affective cue that activates hospitable or hostile appraisals of the current environment and as such influences psychological functioning and behavior. While most of the current research on color and psychological functioning has focused on the color red, the present research investigates the color green and its influence on creativity. Both historically and currently the color green appears to carry the meaning of growth, in concrete (physical growth) as well as abstract (psychological growth) manifestations. Accordingly, we suppose that green may serve as an appetitive cue, which evokes mastery-approach striving (i.e., striving for improvement and task mastery) in creativity contexts. As mastery-approach striving has been shown to foster innovation and creative performance we propose that green may likewise facilitate creativity.

Filling in vision

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Whatever we see, its appearance belongs to the output of the perceptual system. To create the visual world, the perceptual system seems to use a "basket full of tricks". One way to unravel these tricks is to develop and study visual illusions. Time and again it appears that relatively simple stimulus manipulations reveal new extraordinary perceptual output -- with varying degrees of phenomenological 'presence'. I will review some recent studies on illusory appearances, with a focus on filling-in phenomena, and show how they help to understand the underlying mechanisms of perception.

Numerical magnitude interference in perceptual processing

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The current research aims to investigate the coupling between high-level cognitive processes, such as the reading of meaningful symbols, and low-level perceptual processes. We studied in particular the effects of number processing on visual search performances. Participants had to identify a physically large (or small) target digit amongst physically smaller (or larger) distractor digits. The relative numerical size of the digits was varied, such that the target was either the

numerically largest or smallest number in the search display. Our results revealed a new numerical size-congruity effect during visual search and suggests that identifying a digit among other digits is facilitated if the numerical and physical size is congruent. Together with other findings, we interpret our data as evidence for a shared magnitude metric in number and early visual processing and discuss this in the context of an embodied approach to mathematical cognition.

Embodied training of the mental number line

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There is accumulating evidence that basic numerical representations developed during early childhood (such as a spatial representation of number magnitude) predict later arithmetic abilities. Therefore, an intervention program was developed focussing on improving the spatial representation of number magnitude aka a mental number line representation. Based on theories of embodied cognition children were to indicate the position of a given number by walking to the estimated location of that on a number line stretched out on the floor. Experiencing the body as input device should corroborate numerical learning more strongly than a control training without embodied cues. In line with this hypothesis 24 first graders exhibited more pronounced training effects that even generalized to other untrained numerical competencies. Thereby, the current data lend further support to beneficial effects of embodied training for abstract cognitive constructs such as numbers.

Sensitivity for emotional facial expressions in Borderline Personality Disorder: Effects of emotional valence and intensity

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The existence of a heightened sensitivity towards negative emotional stimuli was investigated in Borderline Personality Disorder (BPD) with help of a 'finding-the-face-in-the-crowd'-paradigm. Methods: 25 individuals with BPD and 25 healthy subjects were instructed to indicate whether a set of neutral facial stimuli (3x3, 4x4 matrices) contained a face with deviating emotional expression. Additional to valence (happiness, anger), intensity of emotion was varied in two steps. An analogous task with abstract, non-social-emotional stimuli was applied as control task. Results: BPD patients required higher processing times than healthy controls which were

accentuated given social-emotional stimuli, a lower intensity of the expressed emotion in the target stimuli, and an increasing set size. Discussion: A higher sensitivity towards negative stimuli in BPD compared to healthy subjects could not be confirmed. The results imply that BPD patients rely to a stronger extent on controlled, i.e. serial, attention consuming processes when processing social-emotional information.

How does attentive-analytical music reception influence self-regulation?

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Attentive-analytical music reception describes a listening style defined by the simultaneous processing of different parameters of a musical piece. In doing so, the listener is able to adapt to unexpected musical progressions as previous anticipations are adjusted to the unexpected event. A similar process is described in the two-process model of developmental regulation by Brandstädter (2007). Here the self is stabilized by flexibly adjusting personal goals and standards to situational demands (accommodation). Like attentive-analytical reception, accommodation is facilitated by a broader focus of attention to process various situational parameters. The present study examines effects of a musical training on accommodative mechanisms. In an intervention study, 38 participants were trained in attentive-analytical listening (focusing the musical parameters of various pieces) while a control group ($N = 40$) did not receive a musical training. The results show a significant positive effect of the training depending on the perceived task difficulty.

When indirect contact backfires: The impact of vicarious intergroup contact on group based moral credentials

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Direct positive contact between members of different groups has the ability to improve intergroup relations (Pettigrew & Tropp, 2006). More recently, it has been suggested that even indirect forms of intergroup contact such as vicarious contact may result in positive effects for intergroup relations (Dovidio, Eller, & Hewstone, 2011; Mazziotta, Mummendey, & Wright, 2011; Wright et al., 1997). However, based on recent research on moral credentials and moral licensing effects (cf. Monin & Miller, 2001), we hypothesized that vicarious contact can also have detrimental effects: Learning about a fellow ingroup member who had positive contact with an outgroup member may license a person to show more discriminatory behavior against the outgroup. In two studies, we show that positive vicarious intergroup contact can lead to moral credentialing on behalf of one's group and to more prejudice towards outgroups. Conditions

under which vicarious intergroup contact improves or deteriorates intergroup relations are discussed.

Zur Tonhöhenwahrnehmung von Shepardreizen

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Eine Psychophysik der Tonhöhe beschäftigt sich vor allem mit zwei Fragen: Wie hängt die Tonhöhe eines Schallreizes ab von seinen physikalischen Eigenschaften, bzw. (unter einer prozessorientierten Perspektive): Wie konstruiert unsere auditive Wahrnehmung aus einem Schallereignis eine (oder mehrere) Tonhöhe(n)? Im Vortrag werden Experimente mit oktav-komplexen Tönen (sog. Shepard-Reizen) zu diesen Fragen berichtet. Tonhöhenurteile bei diesen Reizen weisen eine Reihe von Invarianzen und stabilen Phänomenen auf, so dass sie besonders gut geeignet sind, die empirische Reichweite von Theorien zur Tonhöhenwahrnehmung zu überprüfen. Es werden verschiedene Modellierungsansätze für die typische Datenstruktur bei Tonhöhenurteilen mit Shepardreizen vorgestellt und in ihren Konsequenzen diskutiert. Dabei zeigt sich unter anderem, dass mit psychophysikalischen Methoden auch weitreichende Aussagen über Charakteristika der Informationsverarbeitung im auditiven Cortex möglich sind.

Effects of a robotic guidance training on the performance and learning of different kinds of motor timing

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Haptic guidance by a force feedback device is a technique to support motor learning in sports, rehabilitation and working environments. Although the impacts of a robotic guidance training on motor learning are still uncertain, there is some evidence that the learning of temporal movement characteristics is particularly susceptible to its beneficial effects. Today it is well-known that there are different timing mechanisms, rather than a single general one, and that one has to distinguish between event-based and emergent timing as well as between relative and absolute timing. Therefore we conducted several experiments to investigate the effects of a robotic guidance training on the performance and the learning of these different kinds of motor timing.

Linguistic knowledge and short-term memory: The role of articulatory fluency

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The advantage for real over nonwords in serial recall – the lexicality effect (LE) – is typically attributed to reintegration, whereby partially-decayed short-term traces are 'cleaned up' for retrieval via support from long-term representations of the phonological material. This is supported by demonstrations that the LE is absent in serial recognition, where the items are represented in the recognition cue and therefore the question of their availability in long-term memory is obviated. We show that the absence of a LE in recognition is not due to the retrieval conditions, but rather because previous demonstrations have used auditory presentation, while a LE occurs for visual serial recognition. Furthermore, this LE is abolished under articulatory suppression. We argue that linguistic knowledge affects the fluency with which verbal material is recoded and therefore affects tasks that involve recoding, but not tasks that may be accomplished purely on the basis of perceptual processes.

Color in context

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During the last years color research documented negative effects of the color red on performance in cognitively demanding tasks mediated by avoidance motivation. In romantic situations however it has been demonstrated that red had approach-like effects on impression formation when females attractiveness was evaluated by male observers. Thus, it seems that the motivational meaning of the color red varies with the context in which it is presented. The research presented here tried to investigate the underlying mechanism mediating these context-effects. Several studies will be presented ranging from the areas of impression formation to achievement settings in which the exact nature of context will be documented. It will be shown that red can have positive and negative effects on participants' evaluations caused only by very subtle environmental cues and dominant motives of the observer.

Two distinct origins of long-term learning effects in verbal short-term memory

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Verbal short-term memory (STM) is highly sensitive to learning effects, as demonstrated by the well-known Hebb-learning effect. We show here two distinct origins for these learning effects. In a first experiment, participants heard a continuous sequence of digits in which the co-occurrence

of digits was governed by an artificial grammar; in a subsequent STM test participants recalled lists that were legal or illegal according to the rules of the artificial grammar, with no advantage for legal lists over illegal lists. A second experiment used the same procedure with nonwords or non-digit words, leading to a robust learning effect. Finally, an incidental learning task repeating whole lists of digits was presented, leading this time also to a strong learning effect. Hence serial recall of non-digit words is supported by sublist-level probabilistic knowledge, whereas digit serial recall is supported by incidental learning of whole lists.

Testing the testing effect: A multinomial processing-tree analysis

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Tests are by definition used to assess knowledge. It is less known that testing can also modify memory. Repeated learning outperforms testing when the retention interval is short. In contrast, repeated testing typically outperforms learning when it is long. This has been referred to as the testing effect. However, the mechanisms underlying the testing effect are still largely unknown. Previous research focused on single mechanisms and rarely tried to dissociate memory processes. To address this problem, we propose a multinomial processing-tree (MPT) model that disentangles contributions of encoding, maintenance, and retrieval processes to the testing effect. By applying this model to testing-effect data, we show that testing primarily creates maintenance benefits, that is, resistance against forgetting. Our results support maintenance accounts of the testing effect and are difficult to reconcile with accounts that focus either on encoding or retrieval as the main process driving the testing effect.

Wissen und Agency beim Kausallernen

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Das Lernen kausaler Zusammenhänge wird von einer Vielzahl von Faktoren beeinflusst. Ein wichtiger Faktor ist die Möglichkeit selbst zu intervenieren, d.h. aktiv in das System einzugreifen und dieses zu manipulieren. Verschiedene Arbeiten haben gezeigt, dass Personen leichter in der Lage sind, Kausalzusammenhänge zu lernen, wenn sie selbst intervenieren als wenn sie dieselben Handlungen lediglich beobachten (z.B. Lagnado & Sloman, 2004). Jedoch ist aktives, selbstgesteuertes Intervenieren nicht hinreichend für kausales Lernen (z.B. Hagmayer et al., 2011). Dies ist dann der Fall, wenn verschiedene kausale Hypothesen die beobachtbaren Konsequenzen der Interventionen erklären könnten. In diesen Fällen ist Vorwissen über kausale Mechanismen oder die Beobachtung kausaler Cues wichtig. Zu diesen Cues zählt u.a. die zeitliche Abfolge in der die resultierenden Ereignisse auftreten (vgl. Lagnado et al., 2007). Im Rahmen des Vortrags wird ein Überblick über verschiedene Studien gegeben, welche zeigen, dass aktives Intervenieren und kausales Vorwissen entscheidend für kausales Lernen sind.

Toddlers anticipate that we EAT cake

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Adults orient towards an image of a cake upon hearing sentences such as "The boy will eat the cake" even before hearing the word cake - upon hearing the verb EAT (Altmann & Kamide, 1999): verb processing includes prediction of nouns that qualify as arguments for these verbs. Here, we examine whether toddlers similarly anticipate nouns that are more suited to act as arguments for semantically-constraining verbs. Two-year-olds were presented with images of two objects, e.g., a cake and a bird, and heard sentences such as "The boy eats the big cake". Children oriented towards the image of the cake prior to hearing the noun (cake), but only in the context of semantically constraining verbs (eat) but not following semantically non-constraining verbs (like). Two-year-olds are able to use information extracted from the verb to predict lexical items that are semantically more suited to acting as the arguments of these verbs.

Molecular genetic influences on executive control: A latent-variable approach

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The analysis of individual differences in executive control by means of a latent variable approach has shown that three executive functions can be dissociated: Updating, inhibition and shifting. A recent twin study showed that these individual differences are almost entirely heritable. While family designs can give estimates of a phenotype's heritability, they cannot provide information on genetic variations that account for the observed behavioral variation. In the present study we therefore sought to assess the molecular genetic foundations of executive control by combining a candidate gene approach and a latent variable analysis of behavioral data. We focussed our analysis on genetic variations on dopaminergic genes that were previously associated with endophenotypes of executive control: DRD1, DRD2, DRD4, COMT, DAT and DARPP-32. We were able to replicate the three factor latent variable structure in our data set. Furthermore, we found significant associations with the gene loci under investigation.

Information search in children: New results on variants of the twenty questions game

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The famous twenty questions game (also called "the parlor game") was the starting point for the theory of information developed by Shannon. We describe experiments with young children

playing variants of the twenty questions game that were planned and carried out with the purpose of detecting their strategies when searching for information. In our experimental setting children had to determine a certain item (a face from a collection of faces) by choosing possible questions from a given question list. The different conditions varied in terms of representativeness of categories in the item populations. One research question that was addressed was whether children learn from repeated playing instances how to choose "better" questions, that is questions that reduce the overall length of the whole question sequence. Results on children strategies and on their adaptation to the environment representativeness are presented and discussed.

Increasing the action-effect interval and changing the assessment questions in the clock binding paradigm

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In Libet's clock paradigm people are asked to press a key while a dot moves through a circular clock. The binding effect is that the perception of the action is shifted toward its effect (e.g., a tone): People believe they pressed later if the tone is delayed. A problem is that those experiments have been restricted to a tiny timing scale (effects have been reported with delays of 250, 60, 20, or even 5 milliseconds). This is a serious limitation given the little timing reliability of the apparatus used in most laboratories. Our experiments show that the effect is robust at 500 and 1000 milliseconds, which is highly convenient and allows for a wide range of experimental designs and testing situations. Our results also show that binding occurs regardless of whether the assessment question asks about when did the decision to act occur or when did the action occur.

Zur visuellen Wahrnehmung von Materialqualitäten: Stereoskopischer Glanz

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Die visuelle Wahrnehmung von Materialqualitäten, wie glatt, spröde oder glänzend, gehört zu den Kernleistungen des Wahrnehmungssystems. Unser Wahrnehmungssystem verfügt offensichtlich als Teil seiner biologischen Ausstattung über ein reichhaltiges Repertoire entsprechender Attribute, die durch geeignete visuelle Inputkonfigurationen ausgelöst werden können. In der Regel erfolgt dies auf der Basis komplexer Kombinationen von Inputparametern (wie Luminanzverteilungen und Texturstatistiken). Das Attribut 'glänzend' läßt sich hingegen bereits für hochgradig reduzierte Reizbedingungen nachweisen, wie Helmholtz' Beobachtungen zum stereoskopischen Glanz zeigen. In unseren forced-choice-Experimenten wurde in haploskopisch überlagerten achromatischen Infield-Umfeld-Konfigurationen das Infield temporal

moduliert. Dabei erwies sich, im Widerspruch zu bisherigen Befunden, nicht die Kontrastumkehr als relevanter Parameter für die Auslösung eines Glanzeindrucks, sondern die Phasendifferenz zwischen den Augen sowie die Steilheit des temporalen Gradienten. Diese Befunde zeigen, dass der Glanzeindruck nicht Resultat der Lösung eines Luminanzkonfliktes ist, sondern auf einer spezifischen internen Kausalanalyse und einer Zerlegung in zwei perzeptuelle Schichten beruht, wie bereits Hering vermutete.

Search in an acoustic environment of natural sounds: The role of spatial separation of the sound sources

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The processes involved in searching for a sound in a complex acoustic environment were in the focus of interest of the presented work. Participants searched for a visually cued sound in an acoustically complex scenario (Experiment 1). Sounds were either presented from different locations or originated from the same location. Furthermore, set size and presentation time were manipulated. A search benefit due to spatial separation was found which was independent of presentation time. This benefit was modulated by cue modality (Experiment 2): With auditory instead of visual cues, spatial separation did not facilitate searches in target present trials. The results indicate that auditory searches benefit from spatial information, but only if direct auditory pattern matching processes cannot be applied.

Agents and causes: Reconciling competing theories of causal reasoning

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Causal cognitions lie at the heart of our rationality, and underlie both scientific and everyday reasoning. Causal knowledge allows us to predict future events, diagnose the causes of observed facts, plan actions and solve complex problems. Currently in psychology, philosophy and linguistics at least two important frameworks of causal reasoning compete. Whereas dependency theories (e.g., causal Bayes nets) focus on causally motivated statistical or counterfactual dependencies between events, force dynamic theories model causation as arising from force interactions involving animate or inanimate agents trying to change the prior tendencies of patients. In our project we try to bring these two competing frameworks together. We are going to present several experiments showing that intuitions about agency and underlying forces provide constraints on the structure and parameterization of causal models underlying statistical reasoning. These findings contradict the view that dependency and force theories are mutually exclusive frameworks of causal reasoning.

Zur Validierung von Befragungstechniken für heikle Themen

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Bei vielen sozialwissenschaftlichen Fragestellungen ist der Selbstbericht eine unverzichtbare Datenquelle. Gleichwohl ist hinlänglich bekannt, dass auf Selbstauskünften beruhende Daten zu sozial (un-)erwünschten Merkmalen eine fragliche Validität aufweisen. Zwar existieren verschiedene Ansätze zur Reduktion sozial erwünschten Antwortens, beispielsweise die Bogus-Pipeline Technik, indirekte Befragungstechniken oder psychophysiologische Lügendetektion. Diese Ansätze teilen jedoch die Einschränkung, dass sie mit einem deutlich erhöhten Aufwand gegenüber einer einfachen direkten Befragung einhergehen. Dieser erhöhte Aufwand ist nur dann gerechtfertigt, wenn auch ein substantieller Gewinn an Validität erzielt wird. Eine überzeugende Validierung erfordert, dass für eine Stichprobe der wahre Status bezüglich eines sensiblen Merkmals bekannt ist, welcher dann als externes Validierungskriterium herangezogen werden kann. Derartige Daten lassen sich allerdings äußerst schwierig gewinnen. Es wird daher eine einfache Methode vorgeschlagen, welche erlaubt die 'wahre' Prävalenz eines sensiblen Merkmals experimentell zu bestimmen. Anhand des derartig gewonnenen Kriteriums können dann in einem zweiten Schritt Verfahren zur Reduktion sozialer Erwünschtheit validiert werden.

Videogames for training cognitive control

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The effect of videogame-like cognitive training interventions on cognitive control (CC) functions has not been demonstrated consistently. However, Van Muijden et al. (submitted) demonstrated that playing 'brain training' games can enhance cognitive control in healthy older adults (age 60-77). Playing videogames was associated with greater improvements of inhibition of automatic response tendencies, working memory updating and inductive reasoning than answering quiz questions about documentaries. Based on this finding it can be concluded that cognitive plasticity is preserved in older adults. Even though the videogames used in this study were less advanced than commercially available brain training games, both near and far transfer of training was observed. In order to exploit the full potential of brain training games, collaboration between the creative industry and cognitive psychologists is essential. In this presentation we will also briefly demonstrate the latest videogames for cognitive training that resulted from a collaboration with an Art Academy.

Action co-representation for non-biological actions

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Action observation automatically activates corresponding motor representations in the observer, which is essential in coordinating actions with others. It is assumed that this co-representation system is activated by biological agents only. However, we often ascribe agency to biological agents, whereas this is not the case for non-biological agents. The present study investigated whether action co-representation depends on the perceived agency of the non-biological interaction partner. Before performing a joint Simon-task with either an animated human or a wooden hand, participants either watched a video fragment of a biological agent, or of a non-biological agent, Pinocchio, to increase perceived agency. Whereas participants who watched the 'biological' agent showed a Simon effect only when co-acting with a biological agent, participants who watched 'non-biological' agent showed a Simon effect only when co-acting with a non-biological agent. This provides evidence for the assumption that motor simulation strongly depends on perceived agency.

Cooperation and competition of stimulus- and effect-related processes in action planning

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Recent evidence suggests that two major forms of action control govern performance: Intention-based actions are thought to be governed by representations that capture associations between actions and the sensory effects engendered by those actions whereas stimulus-based actions are governed by learned stimulus-response associations. As such, intention-based actions are performed with regard to their consequences, whereas stimulus-based actions are more reflexive in nature, by virtue of their control by antecedent stimuli rather than their consequences. Although both modes of action control have been observed in humans and non-human species, it is unknown how these modes of action control interact and what conditions modulate whether they cooperate or interfere with one another. We summarize evidence showing that both stimulus-related and effect-related processes are active in action production. Recent observations suggest that stimulus- and effect-related processes may at times cooperate in action planning and at others compete.

Information search: Heuristics, optimality, developmental and neural bases
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We rarely can obtain complete information before making an inference or decision. However, in many situations we can specifically select queries (ask questions, do experiments) that we expect to be helpful. Such situations include choosing tests for medical diagnosis, choosing experiments in science, and making eye movements in perception. Do existing statistical or heuristic theories predict people's information search behavior? We report several experiments, designed by computer optimization, to address this. When environmental probabilities are presented with words and numbers, no consistent preferences emerge. However, when people learn environmental probabilities through experience, probability gain (expected improvement in classification accuracy) best predicts their queries. We preview subsequent research, which addresses the way visual features are learned, the neural representations of the expected value of information, the implications of situation-specific reward structures for search behavior, and heuristics and children's behavior in sequential search scenarios.

Is hindsight bias a by-product of knowledge-updating?

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Recent accounts of the hindsight bias posit that hindsight bias does not impair learning but rather is the consequence or the by-product of knowledge updating and, hence, goes hand in hand with learning from experience. In several studies, I investigated three predictions that can be derived from this knowledge-updating hypothesis, namely, first, that individuals should exhibit a hindsight bias and a learning effect, whereby both measures should be correlated. Second, that the magnitude of hindsight bias should be reduced when knowledge-updating is prevented, and finally, that experimental manipulations that affect the magnitude of hindsight bias should not influence the magnitude of the learning effect. The results showed, for instance, that participants exhibited the typical hindsight bias, and that they also showed a learning effect. Furthermore, correlational analyses indicated that a larger hindsight bias did go along with a larger learning effect. The implications and limitations of the present studies are discussed.

Social perception in Borderline Personality Disorder: Judgments regarding the trustworthiness of others

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Borderline Personality Disorder (BPD) is characterized by problems in interpersonal relationships. Previous studies found mixed evidence regarding emotion recognition abilities in BPD patients, some studies point to a negativity bias in the judgment of emotional facial expressions, other studies found superior performance in emotion recognition and empathy in BPD. In our study, subjects watched 20-s silent video clips of unknown target persons. First, they had to make inferences about the behavior of each target person in a dictator game. Second, the subjects were in the role of the dictator and decided to share money with the target person. Preliminary Data suggests differences between patients with borderline personality disorder and healthy control subjects regarding the ability to form correct impressions of others, and resulting altruistic behaviour. We will focus on different aspects that bear importance for the development, chronification, and therapy of Borderline Personality Disorder.

Neural basis of the romantic red effect

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In a functional magnetic resonance imaging (fMRI) study, 9 male subjects were passively viewing color images of 41 different moderately attractive female faces, which were randomly presented one a green and red background respectively followed by the presentation of a fixation cross. The fixation cross allowed the subjects to recover from stimulation and served as baseline condition. A mixed-effects analyses showed significant cerebellum activation with a significance threshold of $p = .01$ and based on a cluster threshold. We found that activity in the ventral through dorsal occipital lobe and the frontal lobes including orbitofrontal regions and pre/post central gyrus increased along with this effect. Responses in this region were further enhanced by a green-red contrast, suggestion that the reward value of an attractive face is modulated by the color red. The profile of the response we describe here may reflect an automatic evaluation of the likely reward that can be derived from conspecifics.

Various aspects of gesture-speech integration

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Whenever we communicate, we do not only use speech to transfer information but also rely on facial expression, body posture and gestures. Although there is no doubt that gestures are communicative and can be integrated online with speech, little is known about the nature of this process, e.g. how our communicative abilities or environment influence the integration process. In this talk, I will try to shed some light on this issue by presenting several ERP experiments which explored the influence of timing and background noise on gesture-speech integration using a disambiguation paradigm. First, I will show that timing affects gesture-speech integration and that, as in multi-modal processing, a time window of integration exists. Within this time window gesture-speech integration is automatic. Then, I will discuss the beneficial effects of iconic gestures in noisy environments and that the communication strategy of hearing impaired persons is adapted to include iconic gestures automatically.

Individual differences in face cognition

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Individual differences in face cognition may reflect important aspects of social or emotional intelligence. Although functional models of face cognition based on group and single case studies postulate multiple component processes, little was known about the ability structure underlying individual differences in face cognition. In four studies with altogether more than 1000 participants, a broad variety of face cognition tasks were tested and the component abilities of face cognition were identified and replicated. The studies also showed that face perception and face memory are clearly distinct from immediate and delayed memory, mental speed, general cognitive ability, and object cognition. However factorial specificity was not salient for the speed of recognizing faces. The results underline the importance of distinguishing between speed and accuracy of face cognition and together they provide a first step toward establishing face-processing abilities as an independent ability reflecting elements of social and emotional intelligence.

On the ubiquity of transient attention

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Previous studies on peripheral spatial cueing have pointed towards the existence of a transient component of attention: Performance in the visual periphery is first rapidly enhanced at the cued location, after which it declines again. In the current talk I will argue that transient attention also plays a role in non-spatial paradigms. A series of simple cueing experiments from our lab shows that transient attention operates at central (foveal) vision, when no spatial orienting is required. However, the transience depends on competition, as performance is more sustained when there are no distractors competing for selection. Furthermore, on the basis of empirical findings as well as computational modeling, I will argue for its role in rapid serial visual processing, as the concept of transient attention nicely explains attentional blink-related phenomena, as well as the remarkable phenomenon of order reversals in conscious report.

How acute psychosocial stress and a secondary cognitive task influence decision making in a risky decision making context

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Risky decisions often must be made under stressful circumstances or while being occupied with more than one task at a time. Both circumstances have previously been associated with risky and disadvantageous decision making. To investigate how acute stress and a secondary task interact to influence decision making a two by two experimental design was used (stress/no stress and secondary task/no secondary task). Participants of the two stress groups underwent the Trier Social Stress Test. Decision making was measured using the Game of Dice Task (GDT). A 2-back working memory task had to be performed in parallel to the GDT in the secondary task condition. Stress increased negative affect and concentrations of the stress hormone cortisol. Interestingly participants exposed to stress and a secondary task showed the least risky behaviour. This finding might reflect a switch in task strategies used under conditions of substantially limited cognitive resources.

Boundary conditions of unbounded rationality

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Whereas controlled, noncompensatory and automatic, compensatory mechanisms have often been contrasted as alternative approaches in decision making, here we examine whether both types of

processes play a role, but are elicited under different conditions. Specifically, we manipulated a) whether the decision alternatives were described by the same coding scheme across all cues, or by an idiosyncratic coding scheme for each cue and b) the number of cues (4 vs. 8). Whereas with a small number of cues the majority of participants were classified as following a compensatory mechanism, irrespective of cues coding, most participants were classified as following a noncompensatory mechanism with an idiosyncratic cue coding scheme and a large number of cues. However, response times indicated automatic compensatory mechanisms only with a small number of cues. When the number of cues was large, the compensatory mechanisms seemed to be based on serial, controlled processes.

From image structure to surface perception: Advances in understanding perceptual organization

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Kurt Koffka famously asked why the world looks the way it does. Gestalt psychologists answered by identifying the geometrical features that govern the perceived organization of simple, artificial images, e.g., proximity and similarity in grouping and surroundedness and small size in figure/ground perception. I will discuss modern advances in these domains as representing a shift toward understanding the perception of environmental surface layout. Examples from my own work include uniform and element connectedness (Palmer & Rock, 1994), common region (Palmer, 1992), edge-region grouping (Palmer & Brooks, 2007) and extremal edges (Palmer & Ghose, 2008; Ghose & Palmer, 2010), all of which influence the interpretation of images because they reflect the structure of bounded surfaces in the 3-D world. Moreover, the level within the visual system at which such factors influence conscious perception appears to be more closely associated with 3-D environmental surfaces than with 2-D image regions (Palmer, 2002).

Ein sequentielles Frageverfahren zur Wissensdiagnostik

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Das Multiple-Choice-Verfahren ist die am weitesten verbreitete Methode der Wissensdiagnostik. Die psychometrischen Eigenschaften des Verfahrens genügen hohen Ansprüchen. Zu den Nachteilen des Verfahrens gehört allerdings, dass die Konstruktvalidität von Multiple-Choice-Testungen durch testformatspezifische Antwortstrategien reduziert werden kann. Die Mehrzahl dieser Antwortstrategien erfordert den simultanen Vergleich aller Antwortoptionen, um anschließend unter Anwendung eines erst durch den Vergleich dieser Antwortoptionen erschließbaren Hinweisreizes die Lösung zu identifizieren. Ein von Foster und Miller (2009) vorgeschlagenes alternatives Antwortformat für Multiple-Choice-Testungen beruht auf einer

sequentiellen anstelle einer simultanen Präsentation der Antwortalternativen. Vorgestellt werden Experimente zur Überprüfung der Güte dieses sequentiellen Frageverfahrens, die zeigen, dass es die Anwendung von Antwortstrategien wirksamer als das Multiple-Choice-Verfahren zu verhindern vermag.

Automatic correspondence by surface features across spatiotemporal discontinuities during tracking

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Observers can concurrently track multiple moving objects over time. Most previous research studied tracking by focusing on objects' spatiotemporal features, but not surface features. We demonstrate evidence for the automatic use of objects' surface features for establishing object correspondence during tracking. Objects were colored briefly before and after a spatiotemporal discontinuity. Distinct coloring that matched spatiotemporal information across the discontinuity improved tracking performance as compared with homogeneous coloring. Swapping distinct colors across the discontinuity impaired tracking performance demonstrating correspondence by color. In addition, participants mis-selected more distractors appearing in a former target color than distractors in a former distractor color in the swap condition. These results were replicated even when color never supported tracking in any trial and when we instructed participants to ignore color. Our results demonstrate the automatic encoding and use of surface features during tracking. We conclude that the tracking mechanism utilizes both, spatiotemporal and surface features.

Selectivity of directed forgetting in multiple-list learning

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In list-method directed forgetting, participants are cued to forget (irrelevant) precue information and study new (relevant) postcue information instead. Compared to a remember condition, such cuing leads to later forgetting of the precue information and enhanced recall of the relevant postcue information. In two experiments, we modified the standard paradigm by presenting relevant and irrelevant precue information, examining whether directed forgetting can be targeted at the irrelevant precue information, preventing the relevant precue information from unwanted forgetting. Participants studied multiple item lists and were cued to forget some but remember other lists. Across experiments, contextual differentiation of the lists and amount of the relevant and irrelevant precue information was varied. The results show that, regardless of contextual differentiation and amount of precue information, directed forgetting can be targeted

at the irrelevant precue information, preventing relevant precue information from unwanted forgetting. The results thus demonstrate high selectivity of directed forgetting.

Neurocognitive mechanisms subserving imitation in infancy: Teleological reasoning vs. motor resonance

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The neurocognitive mechanisms subserving imitation in infancy have recently become a topic of extensive theoretical discussion in developmental science. Some have argued that infants' imitation is based on abstract inferential processes (e.g., the ability to evaluate the efficiency of others' actions; Kiraly & Gergely, 2011). In this talk, I will present a series of studies with 9- to 14-month-old infants that challenge this claim. Extending the ideomotor approach of action control to social learning in infancy, I will suggest that – instead of reflecting about the efficiency of others' behavior – infants learn about others' actions and the effects of these actions by means of "mirroring" the other's actions and by means of acquiring bidirectional action-effect associations; and that these associations underlie infants' ability to imitate others' actions when they want to reproduce the same effect.

The virtual hand illusion: Comparison of active movement and tactile stimulation in virtual reality

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The rubber hand illusion (RHI) and immersive virtual reality (VR) challenge the invariability of our body as we experience it on an everyday basis. The RHI is a result of synchronous tactile stimulation, VR may allow us to test other ways to manipulate body experience. This study compares the influence of tactile stimulation and self-initiated movement on the representation of one's own body in VR. Initially, the virtual hand illusion is induced equally well by both methods, synchronicity being a key feature. A lasting experience of the virtual hand illusion depends on the quality of the match between one's own posture and the posture of the virtual hand. The virtual hand illusion was also apparent in physiological measures in response to a threat. As a pragmatic implication we suggest that this approach can be used to intensify emotional relevance in VR.

Figure-ground segregation as a dynamic interactive process

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The Gestaltists and many followers held that figure-ground segregation occurs early in the course of processing before memories of object structure or category membership are accessed and that later, such memories are accessed for figures but not for grounds. Thus, figure-ground perception was explained within a serial hierarchical architecture in which information flows in a feedforward manner only and figural status gates what type of processing occurs for display regions. Brain imaging techniques (ERPs) as well as behavioral tests conducted with both brain-damaged and non-brain-damaged individuals support an alternative view -- that figure-ground perception takes place in a dynamical system in which properties of objects that might be perceived on opposite sides of borders are assessed in a fast pass of processing that reaches high levels; properties on opposite sides of borders compete; the winner is perceived as the shaped figure, and the loser is perceived as a shapeless ground.

Nicotine differentially modulates antisaccade performance in healthy male non-smoking volunteers stratified for low and high accuracy

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Nicotinergic agents are currently examined as possible pro-cognitive drugs for a variety of clinical conditions marked by cognitive deficits. However, only few reliable predictors of response have been identified. We tested the hypothesis that baseline performance level in cognitive control may be a predictor of the cognitive effects of nicotine. Twenty-eight healthy Caucasian, male, non-smoking volunteers were tested with the antisaccade task, an oculomotor measure of cognitive control. Participants were given a 7-mg nicotine patch in a double-blind, placebo-controlled, counterbalanced, within-subjects design and were stratified into high- and low-performers. Nicotine significantly reduced antisaccade error rate in the low-performing probands while leaving performance of the high-performing probands unaffected (interaction $p < 0.05$). Furthermore, we found a nicotine-induced reduction of response time variability of antisaccade latency in the low-performing group (interaction $p < 0.05$). The present results demonstrate the importance of baseline performance differences for the effectiveness of pharmacological enhancement of cognitive control.

The development of action perception and action production in infancy and preschool age

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We investigated imitation behavior in infants and preschoolers as a nonverbal measure for young children's action understanding. Previous studies have demonstrated that infants and preschoolers often copy goals at the expense of the details of an action, such as they disregard which hand has been used or the exact manner of movement (Gergely, Bekkering, & Király, 2002; Wohlschläger, Gattis, & Bekkering, 2003; Williamson & Markman, 2006). The present work documents the development of action perception and action production in infants and preschoolers and investigated whether the tendency to imitate or emulate an observed goal-directed action is influenced by the availability of additional information, like situational or context-specific factors (constraints of the experimenter, verbal cues given by the experimenter) or task features (salience of an action effect, tool use, familiarity of an action). The findings will be discussed in a broader context of the development of children's social cognition and learning.

It takes two to imitate: Imitation and anticipation in social interaction

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Imitation is assumed to serve crucial functions in social interaction, including action understanding, empathy, and learning; yet all these functions only apply to the imitating observer. Here, we reveal a distinct function of imitation for the action model: Anticipating to be imitated facilitates the production of one's own motor actions. Specifically, anticipated motor responses of social counterparts serve as mental cues to retrieve corresponding motor commands in order to orchestrate one's own actions.

When invalid cues cannot be ignored: Visual salience in memory-based decisions

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Simple decision heuristics, relying only on few cues are used more frequently if cue information has to be retrieved from memory. However, this memory retrieval effect disappears when cue information is presented in a pictorial rather than a verbal format. Hence, providing individuals with pictorial cue information fosters the inclusion of more cues in compensatory strategies, suggesting a facilitated retrieval of cue information. However, based on a recent study, in which

we controlled for visual salience of the cues, the general superiority of a pictorial format has to be questioned. Compensatory decision making was triggered only if cue salience and validity were negatively correlated. Participants seemed to retrieve and incorporate salient cues automatically, irrespective of their validity. Hence, the apparent format effect seems to be a salience effect.

Is love right? Neural correlates of the affiliation motive

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Previous research on relationships between personality and hemispheric asymmetries in frontal cortex activity has focused on individual differences in affectivity (positive vs. negative) or motivational direction (approach vs. withdrawal). The present study investigated frontal asymmetry as a function of individual differences in social motivation, namely the motive for affiliation. Affiliation motive was assessed on the basis of an implicit procedure, the operant motives test, and was supplemented by a self-report measure. In line with our hypothesis, we found relative right frontal activity (lower alpha power) being associated with the implicit affiliation motive. In addition, a source localization analysis of this effect will be presented. The results are discussed with respect to differential roles of the two hemispheres in social motivation and how these findings may be integrated with previous findings of hemispheric asymmetries in motivation and emotion.

It's all about style! Gender differences in speech style usage and perceived competence

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The aim of this study was to test the influence of participants' speech style usage on the evaluation of personality traits. We additionally manipulated whether the audience was responsive or non-responsive to the participant's speech. Participants had approximately 3 minutes to present verbally their strengths and weaknesses. Presentations were video-taped, typewritten and coded for indicators of powerless speech style (e.g., intensifiers, disclaimers) as an increased number of these cues is related to lower status and competence. Our results showed that women "suffered" more from a non-responsive audience and used more disclaimers and intensifiers than men did. Generally women tended to use more powerless-speech-style-cues than men regardless of type of audience. They were also perceived as being less competent than men by independent raters.

Visual attentional functions in normal aging based on a theory of visual attention

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Normal cognitive aging is associated with decreasing processing capacities. However, aging not only reflects deficits but also adaptation to deficits. To date, the interplay of visual attentional functions in normal aging is not yet fully understood. Thus, we assessed healthy subjects assigned to five age groups (20-29, 30-39, 40-49, 50-59, 60-69) with the whole and partial report based on Bundesen's Theory of Visual Attention (TVA). TVA provides the parameters perceptual threshold, processing speed, visual short-term memory (VSTM) storage capacity, and top-down control. The 40-49 group showed significant decline with regard to perceptual threshold, processing speed and VSTM storage capacity as compared to the 20-29 group. Threshold and speed further deteriorated in the 60-69 compared to the 40-49 group. In contrast, top-down control significantly improved from 50 years onwards as compared to younger subjects. Consequently, adaptation to reduced processing capacity using enhanced top-down control might slow the decline for a decade.

Comprehending figurative language: ERP responses on the processing of irony

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Communicating with each other is often not straightforward as many aspects of what we are saying are not stated explicitly, but need further interpretation by use of pragmatic knowledge and contextual information. This is especially the case when comprehending figurative language, like metaphors or verbal irony. In two experiments using event-related brain potentials (ERPs) we investigated the neurocognitive processes involved in the processing of literal and ironic sentences. Participants were presented with short discourses consisting of three context sentences followed either by an ironic or literal utterance. Independent of presentation modality, ERPs for irony compared to literal sentences most robustly revealed a late positivity (P600) but no N400 component. The findings suggest that comprehending irony seems to rely on inferential processes, but does not necessarily involve a semantic integration difficulty when encountering variance in utterance meaning.

Emotional communication situation and their cues in major depression

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Human communication is based on information exchange of facial expressions, prosody, and speech content. We investigated multimodal emotion processing and the specific contribution of each channel on empathy and its 'prerequisites' in behavioral, psychophysiological and functional imaging studies. One focus was to find differential contributions of each communication channel in patients with depression. Videos of actors telling self-related short-stories were presented to participants who indicated the actor's emotion and their own. In two conditions, all channels uniformly transported emotional or neutral information. Three conditions presented two emotional channels and one neutral channel (bimodal). Results indicated behavioral empathy decrements in bimodal conditions. Apart from high empathy-, intensity-, and physiological response-rates, activation during natural three-channel-emotionality was mainly associated with multimodal processing. While patients showed similar activation patterns as controls in emotion-enhanced sensory processing, an interaction effect in limbic regions suggested differential effects associated with hypo- and hyperactivations of different channels in depression.

Search in an acoustic environment of musical instruments: How pitch difference modulates the effect of spatial separation between sound sources

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In the context of the auditory search paradigm little is known about the role of similarity when presenting stimuli with and without spatial separation. 108 participants heard playbacks of two out of four musical instruments with varying spatial separation and pitch difference. Their task was to indicate whether a visually cued instrument was present or absent. The condition with spatial separation resulted in higher sensitivity but no difference in reaction times compared to the condition without spatial separation. Similarly, the "different pitch" condition led to higher sensitivity but no difference in reaction times compared to the "same pitch" condition. Although a separation effect was found in the "same pitch" and not in the "different pitch" condition, there was no interaction between spatial separation and pitch difference. This result suggests that pitch difference has only a small and attenuating effect on the spatial separation advantage.

Body schema and body image distortions in patients with complex regional pain syndrome

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Complex Regional Pain Syndrome (CRPS) is a rare but highly painful condition that occurs after trauma to a limb and is characterized autonomic, motor and sensory dysfunctions. Recent imaging studies observed substantial cortical changes in the central representation of the body, which parallel those found in phantom limb pain patients and indicate a body schema disruption. We investigated the body schema of CRPS patients and observed delayed hand laterality recognition and a deviated body midline in the dark which corroborates the assumption of a disrupted body schema. While we further found that the integration of a rubber hand into the body image is unaffected, many CRPS patients express negative feelings towards and altered size perceptions of the hand, suggesting a body image distortion. Both the body schema distortion and the body image distortion may complicate rehabilitation and should be accounted for in the treatment of CRPS.

Unconscious processes improve lie detection

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The capacity to identify cheaters is essential for maintaining balanced human social relationships. Cognitive mechanisms that help to detect deception have been considered to be an evolutionary advantage. Nevertheless, it has generally been found that humans are not very adept at detecting deception. Three experiments show that judges' ability to discern truth from lies greatly increases after periods of unconscious processing. Specifically, judges who were kept from consciously deliberating outperformed judges who were encouraged to do so, or who decided immediately. Moreover, it is shown that this improvement comes about because unconscious thinking processes allow for integrating the particularly rich information basis necessary for accurate lie detection. These findings suggest that the human mind is not unfit to distinguish between truth and deception, but that this ability resides in previously overlooked processes.

Agency and ownership: Comparing the effects of passive sensation and active movement within the rubber hand illusion

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In the rubber hand illusion (RHI) an artificial hand is stroked synchronously with the participant's unseen real hand. This procedure results in an incorporation of the artificial limb and biases the performance in experimental tasks based on an intact body image. Behavioural responses relying on the body schema remain unaffected. Relatively few studies have concentrated on the effects of perceived control over an artificial limb (the illusion being induced by active voluntary movements rather than passive stimulation). The congruence between motor commands and visual feedback might differently affect body representations than the congruence between visual and tactile information. This issue is especially relevant with respect to body schematic processes underlying behavioural responses. A study is presented investigating the effects of the RHI on perceptual and behavioural responses using two different methods: the induction by passive stimulation is directly compared to the induction by active movements of fake and real hand.

Somatotopy of placebo analgesia

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Behavioural experiments showed that there is spatial specificity of placebo analgesia. Imaging studies found a consistent activation of the rostral anterior cingulate cortex (rACC) and the periaqueductal grey (PAG). A coarse somatotopic organisation is known in the PAG but not in the rACC. Conventional imaging analysis techniques using a mass univariate approach could not show the spatial specificity of placebo analgesia in the central nervous system. That is why we apply multivariate pattern classification algorithms to functional magnetic resonance imaging data to take into account the dependency between many voxels and to exploit the information inherent in the data that is normally lost by conventional analyses.

On the specificity of the survival processing effect

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Recent research highlighted the adaptive function of memory by showing that fitness-relevant information is especially well remembered. Several experiments showed that rating the survival relevance of words in a grasslands scenario resulted in exceptionally good memory for these words. We examined whether this survival processing recall advantage might be due prioritized

processing of negative information. To this end, we compared the survival scenario to a novel suicide scenario. Although the suicide scenario was perceived as being extremely negative, a recall advantage was obtained only for the survival condition, but not for the suicide condition. We conclude that the survival processing recall advantage is not a negativity effect.

"Competence is in the ear of the beholder" – the evaluation of German accented English in Germany and in the United States

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The evaluation of Germans speaking English with a German accent was investigated in four studies. In Study 1, German participants listened to an audio excerpt of an ostensible job applicant (for a junior professorship at a German university), who spoke English without or with a strong German accent. Besides the pronunciation, we varied the quality of arguments (high vs. low). Although participants were informed that classes will be held in German, applicants speaking with a strong German accent were judged as less hireable and competent regardless of argument quality. Study 2 replicated this finding and additionally showed that instructions to control for prejudice reduced discrimination against accented applicants. In Studies 3 and 4, we presented the same material to a U.S. sample and obtained a main effect of argument quality. Positive national stereotypes of Germans seemed to evoke more favorable evaluations of the accented compared to English native speakers.

The content of predictions: Involvement of object shape representations in the anticipation of upcoming words

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When comprehending concrete words, listeners and readers can activate specific visual information such as the shape of the words' referents. The present study investigated whether this information can be activated in an anticipatory fashion and in the absence of meta-linguistic judgments or pictures. Participants' EEG was recorded while they listened to predictable sentences. Semantically anomalous words elicited N400 effects relative to predictable words. Importantly, the N400 amplitude was smaller when the anomalous word's referent had a shape similar to the referent of the expected (but not presented) word than when there was no shape similarity. The results extend previous research on prediction of functional attributes to the prediction of perceptual attributes of objects.

The likeability of (foreign) languages and its impact on personnel selection

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In this talk we will present data of an interdisciplinary project linking linguistics and social psychology. This project investigates language attitudes. First we will discuss the results of a representative public opinion poll (N=2004) regarding the most liked and disliked foreign language accents in Germany. Results show that younger people have a different preference pattern from older people. A second study amongst German pupils (N=628) aims at replicating the findings for the younger subsample and at identifying possible reasons for the age difference. Consequences of these attitudes are demonstrated in an experimental study. This study investigates the effect of foreign accents (French and Russian) on the success of job applications. The results confirm the previous findings: The success of a job application differs significantly depending on the applicant's foreign accent.

The emotional cost of charitable donations

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Donations in support of a charitable cause can create a conflict between moral intuitions (e.g., helping as many individuals in need as possible) and the cost entailed by following one's moral intuitions (e.g., spending money). The present work investigates this conflict asking people to choose either to help three women by giving more money or help one woman by giving less. In addition, the paper uses the attraction effect paradigm to counteract the single victim effect and reduce the conflict. Experiment 1 demonstrates that in a two-alternative context the majority of participants chooses to help one woman by giving €150 instead of helping three women by giving €450. Experiment 2 replicates this finding and highlights the role of emotion regulations strategies. In both studies, the introduction of a third, dominated alternative reduces the conflict and makes it easier to choose the program asking for a higher donation.

The rapid stimulus-based acquisition of response-effect associations: Dissecting the learning curve by use of fMRI

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Differential action effects are relevant in both reinforcement learning and ideomotor learning. Do differential action effects gain their influence via the same basal processing pathways that are also involved in reinforcement learning? To address this question, we tracked the BOLD activation

dynamics across an early phase of incidental R-E learning following novel S-R instructions. In a between-subjects design, R and E were either consistently paired or randomly paired. Consistent (S-)R-E pairing led to increasingly slower response times during early learning. Response slowing was associated with learning-related BOLD dynamics within right posterior Hippocampus, Basal Ganglia, and Orbitofrontal Cortex. Moreover, these brain regions showed differential activation dynamics across (S-)R-E learning, indicating an extremely rapid redistribution of labor particularly across Basal Ganglia sub-regions. Together, these findings suggest that the incidental acquisition of associations between actions and non-incentive effects is mediated by brain regions similar to those supporting reinforcement learning based on incentive effects.

The role of context for fulfilling delayed intentions

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Intentions associated with a specific target event are sometimes context specific, that is, the intention has to be fulfilled when the target occurs in the appropriate context but has to be withheld when the target occurs in the inappropriate context. For example, certain medication must not be taken when some other medication is prescribed. We suggest that resource-demanding inhibitory processes play an important role for context-specific intentions. In two studies, we investigated the role of inhibitory-control processes of prospective memory (PM) by comparing age groups (older vs. younger adults) and groups with different cognitive loads (with vs. without a dual task) on PM performance. Results showed that the ratio of appropriate to inappropriate PM-responses was worse for older adults and under cognitive load. These results are evidence that resource-demanding inhibitory control processes are relevant for action initiation and withholding of intentions in PM.

Lifespan age differences in working memory: Insights from behavioral and electrophysiological markers of maintenance and selectivity

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We suggest that working memory (WM) performance can be conceptualized as the interplay of low-level feature binding processes and top-down control, relating to posterior and frontal brain regions and their interaction in a distributed neural network. We propose that due to age-differential trajectories of posterior and frontal brain regions top-down control processes are not fully mature until young adulthood and show marked decline with advancing age, whereas binding processes are relatively mature in children, but show senescent decline in older adults. We investigated the lifespan trajectories of these two components by exploring behavioral (k-score) and electrophysiological (contralateral delay activity, alpha oscillations) markers of WM

performance in a change detection paradigm. We found age-differential effects of presentation times, distracter presentation and WM load that illustrate commonalities and dissimilarities between children, younger adults, and older adults reflecting the change in the two components' relative contribution to working memory performance across the lifespan.

Making decision field theory testable

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Conventional, static-algebraic models of decision making aim to predict the outcome, but not the cognitive processes preceding a choice. In contrast to this, recent dynamic process models in cognitive psychology also aim for a more precise understanding of how people process and integrate information. However, up until today these psychological process models are seldom fitted to actual empirical choice data because it is often not clear how to implement the model and how to estimate its free parameters. Based on the example of multi-alternative decision field theory (MDFT, Roe, Busemeyer, & Townsend, 2001), a stochastic diffusion model of preferential choice, we address these limitations and show how MDFT can be readily applied to various choice data and how it can be rigorously compared to static-algebraic models like the Probit or the Logit model on empirical grounds.

Situational influences and their interactions with cognitive abilities in risky decision making

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Theoretical approaches like the Person Task Fit framework (Finucane & Lees, 2005) expect decision making to be interactively influenced by situational conditions and the decider's individual abilities. Decision support is supposed to be one situational factor, but its influence on decision-making competence is not well examined. In two experiments ($N = 170$) we experimentally investigated effects of supporting information on decisions under risk conditions, measured by the Game of Dice Task (GDT). We found that explicit recommendations of advantageous alternatives were preferred as support and improved decision-making performance (Experiment 1). Moderated regressions indicated that especially persons with lower cognitive abilities (i.e. working memory capacity and executive functions) benefited from the support (Experiment 2; $p \leq .05$). The results are in line with models of decision making. Effective support reduces the load on cognitive processes involved in decision making. Thereby it increases the fit between the situation's complexity and the decider's cognitive functions.

Placebo and nocebo effects in visceral pain

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We analyzed placebo and nocebo responses in a clinically relevant visceral pain model. N = 47 healthy women were randomly assigned to a placebo (N = 15), nocebo (N = 17), or control group (N = 15). The study lasted two days and included three experimental phases. In all phases, painful rectal distensions were delivered. After the baseline, the nocebo or placebo manipulation, was accomplished using deceptive instructions to induce positive or negative expectations (day 1). In the test phase (day 2), instructions were repeated, and five distensions at the identical pressure as during baseline were delivered. Whereas perceived pain and discomfort decreased significantly from baseline in the placebo group, the nocebo group revealed significantly increased ratings of pain and discomfort, along with significantly greater anticipatory anxiety and increased serum cortisol levels. Depending on expectations perceived pain and discomfort induced by rectal stimuli can be experimentally increased or decreased in healthy women.

Psychological mechanisms of placebo and nocebo effects in the treatment of chronic back pain

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Recent placebo research shows increasing interest in the clinical relevance of the analgetic placebo effect. However, only a few studies examined patients or tested how previous experience and attitudes affect placebo and nocebo responses. There is evidence that particularly back pain patients have specific experience and attitudes towards previous medication and back pain treatment. We evaluated chronic back pain patients in regard to medication need. We could show that patients with high pain show an increase in need for medication. This increase is higher than those for patients with lower pain scores. We will also show that this has an impact on the development of the placebo effect. Future research focuses on the question of previous attitudes to pharmacological and psychological interventions chronic back pain.

Are we more forgetful when we are happy or sad? The influence of emotion on age-related PM

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First studies suggest that mood influences prospective memory performance in young adults, but direction and strength of the mood effect remain unclear. Furthermore, no study tested for possible age differences yet. Thus, the present study was set out to find out more about the mood x prospective memory interaction in young and older adults. Positive, negative and neutral mood was successfully induced with the help of film material. Prospective memory performance was measured with a time-based task. Results suggest differential mood effects in young and older adults, which are discussed in view of different theories on emotion and cognition in aging.

To hear or not to hear: The change-deafness effect with pure-tone chords

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Previous research has demonstrated surprisingly poor performance at detecting changes in briefly disrupted auditory scenes and disharmonious pure-tone chords. This phenomenon has been termed change deafness. Two experiments investigated the influence of the type of disruption and its duration on the change-deafness effect with harmonious pure-tone chords. Change deafness equally occurred when white noise or silence disrupted the chords. Furthermore, the effect was found for gaps between 80 and 3000 ms, increasing with gap durations up to 2000 ms. Notably, change deafness was not observed for shorter gaps, thus ruling out the notion that the effect is solely based on the masking of the change-related transient by the common onset of all tones. Possible underlying mechanisms such as a decline of neural adaptation and a decay of short-term memory are discussed.

Heartiness as compensation for a perceived lack of competence in dialect speakers?

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A typical research finding is that status and competence are attributed to standard speakers, whereas solidarity and warmth are attributed to non-standard speakers. In four studies, we address the question why non-standard speakers often receive these better warmth ratings. We show that this is particularly the case when a devaluation of this group on the competence dimension precedes the evaluation on the warmth dimension and argue for a compensation

mechanism. Study 1 and 2 show on explicit measures that evaluating the competence of standard German speakers before evaluating the warmth of dialect speakers leads to a stronger preference for the dialect speakers on the warmth dimension than in the opposite order. Study 3 replicates and extends these findings by employing implicit measures revealing that the compensation process is at least in part automatic. Finally, Study 4 investigates the interplay of explicit and implicit judgments.

Fluency as a moderator of the sunk cost effect

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Encoding fluency may influence how encoded information is processed, namely, by influencing construal levels. Based on this finding we argue that fluency shifts individuals' focus from secondary to primary considerations. We link these assumptions to the sunk cost effect which reflects that individuals continue endeavors even though initial investments turned out unsuccessful. This is in contrast to normative models arguing that decisions should be based on future outcomes (primary considerations) rather than on past investments (secondary considerations). To investigate hypotheses we manipulated prior investments and printed scenarios in either easy or difficult to read font. As predicted, low (high) fluency resulted in more (less) pronounced sunk cost effects. Analyses of participants' cognitive response support the mediation via construal-level. Results are presented within a framework that holds that fluency may inform individuals about the environment and thereby about adequate processes. Consequences for our understanding of sunk cost effects are discussed.

Impairing "looking at nothing" decreases performance

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People fixate on blank locations if relevant visual stimuli previously occupied that region of space. This so-called 'looking at nothing' phenomenon is said to be a consequence of information retrieval from an integrated memory representation. It is unclear, whether it facilitates memory retrieval. 26 participants were first presented with auditory semantic information, each associated with one of four areas on a computer screen. At retrieval, participants heard a statement testing one information, while a distractor was presented on the screen either in the area associated with the tested information (match condition), in one of the adjacent or diagonal areas or there was no distractor. Participants fixated the area where the distractor was presented. Retrieval performance was higher in the match and the condition without distractor than in the adjacent and diagonal condition. Therefore, looking at nothing may play an active role when retrieving information from an integrated memory representation.

Neural signatures of implicit and explicit memory in the human brain

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Human memory research has commonly distinguished implicit memory processes like priming, i.e., the facilitated processing of a stimulus during repeated exposure, from explicit or declarative memory processes. In a series of studies, we have demonstrated that priming and explicit memory can be considered two qualitatively distinct processes with dissociable neural correlates. At a behavioral level, priming is distinguished from explicit memory by frequent absence of conscious awareness of memory during retrieval and by the lack of depth-of-processing effects at encoding. Electrophysiological investigations show that encoding processes related to later priming occur temporally before those related to later explicit memory. Functional magnetic resonance imaging (fMRI) studies further demonstrate that the neuroanatomical structures that support priming and explicit memory differ fundamentally during both encoding and retrieval.

Good enough for an affair. Attractiveness, self-enhancement and speed-dating outcomes

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If you were after a date, would you prefer someone who overestimates his or her attractiveness or someone with more modest self-views? And would a self-enhancer be choosier or more indiscriminate when looking for a date him or herself? Using data from the Berlin Speed Dating Study (N = 282), we operationalized attractiveness self-enhancement as the discrepancy between attractiveness self-ratings and attractiveness rated by independent observers. After each speed-dating interaction, participants indicated how interesting they found the respective person as long-term and short-term partner. Using Social Relations Analyses, we computed actor effects (being less choosy) and partner effects (being rated as more interesting) on long-term partner ratings and on short-term partner ratings. We found that self-enhancers were less choosy than others with respect to short-term partners, but more choosy with respect to long-term partners. Others indicated that they found self-enhancers more interesting as short-term partners, but not as long term partners.

Influence of load on sequential effects

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Previous studies on motor planning indicate that, in a sequential task, the movements people select are influenced by the movements recently performed. According to the plan-modification hypothesis, sequential effects (SEs) result from the reuse of a previous motor plan, thus reducing the cognitive costs of the movement. We asked whether these cognitive costs are counterbalanced by increased biomechanical costs when retaining a previous posture. To this end, participants ($N = 23$, average age 23.9 years) were tested in a sequential motor task (opening a column of drawers) using a pre-/posttest design. During an intervention phase, 25 N of load were applied to a single drawer. Results indicate that the SE elicited in the pretest, $F(1,22) = 24.901$, $p < .001$, is significantly reduced by the intervention (condition \times sequence, $F(1,22) = 11.320$, $p = .003$), thus supporting the notion that biomechanical costs counterbalance the cognitive costs of a movement.

Romantic red revisited: Red enhances men's attraction to young women – and young women chose a red dress to impress

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Recent studies have shown that the color red enhances the sexual attractiveness of women in the eyes of men. Study 1 confirmed this finding only in young women, not menopausal women. Further, the results were independent of men's age. Study 2 explored how young and menopausal women evaluate red or blue colored clothes (i.e., a short dress and a long pant suit) in an imagined dinner situation (i.e., with a potential partner or a potential new same-sex friend). Again, the results indicated that specifically young women think they would be perceived as more sexually and physically attractive but also less intelligent in red versus blue clothes. These findings support the idea of a link between the color red and sex and the color red as a cue to ovulation in research on female attractiveness.

Trait affiliation, affection and interpersonal trust: A psychopharmacological investigation of the role of opioid neurotransmission

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Trait affiliation is associated with valuing close interpersonal relationships and has been theoretically linked to the emotional system "warmth-liking" (WL), which corresponds to feelings

of affection. Brain opioids have been proposed to underlie both trait affiliation and WL. To validate these assumptions either a neutral emotional state or WL was induced in female students by film/imagery after intake of either placebo or the opioid-antagonist naltrexone. Dependent variables were self-report of emotion and interpersonal trust (TRUST, i.e., a behavioral indicator of WL). The results showed that (1) participants reported more WL in the placebo/emotion group than in the placebo/neutral group and both naltrexone groups, (2), TRUST increased in the emotion group after placebo, but not after naltrexone, and this pattern was reversed in the neutral groups, and (3) trait affiliation moderated the effects of WL and naltrexone on TRUST. These results implicate brain opioids in trait affiliation, WL, and TRUST.

When are externally controlled actions included in one's action planning?

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This study aimed at dissociating two different mechanisms that give rise to spatial compatibility effects when people perform go/no-go tasks. Participants performed a go/no-go task where their own actions resulted in the movement of a limb or tool. A second, non-controlled, limb or tool was seen performing a complementary go/no-go task by itself, or as a consequence of a task partner's actions. Participants performing the task alone showed spatial compatibility effects as long as the non-controlled limb or tool was arranged in relation to the controlled limb or tool in a way that was congruent with people's body schema. In contrast, participants performing the same task together showed an effect as long as their partner performed her part of the task. This provides evidence for two separate mechanisms, one based on the integration of externally controlled actions through the body-schema and the other based on representations of a co-actor's task.

Temporal preparation - attention within time in action

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The interplay of time and attention is especially relevant in human action. Specifically, humans use temporal information to guide attention to specific stimuli or events, thus allowing them to act in an efficient manner. This temporally guided attention - known as temporal preparation - has gained growing interest in Cognitive Psychology over the last years. In the first part of the talk, we summarize previous studies showing that performance typically benefits from temporal preparation. In the second part, we present an experiment in which we examined the influence of temporal preparation on interference effects in a global-local task: Participants had to report global or local features of a stimulus, which were either consistent or conflicting with each other. Interestingly, we observed increased interference for conflicting feature configurations in case of

high temporal preparation. This result shows that temporal preparation can also have detrimental effects on performance.

When task sharing eliminates the Simon effect: Opposite effects of social and spatial components

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The present study aimed at assessing systematically the contribution of social (i.e., task sharing) and spatial (i.e., response position coding) factors to the joint Simon effect. Participants performed a Go/NoGo task first individually and then either imagining themselves responding to the NoGo stimuli (spatial condition) or co-acting with another person who was thought in another room but no spatial information was provided (social condition). The results showed that performance was influenced differently by both spatial and social factors. The Simon effect occurred only when both alternative responses were spatially coded and when participants could attribute both responses to their own task. Conversely, the belief of co-acting with another individual who performed the complementary task (i.e., to respond to the actor's NoGo stimuli), induced the implementation of a division-of-labor mechanism, which led participants to ignore the alternative response (i.e., the co-actor's response), thus eliminating the Simon effect.

An adaptive-learning framework to explain hindsight bias

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Hindsight bias is the tendency to retrospectively exaggerate what one knew before an outcome was known. This bias in the recall of one's original judgment is a robust phenomenon and (almost) impossible to avoid. Most existing explanations of hindsight bias (like assimilation, knowledge-updating, or selective activation) have focused on the distorting effect of encoding the outcome information, often equating this process with adaptive learning striving to keep one's knowledge up-to-date. However, we would understand adaptive learning as an interplay of several mechanisms. Depending on the result of a preliminary evaluation stage as well as further meta-cognitions (like surprise), either enforced inhibition or deeper encoding of the outcome information may result, which in turn would lead to smaller or larger hindsight bias, respectively. This more detailed view of the underlying processes is able to explain a variety of findings from the hindsight-bias literature.

When the need to maintain power competes with the need for positive moral image: Applying the needs-based model to contexts characterized by duality of social roles

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Research on the Needs-Based Model focused on contexts with distinct social roles (victims or perpetrators). Yet, in many conflicts, including the Israeli-Palestinian conflict, both parties continuously aggress against each other resulting in enhanced needs for both power and positive moral-image. Our first experiment exposed Israeli-Jews to threats to Israel's power or morality. We found that participants with low pre-existing need for 'powerful Israel' and high pre-existing need for 'moral Israel' revealed greater pro-social behavioral tendencies toward the Palestinians following threats to Israel's morality. Our second experiment revealed that reaffirming the perceptions of Israel as strong and resilient lead to greater willingness to give up power for the sake of morality, resulting in greater pro-social behavioral tendencies. It seems, thus, that the needs for power and moral-image are organized hierarchically: The more basic need for safety should be satisfied before people are sensitive to the higher-order need for positive moral-image.

Divergent needs of high- and low-status group members: The moderating role of perceived legitimacy of status differences

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Research informed by the Needs-Based-Model of Reconciliation suggests that, after an episode of violence, perpetrators experience an enhanced social acceptance need and victims an enhanced empowerment need. The present research proposes that the needs of members of high- and low-status groups can diverge in a similar manner as the needs of perpetrators and victims, but only when the status differences are perceived as illegitimate. Study 1 tested these predictions with artificially created groups and could demonstrate that the needs of high- and low-status group members diverge, but, as predicted, only under conditions of illegitimate and not under conditions of legitimate status differences. Study 2 replicated these findings in a naturalistic intergroup context. Study 3 explored whether satisfaction of the specific needs by members of the out-group would positively affect intergroup attitudes, especially when the status differences are perceived as illegitimate. Implications for the promotion of social change are discussed.

Suppression effects in the dual-source model of conditional reasoning

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According to the dual-source model of probabilistic conditional inference (Klauer, Beller, & Hütter, 2010), inferences are based on the integration of two types of information, logical form and prior knowledge, leading to a model with parameters for these two sources of information and a weighting parameter. In an experiment using Byrne's (1989) suppression paradigm, we assessed and modelled the influence of additional disablers and alternatives on people's probabilistic conditional inferences. In the baseline condition, participants worked on simple conditional problems. In two other conditions, we explicitly mentioned either disablers or alternatives for each problem. Results revealed, as expected, that disablers reduced endorsement rates for MP and MT, whereas alternatives reduced endorsement for AC and DA. Interestingly, in the model, the presence of disablers and alternatives had a differential impact on the three types of parameters: logical form, prior knowledge, and the weighting parameter.

Individual differences in familiar voice identification among a group of adolescents

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Previous research on the recognition of larger numbers of personally familiar speakers is almost non-existent. Here, 40 adolescent listeners identified 20 fellow pupils' voices (17–18 years; 10 female) from various utterances, yielding mean identification accuracies of 18% from harrumphs, ~35% from isolated /Hello/, /aba/, and /igi/ utterances, and 67% from a 6-word sentence. For sentences, we found substantial individual listener differences in voice identification (between 30% and 90%). Initial overall self-ratings of voice identification ability were uncorrelated with overall recognition performance (Spearman's $r = -.01$; $p > .48$, $N = 40$), replicating earlier findings. Intriguingly, however, identification accuracy was highly correlated with both individual listeners' self-report of each speaker's recognizability ($r = .54$; $p < .001$, $N = 800$), and with individual ratings of contact frequency with a speaker ($r = .36$; $p < .001$). We will discuss various determinants, both of speakers and listeners, for these substantial individual differences.

Identifying the influences on gaze control in dynamic scenes

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Where does one attend when viewing dynamic scenes? Unlike static scenes, the inclusion of transients such as motion and the flow of information in a dynamic scene may result in a greater exogenous control of attention but also necessitate moment-by-moment endogenous guidance in order to filter out irrelevant visual events. These factors were investigated in a series of studies recording the eye movements of participants whilst they watched naturalistic dynamic scenes. The best low-level predictor of gaze allocation during free-viewing of dynamic scenes is motion and motion contrast predicts the degree of clustering of gaze across multiple viewers. Gaze behaviour whilst free-viewing dynamic scenes depicting people engaged in recognisable events (e.g. doing the laundry) suggest that attention to motion may not be evidence of exogenous capture but rather a moment-by-moment interaction between motion, the semantic structure of naturalistic events and higher-order factors such as familiarity, memory and expectation.

The integration of motivation and conflict-triggered control in the Stroop task

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Previous studies suggest that both anticipated rewards and conflict information, i.e. expected and experienced conflicts, improve the efficiency of cognitive control. The present study investigated how these factors are integrated in guiding cognitive control. In two experiments, participants performed a color-word variant of the Stroop paradigm, whereas they received performance-dependent rewards after some blocks. Additionally, we manipulated the level of conflict-triggered control: In Experiment 1, we varied the proportion of congruent and incongruent trials within one block (proactive control). In Experiment 2, we compared the amount of the Stroop effect after previously congruent and after incongruent trials (reactive control). We found that the prospect of reward as well as high proactive and reactive conflict-triggered control decreased the size of the Stroop effect, however these factors did not interact with each other. We conclude that reward anticipation and conflict information are integrated independently of each other in conflict processing.

The size and distribution of donations: Effects of number of recipients

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Whereas much literature exists on "choice overload", less is known about effects of numbers of alternatives in donation decisions. We hypothesize that donations increase with the number of recipients, albeit at a decreasing rate, and reflect donors' knowledge of the recipients. Donations involve different concepts of fairness –equity and equality– and these can interact with numbers of alternatives. In two experiments, respondents indicated how they would donate lottery winnings of 50 Euros. Results showed, first, that more was donated to non-governmental organizations and campaigns that respondents knew better. Second, total donations increased with the number of recipients albeit at a decreasing rate. Third, when limited to giving to only one of multiple alternatives, donors gave less than when this restriction did not apply. Fourth, variability of donations can both increase and decrease with the number of potential recipients. We discuss theoretical and practical implications.

Reading out the black box – a semantic analysis of dream reports

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REM-dream reports still provide the only window on how we experience this "subjective, psychological state" (Hobson, 2009). Based on linguistic methods, we can objectively and empirically analyze dream reports with regard to various phenomena of dream consciousness. I will show that the semantic space building theory of Fauconnier and Turner (1994) works as a useful tool if we want to explore the architecture of the virtual world of REM-dreaming. My study investigates in how far the space building theory can confirm Rechtschaffen's (1978) hypothesis on the single-mindedness of dreaming. My results also imply that the brain state of lucid dreaming generates more complex clusters of image spaces, and that the application of the space building theory can thus help us to empirically differentiate between reports of lucid and of non-lucid dreams.

Implicit lie detection in Spain and Germany: Does it work?

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Research has shown that better differentiations can be made between truths and lies when features other than deception are assessed than when deception is assessed explicitly. In this study, 98 German and 96 Spanish participants assessed the veracity of videotaped German-

language accounts, or rated instead each storyteller on ten indirect measures selected on the basis of deception theories. Irrespective of the raters' country, accuracy rates did not differ from chance in the direct measures condition, but significant differences between liars and truth-tellers emerged for all ten indirect measures. The discussion focuses on theoretical implications and directions for future research.

The process of lie detection in groups

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300 participants were randomly assigned to either a real group or nominal group condition. All participants watched each of four videos, in which a person reported on a real experience or lied about this experience. First, all participants had to make individual lie/truth judgments. In a second phase, participants in the real group condition discussed each of the four videos with 4 other participants before making a group judgment. Regarding the nominal groups, for every 5 participants' individual judgements a group decision was computed following a "majority wins" rule. As expected, real groups achieved significantly higher accuracy in classifying truthful and deceptive messages (63.33% on average) than individuals (46.50%) or nominal groups (43.33%). While the 150 participants in the real group condition achieved an individual averaged accuracy rate of 50.17% and an accuracy rate of 51.67% on a nominal group level, the accuracy rate improved significantly after the group discussion.

Effects of acute and chronic stress on utilitarian moral judgment

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Recent studies emphasize that acute stress affects moral decision making. The current study examines whether the interaction of acute and chronic stress changes moral decision making. We induced stress in 25 participants with a cover-story of an anticipated public speech. 25 further participants were tested in a control condition. Stress levels and stress responses were assessed with questionnaires and heart rate. All participants performed a moral decision-making task (moral dilemmas). Dilemmas were either personal or impersonal and each offered a utilitarian and a non-utilitarian option. Results show that acutely stressed participants made fewer utilitarian judgments and needed longer for making a decision compared to control participants. Individual physiological stress response predicted few utilitarian judgments while the level of chronic stress did not. However, acute and chronic stress had an interacting effect on judgments. Results indicate that acute anticipatory stress interferes with utilitarian judgments, whereas chronic stress has a moderating effect.

How to model the impact of affect on risky choice: Distorted probability weighting or probability neglect?

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In contrast to the lottery problems investigated in many laboratory experiments, real-life decisions often involve affect-rich outcomes. How does affect alter risky choice? According to a prominent approach, affect-poor and affect-rich choices can be modeled within the same expectation-based framework. In contrast to this view, we provide evidence from computational modeling, process-tracing, and neuroimaging studies that affect-rich and affect-poor choices are based on qualitatively different mechanisms. Specifically, whereas affect-poor choices were best modeled by a compensatory strategy (cumulative prospect theory), affect-rich choices were best modeled by a strategy that neglects probabilities (minimax heuristic). Process-tracing analyses confirmed that people pay less attention to probabilities in affect-rich than in affect-poor choices. In an fMRI study the supramarginal gyrus was more activated in affect-poor choices (signaling calculation of reward expectations), whereas affect-rich choices triggered more activation in the posterior cingulate gyrus (signaling processing of the emotional value associated with the outcomes).

Be as competent and warm as I am: The influence of trait relevance on interpersonal projection

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Two studies investigated the impact of a trait's relevance to a specific task on people's projection of their characteristics onto a cooperative partner. We either measured (Study 1) or manipulated (Study 2) the relevance of a trait to a specific cooperative task. In both studies, participants rated themselves and the partner on a list of traits. In Study 1, we found partner ratings to be positively influenced by self-ratings and the idiosyncratic measure of the traits' relevance. In Study 2, participants rated the self and the partner on competence and warmth traits while completing an intellectual or a social task. We found partner-ratings to be positively influenced by self-ratings more on competence than on warmth in the intellectual task, but more on warmth than on competence in the social task. These results suggest that people project onto others in a way that maximizes their chances to succeed in cooperation.

Processing fluency as operating mechanism in intuition and implicit memory

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This talk presents several lines of research demonstrating processing fluency to be the operating mechanism in well-established tasks of a) intuition and b) implicit memory. A) Concerning judgments of coherence and artificial grammar learning, it is shown that the intuitive gut feeling of stimulus coherence/grammaticality draws on the fluency with which a stimulus is currently processed. Furthermore, it is shown that experimental manipulations of fluency (e.g., via figure-ground contrast, or repetition), but also fluency-related positive affect (e.g., brief facial feedback, visual facial primes) substantially influence intuitive judgments. B) Concerning implicit memory for target words, it is shown that the fluency of covert pronunciation simulations of those words substantially mediate implicit memory and related processes, such as word fragment completion, mere exposure, and familiarity. Blocking such pronunciation simulations, e.g., via chewing gum, leads to a loss of implicit memory with preserved explicit memory, and even recognizing without feeling familiar.

Do people have a preference for increasing or decreasing pain? An experimental comparison of psychological and economic measures in health related decision making

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This paper investigates preferences for different health profiles, especially sequences of increasing and decreasing pain. We test conflicting predictions in terms of preferences over two painful sequences. The QALY concept relevant for the determination of different levels of health-related quality of life implies indifference, whereas behavioral theories find preferences related to ordering, following the peak-end-rule. Using an experimental design with real consequences we generate decisions about painful sequences induced by the cold pressor test. The results are compared with hypothetical choice data elicited using standard methods. We find that hypothetical methods reveal decisions in line with the peak-end-rule. However when it comes to real consequences of their decisions, subjects are not willing to pay for that preference on average.

Body perception and pain: Clinical findings and conceptual aspects

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The experience of pain is closely connected to the way we perceive our body. Chronic pain patients show substantial distortions in their body image. For instance, they perceive painful limbs as larger or smaller than they actually are, or they cannot determine the extent of a body part altogether. These phenomenal changes are coupled to functional changes in cortical areas responsible for maintaining maps of the body and peripersonal space. Experimental psychology provides various paradigms, which address mechanisms potentially involved in the development of chronic pain, such as spatiotemporal and multisensory integration or modulation of the body image. These can contribute to the field of pain research by providing diagnostically relevant markers and treatment perspectives. In addition, they may complement functional brain imaging studies by helping identify and interpret neurophysiological processes underlying body perception and pain.

Familiarity and liking in impression formation

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A recent series of articles has debated the claim that "familiarity leads to dislike on average" (Norton et al., 2007; 2011; Reis et al., 2011). A theoretical model is still lacking that would explain when and why more knowledge about another person leads to less liking of that person. We contest a basic assumption and argue that similarity is not a mediator but a moderator. Given positive traits and positive self-concepts of judges, self-other similarity should determine the direction of familiarity effects. In two studies, varying familiarity within and between subjects, we obtained the predicted interaction between familiarity and self-other similarity. On average, the effect of familiarity on liking was positive (Study 1) or zero (Study 2), but it was consistently only slightly negative when similarity was minimal, and highly positive when similarity was maximal. We conclude with implications for the familiarity debate and the unlikely conditions of Norton's effect.

Möglichkeiten der Wissensdiagnostik per Ausschlussverfahren

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Multiple-Choice-Tests werden häufig zur Wissens- und Leistungsdiagnostik herangezogen. Die einfache Auswertung eines Items als "richtig" oder "falsch" liefert jedoch nicht sehr viel

diagnostisch nutzbare Information; zudem zwingt sie den Testteilnehmer zu raten, wenn er lediglich über partielles oder unsicheres Wissen verfügt. Beim "Elimination Testing" (Coombs, 1953) gibt der Testnehmer deshalb statt der vermeintlichen Lösung all diejenigen Antwortalternativen an, die er als falsch ausschließen zu können glaubt. Er muss dabei jedoch anders als beim Multiple-Choice-Verfahren keine Antwortalternative als die wahrscheinlichste Lösung kennzeichnen. Hoe et al. (2009) haben vorgeschlagen, Multiple-Choice- und Elimination-Tests zu kombinieren und die Testnehmer sowohl die aus ihrer Sicht wahrscheinlichste Lösung als auch alle von ihnen als definitiv falsch ausschließbaren Antwortalternativen kennzeichnen zu lassen. Vorgestellt werden mehrere empirische Untersuchungen, die zeigen, dass auf diese Weise die Reliabilität und die Validität der Wissensdiagnostik verbessert werden kann.

Frequency-illusions: Repetition and split effects

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Frequency perception and estimation are essential tasks for human cognition. Whether people judge probabilities, contingencies, or make decisions in general, the basic input is frequency of occurrence (e.g., of positive information about objects A and B in a choice task). Here, we investigate the underlying processes of two seemingly similar ways to illusorily inflate people's frequency perceptions: Repetition- and Split-Effects. Repetition refers to mere repetition of identical information and Split refers to subgrouping categories of information. In four experiments, participants saw information about different hotels. Information was either verbatim repeated or categories were split. Additionally, the presented information's valence was manipulated. We expected stronger repetition effects for positive information compared to negative information, but stronger split effects for negative information compared to positive information. Participants' choices and ratings confirmed this prediction, arguing for two differential processes for these seemingly similar frequency illusions.

Co-representing objects like they are human

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Action observation automatically activates corresponding motor representations in the observer, which is essential in coordinating actions with others. Recent research has demonstrated that we simulate actions of non-biological agents, but only when these are seen as intentional. The present study investigated whether action co-representation depends whether the non-biological agent needs to possess human features to induce action co-representation. Participants watched a video of a red triangle either behaving in an intentional, or unintentional way. Subsequently, they performed a joint Simon task with either an animated image of a human hand or a red triangle responding to the other stimuli. Whereas participants who watched the 'unintentional' video

showed a Simon effect only when co-acting with a biological agent, participants who watched 'intentional' video showed a Simon effect when co-acting with a non-biological agent. The present findings provide evidence for the assumption that motor simulation strongly depends on higher order processes.

The things I didn't do: The role of goals and primes in self-agency experiences

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People generally experience themselves to be the cause of an action-outcome when the outcome matches their goal, but also when it matches an outcome-prime. We propose that goals and primes affect experienced self-agency through different mechanisms that become apparent when outcomes mismatch goals or outcome-primes. Specifically, when one has a goal, discrepancies between the goal and an action-outcome are monitored and since people expect their actions to be successful, mismatching outcomes will likely lead to decreased self-agency experiences. Yet, when primed with an outcome, mismatching outcomes are less informative and self-agency is based only on a match between an action-outcome and active outcome-representations. Because activation may spread to outcomes that are close to the primed outcome, self-agency over these outcomes may be enhanced. In two studies examining this idea, we measured self-agency over outcomes that either matched or mismatched primed or intended action-outcomes. Results provide first support for our hypotheses.

Warm-glow giving and awareness of those we cannot help

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In a charitable giving context, we examine if knowledge of those "out of reach" triggers negative feelings that counter the good feelings from giving aid, thus demotivating action. We describe three studies examining the affective processes that contribute to this phenomenon. We hypothesized that awareness of those not helped reduces the "warm glow" (a positive feeling) associated with giving aid (e.g. a hedonic benefit). We tested this hypothesis by asking participants to rate their warm glow for various scenarios where we vary the number of children helped and not helped (e.g. helping 1 child, helping 1 not helping 1, helping 1 but not 6). We predicted, and found that the warm glow was greatest for single child and decreased as excluded children were highlighted.

Everything girls can do I can do too. The differential influence of pair form job descriptions compared to job descriptions using the masculine as generic on children's gender related occupational beliefs

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When building gender representations of role nouns, people not only rely on gender stereotype information but also on grammatical features. Against this background we tested whether primary school children's (N=689) gender stereotypical representations of occupations could be influenced by pair form job descriptions (e.g., Ingenieurinnen und Ingenieuren: female and male engineers) compared to job descriptions using the masculine as generic (Ingenieure: engineers). We additionally investigated whether this language intervention had consequences on children's occupational self-efficacy and vocational aspirations. Results from three experiments suggest that in grammatical (e.g., German) or natural (e.g., Dutch) gender languages pair form job descriptions compared to job descriptions using the masculine as generic increase the mental accessibility of female job holders and occupational self-efficacy in children and strengthen girls' interest in traditional male occupations. Results suggest that language used by teachers and in teaching materials can contribute to the attenuation of gender stereotypes in children.

Extinction and blocking of conditioned inhibition in human causal learning:
Effects of base rates

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Conditioned inhibition occurs when a stimulus becomes a signal for the absence of an outcome, and is a central phenomenon in classical conditioning and human causal reasoning. Virtually all theories of associative learning assume that the same learning principles apply to conditioned excitation and conditioned inhibition. However, two of the most famous conditioning effects (extinction and blocking) have hardly been studied in conditioned inhibition. We investigated these effects to test the assumed generality of the learning principles across excitation and inhibition. We show that conditioned inhibition is sensitive to both extinction and blocking, but that the effects are sometimes dependent on the base rate of the outcome in our task. This sheds light on the process of conditioned inhibition in human causal learning, both in terms of associative learning and inferential reasoning.

When is recognition a valid cue? Antecedents of adaptive strategy selection

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In various contexts, name recognition has been shown to be a reliable predictor of distal criteria. For instance, in the context of mountains, name recognition predicts height. In other contexts, however, recognition does not predict criteria of interest, and strategies exploiting recognition as a cue will lead to poor decisions. In the first part of the talk, we propose properties of the context which determine whether recognition will be a valid cue or not. That is, the more criteria are relevant in a context, the lower will be the recognition correlation. This trend should be strongest for criteria that are negatively correlated. In the second part of the talk, we will present findings of a study indicating that individuals' judgments of recognition correlations reflect the statistical properties (i.e., number of criteria and criterion inter-correlation) of the context. Findings are discussed regarding their implications for strategy selection in decision making.

Training and transfer effects of working memory training in young and old adults

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Cognitive abilities such as working memory capacity (WMC) and fluid intelligence decline with progressing age. This study investigated the improvement of WMC and intelligence induced by four weeks of computer-based training in an age-comparative setting. Thirty-four young and 27 older adults practiced tasks representing three functional categories of WMC: storage and processing, relational integration, and supervision. Data were compared to a young and an old active control group practicing tasks with low WMC demand. A cognitive test battery measuring near and far transfer was administered before and after training. Both age groups showed increased WMC performance in trained tasks and in similar, but non-trained tasks. Young adults also improved in a WM binding task. However, there was no far transfer to fluid intelligence in neither age group. The results provide evidence that WMC can be improved throughout the lifespan, but challenge the notion of training induced changes of fluid intelligence.

Effects of acute stress on social behavior in men

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Psychosocial stress precipitates a wide spectrum of diseases with major public health significance. The "fight-or-flight" response is generally regarded as the prototypic human stress response. As positive social interaction before acute stress exposure plays a preeminent role in a better control of stress, prosocial behavior might also be a protective pattern in response to stress. In a randomized controlled study, 67 healthy men were exposed to the Trier Social Stress Test for groups. In a behavioral paradigm adapted from game theory different social and non social behaviors were investigated. We could show that acute stress increases prosocial behavior (trust, trustworthiness, sharing behavior) as compared to a control condition without socio-evaluative threat. These effects are highly specific because stress does not affect the readiness to exhibit antisocial behavior or to bear non-social risks. The results show that stress triggers social approach behavior as a potent stress-buffering strategy in humans.

Affect influences search and performance in sequential decisions

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Decisions often involve sequential evaluations of options: choosing Jobs or partners we need to accept or reject options without knowing what the future brings. In two studies we tested the hypothesis that affect guides acceptance in sequential choice. Specifically, we investigated how natural variation (Study 1) and direct manipulation of affect (Study 2) influence decisions in a computerized shopping task. In Study 1, we investigated how young and older adults - two groups that typically report different levels of positive affect - made sequential decisions. As expected, older adults reported higher positive affect, which was correlated with reduced search and worse decisions relative to younger adults. In Study 2, we manipulate positive affect in younger adults to investigate if increased positive affect has a direct impact on search and performance. Overall, our findings suggest that positive affect is used as a cue to accept options in sequential decisions.

On rational probability judgments concerning noisy-logical patterns of correlations

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Although it seems plausible that human reasoning in an uncertain world rather corresponds to the probability calculus than to formal logics, language makes common usage of logical terms (And, Or, Either-Or, etc). Hence, it seems premature to abandon logics altogether. The talk addresses the induction of dyadic noisy-logical relationships between two attributes of a given class. Based on the standard extensional interpretation of logics or probabilities, a subset can never be more probable than its superset. But this interpretation is linked to the paradoxes of implication and the phenomenon of conjunction fallacies. If this is the (only) correct normative approach on this issue, logics and probability theory could not provide an adequacy criterion for logical predication. In contrast, a proposed pattern-based 'Bayesian logics' provides such a criterion for noisy relationships. Experiments provide first evidence that also experience-based probability judgments roughly correspond to Bayesian logics, leading to systematic logical inclusion 'fallacies'.

A century of Gestalt psychology in perceptual organization: A brief historical, conceptual and methodological introduction

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In 1912 Max Wertheimer published his paper on phi motion, widely recognized as the start of Gestalt psychology. This centennial anniversary is an excellent opportunity to take stock of what Gestalt psychology has offered and how it has changed since its inception. In this introduction, I provide some historical, conceptual and methodological background to the symposium. I start with the key findings and ideas in the Berlin school of Gestalt psychology, sketch its historical origins, and then trace its development, rise, and fall. Next I discuss its conceptual and methodological problems and how they are addressed in contemporary research on perceptual organization. I conclude by arguing for a multi-method approach, including the phenomenological analysis of the percept as a crucial step.

Angry at the theater: Cognitive framing in the field

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We conducted a study in the field which was performed as a disguised real-life anger-induction. For one group of the participants the anger-inducing situation was framed as an evaluation-procedure for an aptitude test developed by a recruitment firm; for a second group the situation was framed as a theater-performance. Importantly, both groups experienced identical anger-induction treatment (frustration, harassing behavior). Self-reports of the emotional state and blood pressure data were collected during and after the treatment. Online measures showed evidence for both the effectiveness of the anger-induction and the framing of the situation. Post-treatment self-reports revealed significant differences for the experiences of anger and amusement between the groups. Participants in the art group experienced less anger and more amusement than the non-art group. Overall, the study supports the significance of situational schema activation for the aesthetic enjoyment of negative emotions.

The consequences and neural dynamics of memory suppression

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It is possible to forget unwanted memories by repeatedly suppressing their retrieval. We investigated the dynamic control and consequences of memory suppression by measuring event-related potentials (ERP) and testing recognition memory performance in a think/no-think experiment. Successful suppression correlated with phasic and sustained negative ERPs, indicating mechanisms of interference detection and cognitive control. Suppression attenuated early ERPs related to memory strength and led to forgetting in subsequent recognition tests. Retrieving previously suppressed memories initiated post-retrieval control mechanisms as reflected in widespread positive-going ERP slow waves. Our results indicate that intentional suppression can lead to the inhibition of unwanted memories at an item level. At the same time, the suppression of unwanted memories, as well as their subsequent retrieval requires effortful cognitive control.

Habituation and consolidation of prospective memory over a week: An ERP-study

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Prospective memory (ProM) is the ability to remember and perform an intention in the future. With repetition, a ProM task changes from episodic to habitual. The goal of this study was to investigate the transition from episodic to habitual prospective memory with event-related potentials (ERP). The ProM task was to respond to a target word which was embedded in an ongoing lexical decision task. 40 ProM trials were administered in each of two sessions that were separated by a week. The results revealed a behavioural consolidation effect with increased ProM performance after one week. The ERP-analyses showed that when the task became more habitual a difference occurred in a time-window between 450-650 ms post-stimulus in an ERP-component. In addition, a covariance analysis revealed that this transition is continued in the second session. These results demonstrate that the transition from episodic to habitual prospective memory is long-lasting and continuous.

Spatial character of distal action space influences generalization of motor learning

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The present study aimed to address a novel approach of the visuomotor adaptation and generalization. It is based on a central assumption concerning the influence of the spatial structure of distal action space on the generalization process. Three experiments were carried out, in which subjects adapted to a visuomotor rotation in a sliding paradigm and then generalized to other regions in the distal action space or to an untrained limb. According to experimental variations, the distal action space could manifest either a symmetric or parallel spatial structure, while the spatial relationship between the imposed visuomotor rotations in the adaptation and generalization phase could be either symmetric or parallel as well. The results demonstrated substantial influence of the spatial character of distal action space on the subsequent generalization process: symmetric rotations were more beneficial in a symmetric action space, and accordingly, parallel rotations were more beneficial in parallel action space.

Attention and the speed of information processing: Prior entry for attended stimuli or rather later entry for unattended stimuli?

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Why is the order of nearly simultaneous stimuli frequently reversed? The origin of errors in temporal judgments is a question older than experimental psychology itself. One of the oldest suspects is attention. The notion of prior entry assumes that attention accelerates attended stimuli in comparison to unattended stimuli; thus attended stimuli have "prior entry" to perceptive processing stages, finally consciousness. Latency advantages for attended stimuli have been revealed many times. Nevertheless, usually used psychophysical measures (e.g. temporal order judgments) do not provide a complete test of the prior-entry hypothesis. Since they assess only latency differences they cannot distinguish between "prior entry" for attended stimuli and "later/posterior entry" for unattended stimuli. In a new paradigm, attention was directed to one of two clocks with moving hands. Time judgments from both clocks revealed that acceleration of attended stimuli as well as deceleration of unattended stimuli contributes to the prior-entry illusion.

Action control and action experience: (Dys-)Fluency signals related to action selection prospectively inform sense of control

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The sense of agency is a central aspect of our experience of action. We usually feel that our intentions cause our actions, and that we thus control our actions and the effects they produce. Previous research strongly suggests that this sense of control depends on comparison processes that retrospectively determine the match between actual action outcomes with intended/predicted outcomes. In my talk, I present data from experiments investigating whether, and how, "objective" action selection requirements affect sense of control when outcome predictability is controlled for. Behavioral and fMRI results from these experiments show that (dys-)fluency of action selection prospectively informs sense of control.

Implicit learning of subliminal colour primes and their influence on behaviour

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We studied the implicit learning of subliminal color cues for priming fast motor responses. Color primes (red, green, blue, yellow) were presented on a calibrated colour monitor. The stimuli were

rendered invisible by limiting their presentation time to 10 ms, followed by a spatial mask (black cross). At the same time, the mask served as the target for triggering a speeded key press response. The relation between the color primes and the spatial mask/target was either congruent or incongruent. Measuring reaction times (RTs) for initiating the hand movements, we found evidence for priming of these fast motor responses by the subliminal color cues. We report evidence for unsupervised learning in subliminal priming, which seems to occur at a central stage and benefits congruent as well as incongruent conditions (double benefit). We conclude that subliminal colour priming affects motor responses not automatically but instead is adjustable, and depends on stimulus statistics.

Adult age differences in visual search from perception to response: Evidence from lateralized event-related potentials

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Attentional changes play a major role in cognitive aging. However, which specific aspects of attention contribute to this decrement remains little understood. To determine the origin(s) of age-related slowing in visual search, we combined response time measures with lateralized ERPs of younger and older adults during a compound-search task, in which the target-defining feature of a pop-out target (color/shape) was dissociated from the response-defining feature (orientation). Slower responses in older participants were associated with age differences in all analyzed event-related potentials (PCN, SPCN and LRPs), indicating that behavioral slowing originates from multiple stages within the information processing stream. Furthermore, intertrial analyses revealed relatively automatic processes – such as dimension weighting facilitating at the early stage of visual selection, and response weighting facilitating the late stage of response execution – to be preserved in older age. By contrast, more controlled processes – such as the flexible stimulus-response (re-)mapping across trials on the intermediate stages of response selection – were particularly affected by aging.

Frequency tagging reveals rapid reactivation of episodic memories

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Neurocognitive models of episodic memory assume that during remembering, the brain reactivates the pattern of neural activity that was present when an episode was originally experienced. We used frequency tagging to test this prediction. Participants encoded words on flickering backgrounds that entrained a steady-state response at either 6Hz or 10Hz. We then

tested whether and when these frequency tags are reinstated during a later recognition test for the words, involving no flicker. The frequencies entrained during encoding indeed re-emerged rapidly, within 300ms after the recognition cue, producing a phase-locked response at 6Hz and 10Hz during the successful recognition of 6-Hz and 10-Hz words, respectively. This reactivation effect was positively related to memory performance, and occurred despite participants indicating no memory for the frequency tags themselves, as opposed to the words. We interpret our findings as empirical evidence for "ecphory", a rapid, resonance-like signal that sets in train the retrieval process.

Eye-tracking clinicians

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Studies of clinical decision making suggest that overall experienced clinicians do not outperform novices in psychodiagnostics. Increasing experience does not seem to lead to differences in decision outcomes. We then looked at the decision process, to see whether experience makes a difference there. We used eye-tracking, which has been identified as a method to measure both more intuitive and more deliberate processes. It also has the advantage that it decreases the likelihood of influencing the clinical decision process by the method itself. To our knowledge, our study is the first to attempt to use eye-tracking in clinical decision making.

Destructive competition in a social dilemma

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Groups of four participants play a repeated experimental public goods game that implements the Voluntary Contribution Mechanism. In contrast to a classic social dilemma, we set the objective payoff structure so that participants can maximize their payoff only through full co-operation. Defection in this paradigm, on the other hand, allows participants to achieve a higher relative payoff and better rank among participants, since individuals lose less personally by non-cooperating than other group members. As has been shown in earlier studies (Sajjo & Nakamura, 1995; Kümmerli, Burton-Chellew, Ross-Gillespie, & West, 2010), full cooperation is still rarely observed under these conditions. While this deviation from rational behavior has previously been attributed to individual biases and cognitive errors, we manipulate the degree of competitive framing through changes in feedback and interface and show that this factor drives participants to defect and exhibit spiteful behavior.

Comparison of intuitive decisional processes and implicit memory processes

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Minimal definitions of intuitive decisional processes and implicit memory processes resemble each other inasmuch as for both a non-conscious process is proposed impinging positively on human's cognition. With regard to implicit memory functions, this positive influence has reliably been demonstrated in priming experiments where a facilitated or accelerated performance typically occurs when a stimulus was encountered before (Squire et al., 1992; Thiel et al., 2003). With respect to intuitive decision making processes the positive influence reveals in sensitizing for the most likely representation of the incoming information experienced as a predictive "initial guess" (Bar et al., 2005; Volz & von Cramon, 2006). Thus, the question about sameness and difference arises. Since there are yet no imaging studies that directly investigate the relationship between intuitive decisional processes and implicit memory processes within participants, we plan such an fMRI study addressing exactly this question. Preliminary results will be presented at the conference.

Reversed evaluative conditioning of implicit evaluations

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Evaluative conditioning refers to a change in liking that is due to the pairing of stimuli. We examined whether the context in which stimulus pairs are presented moderates this effect. In Study 1, participants experienced a win after seeing a first nonword and a loss after seeing a second nonword. Both nonwords appeared together with a letterstring which indicated that the actual effect of the nonword (i.e., win or loss) had been reversed. In Study 2, participants saw pairings of nonwords and affective words (e.g., KADIRGA-EVIL) and were informed participants that the nonword was the antonym of the affective word. In both studies, nonwords paired with positive stimuli were liked less than nonwords paired with negative stimuli, as measured by an Implicit Association Test. The theoretical implications and boundary conditions of these reversed evaluative conditioning effects are discussed.

The visual-verbal cognitive style in solving arithmetical word problems

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With the present fMRI study the neural correlates of the visual-verbal cognitive style in mental arithmetic were investigated. Verbalizers report to repeat information during thinking verbally, whereas visualizers claim to represent information during thinking pictorially or schematically. The functional session consisted of 180 arithmetical word problems presented in different ways. Either the arithmetical problem was formulated (e.g., What result do you obtain when multiplying 3 by a factor of 4?) or the arithmetical problem is part of a short story (e.g., Elisabeth goes for a walk. She walks 4 kilometers per hour. What distance does she cover in 3 hours?). Firstly, we found correlations between the extent of verbalization and activation in brain areas involved in language and auditory processing, and between the extent of visualization and activation in brain areas involved in visual processing. Secondly, we found different activation patterns as a function of the two ways of presentation.

Item-method directed forgetting revisited: Findings on its relation to (traumatic) stress

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Research on directed forgetting and how it is affected by stress has yielded mixed results. This talk tries to approach some of the inconsistencies and will present recent data on item-method directed forgetting in individuals suffering from posttraumatic stress disorder (PTSD) as well as healthy students who underwent an experimental psychosocial stress test (TSST). Whereas in PTSD patients, directed forgetting disappeared as compared to a control group, experimental stress did not have any effects on directed forgetting. However, in both samples the directed forgetting effect was found to be reduced for those stimuli that were perceived as more arousing. Findings suggest that directed forgetting is not impaired by stress per se but rather modulated by the emotionality of the material that is used.

Thematic sessions

Retrieval practice consolidates practiced and related unpracticed memories

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Retrieval practice on a subset of previously studied material typically improves later recall of the practiced material but impairs recall of related unpracticed material. Employing such retrieval-practice procedure, we examined practiced and unpracticed items' normal forgetting and interference susceptibility. Subjects studied a categorized item list and then repeatedly retrieved some items from some of the categories. In Experiment 1, subjects were tested after a short or a long retention interval; in Experiment 2, they were tested in the presence or the absence of a second study list, interpolated between retrieval practice and test. Recall of control items from unpracticed categories was reduced after the long retention interval and was reduced after study of the interpolated list, thus showing normal forgetting and interference susceptibility. In contrast, both effects were absent in practiced and unpracticed items. These results indicate that retrieval practice consolidates memories, both the practiced and related unpracticed memories.

Sticky seats: The gravity of random choice defaults

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People's choices have repeatedly been shown to be influenced by default options. One key explanation for this effect is that choice defaults are interpreted as implicit recommendations (e.g., McKenzie, Liersch, & Finkelstein, 2006). Examining seat preferences, we demonstrate that people are influenced by a default option even when they are fully aware that the default was determined randomly. We tracked participants' seat preferences in two university lectures over a period of three months either when an initial seat was selected by the participants themselves or when they had drawn an initial seat randomly. Although the temporal stability of students' seat choices was lower in the condition with a random seat distribution, there was nevertheless a substantial influence of the location of the initial seat. This effect held when controlling for happiness with the initial seat choice. Thus, defaults influence people's decisions even when the default cannot be interpreted as recommendation.

Investigating the role of the verbal code in visual imagery

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The aims of the study were to investigate memory for visual images and the potential effects of verbal overshadowing and facilitation. Three experiments used a visual imagery task, where participants memorized a set of simple line drawings and then later reconstructed them using imagery to identify a new pattern. Using concurrent verbal tasks, Experiment 1 showed a verbal facilitation effect, rather than verbal overshadowing. However, Experiment 2 found that overdependence on the verbal codes impairs performance. Finally, Experiment 3 indicated that the semantic value of labels provided at encoding and retrieval enhances visual memory. The findings are discussed in relation to assimilation theory, which suggests beneficial effects of visual-verbal associations in long-term memory, and the recoding interference account, which predicts verbal overshadowing.

Top-down search for color prevents voluntary directing of attention to informative singleton cues

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Visuo-spatial attention can be directed in a top-down controlled way to search for color targets and it can be captured by color contrasts, regardless of color identity. Here we tested whether participants can both search for a particular color target (e.g., red) and make use of a color-contrast cue that predicted the target's most likely position to direct their attention voluntarily. Our results show that this was impossible for the participants. Results support that top-down search for particular colors is incommensurate with directing attention to just any color contrast. The results are discussed in light of the current debates concerning the roles of color and color contrast for visuo-spatial attention.

A test of the fluency-attribution hypothesis of the revelation effect

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Recognition probes, directly preceded by a problem-solving task, are more likely to be called old – a phenomenon that is known as the revelation effect. A typical task to elicit the revelation effect is solving anagrams – that is, rearranging the order of letters in a non-word to create a word. The fluency-attribution hypothesis explains the revelation effect with an increase in processing fluency that is misattributed to prior experience with the stimulus. In our experiments,

we tested this assumption by reversing the direction of the fluency change. Some participants first encountered a relatively fluent word and subsequently used a set of rules to transform the stimulus into a non-word. For this scenario, the fluency-attribution hypothesis predicts a reversal of the revelation effect. Other theories, in contrast, predict a standard revelation effect, irrespective of fluency change. We discuss our results in the light of previous research and theories of the revelation effect.

Regulation of valence-based disturbances of information processing

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The cognitive system adapts to disturbances by irrelevant information. For example, interference effects due to task-irrelevant spatial stimulation (e.g. the spatial Simon effect) typically diminish right after a spatially incongruent event. These effects reflect to some extent the attenuated processing of irrelevant information. Interference with (or interruption of) task processing might also result from irrelevant valent stimuli (e.g. in the "affective" Simon or "emotional" Stroop effect). In three experiments we studied the interplay of adaptation effects triggered by either valent or non-valent irrelevant stimulation. The results indicate that these effects work domain-specific. For example, incongruent spatial information modifies the spatial Simon but hardly affective Simon effects, whereas incongruent affective information modifies the affective but hardly spatial Simon effects. We assume that there are specific control processes for valent and non-valent stimulation that operate independently of each other.

Line or bar graphs? Visualizing interactions in 2x2 experimental designs

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When presented graphically, the results of 2x2-factorial studies are usually displayed as either line or bar graphs. Analyzing a sample of articles published in 2010, we found that most authors decided to display their findings using bar graphs. In contrast to this practice, a review of the literature on data visualization shows that regardless of the pattern of results, the majority of authors recommend line over bar graphs to display interaction effects. The empirical basis for this recommendation remains tenuous and contradictory, however. To explore their advantages and disadvantages, we therefore conducted an experiment presenting line or bar graphs of fictional 2x2-factorial studies. The graphs showed all main and interaction effects that can occur in 2x2 experimental designs. Participants answered questions regarding superficial and functional properties of the data and their interpretation. Based on the results, we discuss how interactions can best be visualized to maximize interpretability and comprehension.

Are influences of phonological information on lexical selection in word production subject to speaker control?

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Lexical access in language production minimally entails a lexical-semantic and a phonological encoding stage. While analyses of speech errors indicate that these processing stages are coordinated in an interactive fashion, the experimental evidence is mixed. In two experiments, I investigated whether accessing phonological information during lexical access is subject to speaker control. Speakers were asked to repeatedly name small sets of semantically related objects. The lists differed with respect to the number of objects whose names had many phonological neighbours, as assessed by the average phonological Levenshtein distance to their 20 closest phonological neighbours (PLD20). While an object's PLD20 significantly affected participants' response times, there was no effect of the makeup of the lists (many vs. few object names with high PLD20), suggesting that access to phonological knowledge does not depend on whether the naming context is phonologically informative (including many low-PLD20 names) or not (including few low-PLD20 names).

The irrelevant speech effect in short-term memory: Impact of item materials and sound characteristics

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Immediate serial recall of verbal items is impaired by task-irrelevant background speech. Theoretical interpretations of this so-called irrelevant speech effect (ISE) differ in their assumptions on the role of verbal coding. Classical theories assume that irrelevant speech has automatic access to verbal short-term memory, where it interferes with phonological codes (Baddeley & Salamé, 1989, Neath, 2000). Other authors attribute the effect to interference with the retention of modality-independent representations of serial order (Jones, 1996), or to the attentional burden caused by the necessity to ignore the sounds (Elliott, 2002). In the current experiments, the role of phonological coding in the ISE was investigated by varying memory materials and sound characteristics. The ISE was most pronounced with verbal items, reduced with visual items and nonsignificant with spatial items. Furthermore, speech sounds tended to be more disruptive than nonspeech sounds. The results indicate a crucial role of verbal coding in ISE evocation.

Same same but different: Fitting decision field theory to consumer choices in an environment featuring context effects

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Sequential sampling models, such as the multialternative version of Decision Field Theory (MDFT; Roe, Busemeyer, & Townsend, 2001), enjoy an increasing popularity in describing consumer choices. While there are many papers explaining how MDFT can explain context effects (e.g., attraction, compromise, and similarity effect) on a theoretical level without changing the parameter set, we test this claim on empirical grounds based on observed choice data. Towards this goal, we present an experimental design that allows eliciting different context effects in a within-subject design. Based on this, we compare the performance of MDFT against two frequently used economic models of choice, namely the Logit and the Probit model. Our results indicate that MDFT provides a better description of people's choices as compared to conventional economic choice models when context effects are present not only on a theoretical but also on an empirical level.

Many faces of expertise: Fusiform face area in chess experts and novices

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The fusiform face area (FFA) is involved in face perception to such an extent that some claim it is a brain module for faces exclusively. The other possibility is that FFA is modulated by experience in recognition in any visual domain, not only faces. Here we test this latter FFA expertise hypothesis in chess. In three experiments, we show that FFA activity is related to stimulus properties and not to chess skill directly. In all chess and non-chess tasks, experts' FFA was more activated than that of novices' only when they dealt with full-board chess positions. Our experiments show that FFA contributes to the holistic processing of domain-specific multipart stimuli in chess experts. This suggests that FFA may not only mediate human expertise in face recognition but, supporting the expertise hypothesis, may mediate the automatic holistic processing of any highly familiar multipart visual input.

The effect of mood states on the pursuit of explicit goal standards

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It was examined whether processing goals or mood states change how explicit goals are processed and may thus influence motivation and task performance. In a first priming task,

participants received a processing goal and then were instructed to set explicit goals for a subsequent performance task. As a result, performance was influenced by an interaction between processing goals and participants' explicit goals. Study 2 extended these findings to effects of mood and demonstrated that positive versus negative mood resulted in the same interaction with explicit goals. In a positive mood, explicit goals led to an assimilation effect, whereas in a negative mood, explicit goals led to a contrast effect. These results provide evidence for a cognitive and motivational process in which explicit goals are used as comparison standards (Bittrich, 2011 EJSP) and combine with implicit influences like processing goals or prior affective states.

Trace decay and interference in a memory span task

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In the present study we propose and test a model concerning the impact of different mechanisms of forgetting in short term memory for tonal and verbal stimuli. In a modified memory span task subjects were presented 1-6 letters or tones which they had to recall in correct serial order. In half of the trials the recall started immediately after the last item. In the remaining trials the recall was delayed. As expected, participants were better in the verbal compared to the tonal memory span task. Applying the proposed model to the data we observed a good fit. The parameter estimation revealed a stronger impact of forgetting mechanisms in the tonal compared to the verbal condition. Furthermore, item confusion only appears in the verbal condition. The results suggest that different mechanisms of forgetting apply to tonal and verbal stimuli in short term memory.

Observing shared attention in others enhances gaze following

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Humans show a strong tendency to follow others' gaze. Recent findings suggest that gaze following is enhanced after the face providing gaze cues established direct eye contact with participants. The present study investigates whether observing others engaging in eye contact also enhances subsequent gaze following. Participants observed two faces looking at each other or away from each other before jointly shifting their gaze to one of two locations. Targets appeared either at the cued location or at the non-cued location. Gaze cueing effects (faster responses to targets appearing at the cued location) were enhanced when the two faces looked at each other prior to shifting gaze. Thus, observing others sharing attention enhances gaze following, similarly as sharing attention with the gazer oneself. fMRI data indicate that temporal and parietal regions linked to social cognition underlie this effect. Accordingly, autistic participants did not show enhanced gaze following after observing eye contact.

Social role of the perceiver and causal structure of a risk as determinants of risk perception and risk behavior

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Two modes of evaluation in risk perception are distinguished: (a) a consequentialist evaluation focusing on consequences, and (b) a deontological evaluation focusing on moral values. Each mode triggers specific evaluations, emotions, and behaviors. An experiment is presented that tested in the domain of environmental risks whether the relative dominance of the two modes depends on the causal structure of the risk and upon the social role of the evaluator. Three types of causal structure were varied: (a) anthropogenic risks that endanger nature, (b) naturally caused risks with harmful consequences for humans, and (c) anthropogenic risks that harm humans. Participants evaluated each scenario from the perspective of one of three social roles: environmental activist, expecting parent, mayor. Subjects evaluated the event's morality, risk, intensity of emotions, and action tendencies. Results show that deontological evaluation is stronger for anthropogenic than for natural causation and stronger for environmental activists than for other roles.

The probability paradox

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The nonlinear distortion of probabilities is at the core of several influential decision theories such as prospect theory, which overweights small and underweights moderate and large probabilities. In this talk it is argued that probability overweighting paradoxically results from probability neglect. This hypothesis is supported in a series of experiments using verbal protocols and information search. Results further show that (a) people examine information between rather than within gambles, and (b) simple heuristics best explain the observed choice paradox.

Ein Stück Pustekuchen gefällig? – Zur Verarbeitung von morphologisch komplexen Wörtern

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Modelle der Sprachverarbeitung unterscheiden sich in ihren Annahmen darüber, in welcher Form morphologisch komplexe Wörter gespeichert werden und welche Auswirkung die semantische Transparenz auf die Speicherform ausübt. Es gibt allerdings mehr und mehr Hinweise auf eine Speicherung in dekomponierter Form. Dies wirft die Frage auf, ob morphologische Dekomposition

das Erkennen komplexer Wörter erleichtert oder behindert. Da die Worthäufigkeit der Einzelkonstituenten normalerweise über der des Kompositums liegt, könnte eine Dekomposition die Worterkennung erleichtern. Allerdings könnte die anschließende Integration zu einem Kompositum zusätzliche Verarbeitungskosten erfordern und jegliche Vorteile durch Worthäufigkeitseffekte kompensieren. Aufbauend auf frühere Arbeiten unserer Arbeitsgruppe untersuchten wir in zwei Experimenten mit Hilfe einer visuellen lexikalischen Entscheidungsaufgabe die Verarbeitung von semantisch opaken deutschen Komposita und verglichen sie mit der von morphologisch einfachen Wörtern.

Inhibition and integration between and within visual channels revealed by meta- and paracontrast masking with oriented gratings

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The interaction of two succeeding stimuli can reveal precise temporal properties of the underlying visual processes. In several experiments we used the classical metacontrast stimulus setup, i.e., an annulus surrounding a target stimulus, and measured target visibility as a function of the stimulus onset asynchrony (SOA) between target and annulus, both of which were always oriented gratings. By varying the spatial frequency contrast between target and annulus, we measured the properties of inter- and intra-channel inhibition. Our results reveal different temporal properties of inter- and intra-channel inhibition, and show that only the latter is orientation selective. In further experiments we used plaid target, resulting from a superposition of collinear and orthogonal gratings, to study the phenomenon that the mask selectively suppresses the collinear component at some SOAs, while suppressing both components at others. The results reveal the time course of feature integration, relative to the time course of metacontrast.

A meta-analysis of affective priming

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Affective priming is a widely used paradigm to study cognitive processes, especially the automaticity of attitude activation or primacy of affect, or generally context influence on evaluations. Still the theoretical basis of this paradigm is not fully understood. Three major theories are used to explain priming effects: Spreading activation, response conflict and compound cue theory. To discriminate between these theories, we conducted a meta-analysis about the priming paradigm. We included 99 studies of sequential priming with clear valence of prime and target. While the results show little evidence of publication bias, the data clearly displays different priming effects depending on response tasks, challenging the spreading

activation account. However, spreading activation is the only theory that satisfactorily explains priming effects in the naming task. Theoretical implications as well as application suggestions will be discussed.

Of course, I always accept bribes! - do organizational culture values influence employees' corrupt behavior?

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Corrupt organizations expect their employees to commit corruption to fulfill organizational aims. Here corruption is appropriate - not counterproductive - behavior. Corrupt organizations implement a social cocoon to support corruption as behavioral norm e.g. via rationalization. Because organizational culture influences employees' behavior in general, organizational culture might influence employees' behavior within the social cocoon. This study examines if organizational culture values influence corrupt behavior. Design: IV: Organizational culture values: 1) The end justifies the means - corruption supporting. 2) The journey is the reward - opposite of 1. 3) No value. DV: corrupt behavior. Participants work in a fictitious two-person team on online decision making tasks. They receive a bribe to influence the decision making process. Results are the following: 1) Organizational culture influences the corrupt behavior in the following order: condition 1>3>2. 2) Rationalization mediates the influence of organizational culture on corruption.

"Album of the year"? Serial position effects in evaluations of cultural products

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The serial position in which an object (e.g., a wine) is presented can affect how it is subsequently evaluated. Previous research showed such position effects in preference only in laboratory experiments with presentation sequences spanning a short time (i.e., several minutes). Might the serial position of an object also bias our preference formation in the real world and when the presentation is spread out across a long time? We analyzed "album of the year" ratings from wide range of sources encompassing 766 music albums and spanning a period of 10 years. Consistent with primacy and recency effects, we found that albums released in January and December had a significantly increased probability to be selected as one of the albums of the year (controlling for month-to-month fluctuations in the release rate). Our results demonstrate that serial position effects can even shape cultural preferences, which can have substantial economic consequences.

Perceptions of control modulate the Cortisol Awakening Response (CAR) during menstruation and mediate mental health

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Previous findings regarding relationships between the cortisol awakening response (CAR) with the menstrual cycle phase and perceptions of control are inconsistent. We investigated whether joint analysis of interactions between CAR, menstrual cycle, and self-determination might clarify these relationships. Individual differences in perceived control, CAR and self-reported stress were assessed in 33 young women not taking contraceptives during both the luteal and follicular phases of menstruation. CAR of women with low perceived self-determination during the luteal phase significantly differed from women in the follicular phase or those with high perceived self-determination. Additionally, in the luteal but not in the follicular phase, high CAR levels predicted increased experienced stress only in individuals with low self-determination. The present research suggests that relationships between cortisol and personality as well as cortisol and menstrual cycle should not be investigated separately from each other. The relevance of the findings for female mental health will be discussed.

Comparing the meanings of "if" and "all"

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We compared the everyday meaning of conditional ("if p then q") and universally quantified ("all p are q") statements. Conditionals were hypothesized to be interpreted probabilistically as $P(q|p)$ and quantified statements to have two interpretations depending on the type of relation expressed: (1) as $P(q|p)$ when referring to a general law, (2) deterministic (one exception making a statement false) when referring to a coincidence holding for limited elements. Participants judged the likelihood that statements were true for a sample of varying size (Exp. 1 and 2) or for the population at large (Exp. 2). Estimates for both conditional and quantified statements showed features of both interpretations, yet overall the evidence favoured a probabilistic interpretation of conditionals and a deterministic interpretation of quantified statements. The type of relation had no effect. A third experiment is outlined, aiming to further elucidate the conditions under which each interpretation is endorsed.

The influence of familiarity with object arrangements in spatial belief revision

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The revision of beliefs is necessary whenever reasoners encounter conflicting information. In the spatial domain, it is assumed that consistency within a belief set is regained by the modification of initially constructed spatial mental models. Often, there are multiple logically equivalent alternatives to modify those models. However, there is evidence that reasoners clearly prefer certain alternatives. Here, we investigated the role of a reasoner's long-term representation of object arrangements during revision. Participants were asked to mentally represent arrangements according to spatial descriptions and subsequently revise their beliefs in the light of counterfactual information. Reasoners preferably modified their representations in accordance with their familiarity with the arrangements. The results provide evidence that representations stored in long-term memory affect the revision of spatial beliefs.

A memory based language-switching paradigm

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The aim of the present project was to develop a novel paradigm to examine cognitive control by language-switching in a more natural setting. To do so, we implemented a predictable, alternating language sequence (L1-L1-L2-L2-L1-L1), and the stimuli followed a sequence (i.e. weekdays; counting), whereas in prior language-switching experiments participants named visually presented objects in different languages, indicated by a visual cue. Our data revealed a typical pattern of language-switch costs, showing that a language-switch is associated with worse performance compared to a language-repetition. Additionally, we found a reversed switch-cost asymmetry (compared to cued language-switching), with larger switch costs for the first than the second language. We also observed symmetrical mixing costs, which constitutes the difference between pure language and mixed language blocks. The results of the new paradigm will be set in relation to results from the cued language-switching paradigm and discussed with respect to cognitive control in language-switching.

When deeper evaluation means: It's more about me!

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To evaluate whether tasks are easy or difficult for a target person (Target Task Difficulty, TTD), evaluators can use assumptions about the target's ability. Evaluators might also use their own

feelings about task difficulty. In this case, evaluators' feelings that tasks are easy or hard for themselves may affect TTD. We tested the hypothesis that higher motivation should make evaluators rely on their own feelings of difficulty when judging TTD. We first assessed evaluators' (N = 58) own feelings of difficulty about a specific task A. After working on a filler task, participants had to judge task A TTD. Half of the participants were instructed to intensively think about their judgment (high motivation), the other half received no specific instruction (control). As expected, motivation and own-difficulty rating interacted in predicting TTD. A positive relation between own-difficulty rating and TTD was only found given high motivation but not in the control group.

Facing a "sexually open" woman vs. a feminist woman moderates links of men's harassment myths acceptance and mating orientation with specific forms of sexual harassment

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We studied effects of target characteristics and perpetrator beliefs (acceptance of myths about sexual harassment = AMSH, and short-term mating orientation = STM) on different types of sexually harassing behavior. As part of a computer chat task, male participants could select between sexist (= harassing) jokes, harassing personal remarks and non-harassing (= neutral) materials to be sent to a woman who had previously described herself as "sexually open" or as feminist. We hypothesized a double dissociation of AMSH and STM in the prediction of harassing behavior, where (1) AMSH predicts the number of sexist jokes but not the number of harassing remarks sent, whereas (2) the opposite pattern emerges for STM. Furthermore, (3) facing an "sexually open" woman was hypothesized to strengthen the path between STM and harassing remarks; whereas facing a feminist was hypothesized to strengthen the path between AMSH and sexist jokes. Our results generally supported these predictions.

Umwelteinflüsse oder Fahrerintention? Was bestimmt die Wahl der Geschwindigkeit?

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Überhöhte Geschwindigkeit ist noch immer die Hauptunfallursache im Straßenverkehr (z.B. Tay et al., 2003; Machin & Sankey, 2008). Um dieses Problem anzugehen, beschäftigt sich die Verkehrspsychologie unter anderem mit der Formulierung theoretischer Erklärungen des Geschwindigkeitsverhaltens (z.B. Components of Speed Behavior Modell (CSB)). Auf Basis des CSB wurden im Rahmen einer laborexperimentellen Untersuchung Aufgabenanforderungen (TD) durch die Veränderung von Straßenbreite und Sichtverhältnissen variiert. In dieser Untersuchung war es

Aufgabe der Probanden, bei den unterschiedlichen Fahrsituationen die optimale Geschwindigkeit in einem Simulator einzustellen. Gemessen wurden die objektiven und die subjektiven Geschwindigkeiten. Des Weiteren wurde mit Hilfe eines Fragebogens überprüft, ob die Intentionen der Probanden das tatsächliche Verhalten widerspiegeln. Die empirischen Ergebnisse zeigen, dass die Veränderung der Aufgabenanforderungen große Effekte auf die objektive und subjektive Geschwindigkeit hat. Die Resultate des Fragebogens zeigen weiterhin, dass die Intention und das Verhalten bei der Wahl der Geschwindigkeit nicht identisch sind.

Empirische Konstruktvalidierung der Mucksmäuschenstille

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Die ursprünglich von Dölle (1968) vorgeschlagenen und von Graumann (1974) systematisch aufgearbeiteten Kategorien einer Phänomenologie der Stille haben sich psychologisch letztlich als unbefriedigend erwiesen und werden dem Konstrukt in seiner Gesamtheit nur unzureichend gerecht. Während die pathischen Kategorien der Stille als unumstritten gelten (wohltuende Stille, beklemmende Stille, erdrückende Stille), herrscht über die gnostischen Dimensionen wenig Einigkeit (Mäuschen-Stille, Totenstille, Anotie). Insbesondere die Mäuschen-Stille erscheint angesichts der Beschleunigung und "Verlautung" (Dölle, 1927) der modernen Gesellschaft manchen Autoren als zu moderat. Ausgehend von einer Expertenbefragung mit $N = 19$ Vpn im Tiefeninterview wurde die Kategorie der Mäuschen-Stille nie spontan genannt, während immerhin 12 Vpn an erster oder zweiter Stelle den Begriff "Mucksmäuschen-Stille" (MMS) nannten, den sie mehrheitlich als tonlosen Zustand mit einer als angenehm bewerteten Rest-Geräuschhaftigkeit charakterisierten (einen pathischen Aspekt der MMS implizierend). In einem messwiederholten ABCABC-Design ($N = 130$) wurden daraufhin unter geräuschabschirmenden Bedingungen Toten-Stille, Anotie (= "Ungehör") und MMS realisiert und mittels semantischem Differential bewertet. Das eigenständige psychologische Profil der MMS war mittels tensor-analytischer Faktorenextraktion klar erkennbar und hat Implikationen für das Gesamtkonstrukt. Ob der MMS auch Bedeutung für die sprachbezogenen Stilleformen zukommt (Zögern, Pause, Schweigen), muss künftige Forschung klären.

Conflicts as aversive signals

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The conflict monitoring theory of anterior cingulate (ACC) function suggests that the ACC detects response conflicts thereby triggering the mobilization of cognitive control. Alternatively, the outcome evaluation account of ACC function suggests that the ACC monitors for negative performance outcomes, an information that is used for future action selection. Botvinick (2007) suggested that both theories might converge on the detection of aversive signals in general. In

this talk, we will provide first evidence that conflicts are registered as aversive signals. Congruent and incongruent Stroop color-words served as primes, positive and negative stimuli as targets in an affective priming paradigm. Negative targets were evaluated faster after incongruent than after congruent Stroop primes, and positive targets were evaluated slower after incongruent than after congruent primes. These findings bridge the gap between competing theories of ACC function and make the conflict monitoring theory applicable to a much wider range of situations and tasks.

A response-discrimination account of implicit attitude measures

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Process analyses suggest that affective stimulus-response compatibility is involved in various implicit attitude measures. However, it is unclear whether an affective response meaning develops through a passive pairing with evaluative information or through an intentional specification of the response-meaning (or both). Participants evaluated positive and negative words with two response keys. In addition, the key responses were furnished with functions that were irrelevant for the task at hand (i.e., word evaluation). For instance, in one experiment response keys turned words ON and OFF, whereas in another experiment the response keys produced the words INSECTS and FLOWERS on the computer screen. Results showed that the participants used the key functions to discriminate between the responses in the evaluative decision task. This finding suggests that responses acquire those meanings that are most crucial for realizing the behavioral intention. A response-discrimination account of implicit attitude measures is discussed.

Perzeptuelle Transparenz: Ein unterschätzter Faktor in Untersuchungen zur Farbwahrnehmung

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Vollständige Farbabgleiche von Testfeldern in verschiedenen Umfeldern sind unter bestimmten Bedingungen nicht möglich, insbesondere dann, wenn die Umfeldern einfarbig sind und geringen Kontrast zu den Testfeldern haben. Als mögliche Erklärung für diesen, aus klassischer Sicht unverständlichen, Befund wurde eine Zerlegung des Testfelds in transparente Schicht und Hintergrund vermutet. Um diese Hypothese empirisch zu testen, ließen wir einfarbige Testfelder in einfarbigen Umfeldern mit einem Testfeld in einem variierten Umfeld abgleichen, wobei bei letzterem nicht nur die Farbkoordinaten, sondern (durch Alpha-Blending) auch der Grad der Durchsichtigkeit variiert werden konnte. Hypothesenkonform wurde der Grad der Durchsichtigkeit im Vergleichsfeld umso größer eingestellt, je geringer der Infeld-Umfeld-Kontrast im Vorgabereiz war. Bei geringen Kontrasten ergab sich also der überraschende Befund, dass ein farblich

variiertes (transparentes) Vergleichsfeld dem einfarbigen Vorgabefeld ähnlicher erschien als ein einfarbiges (opakes) Vergleichsfeld beliebiger Farbe. Wir diskutieren Implikationen dieses Befunds für die Dimensionalität der Farbwahrnehmung in Infeld-Umfeldreizen und die Natur des simultanen Farbkontrasts.

The effect of the erythropoietin system on neuroplasticity and higher cognition in mouse and man

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Erythropoietin (EPO), a hematopoietic growth factor, has long been observed to improve cognition; however, its effect was attributed to increased hemoglobin. We have shown in preclinical studies in healthy mice that chronic rhEPO treatment leads to remarkable improvement in learning, memory, and higher cognition. This improvement was accompanied by enhanced hippocampal long- and short-term potentiation. To be independent of rhEPO and genetically define the neuronal target cells, we expressed a constitutively active form, EPORR129C (cEPOR) in the postnatal mouse forebrain, using a transgene driven by the α -calcium/calmodulin-dependent protein kinase II (α -CaMKII) promoter. Transgenic mice, expressing cEPOR in pyramidal neurons of cortex and hippocampus, exhibit enhancement of spatial learning, cognitive flexibility, and attention. In a double-blind placebo-controlled multicenter trial in schizophrenia, we found that weekly high-dose EPO treatment over 3 months improved cognition and reduced cortical gray matter loss. These findings support EPO as important player in neuroplasticity and higher cognition.

Stroopinterferenz nach positiv und negativ valenzierten Leistungswörtern

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Auf der Grundlage von Untersuchungen von Kuhl und Kazén (1999) und Kazén und Kuhl (2005) wurde angenommen, dass positive Leistungswörter volitionale Prozesse aktivieren. Dies führt folglich bei der Stroopaufgabe zu einer Verringerung der Stroopinterferenz. Diese Annahme lässt sich analog aus Arbeiten zur Anregung von Leistungsverhalten mittels Leistungswörtern in der sozialpsychologischen Tradition sensu Bargh (1990) ableiten. Jedoch zeigte sich in zwei Experimenten ($N = 61$ und $N = 88$), dass der angenommene Effekt nicht gefunden werden konnte und eine Replikation deshalb nicht erfolgreich war. Vielmehr zeigte sich in beiden Experimenten, dass sich die Stroopinterferenz bei negativen Leistungswörtern verringert. Diese Inkonsistenz wird diskutiert und es werden alternative Erklärungsansätze in Betracht gezogen, die anhand aktuell laufender und modifizierter Untersuchungen bewertet werden sollen.

The effect of feedback validity on learning and feedback-related brain activity

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Adaptive decision-making requires that feedback is processed to learn from previous decision outcomes. Recent studies using event-related potentials have shown that learning from feedback correlates with an early feedback-related negativity (FRN) reflecting basic reinforcement processes. The present study investigated whether these processes are affected by top-down mechanisms like knowledge about feedback credibility. In a simple decision task, participants had to make use of feedback to learn which one of two stimuli was associated with a reward in the later test phase. Feedback stimuli were followed by a cue indicating whether feedback was valid or invalid. Prior to each block, participants were informed about feedback credibility, which refers to the frequency of valid feedback. An effect of feedback credibility was obtained not only for learning but also for FRN amplitudes with highly credible feedback leading to larger FRNs. This indicates that basic reinforcement processes are affected by knowledge about feedback credibility.

Effects of loneliness priming on anthropomorphic inferences about a social robot

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Previous research has shown that under specific conditions people even humanize nonhuman entities such as robots (e.g. Epley, Waytz & Cacioppo, 2007). One of the key determinants of anthropomorphic inferences is sociality motivation. To investigate the role of sociality motivation further, we conducted an experiment with the social robot "Flobi". Specifically, we induced situational loneliness (vs. feelings of inclusion vs. negative affects vs. neutral affect) to test the hypothesis that making people feel lonely leads to stronger anthropomorphic judgments than respective control conditions. Innovatively, anthropomorphism was measured using various dimensions: Mind attribution (Gray, Gray & Wegner, 2007), human nature and uniquely humanness traits (Haslam, 2006), and psychological closeness. As predicted, lonely participants anthropomorphized the robot more strongly than did participants in the control conditions. Our findings thus provide further empirical support for the novel 3-Factor Theory of Anthropomorphism. Implications of the results will be discussed.

The role of context heterogeneity in allocation of visual attention: Behavioural and electrophysiological evidence

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It has been shown that in visual search tasks, search performance does not only depend on target properties, but also on distractor properties (Duncan & Humphreys, 1989). As visual search tasks usually use only few distractors, the issue of 'context heterogeneity' is rarely investigated. Rationale of the present study was to clarify the role of context properties in the allocation of visual attention and the time course of context-related visual processing. Behavioral measures and event-related potentials (ERPs) of the EEG showed that homogeneous contexts lead to more efficient attention deployment than heterogeneous contexts, causing fewer erroneous answers, shorter N2pc latencies and larger N2pc amplitudes. Present data revealed also that this differential pattern of attention allocation extends to subsequently presented stimuli unrelated to the previous context up to 130 ms post stimulus.

Process differences between description- and experience-based choice: An analysis using eye-tracking and physiological measures

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Previous judgment and decision making research suggests a behavioral as well as a neuronal gap between decisions that are based on description and decisions that are based on experience. We investigated the processes underlying these two types of decisions using eye-tracking and a measure of physiological arousal. We find undersampling of rare events in experience based decisions and eye-tracking data indicate oversampling of (the same) rare events in decisions from descriptions. Nevertheless, we find overweighting of small probabilities in both conditions. Arousal decreased with increasing difference in EVs between gambles in description based decisions but not in experience based decisions. Overall, our results indicate that processes in experience based risky choices can be well described by a sampling-and-averaging model. For description based decisions, in contrast, our data indicate the usage of other mechanisms.

The right mixture of sensory- and long-term memory-based attentional control:
Eye movements during sensorimotor learning

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The eyes extract visual information to control hand movements in sensorimotor tasks. However, which information specifies where-to-look-next and does the source of specification change during learning? We investigated eye movements at different stages of sensorimotor learning in a speed-stacking task and across illumination conditions. Through practice, participants became faster, made fewer fixations, and executed task-related scanpaths. In the dark, trained participants performed slower and fixated longer than in the light, while the number of fixations and scanpaths were very similar across illumination conditions. Moreover, eye movement similarity across illumination conditions was not related to task performance in the dark. Results point to an LTM-based specification mode of where-to-attend-next and where-to-look-next at higher stages of automatization, which is applied even in the dark. However, the drop of performance in the dark indicates that sensory-based specification is also required. The right mixture of sensory- and LTM-based attention control seems to be important.

On the fate of distractor representations

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How the human mind selects relevant information from the myriad information offered by our environment is still controversially discussed. One key question is, what selection processes do to the irrelevant information. I present data from three experiments using a new variant of the Eriksen flanker task, in which participants sometimes had to respond to the distractors instead of the target. Importantly, the time interval between stimuli onset and the cue which signaled participants to respond to the distractors was varied. Dependent on how long the distractor stimuli had already been processed as distractors, reaction times and error rates to distractors varied. The data are compatible to selection models which assume that distractor stimuli are initially activated but after a few milliseconds become deactivated. Thus, I argue for selection models assuming top down deactivation of distractor representations that work in parallel with top down activation of target representations.

How positive affect modulates cognitive control: Reduced reliance on informative cues

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Positive affect is known to enhance cognitive flexibility. Converging with such common results, we recently found a reduced cue validity effect under positive affect with a simple response cueing task. This effect, however, was restricted to specific conditions: (1) low arousal levels, and (2) informative cues. The current study, therefore, tested the hypothesis that positive affect with low arousal reduces the reliance on informative cues in a task switching paradigm. In two between groups, positive pictures with low or high arousal preceded every trial. As expected, a reduced cue validity effect was only found in the positive affect condition with low arousal, but only for task repetitions. Furthermore, there was no difference between affect groups in a switch condition without task cues. Results thus suggest that increased flexibility under positive affect with low arousal repeatedly reported in the literature is a consequence of a reduced reliance on informative task cues.

Mythos Korrumpierungseffekt? Effekte der intrinsischen Motivation, Selbstregulation und von Self-Leadership auf die Leistung: Experimentelle Untersuchungen mittels Eye-Tracking

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Der Korrumpierungseffekt auf die intrinsische Motivation durch extrinsische Belohnungselemente wird kontrovers diskutiert (Deci & Moller, 2005). In drei experimentellen Untersuchungen mittels Blickbewegungsanalyse (Eye-tracking; N = 228) wird erstmals überprüft, inwiefern sich extrinsische (leistungsbezogene) Belohnungselemente auf die intrinsische Motivation, die Selbstregulation und Self-Leadership hinsichtlich der Leistung beziehungsweise spezifischer Blickbewegungsparameter auswirken. Im Gegensatz zur Kontrollgruppe erhielt die Experimentalgruppe spezifische extrinsische Verstärker. Das Stimulusmaterial wurde bezüglich (a) Autonomie, (b) zeitlicher Restriktion und (c) -spielerischer" Komponente variiert. Sowohl bei Experiment 1 (Labyrinthaufgaben) als auch bei Experiment 2 (visuelle Suchaufgabe) wurden leistungsbezogene Kriterien und Blickbewegungsparameter (z.B. mittlere Fixationsdauer (in ms) und Anzahl der Fixationen) erhoben. In Experiment 3 (Aufmerksamkeits-Belastungstest) wurden die beiden Untersuchungsgruppen besonders restriktiven Bedingungen ausgesetzt (geringe Autonomie, hohe zeitliche Restriktion, geringe spielerische Komponente). Auf Basis multivariater Analysemethoden zeigen die Ergebnisse, dass die intrinsische Motivation durch extrinsische Belohnungselemente verstärkt und Self-Leadership korrumpiert wird. Die Ergebnisse werden bezüglich ihrer theoretischen und praktischen Relevanz kritisch diskutiert.

Load effects support the distinction of declarative and procedural working memory

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The present study investigates load effects in Working Memory (WM). Assuming two independent subsystems of WM (Oberauer, 2009), we designed our experiments to load either one system, e.g. declarative or procedural WM (Experiment 1 and 2) or both systems (Experiment 3). To this end, our subjects either performed recall and recognition tasks loading declarative WM, or speeded choice tasks loading procedural WM. We manipulated declarative load (memorizing two vs four objects) and procedural load (selecting among two or four responses). When loading one system with two tasks, we found that the load on one task impaired performance on the other task. In contrast, when both WM systems were loaded with only one task, no interference between the two systems was observed. This supports the proposal of two independent WM systems with independent capacity limits.

Black or white? Effects of luminance polarity on target detection and discrimination

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Textbooks often recommend black text on a white background (vs. white on black) to achieve maximum legibility for display users. This recommendation is supported by physiological studies showing that the visual system assigns more resources to processing stimulus elements with positive polarity (dark on light background) than negative polarity (light on dark background; e.g. Ratliff et al., 2010). In a series of target detection and discrimination experiments, we tested the above recommendation. Two different measures of contrast (Weber, Michelson) were used to establish equal absolute values of contrast in positive vs. negative polarity conditions. Results varied depending on measure of contrast and task: In most cases we found no difference in detection/discrimination rates between the two polarity conditions. If there was an advantage for one condition, it was for the negative one. These results contradict textbook recommendations and predictions from physiological evidence.

Noisy Newtons: People's intuitive understanding of physics explains their cause and prevention judgments

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There is a long tradition in both philosophy and psychology to separate difference-making accounts from mechanistic accounts of causation. In this talk, I motivate a unifying account that explains people's causal judgments in terms of counterfactuals defined over probabilistic generative models. In our experiments, participants see two billiard balls colliding and indicate to what extent ball A caused/prevented ball B to go through a hole. Our model predicts that people arrive at their causal judgments by comparing what actually happened with what they think would have happened, had the collision between A and B not taken place. Participants' judgments about what would have happened are highly correlated with a noisy model of Newtonian physics. Using those counterfactual judgments, we can predict participants' cause ($r = .99$) and responsibility ($r = .97$) ratings in two different experiments. Our framework also allows us to capture intrinsically counterfactual causal judgments such as almost caused.

Shading gradients, depth, and figure ground perception: Extremal edges and gradient cuts

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Extremal edges (EEs) and gradient cuts (GCs) are powerful cues to depth and figure-ground organization that arise from shading and texture gradients, where convex, smoothly-curved surfaces partly occlude themselves (EEs) or are partly occluded by other surfaces (GCs). Ecological constraints imply that the EE side of the shared edge should be seen as closer and figural, and experimental evidence shows that they are. Indeed, EEs readily dominate even combinations of well-known classical figure-ground cues (e.g., size and convexity). The GC side of a shared edge tends to be seen as a farther/ground surface. The strength of GC effects depends strongly on the relation between the shared edge and the gradient's equiluminance contours, including the angle between them and the alignment of inflection points along the edge with luminance minima and maxima along the shading gradient. Together they strongly determine the perception of relative depth across an edge and figure-ground assignment.

Do not catch the falling knife: Are stimulus-non-response episodes response specific?

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Stimuli and simultaneously executed responses are integrated into a transient episodic structure (called S-R episodes); repeating the stimulus triggers retrieval of the associated response. Recent findings from our lab demonstrate that this basic process of behavior automatization also applies to situations in which one should not respond to a stimulus (i.e. S-nonR episodes): In this case, repeating the stimulus retrieves non-response tags. The present experiment aimed to investigate if non-response tags are response-specific (e.g., "do not respond with left hand") while other responses are not influenced, or whether non-response tags contain rather general, response-unspecific information (e.g., "do not respond"). Hence, we combined a color classification and a stop-signal task and manipulated stimulus and response repetitions in trial $n+1$ independently. Evidence suggests that if stopping to a stimulus was successful, subsequent stimulus repetition delayed responding, regardless of whether color responses repeated or changed. We conclude that non-response tags contain response-unspecific information.

Sadder but not wiser: The role of mood, self-esteem, and life stress in preference consistency

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We define preference consistency as the tendency to make liking-based decisions in a consistent manner. As such, preference consistency can be seen as an indicator of an individual's rationality. Research has shown that heuristic, as compared to systematic processing increases preference consistency. As positive affect fosters heuristic processing, we hypothesized that subjects in a more positive affective state would make more consistent preference decisions. With the focus on affective states, more distal predictors of consistency are analyzed which have not yet been taken into account. In a series of studies, the consistency of liking-based decisions was measured along with mood and other variables related to affective state. Subjects in a more positive mood, with higher self-esteem and lower life stress made more consistent decisions. Results indicate that subjects in a more positive affective state are more likely to decide in accordance with normative rationality.

Preventing competitive irrationality in management

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Why do managers sometimes sacrifice profits only to improve their relative standing ("competitive irrationality") and what can be done to reduce such tendencies? We build on literature from social psychology and other disciplines to explain this influential, yet hitherto under-investigated, decision-making bias. We then hypothesize on five potential countermeasures against competitive irrationality in strategic decision making: reducing time pressure, relying on external advice, creating accountability, "considering the opposite", and making the bias of competitive irrationality salient to the decision maker. We test our hypotheses on a sample of 934 managers using web-based experiments. Our empirical evidence supports our call for reducing the clock speed of strategic decision making and for providing managers with training in biases to attenuate competitive irrationality. However, our data also indicate that, contrary to our theorizing, efforts to make managers feel accountable for their actions can have a detrimental effect on decision quality.

Warum herzliche Menschen kompetenter erscheinen als sie sind: Der Einfluss von Agency und Communion auf Halo- und Horn-Effekte

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Halo- und Horn-Effekte gehören zu den bekanntesten Arten von Urteilsverzerrungen. Eine große Lücke in der bisherigen Befundlage besteht in der gleichzeitigen Berücksichtigung unterschiedlicher Persönlichkeitsdimensionen, wie beispielsweise Agency und Communion. Da Communion-Attribute schneller und bevorzugt verarbeitet werden und im Umgang mit anderen Menschen bedeutsamer sind als Agency-Attribute, sollten sie auch zu größeren Halo- und Horn-Effekten führen: Eine offensichtlich faule Person sollte also als vergleichsweise fleißig eingeschätzt werden, wenn sie ein hilfsberechtigtes Auftreten hat. Umgekehrt kann ein fleißiges Verhalten aber nur bedingt dazu beitragen, dass eine eher egoistische Person als vergleichsweise hilfsbereit eingeschätzt wird. Zur Untersuchung dieser Hypothese beurteilten Teilnehmer in drei Experimenten Personen, die mit verschiedenen Verhaltensweisen beschrieben wurden. Es zeigte sich, dass Communion-Attribute zu stärkeren Halo- und Horn-Effekten führen und stabiler gegenüber Urteilsverzerrungen sind als Agency-Attribute. Diese Befunde haben wichtige Implikation für das Erkennen und Verstehen von Halo- und Horn-Effekten in verschiedenen Situationen sowie die Gewährleistung optimaler Urteile und Entscheidungen.

Common attentional processes for memory-guided saccades and visual working memory: Evidence from SOA-dependent interference effects

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Previous studies delivered evidence for a role of covert visual attention (VA) during encoding and maintenance of information in visual working memory (WM). Given the coupling between VA and saccade control, we wondered whether encoding/retention of a saccade-target location would interfere with a concurrent WM task. One group of participants had to retain the location of a peripheral stimulus as the target of a later saccade, while another group was instructed to ignore this stimulus. During retention a letter had to be identified at fixation. The main independent variable was the SOA between the two stimuli. Letter identification in both groups was diminished with short SOA. With longer SOAs letter identification performance differed between the two groups depending on the visual competition accompanying presentation of the saccade target. Our results point out that interactions between VA, WM and oculomotor control depend on the functional requirements of perception, respectively, motor control.

Recency effects of spatial distance on abstract semantic interpretation:

Facilitation versus interference effects

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Across three eye-tracking reading experiments, non-linguistic visual context information (e.g., spatial distance between cards) modulated real-time abstract sentence comprehension (e.g., war and peace are very different). Spatial closeness, however, sometimes facilitated and sometimes interfered with semantic similarity interpretation. When cards displayed written words immediately before sentence interpretation, we observed facilitation effects (Experiment 1). When the cards were blank, and only spatial distance was available before sentence reading, we observed interference effects (Experiment 2). We asked whether this difference (facilitation vs. interference) could be an effect of spatial information recency: In Experiment 3, although cards displayed words, spatial distance between the cards was the most recently-added visual context information immediately before sentence reading. Results showed facilitation effects followed by interference effects, both in first pass reading times. As semantic interpretation unfolded incrementally, facilitation effects re-emerged, both in early and later measures. We will discuss potential mechanisms underlying facilitation versus interference effects.

Mapping the perceptual structure of rectangles through goodness-of-fit ratings

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We investigated the structure of a rectangular frame by measuring the perceived goodness-of-fit for a small probe circle positioned within it, using subjective ratings and 2AFC judgments. In Experiment 1, observers rated how well a probe circle fit within a surrounding rectangle at 77 positions in an 11 x 7 grid. Ratings were highest in the center, greatly elevated along vertical and horizontal symmetry axes, and somewhat elevated along the local symmetry axes of the angle bisectors. A linear regression model with 6 symmetry-related predictors accounted for 95% of the variance. Experiment 2 clearly showed that fit was higher along the local symmetry axes of the corners than along the global diagonals. In Experiment 3, fit ratings changed dramatically with a second circle in the frame, but observers still gave higher ratings to positions that rendered the configuration symmetrical with respect to the center or to the symmetry axes.

Measuring behavioral consequences of biased risk perceptions with a lottery choice task

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Anecdotal evidence biases ratings of statistically communicated probabilities. A new measure is introduced to test whether this narrative bias also leads to behavioral changes. In a hypothetical vaccination setting participants are provided with statistical and narrative information regarding the occurrence of vaccine-adverse events. The relative frequency of narratives reporting adverse events is varied. Participants then repeatedly chose between the vaccination and a lottery, both of which entail a probability of losing a proportion of an initial endowment. The vaccination's loss-probability matches that of the statistical information and remains constant over choices while the lottery's loss-probability increases with each choice. Participants should choose the lottery as long as its loss-probability is lower than the one they perceive with the vaccination. Imperfect choices are costly because they increase the overall chances of loss. Preliminary evidence suggests that the narrative bias not only affects ratings of probability but also subsequent behavior.

Investigating linguistic alignment in the domain of in-vehicle speech dialog systems

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This work addresses the evaluation of an adaptive speech dialog system (SDS) that makes use of collaborative strategies observed in human dialogue. Users' experience with today's spoken dialogue systems is characterized by interaction structures which do not meet their expectations. The fact that users feel uncomfortable while interacting with current SDS can be explained as one or more failed grounding processes, in which users lack evidence to coordinate their knowledge states. We suggest solutions of how to overcome these difficulties with in-vehicle SDS from a non-technical usability point of view, namely by adapting the system's output syntactically and lexically towards the users input. We report ongoing work, describing a simulator study, which was conducted to examine the impact of alignment in human-machine interaction while driving. Moreover, linguistic alignment, as such, is firstly examined in the domain of in-vehicle speech dialog systems.

The effect of landmarks on the recognition of a city

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We all know famous buildings/landmarks of major cities all over the world. But, what happens if we take these landmarks out of the context (first examined online by www.hotels.com Lead-Agentur Seventy Seven PR)? In the current study, we not only deleted the landmarks but also tested what happens if a landmark is replaced by another, e.g., presenting the Chrysler Building in Frankfurt. Participants' task was to name the cities presented. Results show that people have severe difficulties to recognize many cities if the characteristic unit is missing (e.g., Paris, Sydney, Berlin), but some cities can still be recognized very well (e.g., London, Las Vegas, Venice). Furthermore, if the landmarks are interchanged most participants are totally led astray (e.g., Eiffel Tower in Berlin is labeled as Paris). These results will be discussed within the context of current research on landmarks and human wayfinding in cognitive psychology.

What is your preferred decision style? - Decision making strategies tested online

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People differ in the way they make decisions under uncertainty. Some people prefer all available information to provide a basis for a good decision while others deal with only a few, but valid information. A web-experiment with a standardized trading task was implemented to test the individually preferred decision strategy (Optimization, Constraint Optimization, Satisficing, One-Reason decision making (ORDM), and Guessing, as well as the level of desired confidence and the consistency of strategy use (Welch, 2002; Hausmann & Läge, 2008). Participants had to decide twenty-two times on the basis of zero to five probabilistic cues for one of four options, while paying search costs. Most participants used a Satisficing-strategy (95%), while only a minority was classified as Optimizer (2%), or ORDM-User (3%). The measurement underlines the individual differences within decision making processes and could turn out to be a useful tool for theoretical considerations, as well as for practical application.

Training-induced brain activation changes in the frontal cortex differ in cognitive subtypes of dyslexia

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Cognitive subtypes of dyslexia with phonological vs. visuo-attentional processing difficulties have recently been identified and linked to differential involvement of left and right frontal brain areas. Here, we investigated how 4-week dyslexia trainings focussing on phonology, attention, or reading differentially induce neurofunctional changes in phonological and visuo-attentional dyslexia subtypes in the Posner paradigm and phonological awareness. Overall, and in line with the literature, there was activation increase in left area 44 for both tasks. This effect was mainly observed in the attention and reading training, not phonology. Moreover, right area 45 showed increased activation for the reading training. Together, these findings suggest that differential dyslexia trainings recruit brain areas contralaterally to those normally involved in attention shifting (usually right) and reading-based phonology (usually left). Moreover, the differential pattern may explain why previous dyslexia training studies only found heterogeneous brain activation changes due to different cognitive subtypes of dyslexia.

Spatial imprecision in focusing attention in visual working memory

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In visual working memory literature, the slot model has become popular, making the categorical distinction between having an object either stored in working memory or not. In contrast, in verbal working memory literature, access to individual items is driven by contextual distinctiveness, such that neighboring list positions cause more interference than non-neighboring items, as reflected in transposition errors, which are the most frequent errors reported in serial order literature. In a visual working memory paradigm, we investigated the effect of spatial proximity on probed recognition. Our results clearly show that spatially closer objects cause more interference than objects being further away from the target. This proximity effect supports the assumption of a spatially imprecise focus of attention in working memory and contradicts the all-or-nothing assumption of the simple slot model and the elaborate slot model, which can account interference effects due to similarity, but cannot account for spatial imprecision effects.

Determinanten der Verarbeitungsreihenfolge im PRP-Paradigma

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Simultan präsentierte Aufgaben werden nach dem Bottleneck-Modell (z.B. Pashler, 1994) sequenziell verarbeitet. Ein Bottleneck auf der zentralen Verarbeitungsstufe der Antwortauswahl verzögert eine der Aufgaben so lange, bis die Antwortauswahl der konkurrierenden Aufgabe abgeschlossen ist. Es wird angenommen, dass diejenige Aufgabe zuerst bearbeitet wird, deren Pre-Bottleneck-Stufe zuerst abgeschlossen ist. In Dual-Task-Experimenten mit zufälliger Aufgaben-Reihenfolge konnten wir zeigen, dass aufgrund dessen eine Verlängerung der Pre-Bottleneck-Stufe der zuerst präsentierten visuellen Aufgabe zu einer höheren Anzahl an Reaktions-Vertauschern führt, während eine Verlängerung der Bottleneck-Stufe keinen Einfluss hat. Bisher noch nicht untersucht wurde jedoch, ob sich eine Manipulation der auditorischen Pre-Bottleneck-Stufe ähnlich auf die Aufgaben-Reihenfolge auswirkt. Unsere Ergebnisse zeigen, dass es auch hier zu einer höheren Anzahl an Reaktions-Vertauschern kommt. Zusätzlich zeigt sich bei Manipulation der Bottleneck-Stufe der auditorischen Aufgabe eine leichte generelle Tendenz, die auditorische Aufgabe vorzuziehen. Diese Tendenz könnte aus der erhöhten Schwierigkeit der inkompatiblen Bedingung der auditorischen Aufgabe resultieren.

Transsakkadische Prädiktion bei visueller Suche und Objekterkennung

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Mehrmals pro Sekunde bewegen wir unseren Blick, um interessante Dinge der Umgebung in den fovealen Bereich des schärfsten Sehens zu bringen. Dabei ändern betrachtete Objekte neben ihrer Position auf der Netzhaut auch die räumliche Auflösung mit der sie verarbeitet werden. Der vorliegende Beitrag untersucht, ob Wissen über Unterschiede in der räumlichen Auflösung von Objekten während Blickbewegungen erworben und genutzt wird. Wir nehmen an, dass Blickbewegungen zu bidirektionale Assoziationen zwischen peripheren und zentralen Ansichten ein und desselben Objektes führen. Zwei Experimente untersuchen, ob solche Assoziationen Vorhersagen darüber erlauben, wie (1) ein gesuchtes Objekte in der Peripherie aussehen könnten (visuelle Suche) und (2) ein peripher auftauchendes Objekt nach einer Blickbewegung foveal aussehen würde (Objekterkennung). Die Ergebnisse zeigen, dass bei wiederholten blickkontingenten Veränderungen eines Objektes in einer Lernphase neue Assoziationen zwischen verschiedenen zentralen und peripheren Objektansichten erworben und in einer nachfolgenden Testphase zur Vorhersagen während visueller Suchaufgabe und Objekterkennung genutzt werden.

Averaging analytical and intuitive judgment with dialectical bootstrapping: The wisdom of an intuitive-analytical crowd within one mind

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Although intuition is superior to analytical thought in some tasks and inferior in others, it is often not clear which approach will be better in a given situation. Whenever this is the case, it should be beneficial to create an "intuitive-analytical crowd within one mind" by averaging intuitive and analytical judgments from the same person. To the extent that intuition and analysis operate on different knowledge and assumptions, they should produce different errors (i.e., dialectical bootstrapping; Herzog & Hertwig, 2009). If so, averaging improves accuracy because errors of different sign cancel each other out. We tested this conjecture in an experiment where participants estimated quantities twice. Averaging intuitive and analytical judgments from the same person improved on both approaches when neither was superior a priori; using the same process twice yielded smaller improvements. These results show that it is beneficial to create an "intuitive-analytical crowd within one mind".

Plagiarism in psychology: What researchers and students think about it

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Plagiarism, that is, the presentation of another's work or data as one's own, is prohibited by the ethical standards of the American Psychological Association as well as by many other (psychological) associations. Nevertheless, plagiarism and other unethical research behavior have been known to occur. In an anonymous online-questionnaire, researchers and their students have been asked for their opinion on research ethics as well as for their own breaches of regulation and for their estimation on how often such breaches occur with fellow researchers or students. The comparison of own misconducts and estimation of others show that misconducts of others have been overrated. Confessions of unethical behavior were seldom though existent. Data especially on the subgroup of psychologists and psychology-students will be presented. The focus of the presentation will lie in the comparison of the assessment of self and others. Reasons for unethical research behavior will be discussed.

Limits of the regulation of negative emotions by cognitive distraction

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The purpose of this study is to integrate two theoretical lines regarding the effectiveness of emotion regulation. First, emotions can be regulated by cognitive distraction due to a limited working memory capacity. Second, emotional states affect the capacity that can be allocated to a cognitive task which results in a reduced test score. It is as yet unclear whether the capability to regulate negative emotional states depends on the cause of the emotions, distinguishable by their intensity. To integrate these ideas, we conducted a study in which both the induction of the emotional states (autobiographical essay vs. pictures) and the cognitive distraction were varied. Dependent measures included emotion regulation and response latencies to detect differences in performance on the cognitive task. The results indicate that emotion regulation occurs by means of cognitive distraction. Autobiographical emotions are less likely to be regulated but yet no differences in performance could be found.

The role of inhibition of return in repeated visual search

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Previous research has demonstrated that inhibition of return (IOR) facilitates visual search by discouraging recently inspected items from being reinspected. We investigated whether IOR is not

only operating within each of two consecutive searches in the same display (Experiment 1) but also across searches (Experiment 2). We presented a probe at a recently inspected or non-inspected item during each search or at the beginning of the second search. Analysis of saccadic latencies to the probe showed that IOR operated within the searches but not across searches. In Experiment 3 we investigated whether it was the completion of the first search that resets IOR. Results showed that IOR was only reset if participants were allowed to complete the first search but not if search was externally interrupted. This suggests a flexible character of IOR: The reset after a completed search ensures that inhibition processes do not negatively affect a subsequent search.

Individual differences in the second language comprehension of ambiguous sentences

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Adult second language (L2) learners have been argued to use fundamentally different strategies in language comprehension compared to native speakers in that L2ers overrely on extragrammatical, e.g. pragmatic and discourse information at the expense of grammatical, i.e. morphosyntactic information (e.g. Clahsen & Felser 2006; Jiang 2007; Ullman 2005). This paper investigates how L2 comprehension is modulated by individual differences. In a mixed regression analysis, we test how the reading of ambiguous English sentences in an eyetracking study is affected by proficiency, working memory, reading speed, automaticity in lexical access and grammatical integration ability. Results from 75 L1 German advanced learners attest that individual differences in syntactic integration ability modulate the reliance on morphosyntactic and plausibility information. Similar to native speakers (e.g. Ferreira & Patson 2007), L2ers are found to adopt two different routes in L2 processing. Findings are discussed in the context of current models of language processing.

Causal diversification in risky decision making

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In choices between normatively identical repeated win gambles, such employing different physical devices are preferred over repeated activation of one device, while one device is preferred in loss gambles. It was claimed that perceived diversity was the crucial factor. Four experiments investigate causal diversification in risky alternatives of quasi-naturalistic scenarios. The number of causal paths leading to identical negative or positive outcomes, respectively, is varied. In loss situations, less causal paths were preferred, in gain situations more causes. In conditions without

probability display, probability was rarely searched for, indicating that causal diversification may cause decision errors.

Framing and risk defusing: Reciprocal effects

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In realistic risky decisions people often search for risk-defusing operators (RDOs, e.g., vaccination, insurance) reducing the risk. 64 participants decided in two scenarios, each including a safe alternative (sure positive and negative outcomes), and a risky one. The frame of the risky alternative was varied: In the positive frame, an uncertain event could lead to an improvement, in the negative frame to a worsening (logically equivalent frames). During the decision process, participants could search for information. Half of these participants searching for RDOs were informed that no RDO exists. As expected more RDOs (indicating risk aversion) were searched for in the negative frame than in the positive one. This result contradicts the classical framing pattern. In cases without RDO, however, we observed the standard result with risk-aversion in positive, and risk seeking in the negative frame, even if only few participants searched for probabilities.

How people update probability judgments in a social context

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Decisions are often made under uncertainty and in a social context. The present project explores how people make probability judgments that rely on private information and information that is inferred from the decisions of other persons. To examine this question, we used an adapted version of the informational cascades paradigm. The participants were required to repeatedly choose the most profitable out of two stocks and to estimate the probability that the chosen stock provides the higher revenue. Before making their probability estimates, participants received information about the decisions of two other persons and were additionally provided with private information from a rating agency. To predict the participants' probability estimates, we used a sequential sampling model. We further analyzed the results using a Bayesian hierarchical model, which illustrates that people give larger weight to private information compared to information inferred from other persons.

On the difficulty of task selection under task-switching and the involved processes

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If a stimulus activates several competing task sets, then the goal-relevant one has to be selected. Unfortunately, up to now little is known about task-selection processes. Therefore, the aim of the present study was to investigate how a task is selected in conditions with task conflict. By analyzing conditional-accuracy functions of empirical data collected in task-switching experiments, we found that, in contrast to the performance in usual flanker tasks, accuracy for slow responses to incongruent stimuli does not converge to the accuracy of congruent stimuli. We hypothesize that this effect results from task confusions and that it reflects a basic limitation of task selection. Furthermore, we show how that the performance can be explained by a recently developed dual-stage two-phase model of selective attention. This model also allows one for the different conditions to estimate the proportion of task confusions, which usually cannot be observed.

Asymmetric target recognition in the retinal periphery

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Target recognition performance in the retinal periphery is impaired due to the presentation of flankers (crowding). Peripheral targets are better recognized when they are presented on the outward end of the string relative to the inward side facing fixation. These paradoxical asymmetry effects are often attributed to asymmetric crowding effects of the flankers. We examined the assumption in presenting isolated Landolt rings above, below, left, and right of fixation. Already the recognition of isolated rings was asymmetric in that outward openings were better recognized than inward ones. Additionally, flanking bars reduced the asymmetry in Landolt rings. However, this effect was not obvious with isolated (asymmetric) letters. For letters, the asymmetry effect was obvious in strings only. Taken together, the results show that asymmetry effects should be ascribed to facilitated recognition at the outward ends of a stimulus and not to increased crowding from outward flankers.

The Lane Change Task's (LCT) measures and metrics: What do they tell us about driver's secondary task demand?

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The Lane Change Task (LCT; Mattes, 2003) was developed as a test procedure to measure secondary task demand while driving and is implemented as an ISO standard (ISO 26022:2010). Studies on training effects (Petzoldt, Bär, Ihle & Krems, 2011; Huemer & Vollrath, submitted) and sensitivity (Young, Lenné & Williamson, 2010) showed additional regulatory needs, concerning training procedure and instructions for participants, but also revealed some sensitivity questions for the metrics described in the ISO-norm. In the present work, LCT standard measures as well as additional measures are compared in their diagnostic qualities. In a within-subject design, 25 well-trained participants completed the LCT procedure with four additional tasks in two difficulties each that were compared to baselines. Data is analyzed in the ISO-proposed "adaptive" model as well as in the "basic" model. Additionally to LCT and secondary tasks' performance, gaze behavior was recorded to support the interpretation of the data.

Supporting rational decision making by means of self-regulatory strategies

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We investigated if rational decision making in a Bayesian updating task can be supported by means of self-regulatory strategies from action psychology. Participants made a series of two-draw decisions in a posterior probability task (Charness & Levin, 2005), where optimizing under Bayesian updating conflicts with the rather automatic process of reinforcement learning. Some participants were furnished with goal intentions and implementation intentions (see Achtziger & Gollwitzer, 2008) in order to increase their performance in the task: One group resolved to analyze the decision feedback, thereby adopting a reflective mode of thinking. Others committed themselves to suppressing negative affective states caused by negative feedback. Results showed that, compared to the control group, both types of goal intentions and the implementation intention of analyzing the feedback significantly reduced participants' use of the non-optimal reinforcement heuristic. In contrast, the implementation intention to suppress negative emotions backfired and increased the rate of reinforcement errors.

The impact of a combined pedal solution on efficient electric driving and drivers' acceptance: A driving simulator study

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The feature of an electric vehicle enables to implement the electric brake on the accelerator pedal. Thus, releasing the accelerator pedal leads to regenerative braking. This offers possibilities to support efficient driving behaviour. A driving simulator study was conducted to investigate the impact of this combined pedal solution (CPS) on acceptance and energy consumption. 24 participants performed test drives in rural and urban environment with both, the CPS and a conventional pedal solution. With CPS participants drive more slowly, use less often the hydraulic brake and accelerate slighter. This behaviour leads to less energy consumption. Additionally, using the CPS results in higher ratings on acceptance and usability due to the comfort of managing most traffic situations with only one pedal. However, implementing such a pedal solution requires further examination especially with regard to safety issues.

Effective rotations: Action-effects determine the interplay of mental and manual rotations

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Previous research has reported a facilitation of mental rotations by an unrelated manual rotation. In three experiments, we extend this research in two fundamental ways. First, we show that not only manual rotations facilitate mental rotations, but that conversely, mental rotations have the power to facilitate subsequent manual rotations. Second, we target the underlying mechanisms of this interplay by employing salient visual effects that rotate either into the same or the opposite direction compared to the manual rotation itself. Crucially, the interplay of mental and manual rotations seems to be driven by the overlap between the cognitive process of mental rotation and the manual rotation's contingent effect - not the direction of the manual rotation. These findings highlight the importance of effect anticipation in action planning and support the contentions of ideomotor theory, while shedding new light on the cognitive source of the interplay of manual and mental rotations.

Developmental shift in predominance of spatial coding systems in two-year-old children

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Ego- and allocentric coding are two main ways to represent and transform the external world to allow successful navigation. In young children qualitative shifts in spatial coding between these frames of reference have been proposed, from an initial state of body-centered responding to a coding system that relates objectively to the environment, referred to as ego-to-allocentric shift. Using a novel Virtual-Reality paradigm with changing camera views we investigated spatial orientation abilities in two-year-olds. Children aged 30-months (N=23) and 35-months (N=22) performed above chance level on egocentric trials. Crucially, however, only 35-month-olds performed significantly above chance level when allocentric processing was required. These results reveal a critical transition period within a few months only, with 35-month-olds having overcome the predominance in use of the egocentric response system present in 30-month-olds, and successfully using optic flow visual cues for building accurate models of a 3D environment, necessary for orientation and navigation.

Enhanced audiovisual facilitation in emotional body-voice interaction: An fMRI study

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Voice and body expressions are essential aspects of emotional communication. Yet, their interplay has hardly been investigated. In an fMRI study, 17 participants saw short video clips depicting expressions of anger, fear, or non-emotional movements. These videos were shown either with or without matching vocal emotion expressions. Additionally, we presented vocal emotion expressions without visual information. In both unimodal conditions, increased activations for emotional compared to non-emotional stimuli were observed: in the left inferior frontal gyrus and the left anterior cingulate cortex for auditory stimuli and in the right fusiform gyrus, the right amygdala, and the right extrastriate body area for visual information. In the audiovisual condition however, stronger activations for non-emotional compared to emotional expressions were found in the superior temporal gyri and sulci. Our data suggest that predictive visual information, as presented in audiovisual stimulation, results in facilitation for emotional but not for neutral expressions.

Measuring the prevalence of questionable research practices with incentives for truth-telling

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Cases of clear scientific misconduct have received significant media attention recently, but less flagrant transgressions of research norms may be more prevalent and in the long run more damaging to the academic enterprise. We surveyed over 2,000 psychologists about their involvement in questionable research practices, using an anonymous elicitation format supplemented by incentives for honest reporting. The impact of incentives on admission rates was positive, and greater for practices that respondents judge to be less defensible. Using three different estimation methods, we find that the proportion of respondents that have engaged in these practices is surprisingly high relative to respondents' own estimates of these proportions. Some questionable practices may constitute the prevailing research norm.

Impact of task and movement complexity on movement preparation and execution in the elderly

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With advancing age, people's motor performance gets slower and more variable. Still it is not clear what the cause for this general slowing is. Our aim was to find out whether task complexity or motor complexity or both would have an impact on several processes of motor performance in the elderly. We used a classic bimanual aiming paradigm, which requires either symmetric or asymmetric aiming movements with both hands concurrently. Two categories of visual cues were used varying in their amount of translation into the related movement pattern. Our results show additional evidence for general slowing in the elderly. Additionally, the results provide evidence that task complexity has an impact on movement preparation and movement complexity on movement execution processes.

Scaling techniques can help to test quantitative emotion theories (I)

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Quantitative emotion theories seek to explain not only the quality but also the intensity of emotions. Testing such theories presupposes that emotion intensity can be reliably measured. We investigated to what extent an indirect scaling technique, based on paired comparisons, allows to measure emotion intensity more precisely than the typically used intensity judgments on rating

scales. Participants judged the intensity of disappointment and relief about unobtained lottery outcomes (Experiment 1), or the intensity of hope, fear, disappointment and relief in hypothetical scenarios (Experiment 2). The stimuli were systematically constructed to reflect factors expected to influence the intensity of these emotions. The results show that the indirect scaling technique indeed allows a more precise measurement of emotion intensity and thereby provides for a stronger test of quantitative emotion theories.

Effects of rhyme and melody on the acquisition of grammatical class information in an artificial language

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Children acquiring German as a second language often struggle with the German gender system. Indeed, monomorphemic German nouns possess only few reliable semantic or phonological cues about their gender. Instead, a noun's syntactic environment (definite determiners or other nominal inflectional morphemes), appears to provide the most valid cues towards the gender of a noun. Earlier artificial language studies have shown that such syntactic cues can best be extracted when the relevant cues are presented in a blocked fashion, displaying all cues pertaining to a noun in immediate succession. We investigated whether this effect can be enhanced by adding rhyming lines (rhyme condition), a melody (melody condition) or both (rhyme-&-melody condition) to the artificial language material. Participants in the rhyme-&-melody condition displayed significantly better learning results than participants who were trained without rhyme or melody (prose condition), while the overall improvements seen in the rhyme or melody condition were non-significant.

Comparing the effects of self-generated and cue-induced explicit expectations - an ERP study

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Expectations about future events allow preparing for action. The response to a given stimulus is faster if that stimulus was expected, and delayed when the expectation is violated. Explicit expectations can have internal (predictions) or external sources (cues). It is not clear yet if both types affect performance in similar ways, or if they differ qualitatively. Using a within-subjects design, we demonstrate that expectation effects are much larger when the expectations are internally generated as compared to externally cued. Our data suggest that expectation effects in response time are not due to immediate response preparation but rather influenced by premotoric processes. We discuss behavioral and EEG data with respect to similarities and differences of the

preparation processes triggered by predictions and cues, as well as implications on the use of cues in investigating expectation effects.

Der Einfluss von Stereopsis und Sound auf Motion Sickness

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Motion Sickness (Bewegungskrankheit, MS) ist nicht nur auf Reisen ein häufiges Phänomen, sondern kann auch während Simulatortrainings, Videospielen oder Kinobesuchen auftreten. Um den Einfluss von Stereopsis auf die Schwere von MS zu untersuchen, wurde in Experiment 1 das Video einer realen Achterbahnfahrt oder eine PC-Simulation derselben Strecke dargeboten. Jeweils die Hälfte der Probanden bekam das Video entweder in 3D oder 2D präsentiert. MS wurde dabei anhand des Simulator Sickness Questionnaire und der Fast Motion Sickness Scale gemessen. Es zeigten sich höhere MS-Werte bei der 3D-Präsentation des realen Achterbahnvideos, während sich die übrigen drei Gruppen nicht unterschieden. In Experiment 2 wurde das Video einer Fahrradtour gezeigt, wobei die Präsentationsart (3D vs. 2D) und das zusätzliche Einschalten der aufgezeichneten Hintergrundgeräusche (mit vs. ohne) variiert wurde. Stereopsis führte zu höheren MS-Werten, während die Hintergrundgeräusche keinen Einfluss hatten. Unsere Ergebnisse verdeutlichen potentielle negative Begleiterscheinungen stereoskopischen Videomaterials und legen einen behutsamen Umgang mit dieser Technologie nahe.

Automatic activation of attribute knowledge in heuristic inference from memory

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In memory-based decision making, people often rely on the take-the-best (TTB) heuristic, which stops memory search as soon as a good-enough decision can be made. However, it is unclear whether the retrieval processes associated with TTB indeed occur in a controlled and selective manner. In particular, such controlled retrieval is at odds with the usual finding in memory research that a stimulus leads to an automatic spread of activation to all information associated with it (fan effect). Here, we use this effect to examine the role of automatic activation when using TTB by systematically varying both the number of attributes required by TTB and the number of attributes associated with an object (i.e., fan level). The results show that decision performance depended on fan level, suggesting that memory-based decision making with TTB leads to an automatic activation of memory representations including even those attributes that are irrelevant for a decision.

Sub-cortical human face processing: Evidence from masked priming

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According to the midbrain hypothesis, human face processing in the absence of visual awareness depends on a subcortical route, the retino-collicular projection. This projection is sensitive to low but not high spatial frequencies. We tested this hypothesis with masked face primes that were spatially high-pass filtered, low-pass filtered, or unfiltered. Healthy participants were tested during visible target face gender discrimination for prime-target congruence. Male and female peripheral face primes were congruent or incongruent with the visible target faces, and masked and high-pass filtered or unfiltered in Exp. 1; masked and low-pass filtered or unfiltered in Exp. 2; and masked or unmasked and high-pass filtered in Exp. 3. In line with an awareness-independent face processing along the retino-collicular route, only (1) masked unfiltered, (2) masked low-pass filtered, and (3) unmasked high-pass filtered face primes produced congruence effects. Results are discussed in light of existing theories of unaware visual processing.

Effects of monetary incentives on task switching

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In two experiments, effects of incentives on task switching were investigated. In both experiments, the availability of a monetary bonus varied on a trial-to-trial basis. In Experiment 1, the association of incentives to individual tasks was fixed. Under these conditions, the effect of incentives was largely due to reward expectancy. Switch costs were reduced to statistical insignificance. This was true even with the task that was not associated with a bonus. In Experiment 2, there was a variable association of incentives to individual tasks. Under these conditions, the reward expectancy effect was bound to conditions with a well established bonus-task association. Otherwise, enhanced performance of the bonus task was accompanied by performance decrements with the task that was not associated with a bonus. Reward expectancy affected mainly the general level of performance.

Directed forgetting, testing, and context change reduce proactive interference through a reduction in search set size

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Proactive interference (PI) refers to the finding of impaired memory for recently studied (target) information that is caused by the prior study of other (non-target) information. The interference

is typically accompanied by higher response latencies at test, which supposedly reflects an increase in the size of subjects' mental search set. PI can be reduced in a number of ways, for instance, by directed forgetting of the prior non-target information, the testing of the prior non-target information before encoding of the target information, or an internal context change between study of the prior non-target and study of the subsequent target information. We report the results of experiments in which we demonstrate that all three forms of PI reduction are accompanied by a decrease in subjects' response latencies. PI reduction in these cases seems to induce a more focused search at test, effectively eliminating the non-target items from the search process.

Retrieving contextual information about familiar names: Neural correlates of person-related source memory

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Previous studies preferentially investigated source memory using wordlists, widely neglecting person-related stimuli. Therefore, the present study examined source memory using famous names as stimuli. During learning, presentation modality (auditory vs. visual) and the number of presentations of visual items (once versus three times) was manipulated. At test, all items were presented visually. As expected, participants were more accurate at judging the correct modality in the repeated as compared to both non-repeated conditions. Event-related potentials were analyzed and revealed more positive amplitudes for repeated (visual) as compared to non-repeated (visual and auditory) items from 500–600 ms at left temporo-parietal sites. This effect paralleled the pattern of behavioral results. An earlier ERP effect (300–600 ms) with more positive amplitudes for visual as compared to auditory items was detected at central sites, probably reflecting effects of long-term repetition priming. Future studies will investigate age-related changes in person-related source memory in elderly participants.

ABC versus QWERTZ: Interference from mismatching positions of letters in the alphabet and on the PC keyboard

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Letters have a position in the alphabet and a position on standard PC keyboards. The studies reported here, explored the consequences of incompatibility between spatial codes representing letter position in the alphabet and on the keyboard. We found that participants responded faster to letter dyads in an alphabetic order judgment task, when the letters' alphabetical order matched their left to right order on the keyboard. Moreover, letter dyads with compatible alphabetical and keyboard positions were more preferred than dyads with incompatible orders. Finally, compatible

dyads were typed more quickly than incompatible dyads. Altogether, these results suggest that the perception of letters concurrently activates two spatial representations. Incompatibility between these representations affects performance as well as affective evaluation.

"I can see your hear rate" - webcam based analysis of blood pulse associated shifts in skin colour for measuring heart rate

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The aim of this study is the development of a video-based heart rate detection system that enables a contact-free measurement of heart rate in laboratory studies, field studies, and daily life application contexts. The basic idea of this approach is that the reflected skin colour changes in accordance to factors as capillary diameter, which increases during each blood pulse. The greater the capillary diameter, the more green light will be absorbed by haemoglobin and the less green light can be reflected. This principle will be extended by blind source separation (Independent Component Analysis) and further signal processing effort (spectral analysis, sliding window, peak detection) in order to identify only pulse associated changes in light intensity. In an experimental setting ($N = 32$), webcam based videos (320x240 resolution, 15 frames per second, recording time 60 seconds) were recorded using ECG as reference values and showed a mean error of 4.2 bpm.

Can implicit motivation be measured? Incentive salience measures based on three IAT modifications

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According to recent neurobiological models, food choices are influenced by two reward systems: motivational wanting (incentive salience) and affective liking (hedonic pleasure), both with distinguishable conscious and unconscious components. The aim of this study was to develop and test implicit measures of wanting. Therefore, three IAT paradigms (conventional IAT, SB-IAT, IAT-RF) were modified and in a between-subject design ($N=184$) validated against explicit measures of wanting and liking and behavior (amount of candy eaten). Common difference scores were calculated and a latent-difference bifactor model was fitted to the data to obtain a more stringent psychometric representation. The IAT-RF had excellent psychometric characteristics, was highly predictive of behavior and showed strong convergent validity with explicit measures of wanting. Furthermore, its discriminant validity with respect to explicit measures of liking was extremely satisfactory. The conventional IAT was also strongly related to explicit measures but weakly related to behavior. The SB-IAT did not discriminate.

Being moved, being touched, being excited. Complex emotions through the lens of language

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The emotional states of being moved, being touched and the like have been seldomly addressed in the scientific study of emotions. Using a free association task we explored the connotative word fields of eight semantically related concepts. 610 native speakers of German were asked to list associations in response to one of these concepts presented as either Present Participle (e.g. moving) or Past Participle (e.g. moved), based on the distinction between stimulus vs. experiencer related meanings. We found significant and meaningful differences between the concepts as well as between Present and Past Participles. Independent ratings of the words as well as an MDS analysis based on the overlap-coefficients between the investigated concepts revealed regularities in the internal differentiation of the semantic-connotative field with respect to psychologically pertinent factors such as valence and arousal.

Counteracting the stimulus-response learning problem in repetition priming paradigms with multiple task changes

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Stimulus-response (S-R) learning has a known impact on repetition priming paradigms. It remains unclear how strong S-R learning hinders the priming effect. Using line drawings in a repetition paradigm with five cycles, we used in the first study alternating four task questions. Only in the fifth cycle targets were presented repetitively with one task (e.g., piano: 1. 'lower', 2. 'higher', 3. 'non-living', 4. 'living', 5. 'lower'; forced-choice response: 'yes-no'). In a second study only one task was used. Across both studies the reaction time and accuracy improved, but overall the accuracy was higher in the first study. Furthermore, no positive effect regarding a direct comparison of the repetitive question-stimulus pairing in the 5 run with the prior occurrence was found. We conclude that S-R learning indeed impacts the priming effect but by multiply changing tasks priming can still be detected with a subliminal repetition priming paradigm.

Implicit visual learning & the effect of selective attention

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The existence of implicit motor learning is widely accepted, while implicit perceptual learning is still debated – some studies report the latter, others do not. Reasons suggested in the literature primarily are attentional capacity and selective attention. In two experiments we investigated the effect of attentional capacity and selective attention on visual implicit learning. Results confirmed that participants were able to learn a pure visual sequence in a classical serial reaction time task with six different response alternatives. By manipulating the response device in both experiments, we also showed that, while attentional capacity doesn't affect either explicit or implicit processes, selective attention modulates explicit processes rather than implicit ones. This result is discussed with reference to the Unexpected-Event hypothesis.

Hemispheric asymmetries in explicit and implicit memory retrieval

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Visual stimuli are presumably represented as distinct exemplars in the right hemisphere (RH) but at the abstract category level in the left hemisphere (LH). The present ERP study examined whether these hemispheric asymmetries affect the perceptual specificity of implicit and explicit memory access. In an incidental study phase, visual objects were presented centrally at fixation. At test, participants performed either a direct or an indirect memory task on laterally presented new objects, identical study items and perceptually changed study items. In the direct task, reliable ERP old/new effects emerged for both types of old items with LH presentation. With RH presentation, however, only identical repetitions gave rise to old/new effects. In contrast, ERP repetition priming effects in the indirect task were solely elicited by identical repetitions, irrespective of presentation side. The data thus indicate that hemispheric asymmetries in perceptual specificity can differ as a function of retrieval task demands.

Temporal dynamics of hypothesis generation: The influences of serial order, data consistency, and response mode

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The pre-decisional process of hypothesis generation is a ubiquitous cognitive faculty that we continually employ in an effort to understand and explain our environment in order to support appropriate judgments and decisions. Although we are beginning to understand the

fundamental processes underlying hypothesis generation, little is known about how various temporal dynamics, inherent in real world generation tasks, influence the retrieval of hypotheses from long-term memory. This paper presents two experiments investigating three data acquisition dynamics in a simulated medical diagnosis task. The results indicate that the mere serial order of data, data consistency (with previously generated hypotheses), and mode or responding each influence the hypothesis generation process. An extension of the HyGene computational model (Thomas et al., 2008) will be explored in order to account for the present data as well as provide a model of hypothesis generation explicitly honoring temporal dynamics.

Differences in intentionality attributions - the riddle of the side-effect-effect

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The side-effect-effect (SEE) is a systematic asymmetry in people's intentionality judgments: People judge bad side effects as more intentional than good side effects (see Knobe, 2003). Although much effort has been invested in pinpointing the causes of the SEE, a complete explanation has yet to occur. We report two web experiments on the SEE in Germany. Experiment 1, using a large sample, failed to replicate the SEE, hence suggesting cultural differences. However, the used scenario differed in some points from the original Knobe scenario. Applying the Knobe scenario, Experiment 2 replicated the SEE in a German sample, refuting the cultural/language hypothesis. However, given that the scenario used in Experiment 1 was conceptually identical to the original Knobe scenario, our findings suggest that the SEE does not reflect a general asymmetry in intentionality judgments of side effects, but may be driven by specific properties of the scenario context (e.g., the status of the agent).

Eye movements during rapid automatized naming

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The rapid automatized naming (RAN) task is a valid predictor of reading development. It requires speeded naming of a small set of simple stimuli such as letters, arranged on a card. To examine the micro-structure of the RAN task, German and Chinese participants' eye movements were measured during RAN performance, using several formats: letters, digits, dice, and colors. In addition to strong format effects on fixation and naming durations, format also affected return sweep saccade metrics, with shorter return sweeps suggesting considerable parafoveal processing of easier material. Results from a gaze-contingent version of the task support this conclusion. Spatial (forward) eye-voice span (EVS) was determined for each voiced word as a measure of working memory buffer by calculating the distance from spoken to fixated item. Spatial EVS was smaller for colors than for digits in both languages, in agreement with higher automaticity of digit than color naming.

Selective attention in the cocktail party: Bilingual speech comprehension in dichotic listening

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The aim of this study was to examine auditory selective attention in language switching. To this end, we used a novel variant of dichotic selective listening and examined language comprehension. In our task, subjects had to respond selectively to one of two simultaneously presented auditory stimuli (number words in German and English), always spoken by a female speaker, by performing a numerical size categorization (smaller vs. larger than five). The language the subjects had to respond to could switch from trial to trial either unpredictably (i.e., cued; Experiment 1) or predictably (Experiment 2). We found clear performance costs with language switches as compared to language repetitions. Moreover, incongruent numerical categories in competing auditory stimuli produced interference and increased error rates, suggesting continued processing of task-irrelevant information.

Impact of LED-technology on comfort and emotion in long-haul flights - a webcam based measurement of facial expression

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The experience of comfort and positive emotions during a long haul flight depends on many factors. In addition to seats, cabin climate, vibrations, turbulences and external influences on the flight, light in the aircraft cabin plays another important role. The use of warm white LED (Light Emitting Diode) light might promote comfort and wellbeing for passengers (PAXs) on long-haul flights; This study compares currently used cabin lighting with new technology based on LED. In the context of three simulated long-haul flights (within-subject-design; 22.00 - 06.00 h; N = 32) comfort and emotion are measured by self-reports, observer ratings, and webcam based automatic facial expression analysis. The results show higher comfort and positive valence in the warm white LED condition.

Wirkung von Warnungen in kooperativen Verkehrsszenarien als Grundlage für Fahrermodellierung

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In der vorliegenden Studie wurde die Wirkung von Gefahrenwarnungsfunktionen auf den Fahrer in Bezug auf sein Reaktionsverhalten untersucht. Das Fahrverhalten von 63 Fahrern wurde dabei mit und ohne entwickelte Funktionalität beobachtet und analysiert. Es gab drei unterschiedliche Szenarien, die alle hintereinander durchfahren wurden, wobei jedem Fahrer jeweils zwei Szenarien ohne und ein Szenario mit Warnfunktion präsentiert wurden. Bei den Szenarien handelte es sich um ein Stauende-Szenario auf der Autobahn mit/ohne Stauendewarnung, sowie um ein städtisches Kreuzungs-Szenario und ein Landstraßenabbiege-Szenario jeweils mit/ohne Sondereinsatzfahrzeugwarnung. Während der Fahrten wurde dauerhaft eine visuelle Nebenaufgabe (SURT – surrogate reference task) bearbeitet. Als abhängige Variable wurden u.a. die Bremsreaktionszeit, die Fußumsetzzeit, der Abstand zum Stauende bzw. Kreuzungsbeginn zu Beginn der Bremsreaktion und bei Fahrzeugstillstand, sowie Bremspedal- und Lenkradwinkelverläufe betrachtet. Die Ergebnisse zeigen einen positiven Einfluss des Warntons auf das Reaktionsverhalten der Fahrer. Aus den Ergebnissen werden Fahrermodelle abgeleitet, die für Effektivitätsbetrachtungen verschiedener Funktionalitäten herangezogen werden können.

From recall to recognition: An extension of serial order in a box model

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Serial recall and recognition are usually studied separately. However, it is reasonable to assume that these two tasks have the same encoding process and representation in memory, due to the fact that they have a similar experimental structure and produce similar behavioral effects. In this study, the difference between these tasks is assumed to be the retrieval process (only). In order to verify this hypothesis, a successful serial order recall model, Serial-Order in a Box (SOB) (Farrell, 2006; Lewandowsky & Farrell, 2008), was extended to account for recognition. By keeping the encoding process and structure in SOB unchanged, we could model recognition performance by modifying only the retrieval process. This finding supports the hypothesis that serial recall and recognition have the same encoding process and representation.

False memories of action performance caused by imagination and observation:
The influence of visual overlap

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Imagining oneself as well as observing another person performing simple actions can lead to false memories of actually having performed these actions oneself. Two experiments were conducted to test whether these memory errors are dependent on the visual overlap of performance and imagination/ observation. In Experiment 1, participants performed or did not perform simple actions. Then, two groups imagined either themselves or another person performing some of these actions. Two different groups observed these actions either from a first- or a second-person-perspective. In Experiment 2, the same design was applied, but during action performance, people observed themselves from a second-person-perspective. The pattern of results was similar for both experiments: False memories of action performance tended to be more likely after having imagined oneself and after having observed from a second-person-perspective. Thus, visual overlap seems to play a subordinate role for both memory errors. An account invoking motor simulation is discussed.

How are expectations updated in the absence of feedback?

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Recent theoretical interest on experience-based judgments emphasises the role of the validity of the learning-environment as the determinant of the reliability of these intuitive judgments (Fiedler, 2000). In this study, participants ($N = 79$), playing radar-operators, made repeated decisions regarding the outcome of events on the basis of their experience with the given categories (spaceships). The role of selective outcome feedback was explored where the presence or absence of feedback determined whether the participants received valid or distorted impressions about the targets. According to the robust illusion-of-validity effect, people encode only the observed events while disregarding non-occurrences, and this positivist-encoding leads to invalid judgments. Our data supports more of a constructivist-model of encoding where the expected outcome is encoded if the feedback is absent. From our results we speculate that constructing expectations about objects can be a main factor in forming and sustaining false impressions such as erroneous stereotypes.

Action selection in voluntary task-switching

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Action selection can be externally controlled by stimuli or internally by goals and/or intentions. It was shown that the acquisition of task-effect associations only took place in an intention based experimental setting (e.g., Herwig & Waszak, 2009). However, there is also evidence for acquired task-effect associations, when the setting was rather stimulus based than intention based (Lukas, Philipp, & Koch, submitted). In the current study, we transferred the finding of acquired task-effect associations in a voluntary task-switching design, thus providing an intention based setting. We found eliminated switch costs with continuous task effects that happened as a consequence of the response. Furthermore, when the previously acquired task effects were used as primes, participants tended to perform the associated task. We conclude that task effects seem to support task selection and task execution.

Virtual reality vs. pictorial formats of product presentation in choice-based conjoint analysis – evaluating new concepts of luggage storage in short-haul passenger aircrafts

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Different formats of product representation may have an impact on respondents' preference judgments and the data credibility. To examine possible differences, concept presentation was realised in two visual formats, namely virtual reality (VR) and a pictorial format (PC). For evaluation, choice-based conjoint analysis was used. The concept of an innovative passenger aircraft cabin was specified on three attributes with varying attribute levels, (1) form of hand luggage storage, (2) seat pitch, and (3) ticket price. Two samples with 112 (VR) and 150 (PC) respondents participated in the studies. In general, VR and PC product representation lead to similar results regarding partworths and attribute importance. Results from internal validity suggest that the choice-model obtained from VR data is somewhat more robust compared to that of the PC data.

A comparison of two-dimensional signal detection models of Remember-Know Judgments

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Three two-dimensional signal detection models are compared using existing and new data sets on remember-know recognition judgments. Each model assumes a two dimensional decision space consisting of a recollection and a familiarity dimension. First is Wixted and Mickes' (2010) continuous dual process (CDP) model assuming that judgments are based on the sum of two independent continuous signals: recollection and familiarity. A second extended model additionally assumes violations of decisional separability, i.e., decision criteria on the dimension are dependent. Third is a hierarchical model assuming a sequential evaluation process with recollection evaluated first. If the decision variable exceeds the decision bound a "remember" response is provided. Otherwise the familiarity dimension is used for selecting a "know" or "new" response. The comparison of the models reveals a slight superiority of the CDP model assuming violations of decisional separability. However, the hierarchical model also provides a good fit of the data.

Investigating crossmodal priming effects: Congruent auditory word primes improve the detection of visual target objects

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We aimed to analyze causes for the Crossmodal Priming Effect, which we repeatedly found with auditory word primes/distractors and visual targets. Therefore, we used a signal detection approach to explore, whether object detection is facilitated by congruent words. A ringlike arrangement of eight different color objects was presented for 150 ms, either containing one out of four target colors (red, green, blue, and yellow) or including only filler colors. 100 ms prior to the target screen a non-informative spoken word lasting for 120 ms each (congruent, incongruent, neutral to the target color) or silence was presented via headphones. Subjects had to decide, whether one of the four targets was present or not. We received a significant main effect of semantic congruency. Congruent verbal color-cues improved target color detection in comparison with all other conditions. This confirms that congruent speech primes can automatically and crossmodally increase visual perception of objects.

Empirische Überprüfung des Schwellenmodells zur Erklärung der Shepardphänomene mit Hilfe eines kompletten Tonpaarvergleichs

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Shepardtöne zeichnen sich im Gegensatz zu musikalischen Tönen dadurch aus, dass Tonhöhenurteile typischerweise ambivalent und zirkulär sind. Wenn beispielsweise verschiedene Personen dasselbe Shepardtonpaar bezüglich der Tonhöhe beurteilen sollen, dann kann der Effekt eintreten, dass eine Person ein aufsteigendes eine andere Person ein absteigendes Tonpaar wahrnimmt. In der Untersuchung werden Vorhersagen des Schwellenmodells (Malek, 2011) empirisch überprüft: Das Schwellenmodell sagt vorher, dass Tonklasseneffekte bei allen Intervallen vorkommen. Je ähnlicher das Intervall dem Tritonusintervall ist, umso größer sollten die Tonklasseneffekte werden. Das Modell sagt weiter vorher, dass sich die sog. peak pitch class gegen den Uhrzeigersinn verschiebt, je größer die Distanz auf dem Tonklassenkreis ist. Es wurde ein kompletter Tonpaarvergleich mit sechs Shepardtönen mit acht Versuchspersonen durchgeführt. Die Vorhersagen des Schwellenmodells konnten weitgehend bestätigt werden. Dies ist ein Beleg für das Schwellenmodell.

Verhaltenseffekte des Trainings ungerechtigkeitssensibler Interpretationen

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Ungerechtigkeitssensibilität (US) als stabile Disposition ist ein Prädiktor für emotionale und behaviorale Reaktionen auf erlebte Ungerechtigkeit. Die Tendenz, mehrdeutige Situationen als ungerecht zu interpretieren, mediert diese Effekte. Zur experimentellen Überprüfung ($N = 97$) der Kausalität des Mediators wurde eine Trainingsmethode zur Induktion ungerechter Interpretationstendenzen entwickelt. Die Ergebnisse belegen die Wirksamkeit des Trainings und in einem darauffolgenden Trust-Game zeigt sich, dass die Kooperationsbereitschaft durch die induzierte ungerechte Interpretationstendenz gesenkt wird. Da Effekte von US auf Informationsverarbeitung insbesondere auftreten, wenn Ungerechtigkeitskonzepte zuvor situativ aktiviert wurden, soll der Trainingsprozedur in einer Folgestudie ($N = 80$) ein ungerechtes Priming vorgeschaltet werden. Erwartet wird, dass in der ungerechten Trainingsgruppe Personen mit niedriger US eine ungerechte Interpretationstendenz erwerben. In der neutralen Trainingsgruppe sollte diese nach dem ungerechten Priming nur bei Personen mit hoher US auftreten. Die Ergebnisse erlauben ein detaillierteres Verständnis sozial-kognitiver Prozesse, die Reaktionen auf Ungerechtigkeit bedingen und in US involviert sind.

Cognitive niches: An ecological model of strategy selection

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How do people select among different decision strategies? Across disciplines, the strategy selection problem represents a major challenge. We propose a model that predicts how selection emerges through the interplay among strategies, cognitive capacities, and the environment. This interplay carves out for each strategy a cognitive niche, that is, a limited number of situations in which the strategy can be applied. To illustrate our proposal, we consider selection in the context of the simple heuristics framework and the ACT-R architecture of cognition. From the heuristics framework, we adopt the thesis that people make decisions by selecting from a repertoire of simple strategies that exploit regularities in the environment and draw on cognitive capacities, such as memory. ACT-R provides a quantitative theory of how these capacities adapt to the environment. In 14 simulations and 10 experiments, we consider the choice between classic decision strategies.

Crossmodal transfer of arousal, but not pleasantness, from the musical to the visual domain

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Arousal and pleasantness are considered primary dimensions of emotion. However, the degree to which these dimensions interact in emotional processing across sensory modalities is poorly understood. We addressed this issue by applying a crossmodal priming paradigm in which musical primes (Romantic piano solo music) varying in arousal and/or pleasantness were paired with visual targets (IAPS pictures). In Experiment 1, the emotion spaces of primes and targets were explored separately. Experiment 2 investigated the effect of musical primes on felt arousal and pleasantness of subsequently presented visual targets in forty participants. Arousal associated with the musical primes modulated felt arousal in response to visual targets, yet no such transfer of pleasantness was observed between the two modalities. Experiment 3 confirmed that this finding was not due to any order effect of the subjective ratings. This study demonstrates the effectiveness of the crossmodal priming paradigm in basic research on musical emotions.

Goal-directed lie detection: The effect of lie and truth goals on the process and accuracy of credibility judgments

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Two studies investigated the effect of lie or truth goal-directed (i.e., the desire to disbelieve or believe a statement) processing on credibility judgments among pre- (Study 1) and in-service (Study 2) teachers. It was assumed that a goal-inconsistent (vs. consistent) cue would lead to a goal-directed systematic processing. Participants' goal (truth vs. lie goal) was manipulated experimentally. Then, a goal-inconsistent vs. consistent cue was presented, and participants judged the credibility of an ambiguous statement (Study 1) or of 8 videotaped statements (Study 2). Study 1 shows that participants who received an inconsistent cue processed the statement in a more biased or goal-directed systematic way than participants who received a consistent cue. Study 2 shows that participants' accuracy rate is higher after receiving an inconsistent cue. The results of both studies give an insight into the process underlying biased lie detection. Possibilities of reducing a bias are discussed.

Die Beeinflussung von Einstellungen mittels Implementation Intentions

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Ausgehend von der Annahme, dass Bewertungen von aktiven Assoziationen bestimmt werden und Implementation Intentions Assoziationen zwischen zwei mentalen Repräsentationen herstellen, untersuchten wir, ob es möglich ist mit Implementation Intentions Einstellungen zu verändern. In zwei Experimenten wurden neutrale Zielreize mittels Implementation Intentions mit einem negativen Szenario verknüpft und Bewertungen für die Zielreize (und Kontrollreize) erhoben. In Experiment 1 wiesen mit dem Szenario vertraute Versuchspersonen den erwarteten positiven Zusammenhang zwischen der Bewertung des Szenarios und Bewertungen der Zielreize auf. Je negativer das Szenario bewertet wurde, desto negativer wurden auch die Zielreize bewertet. In Experiment 2 wählten wir ein Szenario, das allen Versuchspersonen vertraut war und negativ bewertet wurde. Die Ergebnisse zeigten die erwartete negativere Bewertung der Zielreize im Vergleich zu Kontrollreizen. Die Ergebnisse sind im Einklang mit Theorien die Einstellungen als situative Konstruktionen verstehen und werden in Bezug auf ihren Nutzen zur Selbstregulation von Einstellungen diskutiert.

A dual-process perspective on overconfidence: The metacognitive advantage of rational thinkers

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We suggest that the thinking mode – rational vs. intuitive – that people use to make a judgment or solve a problem can influence their awareness of their own and others' performance, and that rational thinkers have a metacognitive advantage over intuitive thinkers: rational thinkers are aware of both the rational solution and the intuitive alternative, and realizing that the former is better than the latter, they are likely to be more accurate in how they assess their performance and that of others. Intuitive thinkers, on the other hand, are aware only of the intuitive solution, and whenever this solution is incorrect, they are unaware of how poor their performance was, and how low they rank in comparison to others. Several studies that produced evidence supporting this hypothesis will be presented.

Age differences in risky choice: The role of learning

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Do age differences in risky choice vary as a function of task characteristics, such as learning demands? We conducted a meta-analysis comparing younger and older adults' risky choice ($N = 4,093$). We found systematic age differences in decisions from experience, in which participants needed to learn about outcomes and probabilities from experience, but not in decisions from description, when outcomes and probabilities were conveniently summarized. Past studies (and consequently our meta-analysis) did not directly compare age groups on the same decision problems in both description and experience paradigms. To overcome this limitation we asked young and older adults to complete the same 12 problems in description and experience formats ($N = 120$; within-subjects). As expected, older adults' choices were more strongly affected by presentation format relative to young adults. In sum, our results suggest that learning requirements of decision tasks are a crucial determinant of age differences in risky choice.

Inference mechanisms for missing cue values: Adaptive usage of base-rates and discrimination-rates

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Real-world decision makers are often confronted with decision tasks involving incomplete information. It has been shown that people treat missing information as negative or positive

evidence dependent on the prevalent type of information in the environment taking into account information base-rates. We test a further powerful inference mechanism utilizing discrimination rates of cues. A cue with high (vs. low) discrimination rate makes more (vs. less) often different predictions for the options compared. Sixty participants were asked to choose the more profitable stock based on four binary cues with one cue value missing. Tasks were selected such that predicted choice patterns differed for various inference mechanisms and decision strategies. We manipulated the size of the base-rates and discrimination-rates within subjects. Based on participants' choices and a maximum-likelihood strategy classification, we can show that participants rely adaptively both on base-rates and discrimination-rates when inferring values of missing cue information.

Head movements as valid index of approach and withdrawal

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Emotion can be conceptualized in an affective-motivational space in which positive affect is associated with approach and negative affect with withdrawal (Bradley, & Lang, 2001). Various studies suggest that approach/withdrawal is best operationalized in terms of decrease/increase in distance between an object and the self (e.g. Seibt et al., 2007). Direct measurements of movements of the body itself (as "physical representative" of the self) corresponding to the evaluation of an emotional stimulus are lacking so far. In an oddball paradigm participants were shown IAPS pictures and counted either emotional (positivity vs. negativity) or non-emotional (horizontal vs. vertical bar integrated) cues while head movements on the pitch axis were continuously recorded. In the emotional evaluation context head movements were consistent with our prediction, while there were no head movements in the non-emotional context. We argue that head movements are a reliable and, importantly, a more direct indicator of one's affective state.

Giving and accepting a little help: Effects of norm priming on automatic behavior in narcissists and non-narcissists

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Participants ($N = 120$) were recruited for a study ostensibly assessing personality correlates of text comprehension abilities. After completing various personality scales (including the NPI 15), they read a short text reporting recent findings on high vs. low helping behavior rates in Germany vs. a control text. Subsequently, they were handed a mock text comprehension scale "unfortunately only available in English" containing three pseudo-words, thus putting them in need for help. As expected, participants primed with the "high help rates"-text consulted the dictionary and / or

experimenter more often than those primed with "low help rates". When collecting the questionnaire, the experimenter "incidentally" dropped a pen. As expected, participants helped her more often after a high than after a low help rates priming. Both effects only occurred among participants low in narcissism, narcissists seemed immune to normative priming. Effects of norm availability are discussed with regard to media responsibility.

Heads down! Irrelevant aspects of warning displays can influence drivers' response times

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In critical driving situations, fast and accurate responses are crucial. The present study investigated under which circumstances irrelevant aspects of an in-car warning display can influence drivers' response times. Participants monitored a visual display (simulating attentional demands while driving) while responding to a warning display via foot pedals (simulating a braking response). According to the effect of distractor-response binding, an ignored stimulus can retrieve the entire SR-episode in which it occurred before, including the response to the target of that episode (e.g., Frings, Rothermund, & Wentura, 2007). In line with this basic result, we found that the irrelevant aspects of the warning display could possibly interfere with responses to the visual display. Interestingly, this was only the case with head-up warning displays while head-down displays did not interfere with responding. Implications of these results for the design of in-car warning systems are discussed.

Schlafassoziierte Konsolidierung emotionaler Gedächtnisinhalte bei Kindern im Vergleich zu Erwachsenen

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Einleitung: Es gibt vermehrte Hinweise, dass Slow-Wave-Sleep (SWS) eine Rolle bei der Konsolidierung deklarativer Gedächtnisinhalte spielt. Besonders relevante Informationen werden im Schlaf in verstärktem Maße unterstützt. Es wird vermutet, dass der Schlaf bei Kindern im Vergleich zu Erwachsenen einen verstärkt förderlichen Einfluss auf emotionale Gedächtnisinhalte durch einen höheren Anteil an SWS hat. Methoden: 16 gesunde Kinder (11;1 Jahre) und 16 gesunde Erwachsene (24;4 Jahre) wurden in zwei experimentellen Sitzungen, einer Schlaf- und einer Wachbedingung, getestet. Während der Lernphasen wurden emotionale und neutrale Bilder zur Bewertung dargeboten. Nach einem Retentionsintervall von elf Stunden mit Schlaf oder Wachheit wurde mithilfe eines Alt/Neu-Rekognitionstest die Gedächtnisleistung getestet.

Ergebnisse/Diskussion: Die Gruppe der Erwachsenen Probanden konnte einen schlafassoziierten Gedächtniszuwachs zeigen, jedoch wurden emotional bedeutsame Stimuli nicht bevorzugt konsolidiert. Die Gruppe der Kinder zeigte hingegen einen deutlichen schlafassoziierten Zuwachs emotionaler Gedächtnisinhalte. Somit scheint die emotionsabhängige Gedächtnisbildung im Schlaf Reifungsprozessen zu unterliegen.

Mapping the structure of semantic memory

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The structure of a person's semantic memory may not be reflected by aggregate semantic networks from many individuals. The authors analyze the structure of semantic networks that they sampled from individuals through a new snowball sampling paradigm, during approximately six weeks of one-hour daily sessions. The semantic networks of individuals have a small-world structure, with short distances between words and high clustering. The distribution of links follows a power law truncated by an exponential cut-off, meaning that most words are poorly connected and a minority of words has a high, although bounded, number of connections. Existing aggregate networks mirror the link distributions of individuals, and so they are not scale-free, as has been previously assumed; still there are properties of individual structure that the aggregate networks do not reflect. A simulation of the new sampling process suggests that it can uncover the true structure of an individual's semantic memory.

Stereotypes as mental schemas: Implications and findings for stereotype activation

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Current research suggests that stereotype activation is context dependent (Casper & Rothermund, 2010; Casper, Rothermund & Wentura, 2011). Following this research we test the idea that stereotypes are organized in mental schemas, comprising category, context, and trait information. Thus, we expected that activation of any two components of a schema would yield activation of the associated third component, resulting in a processing advantage for this component.

In a lexical decision task concerning trait words, only priming of matching category word and context picture yielded reduced response times. A second study demonstrated that only priming of matching context picture and trait word yielded reduced response times for category words. Preliminary analyses of a third study suggest that only priming of matching category and trait words reduces response times for identifying context pictures. This supports the idea of

stereotypes as schemata whose activation rests on the activation of a sufficient number of components.

Distance and moral obligations: The role of the location of means

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Many people believe that moral obligations decrease with increasing distance between potential helpers and victims. In the present studies we kept distance between agents and victims constant but manipulated the distance between the means of help and the victims. For example, our subjects were informed about the plight of sick children in Kenya, and then asked to indicate how strongly they feel obligated to donate money. We found that subjects felt more strongly obligated to help if their money (i.e., their means of helping) was already located on a bank account in Kenya (i.e., close to the victims) as opposed to a bank account in Germany (i.e., far from the victims). This effect was independent of manipulations of social involvement with Kenya, and it disappeared in a joint-evaluation paradigm. We will discuss potential boundary conditions for this effect, including ownership, efficaciousness, and stationarity of the items serving as means.

Retest-Reliabilität in Reaktionszeitexperimenten: Nichtparametrische und parametrische Maße, Parameter der Verteilungsform und des Diffusionsmodells

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Mathematische Modelle wie das Diffusionsmodell, die Fehler und Reaktionszeitverteilungen vorhersagen liefern neue, aber auch sparsame und präzise Erklärungen für die zugrunde liegenden Prozesse. Die vorliegende Arbeit versucht durch den Nachweis der Reliabilität solcher Modellparameter den potentiellen Anwenderkreis für diese Modelle zu vergrößern. Die relevanten Parameter des Diffusionsmodells werden dabei mit nicht-parametrischen (Median, Spanne) und parametrischen (arithmetisches Mittel, Standardabweichung) Maßen verglichen, sowie mit Parametern einer ad-hoc Modellierung der Reaktionszeitverteilung als ex-Gauss-Verteilung.

Beyond driver warnings - possibilities and limits of early driver information systems for collision avoidance based on wireless communication technology

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In addition to imminent crash warnings, future communication technologies (e.g. C2x-communication) provide the possibility of early information about hazardous situations. Effects of such information systems will presumably depend on the timing of their presentation as well as context specific driver expectations. Using a fixed-based driving simulator, $n = 12$ participants encountered different urban driving situations of varying predictability ("unpredictable", e.g. crossing pedestrian suddenly appearing between parked vehicles vs. "predictable", e.g. cyclist traversing an intersection on a cycle path) developed on the basis of an in-depth accident study. Information about oncoming conflicts was provided via head-up-display accompanied by an unobtrusive acoustic signal. The information was displayed between 1 and 5 seconds before the latest possible braking onset. Drivers preferred information between 3-4 seconds before braking was imminent, whereas effects on actual braking behaviour depended on the predictability of the driving situation.

Transfereffekte und wortartenabhängige Verbesserung von fremdsprachlichem Textverständnis - eine Eye-tracking Studie

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Zyzik (2009) zeigte, dass sich bislang nur wenige empirische Studien mit dem Einsatz von Wortarten hinsichtlich des Transfereffektes von der Muttersprache (L1) zur Zweitsprache (L2) befasst haben. Furtner, Rauthmann und Sachse (2009) konnten belegen, dass Nomen (in der Rangfolge vor Adjektiven, Verben und Nebenwortarten) beim Lesen eines deutschsprachigen Textes ("jumbled word reading"-Technik) am häufigsten zur Verbesserung eines anderen schwierig verständlichen Wortes herangezogen wurden. In der vorliegenden Studie wurde geprüft, ob sich Ähnlichkeiten hinsichtlich der Bedeutsamkeit von Wortarten bei einem englischen Text (L2) zeigen. 141 Versuchspersonen wurde ein englischsprachiger Text (mit "verdrehen" Buchstaben) präsentiert und mittels der Erfassung von Blickbewegungen analysiert. Die Ergebnisse zeigen, dass Nomen (vor Adjektiven, Verben und Nebenwortarten) wiederum die bedeutsamste Wortart zur Verbesserung von schwierig verständlichen Wörtern darstellen. Demnach lässt sich ein Transfereffekt von L1 zu L2 bestätigen. Die Ergebnisse werden bezüglich ihrer theoretischen und praktischen Relevanz diskutiert.

Manipulating basking in reflected glory and cutting of reflected failure

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Basking in Reflected Glory (BIRG) and Cutting of Reflected Failure (CORF) are very prominent social psychological effects. Many field studies have shown that individuals tend to BIRG after a victory of a team they associate themselves with, whereas they tend to CORF after a defeat (Cialdini et al. 1976; Snyder, Lassegard, & Ford, 1986). Some researchers have pointed out the importance of the extent of identification (Wann, Hamlet, Wilson & Hodges, 1995), whereas others examined the underlying emotions of BIRG and effects on self-confidence (Bizman & Yinon, 2002). However, these effects have not yet been investigated in an experiment with completely randomized assignment to the groups. We found BIRG and CORF in two experiments: Participants were presented with (Experiment 1) or imagined (Experiment 2) a victory (vs. defeat) of their in-group's sports team and indicated the amount of BIRG and CORF. Moderators underlying the phenomena and implications are discussed.

Hindsight Bias 2.0 - Der Rückschaufehler in Wikipedia

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Die Mehrheit der Studien zum Rückschaufehler verwendet Einzelpersonen als Untersuchungseinheit; vereinzelt wurde versucht, ihn auf der Gruppenebene nachzuweisen. Die vorliegende Studie untersucht, ob sich das Rückschaufehlerphänomen auch in Wikipedia – der Online-Enzyklopädie, in der beliebig viele Personen die Artikel bearbeiten können und die deshalb aus der (Massen-)Kollaboration von Einzelpersonen entstehen – findet. Dazu wurden Artikel zu Ereignissen ausgewählt, die bereits vor dem Eintreten des Ereignisses existierten. Diese Artikel wurden im Hinblick auf das Auftreten eines Rückschaufehlers hin analysiert. Darüber hinaus wurde – in Anlehnung an das Komponentenmodell des Rückschaufehlers (Blank, Nestler, von Collani, & Fischer, 2008) – kodiert, ob es sich dabei um gesteigerte Eindrücke der Vorhersehbarkeit oder Zwangsläufigkeit handelt. Schließlich analysierten wir die kausalen Modelle (z.B. Anzahl der Ursachen; vgl. Nestler, Blank, & von Collani, 2008), die zur Erklärung des Ereignisausgangs angeführt werden. Die Ergebnisse werden im Lichte aktueller Theorien diskutiert.

The 9-dot problem difficulty: New hints

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The 9-dot problem often stands *pars pro toto* for insight problems. Basically, there are two cognitive accounts that try to explain the difficulty of the 9-dot problem. The first, emphasizes the importance of heuristics (MacGregor et al. 2001), the second the necessity of a representational change (Kershaw et al. 2004). In two experiments (N=170) we probed the two accounts. First, we introduced the postulated heuristics, and found that participants actually increased their maximization behavior, but did not perform better than a control group. Second, we systematically increased the perceptual information that activates the required goal representation. We found that the particular Gestalt and the combination with the required non-dot extensions increased the solution rate significantly. We provide a multi-step model that underline the importance of heuristics before and after a representational change, and the integration of the needed perceptual information as the pre-condition for a representational change.

How causal models influence information search

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Most real-world inference tasks involve information search. We investigate the relation between people's causal beliefs and their search behavior in real-world inference tasks. A first study shows that the structure of people's subjective causal models of depression, as represented by a network of causal relationships between cues, influences the order in which they search cues when diagnosing fictitious patients. A second study asks people to estimate child mortality rates in countries from around the world. The aim of this second study is to examine whether the structure of people's causal models influences the order in which they search cues, above and beyond the natural correlations found between the cues (e.g., HIV prevalence, GDP) and mortality rates, according to the datasets of UNICEF, the World Bank, and CIA. The results show how people, in the absence of precise knowledge of these correlations, may exploit their causal knowledge when searching for information.

Threatening joy: Approach and avoidance behaviors to emotions are influenced by the group membership of the expresser

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It has been argued that behavioral reactions to emotional faces are triggered by the intention signaled by the emotion. This arguing suggests an invariable link between emotional expression and behavioral reaction. However, we suggest that behavioral reactions to emotional expressions are much more flexible: Since they depict adaptive reactions to the intention they should be influenced by situational and social factors, i.e., the group membership of expresser and perceiver. Depending on this relationship, the same emotional expression signals a differently evaluated intention and can therefore trigger divergent behaviors. We demonstrate that approach and avoidance movements to happy and fearful facial expressions depend on the group membership of expressers: Emotions expressed by in-group members elicited concordant behavior in participants whereas emotions expressed by out-group members activated the reversed pattern. These results occurred even though group membership (Experiment 1 and Experiment 3) and group membership and emotional expression (Experiment 2) were task-irrelevant.

The eyes have it - gaze perception and the eye direction aftereffect

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To know where other people are looking is of considerable importance in a variety of situations. The human visual system performs exceptionally well at determining the gaze direction of other people, particularly when it needs to distinguish between being looked at as opposed to being out of the focus of others' gaze. A series of experiments explored the temporal and contextual dynamics of the emergence, preservation, and extinction of gaze adaption within the eye direction aftereffect paradigm (EDEA). We varied timing characteristics, the number and gaze direction of adaptation stimuli, and feedback conditions. Results show that the EDEA is fast-emerging, robust across a wide range of timings as well as contextual factors like facial identity and feedback, but depends strongly on the stability of adaption direction across a sequence of trials. We argue that the EDEA rests on two distinct mechanisms, one being lower-level neural adaptation; the other involves higher cognitive processes.

Oculomotor inhibition of emotional distractors: Evidence from saccadic curvatures

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Emotional stimuli have been repeatedly found to influence attention. However, little is known whether low-level attentional mechanisms are also modulated by emotional information. In two experiments, we asked participants to make upwards and downwards saccades toward a target, while an emotional distractor face (angry, happy, or neutral) appeared in one of the four screen quadrants. In both experiments, saccadic trajectories curved most strongly away from the angry faces. This effect occurred with upright faces but not with inverted faces thereby ruling out the possibility of differences in perceptual processing. In accordance with the literature on the anger-superiority effect, we assume that angry faces produced stronger activation, which in turn required stronger inhibition resulting in greater curvature away. In addition, the emotion effect was restricted to targets that appeared in the lower visual field. This modulation by visual hemifield might indicate functional differences between the upper and lower visual field.

I see, I remember? The role of data-legend compatibility in graph comprehension

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In daily as well as in scientific life, we often see, memorize, and judge graphs. One important precondition for efficiently understanding and memorizing graphs is the integration of all relevant graph elements and their meaning. In the present study, we analyzed graph comprehension by manipulating the spatial compatibility between elements in the data region and the legend (i.e., data-legend compatibility). In two experiments, participants judged whether line graphs correspond to previously presented statements. In Experiment 3, participants memorized line graphs for a subsequent validation task. The results indicated that data-legend compatibility reduced the time needed to understand graphs as well as the time needed to retrieve relevant graph information from memory. These advantages went hand in hand with a decrease of gaze transitions between the data region and the legend, indicating that data-legend compatibility decreases the difficulty of integration processes.

How groups can act (more) Bayesian without having any Bayesians

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We tested the effectiveness of judgment aggregation (Herzog & Hertwig, 2010) in bayesian reasoning tasks by simulating the performance of combinations of individually biased intuitive strategies that have been used by human subjects in past studies. We modeled judgments in medical (low base rate, high hit-rate, low false-alarm rate) and in unrestricted environments. Our simulations show that blending two biased strategies can either improve or hurt performance in unrestricted environments, depending on the original strategy being considered. In medical environments, every strategy benefits on average by blending with another randomly selected strategy. As expected, gains are greatest to the extent that strategies being averaged are uncorrelated. We are currently in the process of collecting human estimation data to test predictions from our computational analysis. Our goal is to induce multiple strategy use by individual subjects using the "consider-the-opposite" technique. We will subsequently measure averaging gains within individuals.

Intertrial and intratrial interference in dual tasks: Evidence from saccades and manual responses

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The simultaneous execution of two actions usually causes performance costs. While most studies and theory concentrated on explaining dual-task costs by referring to interference within a single experimental trial (intratrial interference), the present study investigates the role of contextual effects, i.e. interference between consecutive trials (intertrial interference). Participants responded to a single auditory stimulus with a saccade, a manual response or both. To study intertrial interference, we compared dual-task costs of pure blocks (containing stimuli on one side only) with mixed blocks (containing stimuli on both sides), whereas intratrial interference was manipulated by utilizing compatible and incompatible responses. Reaction times indicated that intertrial interference influenced dual-task costs only when a certain amount of intratrial interference was present. Theoretical implications for the concept of crosstalk will be discussed.

Better not to deal with two tasks at the same time when stressed? Acute psychosocial stress reduces task shielding in dual-task performance

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A major control demand in successful dual-task performance is the task-specific separation of task-goal representations and according stimulus-response translation-processes. In the present study, we investigated the effect of acute psychosocial stress on these cognitive control processes of task shielding. Fifty-six healthy participants were exposed to either an acute psychosocial stressor (Trier Social Stress Test) or a standardised control situation prior to a dual task. Task shielding was assessed analysing the interference of Task 2 processing on prioritised Task 1 performance. Following successful stress induction (indicated by an increase in salivary α -amylase and cortisol), stressed individuals compared to controls displayed reduced task shielding. A correlation between treatment-related cortisol increase and between-task interference suggests a potential role of the hypothalamus-pituitary-adrenal stress response for the development of the observed effects. Results further indicate that the nature of the stress effect on cognitive control may depend on available resources within the given task context.

Schlaf fördert prozedurales Gedächtnis bei Erwachsenen aber nicht bei Kindern

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Der Schlaf fördert die Konsolidierung prozeduraler Gedächtnisleistungen bei Erwachsenen, jedoch nicht bei Kindern. Dieser Befund wird auf einen vermehrten Anteil an Deltaschlaf bei Kindern zurückgeführt. Ziel der Studie war es zu überprüfen, ob sich dieser Befund mit kindgerechtem Stimulusmaterial replizieren lässt. 16 Kinder (9-12Jahre) und 16 Erwachsene (20-28 Jahre) nahmen an zwei Terminen teil: Während in der Schlafbedingung eine Sequenz vor dem Nachtschlaf gelernt wurde und der Abruf nach dem Nachtschlaf erfolgte, lernten die Teilnehmer in der Wachbedingung morgens und der Abruf erfolgte am folgenden Abend. Die Sequenzen wurden mittels nacheinander aufleuchtenden Tasten präsentiert, welche mit der Faust gedrückt werden mussten. Polysomnographische Daten bestätigten bei Kindern im Vergleich zu Erwachsenen einen erhöhten Anteil an Deltaschlaf. Erwachsene begangen in der Abrufbedingung nach dem Schlaf weniger Fehler beim Tastendrücken als nach der Wachbedingung. Kinder profitierten hingegen vom Schlaf nicht. Diese Daten bestätigen vorherige Befunde zur ontogenetisch beeinflussten Konsolidierung prozeduraler Gedächtnisleistungen im Schlaf.

Imitation learning in decision from experience

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Human decision-making most often takes place in social contexts, where people can improve their decisions by imitating the behavior of others. I examine imitation learning through decisions-from-experience, where people have to learn to choose the best of four options. In a modification of the n-armed bandit paradigm, the participants do not only see the outcomes of their choices but also the choices of other participants. Modeling this form of learning, we expect that behavior of others additionally reinforces choices, as such that an option will be chosen more often if others also chose it. The results of the study support these assumptions and show that imitation can help to improve learning in decision-from-experience.

Spatial memory and the amazing accuracy of long range regressions in reading

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Our work aimed to reconcile two conflicting positions on spatial memory and the precision of regressive saccades back to previously fixated words. Kennedy et al. (2003) suggested high precision based on spatial coding, while Inhoff & Weger (2005) proposed a less accurate mechanism based on current visual and linguistic information. We compared regressions with near vs. far launch distances and sought to clarify which type of information is used in their programming. Eye movement contingent display manipulations were used to shift lines of text before regressions were executed; allowing to determine to what extent their amplitude is based on spatial memory. Results indicated that readers used different regression strategies based on available information, a single shoot strategy vs. a backward scanning routine with multiple intervening fixations. In the absence of linguistic uncertainty with respect to the target, long range regressions can be extremely accurate, suggesting precise coding in spatial memory.

Effects of symptom order in diagnostic reasoning

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While processing sequentially observed symptoms in diagnostic reasoning, ambiguous symptom sets are particularly challenging because multiple candidate hypotheses have to be narrowed down to arrive at a final diagnosis. In a series of experiments, ambiguous symptom sets were presented in quasi-medical problems requiring end-of-sequence or step-by-step responses. In

end-of-sequence tasks, participants were biased towards the initial hypothesis induced by early symptoms even though an alternative hypothesis was equally supported. Step-by-step responses, in contrast, increased the awareness for alternative diagnostic hypotheses. Especially in end-of-sequence tasks, symptom processing seemed akin to comprehension as detailed in construction-integration theory. Considering multiple hypotheses concurrently requires parallel belief updating. We examine whether the belief adjustment model addressing updating of a single belief can be extended to account for the observed order effects in the parallel updating of multiple beliefs.

When my group makes me look bad: Self-focus and shame for ingroup wrongdoing

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The paper provides evidence for the assumption that mere self-focus can increase image shame – a group-based emotion reflecting a concern about how one's in-group is viewed by others – and, consequently, leads to less pro-social reactions to reminders of in-group wrongdoing. German participants focusing on their individual reactions while reading an article about the deaths of innocent civilians because of the German involvement in the war in Afghanistan (self-focus condition) ironically reported more image shame than participants focusing on the implications the incident may have for Germany's reputation (group-focus condition). Image shame, in turn, was negatively predictive of support for reparations to the relatives of the victims. Path analyses revealed a significant indirect effect of the group- vs. Self-focus manipulation on reparation support through image shame. Results are discussed in light of their potential implications regarding the collective remembrance of in-group wrongdoing.

Are processes of visual attention and response selection subjected to the same capacity limitation?

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Visual attention and response selection are capacity-limited processes. Whether they underlie the same or different capacity limitations is an open issue investigated by conducting dual-tasks of the Psychological-Refractory-Period (PRP) type in the present study. Discrimination and conjunction search tasks chosen as first and second tasks were presented with variable intervals. Attentional demands of conjunction search increased the more items were shown and a task-relevant target being absent vs. present. If search was performed serially to the first task, similar capacity limitations were assumed, whereas different capacity limitations were revealed, if search was carried out in parallel to task one. Geometric form discrimination as first task exclusively allowed for parallel search when a target was present, while all search conditions were performed

in parallel when tone discrimination preceded search. The parallel processing of conjunction search hence supported the assumption that capacity limitations of visual attention and response selection can indeed differ.

Scaling techniques can help to test quantitative emotion theories (II)

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Quantitative emotion theories seek to explain not only the quality but also the intensity of emotions. Testing such theories presupposes that emotion intensity can be reliably measured. We investigated to what extent an indirect scaling technique, based on paired comparisons, allows to measure emotion intensity more precisely than the typically used intensity judgments on rating scales. Participants judged the intensity of disgust evoked by pictures. The stimuli were systematically constructed to reflect factors expected to influence disgust intensity. The results show that the indirect scaling technique indeed allows a more precise measurement of emotion intensity and thereby provides for a stronger test of quantitative emotion theories.

Effects and non-effects of processing fluency

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Processing fluency (the subjective experience of ease with which individuals process information) is conceived as a meta-cognitive cue that may pervasively alter individuals' cognition and behavior (Alter & Oppenheimer, 2009). Researchers have manipulated fluency using a multitude of different techniques (e.g. priming, facial feedback or legibility of stimuli). Despite the diversity of manipulations, the observed fluency effects are assumed to share a common meta-cognitive mechanism. However, thus far some of the more surprising fluency effects (e.g. the influence of degraded font on psychological distance) have been demonstrated only in single studies with very limited sample size. In a series of experiments we conducted exact replications of such studies and introduced new control conditions to investigate possible confounding factors. Whereas some of the earlier findings could not be replicated, others were stable but apparently not brought about by a meta-cognitive process. Methodological and theoretical implications of these contradictory findings are discussed.

Unconscious semantic priming and cognitive control: Can unconsciously activated semantic categories trigger inhibition processes?

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We conducted two experiments that used the subliminal priming paradigm in conjunction with a single choice no-go task to investigate if inhibition processes can be triggered by unconscious semantic activation. Words from three semantic categories – animals, tools, and plants – functioned as prime and target stimuli. Participants were instructed to respond to target words of two categories, and not to respond to target words of the third category. The no-go category was either varied between participants (Experiment 1), or varied blockwise within participants (Experiment 2). In both experiments, responses were slower when the prime belonged to the no-go category than when it belonged to a go-category, indicating that subliminal primes inhibited responding. Additionally, in Experiment 2, responses after prime-target-pairs of the same go-category were faster than responses after prime-target-pairs of different go-categories. As both go-categories afforded the same response, this suggests the primes worked on a semantic level beyond response priming.

Seductive details and attention distraction – an eyetracker experiment

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Seductive details are interesting but irrelevant details, which are not necessary to achieve the instructional objective. The seductive detail effect arises when people learn less deeply with these details, rather than without. The four explanations for this effect concern an overload of the working memory, schema interference, coherence disruption as well as attention distraction. The present experiment tested the attention distraction explanation. Students ($N = 55$) used an introductory text to learn fundamental concepts about factor analysis and then took a retention and transfer test as dependent measures. Each learner was randomly assigned to one cell of a 2 (with or without seductive text passages) \times 2 (with or without seductive illustrations) between subjects factorial design. Seductive text passages and seductive illustrations impaired learners' transfer performance. Learners' antisaccadic task performance moderated this effect for seductive text passages. Therefore, the attention distraction explanation is partially supported by the present eyetracker experiment.

The bivalency effect: Evidence for episodic context binding in task switching

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When bivalent stimuli (i.e., stimuli with features relevant to two tasks) appear occasionally, performance is slowed on subsequent univalent stimuli. This "bivalency effect" may result from an episodic binding with the more demanding context created by bivalent stimuli. However, an orienting response caused by the infrequency of bivalent stimuli might also contribute. In Experiment 1, we assessed the orienting response account by comparing the impact of univalent infrequent stimuli with the impact of bivalent infrequent stimuli (the bivalency effect). The results showed a short-lived impact for univalent infrequent stimuli, but a long-lasting bivalency effect. Thus, an orienting response cannot explain the bivalency effect. In Experiment 2, we tested the episodic context binding account. Given that amnesic patients have a deficit in episodic binding, we hypothesized that they would show no bivalency effect. The results were consistent with this hypothesis. Therefore, episodic context binding, not orienting response, causes the bivalency effect.

Energy investment in an isometric hand grip task: Evidence for the energy conservation principle

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Motivational intensity theory builds on the prediction that effort is governed by an energy conservation principle. Two studies aimed to provide a direct test of this basic prediction by assessing energy investment in an isometric hand grip task. Grip force in such a task is proportional to the amount of invested adenosine triphosphate (ATP)-the body's energy currency-and thus constitutes a direct measure of energy investment. In each trial of the task, participants ($N_1=75$, $N_2=49$) could earn a monetary reward by exceeding a fixed force standard. Participants were either randomly assigned to one of four force standards in a between-persons design (Study 1) or they performed all four difficulty levels in a within-persons design (Study 2). As predicted, exerted grip force-and thus energy investment-increased with increasing task difficulty. These results extend the literature on motivational intensity theory by demonstrating for the first time that energy investment follows the conservation principle.

AKAP5 and the genetics of anger and aggressive behaviour – just a new piece of the puzzle

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Background: Human aggression shows considerable interindividual variability. Functional neuroimaging studies have demonstrated that genetic variants linked to aggression and anger are associated with altered neuronal activation patterns (Buckholtz and Meyer-Lindenberg, 2008). Here, we report an association of human anger and aggression with a genetic polymorphism (Pro100Leu) in the gene encoding A-kinase-anchoring protein AKAP5. **Methods:** In different functional magnetic resonance imaging (fMRI) experiments (i.e. emotional flanker, emotional n-back) we could demonstrate that AKAP5 Pro100Leu modulates the interaction of negative emotional processing and executive functions. Currently we are analyzing functional data from an fMRI version of the Taylor Aggression Paradigm in order to examine possible AKAP5-related differences in physical aggression. Data analyses were performed using SPM8 and SPSS. **Results:** Our results suggest that AKAP5 Pro100Leu is associated with human aggression and anger, with the Leu allele conferring a less aggressive phenotype, possibly due to stronger cognitive control of negative emotions.

Imagery of errors in typing: Influences of correction instruction and feedback

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Duration differences between imagined and executed typing are partly explained by errors and error corrections occurring during executed typing. In the present experiment participants were instructed to imagine errors, and performed typing in three action conditions (imagination, execution without visual feedback, execution with visual feedback), and in two correction conditions (correct errors, do not correct errors). Errors and error corrections were correlated with execution minus imagination differences when participants were instructed to correct errors, but not when they were instructed not to correct errors. The correlations were unaffected by visual feedback. Reports indicated that errors related to typing execution occur less often during imagination than during execution. Thus, even when attention is drawn to the occurrence of errors, only some are imagined. This may be due to forward models not predicting all aspects of an action, imprecise forward models, or a neglect of monitoring error signals during motor imagery.

Investigating the time course of parafoveal processing in the perceptual span during reading

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In reading, the perceptual span on each fixation is larger than the word that is currently looked at. In fact, useful preview of word $n+1$ to the right of fixation leads to substantial benefit when the word is finally fixated. While this suggests a late effect of parafoveal processing on eye-movement control, there is also evidence for immediate parafoveal-on-foveal (PoF) effects. However, such evidence is strongly contested. Using a gaze-contingent preview manipulation in the boundary paradigm (Rayner, 1975), we orthogonally varied the processing difficulty of word $n+1$ before and after the boundary. This allowed investigating the time course of parafoveal processing by tracking PoF influences across the entire perceptual span. The results suggest that a reliable portion of the $n+1$ preview benefit is due to delayed PoF effects from word n . Such delays are consistent with the view of relatively processing-independent eye-movements, only indirectly controlled by means of processing difficulties.

The emotion "misattribution" procedure: Processing beyond affect under unconscious presentation conditions

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Many studies using priming paradigms could show that the valence of stimuli is already processed unconsciously, allowing individuals to differentiate positive from negative emotions. It has been assumed that, under very short and masked presentation conditions, only a coarse discrimination of valence can take place. However, recent empirical evidence (Rohr, Degner & Wentura, 2011) suggests that processing beyond valence can already take place very early. To further investigate this issue, we developed a new paradigm with reference to the Affect Misattribution Procedure. Participants had to categorize a shortly (100 ms) presented and masked, neutral face with regard to the supposedly displayed emotion category (joy, fear, anger, sadness). Preceding this face, a masked emotional face appeared (24 ms). First results show that the categorization of the neutral face is influenced by the specific emotion displayed by the prime, while participants were subjectively and objectively unaware of its presentation.

Children and adults generating cues: When ignorance pays

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On which cues are people basing their inferences, when they are not constrained in their search for information? We will present results from two studies involving fourth and fifth grade children and adults: In the first study participants freely generate cues for 12 different tasks; in the second study another sample of participants makes the actual inferences, by choosing among a selection of the cues generated in the first study. We expect people to rely on technical cues (i.e., domain specific cues, that are generated in few environments), assuming that they are more valid than other cues. We also expect that adults produce more technical cues, whereas children produce more general cues, applicable to more environments. Because there are environments where technical cues are less valid than general cues, we hypothesize that children perform better than adults in those environments, due to their ignorance of technical cues.

Adaptation-level theory – sixtyfive years later

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The so-called "adaptation level" (AL) is the central concept of Harry Helson's past and current context-effect theory in psychophysics (Helson, 1947). According to this mathematical approach, the AL is conceived as a neutral stimulus value which elicits a psychological "zero" response in human beings and animals (e.g., neither "strong" nor "weak" reaction). In its general model, the relational character of psychophysical responses is expressed by several mathematical equations. How did this well-known AL theory work during the last decades; and was it successful as a predictive model of perceptual behavior? In the paper, the pro and con arguments of AL theory are reviewed and discussed from a strict conceptual and experimental point of view. It is concluded that Helson's approach has been fruitful in at least some subfields of perceptual research, whereas it failed in others (e.g., Thomas, 1993; Sarris, 2006, 2010).

Your mind wanders weakly, your mind wanders deeply: Objective measures reveal mindless reading at different levels

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Mind wandering during reading impairs successful text comprehension. It is typically seen as an all-or-none phenomenon (dichotomy-hypothesis). Here, we propose the continuum-hypothesis

postulating varying degrees of mind wandering. Mind wandering is often measured using self-reports; here, we present behavioral measures. We investigate different levels of mindless reading based on psychophysics of error detection. We found that if deeper processing was required for detecting an error in the text, subjects were less likely to notice the error. Eye tracking revealed reduced effects of linguistic variables before errors were overlooked, indicating mindless reading episodes. Individual fixation durations predicted states of deep mindless reading. Our findings suggest that different levels of mindlessness can be measured in the sustained attention to stimulus task and support the continuum-hypothesis. Using eye tracking to detect mind wandering represents a promising approach for the development of techniques to better understand and ameliorate the negative consequences of mind wandering.

Texture-segmentation: Crowding can occur in detection tasks

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In visual crowding one or more irrelevant visual object(s) impair target recognition, even when the irrelevant object appears several degrees away from the target (e.g. Hukauf & Heller, 2002). Until now it is commonly agreed that crowding occurs only in target identification, but not in target detection (Pelli et al., 2004). In a texture-segmentation study, we examined two reliable indicators of crowding: 1) Eccentricity-dependent critical distances: The irrelevant object impairs performance only when it appears within a certain spatial distance around the target, and these critical distances increase with target eccentricity (e.g. Levi, 2008). 2) Anisotropic masking (Petrov, Popple, & McKee, 2007): performance is more impaired, when the irrelevant object appears on the more peripheral side of the target as compared to the more central side of the target. Our results contradict to earlier findings and indicate that crowding can also occur in a detection task.

Eccentricity-dependent variations of the N2p in texture segmentation

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In ERP studies, the N2p shows sensitivity to texture segmentation processes showing larger amplitudes for target-absent textures as compared to target-present textures. The N2p is also sensitive to target eccentricity: foveal targets elicit larger N2p amplitudes than peripheral targets (N2p eccentricity effect). We conducted a series of texture segmentation experiments to investigate the N2p eccentricity effect controlling for (1) eccentricity-dependent variations in detection performance (foveal vs. peripheral advantage) and (2) the role of cortical magnification. Furthermore, we investigated (3) whether the N2p eccentricity effect is only observable in target-present trials or also in target-absent trials. Our results show that the N2p eccentricity effect can neither be due (1) to variations in detection performance nor (2) to cortical magnification and (3)

shows up only in target-present trials. We conclude that the N2p might be an indicator for the existence of a foveal vs. peripheral subsystem in target detection processes.

Did I do this before? Mechanisms underlying false memories of action performance from observation

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Observation of another person's actions can induce false memories of self-performance of these same actions and is referred to as observation inflation effect (Lindner, Echterhoff, Davidson & Brand, 2010). The mechanisms underlying this type of memory failure are hitherto poorly understood. In Experiment 1, participants watched either standard videos (showing the actor's arms and hands) or videos altered by a special filter reducing sensory features to a minimum except for movement information. The perceptually impoverished videos proved to be sufficient to trigger false action memories. Experiment 2 demonstrated a reduced, but still significant effect for the presentation of the whole upper body of actors with an attentional focus directed at the action. In contrast, focusing on the actors' faces eliminated the effect completely. We suggest a two-stage process integrating interpersonal motor simulation as a basal mechanism, followed by the monitoring of additional sensory features for successful self-other discrimination in memory.

Tit for tat in the face of death: The effect of mortality salience on reciprocal behavior

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Research on terror management theory has found evidence that people under mortality salience strive to live up to salient cultural norms and values, such as egalitarianism, pacifism, or helpfulness. A basic and strong internalized norm in most human societies is the norm of reciprocity: People should support those who have supported them, and people should injure those who have injured them, respectively. In two experiments, we demonstrate that mortality salience increases following the norm of reciprocity. In Study 1, a favor of a server led to higher tipping after making mortality salient. Study 2 indicated that only for participants under mortality salience was personal relevance of the negative norm of reciprocity a significant predictor of how much money to give a person who had previously refused to help them. As expected, participants under mortality salience gave less money the higher their attitude toward the negative norm of reciprocity.

Semantics of background speech and its impact on reading comprehension
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Semantically meaningful background speech (e.g., mother tongue) has been shown to impair performance in verbal tasks (e.g. proofreading, reading comprehension, text recall) more than semantically neutral speech (e.g. foreign language). This phenomenon has been attributed to the 'interference of process' principle (e.g., Macken et al., 1999, *Internat J Psy*), i.e. in tasks that require semantic processing, the semantic content of the background speech generates its detrimental impact. We tested this principle by systematically varying both task characteristics and semantic content of background speech. The two subtasks of a reading comprehension task varied regarding the need of semantic processing. In Experiment 1 (n=32) mother tongue and foreign language were used as background speech signals. In Experiment 2 (n=24), the semantic content of mother tongue was reduced step-wise by reducing its coherence. Taken together, the results support the 'interference of process' principle.

Human color preferences: An ecological valence theory

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Why do people like the colors they do? We report substantial evidence for an ecological valence theory (EVT), postulating that color serves an evolutionary "steering" function, analogous to taste preferences, that bias organisms to approach objects/situations they like and avoid ones they don't. In support, we find that, on average, people like colors to the degree that they like the objects that are characteristically those colors: 80% of the variance in average preference ratings can be predicted from parameter-free Weighted Affective Valence Estimates (WAVES) derived from rated preferences for correspondingly colored objects, much more variance than any other model considered. Further tests of the EVT's predictions show that color preferences can be systematically influenced by relevant experiences in the laboratory (e.g., tasting sweet/sour liquids of different colors), in everyday life (e.g., degree of school spirit for students' universities), and in different cultures (e.g., US versus Japan).

The time course of the Ebbinghaus illusion

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In the Ebbinghaus illusion the perceived size of a central element is altered by the size of surrounding inducer elements. However, the time course of this effect is not well known. To explore it in detail, we employed a response priming experiment in which our participants responded to small or large peripheral targets. These were preceded by small, large, or medium (i.e., neutral) primes that were consequently either consistent, inconsistent, or neutral with respect to the required response. Crucially, neutral primes might be surrounded by inducer elements resulting in illusory changes in size. Our results show illusion-dependent response priming effects which, however, were subject to strong and qualitative inter-individual differences. This basic finding is preserved in a number of alternative stimulus conditions. We analyze mean response times and hypothesize that our data are explained by inter-individual differences in response speeds, resulting in different levels of coarse-to-fine visual processing.

Underlying mechanisms in the sorting paired features task

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Previous research with the IAT has identified two major problems: The IAT score is driven by four associations between two concepts and two attributes that may differ in strength (Blanton et al., 2006). Further, the size of the IAT effect is moderated by individual differences in cognitive flexibility (Klauer et al., 2010). Recently, a variant of the procedure, the Sorting Paired Features Task (SPF; Bar-Anan et al., 2009), was introduced, that was designed to yield a separate score for each of the four associations. However, little is known about the cognitive processes underlying the SPF. These issues were addressed in two studies. First, there is evidence that the four associations assessed differ in magnitude, reliability and predictiveness. Second, method variance in the SPF is predicted by tasks used to assess control functions in working memory. Third, fine-grained analyses of the experimental conditions shed further light on the cognitive underpinnings of SPF.

Drivers' acceptance of limiting vehicle dynamics in electric vehicles

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One paramount feature of electric vehicles is that the vehicle dynamics can be easily changed by manipulating torque and power of the electric motor. Limiting these parameters limits the overall

performance in terms of maximum acceleration and speed. These changes are expected to have a positive impact on consumption, but a critical impact on driver's acceptance. In a driving simulator study, 24 drivers drove five vehicles with different limitations through several traffic situations that were critical in safety and consumption. Acceptance and efficiency measures were recorded and analysed. Results show that the vehicle performance was accepted in most traffic situations, even with the highest limitations. Only within a few situations, the given vehicle was rejected by the drivers. The limitations had a clear impact on consumption (~13%). Interestingly, the influence of the self-selected driving style on the energy consumption was stronger (~20%) than the highest impact coming from technical variations.

Evaluative priming of semantic categorizations revisited

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It is a well-known finding that evaluative priming (i.e., faster responses to a target following an evaluatively congruent prime compared to an incongruent one) does not emerge in the semantic categorization task, in which primes and targets orthogonally vary according to both evaluative and task-relevant, semantic categories (see, e.g., De Houwer, Hermans, Rothermund, & Wentura, 2002). Beside an alternative attempt to explain these null findings (e.g., Spruyt, De Houwer, Hermans, & Eelen, 2007), the present approach postulates an interaction of facilitative effects by evaluative congruency and interfering effects by semantic categorization conflict that may dissimulate any evaluative priming effect. Behavioral and ERP findings from our experiments suggest that the temporal sequence of prime and target onset (i.e., whether a positive or a negative SOA is used) as well as the prime-target response relation influence the occurrence and the sign of evaluative priming effects of semantic categorization responses.

Negative affect boosts attentional processes: An ERP study on mood and pictures

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According to Bischof (1985), the level of arousal or attention induced to individuals by external stimulation depends on their current state of security (see also Berlyne, 1960). Accordingly, negative affect as an indicator of reduced security should increase ERP amplitudes associated with arousal and attention. Seventeen male participants filled out the Positive and Negative Affect Scale and subsequently watched positive (erotica, extreme sports, beautiful women) and neutral (daily activities) pictures while EEG was recorded. Negative but not (reduced) positive affect predicted increased P1 amplitudes independent of the type of pictures viewed, which was particularly pronounced over the right posterior cortex. The present data provide evidence for a general effect of reduced security on the attentional amplification of sensory input.

Separating task-specific and developmental effects in visual word recognition

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In this study, 100 10-year old children and 20 adults performed the naming and the lexical decision task using the same items. Participant's response behavior was decomposed by means of hierarchical diffusion (lexical decision) and shifted Wald models (naming). In both tasks, children responded more slowly than adults but their response accuracy was not impaired. Cognitive model analyses revealed that children's speed deficits in the two tasks were caused by different cognitive processes. In naming, children's speed deficit was exclusively driven by their less efficient orthographic processing. In lexical decision, in contrast, children performed more slowly because they responded more cautiously and needed more time for stimulus encoding and response execution beyond orthographic processing. Results underline the need to use cognitive models in order to disentangle task-specific and familiarity-based effects from real developmental differences in visual word recognition.

Emotional modulation of the congruency sequence effect

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Congruency effects can be taken as an empirical marker of cognitive control, indicating to what extent task-irrelevant information is filtered out. Congruency effects are usually smaller after incongruent than after congruent trials, and this "congruency sequence effect" has been interpreted as a marker of trial-by-trial adaptation of cognitive control, with control being increased after incongruent, and decreased after congruent trials. Here, two experiments are reported that show an emotional modulation of this congruency sequence effect. Mood was induced by false feedback during practice trials that preceded the experiment. Subjects were either told that their performance was above average (positive feedback group), or below average (negative feedback group). The positive feedback group subsequently showed a congruency sequence effect, while the negative feedback group did not. These results are discussed with respect to current theories on how cognitive control processes are altered by emotional mood states.

Heuristic food choice strategies

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A variety of work in the area of food choice is based on the assumption that decisions are extensive, conscious and deliberative. We contrast these results with work from the decision making literature showing that people often base their decisions on few, but important attributes. To investigate the use of simple heuristics, we ran a computerized experiment, in which consumers had to make a series of choices between two lunch dishes. Utilizing a process tracing technique, MouselabWeb, we were able to demonstrate that consumers show a preferences for simple strategies (Take The Best or Minimalist) over complex ones (Weighted Addition or Equal Weights). Attention to visual information (picture of a dish) dominates the acquisitions. We also find a moderating effect of dieting behavior on the amount of information acquired and the length information looked at. Our results underline the importance of simple heuristics, when deciding between dishes.

Why groups perform better than individuals at quantitative judgment tasks

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Previous research on group judgment found that groups outperform the average of their members' individual judgments and argued that this is due to weighting more competent members more strongly (differential weighting explanation). We postulate an alternative explanation, namely that groups outperform individuals due to group-to-individual(G-I) transfer, which denotes group members becoming more accurate individually during group interaction. Three experiments, in which 3-person groups or dyads worked on quantitative estimation tasks, provide evidence for G-I-transfer but not for differential weighting. Individual accuracy strongly increased due to interaction, leading to high accuracy at the group level, and this G-I transfer can be enhanced by expertise feedback. When controlling for G-I-transfer, groups in all three experiments performed at the level of their average member. Our findings imply that previously observed superior performance by groups compared to individuals may have been due to G-I transfer and not necessarily due to differential weighting.

Effects of spatial caricaturing and anti-caricaturing on face learning

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Building on recent findings of a learning advantage for spatially caricatured faces (Kaufmann & Schweinberger, in press), we investigated to what extent the direction of shape manipulation affects face learning. Presenting unfamiliar caricatures, anti-caricatures, and veridicals in a learning paradigm, we explored performance and event-related potential (ERP) correlates of learning and recognition. In a subsequent familiarity task, accuracies were highest for caricatures and response times were longest for anti-caricatures. At learning, caricatures elicited more negative P200 and N250 than veridicals and anti-caricatures, which differed from one another at right hemispheric sites only. This may reflect increased sensitivity of the right hemisphere for face shape. At test, amplitudes of P200, right-hemispheric N250, and late positive component (LPC) showed opposite effects for caricatures and anti-caricatures, with ERPs for veridical faces in between. Altogether, the effects corroborate an interpretation of spatial caricaturing effects in terms of increased distinctiveness of face shape.

Group performance in complex problem solving: An experimental test of possible process gains and process losses

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Complex problem solving tasks require optimizing, minimizing, or maximizing certain parameters in a system (e.g., a cooling circuit) by manipulating certain control factors. It is yet unknown whether groups outperform individuals at complex solving tasks and, given that this is the case, whether these benefits are statistical aggregation effects or whether they represent process gains as a consequence of social interaction. Therefore, in two experiments (with $N = 315$ participants per experiment) we compared the performance of interacting three-person groups with the performance of nominal three-person groups (that is, groups in which members made individual control decisions that were statistically aggregated) and individuals. In both experiments, groups outperformed individuals, but nominal groups performed at the level of interacting groups. Hence, statistical aggregation (e.g., averaging out idiosyncratic errors among members) seems to be capable of explaining most of the performance advantage of groups in complex problem solving.

Mental objects for mental operations - selection processes in verbal working memory

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Working memory enables flexible access to and manipulation of memory representations (mental objects). A stable effect reported in the literature is that selection of a new mental object lasts longer than keeping the same object within the focus of attention. An open question is how mental objects outside the focus of attention are maintained and which features remain available until a mental object is accessed again. Three experiments explored access to different kinds of information in memorized words. Object switching costs were investigated as a function of the information needed for the task, and opportunity to prepare. Results show that different object switching costs occur with different tasks, but the direction of this influence depends on context variables. The pattern of interactions is discussed in favor of task-specific access to working memory information and a dynamic use of maintenance strategies that depends on available attention.

Affective processing biases in risky decision-making

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The importance of affective processing biases has been acknowledged in psychological research on psychopathology, motivation or attitudes. Now, we aimed to investigate the influence of valence biases in the field of risk behavior. We hypothesized a congruent effect of affective biases on the readiness to assume risks. A positive or negative valence bias should increase the salience of corresponding outcomes of a decision situation, which should lead to an overweighting of these outcomes in the resulting decision. Accordingly, the salience of negative (positive) outcomes (losses/gains) due to a negativity (positivity) bias should produce risk-aversion (risk seeking). In two experiments, we directly manipulated affective processing with an attention training task (Mathews & MacLeod, 2002) and found, in line with our expectations, an increased readiness to assume risks after inducing a positivity compared to a negativity bias in tasks with unknown (gambling task) as well as fixed probabilities (coin toss).

Fixation duration to concealed information

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The best known paradigm to detect concealed knowledge is the concealed knowledge test (CIT): Participants have to detect test-targets while rejecting unknown items and known, but to-be-concealed items. Focus is on differences in response patterns to unknown and concealed items. Commonly used dependent measures in this field are physiological measures, reaction times, event-related potentials, or neuroimaging techniques. In our study we used a version of the CIT with eye fixation duration as the dependent measure. We found that known objects for which the participants try to conceal their knowledge, received longer fixation durations than unknown objects. This result shows that memory for an object causes longer fixation durations, but it is not clear if the longer fixation duration to known objects is an immediate consequence of the process of memory retrieval or is caused by a delay in disengagement of attention as a consequence of the recognition of an object.

Does memory disruption by irrelevant speech vary as a function of how it is interpreted?

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Irrelevant speech largely impairs short-term retention (irrelevant speech effect). While acoustic characteristics of the unattended sound affect the degree of impairment, phonological similarity between memory and irrelevant items does not. However, Bell, Mund and Buchner (2011, QJEP) found stronger interference when both lists belonged to the same category (consonants) than when memoranda were consonants and distracters digits. We further investigate categorical similarity effects by comparing two different interpretations of the same physical distracter. We manipulated categorization of the memoranda by presenting letter names as characters or syllables (B-M-ethellip; vs. bi-em-ethellip;) and categorization of the distracters by labeling them as letters versus syllables (but presenting physically identical distracters), compared to no irrelevant speech. Recall was better for characters than for syllables but the size of the irrelevant speech effect was not affected by categorical similarity. Thus, a subtle categorical contrast (single characters vs. syllables) did not result in a between-stream-similarity effect.

Sex and meaning: Grammatical gender effects in German and Tamil

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Does the language we speak shape the way we think? The present research concentrated on the impact of grammatical gender on cognitions, for which previous findings have been inconsistent. Contrary to the currently dominant view, which postulates grammatical gender effects only for languages with two genders, Study 1, with speakers of German, yielded a strong gender effect for the three-gendered German language, comparable with those found for two-gender languages. The prevalent hypothesis that the Spanish grammatical gender is universal because it well captures male and female properties of the entities denoted by the respective nouns did not obtain support in Study 1, and the results in Study 2 in which Tamil, a non-gendered and non-Indo-European language, served as the test-bed clearly speak against such a claim. We conclude that the negative results reported in the literature might be due, at least in part, to methodological problems.

Grasp posture planning during multi-segment action sequences

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The purpose of the present experiment was to investigate grasp posture planning during a multi-segment object manipulation task. In this task, participants grasped an object from a home position (one-segment sequence), grasped an object from a home position and placed it to an intermediate position (two-segment sequence), or grasped an object from a home position, placed it to an intermediate position, and then to a final position (three-segment sequence). For the two-segment movement sequence, participants planned their movements so that grasp postures at both the home and intermediate position were moderately comfortable, indicating that initial grasp postures were influenced by the intermediate object position. For the three-segment movement sequence, participants adjusted their motor plans for moderately comfortable grasp postures at the home and intermediate position. However, this often resulted in awkward final positions. This result indicates that participants are unable to plan their initial grasp postures past two-segment movements.

Distraction from the negative emotion "fear"

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Drawing upon a limited capacity of working memory, emotion regulation is most successful when the cognitive task used to distract the individual is complex. However, research has not questioned whether the relevance of the elicited emotion as well as the relevance of the distractor task shape this pattern. Is performance on the task a function of relevance? We conducted an experiment in which the relevance of the emotion fear (self-relevant vs. pictures) and the relevance of the cognitive distractor task (feedback vs. no feedback) were varied. Emotion regulation scores as well as response latencies served as dependent measures. Results suggest that self-relevant fear was harder to regulate than pictures. Performance on the cognitive task mainly depended on its relevance but was also worse in cases of a more self-relevant emotion induction. Results are discussed in terms of efficient emotion regulation in real-life situations.

Displaced revenge

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Acts of revenge and retribution often lead to the escalation of intergroup conflicts. In these situations revenge is not always directed against the initial provocateur, but against other members of his/her group. Building on the theoretical framework of "vicarious retribution" (Lickel, Miller, Stenstrom, Denson, & Schmader, 2006) we further investigated the motivational roots underlying acts of displaced revenge. Here we argue that the entitativity of the outgroup, i.e. perception of a group as unified and coherent whole, is of particular importance. In two online studies we found evidence that people experienced more satisfaction and contentment after taking revenge on an outgroup member not directly involved in the initial event, when the group was manipulated to be high in entitativity compared to low. Furthermore, we investigated the distinct roles of different facets of entitativity, namely homogeneity and cohesion, in a laboratory experiment.

Sensumotor transformation and compatibility effects in children: A comparison between 5 to 7 and 8 to 10 year-olds

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Technology design for elderly is a popular topic, however, more and more children make use of technical devices. For example a joystick-controlled avatar in a computer game is - generally

speaking - based on external levers or tools. Thus, operators are required to deal with sensumotor transformations, e.g. for achieving an exact positioning of an object. Considering the background of Piaget's theory of the concrete-operational stage, our assumption is that the ability to manage such kind of sensumotor transformation increases while growing older and gaining exercise. Furthermore, we assume that the skill to deal with sensumotor transformation is prone to compatibility effects. In the present study, the verification of those hypotheses goes along with the question of the possibility to define the exact age in which the examined skills develop.

Grasp posture modification to perturbations in movement goals

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This experiment investigated how grasp postures and hand shaping respond to perturbation in movement goals during goal-directed movements. Participants overwhelmingly adopted grasp postures that afforded comfortable end postures during non-perturbed trials. Additionally, participants modified their movement plans during perturbed trials in order to ensure comfortable end-states using two strategies. In obvious reach-to-grasp strategy trials, participants approached the object with one grasp posture, and then abruptly changed grasp postures (e.g., from overhand to underhand). These trials were characterized by bimodal grip aperture and velocity profiles. In contrast, the formation of the appropriate grasp posture for the delayed reach-to-grasp strategy was characterized by unimodal peak velocity and grip aperture profiles and developed more subtly over the course of movement. The present results demonstrate that participants are highly sensitive to comfortable end postures, and are able to modify their grasp postures during the initial phase of movement execution to achieve these goal postures.

Determinants of modality compatibility in task switching: Evidence from oculomotor responses

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Previous research suggested that specific input and output modality pairings (visual-manual and auditory-vocal tasks) cause better task switching performance than other pairings (visual-vocal and auditory-manual tasks). In the present task switching study, we examined this input-output modality compatibility (IOMC) effect and investigated the role of response modality by pairing tasks with vocal responses either with tasks with manual or oculomotor responses. Auditory stimuli should be modality compatible with vocal responses, whereas visual stimuli should be compatible with both manual and oculomotor responses. The switch cost pattern revealed a

strong IOMC effect for the group with vocal-manual responses, whereas it was largely abolished in the vocal-oculomotor response group. We suggest that in the vocal-manual response group IOMC is due to crosstalk of central processing codes based on preferred processing pathways, whereas the oculomotor response modality may be shielded against such crosstalk phenomena due to the supra-modal functional importance of visual orientation.

Effects of main actor, outcome and affect on judgment biases in a risky scenario

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Svenson (2009) studied intuitive judgments of non-linear relationships exemplified by the braking of a car. Participants overestimated how fast they could bring down the speed of a car that was speeding compared to driving in compliance with a speed limit. The purposes of the studies were (1) to replicate earlier European studies with participants in the US who measure speed in mph instead of km/h, and to test the effects of (2) main actor and (3) negative affect of outcome on intuitive judgments of speed after braking. Drivers overestimated how quickly they could bring down speed by braking if they were speeding compared to braking at the speed limit speed, which replicated earlier European findings. The actor factor (participant as driver or driver in general) and outcome factor (passing a line or killing a child when speeding and being unable to stop in time) both had significant effects on judgments of how fast the speed of a car could be slowed down from a speed above the speed limit.

Updating, self-confidence and discrimination

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In a laboratory experiment, we show that subjects incorporate irrelevant group information into their evaluations of individuals. Individuals from on average worse performing groups receive lower evaluations, even if they are known to perform equally well as individuals from better performing groups. Our experiment leaves room neither for statistical nor taste-based discrimination. The discrimination we find is rather due to conservatism in updating beliefs. This conservatism is more pronounced in females. Furthermore, self-confident male evaluators overvalue male performers. Additionally, we use our data to simulate a job promotion ladder: Few rounds of moderate discrimination virtually eliminate females in higher positions.

Wie moduliert die Ungerechtigkeitssensibilität die Wahrnehmungsschwelle für ungerechtigkeitsrelevante Informationen?

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Zentraler Bestandteil der Ungerechtigkeitssensibilität ist die Sensitivitätskomponente: Ungerechtigkeitssensible nehmen Ungerechtigkeit leichter wahr (persönlichkeitsabhängiger Verarbeitungsvorteil). Ergebnisse tachistoskopischer Experimente bestätigen diese Annahme. Ungerechtigkeitssensible erkennen mehr ungerechtigkeitsrelevante Wort-Stimuli bei extrem kurzen Darbietungszeiten als weniger Ungerechtigkeitssensible. Die Experimente zeigen zudem, dass die erhöhte Wahrnehmungsbereitschaft nur in Situationen auftritt, in denen Ungerechtigkeitskonzepte aktiviert sind - ohne Konzeptaktivierung lassen sich keine Unterschiede finden. Da ungerechte Informationen, neben ihrer negativen Valenz, für Ungerechtigkeitssensible eine hohe Selbstrelevanz aufweisen, stellt sich nun die Frage, wie die Informationsverarbeitung bei Ungerechtigkeitssensiblen in selbst-bedrohenden Situationen (Misserfolg) aussieht. Im Sinne einer flexiblen Selbstregulation kann in Misserfolgssituationen eine Gegenregulation durch Vermeidung ungerechter Stimuli erwartet werden (persönlichkeitsabhängiges Verarbeitungsdefizit). In ersten Untersuchungen (N=41, N=57) können wir bei tachistoskopischen Messungen nach Misserfolg einen negativen Zusammenhang zwischen Ungerechtigkeitssensibilität und Wahrnehmungsbereitschaft zeigen (bei Ungerechtigkeitskonzeptaktivierung). In einem weiteren Experiment (N=68) wurde keine Konzeptaktivierung vorgenommen und hier findet sich hypothesenkonform kein Effekt der Persönlichkeitseigenschaft auf die Wahrnehmungsbereitschaft.

Effector-specific temporal expectancy

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We conducted two experiments to investigate whether temporal expectancy is specific to response effectors or response locations. In a speeded binary forced-choice task, participants used four different response buttons, two (up and down) left buttons and two (up and down) right buttons, operated by the index and middle finger of a given hand. Participants had to switch between the left and right button set from trial to trial. One stimulus was assigned to the upper (left/right) button, while the other was assigned to the lower button. In Experiment 1, both button sets were operated by different hands, while in Experiment 2, participants had to operate both sets with one hand. In both experiments, foreperiods correlated with the two stimuli only for one button set but did not correlate with the buttons of the other set. Results show that temporal expectancy transfers between different response locations but not between different effectors.

Gaze influences on startle modification by affective faces

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Direct gaze facilitates the perception of angry faces, while the perception of fearful faces benefits from averted gaze. This has been shown by means of speed and accuracy of expression judgments as well as self-reported and neurophysiologically determined affective responses. The nature of this finding is under debate. One interpretation proposes threat to the perceiver to mediate these gaze influences. In the present study we assessed peripheral physiological effects of affective facial stimuli. Modulation of the acoustic startle blink was examined while participants watched gaze-varied expressions of anger and fear; scrambled pictures were applied as a neutral baseline. Startle magnitudes revealed a significant interaction effect of facial expression and gaze direction, showing physiological changes to mirror previous results. As recent findings suggest that startle modification can reflect a human organism's protective state, results likely indicate varying degrees of threat to underlie the described interaction of gaze and expression.

Modalitätsspezifische Repräsentation von handlungs- und geräuschbezogenen Begriffen im mittleren temporalen Kortex

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Modalitätsspezifische Theorien nehmen an, dass begriffliches Wissen eng mit den sensorischen und motorischen Systemen verknüpft ist. Frühere Studien legen nahe, dass handlungs- und geräuschbezogene Begriffe unterschiedliche Bereiche des posterioren mittleren temporalen Gyrus (pMTG) aktivieren, was die Annahme modalitätsspezifischer Repräsentationen begrifflicher Merkmale unterstützt. Diese Ergebnisse stammen allerdings aus unterschiedlichen Probandengruppen, weshalb die Möglichkeit besteht, dass die anatomischen Unterschiede nur auf inter-individuelle Variabilität zurückzuführen ist. In dieser Studie untersuchten wir mit Magnetresonanztomographie innerhalb einer Probandengruppe die mögliche merkmalspezifische Organisation des pMTG. Die Probanden führten eine lexikalische Entscheidungsaufgabe mit Handlungs- (-Hammer") und Akustikwörtern (-Telefon") durch. Handlungsbegriffe zeigten höhere Aktivierungen nahe bewegungssensitiven Arealen in posterioren Bereichen des pMTG, wohingegen geräuschbezogene Begriffe anteriore Bereiche des pMTG aktivierten, die bekannt sind für die Repräsentation akustischer Merkmale. Diese funktional-neuroanatomische Doppeldissoziation belegt somit eine modalitätsspezifische Repräsentation von Handlungs- und Akustikbegriffen im pMTG, angrenzend zu den entsprechenden sensorischen Arealen.

Trust the distrust or distrust the trust? Manipulations of trust and distrust and their impact on information processing

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Distrust has largely negative consequences. However, recent research has underlined the positive aspects of distrust. When distrustful, people are faster to think the contrary (Schul, Mayo & Burnstein, 2004) or produce more creative ideas (Mayer & Mussweiler, 2011). Here, three experiments analyse various manipulations of trust and distrust and their influence on information processing. A replication of the first experiment of Schul, Mayo and Burnstein (2004) and an additional induction phase without contingency of trustworthy faces and correct statements versus untrustworthy faces and wrong statements (Exp.1) reveal fast processing under distrust for adjectives. In contrast, under trust the original induction phase impedes the processing of adjectives, while the induction phase without contingency accelerates it. Further manipulations with different facial (Exp.2) and lexical stimuli (Exp.3) build an even more heterogeneous picture of the influence of trust and distrust. The implications for future research on trust and distrust will be discussed.

Judgments of learning are based on encoding fluency

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When memory tests are preceded by a self-paced study phase, it is typically observed that items studied longer are less likely to be recalled than items that received less study time. Surprisingly, people seem to be aware of this inverse relationship, as can be seen from negative correlations of self-paced study time and judgments of learning (JOLs). This finding is generally interpreted as evidence for the assumption that JOLs rely on the ease with which items are committed to memory during encoding. This conclusion, however, seems hardly warranted because encoding fluency and item difficulty were confounded in all previous studies. We therefore conducted a series of experiments in which JOLs could not possibly rely on item difficulty. Our experiments revealed (1) that JOLs rely on encoding fluency and (2) that encoding fluency is used as a cue for JOLs even when it conflicts with item difficulty.

Short- and long-range neural synchrony in grapheme-color synesthesia

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Grapheme-color synesthesia is a perceptual phenomenon where achromatic graphemes (e.g. the black letter 'E') induce simultaneous sensations of colors. Current models disagree as to whether the color sensations arise from increased short-range connectivity between anatomically adjacent grapheme- and color-processing brain structures, or from decreased effectiveness of inhibitory long-range connections feeding back into visual cortex. We addressed this question by examining neural synchrony obtained from EEG activity, in a sample of grapheme-color synesthetes that were presented with color-inducing vs. non-color inducing graphemes. For color-inducing graphemes, the results showed a decrease in the number of long-range couplings in the theta band (4-7 Hz, 280-540 ms) and a concurrent increase of short-range phase-locking within beta band (13-20 Hz, 380-420 ms at occipital electrodes). Because the effects were found in long-range synchrony and later within the visual processing stream, the data suggest that decreased inhibition is crucial for the emergence of synesthetic colors.

The time-order error and its reversal: Test of a model of the internal standard in pitch discrimination

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Psychophysical judgments may be affected by the order in which stimuli are presented, as Fechner (1860) already noticed: Sensitivity for stimulus differences is often better if the variable stimulus follows rather than precedes the constant standard. This suggests that judgments are based not just on the immediate sensory impressions of the stimulus pairs, but also on a mental reference ('internal standard') which integrates the stimulus information across trials. We studied time-order effects (TOEs) in pitch discrimination, in an experiment that employed two different standards (401 or 404 Hz), with comparison stimuli between 398 and 407 Hz. Standard, comparison, and their order varied randomly. As expected, clear TOEs were observed for either standard. Unexpectedly, however, the TOE changed sign with the standard, a finding that lends strong support to the geometric-updating model of the internal standard suggested by Lapid, Ulrich and Rammsayer (2008).

Motivierte Wahrnehmung: Bevorzugte Aufnahme positiver Informationen als selbstregulativer Prozess

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Evidenz aus verschiedenen Studien legt eine automatische Aufmerksamkeitsbindung durch negative Signale nahe. Jedoch ist es plausibel, dass sich eine solche negative Aufmerksamkeitsasymmetrie auch negativ auf die affektive Lage eines Betrachters auswirken könnte. Im Einklang mit diesem Argument scheinen neuere Untersuchungen darauf hinzuweisen, dass sich eine generelle Bevorzugung negativer Informationen nur bei Personen mit erhöhter Ängstlichkeit zeigt. Im vorliegenden Beitrag werden empirische Befunde vorgestellt, die belegen, dass bei der Wahrnehmung ambivalenter Stimuli bevorzugt positive Informationen enkodiert werden. Dieser Effekt wird einerseits durch Handlungskontrolle und andererseits durch den aktuellen Status der wahrnehmenden Person moderiert: Ein optimistisches Wahrnehmungsmuster zeigt sich dann, wenn (1) Personen keine Kontrolle über mögliche Gewinne und Verluste haben und (2) wenn ihre aktuelle Situation wenig zufriedenstellend ist. Die Befunde werden als Evidenz für selbstregulative Funktionen motivationaler Wahrnehmungsasymmetrien interpretiert.

The role of use, knowledge and creation of an object in developing feelings of possession: The endowment effect and query theory

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Sellers' product valuations typically exceed buyers' valuations for the same product. Despite many replications of this endowment effect, surprisingly little attention has been devoted to understanding the psychological components of the ownership state, and their subsequent effect on product evaluation. To address this deficit, we manipulated in separate experiments (1) the amount of use of, (2) the degree of knowledge about, and (3) the level of involvement in creating (constructing) consumer products, both for buyers and for sellers. Critically, by recording participants' thoughts we assessed the process of value construction from memory. Knowledge increased product valuation equally for buyers and sellers, seemingly without affecting the valence of participants' thoughts about the product. Being responsible for creating an object had no impact on its valuation and attractiveness for buyers, but increased these evaluations markedly for sellers – an effect which was partially mediated by the valence of item-orientated thoughts.

Simultaneous contrast illusion renders neutral primes response relevant

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Response-priming methods in combination with traditional psychophysics have been used efficiently in the study of early visual processing (e. g. Schmidt et al., 2010). In the present investigation, we used these methods to characterize the early stages of isoluminance processing (i. e., of coloured stimuli of equal luminance). We find that physically neutral primes that are »coloured« by a simultaneous contrast illusion elicit strong priming effects. We conclude that processing of isoluminance stimuli is percept-dependent. These results are discussed specifically in comparison with early luminance processing which is stimulus-dependent.

Power and revenge

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We examined who seeks revenge and when, from the perspective of power. In so doing, we addressed the paucity of research on the interaction between chronic and incidental power, and for the first time explicitly examined the joint contributions of chronic and incidental power to revenge. Across a series of experimental studies involving different operationalizations of chronic and incidental power, chronically powerless individuals sought more revenge than chronically powerful individuals following a high power experience. This relationship vanished when participants were not exposed to power. Our findings add to previous research on relations between power and aggression, and underscore the role of individual differences as a determinant of powerholders' destructive responses.

Transient, sustained, and task-specific non-perceptual conflict adjustment

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In conflict paradigms, such as the Stroop task or the Eriksen flanker task, performance suffers when the value of an irrelevant stimulus dimension is associated with an incorrect response (conflict condition). Reduced conflict effects under conditions of recent or frequent conflict have been ascribed to transient and sustained conflict-induced attentional adjustment (i.e., increased focusing on target-related stimulus information). Whereas a recent study yielded evidence for conflict-induced perceptual filtering (Wendt, Luna-Rodriguez, & Jacobsen, in press, JEP: HPP), the contribution of possible non-perceptual mechanisms to conflict adjustment is unclear. In two experiments, we introduced conflict between a currently relevant and a temporarily irrelevant S-R

rule by having participants frequently switch between two perceptually identical semantic classification tasks. Manipulating the proportion of conflict trials in only one of the tasks and controlling stimulus-specific presentation frequencies, we found evidence for both transient and sustained conflict adjustment which took place in a task-specific manner.

Ambulatory assessment during exposure therapy: Towards identifying factors associated with therapeutic change

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Reducing the anxiety and avoidance behaviour that characterises panic disorder with agoraphobia (PD/AG) is commonly achieved with exposure-based therapy. Improving the effectiveness of this intervention requires that a more nuanced understanding of factors underlying therapeutic change is developed. Ambulatory assessment of fear and physiology affords examination of change during exposure in the natural environment. As part of a multicenter clinical study, heart rate (HR), location (Global Positioning System) and self-reported anxiety data were collected from patients with PD/AG during a standardised exposure task (a bus ride). Interindividual patterns of HR responses to critical time points during exposure were identified by comparing individual signals with cross-correlation functions and subsequently sorting the heart rate time series by hierarchical cluster analysis. To identify factors associated with therapeutic improvement, the most common HR response patterns were related to subjective measures including self-reported anticipatory anxiety and anxiety while on the bus.

Wie entstehen Reihenfolgeeffekte bei Moralurteilen?

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Unter einem Reihenfolgeeffekt bei Moralurteilen versteht man folgendes Phänomen: Die Moralurteile bestimmter Handlungen variieren in Abhängigkeit von der Reihenfolge, in der diese zu beurteilenden Handlungen präsentiert werden. Obwohl dieses Phänomen als sehr robust gilt und sogar bei professionellen Philosophen nachgewiesen werden konnte, sind die zu Grunde liegenden psychologischen Mechanismen weitestgehend ungeklärt. In mehreren Experimenten werden verschiedenste Erklärungsansätze auf den empirischen Prüfstand gestellt. Es zeigt sich, dass naheliegende Erklärungsansätze – wie bspw. unterschiedliche emotionale Beeinflussung – nicht geeignet sind, um Reihenfolgeeffekte bei Moralurteilen erklären zu können. Vielmehr spielen subtilere Faktoren, die in den Experimenten sukzessive extrahiert wurden, eine entscheidende Rolle. In diesem Talk werden die bisher als notwendig für die Entstehung von Reihenfolgeeffekten befundenen Faktoren vorgestellt und diskutiert.

Both semantic information and visual co-occurrence contribute to semantic priming in person recognition: ERP evidence from a learning paradigm

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It is controversial whether semantic priming in person recognition is due to shared semantic information or visual co-occurrences of prime and target persons. In the present study, participants were asked to learn pre-experimentally unfamiliar faces, which were presented two at a time with either matching or non-matching semantic information in five consecutive sessions. In a subsequent priming experiment, prime-target pairs were presented which were unrelated, related only via shared semantic information, only via co-occurrence, or via both factors. Reaction times yielded priming effects for all related conditions relative to the unrelated condition. While pure semantic priming and pure co-occurrence effects did not differ in magnitude, the combination of the two elicited significantly larger priming. Event-related potentials revealed an N400 priming effect for combined priming only. This suggests that both shared semantics and visual co-occurrence typically contribute to semantic priming, and that the N400 effect reflects overlap in both information types.

The randomized control group design (RCT): Strength, weaknesses, booby traps and pitfalls

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The RCT is an ingenious invention. Scientific disciplines are proud of capitalizing on it in building their knowledge bases, like most presenters at TEAP. The reason is simple. RCT allow drawing causal conclusions. Successful randomization makes all unmeasured causes orthogonal to the independent and controversies about cause effects vanish. RCTs are considered as the gold standard of science and best tools to test theories. Are there any weaknesses? Cronbach dealt with the two scientific disciplines encouraging us to synthesize experimental and correlational approaches. RCT weaknesses are not only related to problems of external validity but to lack of synthesizing psychometrics. This concerns the dependent but much more the independent variables. It is demonstrated what attenuating effect the IVs lack of reliability and dichotomization into dummies has. This concerns the a priori estimated power of RCTs and problems why interaction effects like aptitude x treatment interactions are so hard to detect.

The perception of melodic similarity in cases of musical plagiarism

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This study examines the perception of melodic similarity applied to cases of melodic plagiarism under a review of similarity measures. An implicit memory task (IMT) was designed to test the extent of the participants' confusability of two similar melodies. The participants were able to distinguish between such melodies involved in cases with and without actual copyright infringement. Many of the applied measures of similarity relate very well to the results, such as a Tversky feature-based measure ($r = .514$) and a weighted Edit Distance ($r = .515$) for the IMT, and Earth mover's distance measures for the court decisions (AUC of .84). Additionally, the participants' perception of similarity was tested using an explicit ranking task which yielded challenging results due to, i.e., an incongruency between similarity and court decision, however, the same similarity measures found to correlate well in the IMT also show promising results for this paradigm.

Event-related potential correlates of the own-age bias in face recognition memory: A comparison of young adult and child faces in mothers and controls

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Young participants are better at recognizing own age as compared to old faces (own-age bias). The present study investigated recognition memory for young adult versus child faces in a group of mothers and a female control group without substantial recent experience with children. Both groups demonstrated a clear own-age bias, with enhanced memory for adult as compared to child faces, which did not differ in magnitude. Analysis of event-related potentials additionally revealed more positive amplitudes for adult as compared to child faces in the occipito-temporal P2 and the subsequent N250. Crucially, this latter effect was reduced in mothers relative to the control group. Our behavioral results thus demonstrate a memory disadvantage in young adult participants, not only for old, but also for child relative to own-age faces. The reduced N250 effect likely reflects enhanced expertise in individuating child faces in mothers as compared to controls.

Time frame dependent information search and decision making

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When risky gambles with rare gains are played repeatedly, the aggregated risk of a perceived loss decreases due to the large law of large numbers. As a consequence, decisions consistent with the long-term expected value should be favored. However, when gambles are played only once, decisions may be biased towards short-term maximization - i.e., the sure thing. We show that people adapt to this reasoning in a free sampling paradigm, for both information search and decision making policies. When payoffs were the result of repeated random samples from a single option, people searched longer, switched less often between options, and favored the option with the higher long-term expected value (higher mean). When payoffs were the result of a single outcome, people searched less, switched more often, and favored options with higher median values.

Is termination of memory search rational?

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Decisions to terminate or give up search of memory are ubiquitous and part of our everyday decision making. Are the trade-offs we make between the costs and rewards of retrieval from memory rational? This study used a delayed free recall paradigm with an open-ended retrieval period that allowed participants to decide for themselves when to stop searching. The payoff structure for correct retrievals and time spent retrieving was manipulated between subjects: after all participants completed a baseline block of trials, the payoff structure changed to either easier parameters (lower time costs, higher recall rewards) or harder parameters (higher time costs, lower recall rewards). Results show that recall performance is insensitive to payoff changes but time performance - both the total time spent retrieving as well as the exit latency (time after the last retrieval until the decision to quit) - are significantly influenced by payoff structure changes.

Prior knowledge helps to overcome the disadvantage of less favorable instructions

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Numerous studies have shown the positive effect of comparisons on learning a single complex concept. We applied comparisons as contrasts to investigate benefits on learning closely-related

concepts. This method was combined with self-explanations, another approved instruction method. A training study was conducted for the introduction of the two concepts: addition and multiplication in algebra. 228 sixth-graders were assigned to three conditions: (1) combination of contrast-learning and self-explanations, (2) contrast-learning without self-explanations, and (3) sequential-learning and self-explanations. Learners who learned with the combination of contrast material and the self-explanation instruction outperformed the other groups, whereas the sequential-learners performed worst. The results revealed advantages with both the contrasted learning and the self-explaining. Sub-analyses showed that prior direct algebra knowledge was almost negligible, however, it predicted learning gains in the less favorable sequential-learning. Hence, prior knowledge is used to overcome the disadvantage of a low demanding sequential instruction.

Posters

Beliefs and performance in a mental rotation task

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This study investigates gender differences in performance and beliefs in a mental rotation task. We measure participants' performance and elicit their beliefs about their own and about the average performance of males and females. In contrast to the literature, we find no significant gender difference in performance. However, on average both males and females believe the average male to perform better than the average female. In contrast to what previous studies on stereotypes predict, females who report to believe that there is this gender difference do not perform worse than females who do not. We further find that males are overconfident concerning their own performance, whereas females on average evaluate themselves correctly. Moreover, underconfident individuals perform significantly better than overconfident ones. This effect is more pronounced in females than in males. We discuss our results in terms of stereotype threat and self-perception differences.

Fremdschämen - Defining and Measuring it

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There is a well-known phenomenon in Spanish-speaking countries which has recently found its way to the consciousness of German speakers: Fremdschämen. On our way to define and develop a model of the process leading to it, and why it just recently started being noticed, we tried out different kinds of measurements: self-reports (including some novel questionnaires like the VES and SAQ-A30) and behaviour observation, as well as video-based inductions. Contrary to all popular explanation attempts, we do not assume a central role of empathic processes and test this hypothesis against some alternatives: the importance of social anxiety and particularly personal distress. First results and definition efforts are presented.

Correlating physiological with behavioural data in quality research

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The process of rating perceived quality in audio and video is not completely understood. Auditory experiments have shown that standard quality opinion tests using rating scales can be complemented reasonably by electroencephalography (EEG). In this experiment we extended that approach towards visual stimuli. The stimuli were degraded with blockiness, one of the most prevalent distortions in digital video. We could show that the higher the degradation was, the higher and earlier the measured P300 peak occurred. An ANOVA for the amplitude yielded a statistical significant effect for degradation intensity ($F(5, 40) = 35.31, p = .00$). In addition, the detection rate is correlated with the P300 peak amplitude ($r = .73, p = .00$). We conclude that Event-Related Potentials (ERPs) can be used to quantify the intensity of a distortion. Thus we could successfully transfer the psychophysiological method to visual stimuli and show co-variation of EEG-signals and behavioural data.

The development of action perception: Disentangling identity and location of action goals

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Recent research suggests that the predominant measures to assess infants' action perception are dissociated early in life. Post-hoc measures (looking time) showed that already 6-month-olds attribute goals based on goal identity; online measures (predictive gaze) demonstrate identity-related predictions not before the age of 3. Here, we tested whether reducing the saliency of the goal location helps to predict an agent's behaviour based on goal identity. In a habituation phase, an agent moved towards one of two objects. In the test phase, the two objects were placed at a new location. Looking times revealed that 9-month-olds attributed the goal of the agent based on goal identity. Predictive gaze shifts were at chance level in 9-month-olds but were identity related in 2-year-olds. Reducing the saliency of the goal location still yields a dissociation between the measures. However, it helps 2-year-olds to predict an agent's behaviour based on the goal identity.

The role of focus switching in learning with multiple external representations

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The ability to flexibly allocate attention to goal-relevant information is pivotal for the completion of high-level cognitive processes. For instance, in comprehending illustrated texts the reader permanently has to switch the attentional focus between the text and the corresponding picture in order to extract relevant information from both sources. Thus, the hypothesis was tested that individuals with a higher switching capacity exhibit an improved performance in tasks that require the flexible switch of attention between two external representations. In the study participants read an illustrated text and answered questions that either required the extraction of information from the text alone or from the text and the corresponding illustration. In addition, a switching task was accomplished. Results indicate that a greater ability to switch the attentional focus resulted in an increased performance merely in those tasks that required the extraction of relevant information from two sources.

Work-related stress and individuals' health and ability to work

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It is now well established that work-related stress can be detrimental both for individuals and for organizations. The HSE Indicator Tool is one of the most used tools for assessing the risk of work-related stress in organizations. It consists of a 35- item questionnaire, which measures 7 scales, each one corresponding to a different domain of work design associated with stress: 'Demands', 'control', 'managers support', 'peer support', 'relationships', 'role' and 'change'. We present new evidence from a cross-sectional study on a population of bank employees that the Indicator subscales are negatively associated with psychological distress (measured with GHQ-12), and positively associated with work ability. Our results also suggest that most of, but not all, the effects of psychosocial conditions on work ability might be mediated by the level of psychological distress induced by these conditions.

Is human imitative behaviour automatic?

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Since the discovery of the human mirror neuron system, the study of automatic imitation became a focus of interest. This neural mechanism was suggested to play a central role in language acquisition, learning or in understanding others. While a compelling number of studies reported

that observing an action makes the imitation of that action more likely, the automatic character of the phenomenon was often claimed, but rarely tested. A recent investigation showed, however, that imitation can occur in the rock-paper-scissors game, where strategic players should avoid imitating their opponents. This surprising result could serve as strong evidence that humans imitate each other unconsciously. In our study we replicated the original experiment with double the sample size and conducted additional analyses. Thorough examination of the methods and the data did not support the original conclusion but rather suggested alternative interpretations. The automaticity of human imitative behaviour is yet to be understood.

Passenger preferences for aircraft cabins with weight-reduced hand luggage storage – a choice-based conjoint analysis in immersive virtual reality

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In order to increase the eco-efficiency of an aircraft, new innovative cabin concepts are necessary. One approach is the omission or reduction of hand luggage compartments (HLC). As the cabin is the primary interface to the passenger, acceptance parameters are very important. Different concepts of reduced HLCs were analyzed regarding their impact on the passenger's acceptance level. To provide a realistic stimulus presentation as basis for acceptance evaluation, an immersive virtual reality environment was used. More than 100 subjects made their individual concept choices while viewing the concepts through a head mounted display. Results showed that the three different attributes HLC, seat pitch, and ticket price were equally important and that a loss of comfort can be compensated by an increase in seat pitch or a decrease in ticket price.

Mood and risky decision making: Effect on information search and choice

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The research investigated decision behavior dependent on mood states. Research on mood induction shows that moods can be activated by the presentation of emotionally salient events. Positive and negative mood states were induced by sad or cheerful stories. Subsequently, participants searched information and decided in quasi-naturalistic risky scenarios. We expected negative mood to cause higher decision certainty achieved by more extensive information search and risk averseness. Consistent with our expectations, decision makers in negative mood searched more information, specifically on possibilities of risk control, and chose safer options.

Gender-related differences in reactive aggression: An fMRI study

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Background: Gender-related differences in aggressive behaviour have been already demonstrated, reporting men showing higher physical aggression than women (Buss & Perry, 1992; Bettencourt & Miller, 1996). However, the neurobiological underpinnings of these gender-related differences are largely unknown. **Methods:** Here we investigated gender-related differences in reactive aggression, using functional magnetic resonance imaging (fMRI) in a cohort of 40 young, healthy subjects (21 females, 19 males). During fMRI scanning, participants performed a modified version of the Taylor Aggression Paradigm (Taylor, 1967). Data analysis was performed using SPM8 and SPSS. **Results:** The behavioral data supports the evidence that men show a significantly higher level of aggression. Concerning the functional data, we found that men exhibited a stronger activation in the right ACC and in the OFC while punishing their opponent. Our results suggest gender-related differences in the experience of provoked anger.

Temporal ventriloquism effects in perceived duration

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Recent studies suggest that duration discrimination for visually presented intervals is strongly impaired by concurrently presented auditory intervals of different duration. Because these studies rely mostly on accuracy measures, however, it remains unclear whether this impairment results from changes in perceived duration or rather from a decrease in discriminability. We therefore assessed complete psychometric functions in a duration discrimination task. Specifically, participants had to compare two visually marked empty intervals, which were accompanied by empty auditory intervals of identical, shorter, or longer duration. Participants were instructed to base their judgments solely on the visually marked intervals. Despite this instruction, perceived duration was biased towards the duration of the irrelevant auditory marked intervals. Discrimination threshold, however, was similar in all three conditions. These results suggest that audiovisual integration of temporally discrepant signals does not impair discrimination accuracy but rather alters perceived duration, presumably by means of a temporal ventriloquism effect.

The implicit positive and negative affect test. Evidence from Turkish university students

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The implicit positive and negative affect test (IPANAT; Quirin, Kazén & Kuhl, 2009) relies on ratings of the extent to which artificial words subjectively convey various emotions. In the current study the universality of IPANAT was tested for the assessment of discrete emotions in a sample of 109 Turkish university students. Three artificial words were combined with twelve different emotion words. Factor analyses of these ratings yielded four independent factors that can be interpreted as implicit sadness, fear, anger and happiness. The findings replicate the pattern recently found in a German sample and thus suggest cross-cultural invariance and factorial validity of the test.

Is inhibition of return stable even in response to phobia-related cues?

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Inhibition of return (IOR) is a phenomenon related to slower reaction times of participants when a preceding cue appears before the target and attention is oriented back to the cued location. This effect is thought to be important because it discourages attention to re-orient back to a previously attended location. Only few studies have investigated this effect with phobia-relevant material (threatening cues) and what is more important, with non-spatial cues. Therefore, the present study used schematic representations of spiders and flowers as cues in a typical non-spatial task with a sample of spider fearful participants. Data analysis is pending. An emotion-based IOR effect is expected in the reaction time only when a picture of a spider is presented, suggesting that the attention tends to inhibit the processing of threatening stimuli. This adds some interesting findings to previous cognitive theories that suggest that threatening cues capture attention and hold it.

The effect of divided attention and aging on recognition of positive faces in older and younger adults

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Age differences in positivity-induced recognition bias were investigated using a divided attention paradigm. Participants (mean age 24.42 vs. 70.25 years) studied happy, neutral, and angry faces, which in a subsequent recognition task were intermixed with 50% distractors. Half of the items

were presented under full attention conditions; the other half under divided attention conditions. In the full attention condition, older adults showed an enhanced recognition bias for happy faces compared to the young. In the divided attention condition, memory performance was diminished, and no age differences in positivity-induced recognition bias were found. While the older participants' enhanced bias persisted, the bias in the young group was enhanced to the same level as in the old group. Our results support the view that the positivity-induced recognition bias is not related to prioritization of positive information in the elderly, but to conditions in which cognitive resources are restricted.

"Embodied surprise": How facial feedback of surprise influences reaction times in an implicit learning task

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There is continuous debate how closely or loosely emotion is linked to behavior and especially to facial expressions. Surprise was largely ignored in studies on this question. In the present experiment we analyzed whether unobtrusive facial feedback of surprise versus no-surprise can modulate reactions following deviations in an implicit sequence learning task. After several blocks in which a standard sequence (StS; consisting of a predefined order of 12 letters) was repeated, StSs and deviation sequences (DeS; i.e. one element differed from the StS) were intermixed. The results confirmed our hypothesis: Participants of the surprise face condition showed longer reaction times to DeS than to StS. In contrast, participants of the no-surprise face condition did not show this difference in reaction times. Results were discussed with respect to implicit learning as well as to theories on emotion and facial feedback taking the special status of surprise into account.

Automatic deviance processing during the attentional blink: An event-related brain potential study

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The processing of rare and unexpected changes in serial visual stimulation is accompanied by an occipital N2 in the event-related potential (so-called vMMN). Recent studies suggest that the vMMN reflects automatic processing of information on the sensory level as a basis for change detection. However, a direct test of the hypothesis that the vMMN is independent from attentional allocation to the visual stimulation is still lacking. In the present study, a rapid-serial-visual-presentation paradigm was applied to test the automaticity of the vMMN: Either 300 ms or 700 ms after the presentation of a target (T1) a rare, task irrelevant position change was

embedded in the stimulation which elicited a vMMN. In another condition subjects had to detect a second target (T2) after T1: Importantly, within 300 ms after T1, T2 detection was nearly at chance level ('attentional blink'). This result demonstrates that the vMMN is elicited without attentional allocation.

A vignette study on the perception of aggressive acts at subway stations

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In two studies we examined which factors influence the perception of aggressive acts. In preparation we collected data about aggressive acts on subway stations as well as eyewitness reports and created a list of important situation, environment and person factors. To test experimentally the influence of nine different factors at once we used a vignette study with a fractional factorial design and created 64 different situations. We asked 856 participants in an online survey for the perceived dangerousness in the imagined situation, for ones own emotions and for the readiness to call for help. Results of the mixed linear models showed clear effects for the factors 'type of aggression' and 'number of aggressors'. Different aspects of the cognitive, emotional and behavioural measurements were influenced by the factors describing the culprit. 'Presence of others' and 'video surveillance' had an effect on all ratings but differed in the gender subsamples.

How to measure confidences? - The development of a confidence profile for theoretical understanding and medical practice

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In Psychology one can find valid and well established scales for measuring frequency, intensity, and appraisal of statements, but not for confidence (e.g. Rohrman, 1978). In diagnostic practice (Psychotherapy, Medical Decision Making, and other diagnostic fields) an expert often not only has to estimate the confidence of one option, but rather of several suspected diagnoses at the same time. Therefore we developed a confidence profile and tested the influence of several factors: Format (numerical, verbal, or symbolic labels), situational class (uncertain versus risky options), and the progression of symptoms (continued versus inverted). Based on the occurrence of symptoms, 72 participants had to estimate confidences at five different time points within the diagnostic process and simultaneously for four possible inflammation diseases of fictitious patients. Results show that estimating confidence is interrelated to several factors in a complex manner. These findings are important when transferring confidence measures into medical practice.

Am I attracted? Job descriptions in the context of socioemotional selectivity theory

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This web-based study applies socioemotional selectivity theory (SST; Carstensen, 1995) to personnel recruitment. According to SST, job descriptions can be divided into ones with emotional versus knowledge-related content. With regard to time-orientation, job descriptions can be classified in present- and future-oriented. The relative attractiveness of the content and time-orientation may – with reference to SST – depend on the individual's occupational future time perspective (OFTP). Therefore, we postulate that (1) job applicants with a long OFTP experience a higher Person-Organization Fit (PO Fit) for knowledge-related and future-oriented job descriptions than they do for emotional and present-oriented job descriptions. By contrast, (2) job applicants with a short OFTP experience a higher PO Fit for emotional and present-oriented job descriptions in comparison to knowledge-oriented and future-oriented job descriptions. Furthermore, we posit that (3) the relation between content as well as time-orientation of job descriptions and organizational attractiveness is mediated by PO fit.

A distinction between 'if' and 'what' uncertainties underlies risky and impulsive choice

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Most of the decisions we face involve uncertainty, for example, 'if' an outcome will occur, i.e., uncertainty in outcome likelihood, or 'what' an outcome will consist of, i.e., uncertainty in outcome utility. However, it is unclear whether 'if' and 'what' uncertainties reflect distinct decision processes. Across two behavioural experiments and using a novel methodology we demonstrate this distinction. Findings from experiment 1 show that preferences for rewards that are uncertain in outcome likelihood (UnO) and utility (UnU) are uniquely associated with individual differences in BAS subscales of drive and fun-seeking respectively. Findings from experiment 2 show that preferences for UnO and UnU uniquely predict Iowa Gambling Task and Delay Discounting performance respectively. Collectively, our results suggest that uncertainty in outcome utility impacts the ability to represent and predict outcomes. This is a defining feature which differentiates between uncertainties in outcome likelihood and utility and potentially distinguishes between risky and impulsive choice.

Subliminal instrumental conditioning with immediate and delayed rewards and its relation to trait impulsivity

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Motivational theories of ADHD suggest that instrumental conditioning with delayed reinforcement is diminished in highly impulsive subjects. This deficit is proposed to be mainly due to a subcortical dopaminergic dysregulation. However, the link between impulsivity and learning deficits with delayed reinforcement has not been investigated yet. Therefore, the present study investigates subliminal instrumental conditioning with immediate and delayed monetary rewards and its relation to trait impulsivity. A subliminal learning paradigm was chosen in order to prevent high-level processing of the stimuli which might compensate for subcortical learning deficits. We assessed individual learning curves of 20 healthy subjects performing the subliminal conditioning paradigm with immediate (0 sec delay) and delayed rewards (0.5 and 2.0 sec delay). We analyzed the correlations between these learning curves and trait impulsivity using different questionnaires and a behavioral probe (delay discounting). It is tested whether trait impulsivity is correlated with diminished learning with delayed rewards.

The influence of frequency trajectory in word recognition: A cross-task comparison

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In a series of six experiments, the influence of frequency trajectory in visual word recognition was investigated. In Experiment 1, frequency trajectory was found to exert a strong and reliable influence on AoA ratings. In word reading (Experiment 2), lexical decision (Experiments 3 and 6), proper name decision (Experiment 4), progressive demasking (Experiment 5) and in a multiple regression analysis of lexical decision times taken from the French Lexicon Project (Ferrand et al., 2010), the effect of frequency trajectory was not reliable. In contrast, in all the experiments and in the multiple regression analysis, cumulative frequency had a strong influence on word recognition times. The findings firmly establish that in alphabetic languages such as French, age-limited learning effects do not surface readily in word recognition. In contrast, the total exposure to words across the lifetime is a strong determinant of word recognition speed.

Color and the coupling between attention shifts and saccades

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Previous research has demonstrated that visual attention is shifted towards the saccade target prior to saccade execution (e.g. Deubel & Schneider, 1996; Kowler, Anderson, Doshier, & Blaser, 1995). Observers had to make a saccade according to an arrow cue and simultaneously perform a perceptual discrimination task at variable positions in space. Discrimination performance was poor if the location of the saccade and the discrimination target did not coincide. In the current experiments, we used an arrow cue to indicate the saccade target, but a fixed color to guide attention towards the discrimination target. The color cue greatly improved discrimination performance, even when the location of the saccade and the discrimination target did not coincide. In contrast to previous studies, however, a control experiment with a fixed position for the discrimination target also greatly improved performance. Findings are discussed in terms of interactions between spatial attention, feature attention and attention-for-action.

Lie detection via voice control

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The three-factor-model (Zuckerman, DePaulo & Rosenthal, 1981) assumes that while lying, individuals control their behavior in order to appear authentic. Since the voice is especially difficult to control, nonverbal cues may be used to uncover deceit. To analyze the sensitiveness of voice-cues as indicators of lying, a non-arousing false statement experiment was conducted with 36 male subjects. Since lying is associated with arousal, subjects try to compensate the enhanced pitch and will lower their voice. Because of the absence of arousal in our experiment, we propose that subjects tend to overregulate their voice. In the lie condition, an increase of fundamental frequency and response latency and a decrease of voice-loudness were expected. Statistical tests showed no significant differences between true and false statements in the parameters. The fundamental frequency tended to change in the lie condition. Future research should investigate the appropriateness of this parameter with more powerful methodologies.

The influence of a social-evaluative context on simple cognitive tasks

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The aim of the research presented here was to further investigate the influence of a social-evaluative context on simple cognitive tasks. Female participants had to perform a digit-

categorization task with each trial being preceded by a photograph of an attractive woman or a beautiful landscape. Concurrently, another person either evaluated the attractiveness of the female pictures or the beauty of the landscapes. Participants showed increased numerical-distance effects only on trials following the presentation of pictures of the attractive women, and only, if these were concurrently evaluated by another person. In an additional Experiment, using the affective priming paradigm, we show that the affective association with female pictures is more negative in the social-evaluative context (concurrent evaluation of these pictures by another person) than in a neutral context. Taken together, results suggest that the social-evaluative context triggers mild negative affect which then impairs performance in an unrelated task.

The Mona Lisa effect and its potential neural correlates

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The eyes of a flat 2-dimensional portrait appear to "follow" the observer as he or she moves around and changes the vantage point. This so called Mona Lisa effect is remarkably robust but eventually breaks down in the face of oblique vantage points. We report one experiment testing the limits of this effect. We also conducted an fMRI experiment to investigate whether (and how) the cortical activation patterns might differ depending on whether the portrait is viewed centrally or from an oblique vantage point. The brain areas recruited in eye contact processing are discussed.

Memory indexing of sequential symptom processing in diagnostic reasoning

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During diagnostic reasoning, knowledge about symptoms and their possible causes is applied to infer a diagnosis. In the present study, we used eye tracking to examine sequential symptom integration. In a first session, participants learned about four chemicals and the medical symptoms they could cause. Chemicals were represented by geometrical forms arranged in a 2x2 grid. Each form contained the three symptom classes assigned to the respective chemical. In diagnostic reasoning trials, the arrangement of forms without symptoms was shown while participants heard a sequence of four symptoms. Participants' gaze allocation on the empty forms corresponded closely with plausible diagnostic hypotheses and indicated the development of the final diagnosis, which for ambiguous items depended on symptom order. The specific gaze patterns were still observable in a second session a week later. Spatially indexed memory representations and Looking-at-Nothing were stable over time and afforded process tracing of order effects in reasoning.

Environmental and personal influences on choice of driving speed

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Recent literature suggests that either environmental or personal characteristics influence speed choice (Edquist et al., 2009). However, the present work focuses on both, environment and driver. An empirical study investigated factors of the driving environment (i.e. road geometry) and the driver (e.g. workload) and their impact on speed choice. Therefore $N = 30$ subjects participated in a driving simulator study. Within the simulation road geometry (straight vs. curved road) as well as short-term driver characteristics (high vs. low cognitive load) were manipulated. Results show that both, road geometry as well as driver characteristics have an impact on subjective (task difficulty, risk etc.) as well as objective (i.e. driving speed) measures. Moreover, especially objective driving speed changed with environmental and personal factors interacting. In line with other literature (Brandenburg & Drewitz, 2010) results indicate that theoretical models as well as empirical investigations need to focus on both, environmental and personal characteristics.

Delayed perceptual awareness in dual-tasking

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When participants are asked to respond separately to two stimuli and the interval between the onsets of the two stimuli (SOA) is manipulated, response time to the second stimulus (RT2) typically increases with decreasing SOA. Recent studies have indicated that participants are not aware of this so-called PRP effect. Specifically, introspective estimates of RT2 have been shown to be independent of SOA. An explanation of this neglect of the PRP effect assumes that participants are aware of only their central processing time. In the present study, participants watched a revolving clock-hand while they performed a dual task. After responding to the two stimuli, participants reported either the clock-hand positions of the stimuli onsets (perceptual latency) or, in another condition, when they selected their response (decision time) in the two tasks. The results showed that both the perceptual latency of S2 and the Task 2 decision time increased with decreasing SOA.

Tactile acuity charts: A reliable measure of spatial resolution

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Recently, tactile acuity charts following the design principles of the Snellen letter charts for visual acuity and involving active touch have been recommended for assessing tactile spatial resolution. The goal of this study was to assess the robustness of this newly developed psychophysical procedure to variations in the number of above-threshold characters and the properties (i.e. softness) of the material used. Tactile acuity was measured in young sighted adults with acuity charts that contained random sequences of either three-dot patterns or Landolt Cs in one of four orientations. Our results demonstrate that (1) quick and reliable measurements of tactile acuity can be achieved by testing only around the expected acuity threshold, (2) variations of the surface material of the charts (polymer vs. thermo-sensitive paper) do not have an impact on acuity measurements, and (3) charts using Braille-like dot patterns seem to be more reliable than charts using Landolt rings.

Intensified processing of emotionally and socially significant facial expressions: An ERP study

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The present study examined the interaction of social and emotional significance in mediating perception. Event-related potentials (ERP) served to measure the processing of pictures in which actors display happy, neutral and angry expressions. In separate blocks, specific actors were either instructed as future interaction partners or as target stimuli for a counting-task. In addition, a control condition assessed face processing without a task. Stimuli were presented briefly in random order (1-s each) without ITI. Results replicated recent studies showing an augmented early posterior negativity (EPN, 200-300 ms) and late positive potential (LPP, 400-600 ms) for emotional in contrast to neutral faces. Interestingly, face processing varied as a function of instructed social significance. Specifically, viewing potential interaction partners as compared to control faces was associated with increased EPN and LPP amplitudes. In summary, the mere verbal instruction about social contingencies modulated face processing already at an early level of visual processing.

Enhancing long-term retention: Will adaptive memory survive?

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The study tested whether the survival processing advantage found in recall tests (Nairne, Thomson, & Pandeirada, 2007) would still be observed when compared to other alternative encoding scenarios, and more specifically to a "life after death" scenario. Participants had to judge unrelated words in four different encoding conditions: an ancestral survival scenario, a modern survival scenario (World War III), a "life-after death" scenario and a standard deep-processing control condition (pleasantness). The most important findings were that recall performance in the ancestral survival condition was worse than in both the modern survival (World War III) and "life after death" conditions, whereas these latter two encoding conditions gave rise to similar levels of recall performance. The implications of the findings for the adaptive memory view are discussed.

Facial mimicry to dynamic facial expressions in adolescents with non-suicidal self-injury

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Facial mimicry is the tendency by which people in social situations imitate or mimic the facial expressions of others. Facial mimicry is highly important in social interactions as it encourages relationships and empathy. Non-suicidal self-injury (NSSI) can be seen as an inadequate strategy to regulate negative affects. Furthermore, adolescents with NSSI experience interpersonal communications as problematic and distressing. Social conflicts often precede NSSI. Therefore, facial mimicry seems to be of particular interest in youth with NSSI. In the present study, facial reactions to dynamic emotional expressions were measured using facial electromyography. The participant's current mood state was controlled using brief film clips evoking a negative and a neutral mood state. So far, 15 female adolescents with NSSI, 10 clinical and 15 healthy controls were investigated. Recruitment is ongoing. Preliminary results indicate that adolescents with NSSI respond inadequately to positive and negative facial emotional expressions, especially when they are in a negative mood state.

The fate of visual object representations under change blindness

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Observers often fail to detect significant changes in a visual scene. This so-called change blindness seems to indicate that visual representations are either incomplete or easily overwritten by the presentation of new information. But what is the fate of pre-change object representations when changes go unnoticed? We presented scenes consisting of multiple real world objects, one of which changed on each trial. In an additional recognition task, observers discriminated old items, either from before or after the change, from novel objects. Observers performed poorly at recognizing pre-change objects compared to post-change objects. This result seems to indicate that pre-change object representations were overwritten by the post-change objects. However, event-related potentials differed between pre-change objects and novel objects, indicating that a weak memory trace of the pre-change object persisted. A possible interpretation of this finding is that the visual system simply ignores pre-change representations rather than overwriting them with post-change representations.

Influence of gaze-contingent spatial frequency filtering on the processing of natural scenes: Evidence from eye movements

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High-acuity foveal vision is specialized in processing fine detail (high spatial frequencies) for object recognition, whereas peripheral vision is best at processing coarse information (low spatial frequencies) for saccade target selection. How do these specializations influence eye movements during scene perception? Using eyetracking, we applied gaze-contingent high- and low-pass spatial frequency filters to either the foveal or peripheral visual field, simulating either a foveal scotoma or tunnel vision. Compared to a control condition, peripheral and foveal filtering resulted in shortening and lengthening of saccades, respectively: Saccades were preferentially programmed to unimpaired scene regions. This effect scaled with window size. Fixation durations increased whenever appropriate information was attenuated but still available (foveal high-pass; peripheral low-pass), but, surprisingly, were unaffected when useful information was strongly impaired (foveal low-pass; peripheral high-pass). This suggests that saccade programs can be inhibited by visual processing difficulty, but default timing takes precedence when useful information is unavailable.

Verb gapping: John opens a juice bottle and Jim a lemonade bottle - novel evidence for the on-line reactivation of gapped verb information?

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This study addresses the processing of verb-gapping sentences, e.g., John closes a juice bottle and Jim [] a lemonade bottle. The goal was to investigate whether gapped verb-information is reactivated on-line by employing a paradigm from the embodied-simulations framework. Participants read gapping sentences that either described clockwise or counter-clockwise manual rotations (e.g., closes vs. opens a juice bottle). Sentence presentation was segment-by-segment. Participants advanced through the sentences by turning a knob either clockwise or counter-clockwise. Analyses of the segment reading-times yielded a significant effect of compatibility between the linguistically conveyed action and the knob-turning for the overt-verb (e.g., closes / opens a juice bottle) as well as for the gapping segment (e.g., a lemonade bottle) but not for any of the other segments (e.g., and Jim). Though the direction of the effect was unexpected, the results are promising in providing novel evidence for the on-line reactivation of gapped verbs.

JA geht schneller als NEIN: Hat JA eine positive Valenz?

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Die Beantwortung einer Frage erfolgt schneller mit JA als mit NEIN. Liegt dies daran, dass eine positive Antwort, also eine Ja-Antwort, eventuell eine positive Valenz besitzt? In zwei Reaktionszeitexperimenten wurde diese Frage anhand bereits etablierter Assoziationen zwischen Valenz und Raum, nämlich der rechts-links-Achse (Casasanto, 2009) und der vertikalen Achse (Meier & Robinson, 2004), untersucht. Aufgabe war, eine einfache Frage in jedem Trial für neutrale Wörter mit JA oder NEIN zu beantworten. Ob die Antwort auf das entsprechende Wort JA oder NEIN war, wurde zwischen den Versuchspersonen variiert. In Experiment 1 drückten rechtshändige Probanden schneller die rechte als die linke Taste bei JA, und schneller die linke als die rechte Taste bei NEIN. In Experiment 2 wurde die gleiche Aufgabe mit Reaktionen nach oben bzw. unten beantwortet. Wider Erwarten fand sich hier keine Interaktion von Antwort und Tastenlokation. Eine Ja-Antwort scheint also nicht per se eine positive Valenz zu haben.

End-state liking: A case of motor fluency

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How can our motor system influence affective evaluation of objects? Whereas most research on fluency investigated the perceptual processing dynamics, recent studies extended this approach to the motor domain (e.g. Hayes et al., 2006). Here, we tested the assumption that processing fluency can be grounded in the motor system. Therefore we exploited a typical biomechanic task, the end-state comfort effect: Participants picked up different objects and placed them on a platform. We manipulated how participants grasped the objects by cueing (1) either an over- or underhand grip, and (2) which side of the object should be placed on the target area. After each trial participants rated the object. Liking ratings were higher for objects in the end-state comfort condition compared to the non end-state comfort condition. Hence, the biomechanic properties of our motor system do not only shape the way we use objects, but also how we evaluate them.

How infants aged 14-month detect semantic roles in causal events

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The current study examines 14-month-old's interpretation of causal events and their reliance on particular agent and patient features (e.g., intentionality, movement, change-of-location or change-of-state). Infants were familiarized with different causal events with varying features of the semantic roles. After the familiarization they saw still pictures of the agent and patient and I measured whether the children developed a preference for one over the other (in relation to baseline looking) and therewith distinguished the semantic roles. Preliminary results suggest that 14-month-olds differentiate semantic roles if the agent intentionally act on a passive patient which changes location ($t(15) = -2.610$, $p = .020$) or state ($t(14) = 3.266$, $p = .006$) but they have problems detecting different roles when intentionality and first movement are conflicting ($t(15) = -.849$, n.s.). Pilot results from an older control group (21-months) indicate that with increased language experience children will be able to detect the intentional agent even if the patient is moving first ($t(6) = 2.163$, $p = .074$).

Declarative and procedural working memory: Evidence for analogous processing mechanism

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Based on a model of Oberauer (2009) we compared the management of contents in declarative and procedural working memory. We conducted two experiments in which we orthogonally manipulated the number of items for two list-sets or the number of SR-mappings for two task-sets in a shifting paradigm. Hence we were able to assess task performance and switch costs as a function of the set-size of both the currently relevant and the currently irrelevant list or task, respectively. Our results show comparable effects in both the declarative and procedural subsystems: RTs and accuracy mainly depended on the set-size of the currently relevant list or task, whereas switch costs were primarily influenced by the set-size of the previously relevant list or task. These results support the assumption of two working memory subsystems relying on analogous processing principles.

Do words automatically activate experiential traces? Evidence from a masked priming paradigm

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Embodied cognition models suggest a strong association between words and experiential traces. For example, we typically encounter the word "bird" in the context of looking up to the sky or hearing a birdsong. However, it remains to be answered whether activation of those traces during language processing occurs automatically, potentially supporting meaning comprehension or is an additional strategic component. The current experiment investigated the activation of traces related to referent's location in the vertical space. Words were presented in a forward-backward masking paradigm. Subsequently participants performed an upwards or downwards hand movement according to a coloured square. The prime word's typical location interacted with the response, with faster upwards responses after an up- (e.g. bird) than a down-word (e.g. mouse) and vice versa. Moreover, participants failed in a subsequent task with an identical setup to choose what word they have seen. These findings support strong bottom-up activation of experiential traces.

Effects of temporal stimulus presentation order on discrimination performance:
Evidence for an internal reference model

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When participants' task is to discriminate between a constant standard and a variable comparison stimulus, discrimination performance is generally better when the comparison follows rather than precedes the standard (Type B effect). In contrast to prominent difference models, a simple extension of this model class -- namely the internal reference model (IRM) -- can account for the Type B effect. We examined the predictions of IRM in a two-stimuli duration discrimination task. IRM correctly predicts that the Type B effect has the same magnitude for blocked and random stimulus orders. Furthermore, the predictions of IRM are also consistent with sequential effects on judged duration and with the negative sequential effect reported in single stimulus paradigms.

Spatial implicit learning: Is it based on perceptual or motor processes?

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The existence of visual and spatial implicit learning has by now been demonstrated in several studies. Both learning types are often called "perceptual learning" although this equal treatment remains unfounded and questionable. While implicit visual learning appears to influence encoding processes only, it cannot be ruled out that spatial learning affects output processes by learning a sequence of oculomotor responses. In this study, we developed a task in which we either induced implicit visual or spatial learning of a sequence. We then observed whether these two learning types could be transferred to a motor sequence. Since motor learning is known to be effector independent, a spatial sequence should be transferrable if an oculomotor sequence has been learnt. Visual learning on the other hand should not be transferrable since it only affects encoding processes. Results will be discussed regarding the alleged equivalence of visual and spatial learning processes as "perceptual".

Using single case experimental design to examine determinants of meditation effects

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Buddhist meditation often uses two kinds of techniques: Focused Attention techniques require sustained focusing on a specific meditation object (e.g., breath, mantra) whereas Open Monitoring techniques require observing all events that pass through consciousness (e.g., bodily

sensations, thoughts) without reacting to them. Typically, practitioners mix both techniques, both within and across sessions. Consequently, it has been hard to separate their specific effects in past research. We employed a combined multiple baseline and alternating treatment single-case experimental design to examine specific effects of both techniques. This design can manage without a traditional control group, and allows both between-subject and within-subject comparisons as well as detailed progress analyses. We report first results and discuss the method in respect to its advantages and disadvantages for meditation research and psychological research in general.

Belonging to a majority buffers social exclusion

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Ostracism – being ignored and excluded – threatens four fundamental psychological needs: belongingness, self-esteem, control, and meaningful existence. This immediate negative effect is strong and not easily avoided. Extending prior research, we hypothesized that the membership in a majority, but not in a minority group, buffers these negative consequences. To investigate this hypothesis, participants received false feedback about the belongingness to a majority or minority group and then worked on a scenario, in which they were included or excluded by a group. Results reveal that individuals with a high need to belong experienced a higher need threat under exclusion compared to inclusion when belonging to a minority, but not when belonging to a majority group. Individuals with a low need to belong, however, were unaffected by exclusion. These findings suggest that ostracism's immediate negative impact on psychological needs can be moderated. Further implications will be discussed.

Walking through facilitation and inhibition: Biological movements realized by point light walkers in a response priming paradigm

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Moving stimuli represent salient stimuli which are able, for example, to guide attention and eye movements fast and unintentionally. Until now, there are only few response priming experiments using moving stimuli. Thus, we conducted several response priming experiments with directional moving primes and arrow targets and varied the stimulus onset asynchrony (SOA) between prime and target. In general, we found faster reactions to congruent than incongruent targets with short SOAs but longer reaction times to congruent than incongruent targets with longer SOAs. In the current experiment, we were especially interested in the comparison of biological (i.e., point light walker) vs. nonbiological (i.e., scrambled points) movements. As shown in previous experiments, different time courses result for different kinds of movement. Results were discussed

according to different theories on negative compatibility effects (e.g., self-inhibition account, mask-triggered inhibition account, evaluation window account etc.) and other theories (e.g., attention theories) related to the topic.

Connection of sexual orientation, gender role self-concept and sexual preferences

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Viewing Times (VT) measures allow the assessment of sexual preferences implicitly (Imhoff et al., 2010). However, a relationship between VT and subjective sexual arousal regarding specific sexual preferences has not been investigated so far. Furthermore, the impact of gender role self-concepts on sexual arousal is unclear so far. In this investigation, 66 hetero- and homosexual male participants rated 100 pornographic pictures of ten different categories with respect to subjective sexual arousal while VTs were recorded. Results show correlations between explicit and implicit measurements regarding not preferred picture categories. Two repeated-measurement ANOVAs show differences in explicit ($F=97.52, p<.01$) and implicit measures ($F=15.53, p<.01$) between hetero- and homosexual men. An influence of gender role self-concept was not found. Results support VT as an implicit measurement of sexual arousal and extend knowledge of differential sexual arousal patterns in hetero- and homosexual men by analysing sexual attractiveness for not preferred in contrast to preferred stimuli.

How diversity training can change attitudes: Increasing perceived diversity of superordinate groups to improve intergroup relations

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Diversity training is a popular strategy to manage prejudice both in the workplace and in educational settings. Nevertheless, there is little reliance on social psychological models to conceive such trainings, and a lack of research on training effectiveness. In line with the ingroup projection model (Mummendey & Wenzel, 1999) we presumed that increasing perceived diversity of superordinate groups through diversity training improves attitudes among subgroups. To examine this we conducted training on group diversity using a cross-over design with repeated measurement. 51 students attended voluntarily. We assessed attitudes within the intergroup contexts gender, age, sexual orientation, and nationality. Results confirmed that the diversity training was able to increase perceived diversity of superordinate groups (i.e., adults, Germans) and to improve intergroup attitudes. Moreover, the training had positive long-term effects. An observed reduction of ambivalent sexism was mediated by increased perceived diversity of the respective superordinate group (i.e., adults).

The influence of spatial priming on processing of time-related words

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Recent RT-studies have documented a space-time congruency effect during the processing of time-related words. In these studies processing the temporal content of a word influenced a subsequent spatial response: subjects responded faster to future (past) related words with the right (left) hand. However, little attention has been paid to the question whether activation of spatial dimensions in turn influences the processing of time-related words. To clarify this issue, a priming experiment was carried out. Arrows pointing to the left or right were used as primes followed by a time-related word or a pseudoword. Subjects had to respond to natural words with a left (right) keypress and to pseudowords with a right (left) keypress. If activation of the spatial dimension influences the processing of time-related words, a space-time congruency effect should emerge. The results are discussed within in the framework of Metaphoric Mapping Theory.

No evidence for the influence of distance between response keys on categorization times

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Lakens, Schneider, Jostmann and Schubert (2011, *Psychological Science*, 22(7), 887-890) reported that the classic Stroop effect is enhanced if the physical separation between response keys is increased. Based on this finding, they suggested that categories are generally coded in a space-related reference frame, even if the categories are not related to space. We tested this idea by replicating their study, but controlling for possibly confounding factors (e.g., separation of response keys was confounded with a categorical variable) and varying response key distances between 6, 57 and 108 cm. In $N=36$ participants, we found the classic Stroop effect ($p < .001$), but no evidence for an interaction with distance of response keys ($p = .59$). We conclude that their results may be artifactual. Thus the claim that any categories are automatically coded in a space-related reference frame may not be sustainable.

The own-age bias in face recognition memory does not depend on attention during learning

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Young participants are more accurate at remembering faces of their own age relative to old faces. This study tested whether this so-called own-age bias (OAB) is based on differences between

young and old faces in capturing attention during learning. In the learning phases of a recognition memory experiment, letter strings were shown superimposed on young or old faces, and young adult participants indicated either whether the string contained an X or N (letter task), or whether the face was old or young (face task). Although recognition memory was substantially reduced in the letter task, participants exhibited a similar OAB in both learning conditions. Additionally, event-related potentials (ERP) revealed that more positive amplitudes for young faces in the occipito-temporal P2 – an ERP correlate of facial age processing – were independent of learning condition. Thus, neither the OAB nor the electrophysiological correlate of age processing was modulated by attention during learning.

I am where I am – surrounding effects on self-reported work-family balance in a bogus pipeline experiment

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N = 80 working parents were administered a questionnaire on career- and family-orientation either at their office (n=40) or at home (n=40). Half of the participants in each surrounding condition were asked to have their pulse and blood pressure taken before and after filling in the questionnaire "in order to control for effects of socially desirable responding". As expected, self-reported career-orientation was significantly higher when the questionnaire was filled in at the office rather than at home. This main effect of surrounding was significantly diminished when participants believed that "lies" would be detected, supporting the idea that it is open to conscious correction when salient. Family-orientation was higher than career-orientation throughout conditions, and it was not affected by surrounding. Under bogus-pipeline conditions, however, participants "admitted" higher family orientation when responding in their office rather than at home. Results are discussed on the background of state-dependent retrieval effects in episodic memory.

The development of associative processes in free recall

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The dynamics of episodic free recall can be examined via lag-CRPs (i.e., conditional recall probabilities as a function of lag). Lag-CRP curves show that participants' proceeding during recall is usually characterized by an advantage for transitions to nearby items and a bias for forward transitions (the lag-recency effect). Lag-CRPs have been used to describe the strength of temporal associations, that is, the ability to bind items to the context they were presented in. We examined the development of lag-recency effects. First-graders, fourth-graders, and young adults, heard lists of words and were asked for immediate free recall. Each age-group exhibited

the lag-recency effect, suggesting that temporal contiguity already influences memory performance in school-age children. However, the effects were less pronounced in children, indicating that temporal-associative processes may not be fully developed in these age groups.

It's a kind of magic! Investigating insight with magic tricks

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Despite more than 50 years of research, the phenomenon of insight still remains elusive. We propose a new approach by introducing magic tricks as an insight problem solving task, arguing that in order to gain insight into the magicians' secret method, observers must overcome implicit constraints through restructuring and insight. 50 participants watched 37 video clips of magic tricks and were asked to find out how the trick was accomplished. Upon solving, participants indicated if they had reached the solution either through insight (accompanied by an Aha! experience) or analytically (without Aha! experience). Insight was reported in 39% of solutions. In comparison with analytical solutions, insight solutions were more likely to be true and were reached earlier. Overall, 49% of trials were solved showing the paradigm's feasibility. Providing a proof of concept, this study demonstrates the great potential of using magic tricks as a task that reliably elicits insight.

NMDA-receptor-coagonist d-cycloserine facilitates sleep-dependent consolidation of declarative memories

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Sleep is pivotal to the consolidation of newly encoded information. However, the neuronal processes involved are only beginning to be understood. A strong line of research suggests that learning new information is accomplished by plastic changes, such as NMDA-receptor-mediated long-term-potentiation. Memory traces are consolidated by repeated reactivation during sleep, which equally depends on plastic changes. The present study investigated, if sleep-dependent consolidation may be facilitated by administering d-cycloserine (DCS), a NMDA-receptor positive modulator. The participants learned a declarative (word-pair-association task) and a procedural (finger-sequence-tapping task) memory task in the evening and immediately thereafter received 175 mg DCS or placebo orally. At recall the next evening (24 hrs after learning) the participants remembered significantly more words, when they had received DCS. Finger sequence performance at recall was equal between the conditions. These data imply that sleep-dependent consolidation of declarative memory traces relies on NMDA-receptor-related plastic processes.

Dissociable brain oscillatory correlates of successful memory formation during survival versus semantic processing

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Processing words for survival relevance has been shown to lead to superior memory performance compared to several other deep encoding strategies. To investigate the unknown neural basis of this effect, brain oscillatory activity related to successful encoding elicited by survival and semantic processing was contrasted. In the experiment, subjects judged words either for survival relevance or for animacy, as indicated by a cue presented prior to the item. Survival processing led to higher memory performance than semantic processing and had differentiable impact on the brain oscillatory correlates of encoding. For survival processed items, successful encoding was predominantly related to oscillatory activity elicited by the pre-item cue, whereas successful encoding in the semantic processing condition was primarily related to activity elicited by the item. The survival processing advantage therefore may arise from stronger cue-related task context processing, whereas successful semantic encoding depends on item specific processing.

Associative redundancy gain

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The present study examined whether a redundancy gain can be observed when participants have to respond to semantic associations of stimuli. In a go/nogo task, participants were asked to respond to words (e.g., elephant) based on their associated color (e.g., gray) and category (e.g., animal). For each participant, one of three colors (gray, brown, or white) and one of three categories (animal, food, or object) were defined as targets. Some words were associated with either two targets (redundant-target condition) or one target and one non-target (single-target conditions). These words required a manual response. Other words were associated with two non-targets and participants were asked not to respond to these words. Most important, we observed shorter reaction time in the redundant-target condition than in the faster single-target condition indicating that a redundancy gain can result from semantic associations of stimuli.

Mood states determine cognitive control regulations of task shielding in dual-task performance

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Current models of multitasking assume the involvement of cognitive control in dual-task performance. Hereby, cognitive control is assumed to regulate the amount of shielding the processing of the prioritized task from influences of secondary task processing (i.e., crosstalk). In this study we investigated how these parameters of task shielding are influenced by different mood states. For this, participants were either exposed to two short film clips with negative content of either high or low arousal (negative valence group) or to film clips with positive content of high or low arousal (positive valence group). Results showed stronger shielding of the prioritized task, reflected in reduced amounts of crosstalk in conditions of negative compared to positive mood states, independent of arousal. This valence effect was especially pronounced immediately after mood induction. These results converge with assumptions that emotional mood states determine cognitive control parameters that are required for successful dual-task performance.

Synchronization and timing of professional musicians: A comparison between orchestral brass and string players

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Musicians have to coordinate complex rhythmic movements when playing their instruments. They need years of deliberate practice to learn how to adjust their timing behaviour as good as possible to the acoustic characteristics of their own instrument as well as to the spatial position in the orchestra respectively. In the present study, two different experimental paradigms were used to investigate the timing skills of professional musicians. The aim was to examine whether orchestral brass and string players show differences in synchronization performance under varying conditions: (1) Simple finger tapping task to a metronome, and (2) synchronization task by playing an instrument (violin, viola, trumpet, trombone) with a simple metronome sequence (in each case the stimulus sound was the same as the instrument sound) with varying interstimulus-onset intervals (IOI) = 300, 400, 500, 600, and 1000 ms. The results show significant differences in synchronization performance.

Changes in pain perception through aversive visual stimuli: The importance of differences in anxiety

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The effect of the treatment of chronic pain with psychotherapy has changed over the years. The effect sizes show higher ranges from no to high effects (Kröner-Herwig, 2009). Personality factors are more and more relevant. Recent literature shows a relationship between pain and anxiety as a trait (Ploghaus et al. 2003). In this study we investigated whether there are differences in pain perception after aversive visual information exposition in subjects with high and low anxiety values. Results indicate a deeper elaboration of aversive pictures in subjects with high anxiety values. This elaboration may strengthen their ability to cope with pain perception.

Implizites Lernen bei Kindern mit entwicklungsbedingter Lese-Rechtschreib-Schwäche

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Bislang ist unklar, ob implizites Lernen bei Kindern mit Lese-Problemen intakt ist. Jiménez-Fernández et al. (2010) fanden Defizite im impliziten Sequenzlernen bei lese-rechtschreib-schwachen Kindern, während andere Autoren bei Erwachsenen mit LRS unbeeinträchtigtes implizites Sequenzlernen berichten (Rüsseler et al., 2006). In einer Sequenzlernaufgabe (Jiménez-Fernández et al., 2010) wurden die Reaktionszeiten bei einer strukturierten Sequenz und einer zufälligen Anordnung gemessen. Eine Hälfte der Versuchsteilnehmer lernte unter expliziten Bedingungen, die andere unter impliziten Bedingungen. Vier Gruppen mit je 16 Kindern nahmen an der Studie teil. Beim artifiziellen Grammatiklernen (AGL) wurden Buchstabenfolgen gezeigt, die nach festen Regeln konstruiert sind. In der darauffolgenden Testphase mussten die Versuchspersonen (n=20 pro Gruppe) neue Buchstabenfolgen entsprechend ihrer grammatikalischen Struktur einordnen. Kinder mit LRS lernten die Sequenz weder unter impliziten, noch unter expliziten Instruktionsbedingungen. Die Ergebnisse deuten darauf hin, dass implizites Lernen bei Kindern mit LRS intakt ist.

Cortical background of sentence understanding - a single pulse TMS study

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This study explored sentence processing, with focus on two different components: Understanding sentences relies on accessing meaning of single words (lexical access) and the integration of the

single words into the sentence context (contextual integration). The two components differ in their neuronal structure. Lau et al. (2008) proposed a contextual language processing framework, in which the middle temporal gyrus is involved in lexical access whereas contextual integration is associated with the angular gyrus. In this study sentences with different cloze probability endings were presented followed by a semantic decision task. Single pulse TMS was applied to either disrupt lexical access of the ending or its integration. The results are hoped to establish a clear cut differentiation between the neuronal structures of lexical access and semantic integration and thereby support Lau et al.'s (2008) framework. Lau, Phillips, Poeppel (2008). A cortical network for semantics: (de)constructing the N400. *Nat.Rev.Neuroscience*, 9, 920-33.

Experience or theoretical knowledge - what is needed to recognize baggage thieves prior to a deed?

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Experienced police officers as well as novices are able to recognize baggage thieves prior to a deed (Bättig, Frey, & Hofer, 2011). Police officers' performance though was significantly better than performance of novices. In this study, we replicated these first findings and furthermore examined whether it is rather implicit knowledge, gained through professional experience for several years, or explicit knowledge about suspicious behavior that explains the better performance of police officers. The participants were shown twelve authentic baggage theft movies from CCTV-cameras. The movies were cut into three sequences, each sequence lasting at least 10 seconds. After each sequence participants marked their suspects. Three different groups of participants were tested: experienced police officers, police officers with less than 2 years job experience and students. The results show the influence of experience and knowledge on performance on recognizing thieves prior to a deed.

Clinical effects in holistic face processing

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Researchers repeatedly showed that face processing differs significantly from processing of other objects. Processing of faces seems to work on a holistic rather than a featural basis (e.g., Farah, Wilson, Drain, & Tanaka (1998). What is "special" about face perception? *Psychological Review*, 105, 482-498.) Here we want to show that especially clinical populations –social phobics (n=15) and depressive patients (n=25) – differ from a healthy control group (n=30) by using experimental designs with locally and globally manipulated (expt. 1) as well as contextually modulated (expt. 2) faces. Results revealed that clinical groups, particularly depressive patients, generally perform on a weaker level than healthy controls. Also, they are less sensitive for global

face manipulations and showed greater bias in incongruent face context. These results suggest a global cognitive impairment through psychological and mental illnesses and primarily for depressive patients a differential impairment of holistic face processing.

The perception of visual delay in naturalistic environments: The influence of different computer tasks

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Studies describing the individual threshold for recognizing visual delay of intended movements show strong distinctions from 69ms (Jay & Hubbard, 2005) up to over 200ms (Shimada et al., 2009) in laboratory conditions. In naturalistic environments like personal computers, the task and the situation might interfere with the chance to notice a delay. To answer this question we studied the perception of visual delay of computer users. 24 subjects participated on eight conditions. The conditions were computer system (old and new) and task (writing task with or without delay and a simple shooting game with or without delay). The subjects did not significantly perceive a delay. But there was a trend at the shooter game with delay condition. Results are discussed regarding the transfer from laboratory experiments to the computer workplace.

Visual features' representations in an n-back letter match task

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Phonological representations are prevailing in verbal working memory - but does this mean that the visual codes initially established in written language processing do not affect working memory performance at all? From letter matching experiments, it is known that non-phonological characteristics of alphabetic letters like letter case (e.g., Posner, Boies, Eichelman, & Taylor, 1969) and font style (Kirsner & Sang, 1979) influence response speed and error rates. In order to extend these findings to working memory, an n-back letter matching task was designed. The match had to respect the letters' names while the graphemic variants of a letter name could differ regarding case and/or font. It is hypothesized that diverging fonts, supposedly constituting relatively superficial characteristics, will influence performance measures (speed, accuracy) only in immediate matches ($n=1$), while different cases, which should be represented on a more abstract level, will affect performance also at $n=2$. Data collection is still going on.

The interplay of implicit and explicit adaptation to a visuomotor transformation in the elderly

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Learning a visuomotor transformation can be implicit or explicit, but the relationship between both processes in motor learning is still poorly understood. Research has shown that in younger age adaptation to a novel transformation is the sum of implicit and explicit adaptation measured in isolation. We explore the relationship between both processes in older age. Therefore, we investigate the adaptation of elderly participants to a visuomotor rotation under varying degrees of impact of explicit adjustments. While group 1 is exposed to a gradual rotation of cursor movements with respect to hand movements, groups 2 and 3 are exposed to a sudden rotation. Group 3 is additionally informed about a strategy to compensate for the rotation. We expect to find group differences in the proportion of explicit and implicit adjustments, with implicit adjustments dominating adaptation to gradual rotations; overcompensations are expected resulting from explicit adjustments adding up to the implicit adjustments.

Embodied language understanding in infancy

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The embodied view of language understanding assumes that, in adults, language and action form an integrative system where they both are closely interrelated. In contrast, little is known about the interrelation of language and action early in life. In two studies, we investigated the influence of language on action. Infants from 12 to 30 months were presented with videos of actions that were either labeled (label condition) or not (baseline condition). Action prediction was measured via anticipatory eye movements using eye tracking. In Study 1, familiar and novel actions were presented, in Study 2 we used actions whose labels were acquired either early or late. Results of both studies show that language modulates action prediction. Language is integrated into action perception depending on the familiarity of the verb. The results suggest that language and action form an integrative system already at the onset of language acquisition.

Does the brain integrate sensory and motor timing for accurate actions?

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Perceptual and motoric timing was compared, and the influence of perceptual time information on motoric time control was evaluated. We used two different tasks: duration comparison and

duration reproduction. For the duration comparison task, participants heard two tones with different durations and had to indicate which is the longer. For the reproduction task, a standard tone was presented and then participants had to press a button for the "same" amount of time. In half of the trials we gave auditory feedback and in the other half there was no auditory feedback. In the latter participants had to rely on motoric timing. Variability in the reproduction task without feedback was lower than in the duration comparison task. Auditory feedback reduced the variability of the duration reproduction. Results from Maximum-Likelihood-Estimation (MLE) showed that MLE fits well, providing behavioral evidence of how the brain combines motoric and sensory information during action timing.

Cross-modal processing of emotional pictures and sounds

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While several studies exist on perception of auditory or visual information, systematic research on multimodal emotional information processing and cross-modal interactions is still scarce. Thus, the present study investigated whether the simultaneous presentation of emotional pictures and sounds reciprocally influences the processing in visual and auditory cortex areas. Seventeen healthy subjects were presented pleasant, neutral and unpleasant pictures in combination with pleasant, neutral and unpleasant sounds. During the presentation of these stimulus combinations the activity of visual and auditory cortex areas was measured with functional near infrared spectroscopy (fNIRS). Additionally, valence and arousal ratings were obtained. Preliminary analyses showed that emotional sounds were processed more intensively within the auditory cortex compared to neutral sounds and emotional pictures were more intensively within the visual cortex compared to neutral pictures. These effects were even more pronounced when congruent compared to incongruent emotional information was simultaneously presented to the other modality.

Cortical processing of change in sound location: Smooth motion versus discontinuous displacement

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The auditory processing of different types of spatial change, induced either by smooth motion or abrupt and discontinuous displacements of ongoing sound sources, was investigated using electroencephalography. Eighteen participants listened to a free-field sound stimulus that, after an initial stationary phase in a central position, either started to move horizontally (motion), or

changed repetitively its spatial position within left or right hemispaces (scatter), or shifted abruptly toward a lateral position (displacement). The onset of each spatial change elicited a characteristic sequence of auditory evoked potentials, with only gradual differences in response amplitudes and latencies: Scatter and displacement produced stronger responses than motion, and inter-hemispheric asymmetry patterns in response to scatter differed from those obtained with motion and displacement. These findings suggest the existence of an auditory "spatial change response", that is, a common electrophysiological correlate of auditory processing of any spatial change in the environment, without genuine motion specificity.

Acquiring meaning on the fly - how are artificially learned novel colour words integrated into lexico-semantic memory?

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Previously, we showed that unfamiliar and just recently learned colour words can quickly produce a Stroop effect in the same way as first or second language colour words can. In our recent iteration of the experiment, we reduced the amount of exposure during learning and added two neutral conditions to the Stroop task next to congruent and incongruent colour words, to assess the semantic status of the newly learned words in more detail. We could show that even with reduced opportunity to learn the meaning of the novel words, a Stroop effect due to semantic interference emerges. These results are strong evidence for early semantic integration in second language learning.

Ego-depletion: Moderation durch Selbstregulation und Selbstkontrolle

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Die Selbstkontrolle unterliegt einer begrenzten Ressource, die erschöpft werden kann. Dies veranlasste Muraven und Baumeister (2000) dazu, die Muskelmetapher zu postulieren. Diese impliziert, dass Personen mit hoher volitionaler Kompetenz weniger anfällig für den Ego-Depletion Effekt sind. Diese Hypothese zwischen Trait- und State-Maßen der Selbstkontrolle wurde bisher wenig empirisch untersucht (Friese & Hofmann, 2008; Gailliot, 2007) und wird in der vorliegenden Studie getestet. Die Selbstregulations- und Selbstkontrollkompetenzen werden dazu anhand der Volitional Components Checklist (VCC-4, Kuhl & Fuhrmann, 1994) erhoben. Die Versuchspersonen werden durch eine Emotionsregulationsaufgabe volitional erschöpft und bearbeiten anschliessend den Selbstregulationstest für Kinder (SRTC; Kuhl & Kraska, 1992, 1994). Bei hoher impliziter und expliziter Aufmerksamkeitskontrolle und Impulskontrolle wird ein geringerer Ego-Depletion Effekt durch eine geringere Reaktionszeit-Interferenz, bei hoher

Überkontrolle hingegen ein erhöhter Ego-Depletion durch eine verstärkte Reaktionszeit-Interferenz gezeigt.

Implicit and explicit adjustments of cognitive control in dual-task performance

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The simultaneous handling of two tasks requires an adaptive regulation of cognitive control to shield prioritized primary task processing from crosstalk-interference caused by secondary task processing. The flexibility of primary task-set shielding was investigated by location-dependent manipulations of between-task crosstalk-interference proportions (i.e., high vs. low crosstalk location). In Experiment 1, participants implicitly learned to dynamically adjust the extent of primary task-set shielding in a location-specific manner: In Block 2, task-set shielding was increased at the location associated with higher between-task interference. Additional cues, validly indicating the interference level in the next trial did not help to further optimize task-set shielding (Experiment 2). However, cues indicating the location of subsequent stimulus-presentation resulted in an instant adjustment of task-set shielding also in the first part of the experiment (Experiment 3). These results highlight the role of situation-based (implicit) and cue-based (explicit) regulations of cognitive control in primary task-set shielding in dual-tasks.

Discrete vs. analogue transitions in an interactive map: Effects on mental model formation?

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Elderly participants (N = 33, mean age = 60 years) with different scores in computer literacy (CL) had to solve location tasks with a browser-based map. In a pre-study we expected differences in the mental model when varying the transition between map areas. Each group worked either with analogue or with discrete transitions. In contrast to the hypothesis the results show no performance differences for the both groups. The effects of the CL-score on interaction parameters are inconsistent and need more research. Participants with high CL-scores showed less map actions, but participants with high values in self-reported computer usage showed more map actions. Therefore, we are working on a further study with a larger map and more challenging tasks. Furthermore, the aim is to have participants with a larger spread in CL-scores and to control more potential moderator variables like spatial reasoning and eye-hand-coordination abilities.

Effects of sleep deprivation on prospective memory

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Failures of prospective memory (PM), i.e. forgetting to perform intended actions, can have severe consequences in safety-critical domains such as healthcare and aviation. Sleep loss reduces cognitive performance and contributes to accidents; however, the effects of sleep deprivation on PM performance are unknown. We used an event-based laboratory PM task to investigate the effects of sleep deprivation (26 h of sleep deprivation vs. rested) and cue focality (focal vs. nonfocal) on PM performance. PM performance was worse with nonfocal cues and when sleep deprived, with no interaction. These results suggest a domain-unspecific effect of sleep deprivation on human cognition in contrast to a domain-specific effect on prefrontal cortex function. Sleep deprivation increases the likelihood of PM failure which may have severe consequences in safety-critical domains.

Der Einfluss der Entscheidungsdomäne auf die Annahme von Ratschlägen

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Entscheidungen zu treffen ist ein unabdingbarer Prozess im Alltag, ebenso wie bei Unsicherheit Rat einzuholen. Diese Onlinestudie untersuchte den Zusammenhang zwischen dem Bekanntheitsgrad der Entscheidungsdomäne und der Häufigkeit, mit der Ratschläge angenommen werden. Zusätzlich wurde der Einfluss der für die Entscheidung zur Verfügung stehenden Zeit betrachtet. Wir erwarteten in der unbekannten Domäne eine Präferenz, Expertenrat anzunehmen, und in der bekannten Domäne eine Präferenz für Laienrat. Probanden wurden gebeten, in 20 fiktiven Konfliktsituationen Entscheidungen zu treffen. Sie konnten wählen, ob sie alleine oder mit Hilfe eines Ratschlags entscheiden wollen. Denjenigen, die einen Rat einholten, wurde jeweils ein Rat von einem Experten und einem Laien präsentiert, zwischen denen wiederum entschieden werden musste. Die Ergebnisse zeigen, dass in unbekannter Domäne eher Rat eingeholt wird. In beiden Domänen stammt dieser vorzugsweise von Experten. Zeitdruck führt nicht dazu, dass häufiger Ratschlag angenommen wird. Diese Ergebnisse sind entgegengesetzt unserer Hypothesen und bieten Ansatzpunkte für weitere Forschung.

Schnelle Informationsverarbeitung bei Blut-, Spritzen- und Verletzungsängstlichen

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Obwohl Spinnen- als auch Blutphobie zu den spezifischen Phobien zählen, unterscheiden sich beide Phobietypen grundlegend. Beispielsweise neigen Blutphobiker bei einer Konfrontation mit ihrem angstrelevanten Stimulus zu einem Abfall von Blutdruck und Herzfrequenz bis hin zu Ohnmachtsanfällen. Bekannterweise verarbeiten Spinnenängstliche angst-relevante Reize im Vergleich zu neutralen Stimuli besonders schnell (z.B. Öhman et al., 2001). Nun ist fraglich, ob sich beide Phobietypen ebenfalls hinsichtlich ihrer frühen Informationsverarbeitung unterscheiden. Zur Untersuchung der Fragestellung nahmen blutängstliche und nicht-ängstliche Probanden an einem Response Priming-Experiment teil. In jedem Durchgang präsentierten wir den Probanden in schneller Abfolge einen Prime und einen nachfolgenden Zielreiz. Beide Reize wurden zufällig aus einer von zwei Bildkategorien gezogen (verletzte vs. unverletzte Körperteile). Die Probanden kategorisierten die Zielreize so schnell wie möglich. Alle Versuchsteilnehmer zeigten reliable Priming-Effekte, die schnellsten Reaktionszeiten erzielten aber blutängstliche Probanden bei der Antwort auf ihre angstrelevanten Zielreize. Die Ergebnisse werden hinsichtlich der kognitiven Unterschiede von Blut- und Spinnenängstlichen diskutiert.

Becoming familiar with perceptual item features: Behavioral and ERP correlates of familiarity and recollection for perceptually changed versus identical pictures

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Dual-process models postulate that both familiarity and recollection contribute to recognition memory retrieval. However, the relative contribution of conceptual and perceptual features for these processes remains open. Here, we investigated the role of stimulus variations (e.g. left-right orientation) for behavioral and event-related potential (ERP) correlates of familiarity and recollection. During an incidental learning phase, twenty young adults were to decide whether visual stimuli were more commonly found indoors or outdoors (shallow encoding). During test, participants indicated whether each picture was perceptually identical, perceptually changed or completely new. Next, study and test phases were repeated under explicit encoding instructions. Item and source memory were higher for identical versus changed item repetitions, especially in the first test. ERP results suggest reliable old/new-effects in three consecutive time windows between 250 and 700 ms, irrespective of item type and test phase. Together, these results suggest that conceptual item processing is complemented by perceptual features.

Latency in computer work: Differences between old and new systems

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Although ergonomic innovations found one's way into the modern personal computer (PC) workplace, repetitive strain injury (RSI) still impacts the daily work (Klussmann et al., 2008). Some etiological details of RSIs are still unclear. Recent literature showed that incongruence between visual and proprioceptive information (IVPI) during movement may lead to changes in pain perception (Christ et al. 2010; McCabe et al., 2005). Furthermore it seems that the individual threshold (IT) for recognizing a visual delay may be a moderating factor between visual delay, motion and pain during a key press movement (Christ et al. 2011). Recent literature shows that PC-Keyboards produce IVPI (Shimizu, 2002), but there is no information about the latency of PC-Systems. This study aimed to evaluate this latency. Results showed that an old computer system was 44.37ms faster than a new one. Results are discussed regarding new ergonomic interventions and etiological principles of RSI.

Buying decisions: How does objective consumer expertise influence the use of recommendations and product attributes as decision support?

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Consumers value product recommendations higher than product attributes as a function of their product expertise (Duhan et al., 1997). However, the significance of this effect in situations where different recommendation sources and different product categories are considered is still unclear. This was addressed in the current study. 163 participants chose among three products in two product categories (mobile phones, hotels) in 20 consecutive choice tasks (choice-based-conjoint-task). For each product four recommendations and four product attributes were explicitly indicated. Participants' product expertise was evaluated by a 16-item-questionnaire. The interaction of the influence of recommendations and product attributes with the expertise was significant for mobile phones ($F(1, 161) = 10.64, p \leq .001$) but not for hotels. Parameter estimates show that a higher product expertise resulted in a decrease of the influence of the recommendations for mobile phones. Thus, individual expertise influences the use of recommendations in buying decisions, but this effect depends upon product category.

Mobilitätsverhalten in Abhängigkeit infrastruktureller Veränderungen im öffentlichen Nahverkehr

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Mit dem steigenden Anteil des motorisierten Individualverkehrs am Mobilitätsverhalten der Menschen in industrialisierten Zivilisationen geht eine Vielzahl ökologischer und volkswirtschaftlicher Probleme einher. Neben der Verkehrswissenschaft untersucht auch die Psychologie potenzielle Erklärungen für das Verkehrsmittelwahlverhalten. Dazu wurde in bisherigen psychologischen Publikationen hauptsächlich die Theorie des geplanten Verhalten (Ajzen, 1991) herangezogen. Wir wählen hingegen einen verhaltenswissenschaftlichen Ansatz, welcher Konzepte der Verhaltensökologie und -psychologie, sowie der Sozial- und Kognitionspsychologie mit volkswirtschaftlichen und spieltheoretischen Modellen integrieren soll. In einer ersten empirischen Untersuchung befassen wir uns mit der Veränderung der Verkehrsmittelwahl der Bewohner eines Studierendenwohnheims in Braunschweig im Zuge der Etablierung einer direkten Straßenbahnverbindung vom Wohnheim zum Zentralcampus der TU Braunschweig. Auf Grundlage der Ergebnisse einer Online-Erhebung wird die Rolle psychischer Faktoren für eine nachhaltige Entwicklung des Stadtverkehrs kritisch diskutiert, wobei wir insbesondere auf die Bedeutung experimenteller Feldforschung eingehen werden.

"Pay what you want": The interplay of reciprocity norm and freedom of choosing the price on purchase behavior

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After receiving a small gift, consumers' willingness to buy a product often increases (norm of reciprocity). Allowing customers to choose the price for a product (Pay What You Want = PWYW) also often increases sales. In a field experiment we combined both strategies: Customers ($N = 300$) at a muffin sale either did or did not receive a gift and were then asked to pay either a fixed price or whatever they wanted. Fixed prices were either low or high, and PWYW customers had to name their price either before tasting, or after tasting a fresh muffin, or after tasting a stale muffin. At fixed prices, reciprocity caused a higher likelihood of purchasing the expensive product. In the PWYW conditions, reciprocity caused an increase in prices paid. Interestingly, this effect was equally strong whether or not customers had tried the unsatisfying product. Implications will be discussed.

Wer hat Angst vorm schwarz(haarig)en Mann? Effekte von Haarfarbe und Gesichtsausdruck auf das Erkennen von Waffen und Werkzeugen

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Keith Payne zeigte in einer vielbeachteten Studie (2001), dass nach Zeigen eines schwarzen Gesichts Waffen schneller und mit weniger Fehlern erkannt werden als nach der Präsentation eines weißen Gesichts. Im vorliegenden Experiment wurde Payne's Paradigma genutzt, um den Einfluss weiterer möglicher Personenmerkmale auf die Identifikation von Waffen zu untersuchen. Als Prime-Stimuli wurden Gesichter verwendet, die sich in ihrem emotionalen Gesichtsausdruck, dem Geschlecht sowie der Haarfarbe unterschieden. Die Aufgabe der Probanden bestand darin, die gezeigten Target-Bilder (Waffe vs. Werkzeug) unter hohem Zeitdruck zu klassifizieren. Entsprechend unserer Erwartungen war die Identifikation als "Waffe" nach der Darbietung dunkelhaariger oder unfreundlicher Gesichter erleichtert, während das Geschlecht keinen Einfluss hatte. Diese Ergebnisse belegen, dass über Rassenstereotype hinaus auch andere Merkmale der Personen bei der Einschätzung der Bedrohlichkeit einer Situation eine wichtige Rolle spielen. Paynes Waffenparadigma ist ein geeignetes Werkzeug, um weitere Faktoren zu identifizieren.

From non-symbolic competencies to symbolic skills

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Mathematical concepts guide our daily lives. General concepts consist of procedural and conceptual knowledge. However, little is known how these concepts actually develop. Some researchers think that procedural and conceptual knowledge develop iteratively, starting on a pre-numerical level (Baroody & Gannon, 1984; Resnick, 1992). In this regard, Sherman and Bisanz (2009) demonstrated positive effects of non-symbolic material on second-graders' procedural skills. Our study focused on the transition of pre-numerical to symbolic knowledge, using commutativity. In the first experiment, we examined the effect of non-symbolic material on procedural knowledge with children who had just entered school. Even these young children showed a positive effect of non-symbolic material on procedural skills. In a replication with slightly older first-graders, we also assessed conceptual knowledge. Results replicated the positive influence of non-symbolic material on procedural skills, but indicated no benefit for conceptual knowledge. Furthermore, procedural and conceptual knowledge were not related very well.

Likelihoodalarne im Fahrzeug: Strategien zur Vorbereitung des Fahrers auf Automationsfehlverhalten bei automationsunterstütztem Fahren

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Der Grad an Fahrzeugautomation nimmt stetig zu. Die zunehmende Fahrzeugautomation erfordert eine zunehmende Genauigkeit der sensorischen Umwelterfassung, die jedoch nicht immer gewährleistet ist. Eine Verschlechterung der Umfelderkennung kann zu einem Fehlverhalten des Assistenzsystems führen. Allerdings ist dies nichtzwangsläufig. Das Problem besteht somit darin, den Fahrer so über ein mögliches Fehlverhalten des Assistenzsystems zu informieren, dass er beim tatsächlichen Fehlverhalten vorbereitet ist, dass die Effektivität der Warnung nichtbeeinträchtigt wird, wenn es nicht zum Ausfall des Assistenzsystems kommt und dass der Fahrer insgesamt das Vertrauen in das Assistenzsystem nicht verliert. Der Ansatz der Likelihoodalarne berücksichtigt die unreliable Natur solcher Warnungen. Auf Basis dieses Ansatzes wurde eine Warnung gestaltet, die den möglichen Ausfall der Automation an den Fahrer rückmeldet. Dies wurde in einem between-subjects Fahrsimulatorexperiment mit 40 Versuchspersonen hinsichtlich Folgsamkeit des Alarms und Automationsvertrauen untersucht. Die Likelihood-Warnung wurde mit einer konventionellen Warnung verglichen, und die Reliabilität des Alarms variiert.

Ocular tracking of biological and non-biological motion: The effect of Instructed agency

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Recent findings suggest that visuo-motor performance is modulated by people's beliefs about the origin (e.g., animate vs. inanimate) of the events they perceive. This study investigated the effect of instructed agency on ocular tracking of point-light motions with biological and non-biological velocity profiles. The motions either followed a relatively simple (ellipse) or a more complex (scribble) trajectory, and agency was manipulated by informing the participants that the motions they saw were either human or computer generated. In line with previous findings, tracking performance was better for biological than non-biological motions, and this effect was particularly pronounced for the simpler (elliptical) motions. The biological advantage was also larger for the human than the computer instruction condition, but only for a measure that captured the predictive component of smooth pursuit. These results suggest that ocular tracking is influenced by the internal forward model people choose to adopt.

Morphologisches Priming unregelmäßiger Verben im Deutschen: Einzelworterkennung und Satzlesen

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In einer lexikalischen Entscheidungsaufgabe mit maskiertem Priming finden Crepaldi et al. (2010) für unregelmäßige Verben im Englischen einen Verarbeitungsvorteil bei morphologisch verwandten Primes (z.B. fell-fall) im Gegensatz zu orthographisch ähnlichen Kontrollwörtern. Wir untersuchen diesen Einfluss im Deutschen. Wir primen mit der Grundform (z.B. laufen-liefen), wobei alle Zielwörter flektierte unregelmäßige Verben mit niedriger Frequenz sind. Die Ergebnisse lassen sich eher im Sinne einer orthographischen Hemmung interpretieren, da sich die morphologische Bedingung nur von der orthographischen, nicht aber von der unrelatierten Kontrollbedingung signifikant unterscheidet. In einem zweiten Experiment haben wir vor, diesen Einfluss beim Satzlesen mit einem Boundary-Paradigma zu untersuchen. Ähnlich Crepaldi et al. erwarten wir verlängerte Fixationsdauern auf den orthographischen Kontrollwörtern. Gleichzeitig können wir untersuchen, ob der von Kliegl et al. (2006) gefundene parafoveale Frequenzeffekt des nächsten Wortes auf die aktuelle Fixationsdauer auf die Wortform- oder die Lemmafrequenz zurückzuführen ist.

Absolutes Gehör mittels adaptiven Paar-Assoziations-Lernens?

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Das Absolute Gehör (AG) bezeichnet die Fähigkeit, einen Ton ohne Referenz eines anderen Tones benennen oder wiedergeben zu können (Deutsch, 2002; Levitin & Rogers, 2005; Takeuchi & Hulse, 1993; Vitouch, 2003; Zatorre, 2003). In der Literatur werden sowohl genetische (z.B. Theusch et al., 2009) als auch lerntheoretische Aspekte (z.B. Baharloo et al., 1998) für den Erwerb des AG diskutiert. In dieser Studie wurde der Frage nachgegangen, ob einfache Paar-Assoziations-Mechanismen beim Erwerb des Absoluten Gehörs eine Rolle spielen. Hierfür lernte eine Experimentalgruppe in einem zwei-wöchigen adaptiven Training den zwölf Halbtönen von a (220 Hz) bis gis' (415,30 Hz) ihre Tonnamen zuzuordnen. In einem Vor-, Nach- und Follow-up-Test wurden die relativen Häufigkeiten korrekter Antworten und die mittlere Abweichung in Halbtonschritten in einer Tonbenennungsaufgabe erfasst. Anhand der Konfusionsmatrizen zeigte sich ein signifikanter Effekt des Trainings, der darauf hindeutet, dass Absolutes Gehör auf einem einfachen Lernmechanismus beruht.

Enjoyment of physical activity in dance: Role of instruction, task complexity and movement composition

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Experiencing enjoyment of physical activity during learning of novel movements is essential for maintaining a newly acquired physical activity behavior. Competence and movement enjoyment estimations are related to the experience of congruency (coherence, identification) and efficiency (skill). In two experiments we tested whether the variables instruction, task complexity and movement composition have an influence on valence and competence estimations in dance. In Experiment 1, subjects learned dance movements at different levels of task complexity (low, middle, high) and instructions (formal, metaphoric). In Experiment 2, movements of low, middle and high degrees of freedom in the elements of dance (space, time, energy) were tested. After a learning phase, subjects reproduced the dance sequences and rated the experience of competence and valence. Results indicate that enjoyment of physical activity is promoted in beginners by movements at levels of low task complexity, formal instructions, and individual options to arrange the elements of dance.

Do you see what I see? Borderline Personality features and the anger superiority effect

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Research using visual search paradigms has revealed an anger superiority effect (ASE), i.e. a faster and more accurate detection of angry faces than of happy ones in crowds of neutral distractors. Concurrently, evidence for an anger bias in the emotion detection of patients suffering from borderline personality disorder has accumulated. To further assess this potential bias, the relationship between the ASE and borderline personality features was examined in a web-based study with 355 participants. The ASE was analyzed regarding reaction times and measures of sensitivity and answering bias as derived from signal detection theory. The ASE-effect was reproduced within the face-in-the-crowd-paradigm. However, no relationship between the ASE and borderline features was revealed. Further analyses incorporating basic personality dimensions did not alter the overall pattern. The absence of differences in the ASE concerning borderline features is discussed in light of the factor of task complexity.

How long depends on how fast – flicker frequencies influence duration judgments

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Dynamic stimuli is perceived as longer than static stimuli (Brown 1995), a time-dilation effect that has been suggested to result from temporal frequency (Kanai, 2006). To assess how temporal frequency of dynamic stimuli influences their subjective duration, we stimulated participants' visual field with flickering light (ranging from 8-166 Hz) while recording EEG. We recorded steady state visual evoked potentials (SSVEP) and assessed subjective flicker fusion thresholds. Flicker frequencies from 45-70 Hz were subjectively perceived as static, but still evoked SSVEP responses over occipital cortex. We also measured the subjective duration of the same stimuli. We found that only stimuli that were consciously perceived as flickering were overestimated in their duration. The level of this overestimation was correlated with the amplitude of the SSVEP response. Our findings indicate that the inverse relationship between a stimulus' temporal frequency and its subjective duration is mediated by the amplitude of the stimulus-evoked neuronal response.

Structural priming of voice in German

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In the present study, we investigated the primed production of passive voice in German. In a sentence generation experiment, participants produced transitive sentences after repetition of an active or passive prime. Animacy of the patient referent was manipulated. In half of the trials, we let the participants re-use the verbs from the prime sentences, predicting a lexical boost of the priming effect (Pickering & Branigan, 1998). GLMMs showed that participants produced more passive responses after passive than after active primes. Verb repetition even strengthened the priming effect (lexical boost). Animacy had an independent effect on responses (animate-first preference; cf. VanNieuwenburg & Dietrich, 2003). The found effects add to the evidence of a possible but not necessary lexical involvement in structural priming. They are compatible with both a phrase structural and a thematic roles account of persistence in sentence production. Future experiments will help to dissociate these effects.

Zusammenhänge zwischen Self-Leadership, emotionaler Intelligenz, Mindfulness und Leistung

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Die selbstmotivierenden und -beeinflussenden Komponenten des Self-Leaderships gelten als Grundlage zur Steigerung der persönlichen Effektivität und Leistung (vgl. Neck & Manz, 1992; Stewart & Barrick, 2000). Auch die Steigerung der Leistung durch emotionale Intelligenz (vgl. Brackett & Mayer, 2003; Barchard, 2003) und Mindfulness konnte nachgewiesen werden (vgl. Shao & Skarlicki, 2009; Moore, 2009). Allerdings wurde der Zusammenhang dieser drei Konstrukte und der Leistung bisher nicht empirisch überprüft. In der vorliegenden Studie wurden die Zusammenhänge zwischen den verschiedenen Konstrukten und deren Auswirkungen auf die individuelle und Gruppenleistung mittels Selbstbericht von 174 Studierenden überprüft. Die Ergebnisse zeigen starke Zusammenhänge zwischen den Konstrukten, insbesondere zwischen emotionaler Intelligenz und Mindfulness. Während Self-Leadership mit allen erhobenen Leistungsfaktoren Zusammenhänge aufweist, zeigen emotionale Intelligenz und Mindfulness nur Zusammenhänge mit Leistungsfaktoren, die in einen sozialen Kontext eingebettet sind.

Affective conditioning can reduce the effect of metacontrast masking

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We combined two well-known paradigms - affective conditioning and metacontrast masking - to study the interplay of the affective value of a stimulus and its likelihood to be perceived. Two grating stimuli of different orientation were combined with negative and neutral pictures in a trace conditioning paradigm. One grating thereby acquired a negative emotional valence, the other was to remain neutral. Before, during and after conditioning we obtained metacontrast masking functions of the two gratings by varying the stimulus onset asynchrony (SOA) between target and mask. The subjects' task was to indicate whether no target, or which of the two grating orientations were presented. The results showed that at the SOA of strongest masking the negatively conditioned gratings were more reliably detected than the neutral ones. We discuss an early and implicit effect of emotional valence on target processing that seems to appear only under conditions of sensory uncertainty.

The impact of task complexity on rule- and exemplar-based processes in categorization and judgment

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Research on categorization has emphasized that people rely on retrieval from exemplar memory, whereas research on judgments is dominated by rule-based approaches. The present work examines the hypothesis that people rely on exemplar-based and rule-based processes in categorization and judgment, but switch between the processes as a function of task complexity. Judgment and categorization tasks in which one cue predicts the criterion linearly should foster rule-based processes in both tasks. Likewise, in linear environments in which several cues have to be integrated in an additive fashion, judgments should still be based on rules. In contrast, in non-linear judgment and categorization tasks that demand a non-additive integration of cues, people should rely more on exemplar-based processes. We tested this hypothesis in an experiment varying task complexity in a categorization and a multiple-cue judgment task simultaneously. First results indicate shifts between rule-based and exemplar-based processes depending on task complexity.

Error monitoring and personality: An update

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It is well known that the dopamine system is related to response monitoring. Accordingly, the correlate of the response monitoring system, the error negativity (Ne) is related to DA expression. Since frontal lobe functions, and thus the anterior cingulate (ACC), being the origin of the Ne, are modulated by input from structures (e.g. the nucleus accumbens) involved in emotional processing one would expect a relation of personality traits that are related to the subject's concerns with the results of events and error processing, i.e. the Ne. To test this 26 healthy participants conducted a global-local task and the variation of the Ne was correlated with personality traits as measured by the Freiburger Personality Inventory (FPI-R). As expected the Ne showed significant correlations with several subscales of the FPI-R. Thus, the Ne not only serves as a marker for DA functioning, but is also a correlate of personality traits.

The influence of negative and positive recommendations and product attributes on buying decisions

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While the influence of social recommendations on buying decisions has been examined in several studies (e.g. Chevalier & Mayzlin, 2006) the role of recommendations' valence is still unclear. There are no studies, which examined multiple recommendation sources and product attributes, so far. Based on prospect theory higher influence of negative recommendations was expected in the current study. For two product categories (mobile phones, hotels), 163 participants were asked to choose in 20 choice tasks (choice-based-conjoint-task) among three different products described by four recommendations (professional source, internet community, close expert, close non-professional) and four product attributes. Recommendations and product attributes had negative, neutral or positive valences. The recommendation's valence was a significant factor (mobile phones: $F(1, 162)=97.58$, $p \leq .001$, hotels: $F(1, 162)=86.49$, $p \leq .001$) with higher influence of negative than positive recommendations and product attributes on buying decisions. Results match with risk and loss aversion as postulated by prospect theory.

German capitalization of nouns and the processing of parafoveal words during reading

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Word features in foveal and parafoveal vision influence eye movements in reading. The question whether readers extract semantic information from parafoveal words was studied with an experiment employing a gaze-contingent display change technique. Subjects read German sentences containing a critical target word for which a parafoveal preview was presented. The target replaced the preview word during the saccade to the parafoveal preview that was either semantically related or unrelated to the target. In German, all nouns are printed with an initial capital letter and hence may alleviate parafoveal processing. All experimental previews and targets were nouns. One half of the sentences was presented following the German rules and one half was presented completely in lower-case. Results indicate that semantic codes from the parafoveal preview were obtained under both conditions. General consequences of the infringement of German capitalization rules on reading are discussed.

Effects of caricaturing shape and texture on face learning: An ERP study

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It has been suggested that the relative contribution to face recognition of facial shape compared with texture decreases with increasing familiarity. We assessed performance and event-related potential (ERP) effects of caricaturing shape vs. texture on learned and novel faces in a learning paradigm, using different images at learning and test. We found performance benefits for both types of caricatures that were further modulated by familiarity: As expected, for learned faces benefits were largest for texture caricatures, whereas novel faces profited most from shape caricaturing. Furthermore, at test we found increased occipitotemporal negativity of N170, P200 and N250 components, as well as a more positive late positive component (LPC), for both types of caricatures. Whereas N170 caricature effects were larger for novel faces, later caricature effects were not modulated by familiarity. Our results imply that distinctive shape and texture facilitate face learning, with distinctive texture contributing in particular to recognition.

Predictors of excessive Internet use in different age groups

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It is still under debate which facets of Internet use contribute to excessive behavior and whether they differ between digital immigrants and digital natives. 300 participants completed a short version of the Internet Addiction Test (IAT) and questionnaires measuring the usage of various Internet applications. Two regression analyses revealed that in participants aged under 30 years ($N = 110$) the usage of Web 2.0 applications, gaming and filesharing explains 28% of the variance in the IAT (all p 's $< .05$) whereas in participants aged over 50 years ($N = 90$) the usage of Web 2.0 applications, searching for information and the usage of video portals explains 34% of the variance of the IAT (all p 's $< .05$). The results show that the usage of Web 2.0 applications contributes to an excessive Internet use independent of age. However, gaming and filesharing are particularly relevant for digital natives and searching for information and usage of video portals for digital immigrants.

Versuch einer robusteren Methode, einen Vokalprototyp zu bestimmen

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Einige Theorien zur Vokalwahrnehmung gehen von der Existenz eines Prototyps aus, welcher die Struktur der perzeptuellen Kategorie prägt, wie z.B. der Hyperspace Effect (Johnson, Flemming & Wright, 1993), oder der Perceptual Magnet Effect (Iverson & Kuhl, 1995). Die grundlegenden Unterschiede konkurrierender Theorien liegen in der Lokalisierung jenes Prototyps. Die Bestimmung desselben ist problematisch, da die zur Verfügung stehenden Methoden (Klassifizierungsaufgaben, Diskriminierungsaufgaben, Bewertungsaufgaben und Adaptierungsaufgaben) nicht vollständig präzise sind. Entsprechend der jeweiligen Hypothese werden in der Regel Annahmen gemacht, um die Struktur der Daten vom Rauschen zu trennen. Hier wurde versucht, auf Basis des Temporal Asymmetry Effects (Hellström, 2007) mittels Asymmetrien aus einer Diskriminierungsaufgabe und inverser Modellierung einen Prototyp zu ermitteln. Die so vorgenommene Lokalisierung wurde mit den Daten der Bewertungsaufgabe verglichen. Erste Ergebnisse zeigen einen Effekt des ermittelten Prototyps und unmittelbar benachbarter Stimuli auf die Güte der Beurteilung.

Explaining the dilution effect with the configural weighted average model

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What is the probability that a person wearing black shoes and carrying handcrafted signs is a Wall Street protester rather than a Broadway performer? When people make probability judgments they often do not only rely on relevant information (signs) but also consider irrelevant information (shoes) that dilutes their judgment. We tested whether the weighted average rule can explain this behavior better than other models. Participants received two samples of cards stemming from either deck A or B. Participants had access to the distributions of cards in the decks but did not know which deck originated the samples. They chose the deck originating the samples and gave probability judgments. Participants' judgments were influenced by non-diagnostic samples replicating a dilution effect. Compared to other models, the weighted average model provided the best account of people's behavior, indicating that this model can be generalized from conjunctive probability judgments to belief updating.

Einfluss des Wechsels des genutzten Displayausschnitts auf die Bedienbarkeit von Fahrerinformationssystemen

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Unerwartete Wechsel in der Displaygestaltung bei Fahrerinformationssystemen können sich negativ auf deren Bedienbarkeit auswirken. In der vorliegenden Grundlagenstudie sollte untersucht werden, inwieweit Wechsel der Größe des genutzten Displayausschnitts (100% vs. 25%) bei Bedieninteraktionen Wechselkosten und Ablenkung verursachen. Hierzu wurden zwei Versuchspersonengruppen (jünger vs. älter) instruiert, Städtenamen mit Hilfe eines Touchpads auf einer eingeblendeten Tastatur einzugeben. Der Wechsel des Displayausschnitts erfolgte nach Sequenzen unterschiedlicher Länge. Die Bedienaufgabe war als Nebenaufgabe in eine Fahrt im Fahrsimulator (Spurhaltung bei niedriger Geschwindigkeit) eingebunden. Wechsel zwischen Displayausschnitten führten zu Kosten in der Bedienleistung und zu geringen, aber signifikanten Beeinträchtigungen der Fahraufgabe. Außerdem zeigte sich, dass die Aufgabe beim großen Displayausschnitt schneller bearbeitet wurde, allerdings auch die relative Fehlerhäufigkeit erhöht war. Ältere Probanden waren insgesamt langsamer bei der Initiierung und Ausführung der Aufgabe und zeigten eine höhere Ablenkung als jüngere Probanden.

Modality compatibility using foot responses in task switching

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Input-output modality compatibility (IOMC) can be defined as the similarity of stimulus modality and modality of response-related sensory consequences. Previous research has shown that performance in task switching is positively affected by compatible pairings of input-output modalities (visual-manual and auditory-vocal) opposed to incompatible modality pairings (visual-vocal and auditory-manual). By replacing manual with pedal responses, we investigated whether the finding described above can be generalized to foot responses. A stronger tendency to bind visual stimuli to foot responses than to vocal responses was expected because locomotion typically results in changes of visual input. Implications for applied settings such as driving are discussed.

Sustained phasic electrodermal activity in response to fear

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Phasic electrodermal activity (skin conductance response, SCR) is considered to reflect a high sympathetic tonus due to physiological arousal. While a high level of arousal will often be upheld over longer periods of time, most research on SCRs focuses on event-related activity. The latter is temporally constrained to a narrow time window following the event. If sustained phasic electrodermal activity is studied it is accompanied by ongoing stimulation. This could be considered as event-related as well, with the only difference that the stimulation is continuous. Here we present a study where we obtain sustained phasic electrodermal activity with no further external stimulation during the measurement period. We measured sustained phasic electrodermal activity induced by fear of pain as well as of monetary loss during an 8-s waiting period in a Wheel Of Fortune game.

Recognition of Emotions in Dance Sequences - das Erkennen von Emotionen auf der Grundlage von Tanzsequenzen

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The present study examines the relationship between dance experience, the recognition of emotions in dance, and emotional intelligence, measured by the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). The MSCEIT assesses the abilities to perceive emotions in faces and pictures, as well as to use, understand, and manage emotions. 74 participants, half dancers and half non-dancers, were asked to complete the MSCEIT and to identify four basic emotions in dance sequences. Dancers were significantly better than non-dancers in decoding emotions in dance movements, as well as in faces and pictures, but had no higher overall emotional intelligence. Besides, there were significant main effects of both dance experience and emotional intelligence on the identification of emotion in dance. Significant correlations between the ability to recognise emotions in dance sequences and emotional intelligence also suggested a connection between both areas.

Social influence and the moderating effect of task difficulty on the wisdom of crowds

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In estimation tasks, the average estimation of a group can outperform the best individual estimates – a finding that is known as the wisdom of crowds (Galton, 1907). In a recent study, Lorenz et al. (2011) demonstrated that social influence can undermine the wisdom of crowds. In contrast, several studies have shown that social influence can be beneficial in various contexts (King et al., 2011; Miller & Steyvers, 2011). We hypothesize that the effect of social influence is moderated by the difficulty of the estimation tasks. Employing the experimental paradigm of Lorenz et al. and varying the difficulty of the estimation tasks, we replicate the results by Lorenz et al. for difficult items, but find that social influence is beneficial for less demanding items. We discuss how people use social cues, such as information about the peers' estimates and confidence, in an adaptive way for revising their judgment and estimates.

Musik zum Zeitvertreib: Der Einfluss von Musik auf die Zeitwahrnehmung

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Musik ist ein beliebtes Mittel zur Füllung von Wartezeiten. Ein möglicher Grund besteht in einer veränderten Zeitwahrnehmung. Wir untersuchten, ob das Attentional-Gate Modell zur Erklärung der Wirkung von Musik auf die Zeitwahrnehmung herangezogen werden kann. Laut Attentional-Gate Modell ist die Zeitwahrnehmung von Aufmerksamkeit und Aktivierungsniveau abhängig. 90 Probanden schätzten prospektiv die Dauer verschiedener Intervalle (ohne und mit Musik) und beurteilten ihr Empfinden, wie schnell die Zeit vergangen ist. Die Auswertung erfolgte per Pfadanalyse. Die Musik hatte eine starke Wirkung auf das Zeitempfinden: Mit Musik scheint die Zeit schneller zu vergehen als ohne Musik ($\beta = .69$). Die Auswirkung auf die Zeitschätzung war insgesamt gering ($\beta = -.11$). Die Wirkung der Musik war weder über Aufmerksamkeit noch über Aktivierung vermittelt. Musik verändert demnach die Zeitwahrnehmung insofern, als sie die Zeit schneller vergehen lässt. Für eine Erklärung der Musikwirkung auf die Zeitwahrnehmung scheint das Attentional-Gate Modell nicht anwendbar zu sein.

Online-Werbung und Web Analytics - moderne Technologien in der Experimentalpsychologie nutzen

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Online-Fragebögen werden seit vielen Jahren in der Experimentalpsychologie eingesetzt, um den Aufwand bei Datensammlung und anschließender Datenverarbeitung zu minimieren (Reips, 1999, Welker & Matzat, 2009). Komplexere Techniken, wie das Schalten von Online-Werbeanzeigen zur Rekrutierung von Versuchspersonen (Zebisch, 2010) oder eine tiefgreifende Analyse der Nutzer (Aden, 2009), bleiben hingegen weitgehend ungenutzt. Wir zeigen am Beispiel unseres Online-Experiments (N=218), dass Online-Werbeanzeigen ein hohes Maß an Treffsicherheit bei der Auswahl der Versuchspersonen bei geringem Aufwand erlauben. Zugleich ermöglicht die anschließende Berücksichtigung von Web Analytics-Daten der Nutzer, zusätzliche Informationen über deren Verhalten in der Experimentalsituation zu erfassen. Ein Überblick über frei verfügbare Tools und Anwendungen wird gegeben.

Desirability bias in risk defusing

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In realistic risky decisions people often search for risk-defusing operators (RDOs; e.g., vaccination, insurance) to reduce the risk. The experiment investigates whether the desirability of a risky positive outcome of an alternative affects the expectation of the effectiveness of an RDO (desirability bias). 56 participants were presented two managerial scenarios, each including five risky alternatives. In each alternative, either positive, or - in case of the occurrence of a risky negative event - negative outcomes were expected. Levels of desirability of positive outcomes was varied between alternatives (very desirable vs. moderately desirable). With each alternative, a specific RDO was presented which defused the risk. Participants judged the effectiveness of the respective RDOs. We expected that with higher desirability the effectiveness would be judged higher. The results confirmed the desirability bias.

Connectivity of the cerebellum during visual attention

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Although the cerebellum has repeatedly been reported to be involved in a variety of cognitive tasks its role in higher order cognition is rarely the focus of basic research. Clinical studies

reported cognitive deficits due to cerebellar lesions that were described as dysmetria of thought which also lead to the hypothesis of cerebellar timing systems in brain function. The present study aimed at elucidating functional and effective connectivities of the cerebellum (lobule VIIa, crus I) during a visual attention to motion task. Sixteen healthy volunteers participated in this fMRI study. Enhanced functional connectivity of the cerebellum during attention was observed quite specifically in the dorsal stream of the visual pathway including V1, V5 and posterior parietal cortex (PPC). Model comparisons between dynamic causal models of these regions indicate that the cerebellum exerts an influence on the V5-to-PPC connectivity. Thus the cerebellum is closely cross-linked to the visual system during attention.

Filme mit abschreckender Wirkung: Können Filme zu einer veränderten Einstellung hinsichtlich des Fastfoodkonsums führen?

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Müssen Menschen mit ihrem Risiko konfrontiert und wachgerüttelt werden, damit sie ihr Verhalten ändern? Damit beschäftigen sich Furchtapelltheorien, im Besonderen das Modell gesundheitlicher Überzeugung und die Theorie der Schutzmotivation (Lippke & Renneberg, 2006). Konkret stellt sich die Frage, ob der Film „Super Size Me“ die Einstellung hinsichtlich des Konsums von Fastfood kurzfristig verändert. In einem Experiment soll daher die Einstellungsveränderung zum Verzehr von Fastfood nach der Ausstrahlung des Filmes „Super Size Me“ untersucht werden. Um die Wirkung des Films auf die Einstellungen der Probanden ermitteln zu können, soll sowohl vor der Ausstrahlung als auch am Folgetag eine Befragung stattfinden. Es wird vermutet, dass sich insbesondere eine Einstellungsveränderung der im Vorhinein positiv eingestellten Probanden zeigt. Die Ergebnisse sollen einen Beitrag dazu leisten weitere Erkenntnisse der Wirksamkeit von Medien im Zusammenhang mit gesundheitlicher Aufklärung zu erlangen.

Response inhibition in ADHD - a new version of the stop signal paradigm

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Behavioural disinhibition is a core deficit in ADHD. We used a new version of the stop signal paradigm to identify electrophysiological parameters of disinhibition on 18 unmedicated age, gender and IQ-matched ADHD and 19 healthy adults. Subjects responded to one of two simultaneously presented stimuli according to a (selection-relevant) feature and distinguished it according to another (response-relevant) feature. A stop signal was randomly presented on half

of the trials, using three different delays. ADHD patients showed significantly slower reaction times and fewer successful stops than healthy adults. In stop trials, patients showed reduced amplitudes over posterior sites for the P1, N1 and P2 components and longer latencies of the parietal N2. The amplitude of the parietal N2 was reduced over the left but enhanced over the right hemisphere in the ADHD group. These preliminary results suggest that already early sensory processing stages contribute to motor response inhibition in ADHD adults.

Action and digit specific plasticity of distance perception in near space

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The influence of motor planning on perception of spatial distances in near space was examined. Participants received a numerical cue about the amplitude of an arm movement that was to be performed shortly later. Before actually carrying out the movement, participants estimated visual distances by means of a method of adjustment. These distances were judged shorter, the shorter the amplitude of the planned arm movement was. In a control experiment, digit cues were to be memorized for later report without need for movement planning. Keeping cues in memory affected distance judgments to some extent as well, but in a qualitatively different manner. The results demonstrate that movement planning has the power to impact visual perception of near space.

The role of virtuality and pay-for-performance for creativity

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There is considerable debate about whether virtual teams are an environment conducive to creativity. Also, pay-for-performance is often found to inhibit creativity. The experiment conducted in this study aims to clarify the influences of working virtually and being paid by performance, as well as the mediating effect of acceptance of this type of pay, on the creative outcome in a verbally creative task. 120 subjects, half of which were paid a fixed amount while the other half was paid by performance worked either virtually or in face-to-face teams on the same task. Creativity of the work results was rated by a team of experts in order to enable quantitative testing. The study yielded a number of highly interesting results concerning the influence of virtuality, (acceptance of) pay-for-performance, and several mediating and moderating factors on the creative outcome.

Identification and game difficulty in video games: The mediating role of flow

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Identification in video games can be defined as temporary alteration of a player's self-perception through adoption of salient properties of the game character (Klimmt, Hefner, & Vorderer, 2009) and should only occur when a player experiences a temporary loss of self-awareness. Many variables influence these identification processes. Recently, a relationship between the difficulty of a game and the identification with a character was found such that a moderate difficulty leads to stronger identification than a low or a high level of difficulty (Klein & Vorderer, 2011). A moderate level of difficulty obviously matches the players' skills, which leads to flow. In the state of flow a loss of self-awareness emerges, which can then promote and amplify identification. The present study is a follow-up and tests whether flow in fact plays this mediating role. In addition, the measurements of the first study have been improved.

Strong vs light: The influence of movement quality on affect and cognition

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Based on embodied cognition approaches (Niedenthal et al., 2005) and movement analysis (Kestenber, 1995) we assumed that movement of either a strong or a light movement quality would elicit different affect and cognition. In study 1, 66 movement experts and in study 2, 91 lay participants moved for 3 minutes in either a strong manner, a light manner, or they did not move, but do a mediation exercise (control group) for the same amount of time. We measured affect and valence of memory elicited by the movement. Results suggest that strong movement caused a more fighting affect and more negative memories of life events than light movement in both expert and lay participants. Control participants fell between the two groups but closer to the light than the strong condition. Results are discussed in light of embodied cognition theory and applied clinical perspectives.

Recognition inside the depth of field depending on luminance and contrast

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In previous studies, we showed that recognition of optotypes inside the depth of field (DOF) is best in front of a fixation point, even better than on the fixation plane itself (Koepsel et al. [ECVP, 2010]). For these experiments, we measured the identification rate for optotypes which were presented on different positions in different relative depth. In the current study, we

investigated how our previous findings are influenced by the pupil diameter. Therefore, we compared the recognition task of the previous experiments in a full illuminated room, a bright background and dark targets, with the same task in a complete dark room, a black background and white targets. As expected, recognition performance is better in the bright setup with the small pupil, than in the dark one. Moreover, we still found an asymmetry inside the DOF.

Persuasion by arguments: The case of gender-inclusive language

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The use of gender-inclusive language is important, since masculine generic forms can cause a cognitive male bias. Until now it is largely unclear how attitudes towards gender-inclusive language and use of gender-inclusive forms emerge and why they may change. Proceeding from the Elaboration Likelihood Model (Petty & Cacioppo, 1986) we investigate the persuasiveness of arguments regarding gender-inclusive language. In a pretest, arguments were classified according to viewpoint (promoting gender-inclusive vs. generic language) and strength (weak vs. strong) and were then combined into four messages covering each combination. In two studies, participants read one message or a control text and completed a thought-listing task. We measured participants' attitudes towards gender-inclusive and generic masculine language as well as their language use one, respectively two, weeks before reading and immediately after reading. First results show that attitudes change in the direction of the viewpoint presented, whereas language use remains unaffected by the viewpoint.

Sind spezifische Komponenten der Selbststeuerung für die Leistungsmotivation von besonderer Relevanz?

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Die Fähigkeit der Selbststeuerung ist ein wesentlicher Faktor, um bei Herausforderungen situativ angemessen und dem Kontext entsprechend angepasst handeln zu können. Demnach ist Selbststeuerung eine individuelle Kompetenz, die aus Komponenten zusammengesetzt ist, deren effizienter Einsatz auch von situativen Faktoren, z. B. Stress, abhängt (Fröhlich & Kuhl, 2003). Leistungsmotiviertes Verhalten beinhaltet unter anderem die Auseinandersetzung mit einem Gütemaßstab (Brunstein & Heckhausen, 2007). Bei Kuhl (2007) rückt dabei vor allem der instrumentelle Charakter in den Vordergrund. 86 Personen wurden mittels des (SSI-K) und des (LMI) in einem Hörsaal untersucht. In einer simulierten Prüfungssituation unter Zeitdruck sollten ein Leistungstest und anschließend die beiden Fragebögen bearbeitet werden. Die Ergebnisse der Untersuchung werden dahingehend kritisch diskutiert, welche Komponenten der Selbststeuerung für die Leistungsmotivation besonders relevant sind und weshalb.

Monetary reward and singleton distractor search

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Monetary rewards improve performance in various cognitive tasks that measure executive control. It has also been shown that reward reduces reaction times in pop-out visual search, yet evidence for the influence of reward on visual search tasks that require cognitive control remains scarce. The present study examines whether reward has an influence on search performance in a singleton distractor paradigm, i.e. a search task in which a salient distractor appears in half of the trials, thereby eliciting a response conflict. This conflict requires cognitive control which, according to models of reward processing, is exerted more efficiently in expectancy of reward. Thus it is assumed that the interference caused by the singleton distractor is reduced in the high-reward condition (trials in which 10ct can be won) compared to the low-reward condition (trials in which 1ct can be won).

The role of cultural life scripts in shaping memory for fictional life stories

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Prior research indicates that schemata (mental structures that organize one's knowledge and assumptions about the world) shape recall across a range of contexts. The present research tests the direct influence of cultural life scripts (culturally shared expectations regarding the events that take place over a prototypical life course, including the normative ages at which event takes place) on memory for fictional life stories, by treating the life script as a type of schema, which would correspondingly be expected to shape memory for fictional life stories. Towards that end, participants read a life story in which some of the events were schema-consistent, while others were schema-inconsistent. Subsequently, memory was assessed through a recognition task, administered either 20 minutes or 1 week after reading the story. As would be predicted from schema theory, schema-inconsistent events were remembered more accurately than schema-consistent events, while memory intrusions were typically schema-consistent.

Do horizontal stripes really make you look fat? Perceived width of objects with horizontal and vertical stripes

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It is commonly believed that horizontally striped clothing makes us look fat whereas clothing with vertical stripes makes us look slender. We investigated this assumption in two experiments.

In Experiment 1 observers therefore judged rectangles with horizontal and vertical stripes, in Experiment 2 T-shirts with horizontal and vertical stripes were assessed instead. Contrary to the common belief, both experiments demonstrated that vertically striped objects appear wider than horizontally striped ones. This finding is discussed against the background of the vertical-horizontal illusion.

The influence of ethical leadership on employees' challenging extra-role behavior

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In times of increased autonomy and personal initiative at work, employees confronted with unethical tasks have to challenge given assignments in order to sustain the long-term welfare of the organization. This study investigated the influence of ethical leadership on challenging extra-role behaviors (voice, whistleblowing, constructive disobedience). 60 students were ordered by a fictional leader to complete an unethical task set in a fictional scenario. The leadership style was manipulated in three different conditions (ethical, ethical neutral and unethical). Results revealed that ethical leadership had a positive influence on whistleblowing and constructive disobedience, with trust in the leader being a mediator for the latter. No evidence for an impact on voice was found. This study highlights the positive influence of ethical leadership on employees' challenging extra-role behavior: Employees challenge given orders, refuse to engage in unethical tasks and report malpractices to higher instances that are able to affect action.

How to wash away guilt - investigating processes that might underlie embodied cleansing effects

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Psychological consequences of physical cleansing have been widely discussed in recent literature; yet the underlying process is not clear. Therefore, we examined the processes involved in producing the embodiment effect of washing away guilt. To this end, we dissociated the motoric component from the belief to cleanse oneself. We did this by having participants use one of two products (sanitizer vs. hand lotion) with either of two labels (matching vs. mismatching). We find that washing away guilt is not a pure embodiment effect; that is, rubbing in hand sanitizer is not enough to wash away guilt. In fact, if participants thought that they applied hand lotion (when they did indeed apply sanitizer), the guilt seemed rather to increase, while applying hand sanitizer in the conviction to cleanse one's hands resulted in less guilt. Further investigation of this dissociation is the topic of ongoing research.

Does enactment lead to an accelerated recall?

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Motorically performing a list of action phrases (Self-Performed Tasks, SPTs) leads to an improved memory performance in comparison to verbal encoding (Verbal Tasks, VTs), also called the enactment effect. In a multi-trial paradigm (including four study-recall cycles) we aim to study the specific effects of enactment on recall performance and recall speed (independent of each other). Thereby, we analyzed cumulative recall curves over the retention interval, the learning curves across the four recall sessions and the inter-item recall latencies as a function of encoding (SPT vs. VT) and age (younger and older adults). One finding is that the main effects of encoding and age in the first recall cycle emerge early in the cumulative recall curve but the relationship between the asymptotic recall level and the rate of approaching the asymptote does not differ. The results are interpreted within the itemspecific-relational processing account (Burns & Schoff, 1998; Hunt & Einstein, 1981).

Gender-fair language in German: Motivational predictors on ability and use

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In a paper and pencil study motivational predictors for the ability and use of gender-fair language were analyzed. Ability and use were assessed by giving participants the same tasks twice, once as a part of a general language competence test and again manipulated by specific instructions to avoid the generic masculine. Motivational factors were based on two lines of argumentation in favor of gender-fair language, namely precision and fairness. Motivation to use accurate and precise language predicted the ability but not the spontaneous use of gender-fair language. Motivation to control prejudice - part of the fairness argumentation - predicted neither the ability nor the spontaneous use of gender-fair language, not even when sex of participant and the rated relevance of fairness arguments were controlled. Motivation to use accurate and precise language predicted people's ability to use gender-fair language, however still in the dark is what motivates its spontaneous use.

Prediction of food preference based on perceptual processing and choice outcome information

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Preference structures are typically measured with conjoint analysis methods (CA; Carroll & Green, 1995). Based on prior choice outcomes the relative influence of attributes on choices are estimated and used to predict future decisions. On the other hand, eye movement measurement is used as a process tracing technique to examine information search strategies in choice processes (Russo & Rosen, 1975; Meißner & Decker, 2010). Predictions based on gaze behavior (Glaholt & Reingold, 2009) demand available information of eye movements; however, preference structure is relatively neglected. The current study compared process and outcome based measures for choice prediction in the case of food preference. The used food products differed in fat content, taste, and price. Participants repeatedly solved choice-based CAs. Eye movements were measured concurrently. A genuine choice task served as an external criterion for the predictive value. Results are discussed in terms of the usefulness of eye movements for preference structure measurement.

Binaural masking release in forward-masked intensity discrimination

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Auditory object formation was proposed to provide a framework for explaining elevated intensity-difference limens (DL) caused by non-simultaneous maskers. According to the concept of object-based attention, conditions favoring the processing of the masker and the target tone as two separate auditory objects should facilitate selective attention to the target and therefore reduce the DL elevation. To test this hypothesis, we manipulated the perceived lateralization of the masker via variation of the interaural time difference (ITD). As expected, the presentation of a forward masker perceived as lateralized to the same side of the head as the target resulted in a significantly stronger DL elevation than for a masker lateralized contralaterally. This effect cannot be explained by differences in the adaptation of auditory nerve neurons because varying the ITD leaves the neural representation in the auditory nerve unaltered. Therefore, our results suggest an effect of auditory object formation and object-based selective attention.

Mentale Simulationen beim Sprachverstehen: Nur wort-basierte Effekte?

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In einer früheren Studie konnten wir zeigen, dass Wörter, die etwas bezeichnen, das typischerweise oben bzw. unten in der Welt aufzufinden ist (Vogel vs. Wurm) leichter zu verarbeiten sind, wenn die Antwortreaktion eine kompatible Bewegung beinhaltet (Vogel/nach-oben, Wurm/nach-unten; vgl. Lachmair et al., 2011). Um den Prozess der Bedeutungskonstitution auf Satzebene zu untersuchen, präsentierten wir nun diese Wörter im Satzkontext. In Experiment 1 (Sinnhaftigkeitsentscheidung) stimmte die durch das letzte Wort des Satzes vorgegebene Lokation mit der Lokation der beschriebenen Situation überein (z.B. -Der Vater zeigt aufgeregt auf den gleitenden Vogel"). In Experiment 2 wurden zusätzlich Sätze präsentiert, in denen sich Wort- und Situationslokation widersprachen (z.B. unten-Situation/oben-Wort: -Die Frau pflegt den kranken schwerverletzten Vogel."). In beiden Experimenten zeigte sich ein Kompatibilitätseffekt zwischen Wortlokation und Antwortreaktion. Für einen situationsbasierten Kompatibilitätseffekt gab es keine Hinweise. Derzeit prüfen wir, ob sich ein situations-basierter Effekt zu einem späteren Verarbeitungszeitpunkt nachweisen lässt.

Excessive Internet sex use: Does consumption of Internet pornography gratify the users or compensate missing sexual contacts in real life?

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Sexual arousal, psychological-psychiatric symptoms and the variety of used cybersex applications are associated to subjective impairment in everyday life due to cybersex (Brand et al., 2011). However, the role of craving and real-life sexual contacts has, so far, not been investigated experimentally. 176 heterosexual males rated pornographic pictures with respect to sexual arousal (explicit measure), while their viewing times were recorded (implicit measure). Afterwards, participants indicated craving for masturbation, pornographic preferences and the number of real-life sexual contacts. Tendencies toward cybersex addiction were assessed with a short version of the IATsex (Brand et al., 2011). In a hierarchical regression, explicit and implicit measures of sexual arousal, craving and pornographic preferences but not real-life sexual contacts predicted the IATsex ($R^2 = .24$; $F = 4.34$; $p < .01$). Results emphasize the role of sexual excitement due to pornographic stimuli and support theories which consider gratification and craving to be important variables in the development and maintenance of cybersex addiction.

Modulation of computer game errors by social context

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The ability to attend to errors is critical for survival. Research in cognitive and neuropsychology suggests that error monitoring increases with error saliency. So, what makes errors personally important? Humans' errors are often socially relevant, and few studies consider the influence of social involvement on error saliency. In the current study, participants play a computer maze game independently, competitively, or cooperatively with a confederate. Preliminary behavioral findings show 20% fewer errors in social conditions compared to independent play. This decrease in task costs for the social conditions could be due to an increase in effort, which subjective post-task reports support. Across conditions, there is also greater voluntary delay after errors compared to success, before beginning the next trial. This post-error slowing supports our hypothesis that errors are more salient in situations with high social involvement. In a follow-up study, we will use EEG to measure error-related ERPs in this task.

Stimulus control, incompatibility, and pedestrian road crossing behavior: An integrative perspective

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The notion that road crossing behavior at signalized intersections is controlled by discriminative stimuli produced by the traffic lights is both trivial and under-researched. We propose a stimulus control model of pedestrian crossing behavior, which constitutes a parsimonious framework to integrate previous risk factor research and to enable the theory-driven development of road safety measures. Within this framework, recent observational studies found an association between the simultaneous occurrence of contradictory discriminative stimuli and increased frequencies of crossing illegally. In order to approach causal inference, the present study was designed to examine analogous incompatibility effects in an experimental setting. Whereas results revealed a significant response tendency difference between unambiguous and contradictory stimulus configurations, this difference was not influenced by the relative size of the presented stimuli. Implications for the design of less contradictory and hence less dangerous signalized intersections as well as future research prospects are discussed.

Perceptual load effects when processing distracter faces indicate face-specific capacity limits

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Distracter faces appear to be impossible to ignore in speeded classification tasks of target stimuli even under conditions of high perceptual load (Lavie, N., Ro, T., & Russell, C. (2003). The role of perceptual load in processing distracter faces. *Psychological Science*, 14, 510-515). Here we show that high load in a face search task can eliminate Stroop-like interference from distracter faces as long as the increase in search set size involves adding faces, obtaining a higher degree of face processing capacity than previously observed. A second experiment demonstrates that these load effects on distracter perception are only obtained when target stimuli are faces but not words. These results strongly suggest that face perception has capacity limits that are face-specific.

Experimental validation of the HEXACO personality model in bargaining games

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Recently, evidence for a sixth basic personality dimension (termed Honesty-Humility) has emerged. The present investigation tests experimentally the role of Honesty-Humility for cooperation in bargaining games. Participants allocated a valued good between themselves and a recipient, who is powerless in the dictator game, but has the power to reject the offer in the ultimatum game. The findings support the predictions of a positive main effect of Honesty-Humility on allocations. More importantly, experimental validation by means of an interaction revealed that individuals high in Honesty-Humility showed cooperative behavior independent of the recipient's power. Those low in Honesty-Humility, by contrast, exploited whenever the recipient was powerless to retaliate. The findings further illustrate the conceptual differences between Honesty-Humility and Agreeableness in terms of proactive vs. reactive cooperativeness. Honesty-Humility relates to dictator game behavior, where Agreeableness does not; rather it is conceptually linked to recipients' behavior in the ultimatum game.

How visual search benefits from prior experience with a display: Evidence from eye fixations

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We investigated to what extent visual search performance benefits from prior experience with the search display. We were particularly interested in whether the type of prior experience affects

visual search differently. Eighteen participants searched a ten-letter display after carrying out one of two pre-tasks: a preview of the display or a pre-search in the display. We matched the pre-task duration and measured response times and eye movements. Both pre-tasks improved visual search performance compared to a baseline. Visual search benefitted more from the preview than the pre-search. An analysis of the fixation behaviour during the pre-tasks revealed longer fixation durations in the preview. We also found distinct refixation patterns for the two pre-tasks. These differences can be linked to cognitive strategies that drive the pre-task-specific search benefit: an oculomotor rehearsal behaviour in the preview and mechanisms that facilitate search (such as inhibition of return) in the pre-search.

Radial bias in long range texture integration

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Research for perception of textures has been primarily focused on short range interactions. In our current study we were interested in long distance effects in the visual field. Our interest is the radial bias effect, that radially orientated stimuli (i.e. pointing towards the fovea) should be better recognized than tangentially orientated stimuli. Subjects were presented two stationary Gabor patches, with drifting sinusoidal component, centered 11 degrees either side of the fixation point. The gratings had either a radial or tangential configuration, and the subject had to decide if they were moving in the same or opposite directions. We found a radial bias effect (i.e. more accurate discrimination for radial configurations) when the subjects had to respond to Gabors moving in different directions, but not for when the task was to respond to Gabors moving in the same direction. We suggest further experiments for exploring this effect.

Word order and phonological priming in multi-word utterances

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Recently, Janssen and Caramazza (2009) presented evidence that grammatical encoding in language production is influenced by grammatical and phonological properties of words. They observed phonological priming effects in naming colored objects when color-adjective and noun were phonologically related ("blue ball"), compared to unrelated color-noun pairs ("green ball"). Importantly, this phonological priming effect disappeared when utterances with deviating word order were produced ("ball blue" vs. "ball green"). We tested whether this phonological priming effect generally disappears for ungrammatical utterances. In experiments in German, we contrasted phonological priming effects in grammatically correct color-noun utterances ("blauer Ball") and utterances with deviating word order ("Ball blauer"), deviating gender marking ("blau Ball"), or both deviations ("Ball blau"). Phonological priming was observed for utterances with

canonical word order, but not for utterances with deviating word order, regardless of gender marking. This suggests that word order, not utterance grammaticality in general, influences this type of phonological priming.

Error-related brain activity and the value of errors

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We investigated whether monetary incentives for different error types can alter the Ne/ERN, an electrophysiological marker of action monitoring. To this end, we used a four-choice flanker task, in which errors occur either by pressing a button associated with the distractors (flanker errors), or by pressing a button not associated with the stimulus at all (nonflanker errors). Errors were punished by monetary losses. However, some participants lost more money when committing flanker errors, whereas other participants lost more money when committing nonflanker errors. While these incentives had no effect on the frequencies of flanker and nonflanker errors, the Ne/ERN was larger for the more expensive error type. These results suggest that the system triggering the Ne/ERN is sensitive to the value of errors on a trial-by-trial basis.

Komponenten des visuell-räumlichen Arbeitsgedächtnisses und ihre Relation zur Performanz beim deterministischen Sequenzlernen

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Das Arbeitsgedächtnis (AG) bezeichnet ein System, das eine begrenzte Menge an Informationen kurzfristig aktiv zugänglich hält, während die Information gleichzeitig transformiert und aktualisiert werden kann. Inzidentelles Sequenzlernen definiert einen Prozess, durch den wir bestimmte Regularitäten unserer Umwelt wahrnehmen, ohne die Absicht zu haben, diese zu lernen. Bisherige Untersuchungen zur Rolle des AG beim Sequenzlernen konnten keine Korrelationen zwischen der AG-Spanne und der inzidentellen Lernleistung finden. Die vorliegende Untersuchung (N=40) setzte die Leistung in visuell-räumlichen (1) Verarbeitungsaufgaben (z. B. arrow switching), (2) Speicheraufgaben (z. B. dot-span) und (3) Speicher- und Verarbeitungsaufgaben (z. B. memory updating) in Relation zur Lernleistung in einer deterministischen seriellen Reaktionszeitaufgabe. Das response-stimulus interval (RSI) wurde dabei variiert (RSI 0 ms vs. RSI 1000 ms). Die Ergebnisse zeigen einen Zusammenhang der AG-Subkomponenten in Abhängigkeit des RSI mit der Sequenzlernleistung und der Abrufleistung in einer Generierungsaufgabe. Die Ergebnisse der Untersuchung und ihre theoretischen Implikationen werden diskutiert.

Inhibition trotz positiver Kompatibilitätseffekte

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Im Paradigma des sogenannten Response Priming geht dem Target ein reaktionskompatibler oder -inkompatibler Prime voraus. Wird der Prime zentral und subliminal dargeboten, können bei kurzem Interstimulusintervall Reaktionszeitvorteile in inkompatiblen Experimentaldurchgängen beobachtet werden (negativer Kompatibilitätseffekt), während bei peripherer subliminaler Darbietung Reaktionszeitvorteile in kompatiblen Experimentaldurchgängen gefunden wurden. Machado et al. (2007) fanden jedoch für periphere, supraliminale Primes einen negativen Kompatibilitätseffekt. Diese widersprüchlichen Ergebnisse resultieren möglicherweise daraus, dass Inhibitionsprozesse sowohl durch die Position des Primes, als auch durch dessen Intensität beeinflusst werden. Wir variierten deshalb in einem Experiment (N = 60) bei supraliminaler Primedarbietung die Position des Primes sowie das Interstimulusintervall. Es wurde kein negativer Kompatibilitätseffekt beobachtet; es fand sich jedoch ein stärkerer Primingeffekt bei peripherer Primedarbietung. Unter der Annahme, dass Inhibition nicht zwingend an das Auftreten eines negativen Kompatibilitätseffekt gebunden ist, können diese Ergebnisse im Sinne einer Inhibitionstheorie interpretiert werden.

Developmental changes in the microgenesis of face perception revealed by effects of context and inversion

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Present studies on the development of face perception mechanisms are ambiguous about the question of whether holistic face vision arises early, or in the second decade of life. Measuring the time course of face matching we assess effects of context and inversion as correlates of holistic processing in the microgenesis of face perception within the first 650 ms, and compare among 8- to 10-year-old children and adults. Overall, the results indicate that children and adults differ not only in the kind of featural information they preferentially encode in face perception (internal vs. external features), but also in the processing time they need to build holistic representations. While these are fast and automatic in adults' face vision, children's face representations are part based at brief timings, but develop to integrated wholes as more temporal resources are made available.

Estimating the contributions of associations and recoding in the implicit association test: The ReAL model for the IAT

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The Implicit Association Test (IAT), developed to quantify attitudes indirectly via evaluative associations, became one of the most popular indirect attitude measures in the last decade. However, in the IAT, evaluative associations are often concealed by recoding processes, i.e., more or less strategic efforts to simplify the task. Consequently, IAT effects cannot unambiguously be interpreted as measures of association strength. We therefore developed a multinomial processing tree model, the ReAL model, that allows to mathematically separate the contributions of recoding and evaluative associations within one IAT. Several experiments demonstrated the validity of the model parameters and revealed that the ReAL model successfully disentangles these different sources of IAT effects in various applications. Furthermore, the model allows to clarify the underlying processes of IATs meaningfully even if global effect measures based on response times lead to unsatisfying interpretations. Implications for future IAT research are discussed.

Induktion sozialer Präsenz durch einen subtilen Hinweis auf Beobachtung

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In der Forschung werden stilisierte Augenpaare ("Eye Cues") eingesetzt, um durch diesen Hinweis auf Beobachtung subtil soziale Präsenz herzustellen. Mehrfach konnte in experimentellen Untersuchungen eine substantielle Wirkung von Eye Cues nachgewiesen werden. Ob diese Effekte jedoch tatsächlich auf soziale Präsenz zurückzuführen sind, wurde bislang noch nicht untersucht. In der vorliegenden Studie wurde deshalb der von Gilovich et al. (2000) gezeigte Spotlight-Effekt (Überschätzung der Wahrnehmung der eigenen Person durch andere Personen) dazu verwendet, um die subjektiv empfundene soziale Präsenz der Probanden zu erfassen. Die Versuchspersonen sollten beurteilen, von wie vielen Personen sie wahrgenommen werden, wenn sie mit einem peinlichen T-Shirt, das den Volksmusiker Florian Silbereisen abbildet, durch Räumlichkeiten der Universität gehen würden. Wurde ein Eye Cue über dieser Schätzaufgabe präsentiert (vs. nicht präsentiert), war der Spotlight-Effekt signifikant stärker ausgeprägt. Weiterhin zeigen Probanden, die einem Eye Cue exponiert wurden, substantiell höhere Werte hinsichtlich situationaler öffentlicher Selbstaufmerksamkeit, nicht jedoch hinsichtlich privater Selbstaufmerksamkeit.

Modalitätenwahl bei multimodaler Interaktion. Eine experimentelle Untersuchung zum Anpassungsverhalten von Nutzern bei fehlerbehafteter Spracherkennung

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Innovative Technologiekonzepte verfolgen zunehmend das Ziel, die Interaktion zwischen Mensch und Technik über verschiedene Kanäle umzusetzen. Bereits zahlreiche Produkte bieten automatische Spracherkennung als Alternative zur konventionellen Tasteneingabe wahlweise an. Praxisbeispiele zeigen, dass dadurch die Interaktionseffizienz in Form einer erhöhten Performanz und einer geringeren mentalen Beanspruchung gesteigert werden kann. Dennoch erweist sich Spracheingabe, insbesondere bei mobilen Anwendungen, als kontextabhängig störungssensitiv, sodass es z.B. bei lauten Klangumgebungen gehäuft zu Fehleingaben kommen kann. Empirisch wenig belegt ist bislang, unter welchen Umständen sich Nutzer für oder gegen die Verwendung von Spracherkennung entscheiden. Daher wurde anhand einer interaktiven Anwendung laborexperimentell untersucht, wie sich die unabhängigen Variablen (a) Effizienzsteigerung und (b) Höhe der Fehlerbehaftung auf subjektive Akzeptanzwerte sowie das Interaktionsverhalten von Nutzern auswirken. Es wurde erwartet, dass erst eine erhöht wahrgenommene Effizienzsteigerung und eine gering erlebte Fehlerrate zur vermehrten Verwendung der Spracheingabe führen. Die Ergebnisse werden in Bezug zu weiteren Studien und zur praktischen Anwendung diskutiert.

Suppression of aggressive concepts after priming of violent video game content

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Die Zensur violenter Videospiele, vor allem von First-Person-Shootern (FPS), hat eine anhaltende Diskussion zwischen den Generationen in Gang gesetzt. Während die ältere Generation insbesondere die negativen Einflussfaktoren dieser Spiele hervorhebt, scheinen jüngere Personen als Angehörige der Net-Generation sich von jeglichem Zusammenhang mit Realgewalt zu distanzieren. Ziel der vorliegenden Studie war es, Verteidigungsmechanismen zu untersuchen, die sowohl Spieler als auch Nicht-Spieler benutzen, um gewalthaltige Videospiele zu verteidigen. Die Ergebnisse der eingesetzten lexikalischen Entscheidungsaufgabe weisen darauf hin, dass aggressive Konzepte durch ein FPS-Priming zwar aktiviert werden konnten, diese aber im Nachhinein unterdrückt wurden. Lag dagegen die Instruktion vor, aggressive Konzepte aktiv zu unterdrücken zeigten sich keinerlei weitere Verteidigungsprozesse. Die persönliche Spielerfahrung hatte keinerlei Einfluss auf die beschriebenen Ergebnisse. Demnach verknüpfen junge Menschen zwar negative Aspekte mit gewalthaltigen Videospielen, unterdrücken diese dennoch implizit, um ein zeitgenössisches Kulturgut und Hobby vor undifferenzierter Stereotypisierung zu schützen.

Finding the right level of detail of instructions for manual industrial tasks

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In two EU-funded projects, we aim at systems assisting and training workers in executing manual industrial tasks by presenting them visual feedback and instructions, e.g. on a head-mounted display. The present investigation's objective is to determine how abstract versus fine-grained the instructions of the underlying assembly operations have to be presented in order to facilitate worker's performance. First, we analyze the event perception of common industrial tasks and identify features describing the events. Subjects segment the assembly activity into meaningful events by the method of Newton (1976). Based on the found characteristic features we design visual feedbacks with varying levels of detail of the instructions. Subjects are asked to perform an unknown assembly task while receiving these different instructions. We assess speed and accuracy of the task execution. From empirical results we make conclusions for the design of appropriate and suitable level of detail of the user feedback.

The biasing effects of subjective importance of a romantic relationship and current relationship status on professional hiring decisions

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Using a sample of 480 participants, this study seeks to investigate the relationship between the importance of a romantic relationship and the hiring decision. We assume that interviewers naming a romantic relationship being very important to them will evaluate a candidate milder than participants naming a romantic relationship being not important. As predicted we found a significant relationship between the importance of a romantic relationship and the hiring decision. Moreover, mediation analysis confirmed that the employment decision was indirectly affected by the importance of a romantic relationship through the desire for social interaction. More importantly, examining the influence of the partnership status on the effects of this bias, we found the bias to be significant only for unmated respondents. Confirming a moderation of this pattern via partnership status, our findings point to the necessity of considering psychological aspects of evaluators when examining biased judgment and decision making in applied contexts.

Enhanced memory for emotionally negative stimuli: Storage or retrieval effect?

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People usually remember emotionally negative stimuli better than neutral stimuli (e.g., Kensinger & Corkin, 2003). To investigate whether this memory enhancement effect for negative stimuli is based on storage or retrieval processes, the following experiment was conducted: Participants studied nonword-word pairs that either involved negative words or neutral words. Memory for these target words was tested by means of a recognition test and a cued-recall test. Data were analyzed with a multinomial model that allows the disentanglement of storage and retrieval processes (Riefer & Batchelder, 1995). The analysis revealed no differences in storage but a clear retrieval advantage for negative words in the cued recall task. However, because storage parameters were near ceiling, effects of stimulus valence on storage cannot be ruled out in general.

Fair proposing increases attractiveness

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One consequence of fair behavior is the decrease of one's own resources. Following the idea of sexual selection such a wasting behavior should be expected to turn into a long term benefit. Benefits of fair behavior could be the increase of attractiveness or social support. Our participants observed virtual characters each acting as proposer and responder in an ultimatum game. Each character presented one type of responding and one type of proposing behavior in a two by two design. The responder either accepts any proposal or imitates the typical behavior found by previous studies. The proposer either offers close to nothing or a "fair" deal. After observing the gambling of the virtual characters the participants rated them regarding attractiveness and social support. Analysis revealed that fair proposals increase attractiveness. Both fair proposals and typical responses raise a character's perceived social support. Responses have no effect on attractiveness.

I am... so flexible - addressee and weekday effects on self-reported career-orientation in a bogus pipeline experiment

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N = 120 working adults participated in a "study on work-life balance" ostensibly conducted either in cooperation with a fitness center or with a consulting group. Half of the subjects in each addressee condition were asked to provide saliva samples before and after the questionnaire "as a means of lie detection via cortisol level". As a third, explorative factor, approximately half of the participants were recruited on Tuesdays vs. Saturdays, respectively. As expected, self-reported career-orientation was significantly higher when the study was ostensibly conducted for a consulting group as compared to a fitness center. This addressee effect was substantially diminished when participants believed that "lies" would be detected. In addition, participants presented themselves as more career-oriented (and conscientious) on Tuesdays as compared to Saturdays. The findings are discussed in terms of state-dependent retrieval effects in episodic memory, and raise severe concerns for the validity of survey results.

Spatial belief revision and the continuity effect

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Individuals often have to revise their beliefs when confronted with contradicting evidence. They have to decide which beliefs to retain and which ones to retract. Our research is concerned with the revision of beliefs in the spatial context. In general it is assumed that spatial belief revision is based on a variation of initially constructed spatial mental models. It is well-known that the construction of a mental model takes less time and is less error-prone when pieces of information that need to be integrated into the model are initially related to one another (continuous premise order) compared to when they are not (discontinuous premise order). This has been termed the continuity effect. In two experiments we pursue to answer the question whether the revision process is affected differently when information is continuously integrated into a model compared to when it is discontinuously integrated during construction.

Auswirkungen von motorischer und perzeptueller Distanz auf Distraktorverarbeitung

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In einer aktuellen Studie von Lakens et al. (2011) wird argumentiert, dass Menschen räumliche Distanz nutzen können, um nicht-räumliche Kategorisierungen vorzunehmen. Konkret wurde in einer binären Stroop-Klassifikationsaufgabe gefunden, dass der Abstand zwischen den Reaktionstasten die Stroopinterferenz beeinflusst; bei größerem Abstand wurde die Interferenz kleiner. Wir untersuchten in einer Flankeranordnung ($N = 128$) inwieweit eine solche ‚motorische Distanz‘ die Verarbeitung von Flankierreizen (Distraktoren) moduliert; zur Kontrolle variierten wir zudem die perzeptuelle Distanz in gleicher Art und Weise. Es zeigte sich, dass perzeptuelle Distanzerhöhung zwischen Zielreiz und Flankierreiz zu einer Verminderung der Interferenz führten, während die motorische Distanzerhöhung (sprich der Abstand der Reaktionstasten) keinen Einfluss auf die Interferenz hatte. Die Ergebnisse deuten darauf hin, dass der Einfluss räumlicher Distanz der Reaktionstasten auf die Performanz bei einer Kategorisierungsaufgabe nicht alle Arten der Distraktorverarbeitung (z.B. irrelevante Merkmale versus irrelevante Objekte) tangiert.

Generation and source memory: The role of an encoding-retrieval match

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According to an encoding specificity principle reinstating study context at test enhances item memory. In the present experiment this prediction was tested in reference to the source memory. In the source-monitoring task participants were presented with words printed in green or red font. At test they were asked to recognize words and recall their font colours. Moreover, at test one half of the words were presented in the same colour as during the study phase, the other half in a different colour. In addition, the words were read or generated during the study and the test phase of the task. The results showed a facilitative effect of context reinstatement on source memory, regardless whether the words were read or generated at study.

The influence of affective states on driving behavior of novice and young drivers

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Although general car safety has increased and accident numbers have decreased in the last years in Germany, the percentage of novice and young car drivers involved in heavy car accidents

remains high based on their proportion of the driving population. Traffic psychological research shows that maladjusted driving behavior caused by affective states is a main contributor to traffic accidents. Therefore, our current experimental study analyzes this influence of affective states on driving with regard to novice and young drivers. Affective states (positive vs. negative valence) were induced in participants, and subjects were then asked to drive predefined routes in a driving simulator. The results indicated that novice and young drivers showed a more risky driving behavior in a positive affective state. On motorways however the inexperienced novice drivers showed a more careful driving behavior compared to young more experienced drivers. Implications for further research and application will be outlined.

Learning faces vs. learning images: Effects of stimulus variability on face learning and recognition

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We investigated differences between face and image learning by presenting either a total of 16 variable images per identity (VAR) or 16 repetitions of identical images (IDENT). In learning trials, four images (VAR or IDENT) of each identity were presented consecutively. We analysed performance and event-related potentials (ERPs). At learning, we observed more negative amplitudes of N170, P200 and N250 components, with a more bilateral distribution of N250, as well as a larger late positive component (LPC), for VAR compared to IDENT. At test, identical and different images were used. IDENT yielded nearly 100% correct responses when tested with the image used for learning, but chance performance when tested with novel images. For VAR faces, we observed substantial generalization to novel images, which was associated with smaller right-hemispheric N250 and larger LPC. The results underline the importance of stimulus variability in experiments supposed to study face rather than image learning.

Local and global grammatical structures in aesthetic perception of dance

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Grammatical structures have been well studied in language and have also been linked to music perception. Here we link grammatical structures to dance aesthetics. In an apparent motion paradigm, symmetrical (ABCD CBA) and asymmetrical (ABCDBCA) posture sequences were presented. Local fluency of apparent movements was manipulated by changing the number of path reversals within a sequence. In an initial exposure phase, two groups of participants saw either only symmetrical or only asymmetrical sequences. In a subsequent test phase, both groups rated all sequences on a preference scale. Both groups liked symmetrical sequences with high

movement fluency. However, only participants who had been familiarized with asymmetrical sequences also liked asymmetrical sequences with low movement fluency. Our results show that aesthetic preferences depend on local apparent movements and global compositional rules. Importantly, aesthetic preferences for compositional structures were acquired over short periods of time, highlighting the role of learning in aesthetic perception.

"Stellen Sie die Folien schon vorher ins Netz?" - Über den langfristigen
Lernerfolg in Abhängigkeit vom Zeitpunkt der Verfügbarkeit von
Vorlesungsunterlagen

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Selbständig erstellte Aufzeichnungen verbessern den kurzfristigen Lernerfolg durch eine tiefere Enkodierung. Vorab zur Verfügung gestellte Lernunterlagen verbessern als externer Speicher stärker den langfristigen Lernerfolg. Die Kombination beider Ansätze sollte den Lernerfolg optimieren. In einer simulierten Vorlesung über den fiktiven „Kupfersporling“ wurden einem Teil der 70 Teilnehmer keine Vorlesungsunterlagen ausgehändigt, um sie zum Mitschreiben zu motivieren. Diese Gruppe bekam die vollständigen Vorlesungsunterlagen erst zwei Wochen später, kurz vor der Messung der Lernleistung, ausgehändigt (vertiefte Enkodierung + externer Speicher). Die zweite Gruppe verfügte schon während der Vorlesung über vollständige Unterlagen, so dass sie nicht mitschreiben musste (geringe Enkodierung + externer Speicher). Entgegen den Erwartungen unterschieden sich beide Gruppen nicht hinsichtlich ihres langfristigen Lernerfolgs. Kognitive Fähigkeiten wie Aufmerksamkeit oder Intelligenz moderierten dieses Ergebnis nicht. Unabhängig vom Zeitpunkt, zu dem sie verfügbar gemacht werden, scheinen Unterlagen als externer Speicher für den langfristigen Lernerfolg wichtiger zu sein als eine vertiefte Enkodierung durch selbständiges Mitschreiben.

Victim or survivor? Effects of labels on the perception of sexual violence

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Possible effects of the German labels "Opfer" and "Überlebende" as well as their English equivalents "victim" and "survivor" on the perception of a rape case were examined. In a first study 93, German-speaking participants rated the German labels and 86 English-speaking participants rated the English labels using a Semantic Differential. As hypothesized both "Überlebende" (vs. "Opfer") and "survivor" (vs. "victim") were associated more strongly with positive adjectives ($p < .001$). In a second study, the labels were presented via leading questions and effects were tested on 58 German speaking participants. Significant effects could be shown for male participants, who rated the rape as more severe when the raped woman was labeled as

"Überlebende" rather than as "Opfer." Additionally, participants generally rejected the label "Überlebende" and preferred the label "Opfer." These results and ideas for future research are discussed.

Does lexical processing in speech production require central or domain-specific resources?

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Based on dual task data, we argued for a distinction of domain-specific and central resources in speech production (Paucke et al., TeaP 2011). In a follow-up study, we used a PRP paradigm to corroborate this conclusion. Participants viewed two objects appearing at different SOAs and named the left object (task 1) while deciding on a property of the right object (task 2). Task 2 was conceptual (natural size) or lexical (phonemic onset). Thus, the overlap in lexical processing of task 1 and 2 differed (absent with the size task, present with the phoneme task). Furthermore, the lexical frequency of object names in task 1 was manipulated. For short SOAs the frequency effect of task 1 propagated onto task 2. Importantly, this effect was larger in task 2 when there was an overlap in lexical processing between tasks, supporting the assumption that lexical processing in speech production requires domain-specific resources.

Internet addiction – a uni- or multidimensional construct?

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It is still a topic of debate, whether Internet addiction is a distinct entity or whether it is arguable to differentiate between specific facets of usage. The current study aimed at contributing to a better understanding of common and differential aspects of using different Internet facets excessively. Two groups of individuals were examined which differed with respect to their exclusive use of Internet facets – Internet pornography (IP, $n = 134$) and Internet games (IG, $n = 69$). The Internet Addiction Test and modified versions (for IP and IG) were used as the dependent variable. No correlation was found between IAT-P and IAT-G ($r = .101$, $p = .279$). In a moderated regression analysis, both "shyness" ($p = .048$) and "group" ($p = .008$) significantly explained variance in the specific IAT. The interaction was also significant ($p = .016$, overall explanation 10%). These results emphasize the view that specific mechanisms contribute differentially to an excessive use of the diverse Internet facets.

Gratification as a key factor for excessive usage of Internet sex sites

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It is still controversially discussed, if people engage in cybersex excessively because of anticipated gratification or to compensate missed preferred sexual practices in real-life (Young, 2008). 176 heterosexual males rated the attraction concerning several sexual practices shown on Internet sex-sites and how often they had done these practices in the last six months in real-life. Excessive cybersex use was measured with a modified version of the Internet Sex Addiction Test (IATsex; Brand et al., 2011). Regression analysis (IATsex = dependent variable) revealed a significant prediction by subjective attraction of standard sexual practices ($R^2 = .08$; $F = 5.00$; $p < .01$), but not by frequency of doing these practices in real-life or the interaction of both. In a second regression analysis, the attraction to fetish content as well as intensity of lived out these practices in real-life, but not their interaction explain IATsex ($R^2 = .16$; $F = 10.71$; $p < .01$). Results emphasize that cybersex activities are motivated by gratification and not by compensation of missed real-life sexual contacts.

Is costly punishment of uncooperative individuals considered socially desirable?

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Extensive research has shown that individuals' tendency to invest private resources to punish uncooperative interaction partners, a behavior termed costly punishment, has strong and positive effects on the level of cooperative behavior. Given these positive effects, one could argue that costly punishment represents a prosocial behavior and may be considered socially desirable. However, we hypothesize that costly punishment is not considered socially desirable since individuals typically disapprove behavior that is based on negative reciprocity ("an eye for an eye"). Results of four studies indicate that individuals (a) indeed disapprove behavior based on negative reciprocity and (b) significantly reduce costly punishment under conditions where social desirability is salient (vs. control). Given that prosocial behavior should typically be more pronounced under conditions where social desirability is salient and yet punishment is actually reduced under conditions of social desirability, it seems that individuals exerting costly punishment are not following a truly prosocial motive.

A two-component model of cognitive reactivity

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Cognitive reactivity is the change of depressive thinking in response to a negative mood induction. Previous research suggests that cognitive reactivity is an important variable in the etiology and treatment of depression. This poster introduces a new model of cognitive reactivity. In correspondence to Forgas & Ciarrochi (2002) the model proposes that cognitive reactivity consists of two components, the immediate activation of mood congruent cognitions and the subsequent regulation of negative mood. The results of this study indicate that the two components are statistically independent. The study also shows that the initial increase of depressive thinking in response to a negative mood induction is negatively associated with future depression. This contradicts findings from previous studies. Further research is needed to understand the processes underlying cognitive reactivity.

The power of imagination: Phantom effects and their impact on action control

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Action control requires predictions about an action's sensory consequences. These predictions rely on imaginative processes which are not understood in detail yet. Here we demonstrate that even stimuli which were never experienced as action effects can be functionally associated with an action by mere intention. Participants performed key presses of varying durations producing tones of corresponding or non-corresponding durations, respectively. Crucially, these tones were only experienced by a social partner. Still, the mere knowledge of this instructed contingency rendered the tones functionally relevant for action control, as evident in an action-effect compatibility effect for these phantom effects. Challenging classical associative accounts these results stress the power of mere imagination for ideomotor learning.

Measuring experienced utility of students: Comparing the day reconstruction method with a real time method to assess emotional experiences of students

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We report a study examining the day reconstruction method as introduced by Kahneman et al. (2004) with a sample of students from a German university. A version of the original day

reconstruction method was compared with an analogous real time method, where participants were instructed to record their experienced feelings immediately following an episode. For the majority of episodes the most intense emotion reported was a positive emotion. Participants in the real-time condition reported significantly more negative episodes than participants in the reconstruction condition. Time of day and condition showed a significant interaction, indicating that leisure periods are experienced as less pleasurable than they are reconstructed. This study provides evidence that the day reconstruction method yields results very similar to a real time assessment method, though there might be a tendency towards positivity when reconstructing episodes compared to experiencing them.

A learning account of avoidance: The impact of fear conditioning on decision-making

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Several theories suggest that aversive experiences can cause avoidance behavior, specifically, in anxiety disorders. However, this link between conditioning and avoidance has not been tested experimentally. Therefore, the present study investigated the effect of fear conditioning on a subsequent choice paradigm. Individuals in the experimental group (n=30) encountered the same stimuli in both tasks. Contrary, stimuli were different in the tasks for a control group (n=25), so that they followed the same procedures, but had no previous experience with the stimuli in the choice paradigm. Compared to the control group, individuals in the experimental group avoided the choice associated with the aversive conditioned stimulus, although this resulted in less reward. Thus, avoidant decisions in the face of conditioned stimuli resulted in costs, which parallels the impairments caused by avoidance in anxious individuals.

If victims become aggressors: Regulation of emotions by the use of cyberbullying

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In cyberbullying research, personality and situational aspects are supposed to interact in predicting cyberbullying behavior. For example, some people may bully back because they have been victimized previously. We reconstructed such a scenario in the laboratory. 94 participants were shown that an anonymous person wrote 15 comments on their website. 46 participants saw positive comments, 48 saw negative ones. Participants evaluated their feelings after each comment. Afterwards, they viewed nine videos and rumors and stated whether they would share them with friends. Affect was assessed by PANAS (Krohne et al., 1996) at three times (after questionnaires, comments, videos and rumors). Regression analysis revealed that negative

comments combined with neuroticism and low negative affect predicted feelings of helplessness ($R^2=.29$; $p<.001$). Less agreeable participants whose negative affect increased after reading the comments shared more videos ($R^2=.12$; $p<.01$). Results indicate that victimization can lead to cyberbullying activities in individuals with specific personality traits.

Irrelevant speech effect in young children and adults

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Immediate serial recall of verbal items is impaired by background speech that the participants are instructed to ignore. Theoretical accounts of this so-called "irrelevant speech effect" (ISE) differ with respect to the role of sound-induced attention capture in ISE evocation. As children are less able to ignore task-irrelevant stimuli, the attention capture account of the ISE predicts stronger disruption in children when compared to adults. In the current study, we analyzed the effects of speech noise (single speaker vs. babble noise) on serial recall of German nouns presented pictorially vs. auditory in young children and adults. Irrespective of the presentation modality, the single speaker evoked a reliable disruption. However, in young children, the ISE was dramatically increased. Furthermore, babble noise affected children in the same way as the single speaker, whereas adults were unaffected. The results indicate differences in the mechanisms underlying the ISE in young children and adults.

Hypersensitivity to social exclusion after early maternal separation

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Early separation experiences can disrupt the child's attachment process and interfere with the psychosocial development of an infant. The current study therefore aims to investigate the neural mechanisms by which attachment to and early separation from the primary caregiver influences the social-emotional development of children. Participants: 25 Children that grew up with their biological parents and 23 children with an early parental separation experience (between 6th month and 3rd year of life) aged 8-12 were investigated with respect to stress-sensitivity, salivary cortisol samples, stress-coping and emotion regulation. Conclusion/Outlook: Preliminary analysis of the behavioural data revealed robust differences in the domains of stress-coping, emotion-regulation and psychopathological symptoms. In all domains, the differences were to the disadvantage of the children in care (e.g. more psychopathology and maladaptive coping strategies), confirming our hypothesis that early separation has a high impact on children's psychological well-being and puts them at risk for psychological disorders.

Humor facilitates text comprehension

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Humor is a unique human characteristic with important functions for communication. To comprehend a joke, first a mental representation of what the text is about has to be built (situation model). Second, the incongruity between the punchline and the expectations generated by the storyline must be resolved building a new situation model. However, not all texts that make a revision of the situation model necessary, are funny. In the present study, participants' processing times were recorded while they read short texts falling into four categories: 1. jokes, 2. texts that made a revision of the situation model necessary without being funny (revision texts), 3. congruent control texts and 4. incongruent control texts. Results showed shorter reading times and lower error rates for jokes than for revision texts. Thus, although the situation model had to be revised in both types of texts, jokes were processed more easily than revision texts.

Task shielding in the context of task switching

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Recent results suggest that shielding against irrelevant distracters when using a task set is achieved by enhanced processing of rule-related information. In a task switching paradigm, we investigated this issue further. Participants switched between a noun-categorization and an adjective-categorization task. Target words were superimposed on distracter pictures pertaining only to the categories relevant to the noun-task, not the adjective-task. Pictures either depicted objects also used as target words in the noun-task (old distracters) or objects that were not part of the noun target-set (new distracters) but belonged to the relevant noun categories. Results show that while subjects performed the noun task, old and new pictures interfered, suggesting processing of the rule-related distracting information. In contrast, during the adjective task neither old nor new pictures interfered in switch and repeat trials. This is taken as support for the hypothesis that the mechanism of task shielding is enhanced processing of task-related information.

Interaction of motivation with attention and inhibition processes

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There is a growing number of studies investigating the interaction of motivation and cognitive functions. However, it is not clear whether the two types of motivation (appetitive versus aversive stimulation) have the same influence and how they interact within a single experiment (Ilango, Wetzel, Scheich & Ohl, 2010). To investigate the impact of motivation on attention and inhibition processes we used a modified flanker task. 55 participants had to answer flanker tasks with potential reward, punishment, nor or both of it. In addition, we used go- and stop-trials, but the incentives were only delivered in go-trials. Reward, punishment as well as the combination of both revealed better performance in go-trials and worse performance in stop-trials. Interestingly, the tasks with potential reward yielded the shortest reaction times in go-trials. We are currently collecting neuroimaging data to investigate how cognitive and motivational signals interact in the brain during attention and inhibition processes.

Social facilitation with social robots?

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Regarding the future usage of social robots in workplace scenarios, the current study addressed the question of mere robotic presence effects on human performance. Applying the experimental social facilitation paradigm, task performance of 106 participants on easy and complex cognitive and motoric tasks was compared across three presence groups (alone vs. human present vs. robot present). Results revealed significant evidence for the predicted social facilitation effects for both human and robotic presence compared to an alone condition. Furthermore, robotic and human presence did not significantly differ on the performance tasks, but on the subjective impression of having been monitored. Implications of these findings are discussed with regard to the consideration of the interaction of robotic presence and task difficulty in modeling robotic assistance systems.

Electrophysiological investigations of emotional speech production

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In this study we used reaction times (RTs) and event-related brain potentials (ERPs) to investigate emotional speech production. By combining the semantic blocking paradigm with emotional factors we investigated the influence of emotion on lexical access during speech planning. Pictures were named in blocks of trials consisting of categorically related or unrelated objects from different categories. The emotional valence was manipulated visually: each object was presented in an emotionally neutral (classic photograph of a car), or negative variant (photograph of a heavily damaged car after an accident). A semantic similarity rating of the objects revealed strong effects of emotion in the heterogeneous, but not in the homogeneous condition, suggesting an influence of emotion on semantic categorization. Furthermore, we found main effects of blocking and emotion in RTs and ERPs. However, there was no interaction between these two factors. These findings suggest that lexical access proceeds independently of visual emotional factors.

Kann zeitliche Vorbereitung die Wahrnehmung räumlich unvorhersagbarer Reize verbessern?

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Befunde der letzten Jahre veranschaulichen, dass die Antizipation des Erscheinungszeitpunktes von Reizen sich in einer verbesserten Wahrnehmung dieser Reize äußert. Unklar ist jedoch, inwieweit diese zeitliche Vorbereitung mit der räumlichen Aufmerksamkeitsorientierung interagiert. So legen elektrophysiologische Ergebnisse nahe, dass die zeitliche Vorbereitung nur wirksam ist, wenn der Ort der Reizdarbietung vorhersagbar ist [Doherty, J., Rao, A., Mesulam, M., & Nobre, A.C. (2005). Synergistic effect of combined temporal and spatial expectations on visual attention. *Journal of Neuroscience*, 25, 8259-8266]. Wir überprüften diese Annahme in zwei Maskierungsexperimenten (Metakontrast Maskierung, object substitution Maskierung), in denen wir den Einfluss der zeitlichen Vorbereitung auf die Diskrimination visueller Reize bei räumlicher Unsicherheit untersuchten. Die Ergebnisse beider Experimente zeigen, dass die zeitliche Vorbereitung auch dann die Wahrnehmung verbessert, wenn der Darbietungsort der Reize variiert. Diese Ergebnisse sprechen für einen generellen Wirkmechanismus der zeitlichen Vorbereitung – unabhängig von der räumlichen Aufmerksamkeitsorientierung.

The influence of ad hoc relations on speech production: Electrophysiological evidence

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In this study we investigated whether lexical selection during word production can be modulated by formations of ad hoc semantic relations. In a learning phase thematic relations between categorically and associatively unrelated objects were created by presenting short stories that described interactions between the objects, or simply mentioned the objects without meaningful inter-relations. In a subsequent test phase reaction times (RTs) and event-related brain potentials (ERPs) were recorded while participants named the objects in a variant of the semantic blocking task. The naming blocks consisting of (a) objects that were meaningfully related in the short stories, (b) co-occurred in short stories without meaningful relations, or were entirely unrelated. We found no evidence for interference effects that are typically observed in this paradigm for hard-wired categorical relations. Instead, reaction times and ERPs suggest that the ad-hoc creation of meaningful relations during learning facilitates object naming during test.

Find your way back - what is the ideal position of a landmark for finding the way back?

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Recent experiments have shown that the ideal position of a landmark is before an intersection and in the direction of the turn. But, does this assumption also hold if the participants must find the way back? We examined a sample of 40 participants in our virtual environment SQUARELAND (10-by-10 blocks with orthogonal intersections). Results show that on the return path not only the position in direction of the turn is chosen, but also the position across the intersection opposite to the direction of the turn. The difference between the optimal and sub-optimal position was significant. Possible reasons for these findings will be provided within the context of language, mental representation, and visibility.

Causal status and coherence in causal-based categorization

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Research about how people categorize exemplars with causally linked features has found two competing effects. The causal-status effect proposes that people consider causal central features (e.g., a cause in a common-cause model) more than causal less central features. On the other

hand, the coherence effect describes the phenomenon that people often focus upon feature patterns that are coherent with the structure of the causal links between the features while neglecting individual feature values. We conducted an experiment to analyze the conditions that influence the strength of the causal-status and the coherence effect. Our participants had to rate exemplars with respect to their category membership. We manipulated whether typical or atypical feature values were described as causally active. The strong influence of this manipulation might serve as an important explanation for the varying strengths of the causal status and the coherence effect found in the literature.

"But there IS a difference!" - SPSS scaling distorts the interpretation of statistical results

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SPSS ANOVA graphs are scaled in a way to show maximal difference between groups, even if there is no significant effect. We conducted an experiment to show that this distortion in scaling affects psychology students' interpretation of results. Participants completed an online study, which asked them to evaluate an alleged 2x3 factorial experiment. We presented them with either a) an SPSS output table, b) the output table and a plot in original SPSS scaling, or c) the output table and a plot with the full scale (1 - 7). Further, the significance level in the output table was manipulated. While ratings for the importance of the results and the value for further research were equally low for conditions a and c, they were significantly higher for condition b. This pattern was unaffected by the manipulated significance, participants' semester, and reported statistical knowledge.

Einfluss von Framing auf die Nachrichtenauswahl bei Grundschulkindern

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Immer mehr Informations-Angebote richten sich gezielt an Kinder. Kinder-Nachrichten in Tageszeitungen, ein Agenturangebot von dpa sowie Nachrichtenmagazine haben Grundschüler als Zielgruppe entdeckt. Der Umgang mit Medien und Informationen gehört zur Medienkompetenz. Doch was verstehen Kinder unter welchen Bedingungen als Nachricht? Diese Frage hat eine Längsschnittstudie mit Erst- und Zweitklässlern untersucht. Erste Ergebnisse weisen darauf hin, dass Kinder in den ersten Grundschuljahren aktiv ein Nachrichtenkonzept entwickeln. Davon ausgehend werden in mehreren Pilotstudien Bedingungen untersucht, die die Entwicklung eines Nachrichtenkonzepts erleichtern. Systematisch werden dabei unterschiedliche Framing-Bedingungen getestet, zum Beispiel, ob Kinder Nachrichten für Gleichaltrige oder für

Erwachsene, für eine Zeitung oder für das Fernsehen aussuchen. Erste Ergebnisse und Analysen sollen vorgestellt werden.

Die Rolle motorischer Expertise bei der Wahrnehmung komplexer Handlungen

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Die neurophysiologischen Korrelate (Elektroenzephalogramms, EEG) der Repräsentation und Verarbeitung komplexer Bewegungsposturen sowie deren Abhängigkeit von spezifischen Handlungsrepräsentationen wurden in einem (subliminalen) Priming-Experiment mit Hochsprungbildern erforscht. Wir untersuchten, wie kategoriale und zeitliche Relationen innerhalb und zwischen Bewegungsphasen Wahrnehmungsprozesse beeinflussen. Novizen und Athleten mit Hochsprungerfahrung (Fosbury-Flop) nahmen an der Studie teil. Die Probanden mussten so schnell und so genau wie möglich entscheiden, ob der Zielreiz die Bewegungsphase Anlauf oder Flug zeigt. Der Prime zeigte entweder die gleiche (kongruent) oder eine andere Bewegungsphase (inkongruent) als der Zielreiz. Zudem konnten Prime und Zielreiz die natürliche oder die umgekehrte Bewegungsreihenfolge widerspiegeln (z.B. Anlauf-Flug, respektive Flug-Anlauf). Die EEG-Auswertung zeigt ein qualitativ verschiedenes Datenmuster für Novizen und Athleten. Während sich für Athleten in einer region-of-interest-Analyse eine Modulation der P300 in Abhängigkeit der Bewegungsreihenfolge zeigt, kann dieser Effekt für Novizen nicht nachgewiesen werden. Für Athleten scheinen motorische Repräsentationen komplexer Handlungen wahrnehmungsnahe kognitive Prozesse zu beeinflussen.

The relationship between children's numerical multiplication abilities and their intuitive estimation of area

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Children before being taught multiplication at school have been found to follow systematic algebraic rules when estimating rectangle area. The normative multiplying rule, height \times width, appears to be developmentally preceded by simpler algebraic rules, most often the adding rule (Wilkening, 1979). The present study focuses on the relationship between children's use of integration rules on an intuitive level and their numeric multiplication abilities on an explicit level. Second-graders were asked to estimate the size of rectangles and to fill out a paper-and-pencil test on different multiplication tasks, before and after the school-based learning of numeric multiplication. Results indicate that children showing intuitive multiplication patterns in area estimation perform better in solving numeric multiplication tasks, particularly in tasks involving one-to-many correspondences. It appears, thus, that intuitive and explicit knowledge

forms are related in these cases. However, various interventions used here did not produce a rule shift from adding to multiplying.

Words, nonsense and circles: Exploring the influences of semantics, phonology, and visual structure on eye movements during reading

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Measuring eye movements is a viable method of exploration of the process of reading. In order to unravel the contributions of semantics, phonology, and visual structure to the temporal and spatial properties of eye movements during reading, 30 children in 3rd and 4th grade of elementary school were measured with a high-speed camera while they read three different kinds of material: age-appropriate real sentences, sentences with syntactic structure which contained pseudowords, and sentences consisting of ring symbols which represent the visual structure of real sentences while being free of phonology and semantics. The differences in the spatial and temporal parameters of eye movements between the conditions indicate the influences of the aforementioned factors on the reading process. The results show, for example, that the visual structure of the material alone cannot account for the distribution of landing positions, and that the initial fixation durations are similar in all conditions.

The whole, the parts, or the sum of the parts? The perception of collections

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Many natural languages refer to homogenous collections of objects either with mass nouns and the labeling of a substance (e.g., rice), or with count nouns and the labeling of the single constituents (e.g., beans). The origin of this count-mass distinction might be language driven or conceptually based. The present study took a novel non-verbal approach to address this controversy by examining (a) what information is (b) how integrated when perceiving a collection either as multiple individuals or as a substance. Participants rated various types of collections on a linear scale, according to the perceived similarity to either a solid object or a nonsolid substance. Preliminary results show that ratings were based on a systematic integration of specific features of collections, i.e., proximity and number of constituents. This suggests that the differential labeling of collections originates in appearances of the physical world, rather than having occurred arbitrarily.

Measurement of situationally induced regulatory strategies: Establishing a manipulation check in a sport setting

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Based on the differentiation between promotion and prevention strategies (regulatory focus theory, Higgins, 1997), several studies investigated the effects of strategic orientation on behavior, using different methods of manipulating regulatory states. However, none of them measured if the experimental manipulation had actually "worked". Thus, we developed a questionnaire to capture the situational regulatory focus (RF) (Fay & Urbach, 2011). To test its validity, 89 badminton players completed a promotion and a prevention sports task. Situational RF was measured before and after task completion. We found an increase of promotion relative to prevention RF during the promotion task, whereas the opposite occurred in the prevention task. Results also suggest that the exact moment of measurement (shortly before vs. after finishing the exercise) is essential for capturing the changes of RF. Limitations of state measurement regarding athletes' ability of self-reflection as well as implications for coaches' framing of instructions will be discussed.

Response key separation and the SNARC effect

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When judging the parity of a number, people are typically faster if the required response is on the right side for large numbers and on the left side for small numbers. One explanation for this SNARC (spatial numerical association of response codes) effect is that numbers are represented on a mental number line such that they are placed relative to some spatial frame of reference. If this reference frame is purely extracorporeal, then the SNARC effect should increase for larger response key distances (Schwarz & Keus, 2004). We tested this idea by varying response key distances between 6, 57, and 108 cm in a typical SNARC experiment utilizing a parity judgment ($n = 24$). Although we found a clear SNARC effect ($p < 0.001$), the size of the SNARC effect was not influenced by response key distance ($p = 0.82$). This suggests that the SNARC effect does not exclusively depend on an extracorporeal reference frame.

Comparison of visual and haptic information pickup

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This study deals with the cognitive mechanisms of information pickup in mental rotation of objects. Starting from the notion of functional equivalence of mental and physical rotation, we asked whether decision time increases as a function of their angular difference across different perceptual systems. Identical spatial information of an object is simultaneously available for the two corresponding eyes, which is not the case in haptic exploration with both hands. Participants judged the sameness or difference in two separate experiments according to vision and haptics (active touch). The speed of correct choices was individually estimated and then analyzed separately (ANOVA). We found the time for haptic information pickup and integration to be significantly longer than for vision. We discuss the popular belief of images being mentally rotated and propose instead the active, synthetic aspects of information integration with its influence on working memory.

Numerosity discrimination in fetuses and neonates – a fetal MEG study

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The ability to discriminate numerosities has been demonstrated behaviorally in children in the first months of life. However, little neuroimaging data on magnitude processing in the first months of life and no prenatal data exists. Fetal MEG allows non-invasive investigation of neural responses to auditory stimulation administered through the maternal abdominal wall already before birth. 31 pregnant woman (30 to 39 weeks of gestation) and 30 newborns participated in the study. We presented a classical oddball paradigm with sequences of tone bursts differing in numerosity and duration. Evoked responses were recorded. Mismatch responses were computed as an indicator for sound discrimination [Draganova et al. 2007]. Seven fetal and 14 newborn datasets were excluded, mostly due to artefacts. 18 fetuses and 15 newborns showed mismatch components related to the change in numerosity. These findings point towards magnitude processing as a domain of evolutionary based core knowledge.

Wahrgenommene räumliche Objekttrennung führt zur Abschwächung des Chevreul-Effekts

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Der Chevreul-Effekt wurde bisher hauptsächlich mit Hilfe von Modellen erklärt, die auf monokularen Intensitätsverrechnungen beruhen, wie beispielsweise der lateralen Inhibition. Die Ergebnisse der vorliegenden experimentellen Untersuchung lassen solche Erklärungsansätze unplausibel erscheinen. Es wurden mehrere verschiedene Chevreul-Stimuli, bestehend aus mehreren Luminanzstufen, generiert und stereoskopisch dargeboten, die sich in Hinblick auf die durch sie hervorgerufenen dreidimensionalen Interpretationen unterschieden. In einigen Stimuli schienen sich die aus den Luminanzstufen gebildeten Objekte an ihren Kanten zu berühren, in anderen wirkten die Objekte als räumlich voneinander getrennt. Es zeigte sich, dass die Wahrnehmung einer räumlichen Objekttrennung zu einer deutlichen Abschwächung des Chevreul-Effekts führte. Der Grad der Abschwächung hing dabei positiv von der wahrgenommenen Prägnanz der Objekttrennung ab. Des Weiteren wurde ein Erklärungsansatz diskutiert, der die Helligkeitswahrnehmung als einen mehrstufigen Prozess auffasst. Dieser Ansatz bietet sowohl für die Entstehung des Chevreul-Effekts im normalen Chevreul-Stimulus als auch für die Abschwächung in Szenen mit wahrgenommener Objekttrennung mögliche Erklärungen.

Fast and frugal personnel selection: Is there really a need for complex evaluation?

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Fast and frugal trees are decision aids designed to facilitate tackling complex decision situations. They order predictor variables according to their importance and consult them sequentially. A decision is made based on the first variable that discriminates, that is, the first variable that allows opting for one alternative. The evaluation of potential future personnel as it is done in assessment centers is a costly and time-consuming process. At the same time, this process is critical for building up and maintaining a company's human resource pool. In computer simulations and a field study, we examine whether human resource managers can and do rely on fast and frugal trees in selecting future personnel. We examine whether doing so helps them to improve the selection process in terms of (i) the time it takes, (ii) the accuracy of the personnel selection decisions, and (iii) the costs involved in the selection.

The time course of processing the uniqueness-PSP of the definite article:
Evidence from event-related potentials

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The appropriateness of a sentence like "Peter met the prince of Bel-Air" depends on the existence and uniqueness of a prince of Bel-Air, due to the presupposition (PSP) triggered by the definite article. Using a word-by-word event-related potential paradigm, we investigated the time course of PSP-processing comparing sentences in which the uniqueness referent was given by a context (matching) with sentences in which it was not given (mismatching). Under these conditions, the mismatching articles evoked a negative deflection at centro-occipital sites similar to the N400, an index of semantic matching. Hence, the present study provides first insights into the time course of PSP-processing by showing that context-sensitive reference processes related to the uniqueness-PSP of the definite article start immediately after article onset.

Salient distracters lead to perceptual errors in a competitive change detection
task

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Theories on visual selective attention suggest that the spatial selection of relevant information is based on bottom-up activation in visual areas and a top-down bias towards relevant inputs. In a change detection paradigm, we could show that this selection process is affected by an irrelevant simultaneous motion transient presented spatially separated to the target. In this case, the selection of relevant changes was more impaired with increasing salience of the irrelevant transient. By analyzing electrophysiological data separately for trials containing correct and erroneous responses, we demonstrate that correct change detection was associated with the allocation of attention to the relevant change, while erroneous responses were preceded by a capture of attention towards the irrelevant transient. These results indicate that salient distracters can disrupt the processes required for conscious change detection by capturing attention in a bottom-up way.

Judging body-weight from faces: The height-weight illusion

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Recent research has investigated the impact of size, volume, color etc. on perceived weight. Various weight-illusions are believed to arise by a disassociation of sensory input. To the authors' knowledge, there is no study considering the impact of viewing angle on weight perception. In two experiments we let participants judge the weight of persons on the basis of 48 human faces in 3 viewing conditions (face frontal, downward, or upward head pitch by 30°). In the first experiment using a within-participants design, we found a large effect of viewing angle on weight judgments ($\eta^2 p = .906$). Faces seen from a lower position yielded the highest judgments of weight, and higher viewing positions produced the lowest. In a 2nd experiment with a between-participants design the same data pattern emerged, underlining the robustness of the illusion. The 3rd experiment investigated cultural differences relating to the perceived body weight on the basis of faces.

Can phonetic voice characteristics measure depression? Applying prosody, articulation, and speech quality features for automatic detection of depressive states

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A non-obtrusive ambulatory assessment of depression from voice communication could be very beneficial for field studies, and therapy settings. Thirty patients and thirty control subjects took part in this study. The depression level was assessed by BDI Scores. In order to capture the phonetic information 170 acoustic speech descriptors per speech sample were computed, e.g.: (a) speech rate, (b) pause length, (c) articulatory precision, (d) tension, (e) breathiness, (f) nasality, (g) pitch contour, (h) intensity contour, (i) vocal tract tension, (j) degree of jaw opening, (k) position of tongue body, and (l) size of front cavity were computed. Several acoustic features which cover possible prosodic, speech quality and articulatory changes in depressed speech showed significant correlations to depression states (e.g. pitch slope = $-.35^*$, mean intensity = $-.33^*$). In order to determine the multivariate prediction accuracy a linear regression model was applied and showed R-square = $.67^*$).

Roles of dysfunctional aspects of perfectionism for decision making with a parallel executive task

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Studies demonstrated a decrease of performance in a risky decision-making task (Game of Dice task, GDT) when an executive task (2-back-task) had to be solved simultaneously. So far, only few studies investigated the influence of personality traits on this performance. Using a GDT-2-back-task and the MPS-F-Neo-PI-R 98 participants were examined. Results demonstrate that the perfectionism facet "Concern over mistake" significantly affected performance on the GDT-2-back. A moderated regression analysis with "GDT net score" as dependent variable revealed an interaction effect between "Concern over mistake" and "omissions in 2-back-task". Participants with high concern over mistake showed advantageous performance in the GDT only when frequently disregarding the 2-back task. Subjects with low concern over mistake performed well on both the GDT and the 2-back task. These findings are in line with previous studies suggesting concern over mistakes as a dysfunctional dimension of perfectionism, which is related to disadvantageous behavior in complex situations.

Task-(un)specific effects of temporal preparation

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Temporal preparation usually results in enhanced performance in a variety of tasks. In a series of behavioral experiments, we investigated to what extent temporal preparation involves increased readiness for task-specific processing requirements as opposed to increases in task-independent readiness. Participants performed either a visual or an auditory discrimination task within a variable foreperiod paradigm. In separate blocks of trials, the presentation of tasks was either blocked or randomly varied. In principle, task-specific temporal preparation should have larger effects with blocked than with varied presentation of tasks. We observed the typical variable foreperiod effect with mean RT decreasing with increasing foreperiod duration. Furthermore, mean RT was shorter with blocked than with varied task presentation. Importantly, we did not observe an interaction between foreperiod duration and type of task presentation. This result provides evidence against the hypothesis that participants temporally prepare for a specific task, at least in the present experimental setup.

The effect of framing on decisions about priority setting in medicine

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In medical decision making, the effects of message framing have been discussed extensively. Regarding decisions about prioritizing services and treatments in medicine, the topic has hardly been addressed. The aim of the present study is to explore the effect of different types of framing on decisions about priority setting in medicine. Participants were exposed to three case examples each representing a different prioritization criterion (i.e., age, health behavior, information detail) embedded in different framing types, such as an 'Asian Disease Problem', a valence framing, and the use of abstract versus concrete information. To investigate the influence of the framing on the respondents' decisions a contingency analysis was conducted with adjusted residuals as follow-up chi-square tests. The results indicate that decisions about priority setting in medicine are influenced by the description of the decision problem. However, the effect of message framing varies depending on the type of framing and the prioritization criterion.

Your Highness? Differentiating effects of spatial elevation on respect

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Two studies investigated the effect of spatial elevation on person perception. In Study 1 participants were asked to rate a target person that was either elevated or not and was described as either achieving or non-achieving. We found that spatial elevation led to an increase in respect towards a non-achieving target. In contrast to Study 1 which was administered in a computer setting, Study 2 tested the same relation in an ecologically more valid setting. Participants were asked to assess a live size model of the target person that was either standing on ground level or on a pedestal. Contrary to previous studies we found a decrease in respect towards a non-achieving target when it was elevated compared to the perceiver. The current studies suggest that elevation can confirm social status, but can also have no or even inverse effects if it violates expectations, personal motives or social norms.

Rigid or flexible activation of intentions? On the role of the proximity of a retrieval opportunity

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The intention-superiority effect (ISE) describes faster response latencies for stimuli related to an intention compared to more neutral stimuli during retention. This is interpreted as a more

persistent activation of intention-related materials. Typically, participants are instructed to realize the intention immediately after completing the task that assesses response latencies and yields the ISE. Thus, the response-latency task is also associated with a retrieval opportunity in the near future. We assumed that the ISE is restricted to conditions in which the current reaction-time task is a meaningful cue for a retrieval opportunity. In line with this assumption in two experiments we found an ISE when the response-latency task indicated a near retrieval opportunity. When the current task was irrelevant, no ISE was demonstrated. Findings indicate that even short-term delayed intentions are flexibly activated and deactivated depending on the perceived proximity of a retrieval opportunity.

Bittersweet in the orbitofrontal cortex? A fMRI study on neural correlates of the perception of bittersweet movie clips

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Sad movies are quite successful at the box office although, at a first glance, it seems awkward that people select media content which elicits sadness and even tears ("sad film paradox"). Media psychology suggests that such movies also include positive aspects and therefore in fact elicit "bittersweet" feelings. Using 7T-fMRI, we examined differences in neural activity during a presentation of positive, negative and bittersweet movie clips. In 10 female participants we found significant activations in the orbitofrontal cortex (OFC) when contrasting bittersweet clips from both negative and positive clips. Results indicate that the OFC integrates the bitter and the sweet components of bittersweet movies which seem to be more than simple positive or negative emotions. No activation differences within the limbic system were found. The results are discussed in the context of theories which consider the OFC being involved whenever emotional aspects have to be integrated in higher cognitive processes.

Resistance is futile! The influence of relevance on the resistance of attitudes

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We propose that the relevance of persuasive evidence determines the resistance of attitudes to counter-attitudinal attacks. By relevance we mean the amount of belief in background knowledge that allows drawing conclusions from given persuasive pieces of information. In the experiment, participants (N = 67) read arguments in favor of a cell phone that differed in relevance (e.g., high: battery life vs. low: voice control). This was followed by an attack with information arguing against the cell phone. In line with the predictions, attitudes built on relevant information turned out to be more resistant than attitudes built on less relevant

information. We discuss these findings with reference to dual-process models of persuasion where attitude resistance has been treated as the result of more or less thorough processing of message arguments only. Beyond that we demonstrate that the relevance of persuasive evidence plays a decisive role in determining resistance.

Stock-Flow-Systeme besser verstehen: Zur Rolle animierter Modelldarstellungen, spezifischer Personenmerkmale und angewandter Korrelationsheuristiken

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Viele Zusammenhänge unseres täglichen Lebens kann man als dynamische Systeme, sogenannte Stock-Flow-Systeme beschreiben (z.B. unsere Kontoführung oder der Kalorienhaushalt unseres Körpers). Dennoch haben wir offenbar große Probleme, die Wirkungsweise solcher Systeme zu verstehen bzw. korrekt vorherzusagen. Dabei bestehen Stock-Flow-Systeme lediglich aus drei Größen: Zufluss, Abfluss und Bestand. Dennoch gelingt es mitunter nicht einmal 50% der Probanden anhand gegebener Flussgrößen (Zufluss und Abfluss) den Bestand in einem System korrekt zu bestimmen (Sweeney & Serman, 2000). Ausgehend von Befunden zur multimedialen Gestaltung von Lerninhalten (Mayer, 2002; Niegemann, 2008), zur Bedeutung von Modelldarstellungen beim Lösen schwieriger Aufgaben (Sedlmeier, 2011) und eigenen empirischen Vorarbeiten, untersuchten wir u.a. die Auswirkungen animierter Modelldarstellungen und spezifischer Personenmerkmale auf die Lösungsraten von Stock-Flow-Aufgaben sowie das Auftreten der sog. Korrelationsheuristik. Obwohl animierte Darstellungen der Systemzusammenhänge das Verständnis tendenziell zu verbessern scheinen, belegen die Ergebnisse den hohen Schwierigkeitsgrad von Stock-Flow-Problemen. Die Ergebnisse werden bezüglich theoretischer Implikationen und perspektivischer Forschungsvorhaben diskutiert.

Individual differences in visual working memory capacity and the ability to filter out irrelevant information: Evidence from switching between filter settings

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It is well known that the capacity of working memory (WM) varies across individuals and recent evidence suggests that the ability to prevent irrelevant information from being stored is a major factor behind this variation. Here, we explore whether the ability to flexibly adjust filter settings also contribute to an individual's WM performance. Participants performed a change-detection task with filtering demands, where the selection criterion color can switch from trial to trial (blue or red). Moreover, two different types of distractors were realized - distractors in a color that is never relevant (green) and in a color that is currently irrelevant (e.g. red when blue is relevant). The data show that filtering is more demanding when filter settings need to be adjusted and

when items are only currently irrelevant. Moreover, the ability to flexibly adjust filter settings varied across individuals. We will discuss whether this variability is related with WM capacity.

Lernen in einer multimedialen Lernumgebung - wie wirkt sich die (audio-) visuelle Gestaltung von Lernmedien auf den Lernerfolg aus?

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Aus konstruktivistischer Perspektive ist mit "Lernen" ein Konstruktionsprozess gemeint, bei dem neue Informationen mit vorhandenem Wissen verknüpft oder bereits bestehende Konzepte durch die Verbindung mit neuen Informationen transformiert werden. Diese neu aufgebauten Wissensstrukturen müssen nach dieser Auffassung „in verschiedenen Situationen, Zusammenhängen, sozialen Kontexten [ihre] Verwendung finden“ (Brandl, 1997). Ebenso ist bekannt, dass die (audio-)visuelle Gestaltung eines Mediums den Rezipienten beeinflusst. Auf dieser Annahme basiert das folgende Experiment: Es soll konkret untersucht werden, inwiefern die (audio-)visuelle Gestaltung eines Lernmediums sich auf die Erinnerungsleistung bei Kindern auswirkt. Dabei sollen Kindern dieselben Lerninhalte zum Thema „Gesundheit“ vorgelegt werden, welche pro Testreihe hinsichtlich eines Kriteriums unterschiedlich gestaltet sind. Anschließend sollen die durch das Lernmedium dargestellten Inhalte abgefragt und Rückschlüsse auf den gestalterischen Einfluss des Lernmediums auf den Lernerfolg gezogen werden.

Co-representation in a triad

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The current study investigates co-representation during joint-action in a group of three adults. Participants were asked to press a particular button when a stimulus of a particular color appeared on a screen. There were three buttons to press and three different colors appeared successively on the screen. Every stimulus turned up at three different positions. Compatible stimuli appeared at the position equivalent to the position of the pressed button, incompatible stimuli at one of the other two positions. A compatibility effect was found when subjects answered faster the compatible stimuli than the incompatible stimuli. If one actor alone answered all three buttons, compatibility effects were found for all three colors and positions. In the joint-action-condition compatibility effects were only found for the person in the middle position. This effect decreased if the other two persons were absent but it never disappeared completely. Triadic co-representation seems to be unbalanced and hierarchic.

Müller-Lyer illusion in the initial and advanced stages of schizophrenia

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We tested the sensitivity to Müller-Lyer illusion in schizophrenia patients. The Müller-Lyer figure was filtered by wavelets in different spatial frequency range. A patient with schizophrenia was more sensitive to illusion, than healthy observers. Sensitivity of patients at early stages differs from patient with long duration of disease. Patients on the initial stage of disease perceived the images with the low spatial frequency similarly with control observers. These patients were more sensitive to the illusion for tests at high range of spatial frequency. Schizophrenic patients in advanced stage were more sensitive at all range of spatial frequencies we used than the control group. We assumed that those differences between the patients groups arise from the mismatch of the magnocellular and parvocellular systems. These findings demonstrate a significant impairment in parvocellular pathway function in patients of initial stage schizophrenia. Sensitivity magnocellular system decreases if duration of disease increases.

Headway control and comfort in vehicle automation

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With the first successful tests and the long-term deployment of highly automated vehicles, the role of the driver changes from having an active part in the driving of the vehicle, to a reactive monitoring task. In addition to legal and security concerns, it is questionable what effect this change of the driver's task has on the comfort of the driver. In this experimental study, one crucial aspect of a future automation was examined in a driving simulator. The distance between the automated vehicle and another vehicle driving ahead was varied in different driving situations. The experienced comfort during the automated driving was measured with a newly developed questionnaire. Results of the study suggest that the distance maintained by the automation affects the comfort experience of the driver as a function of the situations. These results will be discussed in terms of their impact on the design of future vehicle automation.

Mechanisms of placebo-effect - does cognitive dissonance play a role?

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Although cognitive dissonance (cD) (Festinger, 1957) is from time to time mentioned as a potentially enhancing factor of unspecific treatment-effects (Redelmeier, 2011), e.g. placebo-

effects, this idea has not gained much attention in experimental research yet. In the sense of "effort justification" (Aronson et al, 1959), a chosen and unpleasant placebo-intake could lead to cD and foster pain relief in order to reduce dissonance. When dissonance-arousal could be detected after taking this aversive placebo, it could be verified as an increasing factor of the placebo-effect. By means of a randomized, controlled study, the influence of cD in case of unpleasant placebo-intake was examined. For experimental proof of a potentially existing dissonance-arousal, we employed the classical misattribution-paradigma of cD (Zanna et al, 1984) and the measurement of performance in a reaction-time-task (Martinie, 2009). Freedom of choice was varied, subjective pain intensity and relief and psycho-physiological parameters (EDA, PPG, HR) were measured.

Emotional processing and autistic personality traits

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Background: Emotionally salient stimuli typically show improved encoding into memory, and this preferential encoding is presumably mediated by an interaction of amygdala and hippocampus. Autistic individuals have repeatedly been shown to exhibit impaired face processing. Methods: Here we investigated the relationship between Autism Spectrum Quotient (AQ), a measure of autistic traits in healthy adults, and neuronal correlates of emotional memory, using event-related functional magnetic resonance imaging (fMRI) in 28 healthy, young adults. Participants studied emotional vs. neutral word-face combinations, followed by an associative memory task. Furthermore, all participants completed Baron-Cohen's AQ questionnaire. Data analysis was performed using regression analysis in SPM8. Results and Discussion: Replicating previous results, emotional processing engaged amygdala and hippocampus as well as fusiform face area (FFA). AQ was positively correlated with activity in medial prefrontal cortex (mPFC) during emotional face processing, suggesting alterations of emotional control as a function of AQ.

The effect of foreknowledge upon selection of declarative and procedural representations

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Oberauer (2009) distinguished two working memory (WM) subsystems: declarative and procedural WM. The present research tested whether selection of declarative (memory-sets) and procedural

(task-sets) representations is affected by foreknowledge. Participants learned two memory-lists and two classification tasks. In each trial, one list and one task were cued as relevant (each with a .5 probability). Foreknowledge was manipulated across five conditions: no preparation, list preparation, task preparation, list and task preparation, and single block. Switching between memory-lists and task-sets took longer than accessing the same set. These list-switch and task-switch costs were underadditive, therefore indicating parallel selection of sets in declarative and procedural WM. Foreknowledge reduced overall reaction times, but neither affected the switch costs nor the interaction pattern, thus contrasting with other experiments in which foreknowledge reduced list-switch and task-switch costs. Perhaps the requirement to switch both types of representations discouraged participants from preparing for a switch.

"Spieglein, Spieglein an der Wand - wer ist die Schönste im ganzen Land?" Wenn Frauen erhöht auf Beautyprodukte achten

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Bei der Suche nach einem geeigneten Partner wollen sich Frauen und Männer von ihrer besten Seite präsentieren. Aus jüngerer Forschung ist bekannt, dass hierbei auch automatisierte Prozesse beteiligt sind. So konnte beispielsweise für Männer gezeigt werden, dass es eine spontan erhöhte Wahrnehmungsbereitschaft für strategische Mittel gibt, die bei der Partnersuche von Nutzen sind (Janssens et al., 2011). Die folgende Studie untersucht diesen Prozess bei Frauen. Es wird postuliert, dass Frauen bei Aktivierung des Ziels der Partnersuche eine spontan erhöhte Wahrnehmungsbereitschaft für Beautyprodukte aufweisen. Die Ergebnisse bestätigen die Hypothese. Jedoch zeigte sich der Effekt nur für Frauen, die zum Zeitpunkt der Studie Single waren und angaben, dass sie einer Partnerschaft hohe Priorität im Leben einräumen. Die Moderation der Effekte durch den Beziehungsstatus deutet darauf hin, dass es sich um einen motivationalen Prozess handelt und nicht um eine bloße Aktivierung von Wissensinhalten, die mit dem Thema Partnerschaft assoziiert sind.

Perceptual grouping in ambiguous configurations: Evidence for "contrast grouping" from a discrimination task

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According to the principle of similarity subjects perceptually group an outer row (column) of squares in a 4x4 matrix of equally spaced elements, in which all other elements are circles (Dodd & Pratt, 2005). The grouping of the remaining 3x4 submatrix of circles is ambiguous, however. When directly asked, subjects prefer to group the circles in the same way as the squares. Thus,

the presence of an unambiguous perceptual group seems to induce the same grouping for the ambiguous part of the configuration (Vickens, 2008). But reaction times in a simple discrimination task show the opposite pattern: If the squares form a row (column), the discrimination of two letters placed in circles that form a column (row) are discriminated faster. Thus, at an early stage of visual processing, the circles seem to be grouped in contrast to the grouping of the squares.

Gülcan weint, na und!? – Der Einfluss kultureller Nähe auf die Risikowahrnehmung beim Impfen

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Narrative Einzelfallberichte über Impffolgen, wie sie beispielsweise im Internet leicht zu finden sind, verzerren die Wahrnehmung von Impfrisiken (narrative bias; Betsch et al., 2011). In dieser Studie werden die Anzahl der Berichte mit negativen Impffolgen (2 vs. 4 von 10 Fällen in einem fiktiven Internetforum) und die kulturelle Nähe zum Verfasser der Berichte manipuliert (deutsche oder türkische Personen). Die Wahrnehmung des Impfrisikos wurde sofort und nach 2 Wochen erfasst. Es wurde untersucht, ob geringe kulturelle Nähe zur Abwertung der Einzelfälle führt, und ob der narrative bias erst nach zeitlicher Verzögerung auftritt (sleepers effect). Die Ergebnisse zeigen jedoch sowohl bei hoher als auch bei geringer kultureller Nähe einen narrative bias, jedoch auf unterschiedlichem Level: Bei türkischen Fällen wurde das Risiko signifikant geringer eingeschätzt. Es zeigte sich kein sleepers effect. Die inhaltlich bedeutsamste Erkenntnis der Studie ist, dass die Risikowahrnehmung signifikant niedriger ist, wenn die Erfahrungsberichte eine geringe kulturelle Nähe aufweisen

Viewing times as an implicit measure of sexual interest in sexual practices in women

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Viewing times (VT) are able to assess sexual interest implicitly and discriminate between men and women (Israel et al., 2009). However, VT measures have not yet been used to investigate interest in specific sexual practices in women. In this experiment, 156 women rated pornographic pictures of ten categories with respect to sexual arousal while their VTs were recorded. Repeated-measure ANOVA revealed differences within subjective sexual arousal ($F = 53.89$, $p < .01$) as well as in VT ($F = 36.17$, $p < .01$) with respect to picture categories. Furthermore, correlations between explicit and implicit measures are observed for single sexual practices as well as for aggregated picture samples for hetero- or homosexual female orientation (r 's = .17-.57, p 's < .05). Results indicate

that VIs are an appropriate implicit measure of sexual interest in women. Such implicit methodologies might be more suitable to assess sexual interest given that previous methods assessing sexual interest in women resulted in inconsistent correlations (Chivers et al., 2004).

Which characteristics and attitudes result in staying calm in a cyberbullying situation?

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Cyberbullying is the repeated harassment of others by using modern communication technologies and can lead to serious psychological problems for the victims. The aim of this study was to examine victims' characteristics and attitudes linked to staying calm in cyberbullying-situations. First, 34 participants answered several questionnaires e.g. the Attitudes-towards-Gossip-Test (Litman & Pezzo, 2004) and the Aggressiveness-Questionnaire by Buss and Perry (Herzberg, 2003). Second, the participants viewed a personalized website that offered a previously taken portrait photo of each participant plus 15 offending comments. Meanwhile, heart rate was recorded as a measure of physiological arousal. A moderated regression analysis illustrated that verbal aggressiveness, the opinion that gossip is morally valuable, and the interaction of both parameters predicted a decreasing heart rate significantly ($R^2=.15$, $p<.05$). Thus, in case of verbal attacks, those persons seem to stay calmer, who are verbally aggressive by their own and think that gossip is morally acceptable.

"Mach dir keinen Stress" - Über den Einfluss von Stress auf die Leistungsfähigkeit von Studierenden

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"Ein bisschen Stress muss sein", behaupten viele Studierende im Bezug auf ihre Pflichten. Ein gewisses Maß an Stress, vor allem in Form von Zeitdruck, kann ihrer Meinung nach für den Lernerfolg bei Prüfungsvorbereitungen förderlich sein. Viele Studierende glauben, dass ihr so selbsthervorgerufener Stress ihren Lernfortschritt beschleunigt und sich demnach positiv auf die Leistungserbringung auswirkt. In einem Experiment soll daher überprüft werden, wie der Lernerfolg von Studierenden und ihre eigene Leistungseinschätzung ausfällt, wenn diese einen Lerninhalt (1) unter Zeitdruck und (2) ohne zeitliche Beschränkung erlernen können. Anschließend werden alle Studierenden gebeten, die gelernten Inhalte in einer quasi-realistischen Prüfungssituation nachzuweisen. Es wird vermutet, dass die Studierenden, die die Aufgaben unter Zeitdruck erlernen mussten, ihr Empfinden bei der Leistungserbringung positiver einschätzen, als

die Gruppe ohne Zeitdruck. Das Experiment stützt sich dabei theoretisch auf Lazarus' und Launiers klassische kognitive Stresstheorie (1971).

Relevant stimulus-response compatibility tasks outperform irrelevant stimulus-response compatibility tasks in detecting deception and criminal intent

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Research findings concerning the validity of reaction time measures (RT) to detect deception seem inconsistent. One proposed reason is that structurally very different paradigms have been used. Only RT tasks that manipulate relevant stimulus-response compatibility (SRC) seem to accurately detect deception. Therefore, we directly compared two RT tasks, one based upon irrelevant SRC and the other upon relevant SRC. Furthermore, we investigated whether also criminal intentions could be detected. Results showed (1) larger lie-truth RT differences in the relevant SRC task compared to the irrelevant SRC task, (2) for both a completed and a planned crime. These results were replicated in a second experiment using an irrelevant SRC task with a semantic feature (instead of color). The present findings support the idea that a structural analysis can help to elucidate the validity of RT-based deception paradigms. Additionally, they demonstrate the potential of these tasks to detect criminal intent.

Task-dependent compensation of variable inertial loads during tool use

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Movements result from an interplay of active, reactive, and environmental forces. In spite of this complexity, humans generally are quite proficient in the production of purposeful movements. However, the compensation of environmental forces is likely subject to boundary conditions. Here we present research investigating the effects of continuously varying loads which are associated with the use of a first-order sliding lever on the planning and the execution of movements. Our data shows that variable inertia affects the spatial characteristics of hand movements when these are means to produce certain effects, in particular, when using a tool. In contrast, when the task is not defined by the consequences of hand movements, but by the movements themselves, the effects of inertial anisotropy are compensated. In the first case, the controlled variable is the position of the effective part of the tool, in the second case, it is the position of the hand.

Age effects on controlling tools with sensorimotor transformations

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The impact of age on controlling tools with sensorimotor transformations is surveyed with regard to action control. Recent evidence lets us assume that the distal action effect (the moving cursor) rather than the proximal action effect (the moving hand) determines the efficiency of tool use. In the experiment younger and older participants performed movements on a covered digitizer tablet while different gains perturbed the relation between hand and cursor movement. We found that movement times followed the perceived index of difficulty on the display, although the tablet amplitude was held constant. This was even more pronounced in elder participants. It is concluded that Fitts' law does not rely on the movements of the motor system, but on the distal action effects on the display (changes in visual space). With aging distal action-effect control plays an increasing role on perceiving and controlling tools with sensorimotor transformations.

Retrieval-induced forgetting of motor sequences

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The phenomenon of retrieval-induced forgetting (RIF) has been demonstrated for a variety of materials (e.g., for words, pictures) in typical memory tests. We investigated whether RIF also affects one's own behavior. Participants first learned sequences of two-finger-movements. Half of the movements consisted of fingers of the left hand, half consisted of fingers of the right hand. Subsequent retrieval-practice of half of the movements of one hand caused RIF for the non-retrieved movements of the same hand, that is, these movements were recalled worse than movements of the other hand in a free recall test. In accordance with an inhibitory account of RIF, we assume that the non-retrieved items of the retrieval-practiced hand were inhibited in order to solve competition among items during retrieval practice. This competition arose because the hands had been used as cues to memorize the newly acquired motor responses.

Emotion prediction by facial expressions in human-computer interfaces

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Facial expression recognition provides a promising basis for future-oriented human centred design of emotional human-computer interfaces. Although there have been different approaches on this research topic, it is still not clear how algorithms can learn to encode or decode human

faces and especially the emotions expressed in a human-computer interaction. Within this context our research focuses on the automatic prediction of emotions by facial expressions. In contrast to the majority of studies, we suggest a new and rather simplified dynamic approach to recognise facial expressions by analysing the deviations of areas defined by several dots placed on the face. Taking into account the results of our novel way to categorise emotions, this dynamic application of detecting emotions aims at a facilitation of human-computer communication. It will be discussed with respect to its application to automatic and adaptive chat-based interview agents. Implications for further research and application will be outlined.

Auditive Startle-Konditionierung von Streifenmustern wirkt sich nicht auf deren Wahrnehmungsschwelle aus

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Verschiedene Studien belegen, dass emotional konditionierte Stimuli priorisiert verarbeitet werden. Padmala und Pessoa (2008, J Neurosci, 28(24), 6202 -6210) zeigten, dass sich die Entdeckbarkeit eines Streifenmusters verbesserte, wenn die Probanden vor der Reizdarbietung durch affektiv konditionierte Töne alarmiert wurden. Offen bleibt, ob sich die Entdeckbarkeit solcher Reize auch verbessert, wenn der Reiz selbst affektiv konditioniert wird. Elektrophysiologische Studien weisen darauf hin, dass affektive Konditionierung bereits die frühesten Reizverarbeitungsstufen modulieren kann. Um zu untersuchen, ob sich dies auch auf Verhaltensebene niederschlägt, erhoben wir Wahrnehmungsschwellen sinusoidaler Streifenmuster vor und nach auditiver Startle-Konditionierung. Durch Variation des Luminanzkontrastes wurden Wahrnehmungsschwellen für zwei unterschiedlich orientierte Streifenmuster gemessen. Konditionierung erfolgte durch Paarung jeweils einer Orientierung mit einem auditorischen Startle-Reiz. Die Ergebnisse zeigen, dass emotionale Konditionierung keine Auswirkung auf die Wahrnehmungsschwellen der Streifenmuster hatte. Sollte, wie EEG-Studien implizieren, affektive Konditionierung einen Effekt auf die bottom-up-Reizverarbeitung haben, so scheint sich dieser nicht im Verhalten niederzuschlagen.

"The sweet taste of revenge" - gustatory effects on judgments of a vengeful act

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Research on embodied cognition has demonstrated that encounters of physical disgust are related to perceptions of moral disgust (Eskine, Kaciniak, & Prinz, 2011). Based on the notion that embodied gustatory experiences affect judgments and decision making, we hypothesized that "revenge tastes sweet": After consuming a sweet (vs. neutral) beverage, one half of the participants read a story of a practical joke as a response to an initial act of aggression. The other

half of participants did not learn about the initial aggression, that is, they did not encounter the practical joke as revenge. The act of revenge was evaluated more positively after participants drank the sweet (vs. neutral) beverage. Furthermore, this effect did not emerge when the motive for the practical joke was not revenge. The results are discussed in the contexts of embodied cognition and the influence of taste perception on judgments.

Guessing in binary choice tasks: Risk propensity and outcome expectations

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Guessing in discrete choice tasks lowers reliability and is difficult to predict. Risk propensity has been identified as a predictor, and test-taker guessing serves as risk measure, which implies that risk and guessing propensity are situation-independent traits. Our study investigates the effects of risk propensity and outcome expectations on guessing. In a yes/no vocabulary test we manipulated expectations by providing either a gain frame, loss frame, or no outcome information in the instructions. Participants ($n = 175$) sat a test comprehension task, a vocabulary translation task, and a trait based risk assessment. Results indicate that lexical knowledge did not differ significantly, whereas the loss group guessed twice as much as the gain group. Guessing was independent of (trait) risk propensity. The findings are consistent with prospect theory (Kahneman & Tversky 1986). Our results generally emphasize the importance of instructions and of the control for construct-irrelevant variance in designs.

Not the devil you know: Negative but not positive cues affect the recognition heuristic in consumer preferences

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The Recognition Heuristic (RH, Gigerenzer & Goldstein, 2002) holds that real-life human judgments rely on one single cue (recognition), ignoring other information. This paper reports a test of whether the RH applies to preferential choice, following Oeusoonthornwattana and Shanks (2010). Participants had to make choices between pairs of consumer products (e.g., pairs of headphones, tennis rackets, etc.) that contained a recognised and an unrecognised brand. Each real-life product was shown with fictitious star-ratings used as cues, similar to web-based commerce. Despite strong evidence for the recognition heuristic, preference choices were influenced by negative cues, contrary to the claim that RH is strictly non-compensatory. However, positive cues had no effect on the RH. Theoretical accounts for this effect are discussed.

Performance on speed and accuracy in subliminal priming experiments

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Priming is often measured by evaluating improvements in accuracy and speed during a repetition task. The present study focuses on these parameters by changing the number of repetitions as well as the quantity of presented stimuli between two subsequent repetitions. Additionally, an implicit memory task based on the mere exposure effect was performed to investigate the endurance of induced priming effects. Results show that repetitions indeed improve accuracy and speed of correct answers but the quantity of in-between stimuli has no noticeable effect. Furthermore, accuracy shows late improvement, whereas performance on speed of correct answers is more sensitive, but influenced by training effects. No significant correlation between these two parameters could be found for the repetition task or the implicit memory task. Thus, it appears that accuracy and speed of correct answers represent different aspects of performance in priming experiments and should not be discussed as comparable variables.

Attention and the localization of moving stimuli

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It is long known that observers make localization errors in the direction of motion when asked to point to the perceived onset position of a moving target (Fröhlich effect). However, recent studies revealed a strong effect of trial context: When the stimuli did not appear at predictable positions but at unpredictable positions, localization errors in direction of motion were at least drastically reduced. In the present experiments we examine different accounts addressing this effect of trial context.

Unequal target proportions do not only induce a response bias but also specific attentional selection strategies

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In the present study we investigated the effect of unequal target proportions on the performance in a flanker task. Data were collected in three blocked conditions: An equal-proportion condition, where targets requiring a left or a right button press occurred equally often, and two unequal-proportion conditions, in which the target for the one response was presented more frequently than that for the other response. Usually, it is assumed that such unequal target proportions produce a response bias. This was confirmed in the present study by fitting a recently proposed

Dual-Stage Two-Phase model of selective attention to the distributional data. Thresholds were biased towards the more frequent response, respectively. However, in addition to this bias we also found that early stimulus selection (by perceptual filtering) was strengthened in the biased conditions, whereas the involvement of late selection processes (by categorical filtering) decreased compared to the unbiased condition.

Die Berücksichtigung von Ratschlägen aus Ratgebersicht

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Ratschläge sind ein entscheidendes Hilfsmittel für das Treffen schwieriger und komplexer Entscheidungen und während bereits viele Erkenntnisse darüber gewonnen wurden, wie Entscheidungsträger mit Ratschlägen umgehen, ist wenig darüber bekannt, wie sich das Verhalten von Entscheidungsträgern in einer Beratungssituation auf die beteiligten Ratgeber auswirkt. Die vorliegende Studie beschäftigt sich mit der Frage, wie eine durch einen Entscheidungsträger vorgenommene Gewichtung von Ratschlägen die Arbeit eines dazugehörigen Ratgebers beeinflusst. In zwei Experimenten erteilten Probanden in der Rolle des Ratgebers einem simulierten Entscheidungsträger Ratschläge bei der Bearbeitung von Schätzaufgaben oder Entscheidungsaufgaben. Dabei wurden zum einen die Gewichtung der Ratschläge durch den Entscheidungsträger und zum anderen die wahrgenommene eigene Kompetenz des Ratgebers manipuliert. Während bei beiden Experimenten keine kurzfristigen negativen Folgen einer geringen Ratschlagsgewichtung in der gemeinsamen Bearbeitung der aktuellen Aufgaben festgestellt werden konnten, zeigten sich unabhängig von der Kompetenzwahrnehmung längerfristige Konsequenzen in Form einer verminderten Bereitschaft des Ratgebers zu zukünftiger Kooperation mit dem Entscheidungsträger.

Landmarks - day versus night

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We here investigated a variety of questions on human navigation in a real environment with the focus on navigation during the day versus night. Sixteen students (eight females) learned a written route description and then had to navigate this way and additionally provide their own route description by using landmarks (while walking (t1) and after navigation (t2)). Many different landmarks were used for the route descriptions at the intersections (eight different landmarks on average). For decision points, participants mainly used landmarks in combination with the route structure (e.g., after, before), while along the route only landmarks were used. Fewer landmarks were used at L- or T-junctions. Some landmark categories were used more often for day (e.g., pathways, educational institutions) or night (e.g., illuminated objects) navigation.

These findings will be discussed within the context of current research on visual, structural, and semantic landmarks.

Change detection is enhanced for objects in near space

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A brief interruption between an image and its altered version induces 'change blindness'; even substantial changes are often not seen. Noticing a change depends on selective attention, and changes of center-of-interest objects are more likely to be noticed (Rensink et al., 1997). Change detection is further improved when subjects can report changes implicitly by performing actions towards the target. This has been shown by Tseng et al. (2010) for arbitrary changes. Extending these findings, we show that there is an advantage for changes in objects in near space which can be acted upon immediately compared to objects far from the observer. This advantage should be more pronounced with report actions that are plausible for near space than for far space (touching the screen vs. throwing balls at a projection). We further control for differences in stimulus saliency and show that the advantage for near objects disappears when images are presented upside down.

Social influence on food intake: Do gender effects persist with healthy food?

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Social facilitation research suggests that people eat more in groups than alone. Impression management theories present divergent effects: People who want to impress a companion tend to eat less. Furthermore, modeling studies, in which people try to match their intake, indicate that the amount eaten depends on how much other group members eat. There are also differences in eating behavior between men and women: Women eat less in order to appear more female and attractive, whereas men eat more in order to be perceived as strong and masculine. Empirically, healthy food intake was analyzed depending on the companionship (alone, same-gender dyads/couples of different gender). This field study took place in a sushi restaurant. A social facilitation effect was found for men, but not for women. Additionally, there were no differences in the amount eaten alone or in the companionship of a person of the opposite gender, for men or women.

Hypnotic modulation of semantic priming

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Using functional magnetic resonance imaging (fMRI) we explored whether "automatic" semantic priming during a lexical decision task can be modulated by means of hypnosis. After inducing a state of trance, 10 low and 14 high suggestible participants received specific suggestions to perceive the prime words as meaningless symbols. In trance, as compared to normal wakefulness without suggestions, the low suggestible group showed reduced priming in the left hippocampus, left amygdala, left precentral and left superior frontal gyrus. The same contrast applied to the high suggestible participants yielded diminished priming in the right amygdala, left lingual gyrus and bilateral fusiform and superior temporal gyri (STG). As for the latter group, we assume that the hypnotic suggestions caused amygdala downregulation which, in turn, dampened visual processing in the lingual and fusiform gyri leading to a weaker activation of semantic representations in the STG and thus to less priming in trance.

Dimensionality of the perceptual space of achromatic color perception

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Perceptual space of achromatic colors is traditionally viewed as a one-dimensional continuum ranging from black to white. Recent evidence suggests that this space has to be at least two-dimensional for complex stimuli, like infield-surround configurations [e.g. Logvinenko & Maloney, 2006]. Achromatic color space is investigated by presenting two infield-surround configurations on a black-and-white monitor in an illuminated room. Subjects judge if infields are same or different. The background luminance of the monitor matches that reflected from the walls, thus, all infield colors are perceived as surface colors. Two-dimensional psychometric functions of discrimination probabilities are fitted to the data. The resulting functions show that surrounds influence the colors of infields in a way that is inconsistent with their representation in a one-dimensional space. Further analysis of the dimensions underlying the data structure suggests a two-dimensional solution. The discussion of the results interprets the nature of these dimensions.

Voluntary expectation facilitates action preparation

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Expectations regarding future events can be used to prepare for action. If the actual event meets the expectation, responses tend to be faster and more accurate. This effect has been shown in a variety of domains, ranging from advance knowledge of simple stimulus properties to task switching and conflict paradigms. Expectations may arise from internal sources, based on previous experience, or they can be externally triggered through instructions or cues. While both types of expectation have been shown to affect action preparation, this effect is much larger for internally as compared to externally generated expectations. We demonstrate this discrepancy in a within-subjects design comparing predictions to cues. We discuss whether the influence of self-generated vs. externally triggered expectations differs quantitatively or qualitatively and whether cueing paradigms can be used to investigate the influence of expectation on action preparation in general.

Automation und ihre Konsequenzen für die kognitiven Prozesse von Fahrern

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Fahren ohne Assistenzsysteme wird es bald nicht mehr geben. Trotz technischer Unterstützung bleibt aber für adäquates Handeln im Straßenverkehr das rechtzeitige Wahrnehmen und Verarbeiten von relevanter Information Voraussetzung. Um den entsprechenden Einfluss von Assistenzsystemen zu prüfen, wurden an der TU Braunschweig 30 Versuchspersonen (15 \hat{a} ™€, 15 \hat{a} ™; Alter: $M = 28.0$; $SD = 11.9$) in einem Fahrsimulator untersucht. Die Fahrer absolvierten eine einstündige Strecke in einem Stadtszenario, wobei die Hälfte davon von einem ACC Stop & Go unterstützt wurde. Es zeigte sich, dass diese Unterstützung der Fahrer zu einer signifikant schlechteren Reaktionsbereitschaft in kritischen Situationen führte. Außerdem nahmen Fahrer, die mit System fuhren, verkehrsrelevante Elemente seltener wahr als Fahrer, die ohne System fuhren. Dies weist darauf hin, dass mehrere Komponenten des Informationsverarbeitungsprozesses durch Assistenz beeinträchtigt werden können.

Measuring the influence of eye colour and gender on the attentional bias for faces

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Research suggested that blue-eyed men prefer blue-eyed over brown-eyed women because of a greater diagnosticity of blue-eyed offspring for blue-eyed male paternity. The present eye-tracking study used a spatial cueing procedure to test this. Female and male faces with blue or brown eyes served as cues. The cues were left and right of fixation and preceded colour-defined target and distractor rectangles. To assess attentional capture by the faces, saccade latency was recorded. The data were analyzed for differential effects based on the eye colour (blue-eyed vs. brown-eyed) and gender (male vs. female) of the cue and the observer. Results warrant scepticism regarding the offspring hypothesis.

Texture segregation captured in speeded visuomotor responses

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Within early visual processing, scene segmentation is a key step leading to figure ground perception. In simpler terms, segregation of a textured surface is driven by differences in the local spatial relations among common elements. This process is believed to facilitate detection of boundaries and current research suggests it is pre-attentive and may be strictly feedforward. Using textures composed of random line arrays, and generated randomly for each trial, we examined the priming effects arising from local versus global figure ground feature relations. As predicted, when participants were instructed to respond to the figure, local visual prime signals served to enhance or hamper specific visuomotor responses. Still, in the absence of a figure global features continued to influence speeded motor responses. In conclusion, a comparison of the priming function for local versus global features provided a close measure of texture segregation processing.

Hemispheric lateralization of visual body self-perception - a behavioral morphing approach

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Previous studies on visual self-perception suggested a bias of the right hemisphere for recognizing oneself. For example, a left-hand advantage was found in reaction times for self-face recognition, in comparison to familiar- and unfamiliar faces. Recognizing the own body represents another important aspect of human self-awareness. Here we sought to investigate response hand differences for self-body recognition. Participants saw movies of their own, a familiar- and an unfamiliar person's body, morphed into one another, and indicated the subjective transition point using their right- or left hand. Results showed a left-hand bias for perceiving images as representing more self than unfamiliar other. No such bias was found for "self versus familiar other" or "familiar- versus unfamiliar other". Thus, in contrast to face processing, a right hemispheric bias for self was found in comparison to unfamiliar- but not familiar others, challenging the self-specificity of the lateralization effect for bodies.

The vivid face of morality - EMG evidence of the influence of vivid presentation on emotional reactions to (im-)moral behavior

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Contributing to the debate on emotional and deliberative processes in moral judgment we propose that moral judgments represent an instance of decision making and are subject to the same factors that are known to affect non-moral judgments. To demonstrate that the type of cognitive representation may determine emotional influences on judgments, we manipulated the vividness of moral dilemmas by presenting different (im-)moral behaviors either in a rather abstract or concrete fashion (i.e., with or without photos and names of agents). Emotional reactions were assessed by measuring facial muscle activation (Levator labii, Zygomaticus major, Corrugator supercilii) using Electromyography while subjects read the stories. Vividness specifically influenced Levator labii reactions to immoral behavior indicating stronger disgust in the vivid than in the non-vivid condition. No differences were found in reactions to moral behavior or in the activation of other muscles. These findings suggest an influence of presentation style on moral judgments.

Symbol learning task in early recognition of dyslexia -differences in children with and without familial risk for dyslexia

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In order to identify preschool children at risk for dyslexia, phonological awareness and rapid naming tasks are commonly used. However, the predictive power of these instruments is low. When a child learns to read, it needs to develop an understanding of symbols. A fundamental ability is visual-verbal associate learning. According to a recent theory about the causes of dyslexia, affected individuals show a deficit in this domain.*We developed paired-associate learning tasks for preschoolers targeting symbol acquisition. The tasks were administered to a group of children with and without familial risk for dyslexia (nfamRisk = 88; nCon = 197). Accuracy and reaction times were measured. Children differed significantly in their performance on the tasks, so we concluded that the preconditions for symbol learning differ between the two groups already before school entrance. In the long run the present data should help to make more accurate predictions for children at risk for dyslexia.

Eine Realfahrtstudie zur Müdigkeitsklassifizierung in Abhängigkeit der Fahrumgebung

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Bis heute ist die Frage nahezu ungeklärt, wie sich Müdigkeit von Autofahrern auf das Fahrverhalten auswirkt. Auch wenn man weiß, dass einige Parameter wie die Reaktionsfähigkeit der Fahrer herabgesetzt sind, gibt es eine Vielzahl an Fragen was die Detektion der Müdigkeit über Fahrparameter der Längs- und Querregulation betrifft. Doch welche Parameter verändern sich tatsächlich in Abhängigkeit der Müdigkeit? Welche Rolle spielt dabei der Straßentyp? Um diese Fragestellung zu beantworten, wurde an der TU Braunschweig ein Feldexperiment durchgeführt. 26 Fahrer (Alter: $M = 26.7$; $SD = 8.79$; 11 Frauen, 15 Männer) absolvierten eine Realfahrt im normalen Straßenverkehr (Landstraße, Autobahn) mit einer Dauer von ca. 4 Stunden. Die Testfahrer wurden mittels Selbst- und Fremdbewertung der Müdigkeit in drei Müdigkeitsstufen eingeteilt. Die Ergebnisse zeigen, dass in Abhängigkeit des Straßentyps unterschiedliche Fahrparameter zwischen den Müdigkeitsstufen differenzieren. Dies hat Konsequenzen für die Gestaltung von Assistenzsystemen und deren Anpassung an die jeweilige Fahrumgebung.

Can active navigation be as good as driving? A comparison of spatial memory in drivers and backseat drivers

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When driving a vehicle, either driver or backseat driver may be responsible for navigation. Research on active navigation in virtual environments suggests that controlling navigation is more central for spatial learning than controlling movement. To test this assumption in a real world scenario, we manipulated movement control through seating participants in the front or the back position of a tandem bike, and navigation control by presenting differently detailed maps to participants in two experiments. Landmark knowledge effects of movement control and navigation control appeared to vary depending on environment knowledge. Different measures of route and survey knowledge showed no inherent advantages of driving, but active navigation enabled the development of a good mental representation of the environment. As our findings suggest, driving may be advantageous for remembering landmarks, but actively controlling navigation (even as a backseat driver) is more relevant for remembering a route than maneuvering a vehicle.

A matter of justice beliefs: Effects of just world threat on cooperation

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The present study investigates the impact of just world threat on cooperation. We assumed that threatening - in comparison to supporting - the belief in a just world (BJW) reduces cooperation. In order to test this hypothesis we experimentally threatened the BJW before participants played a trust game. Additionally, we assessed individuals' socioeconomic status (SES) and their dispositional BJW thereby distinguishing between ultimate and personal BJW. As expected, just world threat reduced cooperation for participants with a dispositional high personal BJW and low SES. However, participants with a dispositional low personal BJW or high SES remained unaffected by the threat. Furthermore, irrespective of the SES, a dispositional high ultimate BJW immunized against just world threat, whereas individuals with a dispositional low ultimate BJW were responsive to it. The implications of the results will be discussed in the light of the hypothesis that just world threat reduces trust in social interactions.

Comparison of animated and static graphics regarding their efficacy for solving pictorial categorization tasks

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In this study, animations showing horse gaits were compared to simultaneously arranged static graphics regarding their efficacy for solving pictorial categorization tasks. The hypothesis was that learning with animations would lead to higher performances in animated and static pictorial categorization tasks compared to learning with so-called "key frames". "Key frames" are static graphics showing the most typical states of a process. The assumption was that animations help learners more effectively in constructing perceptual dynamic schemas of horse gaits than key frames do. Preliminary data analyses revealed that learning with animations led to higher performances in pictorial categorization tasks than key frames did but the differences didn't become significant. Regarding cognitive load, however, a highly significant difference could be found between the two conditions in that direction that participants who learnt with animations reported about less mental effort during the learning unit than participants who were confronted with static graphics.

Social cues facilitate infants' object processing at 4 months of age

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Social cues guide infants' attention from early on. Eighteen 4-month-old infants were presented a head and eye gaze turning toward or away from a simultaneously presented object. Afterwards the object was presented again and event-related potentials (ERP) were measured. A repeated measures ANOVA indicated an increased Nc amplitude for previously uncued objects ($p = .001$). The Nc is related to attention allocation to novel stimuli. We conclude that the uncued objects seem more novel to the infants compared to the previously cued objects. This suggests that the objects are encoded more effectively when a person is cueing them. Additionally, we observed an enhanced Pb amplitude for the cued objects ($p = .002$). Pb amplitude is suggested to reflect ease of stimulus processing. This suggests that social cues guide infants' object-directed attention and facilitate infants' processing of their environment.

The failure of deactivating intentions: Aftereffects of completed intentions in the repeated prospective memory cue paradigm

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We investigated aftereffects of completed intentions on subsequent performance that required the maintenance and execution of new intentions. Participants performed an ongoing number categorization task and an additional prospective memory (PM) task, which required them to respond to PM cues, which differed from standard stimuli in one particular visual feature. While the feature defining the to-be-acted upon PM cue changed in each block, the irrelevant PM cue of the previous PM task block was occasionally repeated in the subsequent block. In four experiments we found that performance in the ongoing task was substantially slowed for repeated PM cue trials compared to oddball trials, which also differed in a visual feature from standard stimuli, but never served as PM cues. This aftereffect decreased as a function of delay after intention completion. These findings indicate that intentions can exhibit persisting albeit gradually decaying activation even after they have been completed.

Fluency moderates framing effects in risky choices

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Tversky and Kahneman (1981) demonstrated that individuals act risk seeking when confronted with negative (loss) frames and risk averse when confronted with positive (gain) frames. Recent research identified affective feelings as moderators: the shift of preference is stronger (weaker) when individuals are in bad (good) mood. Based on the theory of "wisdom-of-feelings" we reason that bad mood signaling problematic environments leads to low-level construals while good mood signaling benevolent environments results in high-level construals. Assuming that cognitive feelings parallel affective feelings we hypothesize that low fluency indicates problematic environments resulting in stronger framing effects compared to high fluency. To investigate hypotheses, we used positively versus negatively framed scenarios and manipulated ease of processing. As predicted, framing effects were more pronounced under low compared to high fluency. Factors associated with reliance of feelings such as need for cognition moderated the effect. Consequences for our understanding of framing effects are discussed.

Investigating cheating behavior in students compared to the general public

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According to research on dishonesty, participants cheat to increase their benefits when detection probability is close to zero. However, opposite to the homo oeconomicus assumption, people do not maximize their financial benefit. This difference between average and possible cheating is explained in terms of the disutility produced by self-concept impairment resulting from cheating. Most studies investigating cheating behavior employ student samples. In three studies (total $N = 912$), we researched determinants of cheating behavior using an incentivized coin-toss task, in which participants toss a coin in private and subsequently report their outcome. Overall, we confirmed previous findings that people do not maximize their payoff in spite of no risk of being detected. However, students tended to cheat more than the general public. The difference was more pronounced for higher financial benefits. The effects seemed to be mediated by the perceived obligation to follow legal rules (legitimacy).

Decision making under risk conditions: Roles of task complexity and learning

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Neuropsychological studies demonstrate the impact of executive functions on decision making under risk conditions, frequently measured with the Game of Dice Task (GDT). So far, effects of task complexity and learning have rarely been examined experimentally. In random order, 82 healthy participants completed two differently complex versions of a new decision-making task, the Truck Dispatcher Task (TDT), with four and twelve alternatives, respectively. In the TDT, participants choose between routes for trucks of a fictitious logistics company. The routes vary in probabilities for congestion and the associated gains and losses, which were designed analogous to the GDT. The results showed no effect of task complexity, but improved decision-making performance in the task version which was played in second place ($F(1, 80) = 7.64, p < .01$). Independent of the complexity, preference for the advantageous alternatives seems to be learned in the course of repeated decisions. Interactions with executive functions will be discussed.

Convergent thinking skills operating in open problem spaces

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Convergent and divergent thinking skills of gifted children (N=48, 6-10y old) was compared to that of a matched control group. In pre- and post-test, children first performed the Standard Progressive Matrices test (SPM), assessing convergent thinking operating in closed problem space. Next children were asked to generate a SPM-style item in the Creative Reasoning Task (CRT), assessing convergent and divergent thinking operating in open problem space. Third, they performed the Test of Creative Thinking (TCT-DP), assessing divergent thinking in open problem space. The pre-test revealed higher convergent and lower divergent thinking abilities for the gifted group, the largest difference was found for convergent thinking in creative reasoning. This suggests that the cognitive abilities of the gifted children are brought to full advantage by applying them in open problem spaces. Furthermore it shows that enhanced convergent thinking skills do not necessarily come along with enhanced divergent thinking skills.

Specificity effects and list-length effects in event-based prospective memory: A model-based approach

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Prospective memory is remembering to perform an intended action in the future and the appropriate moment of intention fulfillment is often indicated by a specific cue. It has been shown that increasing the number of cues as well as decreasing the cues' specificity can impair prospective-memory performance. Although both manipulations result in the same observable effects (i.e., fewer correct responses to the cues), they might affect different cognitive processes. To test this hypothesis, we manipulated the number of cues and cue specificity resulting in the typical detrimental effects to prospective-memory performance. Analyses with an adapted version of the multinomial model of prospective memory (R. E. Smith & U. J. Bayen, 2004), however, revealed that the number of cues affects cue-recognition (i.e., the retrospective component), while cue specificity affects cue-noticing (i.e., the prospective component). These results are original evidence that number of cues and cue specificity affect two distinct cognitive processes.

Event related-potentials for overt manual grasping movements

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The goals of an action are critical in action planning (Rosenbaum et al., 1992). We use event related-potentials to advance our understanding of the temporal and neural mechanisms underlying goal-directed actions. In our experiment subjects had to execute grasping movements (power grips) instructed by either only the end-position of the object or including the grip type to be used. Preliminary analyses of the ERPs time-locked to grasping the object show a significant negativity from -800 ms to -500 ms over parietal-occipital cortex for the condition in which the grip was specified. This effect (but not left-frontal effects) seems to be functionally similar to the results of Van Schie and Bekkering (2007) who analysed precision grips. Thus, it appears that precision and power grip preparation and possibly execution are controlled by similar neural mechanisms. However, this remains to be shown for guidance of motor behavior for final action goals.

Reaktivierungshäufigkeit als Grenzbedingung der Rekonsolidierung im episodischen Gedächtnis

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Eine Gedächtnisreaktivierung kann konsolidierte Erinnerungen in einen störungsanfälligen Zustand versetzen, der eine erneute Stabilisierung (Rekonsolidierung) der Erinnerungen erfordert. Studien zeigen eine Stärkung von Erinnerungen nach mehrmaliger Reaktivierung und mit zunehmender Erinnerungsstärke eine steigende Widerstandsfähigkeit gegenüber amnestischen Manipulationen während des Rekonsolidierungsprozesses. Wir fragten daher, ob mehrmalige Reaktivierungen Erinnerungen weniger anfällig für Rekonsolidierungseffekte machen. Ein erstes Experiment belegte, dass neues Lernen nach der Reaktivierung die spätere Wiedererkennung des ursprünglich gelernten Materials reduzierte; neues Lernen oder die Reaktivierung allein hatten keinen Einfluss auf die Gedächtnisleistung. Anschließende Experimente zeigten, dass sich der beeinträchtigende Effekt von neuem Lernen nach der Gedächtnisreaktivierung verringerte, wenn die ursprüngliche Erinnerung zuvor zusätzlich drei Mal oder auch nur ein einziges Mal reaktiviert wurde. Diese Studie zeigt, dass die Reaktivierungshäufigkeit eine potentielle Grenzbedingung für die Rekonsolidierung im episodischen Gedächtnis ist und könnte bedeutende Implikationen für Therapieansätze haben, die auf eine Modifikation belastender Erinnerungen während der Rekonsolidierung abzielen.

Does the heart beat make us tick? The impact of heart rate and arousal on time perception

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Popular models of time perception argue that human timing is effected by two factors: the pulse rate of an internal pacemaker and the amount of attention directed towards the passage of time. While results concerning the effect of attention on timing perception are conclusive, mechanisms of the pacemaker are still an unresolved issue. With two experiments we examined the impact of heart rate and perceived arousal on time perception. Heart rate and arousal were varied independently by means of specific physical exercises: (1) A muscle exercise increased arousal and heart rate, (2) a breath-holding exercise increased arousal but decreased heart rate, and (3) in the control condition arousal and heart rate were held constant. The results indicate that increased arousal leads to longer time estimates, whereas heart rate has no relevant impact on time perception. Results are discussed with respect to the underlying mechanisms of prospective time perception.

Do we lose control because we think self control resources are limited?

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Do challenging tasks exhaust or energize us for future actions? Either view forms an alternative lay theory. Recently, Job, Dweck, and Walton (2010) have suggested that performance is influenced by which of the everyday beliefs on the availability of self-control resources we have recently considered. This brought up the question of whether those effects that are potentially linked to executive control could be replicated with a standard paradigm such as the Eriksen Flanker task. We were also interested in whether modifying effects of lay theory would be especially pronounced when control is taxed - as in the case of strong distractors. Strength of distractors was manipulated by varying the frequency with which distractors appeared as targets. While we found that stronger distractors led to higher error rates as compared to weak distractors, the manipulation of lay-theory seemed to influence general speed accuracy tradeoffs rather than the specific flanker effects.

Planet error: The processing of intentional errors

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Committing errors is something that we encounter every day and such errors affect subsequent behavior. But what happens if an error is committed on purpose? To this end, we investigated a distinct behavioral correlate of error processing: post-error slowing. We show that post-error slowing occurs equally for both, errors that are made by mistake and errors that are committed intentionally. This suggests that intentional errors are processed very much similar to errors that are made by mistake. An error is an error is an error.

Von H bis h'': Der SPARC-Effekt über drei Oktaven

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Der SPARC-Effekt (spatial pitch association of response codes) beschreibt die Tendenz, auf tiefe Töne schneller mit der linken (unteren) und auf hohe Töne schneller mit der rechten (oberen) Antworthand bzw. -seite zu reagieren. In bisherigen Untersuchungen dieses Phänomens wurde eine sehr eingeschränkte Anzahl verschiedener Töne verwendet (z.B. Rusconi et al., 2005; Lidji et al., 2007). Daher sollte in dem vorliegenden Experiment der SPARC-Effekt für einen breiter gefassten Tonbereich untersucht werden. Gleichzeitig wurde mit einer horizontalen als auch vertikalen Tastenanordnung gearbeitet. Die Versuchspersonen sollten mittels Druck einer linken (unteren) oder rechten (oberen) Taste beurteilen, ob ein einzeln präsentierter Ton aus dem Bereich von H-h'' von einem Piano oder einer Klarinette gespielt wurde. Die Auswertung ergab einen deskriptiven Trend in Richtung eines kontinuierlichen SPARC-Effektes, der sich inferenzstatistisch jedoch nicht absichern ließ. Darüber hinaus zeigte sich ein genereller Einfluss der Tonhöhe auf die Reaktionszeiten in Abhängigkeit vom Instrument.

Die neuronalen Grundlagen der Entwicklung der Auflösung der Aufmerksamkeit

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Die Auflösung der Aufmerksamkeit ist die kleinste Fläche, die ein mit Aufmerksamkeit ausgewählter Ort annehmen kann (He, Cavanagh & Intrilligator, 2001). Die vorliegende Studie untersucht, welche neurokognitiven Mechanismen der geringeren Auflösung der Aufmerksamkeit von Kindern zugrunde liegen. Hierzu wurde je einer Stichprobe von Erwachsenen (n=12) und

Kindern der fünften Klasse ($n=11$) eine Objekt-Tracking-Aufgabe mit einem Zielreiz präsentiert, bei der die Abstände zwischen Zielreiz und Distraktoren variiert wurden. Gleichzeitig wurde die neuronale Aktivierung mittels funktioneller Magnetresonanztomographie registriert. Erwachsene Versuchspersonen reagieren auf eine Anforderungszunahme hinsichtlich der Präzision mit einem Anstieg der Aktivierung in frontalen und parietalen Regionen, welche generell für das Verfolgen von Objekten zuständig sind, wohingegen Kinder mit einem Anstieg der Aktivierung in Colliculi superiores und der Insula reagieren. Dies deutet darauf hin, dass Kinder zur Unterstützung räumlich präziser Selektion auf basale und subkortikale Mechanismen der Aufmerksamkeitsausrichtung zurückgreifen, anstatt auf die noch nicht vollständig ausgereiften kortikalen Netzwerke, die Erwachsene verwenden.

Action observation: Spatial cueing by dynamic stimuli

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Observing a static picture of a grasping hand elicits covert attentional shifts into the grasping direction. Spatial orientation following the perception of directional gestures has primarily been investigated with static cues. However, as motion is an essential component of actions, we investigated the influence of motion on adults' covert attention. Participants were presented a human hand performing a grasping action starting from the periphery to the center of a screen (cue). After a short ISI, a target appeared at a location congruent or incongruent to the grasping direction of the hand. Movement duration (2 and 1s) and direction, presence of targets during cue presentation and duration of ISI were varied. A congruency effect was observed with the shorter movement and no target present as well as in trials with the shorter ISI and no target being present. Perceiving a dynamic human action facilitates spatial orienting to a possible action goal.

Flankers effects on 3D target recognition performance

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In the visual field, nearby objects can make one another difficult to recognize (crowding). Using Landolt rings we investigated the question of how much flankers displayed in another depth than the target impair target recognition (opening direction) performance relative to conditions without flankers and flankers presented at the same depth as the target. We asked observers to binocularly fixate on a cross situated at 190 cm and then we randomly presented our target alone or flanked at both sides and same distance by identical-sized Landolt rings. The targets were presented at three depth planes (170, 190 and 210 cm from the observer). The flankers were displayed either at fixation plane (target in front, leveled or behind them) or at target plane. The dependant variable was the percentage of correct responses. The flanker presence and location

effects on recognition performance are discussed. Collaborative Research Center SFB/TR 62 "Companion-Technologies", sponsor: German Research foundation DFG

List-strength manipulations in two-alternative forced-choice recognition tasks: Evidence against MINERVA 2?

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According to the list-strength effect (LSE) predicted by many global memory models (e.g. MINERVA 2), strong items should show a greater interference effect than weak items on other items of the same learning list. The LSE has been found in free and cued recall but not in recognition tasks. More recent studies however show that the LSE can be found in recognition, if recognition is based mainly on a recollection process. Therefore, in a 2AFC-task opposing two highly similar items a LSE could emerge. In Experiment 1 we found no list-strength effect in recognition data, but in response latencies. In Experiment 2 we used a speeded 2AFC-task and again found no list-strength effect in recognition data. Interestingly, MINERVA 2 fits both data sets very well. We argue that the non-finding of the LSE might be due to low power and should not be taken as evidence against global memory models.

Does predictability modulate adaptation to relocated targets in contextual cueing?

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Invariant spatial environments can facilitate visual search. For instance, detection of a target letter is faster when repeatedly presented within an invariant configuration of distracter letters in comparison to random configurations ('contextual cueing', Chun & Jiang, 1998). However, relocating a target to a new location within an otherwise invariant configuration disrupts contextual cueing (Manginelli & Pollmann, 2009). Here, we investigated whether predictable target relocations alleviate the disruption of contextual cueing. In an initial learning phase, invariant configurations were presented with a first target location. Subsequently, targets were relocated within their configurations by exchanging target locations between two invariant configurations, or between an invariant and a random configuration. Exchanging targets between invariant configurations continued to yield contextual cueing, whereas target exchanges between invariant and random configurations impaired visual search. In other words, adaptation was only observed for predictable and contextually cued targets. Thus, predictability combined with targets' contextual history modulated adaptation.

What's God got to do with It? The impact of religiosity and views of God on construal level

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Religious beliefs are present across all cultures and they have played an important role in people's lives throughout human history. We are interested in the impact they have on human thinking – a question which has received rather little attention in psychological science up to now. Specifically, we investigate how religious beliefs influence the level of mental construals. Our results show that religiosity is positively related to the abstractness of mental representations. Furthermore, this relationship seems to be mediated by individuals' conceptions of God and their belief in ultimate justice. Viewing God as loving and compassionate (vs. punishing and fearsome) and believing that justice will prevail in the long term leads to more abstract thinking. Implications for decision making and further research are discussed.

Influence of didactic methods and task complexity on the enjoyment of movement and the experience of coherence in Argentine tango

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So far, there are no experimental studies available about the emotional experience in the practice of Argentine Tango. As Argentine Tango is propagated and practiced increasingly as a health sport, the question of experiencing enjoyment of, and identification with the movements in dance lessons is crucial for us. We tested 24 subjects (12 beginners, 12 intermediates) in a within-subjects-design. Movement sequences from Argentine Tango were shown under different instruction settings (verbal-visual, kinaesthetic, reduced systemic drawings) and with low and high task complexity. After a learning phase, subjects reproduced the dance sequences, followed by a questionnaire capturing the experience of valency and congruence. Results showed effects of instruction and task difficulty, as well as interactions between instruction / task difficulty with level of expertise on the experience of valency and congruence. Practical implications on the layout of dance lessons with beginners and intermediates for the practice of Argentine Tango are discussed.

Shopping mall odyssey: Bargain hunting as a function of self-esteem

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Utility is one of the most basic principles in economics. However, as Richard Thaler has proposed, there are two fundamentally different components: First, there is "acquisition utility" that reflects for example the pleasure of using a nice TV set. Second, there is "transaction utility" that reflects the terms of trade one was able to enforce, for example the pleasure of buying the TV set at half the price. We suggest that the value obtained from transaction utility stems from people's appreciation of their own ability. Thus, a threat to self-esteem should increase transaction utility's impact. We tested this hypothesis using a behavioral willingness-to-pay (WTP) paradigm. As predicted, we found a higher WTP when transactions were framed as bargains. Additionally, the contribution of the transaction utility component to WTP decreases as self-esteem increases. These findings support the notion that bargain hunting is part of mastering environments which consist of economic decisions.

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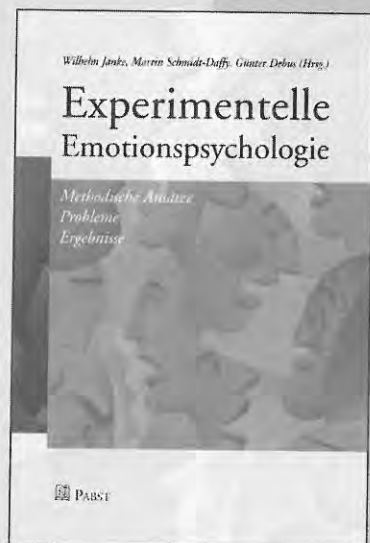
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W. Janke, M. Schmidt-Daffy, G. Debus (Hrsg.)

Experimentelle Emotionspsychologie

Methodische Ansätze – Probleme – Ergebnisse



Das Buch enthält empirische und theoretische Beiträge von namhaften Experten in der Experimentellen Emotionspsychologie. Es behandelt grundlegende Fragen und Ansätze in allen methodischen Bereichen der Emotionsforschung und veranschaulicht diese am Beispiel experimenteller Untersuchungen. Das Buch ergänzt vorhandene Lehrbücher, indem es eine Lücke im Bereich der Darstellung experimenteller Methodik schließt. Eine besondere Rolle spielen dabei Ansätze der Biologischen Psychologie.

Neben allgemeinen experimentellen Anordnungen aus der allgemeinen, der differenziellen, der entwicklungs-, der sozial- und der klinisch-psychologischen Emotionsforschung werden Methoden der Psychophysiologie, Neuropsychologie und Chemopsychologie (Neurostoffe, Hormone, Pharmaka) sowie der Verhaltensforschung beim Tier diskutiert und durch Beispiele erläutert. Das Buch empfiehlt sich damit für Seminare, experimentell-empirische Praktika und Übungen zu Grundlagen und Anwendungsbereichen.

Zielgruppen: Psychologen, Medizin-Psychologen, Mediziner, Biologen, Verhaltensforscher, Pädagogen, Sozial-, Gesellschafts-, Kultur-, Kunst- und Wirtschaftswissenschaftler; Dozenten und Studierende an Universitäten, Fachhochschulen und Kunsthochschulen



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