



Welcome to the 55th HExKoP Oct 06 - 08 2023

Herbsttreffen der Experimentellen
Kognitiven Psychologie

Autumn Meeting of Experimental
Coanitive Psycholoav

Schedule Overview

	Friday 06/10	Saturday 07/10	Sunday 08/10
10:00		Talk Session 3: Hamzeloo Hackländer Bogenschütz	Talk Session 7: Ayatollahi Pauly Singh
10:30			
11:00		Coffee Break	Coffee Break
11:30		Talk Session 4: Schmalbrock Nemeth Schöpfer	Talk Session 8: Langsdorf Jung Lück
12:00			
12:30		Lunch Break	Farewell
13:00	Registration & Coffee		
13:30		Poster Session	
14:00	Welcome & Talk Session 1:		
14:30	Koch Richter Baess Wühr	Talk Session 5: Münster Tonn Wickemeyer	
15:00			
15:30	Coffee Break		
16:00	Talk Session 2: Böer Linke Schmidt	Coffee Break	
16:30		Talk Session 6: Fenske Leon	
17:00			
17:30			
18:00	Scavenger Hunt		
18:30			
19:00		Dinner at Bootschaft	
19:30	Dinner at Café Deseo		

Dear Colleagues,

We welcome all of you to the 55th Autumn Meeting of Experimental Cognitive Psychology, also known as Herbsttreffen der Experimentellen Kognitiven Psychologie (HExKoP) in Hildesheim. It is our pleasure to host this event for the second time in Hildesheim.

This year, we are pleased to have nearly 40 attendees joining us. The program includes 37 talks and the presentation of 10 posters, offering ample opportunities for exchange. In addition, we invite you to participate in a scavenger hunt to explore the city of Hildesheim and enjoy the company of your peers.

We would like to express our gratitude to our colleagues, and student assistants who have worked diligently behind the scenes to make this event possible. We wish you all a productive and enjoyable time in Hildesheim, a city rich in history and culture.

Hildesheim, October 2023

Luisa Bogenschütz, Pia Fenske, Shabnamalsadat Ayatollahi, Mohammad Hamzeloo, Gustavo Adolfo León Montoya, Lisa Viegas, Pamela Baess, and Ryan Hackländer

General Information

Conference Venue

The conference will take place at the Hildesheim University on **Bühler Campus**, Lübecker Straße 3, 31141 Hildesheim on the ground floor of the LN building. You can find the directions to the Bühler Campus on [Google Maps](#).



Direction from Hildesheim main station

Take city bus number 1 or 4 in the direction of "Südfriedhof, Hildesheim" or "Itzum" and get off at the "Silberfundstraße" stop (journey time approx. 15 minutes). After getting out turn right into Quedlinburger Straße. The extension of Quedlinburg is Lübecker Straße. Access to the Bühler campus is via Lüneburger Straße.

Direction from the city center (“Schuhstraße” stop)

Take city bus line 4 in the direction of “Itzum” and get off at the “Silberfundstraße” stop (journey time approx. 10 minutes).

Hildesheim Public Transport

Please be aware that the buses in Hildesheim do not run frequently and can sometimes be a bit irregular. Therefore, it is crucial to check your route in advance. Particularly, on Saturday afternoons and Sundays, there are limited bus services. Here is a selection of appropriate bus times for each day:

Bus Number	Departure	Arrival
Friday Arrival		
Bus 4, Itzum	Schuhstraße 12:56	Silberfundstraße 13:02
Bus 4, Itzum	Schuhstraße 13:16	Silberfundstraße 13:22
Bus 4, Itzum	Schuhstraße 13:26	Silberfundstraße 13:32
Bus 4, Itzum	Schuhstraße 13:36	Silberfundstraße 13:42
Friday Departure		
Bus 4, Drispensstedt	Silberfundstraße 17:11	Schuhstraße 17:18
Bus 4, Hauptbahnhof	Silberfundstraße 17:21	Schuhstraße 17:28
Bus 4, Drispensstedt	Silberfundstraße 17:31	Schuhstraße 17:38
Saturday Arrival		
Bus 4, Itzum	Schuhstraße 09:26	Silberfundstraße 09:32
Bus 4, Itzum	Schuhstraße 09:46	Silberfundstraße 09:52
Saturday Departure		
Bus 104, Bockfeld	Silberfundstraße 17:19	Schuhstraße 17:26
Bus 104, Bockfeld	Silberfundstraße 17:49	Schuhstraße 17:56
Sunday Arrival		
Bus 104, Itzum	Schuhstraße 09:00	Silberfundstraße 09:04
Bus 104, Itzum	Schuhstraße 09:30	Silberfundstraße 09:34
Sunday Departure		
Bus 104, Bockfeld	Silberfundstraße 12:49	Schuhstraße 12:56
Bus 104, Bockfeld	Silberfundstraße 13:19	Schuhstraße 13:26

Internet access

The Hildesheim University provides free WiFi for all HexKoP 2023 attendees who do not have access to eduroam.

Name	Gastzugang
ID	HexKop
Password	:42gastx-:42

Coffee and Snack Breaks

Coffee, tea, beverages, and snacks will be served at the coffee station during the conference. As well as before the start of each talk session in the morning.

Lunch

We provide lunch on Saturday at 12:30. Of course there will be coffee and drinks as well!

Scavenger Hunt on Friday 06/10 18:00

To explore the fascinating historical sites of Hildesheim and bond with your colleagues, we have organized a scavenger hunt. The objective is to answer questions about Hildesheim as a team, so collaboration is key! We anticipate having approximately four teams. If you haven't registered for the scavenger hunt but are still interested, feel free to approach us, and you can still join in! The scavenger hunt will start at 18:00 in front of Hotel Bürgermeisterkapelle (Rathausstraße 8, 31134 Hildesheim), where we will create the teams, and will end at Café Deseo, our dinner destination.

Dinner on Friday 06/10 19:30

We would like to invite you all to the dinner on Friday 06/10 at 19:30. in Café Deseo, Hindenburgplatz. 3, 31134 Hildesheim [\[see the location on Google Maps\]](#).

Dinner on Saturday 07/10

We would like to invite you all to the dinner on Saturday 07/10 at 19:00 in Bootschaft, Hindenburgplatz. 16, 31134 Hildesheim [\[see the location on Google Maps\]](#).

Hildesheim at a Glance

Hildesheim is known for its historic churches, such as St. Michael's, an 11th-century abbey with a painted wooden ceiling. Sacred relics are on display at the Dommuseum within St. Mary's Cathedral. The City Museum offers local history exhibits in the Knochenhauer-Amtshaus, an ornate half-timbered house on Market Square. Wildgatter Animal Park is home to deer and rescued birds of prey. Please visit these links to discover nice places of interest - UNESCO, squares, buildings, nature, or a lot of things in the city:

www.hildesheim-tourismus.de

Culture and heritage

<https://www.stadt-hildesheim.de/kultur-freizeit/kultur/unesco-welterbe/>

The History of the University of Hildesheim

<https://www.uni-hildesheim.de/geschichte-der-universitaet/>



Conference Program: Friday 06/10/23

13:00 – 14:00	Registration & Coffee We welcome you in the entrance hall of the Bühler-Campus
14:00 – 15:30	Welcome & Talk Session 1 Room number: LN 014 Chair: Pia Fenske
14:10	Switch and compare: Investigating loudness-number interactions in a cued task switching paradigm Sarah Koch Martin-Luther-Universität Halle-Wittenberg
14:30	How symmetrical are associations between size and space? Melanie Richter TU Dortmund
14:50	When the past is different from the presence: Lessons from the Simon task Pamela Baess Universität Hildesheim
15:10	Coding for stimulus location for location-specific regulation of response conflict Peter Wühr TU Dortmund
15:30 – 16:00	Coffee Break Room number: LN 003
16:00 – 17:00	Talk Session 2 Room number: LN 014 Chair: Luisa Bogenschütz
16:00	The influence of effort instruction on fake production costs in basketball novices and experts Nils Tobias Böer Universität Paderborn
16:20	Differences in the perception of direct gaze between the inward- and outward rotated eye Linda Linke Universität Bielefeld
16:40	A Theory of Visibility Measures in the Dissociation Paradigm Thomas Schmidt Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau (RPTU)
17:00 – 18:00	
18:00 – 19:30	Scavenger Hunt
19:30 -	Dinner at Café Deseo

Conference Program: Saturday 07/10/23

10:00 – 11:00	Talk Session 3 Room number: LN 014 Chair: Pamela Baess
10:00	Odor familiarity enhances odor paired associate memory Mohammad Hamzeloo Universität Hildesheim
10:20	Is trying to forget the same thing as not trying to remember? Ryan P. M. Hackländer Universität Hildesheim
10:40	Are Odor Evoked Autobiographical Memory Actually More Emotional? – Investigating the Misattribution Hypothesis Luisa Bogenschütz Universität Hildesheim
11:00 – 11:30	Coffee Break Room number: LN 003
11:30 – 12:30	Talk Session 4 Room number: LN 014 Chair: Ryan P. M. Hackländer
11:30	Intentional Weighting is flexible but context-specific Philip Schmalbrock Universität Trier
11:50	Stimulus-response binding effects in response-response binding Maria Nemeth Universität Trier
12:10	Exploring another dimension: Applying the dimension weighting account to localization performance leads to effects of binding and retrieval Lars-Michael Schöpfer Universität Trier
12:30 – 13:30	Lunch Break Room number: LN 003
13:30 – 14:30	Poster Session Room number: LN 004
P1	Tactile landmark distortions across the arm Paula Soballa Universität Trier
P2	Physical size vs. numerical size - the influence of urgency on cognitive control in a Numerical Stroop task Anika Krause Universität Bielefeld
P3	Task-Related Prefrontal Activity Facilitates Distractor-Response-Binding-Effects Christoph F. Geißler

	Universität Trier
P4	Stress Training of Emergency Personnel with the Use of Odors in Virtual Reality Cornelia Küsel University of the Bundeswehr Munich
P5	Investigating Deep Learning for Online Stress Detection in Virtual Reality Experiments Mjellma Citaku University of the Bundeswehr Munich
P6	Effects of acute stress on social conformity Jan-Hendrik Bahr Universität Hildesheim
P7	Effects of Stimulus Order on Discrimination Performance Challenge Established Models of Psychophysical Judgement Ruben Ellinghaus Fern Universität Hagen
P8	Evaluating biophysiological data processing tools for objective stress measurement in Python Thomas Gebhardt University of Bundeswehr Munich
P9	Simon and Me: The influence of self-related information in vertical and horizontal Simon tasks Maike Kohle PFH Göttingen
14:30 – 16:00	Talk Session 5 Room number: LN 014 Chair: Lisa Viegas
14:30	The elephant in the room – Perspective as a feature in stimulus-response binding Nicolas D. Münster Universität Trier
14:50	Traces of to-be-prevented events in action execution and monitoring Solveig Tonn Universität Trier
15:30	Influence of response complexity on response inhibition for the basketball pump fake Carolin Wickemeyer Universität Paderborn
16:00 – 16:30	Coffee Break Room number: LN 003

16:30 – 17:30	Talk Session 6 Room number: LN 014 Chair: Mohammad Hamzeloo
16:30	When the world tilts: Influence of body position on spatial compatibility tasks Pia Fenske Universität Hildesheim
16:50	The Effect of a Third Wheel on Joint Action: A Joint Simon Task with Three Actors Gostavo Leon Universität Hildesheim
17:10	
17:30 – 19:00	Dinner at Bootschaft
19:00 –	

Conference Program: Sunday 08/10/23

10:00 – 11:00	Talk Session 7 Room number: LN 014 Chair: Gustavo Adolfo León Montoya
10:00	Exploring Sensory Attenuation: Effects of Self-Initiated Multisensory Stimuli Shabnamalsadat Ayatollahi Universität Hildesheim
10:20	Exploring Cognitive Processing of Dynamic Maps: Insights from Event Segmentation Theory Reena Pauly Iwm Tübingen
10:40	Attention Please! Feature based attention modulates distractor-response binding effects Tarini Singh Universität Trier
11:00 – 11:30	Coffee Break Room number: LN 003
11:30 – 12:30	Talk Session 8 Room number: LN 014 Chair: Shabnamalsadat Ayatollahi
11:30	On the flexible utilization of monetary reward information in overlapping dual-tasking situations Leif E. Langsdorf Martin-Luther-Universität Halle-Wittenberg
11:50	Is implicit knowledge about repeating SOA sequences used to reduce between-task interference? Amelie Jung Universität Greifwald
12:10	Putting the past behind: How to disengage from a no longer relevant task Inga Lück Universität Greifwald
12:30 – 13:30	Farewell

Abstracts

Talks

Talk Session 1

How symmetrical are associations between size and space?

Melanie Richter & Peter Wühr

TU Dortmund

SNARC and SSARC effects denote faster and more accurate left-side responses to numerically or physically small stimuli and right-side responses to numerically or physically large stimuli as compared to the opposite mapping. They thus indicate underlying associations between numerical/physical size and space. Importantly, theories accounting for the effects differ in whether they assume symmetrical or asymmetrical associations between size and space. In five experiments, we investigated the reciprocity of SNARC/SSARC effects by comparing compatibility effects in two tasks: In a size-location task, participants made left/right responses to numerically/physically small/large stimuli. In a location-size task, participants responded to left/right stimuli by referring to numerically/physically small/large sizes. Participants completed both tasks with a compatible (small-left, large-right; left-small, right-large) and an incompatible (small-right, large-left; left-large, right-small) mapping. Experiments 1 & 2 investigated the reciprocity of SNARC effects with manual responses, experiments 3 & 4 with verbal responses. Experiment 5 investigated the reciprocity of SSARC effects. In all experiments, strong compatibility effects occurred in the size-location task indicating regular SNARC/SSARC effects. However, no reciprocal SNARC/SSARC effects emerged in the location-size task when outliers were excluded. Small reciprocal SNARC/SSARC effects emerged when outliers were included. Together, the results demonstrate that associations between size and space are strongly asymmetrical: the numerical or physical size of stimuli activates spatial responses much more strongly than the spatial position of stimuli activates responses referring to numerical or physical size. This observation is compatible with some theoretical accounts (e.g. MNL, CORE principle) but incompatible with others (e.g. polarity correspondence principle).

Keywords: Spatial-numerical association of response codes (SNARC) effect; spatial-size association of response codes (SSARC) effect; reciprocity; symmetry

When the past is different from the presence: Lessons from the Simon task

Pamela Baess & Christina Bermeitinger

Universität Hildesheim

A longstanding question in the field of spatial compatibility effects recruits to the idea whether multiple spatial compatibility effects are simultaneously possible. These different compatibility effects are indicative of different reference frames used in spatial cognition. Previous studies postulated that simultaneous Simon effects are in principle formed but only one Simon effect was effectively found, depending on the exact experimental manipulation (Umiltà & Liotti, 1987). Other studies showed that multiple Simon effects were obtained when participants were given informative cues or the general spatial layout beforehand (Roswarski & Proctor, 1996). These findings are at odds with recent findings reporting simultaneous Simon effects without any additional information provided (Baess et al., 2022). The present study investigates these differences by contrasting both versions of the Simon tasks within the same group of participants. Therefore, the versions of the Simon task in earlier studies were combined with the stick-figure manikin Simon task in two experiments. The talk will report the results of this direct comparison and highlight the role of experimental manipulations for obtaining multiple Simon effects.

Keywords: Spatial cognition, spatial compatibility, reference frames, Simon task

Coding for stimulus location for location-specific regulation of response conflict

Peter Wühr

TU Dortmund

The size of many congruency effects is affected by the relative frequency of incongruent trials in a given block of trials: Congruency effects are larger when congruent trials dominate as compared to when incongruent trials dominate. The most popular account for this proportion-congruent (PC) effect assumes mechanisms of conflict adaptation that can amplify or suppress the processing of incongruent stimulus information. Further studies showed that PC effects can vary between stimulus locations. To explain such location-specific PC effects for locations in different hemifields, Corballis and Gratton (2003) postulated separate conflict-adaptation mechanisms in the two hemispheres of the brain, each of which regulates conflict in the opposite visual hemifield. We tested predictions of this model in two experiments with variants of the Simon task involving four stimulus locations (upper-left, upper-right, lower-right, lower-left). We varied conflict for two locations (e.g., upper-left, lower-right), whereas congruent and incongruent trials occurred with equal frequency for the remaining locations. According to the Corballis-and-Gratton model, PC effects should spill over from manipulated to non-manipulated locations in the same hemifield. In Experiment 1, which involved horizontal stimulus locations (left, right), results confirmed the predictions of the Corballis-and-Gratton model. In Experiment 2, we (only) changed the response locations from left/right to above/below, and observed that PC effects spilled over from manipulated to non-manipulated locations in a vertical direction. These results contradict the predictions of the Corballis-and-Gratton model. Rather, the results suggest that salient response features influence the spatial coding of stimulus locations that vary or differ in conflict frequency.

Keywords: Simon Task, Conflict Adaptation, locations-specific proportion-congruent effects

Switch and compare: Investigating loudness-number interactions in a cued task switching paradigm

Sarah Koch & Sven Blankenberger

Martin-Luther Universität Halle-Wittenberg

Several studies indicate the existence of a generalized magnitude representation system for different magnitude dimensions (e.g. A Theory of Magnitude, Walsh, 2003). Due to this shared representation, two magnitude dimensions should interact with each other when they are processed together. Prior studies already found such interactions between numbers and the auditory dimension loudness (Hartmann & Mast, 2017; Heinemann et al., 2013). This indicates that loudness might be also represented on a generalized magnitude representation system. However, the underlying processes of loudness-number interactions are still not fully understood. Therefore, we investigated which factors influence the loudness-number interaction in a cued task switching paradigm to draw further conclusions about the involved processes. In each trial, participants (N = 32) had either to decide whether a visually presented number was larger or smaller than 5 or they had to decide whether a simultaneously presented tone was louder or softer than an intermediate loud tone. We found a congruency effect in both tasks indicating a bi-directional influence: Participants were faster in congruent conditions (loud tone and large number or soft tone and small number) compared to incongruent conditions. There was also a distance effect in both dimensions, that is longer reaction times with smaller distance to the standard value, but the influence of distance on the congruency effect differed between tasks. We will discuss the results with regard to possible processes responsible for loudness-number interactions and the implications for the assumption of a generalized magnitude representation system.

Keywords: loudness, numbers, ATOM

Talk Session 2

The influence of effort instruction on fake production costs in basketball novices and experts

Nils Tobias Böer, Iris Güldenpenning, & Matthias Weigelt

Universität Paderborn

Previous experiments demonstrated that producing passes with head fakes in basketball generates higher initiation times (IT) and error rates than producing passes without head fakes (Güldenpenning et al., 2023). This study investigated whether these production costs can be minimized when using effort instructions. Such performance improvements can be predicted based on the assumption that the cognitive capacity, which is available in a given task, may not fully be used for task preparation, but also

partly for ongoing monitoring processes. If needed, however, more cognitive capacity can be willingly devoted to the task (Kahneman, 1973). Steinborn et al. (2017) demonstrated that presenting effort instructions (i.e., “try harder”) in 20% of trials led to performance improvements. We adopted the approach of Steinborn et al. (2017) and presented effort instructions in 20% of all trials before participants produced passes with and without head fakes. In the remaining 80% of the trials, the standard instruction was presented. Also, basketball novices and experts were tested to examine the effect of expertise on the effectiveness of effort instructions. As expected, experts were generally faster (i.e., shorter ITs) than novices [$F(1,52) = 4.89, p = .031$]. There was a significant interaction between the factors type of instruction (standard vs. effort) and expertise [$F(1,52) = 13.27, p = .038$]. Post-hoc tests revealed that novices displayed reduced initiation times after receiving effort instructions independent of the type of pass they had to produce, while experts showed improvements only for passes without head fakes.

Keywords: action preparation, perception, movement planning, deception

A Theory of Visibility Measures in the Dissociation Paradigm

Thomas Schmidt & Melanie Biafora

Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau (RPTU)

Research on perception without awareness primarily relies on the dissociation paradigm, which compares a measure of awareness of a critical stimulus (direct measure) with a measure indicating that the stimulus has been processed at all (indirect measure). We argue that dissociations between direct and indirect measures can only be demonstrated with respect to the critical stimulus feature that generates the indirect effect, and the observer’s awareness of that feature, the critical cue. We expand Kahneman’s (1968) concept of criterion content to comprise the set of all cues that an observer actually uses to perform the direct task. Different direct measures can then be compared by studying the overlap of their criterion contents and their containment of the critical cue. Because objective and subjective measures may integrate different sets of cues, one measure generally cannot replace the other without sacrificing important information. Using a simple mathematical formalization, we redefine and clarify the concepts of validity, exclusiveness, and exhaustiveness in the dissociation paradigm, show how dissociations among different awareness measures falsify both single-valued measures and monocausal theories of “consciousness”, and formulate the demand that theories of visual awareness should be sufficiently specific to explain dissociations among different facets of awareness.

Keywords: perception without awareness, dissociation paradigm, double dissociations, theories of consciousness

Differences in the perception of direct gaze between the inward- and outward rotated eye

Linda Linke, Gernot Horstmann

Universität Bielefeld

The perception of direct gaze has multiple benefits for the observing person. Previous studies showed that the perception of gaze direction differs when only the outward rotated eye versus only the inward rotated eye is visible. This study examines the difference in perception of a direct gaze when the outward-, or inward rotated eye, or both eyes are visible. By presenting the observer with either the outward-, the inward rotated eye, or both eyes with the task to judge whether a computer avatar is looking at him, the width and center of the area of direct gaze are measured. Two experiments yield evidence for a wider area of direct gaze for the outward rotated eye (around 6°) than for the inward rotated eye (around 4°). The area of direct gaze for both eyes was found to be the same as for the inward rotated eye, but smaller than for the outward rotated eye. The results indicate that the perception of direct gaze is more likely to follow the inward rotated eye. The discussion substantiates a new generalization that when the information from both eyes is not the same, observers base their judgments on the more rotated eye.

Keywords: direct gaze, gaze cone, binocular gaze

Talk Session 3

Is trying to forget the same thing as not trying to remember?

Ryan P. M. Hackländer & Helge Schlüter

Universität Hildesheim

There are two potential accounts of how previously learned information is voluntarily forgotten. One is a passive account, which states that we forget information simply because we do not invest resources in remembering that information. A second is an active account, which states that we actively invest resources in forgetting the target information. Previous research using a forced-choice forgetting paradigm has led to mixed findings, with some results supporting a passive account and other results supporting an active account of forgetting. In the current investigation, we use a variation of a free-choice forgetting paradigm (whereby subjects have the choice of which information to remember and forget). In addition to trials in which subjects need to choose to remember or forget information, there are trials in which subjects ostensibly complete a second decision task (which is equivalent to an incidental encoding procedure). A passive account of forgetting would predict that later memory is equal for incidentally learned items and items that were chosen to be forgotten. An active account of forgetting would predict that extra resources are invested when information is chosen to be forgotten, and therefore there would be worse later memory for those items than the incidentally encoded items. We will discuss the

results in relation to the aforementioned passive and active accounts of forgetting, as well as where future research may continue to look for differences between the accounts.

Keywords: Memory, forgetting, voluntary forgetting

Odor familiarity enhances odor paired associate memory

Mohammad Hamzeloo, Ryan P. M. Hackländer, and Christina Bermeitinger

Universität Hildesheim

In olfactory paired-associate (PA) studies, odors are paired with target stimuli in an initial training session. In a testing session, the odor cues are presented and subjects are asked to recognize the target (among multiple foils) that was initially paired with the odor. Previous olfactory PA studies showed that odors are less effective associative cues than stimuli from other sensory modalities. It has been suggested that odor familiarity might improve odor memory by assisting odor discrimination and facilitating PA memory acquisition. In the current study, we investigated whether enhanced odor familiarity would also enhance the effectiveness of odors as cues in an olfactory PA test. We designed two experiments to evaluate the role of odor familiarity in PA memory with odors. Experiments 1 and 2 were identical in that subjects associated 8 familiar and 8 unfamiliar odors with target shapes. The major difference between the two experiments was that, in Experiment 1 the odors were split into familiar vs. unfamiliar based on ratings from a previous norming study while in Experiment 2 the odors were split based on the individual ratings of the subjects. The results of both experiments indicated that familiar odor cues were more effective in the retrieval of targets than unfamiliar odor cues. These findings provide more evidence of odor familiarity as one of the critical features in olfactory processing and memory. Reduced odor familiarity thus possibly might explain previous findings of odors as less effective cues in PA studies compared to cues from other modalities.

Keywords: Olfactory memory, Odor familiarity, Odor frequency, Odor discrimination, Paired-Association Memory

Are Odor Evoked Autobiographical Memory Actually More Emotional? – Investigating the Misattribution Hypothesis

Luisa Bogenschütz, Ryan P. M. Hackländer, and Christina Bermeitinger

Universität Hildesheim

Investigating odor-evoked autobiographical memories (OEAMs) has yielded consistent findings suggesting that these memories are characterized by heightened emotionality, infrequent occurrence, less rehearsal, and association with earlier stages of life compared to autobiographical memories (AMs) evoked by other sensory modalities. However, the underlying mechanisms responsible for this effect remain elusive. One possible explanation posits that the emotional experience associated with

the odor itself spills over to influence the emotional rating of the AM. This misattribution hypothesis is examined through the implementation of the novel Single-Cue Delayed Rating Method, wherein the AM retrieval and subsequent rating sessions are separated by a four-week interval to rule out the confounding effects of immediate odor experience. Results from two studies indicate that when the emotional rating occurs in a separate session, OEAMs are not rated as more emotional compared to AMs evoked by visual or verbal stimuli. Consequently, these studies offer preliminary evidence suggesting that OEAMs may not inherently possess heightened emotionality. To further test an assumption of the Misattribution hypothesis, two studies were conducted which tested whether the sheer presence of an odor renders a situation (in this case the rating of a picture stimulus) as more emotional. The results showed no effect of odor presence on the emotionality rating of pictures. Thus, the veracity of the Misattribution Hypothesis is still unclear.

Keywords: Odor Evoked Autobiographical Memory, Proust Effect, Olfaction

Talk Session 4

Stimulus-response binding effects in response-response binding

Maria Nemeth, B. Moeller., & Geissler, C.

Universität Trier

Executing a response results in bindings between features of present stimuli and features of the response. If features in an event file then repeat in a later episode, the whole event file is retrieved and can affect the following action (so-called binding effects). Binding seems not only to play an important role in the control of simple individually planned actions (stimulus-response binding) but also in coordinating more complex actions (response-response binding). In the past, specific binding effects were typically measured only in their original paradigm. Here we investigated additional stimulus-response bindings in an adapted response-response binding paradigm. The findings indicate whether, in addition to response-response binding, a stimulus is bound to a subsequently executed response and whether response-response binding is modulated by stimulus-response bindings. The results will be discussed in terms of their relevance to binding as hierarchical structures.

Keywords: action control, stimulus-response binding, response-response binding, hierarchical action representation

Intentional Weighting is flexible but context-specific

Philip Schmalbrock, Christoph Geißler, & Christian Frings

Universität Trier

Throughout our daily life, we execute several different actions – many of which are so simple that we do them without a second thought and much effort. However, given the

plethora of complex processes that are required to achieve even a simple action, it is remarkable that we act with such ease. A process assumed to allow for such effortless execution of actions is the binding of features from different sources into one coherent representation. The action control literature specifically investigates such bindings including response features. In this literature, there is the tacit assumption that features are not unselectively bound together but rather that a feature's priority (due to e.g., task demands) largely determines whether it is bound or not. This intentional weighting mechanism (cf. dimensional weighting) has received much indirect support but only very little (unconfounded) direct support. In two experiments (cumulative $N = 186$), we introduced a novel (confound-free) paradigm to investigate intentional weighting. In a third experiment ($N = 98$), we further investigated whether intentional weighting is context-independent (as has been claimed on a theoretical basis) or whether intentional weighting is context-dependent. Our results point towards a more context-dependent use of intentional weighting. In sum, our results provide evidence for the intentional weighting account in binding and provide a direct link between perception and action.

Keywords: Stimulus-Response Binding, Intentional Weighting, Dimensional Weighting, Context

Exploring another dimension: Applying the dimension weighting account to localization performance leads to effects of binding and retrieval

Lars-Michael Schöpfer, Ronja Hoffmann, & Christian Frings

Universität Trier

Stimulus-response binding effects, while stable and strong in discrimination tasks, are typically fully absent in localization procedures, that is, when participants signal the location of a stimulus with an orthogonally varied repeating or changing non-spatial feature. The latter task often simply results in inhibition of return – a benefit for location changes. In previous studies, participants localized targets repeating or changing their feature identity in one feature dimension (e.g., red or blue dots). By referring to the dimension weighting account from visual search, we hypothesized that absent binding effects in localization tasks are due to keeping the non-spatial feature dimension constant. We conducted three experiments in which participants localized a target as being left or right from a fixation cross, with multiple locations and distractors (Experiment 1), multiple locations without distractors (Experiment 2), or two locations without distractors (Experiment 3). As expected, when non-spatial target identity changed on the feature level (e.g., red to blue, or left-tilted to right-tilted), stimulus-response binding was absent. Crucially, when non-spatial target identity changed on the dimension level (e.g., color to orientation), dimension repetitions and changes were bound to responses in all experiments. IOR co-occurred throughout. The results suggest that combining ideas of action control, attentional orienting, and visual search allows to reach conclusions about selection and action.

Keywords: Action Control, Attentional Orienting, Visual Search

Talk Session 5

The elephant in the room – Perspective as a feature in stimulus-response binding

Nicolas D. Münster, Philip Schmalbrock, & Christian Frings

Universität Trier

In the context of action control, stimulus-response binding and retrieval processes are assumed. Features of a stimulus or response are integrated into a common event file when they occur in a common stimulus-response episode. This event file is retrieved when at least one of the features involved is repeated. If features of the previous and current episodes only partially match, a conflict between the retrieved previous and current response must be resolved, resulting in performance costs. These binding effects have already been found for different stimulus features such as color, shape, or location. In our study, we manipulated the perspective on a three-dimensional distractor stimulus. In two experiments (cumulative $N = 72$), we found that the perspective on a distractor stimulus was bound to the response independent of the stimulus identity. This leads to the conclusion that perspective is processed as a stimulus feature in action control.

Keywords: S-R binding, stimulus feature, perspective

Traces of to-be-prevented events in action execution and monitoring

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The human action repertoire houses two complementary action types: event-producing, operant actions and event-precluding, prevention actions. Both action types are commonplace in everyday behaviour but differ in goals and structure: Whereas operant actions lead to observable changes in the environment, prevention actions intend the absence of such changes. Here, we present series of experiments applying mouse-tracking, response duration and eye-tracking methodology to prevention actions, revealing surprisingly similar representations in both action types. Our findings reveal that prevented events have the potential to leave a trace in execution and monitoring of an action similar to experienced actions effects. This implies that anticipated environmental changes are important for representing operant and prevention actions alike, thus challenging previous theoretical views that assumed a fundamental distinction between both actions types.

Keywords: prevention actions, action representations, ideomotor framework, response duration, eye-tracking

Influence of response complexity on response inhibition for the basketball pump fake

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Although NBA players possess high anticipation skills, they still fall for pump fakes in approximately 73% of the time and initiate erroneous blocking movements (Meyer et al., 2022). To investigate up to which point such inappropriate defensive movements can be inhibited, we tested the performance of 27 participants in a timed-response-task. In Experiment 1, participants saw videos of a basketball jump shot (frontal perspective) and were asked to release the space bar exactly at the point when the ball leaves the player's fingertips (go-trials). In 25% of all trials, we simulated a pump fake by stopping the video prematurely, and participants were instructed to withhold their response (stop-trials). The stop was adjusted based on participants' performance by a staircase tracking algorithm with a fixed step size. Results suggest that the point-of-no-return (PNR) at which participants are only able to inhibit 50% of their responses is 187 ms before ball release. The influence of response complexity on inhibition performance will be investigated in Experiment 2. For this purpose, the video is projected onto a wall and participants are placed on a force plate to obtain ground-force reaction measures in a quasi-realistic scenario. In go-trials, they are asked to jump up and touch a buzzer at the ceiling (above their head) when the ball leaves the player's fingertips. In stop-trials, they are instructed to inhibit the response action. It is hypothesized that the PNR in Experiment 2 is earlier than in Experiment 1 because of the higher task complexity.

Keywords: response inhibition, basketball, deceptive actions, anticipation skills, motor control

Talk Session 6

When the world tilts: Influence of body position on spatial compatibility tasks

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Prior studies examining how body position affects cognitive tasks have primarily utilized tasks involving cognitive conflict, such as the Stroop task. However, these studies showed contradicting results: some studies indicated a decline in performance, while other studies demonstrated an enhancement when comparing cognitive performance between sitting and standing positions. The cognitive conflict inherent in tasks like the Stroop tasks does not involve an overlap of spatial features (see Hommel, 2011). In contrast, tasks like the Simon task or spatial compatibility tasks feature cognitive conflict resulting from the congruence or incongruence between the position of task-(ir)relevant stimulus position on the screen and the response location. Here, we present two experiments which utilized a gyroscope to

manipulate participants' body positions, having them perform tasks either upright or in a horizontally tilted position. Our presentation will center around two key points. Firstly, we will examine how body position influences response conflict. Secondly, we will explore whether the significance of the task relevance has an impact on the observed results.

Keywords: stimulus compatibility, body position, action control

Two is a company, three is a crowd?: The role of a triad in joint action task

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Universität Hildesheim

The social Simon Effect (SSE) emerges when two participants are sat alongside each other sharing a Go-NoGo RT task and presents faster responses when the imperative stimulus and the response share the same spacial space. An open question is whether the SSE would be present with the involvement of more participants. The present research aimed to explore the effects of an extended Simon task with three participants: two co-actors and one confederate. The experiment consisted of performing a Go/NoGo task together (joint condition) and alone (individual condition). The actor and the co-actor were asked to respond to a randomly-assigned stimulus color, whereas the confederate to the stimulus shape. The seating position varied between subjects, i.e. both co-actors sat next to one another or seperated by the confederate (or an empty chair). This experimental design is rather complex as compared to similar research in the field. The results will highlight the role of the triad and seating position for joint action.

Keywords: Joint Action, Social Simon Effect, Go/NoGo Task

Talk Session 7

Exploring Cognitive Processing of Dynamic Maps: Insights from Event Segmentation Theory

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Dynamic maps have become a popular medium for visually representing the vast amounts of available data, offering an intriguing possibility to communicate complex real-world phenomena through virtual displays. Understanding how viewers build mental representations of the depicted data is crucial for maximizing their potential in conveying knowledge. Our research applies Event Segmentation Theory (EST) to investigate how viewers structure animated maps. EST describes an automated

cognitive process which divides continuous experience into meaningful units or events based on perceptual and conceptual cues. These segmented events modulate higher-order cognitive processes such as memory, attention, and comprehension. Our first experiment explored EST's applicability to abstract stimuli like dynamic thematic maps. In a preregistered online experiment, 80 participants completed a segmentation task for 15 animated map stimuli, identifying meaningful event boundaries. Participants demonstrated significant agreement in segmentation beyond chance, specific to the stimuli. Exploratory analyses revealed that participants tended to segment during high and increasing values, contrary to our expectation of more segmentation after reversing trends. We therefore designed an experiment further probing the relationship between trend perception and event cognition. The aim is to disentangle the top-down and bottom-up processes involved in segmentation. Specifically, we will manipulate the semantic interpretation of the depicted trends by framing changes in population size either in the context of an endangered or an invasive species. Additionally, we vary the salience of the direction of change by using different color scales. The preregistered experiment with 125 participants is planned for data collection in July.

Keywords: Event Segmentation Theory (EST), Visual Perception, Mental Representations, Cognitive Geography

Exploring Sensory Attenuation: Effects of Self-Initiated Multisensory Stimuli

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The presence of an auditory N1 attenuation effect is an indication that the sensory consequences of self-initiated sounds are reduced. There is also evidence for a similar phenomenon in the visual domain. In this case, however, the presentation of self-initiated visual pictures results in either a reduced or enhanced N1 response. The current investigation seeks to compare the sensory attenuation of the N1 component for auditory, visual and auditory-visual stimuli.

Through two separate experiments, we examined three distinct conditions involving self-initiated stimuli: self-initiated sounds (auditory), self-initiated visual pictures (Experiment 1: checkerboard; Experiment 2: Gabor patches; visual), and concurrent self-initiated sounds and pictures (Experiment 1: checkerboard; Experiment 2: Gabor patches; auditory-visual).

Data was collected in separate blocks for both self-initiated and externally-initiated sensory consequences within each condition. The findings from both experiments converge to demonstrate the N1 attenuation effect when comparing self-initiated blocks to externally-initiated blocks for the auditory and auditory-visual conditions. However, this effect was not observed for the visual condition.

Furthermore, this study underscores the importance of the auditory modality in the context of sensory attenuation within auditory-visual interactions.

Keywords: Sensory Attenuation, EEG, N1, Multisensory stimuli

Attention Please! Feature based attention modulates distractor-response binding effects

Tarini Singh & Christian Frings

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Action control theories postulate an integration of stimulus and response information in short-term episodic traces (event files or instances) when a response is planned or carried out. These event files also contain irrelevant information that is presented at close temporal contiguity with the relevant information. A repetition of any of the information from an event file results in a retrieval of the entire event file, thus influencing current behaviour. Although even irrelevant information – distractors – are integrated into event files, not everything is integrated/retrieved. Attending to distractors results in larger binding effects relative to unattended distractor information – even for information that is otherwise considered to be automatically processed e.g. valence. The present study is an extension of previous findings on the attentional modulation of distractor-response binding effects. Participants carried out a primary speeded binary choice task, while additionally carrying out a secondary non-speeded task. One of two distractor features was relevant to the secondary task but always irrelevant to the primary task. Binding effects for both distractors were measured in the primary task. Larger binding effects were observed for the attended distractor relative to the unattended distractor. The results will be discussed in the context of the structure and attentional modulations of binding effects.

Keywords: action control, attention, distractor-response binding

Talk Session 8

Is implicit knowledge about repeating SOA sequences used to reduce between-task interference?

Amelie Jung

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Performing two tasks at the same time involves the risk of between-task interference. This risk is higher the more dimensional overlap the two tasks share and the more simultaneous the tasks appear, i.e., short stimulus-onset asynchrony (SOA). Fischer & Dreisbach (2015) found out that stimuli associated with short SOA facilitated task shielding of Task 1 leading to reduced between-task interference. Furthermore, Röttger et al. (2021) investigated to which extent implicit knowledge about sequences of SOA can be learned and subsequently used to increase task shielding at short SOA

within a spatial dual-task paradigm. They argued that a fixed sequence of three repeating SOAs should lead to a reduction of the backward crosstalk effect (BCE) over 3 consecutive blocks and an increase of the BCE when SOAs occurred in random order in a final random block. However, their results only showed descriptively that implicit sequence knowledge was applied. Therefore, we adapted the study of Röttger et al. (2021) and used a dual task with identical task sets. Participants were trained to a repeating sequence of six SOAs (short-short-medium-medium-long-long) for four blocks and faced a random order of the same SOAs in a final random block. Results showed that the size of the BCE remained constant throughout the sequence blocks but increased for the random block, indicating that implicit knowledge about SOA sequences was used for task shielding. These preliminary findings are planned to be replicated by a second study which adds another sequential block after the random block.

Keywords: dual task, cognitive control, implicit sequence learning, bottom-up control

On the flexible utilization of monetary reward information in overlapping dual-tasking situations

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In overlapping dual-task (DT) situations, a bottleneck causes serial processing of task 1 and task 2 processes leading to increased reaction times of task 2 (RT2) with decreasing interval between both tasks. We investigated the temporal boundaries of flexible utilization of reward information, and by that, whether reward-related improvements can emerge under high task demands with reduced preparation time during DT situations. Studies showed that sustained reward applications to task 1 led to equal improvements of RTs, with a localization of the main reward effect at task 1 before the bottleneck; the observed shortening of reaction time to task 1 (RT1) propagated via the bottleneck to task 2, which shortened RT2. Based on that, we predicted that a short reward-cue-target-interval (rCTI) will reduce the magnitude of reward effects on task 1 and task 2 compared to a long rCTI. Experiment 1, tested the effects of either short or long rCTIs per block and rewarded participant's task 1 performance. The results indicated, that the magnitude of the reward effects were equal across rCTI conditions on RT1 and RT2. This result reflects the participants' capability to flexibly utilize reward cues during short rCTIs. In Experiment 2 the temporal predictability was reduced by presenting short and long rCTIs randomized within blocks. We predict reduced reward effects in the short rCTI condition on RT1 and RT2 compared to the long rCTI condition. Further investigations will focus on whether reactive reward-related improvements are possible in DT situations.

Keywords: dual-task, reward, preparation, motivation

Putting the past behind: How to disengage from a no longer relevant task

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Task switching requires participants to engage in only one of two task-sets in a given trial. Thus, participants either repeat the just executed task or switch to the other. Curiously, if one of the tasks is labeled irrelevant, performance in the remaining task is still worse than when performed as single task. This so-called fade-out cost demonstrates that the suddenly irrelevant task cannot be discarded directly (Mayr & Liebscher, 2001). In the present study, we used list-wide proportion manipulations to induce two different control states during task switching with a subsequent fade-out block, a) at the task-set level by manipulating the proportion of task switches (Experiment 1) and b) at the response level by manipulating the proportion of response-conflict (Experiment 2). Increased switch-frequency should lead to the concurrent activation of both task-sets in working memory. If fade-out costs originate at the task-set level, increased switch-frequency should amplify fade-out costs compared to the low switch-frequency condition (Experiment 1). In Experiment 2, high conflict-frequency (mostly incongruent condition) should enhance task shielding. If fade-out costs originate at the response level, high conflict-frequency should ease disengagement and potentially reduce fade-out costs. Results showed larger fade-out costs for conditions of high switch-frequency (Experiment 1), whereas conflict-frequency did not impact fade-out costs (Experiment 2). These findings suggest that different forms of cognitive control demands, i.e., switching between tasks and shielding the current task set, seem to operate at different (hierarchical) representational levels. Implications for the internal representation of task models will be discussed.

Keywords: fade-out costs, cognitive control, switch proportion, response congruency proportion, task switching

Posters

P1

Tactile landmark distortions across the arm

Paula Soballa, Christian Frings, & Simon Merz

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Target localization is affected by the presence of non-targets, often called landmarks. For example, target localization has shown altered variability near landmarks and systematic distortions of target localizations either towards or away from the landmark have been reported in the literature. In a previous study, we observed different patterns of target distortions in dependence of the distance of the temporary presented, artificial landmark and the persistent, anatomical landmarks elbow and wrist. That is, with a higher distance between both landmark types, targets were shifted in the direction of the artificial landmark, yet with a shorter distance targets were repelled by the artificial landmark. Using a newly adapted design, we aimed to replicate our previous findings of systematic distortions towards or against landmark direction and additionally varied the investigated area of the arm to further explore the influence of the distance between artificial and anatomical landmarks on target localizations. In two experiments (each N = 24) we replicated previous findings, proving the reliability of our newly adapted set-up. Further, the results support the strong influence of the distance between artificially, temporarily presented landmarks and persistent, anatomical landmarks on the direction of spatial distortions of target localizations.

Keywords: Landmark attraction, tactile localization, spatial distortions

P2

Physical size vs. numerical size - the influence of urgency on cognitive control in a Numerical Stroop task

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Urgency (time-pressure) in cognitive control tasks has been shown to elicit a time-window in which responses are dominated by stimulus-driven information that conflicts with goal-relevant information and thus impairs goal-directed responses. For manual responses, this seems to be the case in situations of spatial as well as nonspatial cognitive conflicts. Critically, however, all previous studies used arrows as stimuli that are generally associated with spatial directions. Therefore, the previously found urgency effects on non-spatial cognitive conflicts could have arisen from these directional associations, leaving it unclear whether urgency affects cognitive control in general. Here, we show that the urgency effect can also be elicited in a cognitive control task, that does not use arrow stimuli. Five participants completed a Numerical

Stroop Task in which they had to respond to the numerically larger of two presented numbers. The physical size of the numbers varied but was irrelevant to the task. Urgency evoked a time window, in which the irrelevant physical size dominated the response, causing a drop of performance below chance level on trials when the physical size conflicted with the numerical size. These results reveal that the effect of urgency on cognitive control does not depend on stimuli associated with spatial directions. As such, they suggest that urgency affects cognitive control more generally.

Keywords: Urgency, Numerical Stroop Task, Cognitive Control

P3

Task-Related Prefrontal Activity Facilitates Distractor-Response-Binding-Effects

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Action control theories propose that responding to a stimulus leads to the binding of response and stimulus features into a common representation (an event file). Repeating any component of an event file retrieves all previously bound information. In the case of partial repetitions, this can cause performance costs measured in so-called binding effects. Binding effects have long been thought to occur ubiquitously. Yet, previous research has shown that in *localization tasks* binding effects only emerge when location features have to be translated into response features. We hypothesized that this modulation of binding effects is reflected in task-involvement of the dorsolateral prefrontal cortex (DLPFC). Participants localized targets with either spatially compatible or incompatible responses. The latter has been found to lead to partial repetition costs in localization performance as location features have to be translated into incompatible responses. We measured DLPFC activity with functional near infrared spectroscopy (fNIRS). On the behavioral level, we observed binding effects in the spatially incompatible response condition, but not in the spatially compatible response condition. This was accompanied by higher prefrontal activity in the incompatible mapping condition. Additionally, strength of the difference in binding effects in behavioral data was correlated with the corresponding effects in prefrontal activity. This suggests that activity in the DLPFC reflects the amount of executive control needed for translating location features into responses. More generally, binding effects seem to directly depend on task-related DLPFC recruitment.

Keywords: Stimulus-response binding, Action Control, fNIRS, dorsolateral prefrontal cortex

P4

Stress Training of Emergency Personnel with the Use of Odors in Virtual Reality

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Anatomically, the olfactory system is closely connected to the emotional system. Odors can trigger feelings and have a reinforcing influence on the experience of a situation or on the memory of such experienced events. Therefore, the use of odors in a virtual reality (VR) stress training for emergency personnel can intensify the situation and create a closer approximation to reality. Our study fundamentally researches and evaluates the use of scents in VR. It aims to integrate a fragrance dosing technology onto a VR headset for use in a stress training environment for emergency personnel. For this purpose, we develop and test scent dosing systems consisting of a mount and coupled dosing units that include micropumps and reservoirs for several scents. Furthermore, relevant smells for the target group were identified in a literature review as well as in interviews with experts. Results show that relevant odors for use in VR scenarios for emergency personnel are smoke, blood and sweat. A distinction between unpleasant and pleasant odors is necessary to either increase stress levels or use odors as an intervention to reduce stress. Preliminary evaluations show that it is possible to couple a scent dosing unit with a VR headset and to apply the scents close to the nose. To sum up, this study proves the feasibility of including odors into VR stress training. Further tests will be conducted to determine individual perception thresholds of odors, their effects in the VR environment, and their effects on individual stress levels e.g., depending on personality and experience in rescue work.

Keywords: Odors, Stress, Virtual Reality

P5

Investigating Deep Learning for Online Stress Detection in Virtual Reality Experiments

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Virtual reality training allows a safe exposure to tailored stressors and coping strategies offering huge potential benefits for stress resilience training. However, the question remains how to judge the current stress level of the subject reliably. The stress response depends on the subject and on the presented stressor which calls for adapted individual classifiers. Currently, machine learning is typically utilized. Most approaches rely on hand-crafted features stemming for example from the cardiovascular system without making subject specific adaptations. In recent years, several deep learning approaches have been introduced leading to an improvement of the general results. In contrast to classical machine learning, these techniques can derive relevant features as part of the statistical learning process. This, however,

increases the required amount of data for training considerably which in turn aggravates deriving a person-specific classifier. Here, modern frugal artificial intelligence techniques may come into play which are able to operate with less data. This poster presents an overview on the current state of the art in the area of stress detection and provides a detailed data based analysis of the benefits and drawbacks of selected frugal artificial intelligence techniques as transfer learning a technique that allows to make use of large and well performing pretrained architectures. We present promising first results for several stress data bases using novel and established image encodings.

Keywords: stress resilience training, virtual reality, stress detection, deep learning, frugal artificial intelligence

P6

Effects of Stimulus Order on Discrimination Performance Challenge Established Models of Psychophysical Judgement

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Universität Hagen

The ability to discriminate between physical magnitudes (e.g., loudness, brightness, duration) is a basic component of human judgment. Ever since the time of Fechner it has been studied with the 2-Alternative-Forced-Choice (2AFC) paradigm, wherein which participants repeatedly compare a constant standard stimulus against a variable comparison. For the case of duration discrimination, it has been shown repeatedly that discrimination performance is better when the standard precedes rather than follows the comparison, a phenomenon which is referred to as *Type-B-Effect*. This effect is not only counterintuitive but also contradicts standard psychophysical models such as Signal Detection Theory. Here, we present the results of a meta-analytic random-effects model designed to assess the Type-B-Effect's generality and size. This meta-analytic regression model indicated real evidential value for the Type-B-Effect and thus reveals it as a ubiquitous feature of the classic 2AFC task. Accordingly, future models of stimulus discrimination should ideally account for this effect. Although the mechanisms responsible for the occurrence of the effect are presently not fully understood, memory updating such as internal reference formation or differential weighting of the two stimulus positions appear as promising candidate explanations.

Keywords: Psychophysics, Stimulus Discrimination, Magnitude Judgement, Meta-Analysis, Order Effects

P8

Evaluating biophysiological data processing tools for objective stress measurement in Python

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Measuring psychological stress using the subjective perception of the study participant can deviate from the results obtained by objective stress measurement using biophysiological sensors. The resulting sensor data requires to be processed properly and reliably before interpretation. In Python, there are several packages available that can process different types of biophysiological data and return derived values relevant to objective stress measurement. This study aims to compare and evaluate these packages for biophysiological data processing available as open source Python software. In order to attain this goal, synthetic biophysiological data is used to generate ground truth values to serve as a baseline for comparison. The comparison employs objective mathematical methods, mainly time series similarity measures, applied to different values relevant to stress measurement and signal analysis. Preliminary results show that the tools applied on the same synthetic data return different results for the same values relevant to stress measurement, such as HRV based values, depending on their different settings and integrated mathematical methods. Thus, the selected tool can have an impact on study results, possibly leading to different interpretations of the same data. Beyond using synthetic data, further research focuses on transferring the found results onto real data collected by sensors to improve biophysiological data processing and provide a way to ascertain the reliability and robustness of the returned results of interest. The found results also suggest the possibility of package setting optimization and automated package and settings selection based on the characteristics of the raw biophysiological signal.

Keywords: stress measurement, data processing, synthetic data

P9

Simon and Me: The influence of self-related information in vertical and horizontal Simon tasks

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The Simon task shows that task-irrelevant spatial features influence performance. It was recently shown that the Simon effects were modified when using verbal stimulus material during Simon tasks with horizontal and vertical stimulus arrangements (Gade et al., 2020). Another line of research has shown that newly acquainted self-related materials are processed faster than other-related material in perceptual-matching tasks giving support for a self-prioritization effect (Sui et al., 2012). Yet, being the causal agent creating an action effect has also been shown to affect the Simon effect

(Hommel, 1993). In the present study, we combined both findings by manipulating the perceived agency in a horizontal and vertical Simon task. This experiment aims at investigating whether implied agency information modulates the Simon effect. Therefore, drawings of stick-figure manikins holding a colored ball in its left or right hand were displayed at the screen's center. Agency labels ("me", "friend" or "colleague") were presented in the stick-figure manikin's center. This stimulus material was used in a vertical and horizontal version of the Simon task in order to differentiate between automatic and more controlled pathways. It was hypothesized that perceived agency modulates the horizontal and vertical Simon effect differently. More specifically, the horizontal Simon effect for self-related labels should be larger than other-related labels. We further expect a decrease of Simon effect with personally more distant label (SE "friend" > SE "colleague"). However, no such difference should occur in the vertical Simon task. Results are shown and discussed against these predictions.

Keywords: spatial compatibility, self, cognitive conflict