stronger in tasks involving the nonrecognizable morph series, suggesting that stronger categorization led to reduced attractive and repulsive context effects. The results are in accordance with Bayesian accounts of perception, where current sensory information is combined with prior information. We will also discuss planned research regarding individual differences in hysteresis and adaptation effects with other stimuli and tasks.

Continuous Open-Loop Psychophysics: A Novel Method to Measure Temporal Dynamics of Body Extension

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Precise action requires an accurate sense of body dimensions and location and must adapt to changes throughout development. During embodiment illusions, vision temporarily recalibrates proprioception, suggesting body models have short-term plasticity. To determine how rapidly changes occur, we used immersive virtual reality to dissociate perceived hand location from vision and proprioception to examine visuo-proprioceptive recalibration over time. We tracked hand movement and mapped actions onto a hand avatar which was extended in position to increase reach by ∼7 cm. We exposed participants to alternating adaptation and tracking trials. Adaptation (5 seconds): Participants pointed their index finger at an array of small targets with the extended hand avatar visible. Tracking (20 seconds): Participants followed a random-walking target with their index fingertip without seeing the avatar. Cross-correlating target and tracking paths, we used peak correlation lag to calculate Euclidean distance between target and (lagged) fingertip for each trial. Immediately after adaptation, estimated hand location was biased toward the extended avatar but drifted toward the veridical hand within a 20-second trial. This return drift decreased over 8 to 10 adaptation trials, suggesting that body-model extension begins after <1 minute of active feedback. These findings suggest resolving short-term visuo-proprioceptive conflict may recruit long-term body representations.

Numerosity Adaptation: Changes in Sensory Processes or in Decision-Making?

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Humans and other animals can make rapid but approximate estimates of the numerosity of items in a scene, an ability often termed as the number sense. Numerosity perception, like other senses, is susceptible to sensory adaptation: After a prolonged exposure to a patch containing many dots, subjects show a tendency to underestimate the numerosity of a second stimulus subsequently presented to the adapted region, with the opposite occurring for adaptation to small numerosities. Do these aftereffects arise from a change in the processing of sensory signals or from a shift of criteria at the decisional stage? We addressed this question by investigating the effects of numerosity adaptation in a two-alternative forced choice discrimination task on apparent numerosity (measured as point of subjective equality) as well as on subjective confidence and reaction time. Our results show that shifts in perceived numerosity are mirrored by shifts in both, confidence and reaction time, with the maximum uncertainty and longest response time occurring at the point of subjective equality rather than at the point of physical equality. These results are consistent with the hypothesis that numerosity adaptation aftereffects are perceptual in nature and not related to decisional processes.

How Does Numerosity Adaptation Affect Neural Numerosity Selectivity?

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Perception of visual stimulus numerosity (i.e., the set size of a group of items) is an evolutionarily preserved ability found in humans and animals. Like other perceptual features, numerosity is susceptible to adaptation, allowing behavioral investigation of the neural underpinnings of numerosity perception in humans. Recently, we have shown numerosity-selective neural populations with a topographic organization in the human brain. Here, we investigated how numerosity adaptation affects the numerosity selectivity of these populations. We scanned participants with 7 Tesla ultra-high field functional magnetic resoncance imaging while they viewed stimuli of changing numerosity, mapping numerosity selectivity. We interleaved a low or high numerosity adapter stimulus with these mapping stimuli, repeatedly presenting 1 or 20 dots, respectively, to adapt the numerosity-selective neural populations. We analyzed the responses using custom-build population receptive field neural models of numerosity encoding. We replicated the network of numerosity maps described in our previous studies. During numerosity adaptation, we found that the numerosity preferences within these numerosity maps change depending on the adaptor numerosity. We propose that the observed changes in numerosity preferences underlie perceptual effects of numerosity adaptation.

Ambivalence of Artistic Photographs Can Foster Interest and the Motivation to Engage

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Ambivalence makes us shift in-and-out of interpretations with contrasting valence. With each interpretation, we face a yet unfulfilled promise of another. This semantic instability (SeIns, Muth, & Carbon, 2016) can drive interest as we appraise uncertainty with coping potential (Silvia, 2005). In Study 1, participants rated the interestingness of photographs varying in ambivalence. During an elaboration-phase, they described positive and negative interpretations of a subset before rating all photographs again. Interest ratings were highest for ambivalent photographs, and they increased after the elaboration whereas for control (non-elaborated) stimuli, interest did not change. Explicit notions of interest could reflect motives of social distinction rather than actual motivation to engage. Therefore, in Study 2, participants selected one of the two photographs about which they "would like to learn more." Eye-tracking informed about duration of fixations to each photograph. After elaboration, participants chose highly ambivalent photographs more often than before and more often than control images. Our findings suggest that ambivalence can foster interest and the motivation to engage. This effect is increased when guiding awareness to multiple semantic facets. Not each context or processing-mode invites us to open up for SeIns, but if images offer potentials for new insight, this can drive deep engagement.

Experiencing ASMR: About the Phenomenology of Video Sequences That Trigger Excitement and Subsequent Relaxation

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ASMR stands for Autonomous Sensory Meridian Response, which shall subsume experiences of tingling sensations and positive, sometimes orgiastic feelings with the potential of inducing sustainable relaxation. ASMR is mostly experienced via the consumption of special ASMR videos made available on web channels such as YouTube. The phenomenon has recently gained wide publicity— the eye-catching, highly aestheticized video contents get millions of views—but research on this topic is still sparse. We investigated experiences including sensations and insights elicited by ASMR-videos in people who are unversed with ASMR-content. In Study 1 ($N = 30$), we presented a wide variety of short ASMR-video-sequences; in Studies 2 ($N = 80$) and 3 ($N = 57$), we used full-length 1 hour+ videos consisting of several ASMR-sequences. Participants typically reported contrastive sensations with initial interest and arousal being followed by clear signs of relaxation. Overall, participants assessed ASMR videos as mostly noninteresting, even boring yet beneficial due to their distracting and relaxing character. Relaxation as measured by PANAS pre- and post-video was positively related to the duration of watching. Studying ASMR reveals mechanisms of how multisensory perception affects affective states.

Learning to Like: A Computational Account of How We Learn Visual Aesthetic Values

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We are all born with certain innate visual preferences, such as a preference for symmetry, contrast, and balance. However, there is tremendous diversity in visual preferences across the globe. For example, different cultures can have vastly different aesthetic values. At the same time, individuals within these cultures also maintain their own unique preferences. What neural mechanism may underlie all of this? One likely candidate is reinforcement learning. Over our lifetime, we may learn to value certain visual characteristics that bring us benefit, and this can vary greatly between cultures. Similarly, what is beneficial may change from person to person and from time to time, thus learning is highly dependent on context. Here, we present a neurobiologically inspired model for how we learn aesthetic values. In particular, we focus on how this learning is modulated by cultural values as well as by individual factors such as motivation. Our computer simulations show that both factors can have a considerable effect on learning of aesthetic values. In addition, our simulations shed light on other aspects of visual preference formation such as the time course of learning and competition between aesthetic variables.