

“Gießener Abendgespräche Kognition und Gehirn“

Mittwochs, 18.00 bis 20.00 Uhr, Raum F009

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“Probability Matching Reconsidered From an Ecological Perspective”

Prof. Dr. Wolfgang Gaissmaier
(Max-Planck-Institut, Berlin)

Probability matching is a classic choice anomaly and describes the tendency to match response proportions to outcome probabilities when predicting binary outcomes. It leads to a lower expected accuracy than a maximizing strategy, which consists in predicting the more likely event on each trial. Koehler and James (2009; 2010; 2014) have argued for a dual systems account that assumes that probability matching is a fast and effortless response created by the intuitive system (see also West and Stanovich, 2003). Yet, at odds with this perspective, there are findings showing that people are more likely to maximize if their cognitive capacity is low (Gaissmaier, Schooler, & Rieskamp, 2006; Wolford et al., 2004). These results suggest that probability matching can also result from effortful behavior, and one effortful strategy that has been detected to underlie probability matching is pattern search (Gaissmaier & Schooler, 2008). Hence, probability matching can result from both “underthinking” and “overthinking”, which shows that merely attributing it to either intuition (or System 1) or deliberation (or System 2) could not possibly represent a conclusive account. Instead, a more complete understanding of probability matching requires the development of more precise theories about cognitive processes that can lead to this (epi-)phenomenon, and to understand in which environments those strategies will fail or succeed. Data from a range of studies will be shown to demonstrate that probability matching on the outcome level results from a variety of cognitive strategies. Importantly, each of those strategies has different cognitive requirements, and none of them is good or bad per se, but each is a good response to a differently structured environment. Thus, a more precise understanding of the cognitive strategies allows making testable predictions about where, when and why these strategies will be used, and where, when and why they succeed or fail.