Special Issue of the Journal of Behavioral Decision Making

Call for Papers

Strategy Selection:
A Theoretical and Methodological Challenge

Deadline: January 31st, 2015

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The *Journal of Behavioral Decision Making* will publish a special issue on a topic that poses a paramount stumbling block across different theoretical frameworks in the cognitive sciences, biology, economics, and beyond: *Strategy selection*, or the challenge of modeling the mechanisms that determine how humans and other agents choose among different behaviors.

Background: The Strategy Selection Problem

Decision behavior is contingent on environmental and task demands, often in an adaptive manner. In multi-strategy approaches, such observed behavioral changes have been characterized as a selection between 'strategies', 'heuristics', 'production rules' or 'routines' (e.g., Anderson et al., 2004; Gigerenzer, Todd, and the ABC Research Group, 1999; Payne, Bettman & Johnson, 1993). Alternative single process approaches like ‘evidence accumulation models’ (e.g., Bhatia, 2013; Busemeyer & Townsend, 1993; Newell & Lee, 2011) or ‘parallel constraint satisfaction models’ (e.g., Holyoak & Simon, 1999; Glöckner & Betsch, 2008), conceptualize adaptivity as a change in process parameters, such as decision thresholds or connection weights.

Although a considerable amount of research has been devoted to identifying strategies and their component processes as well as their dependencies on task and environmental factors, there is still a shortage of precise models ***how*** strategies are selected or parameters are

adjusted. What are the meta-decision processes that allow for strategy selection or parameter adjustment and that do not require 'homunculus' arguments? How can they be modeled in a formal fashion? Do the models allow for predictions rather than post-hoc interpretations of behavior?

The fundamental problem of strategy selection is not unique to the decision sciences, but similar questions emerge also in other domains of cognitive psychology and in biology, economics, and machine learning (e.g., Seth, Prescott, & Bryson, 2011). Hence, the problem is truly interdisciplinary, and cognitive psychology will benefit from solutions and theories in other disciplines (and vice versa).

Past attempts to solve the issue in decision research range from cost-benefit analyses (Beach & Mitchell, 1978), and reinforcement learning processes (Rieskamp & Otto, 2006) to cognitive affordances, shaped by environmental structure (Marewski & Schooler, 2010). In the alternative single process approaches attentional shifts and speed-accuracy tradeoffs (Busemeyer & Townsend, 1993) or multi-layered decision processes (Glöckner & Betsch, 2008) have been assumed. In neighboring disciplines such as biology, economics, and machine learning, the strategy selection problem is conceptualized in terms of action and operator selection or the setting of weights/utitities in rational deliberation. How do these different modeling approaches relate to each other conceptually, which ones are superior when it comes to predicting adaptive behavior, and what are adequate methodological approaches to test them? Despite the cross-discplinary prominence of the strategy selection problem, there is no consensus regarding these and many other important theoretical and methodological questions.

Aims of the Special Issue

The special issue will not only present cutting-edge research and theoretical developments on the ‘selection challenge’, but also present a synopsis of the various theoretical approaches and foster exchange between them. In doing so, the special issue aims to provide an overview of the scholarly debates associated with this modeling challenge, and hopefully contribute to integrate the existing approaches into an overarching perspective

Submission Guidelines & Deadlines

Papers submitted for inclusion in the special issue should contain original and unpublished work relevant to the strategy selection problem. While the special issue places an emphasis on empirical (e.g., experimental or observational) research that, ideally, makes use

of formal methods (e.g., computer simulations and mathematical analysis), full consideration will also be given to purely theoretical contributions and comprehensive reviews. Manuscripts should be submitted electronically via email to one of the the guest editors in accordance with the JBDM guidelines. All submitted papers will be refereed for their methodological soundness, clarity of the presented results and conclusions, and the relevance of the submission for the special issue. The submission deadline for manuscripts is January 31st , 2015.

A more detailed version of this call for papers can be found on the JBDM website at http://ow.ly/xPPtm.

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