

Bonn Melbourne Seminar in Decision Making and Computational Psychiatry

A Dynamic Dual Process Model of Intertemporal Choice

Prof Adele Diederich, Jacobs University, Bremen, Germany

Abstract

Dual process theories of decision making describe choice as the product of an automatic System 1, which is quick to activate but behaves impulsively, and a deliberative System 2, which is slower to activate but makes decisions in a rational and controlled manner. However, most existent dual process theories are not mathematically specified, and thus do not generate testable qualitative and quantitative predictions. For intertemporal choices, notable exceptions have been proposed by Fudenberg & Levine (2006) and Loewenstein et al. (2015). None of them provide a formal specification regarding the dynamics of the interplay of the two systems. The here proposed dynamic dual process model takes this into account; it makes precise predictions regarding choice probability and response time distributions. Using simulation studies, I illustrate how different factors (timing of System 1, time constraint, preferences construction functions in both systems, and architecture) influence model predictions. The modelling framework provides a mathematical approach that may bring novel insights regarding the processes underlying intertemporal choices.

Thursday, 19th May 2022, 9am (CEST)

<https://uni-bonn.zoom.us/j/99726851020?pwd=ZHRpaDQrZ2ZyYnFmUE51eitkMjZiZz09>

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Contact

Prof Ulrich Ettinger, Department of Psychology, University of Bonn, Germany; ulrich.ettinger@uni-bonn.de

Prof Carsten Murawski, Department of Finance, The University of Melbourne, Australia; carstenm@unimelb.edu.au

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