University of Zurich[UZH]

Department of Economics – Neuroeconomics Seminar

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Rational Imprecision: Information-Processing, Neural, and Choice-Rule Perspectives

People make mistakes. A rationally imprecise decision maker optimally balances the cost of reducing mistakes against the value of choosing correctly. We provide three models of rationally imprecise behavior: (1) an information-processing formulation where the costs of reducing mistakes are modeled as the corresponding reduction in Shannon entropy; (2) a neural implementation in terms of a stochastic and context-dependent utility function consistent with how the brain is thought to represent value; and (3) a choice-rule characterization. Our main result proves an equivalence between these three models which shows that they are different perspectives on the same behavior. The three perspectives answer, respectively, the questions of why rationally imprecise behavior should arise, how it can be implemented within the brain, and what such behavior looks like.