

"Revealed Neural Network Utility"

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Abstract:

We introduce a special class of utility functions, namely Neural-Network Utility (NNU). An NNU is an artificial neural network that takes a lottery as input, performs a sequence of computations organized as a weighted directed graph, and then outputs the utility of the lottery. The key axiom that characterizes NNUs is a relaxed form of the classic independence axiom. In particular, we assume a local version of independence that holds within a neighborhood of each lottery. We show that the axiom naturally explains the Allais paradox.