Quantum Physics

Quantum Decision Theory

Adam Brandenburger, Pierfrancesco La Mura

(Submitted on 1 Jul 2011)

We argue that, contrary to conventional wisdom, decision theory is not invariant to the physical environment in which a decision is made. Specifically, we show that a decision maker (DM) with access to quantum information resources may be able to do strictly better than a DM with access only to classical information resources. In this respect, our findings are somewhat akin to those in computer science that have established the superiority of quantum over classical algorithms for certain problems. We treat three kinds of decision tree: (i) Kuhn trees ([24, 1950], [25, 1953]) in which the DM has perfect recall; (ii) Kuhn trees in which the DM has imperfect recall; and (iii) non-Kuhn trees.

Comments:	17 pages, 14 figures, 4 tables
Subjects:	**Quantum Physics (quant-ph)**; Information Theory (cs.IT); Mathematical Physics (math-ph)
Cite as:	**arXiv:1107.0237 [quant-ph]**
	(or **arXiv:1107.0237v1 [quant-ph]** for this version)

Submission history

From: Adam Brandenburger [view email]
[v1] Fri, 1 Jul 2011 14:32:15 GMT (410kb,D)

Which authors of this paper are endorsers?