Values of quantum non-local games

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1. Abstract

The theory of non-local games, rooted in Bell's seminal work on non-locality, is at the forefront of entanglement theory and has revealed profound connections with non-commutative analysis. Examples of quantum non-local games have been studied, wherein quantum states and/or measurements are used in place of classical questions and/or answers, but a general theory has only recently begun to emerge. This developing theory and its potential applications increase the necessity to avail of a systematic way of comparing essential attributes of distinct quantum games, in particular, their values, i.e., maximum success probabilities. In this work, we give operator space tensor norm expressions for the local, quantum, and quantum commuting values for general quantum non-local games. This is joint work with Rupert Levene, Ivan Todorov and Lyudmila Turowska.