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Probabilistic Checking against Non-Signaling Strategies from Linearity Testing

Abstract:

Non-signaling strategies are collections of distributions with certain non-local correlations that have been studied recently in the context of delegation of computation.

In this talk I will discuss a recent result showing that the Hadamard based PCP of [ALMSS'92] is sound against non-signaling strategies. As part of the proof, we study the classical problem of linearity testing [BLR'93] in the setting of non-signaling strategies, and prove that any no-signaling strategy that passes the linearity test with high probability must be close to a quasi-distribution over linear functions.

Joint work with Alessandro Chiesa and Peter Manohar (UC Berkeley).