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Title:	Experimental simulation of a monogamy relation between quantum contextuality and nonlocality on an NMR quantum processor
Authors:	Singh, Dileep (/jspui/browse?type=author&value=Singh%2C+Dileep) Arvind (/jspui/browse?type=author&value=Arvind) Dorai, Kavita (/jspui/browse?type=author&value=Dorai%2C+Kavita)
Keywords:	Experimental monogamy quantum contextuality NMR quantum
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Citation:	Journal of Magnetic Resonance Open,10-11, 100058.
Abstract:	The quantum no-disturbance principle imposes a fundamental monogamy relation on quantum contextuality and quantum nonlocality. We experimentally demonstrated the simulation of this monogamy relation on a ququart-qubit system using three NMR qubits. We constructed experimental tests of the violation of the Klyachko-Can-Binicioglu-Shumovski (KCBS) inequality and the Clauser-Horne-Shimony-Holt (CHSH) inequality. We measured the average CHSH and KCBS values at the single point where the quantum boundary meets the no-disturbance boundary, at which point the tradeoff inequality becomes an equality. The tradeoff relation is always satisfied, implying that the violation of either the KCBS or the CHSH inequality automatically forbids the violation of the other.
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