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Disproof of Bell's Theorem by Clifford Algebra Valued Local Variables

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Abstract

It is shown that Bell's theorem fails for the Clifford algebra valued local realistic variables. This is made evident by exactly reproducing quantum mechanical expectation value for the EPR-Bohm type spin correlations observable by means of a local, deterministic, Clifford algebra valued variable, without necessitating either remote contextuality or backward causation. Since Clifford product of multivector variables is non-commutative in general, the spin correlations derived within our locally causal model violate the CHSH inequality just as strongly as their quantum mechanical counterparts.

Keywords:	Bell's Theorem; Local Causality; Local realism; EPR-Bohm Correlations; Quantum Mechanics
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