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Contextuality with generalized measurements

It has been shown that Nature is contextual, and that the outcome of a measurement depends on other compatibles measurements outcomes. We present a general framework for contextuality tests using positive operator valued measurements (POVM). For such, we derive the conditions that a POVM should fulfill in order to construct a Peres-Mermin square. We show that previously studied cases of projective measurements using two valued observables and generalized measurements in phase space are special cases of our general formalism. Our construction opens the perspective of finding easier experimentally testable contextual inequalities.

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