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A Proposed Experiment to Test Whether or Not the Reduced Density Matrix is Applicable to Entangled Particles Where the States of One of the Particles Relevant to the Entanglement are Eliminated before Any Detections are Made DOUGLAS SNYDER, None — It is shown theoretically that the reduced density matrix is not applicable to the case where the states of one of two entangled particles relevant to the entanglement of the particles, and which provide ww info to the other particle, are eliminated before any particle detections are made. Instead, the entanglement is eliminated and the particle whose states are not eliminated enters into a pure state. A proposed experiment where this case (option 1) is tested is presented. The experiment has a second option (option 2) in which the states of both of the entangled particles that are relevant to the entanglement are preserved. In the experiment, the entangled particles become spatially separated. Elimination of the states of one of the entangled particles relevant to the entanglement results in the elimination of the entanglement and the placement of the other particle into a pure state. We have a delayed choice with regard to the particle whose states can be eliminated that affects the overall distribution (either reflecting interference or ww info) of the other particle that it is initially entangled with and that becomes physically distant from it. If the overall distribution of the signal photons in option 1 exhibits fringes and the overall distribution of the signal photons in option 2 is characteristic of ww info, then the reduced density matrix is not applicable to the case where the states of the signal photon relevant to the entanglement are eliminated before any detections are made.

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