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Title:	Investigation into Variance Based Uncertainty Relations in the Presence of Quantum Memory
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Abstract:	The following work is an attempt to formulate a variance based uncertainty relation that aims to capture a reduction in uncertainty associated with the action of non-commuting observables on a quantum system. This reduction in uncertainty (for bipartite entangled systems) is brought about due to the conditioning provided by correlations between the sub-component of the system on which the observables act, and the other sub-component entangled with it, which we shall refer to as the 'memory'. Although we will be attempting to formulate a relation based on variance, as preliminary material, we shall develop the theory behind uncertainty relations and entropy, both of which play a pivotal role in understanding our work. The existing relation that explores the domain of our work has been formulated in terms of conditional entropies, but since variance is a much more user friendly quantity to compute, we believe that if successful, this work will add considerable value.
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