Partial Trace of Hypergraph States DANIEL UPCHURCH, Lebanon
Valley College — Hypergraph states are generalizations of graph states, which are
known resources for models of quantum computation and error correction. We have
shown that partial tracing over single qubit subsystems of hypergraph states results
in the equal mixture of smaller hypergraph states, that is, of their density matrices.
We have also described all possible hypergraphs that could share the same reduced
density matrices that are smaller by one qubit. Comparing reduced density matrices
of different quantum systems can show if they share entanglement properties.

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