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Entanglement-Assisted Transformations of W-Type States JIAYANG XIAO, ERIC CHITAMBAR, Southern Illinois University - Carbondale — In multipartite systems, it is usually impossible to transform one entangled state into another via local operations and classical communication (LOCC). However, the transformation may become possible with the help of some extra entanglement. This kind of transformation is called entanglement-assisted LOCC (eLOCC). Beyond the bipartite setting, very little is known about eLOCC. We prove the optimal eLOCC probability for transforming a tripartite W-type state ($\sqrt{x_1}\{100\} + \sqrt{x_2}\{010\} + \sqrt{x_3}\{001\}$) into a GHZ state $\sqrt{1/2}(\{000\} + \{111\})$ when any two of the parties share a resource EPR state. Interestingly, this is the same optimal probability of converting the given state into an EPR pair with no entanglement resource. Finally, we consider the eLOCC transformation of a more general W-type state ($\sqrt{x_0}\{000\} + \sqrt{x_1}\{100\} + \sqrt{x_2}\{010\} + \sqrt{x_3}\{001\}$) into GHZ and compare this with EPR distillation rates for a variety of different protocols.

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