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Title: Additivity in classical and quantum Shannon theory

Abstract: Most capacities in quantum and classical information theory are given as regularized limits of linear combinations of entropies of the subsystems involved in the communication protocol. In some auspicious cases, e.g. classical Shannon capacity or entanglement-assisted quantum capacity, the combination of entropic quantities is additive, so the capacity is given by a single-letter formula, without need of regularization. We exhibit an easily-evaluated sufficient condition for a linear combination of entropies to be additive. It captures all known additive quantum formulas and lets us identify new and intriguing additive quantities.

Joint work with Andrew Cross and Ke Li