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Sofic measure entropy via finite partitions

Recently Lewis Bowen introduced a notion of entropy for measure-preserving actions of sofic groups and used it to obtain a far-reaching extension of the Ornstein-Weiss classification of Bernoulli actions over amenable groups. Subsequently Hanfeng Li and I developed a more general operator-algebraic approach to sofic entropy and established a variational principle in this context. I will show that these two perspectives can be reconciled to produce a definition with the novelty that it does not depend on generators, like the standard formulation of classical measure entropy due to Sinai. This leads in particular to a streamlined computation for Bernoulli actions, as I will describe.