

ORBIT EQUIVALENCE AND ENTROPY

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Abstract: Entropy is one of the most important numerical invariants for probability- measure-preserving (pmp) actions of countable infinite groups. Orbit equivalence is a fairly weak equivalence relation between pmp actions. In general orbit equivalence may not preserve entropy. Several years ago, Tim Austin showed that integrable orbit equivalence between free pmp actions of finitely generated amenable groups does preserve entropy. I will discuss a notion of Shannon orbit equivalence, weaker than integrable orbit equivalence, and a property SC for free pmp actions. The Shannon orbit equivalence between free pmp actions of sofic groups with the property SC preserves the maximal sofic entropy. If a group G has a w -normal subgroup H such that H is amenable and neither locally finite nor virtually cyclic, then every free pmp action of G has the property SC. A Shannon orbit equivalence between two free pmp actions of the integer group also preserves the entropy. In particular, if two Bernoulli shifts of a non-locally-finite countably infinite amenable group are Shannon orbit equivalent, then they are conjugate. This is based on joint work with David Kerr.