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Relative pressure and the variational principle

We define notions of pressure associated with topological and measure-theoretic factors of compact dynamical systems and prove a variational principle: The topological quantity is the supremum of the set of the corresponding measure-theoretic quantities. A central device is the use of average (or $\bar{d}-$) separation of orbits in the definition of pressure, in place of the classical notion of separation. This change permits arguments that are, we hope, simplifications of the classical arguments in the proofs of variational principles, and which can readily be extended to obtain analogous results for actions of amenable semigroups.

This is joint work with Russell Coe, CCSU.