

SEMINARIO DE SISTEMAS DINÁMICOS DE SANTIAGO

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TITLE: Dbar-approachability, entropy density and B-free shifts.

ABSTRACT: Let d_{bar} denote the pseudometric on the full shift over a finite alphabet A given by the upper asymptotic density of the set of positions at which two A -valued sequences differ. Write H_{dbar} for the associated Hausdorff pseudometric for subsets of the full shift. We study which properties of shift spaces (shifts) are closed with respect to H_{dbar} . In particular, we study shifts, which are H_{dbar} limits of their Markov approximations. We call these shifts dbar-approachable. We provide a topological characterisation of chain mixing dbar-approachable shifts analogous to Friedman-Ornstein's characterisation of Bernoulli processes.

We prove that many specification properties imply dbar-approachability. It follows that mixing shifts of finite type, mixing sofic shifts, and beta-shifts are dbar-approachable. We construct minimal and proximal examples of mixing dbar-approachable shifts. We also show that dbar-approachability and chain-mixing imply dbar-stability, a property recently introduced by Tim Austin. This leads to examples of minimal or proximal dbar-stable shift spaces, answering a question posed by Austin. Finally, we show that the set of shifts with entropy-dense ergodic measures is H_{dbar} closed. Note that entropy-density of ergodic measures is known to follow from the specification property, but the minimal or proximal examples are far from having any specification. Finally, we show entropy-density for a class of shifts that includes many interesting B-free shifts. These shift spaces are not dbar-approachable, but they are H_{dbar} limits of sequences of transitive sofic shifts, and this implies entropy-density.

This is a joint work with Jakub Konieczny and Michal Kupsa.

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