The Gurevic entropy for Markov shifts

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Abstract

Let $ {A} $ be an alphabet, the full ${A}-shift$ is the collection of all bi-infite sequences with symbols of $ {A} $. The full $ {A}-shift $ is denoted by

$$\{A\}\tilde{}\{\{Z\}\} = (x\_i)\_\{i \in \{Z\}\} : x\_i \in \{A\},\ for\ all\ i \in \{Z\}$$

The shift map is the map $\sigma : \{A\}\tilde{}\{\{Z\}\} \to \{A\}\tilde{}\{\{Z\}\}$$which$$associate$$each$$point$$x \in \{A\}\tilde{}\{Z\}$$to$$the$$point$$\sigma(x)$$whose$$

We consider the Gurevic metric the metric on $ {S} $ such that the completion of $ {S} $ with respect to this metric is $ {S}_{0} $.

Let $ {S} $, $ {T} $ transitive locally compact Markov shifts. A factor map $ f : {S} \to {T}$$is$$proper$$if$$f\{-1\}(K)$$is$$a$$compact$$set$$for$$every$$compact$$set$$K \subseteq \{T\}$$. In$$this$$work, we$$present$$relationshi$
In particular, if $ f $ is countable-to-1, so $ h_{G}({S}) \leq h_{G}({T})$.

Theorem: *Let*$\{S\}, \{T\}$$be$$transitive$$locally$$compact$$Markov$$shifts$$and$$let$$f : \{S\} \to \{T\}$$a$$factor$$map$$finite-to-1. Then$$h_\{G\}(\{S\}) = h_\{G\}(\{T\})$.

Theorem: Let $ {S} , {T} $ be locally compact Markov subshifts and let $ f : {S} \to {T}$$a$$factor$$map$$proper. Then$$h_\{G\}(\{S\}) \geq h_\{G\}(\{T\})$.

Theorem: Let $ {S} , {T} $ be locally compact Markov subshifts and let $ f : {S} \to {T}$$a$$factor$$map$$countable - to - 1$$proper. Then$$h_\{G\}(\{S\}) = h_\{G\}(\{T\})$.

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