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Lowering topological entropy over subsets revisited

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Let (X, T) be a topological dynamical system. Denote by $h (T, K)$ and $h^B (T, K)$ the covering entropy and dimensional entropy of $K\subseteq X$, respectively. (X, T) is called D-{\it lowerable} (resp. {\it lowerable}) if for each $0\le h\le h (T, X)$ there is a subset (resp. closed subset) K_h with $h^B (T, K_h)= h$ (resp. $h (T, K_h)= h$); is called D-{\it hereditarily lowerable} (resp. {\it hereditarily lowerable}) if each Souslin subset (resp. closed subset) is D-lowerable (resp. lowerable). In this paper it is proved that each topological dynamical system is not only lowerable but also D-lowerable, and each asymptotically h-expansive system is D-hereditarily lowerable. A minimal system which is lowerable and not hereditarily lowerable is demonstrated.

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