Continuity properties of pressure and entropy for piecewise monotonic interval maps

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Abstract. Consider a piecewise monotonic map T, this means $T : [0,1] \to [0,1]$ and there exists a finite partition $\mathcal{Z}$ into pairwise disjoint open intervals with $\bigcup_{Z \in \mathcal{Z}} \overline{Z} = [0,1]$ such that for every $Z \in \mathcal{Z}$ the map $T|_Z$ is continuous and strictly increasing. Another piecewise monotonic map $\widetilde{T}$ is called ε-close to T, if both maps have the same number of intervals of monotonicity, and the graph of $\widetilde{T}$ is contained in an ε-neighbourhood of the graph of T considered as subsets of $\mathbb{R}^2$.

The topological entropy is a measure how chaotic a given map is behaving, the topological pressure is a weighted version of it. It will be discussed which influence small perturbations of the map have on the entropy or the pressure. One obtains always that the entropy is lower semi-continuous. Moreover, a condition implying that the topological pressure is upper semi-continuous for all weight-functions will be given.

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