
Cohomologous potentials for the two dimensional shift

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Abstract

Consider the space $X = \{0, 1\}^Z$ and $Y = \{0, 1\}^N$. It is a well known fact that given a potential $V : X \rightarrow \mathbb{R}$ there exists a potential $v : Y \rightarrow \mathbb{R}$ that is cohomologous to V , i.e., such that $v = V + h \circ \sigma - h$ where σ is the shift map (the unilateral shift in Y and the bilateral shift in X).

Now consider the space $\{0, 1\}^Z \times \{0, 1\}^N$; in this space we can define two shifts, σ_x and σ_y that correspond to the horizontal and vertical shifts respectively.

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