

A NON-ERGODIC PHENOMENON FOR SOME RANDOM DYNAMICAL SYSTEM

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Abstract: In [2] Jajte formulated the following question:

Let $h_0(x)$ and $h_1(x)$ be homeomorphisms of the interval $[0, 1]$ onto itself. Is it true that for any $x \in [0, 1]$ and almost any $t \in (0, 1)$ there exists a limit of a sequence

$$\frac{1}{n} \sum_{i=1}^n h_{t_1} \circ \dots \circ h_{t_i}(x)$$

for $n \rightarrow \infty$, where $t = (0, t_1 t_2 \dots)_2$ is a binary representation of t , i.e. $t = \sum_{i \geq 1} t_i 2^{-i}$ and $t_i \in \{0, 1\}$?

The answer is negative. We describe the set of condensation points of the sequence in some special cases.

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