

DENDRITES AND CHAOS

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ABSTRACT. In [Z. Kočan, *Chaos on one-dimensional compact metric spaces*, Internat. J. Bifur. Chaos Appl. Sci. Engrg. **22**, article id: 1250259 (2012)] author characterized various chaotic properties of maps on dendrites. In this paper he raised three open questions needed to complete characterization of considered notions:

- (1) Does the existence of an uncountable ω -scrambled set imply distributional chaos?
- (2) Does the existence of an uncountable ω -scrambled set imply existence of an infinite LY-scrambled set?
- (3) Does distributional chaos imply the existence of an infinite LY-scrambled set?

We answer all of them. To answer first question we construct a continuous self-map of a dendrite without any DC3 pairs but containing an uncountable ω -scrambled set. Answering the next question we use some special properties of Sturmian subshift to construct appropriate example. Finally, to answer the last question we construct a dendrite \mathcal{D} and a continuous dendrite map without an infinite LY-scrambled set but with DC1 pairs.

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