On Three Definitions of Chaos

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Abstract: We discuss in this paper three notions of chaos which are commonly used in the mathematical literature, namely those being introduced by Li & Yorke, Block & Coppel and Devaney, respectively. We in particular show that for continuous mappings of a compact interval into itself the notions of chaos due to Block & Coppel and Devaney are equivalent while each of these is sufficient but not necessary for chaos in the sense of Li & Yorke. We also give an example indicating that in the general context of continuous mappings between compact metric spaces the relation between these three notions of chaos is more involved.

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