Hypercyclic Operators and the Hypercyclicity Criterion

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Abstract

Let X be a topological vector space and $T : X \to X$ a continuous linear operator. A vector $x \in X$ is called hypercyclic (for T) if its orbit

$$\{T^n x : n = 0, 1, 2, \ldots\}$$

is dense in X. The operator T is called hypercyclic if it has a hypercyclic vector. We will present the Hypercyclicity Criterion which is a sufficient condition for an operator to be hypercyclic. We will then use this criterion to prove the hypercyclicity of certain operators on function spaces.