Mathematics > Functional Analysis

On the power-bounded operators of classes $C_{0 \cdot}$ and $C_{1 \cdot}$

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By a bounded backward sequence of the operator T we mean a bounded sequence $\{x_n\}$ satisfying $Tx_{n+1}=x_n$. In \cite{Pa} we have characterized contractions with strongly stable nonunitary part in terms of bounded backward sequences. The main purpose of this work is to extend that result to power-bounded operators. Aditionally, we show that a power-bounded operator is strongly stable ($C_{0 \cdot} $) if and only if its adjoint does not have any nonzero bounded backward sequence. Similarly, a power-bounded operator is non-vanishing ($C_{1 \cdot} $) if and only if its adjoint has a lot of bounded backward sequences.

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