962-47-996 **Isaac Kornfeld** (isaac_kornfeld@ndsu.nodak.edu), North Dakota State University. *A class of L^1 operators associated with nonsingular mappings and a problem of E. Hille.*

E. Hille (1945) gave the first example of an L^1 operator T which is not power bounded, but satisfies the mean ergodic theorem, i.e., $\lim_{n\to\infty} \sum_{k=0}^{n-1} T^k f$ exists $\forall f \in L^1$. In his example the rate of growth (in n) of $||T^n||$ is of the order $n^{\frac{1}{4}}$. We study the question of possible rates of growth of norms for such operators and give the sharp estimates. In particular, for positive L^1 operators this rate can be faster than $\frac{n}{(\ln n)^{1+\delta}}$, for every $\delta > 0$, but cannot be faster than $\frac{n}{\ln n}$. Our examples are given in the class of operators associated with nonsingular measurable transformations of an interval.

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