Sublinearity and Other Spectral Conditions on a Semigroup

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Abstract. Subadditivity, sublinearity, submultiplicativity, and other conditions are considered for spectra of pairs of operators on a Hilbert space. Sublinearity, for example, is a weakening of the well-known property $L$ and means $\sigma(A + \lambda B) \subseteq \sigma(A) + \lambda \sigma(B)$ for all scalars $\lambda$. The effect of these conditions is examined on commutativity, reducibility, and triangularizability of multiplicative semigroups of operators. A sample result is that sublinearity of spectra implies simultaneous triangularizability for a semigroup of compact operators.