A Banach algebra A, a closed subalgebra B of A and an element $a \in A$ such that $sp(A,a) = sp(B,a)$.

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Let H be a Hilbert space, $A = B(H), a = T$ be a nonzero element of A and also let B be a maximal commutative subalgebra containing T, then by Theorem 15.4 of [B&D, §15. Theorem 4],

$$sp(A,a) = sp(B,a).$$

Ref.

[B&D] F.F. Bonsall, J. Duncan, Complete normed algebras, Springer-Verlag, 1973.