Projections with respect to various norms
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ABSTRACT

Let $B(X)$ be a Banach algebra of all continuous linear operators on a Banach space $X$ and $T \in B(X)$. For $(x, y) \in B(X) \times B(X^*)$, the operator norm of $T$ is defined as $\|T\| = \sup |\langle Tx, y \rangle|$, while its numerical radius $\nu(T) = \sup |\langle Tx, y \rangle|$ under the added condition that $\langle x, y \rangle = 1$. The interplay between $\|T\|$ and $\nu(T)$ has been the subject of much research since Bauer’s definition of numerical range in the 1960’s. After pointing out some major results in this area, I discuss how extensions of operators, in particular the minimality of projections, can be measured with respect to numerical radii.

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