Rao, Geetha S.; Mariadoss, S. A.
Applications of fixed point theorems to best approximations. (English) Zbl 0553.41034
Serdica 9, 244-248 (1983).

Let $X$ be a real normed space and $K$ a subset of $X$. An element $h$ in $K$ is called a best $K$-approximant for an element $x$ in $X$ if $\|x - h\| \leq \|x - g\|$ for all $g$ in $K$. Let $D$ be the set of all best $K$-approximants to $x$. If $T$ is an operator on $X$ with a fixed point $x$, then by imposing some conditions on $T$ or the set $K$, it is possible to find another fixed point of $T$ in the set $D$. B. Brosowski [Mathematica, Cluj 11(34), 195-220 (1969; Zbl 0207.455)] obtained a result of this kind: Let $K$ be a $T$-invariant subset of $X$ and $x$ a fixed point of $T$. If the set of all best $K$-approximants to $x$ is nonempty, convex and compact, then it contains a fixed point other than $x$. In this paper, the linearity condition on $T$ and the convexity on $K$ are weakened to give rise to some generalizations. The weaker conditions used are too technical to state. The paper contains several misprints and inaccuracies.

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