

# Classes of Operators with Fixed Points on Hilbert Spaces

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Let  $H$  be a real Hilbert space with inner product  $\langle, \rangle$ , and consider the class  $\mathcal{I}$  of operators  $T : H \rightarrow H$  such that each  $T$  has a nonempty set  $\text{Fix}T$  of fixed points, and such that  $\langle x - Tx, z - Tx \rangle \leq 0$ , for each  $x$  in  $H$  and for each  $z$  in  $\text{Fix}T$  (see [1]). We first present a parallel algorithm to find, in a finite number of steps, a common fixed point of a finite number of operators from this class when it is known that the intersection of their fixed point sets contains an interior point. Next, we remark that the class  $\mathcal{I}$  can be imbedded in a hierarchical system of classes of operators depending on a nonnegative real parameter  $\nu$ ; the classes in this system are denoted by  $\text{QNE}(\nu, H)$  (shorthand for  $\nu$ -quasi-nonexpansive on  $H$ ). When  $\mu$  and  $\nu$  are nonnegative real numbers and  $\mu > \nu$ , then  $\text{QNE}(\mu, H)$  is included in  $\text{QNE}(\nu, H)$ . We comment on the possibility of extending results that formerly have been proved for operators belonging to the class  $\text{QNE}(1, H)$ , to the class  $\text{QNE}(\nu, H)$  with  $0 \leq \nu < 1$ .

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