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Approximation methods for a common fixed point of a finite family of nonexpansive mappings

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Abstract
Let K be a nonempty closed and convex subset of a real Banach space E. Let T: KE be a continuous pseudocontractive mapping and f:KE a contraction, both satisfying weakly inward condition. Then for t(0, 1), there exists a sequence {yt}K satisfying the following condition: yt=(1-t)f(yt)+tT(yt). Suppose further that {yt} is bounded or F(T) and E is a reflexive Banach space having weakly continuous duality mapping J for some gauge . Then it is proved that {yt} converges strongly to a fixed point of T, which is also a solution of certain variational inequality. Moreover, an explicit iteration process that converges strongly to a common fixed point of a finite family of nonexpansive mappings and hence to a solution of a certain variational inequality is constructed.

Author Keywords
Nonexpansive mappings; Pseudocontractive mappings; Weakly continuous duality maps; Weakly inward maps

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