Approximate Fixed Point Sequences of Nonlinear Semigroup in Metric Spaces

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Abstract. In this paper, we investigate the common approximate fixed point sequences of nonexpansive semigroups of nonlinear mappings $\{T_t\}_{t\geq 0}$, *i.e.,* a family such that $T_0(x) = x$, $T_{s+t} = T_s(T_t(x))$, where the domain is a metric space (M, d). In particular we prove that under suitable conditions, the common approximate fixed point sequences set is the same as the common approximate fixed point sequences set of two mappings from the family. Then we use the Ishikawa iteration to construct a common approximate fixed point sequence of nonexpansive semigroups of nonlinear mappings.