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On a common fixed point theorem of a Greguš type. (English) Zbl 0753.54023

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Summary: It is proved that if T and E (E continuous) are two compatible self mappings of a closed subset K of a complete convex metric space X such that the condition:

$$d(Tx, Ty) \leq ad(Ex, Ey) + (1 - a) \max\{d(Ex, Tx), d(Ey, Ty)\}$$

holds for all x, y in K , where $0 < a < 1$, and $\text{Co}[T(K)] \subseteq E(K)$, then T and E have a unique common fixed point. This result generalizes a theorem of *B. Fisher* and *S. Sessa* [Int. J. Math. Math. Sci. 9, 23-28 (1986; Zbl 0597.47036)] and a theorem of *R. N. Mukherjee* and *V. Verma* [Math. Jap. 33, No. 5, 745-749 (1988; Zbl 0655.47047)] and shows that these theorems remain true when the hypotheses of linearity and non-expansivity of E are reduced to the continuity of E .

MSC:

54H25 Fixed-point and coincidence theorems (topological aspects)

47H10 Fixed-point theorems

Cited in **4** Reviews
Cited in **9** Documents

Keywords:

common fixed point