MULTIVALUED PROBABILISTIC Q-CONTRACTION

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The inequality $F_{fx,fy}(qs) \geq F_{x,y}(s)$ $(s \geq 0)$, where $q \in (0, 1)$, is generalized for multi-valued mappings in many directions. Using Hausdorff distance S.B. Nadler in [4] introducet a generalization of the Banach contraction principle in metric spaces. In [2] the definition of probabilistic Nadler introduced q-contraction is given. In this paper a coincidence point theorem for three mappings which is a generalization of the probabilistic Nadler q-contraction is proved. As a corollary a coincidence point theorem on spaces with a convex structure is obtained.

References

[1] Shih-sen Chang, Yeol Je Cho, Shin Min Kang: *Probabilistic metric spaces and nonlinear operator theory*, Sichuan University Press, 1994.

[2] O. Hadžić: *Fixed point theorems for multivalued mappings in probabilistic metric spaces*, Mat. Vesnik 3 (16)(31) (1979), 125–133.

[3] O. Hadžić, E.Pap: *Fixed Point Theory in Probabilistic Metric Spaces*, Theory in Probabilistic Metric Spaces, Kluwer Academic Publishers, Dordrecht, 2001.

[4] S.B. Nadler: *Multivalued contraction mappings*, Pacific J. Math. 30 (1969), 475–478.

[5] W. Takahashi: *A convexity in metric spaces and nonexpansive mappings I*, Kodai Math. rep. 22 (1970), 142–149.