

COMMON FIXED POINT THEOREM FOR OCCASIONALLY WEAKLY COMPATIBLE MAPPINGS IN MENGER SPACE

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Abstract. The concept of occasionally weakly compatible (shortly, owc) mappings introduced by Al-Thagafi and Shahzad [2], which is more general than the concept of weakly compatible maps. In this paper, we prove a common fixed point theorem for owc mappings in Menger space using arbitrary continuous t-norm for a nonlinear case.

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References

- [1] M. Aamri and D. El Moutawakil, *Some new common fixed point theorems under strict contractive conditions*, J. Math. Anal. Appl., **270**(2002), 181-188. [MR1911759](#). [Zbl 1008.54030](#).
- [2] M.A. Al-Thagafi and N. Shahzad, *Generalized I-nonexpansive selfmaps and invariant approximations*, Acta Math. Sinica, **24**(5)(2008), 867-876. [MR2403120](#). [Zbl 1175.41026](#).
- [3] A. Bhatt, H. Chandra and D.R. Sahu, *Common fixed point theorems for occasionally weakly compatible mappings under relaxed conditions*, Nonlinear Analysis, **73**(1)(2010), 176-182. [MR2645842](#). [Zbl pre05718400](#).
- [4] H. Chandra and A. Bhatt, *Fixed point theorems for occasionally weakly compatible maps in probabilistic semi-metric space*, Int. J. Math. Anal., **3**(12)(2009), 563-570. [MR2553969](#). [Zbl 1176.54029](#).
- [5] S. Chauhan and B.D. Pant, *Common fixed point theorems for occasionally weakly compatible mappings using implicit relation*, Journal of the Indian Math. Soc., **77**(1-4)(2010) 13-21.

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- [6] G. Jungck, *Compatible mappings and common fixed points*, Int. J. Math. & Math. Sci., **9**(1986), 771-779. [MR0870534](#). [Zbl pre0613.54029](#).
- [7] G. Jungck, *Common fixed points for noncontinuous nonself maps on nonmetric spaces*, Far East J. Math. Sci., **4**(1996), 119-215. [MR1426938](#). [Zbl 0928.54043](#).
- [8] G. Jungck and B.E. Rhoades, *Fixed points for set valued functions without continuity*, Indian J. Pure Appl. Math., **29**(3)(1998), 227-238. [MR1617919](#). [Zbl 09047.54034](#).
- [9] G. Jungck and B.E. Rhoades, *Fixed point theorems for occasionally weakly compatible mappings*, Fixed Point Theory, **7**(2006), 286-296. [MR2284600](#). [Zbl 1118.47045](#).
- [10] G. Jungck and B.E. Rhoades, *Fixed point theorems for occasionally weakly compatible mappings*, Fixed Point Theory, **9**(2008), 383-384 (Erratum). [MR2421749](#).
- [11] K. Menger, *Statistical metrics*, Proc. Nat. Acad. Sci. U.S.A., **28**(1942), 535-537. [MR0007576](#). [Zbl 0063.03886](#).
- [12] S.N. Mishra, *Common fixed points of compatible mappings in PM-spaces*, Math. Japon., **36** (1991), 283-289. [MR1095742](#). [Zbl 0731.54037](#).
- [13] K.P.R. Sastry, G.A. Naidu, P.V.S. Prasad, V.M. Latha, S.S.A. Sastry, *A critical look at fixed point theorems for occasionally weakly compatible maps in probabilistic semi-metric spaces*, Int. J. Math. Anal., **4**(2010), 1341-1348. [MR2665637](#).
- [14] B. Schweizer and A. Sklar, *Statistical metric spaces*, Pacific J. Math., **10**(1960), 313-334. [MR0115153](#). [Zbl 0091.29801](#).
- [15] B. Schweizer and A. Sklar, *Probabilistic metric spaces*, North-Holland Publishing Co., New York, (1983). [MR790314](#). [Zbl 0546.60010](#).
- [16] B. Singh and S. Jain, *A fixed point theorem in Menger Space through weak compatibility*, J. Math. Anal. Appl., **301**(2005), 439-448. [MR2105684](#). [Zbl 1068.54044](#).
- [17] C. Vetro, *Some fixed point theorems for occasionally weakly compatible mappings in probabilistic semi-metric spaces*, Int. J. Modern Math., **4**(3) (2009), 277-284. [MR2588994](#). [Zbl pre05651470](#).

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