FIXED POINTS AND CONTINUITY OF ALMOST CONTRACTIONS

VASILE BERINDE* AND MĂDĂLINA PĂCURAR**

*Department of Mathematics and Computer Science
North University of Baia Mare
Victoriei 76, 430072 Baia Mare Romania
E-mail: vberinde@ubm.ro

**Department of Statistics, Analysis, Forecast and Mathematics
Faculty of Economics and Business Administration
"Babeș-Bolyai" University of Cluj-Napoca
56-60 T. Mihali St., 400591 Cluj-Napoca Romania
E-mail: madalina_pacurar@yahoo.com

Abstract. Almost contractions form a class of generalized contractions that includes several contractive type mappings like usual contractions, Kannan mappings, Zamfirescu mappings etc. Since any usual contraction is continuous, while a Kannan mapping is not generally continuous but is continuous at the fixed point, the main aim of this paper is to study the continuity of both single and multi-valued almost contractions. The main results state that any almost contraction is continuous at its fixed point(s). This answers an open question raised in [Berinde, V., On the approximation of fixed points of weak contractive mappings Carpathian J. Math. 19 (2003), No. 1, 7-22].

Key Words and Phrases: fixed point, metric space, almost contraction, continuity in the fixed point.

2000 Mathematics Subject Classification: 47H10, 54H25.

Acknowledgements

The first author’s research was supported by the CEEX Grant 2532 of the Romanian Ministry of Education and Research.

This paper was presented at the International Conference on Nonlinear Operators, Differential Equations and Applications held in Cluj-Napoca (Romania) from July 4 to July 8, 2007.
References


Received: November 14, 2007; Accepted: January 10, 2008.