Application of Fixed Point Theorem in Probabilistic Metric space to Quicksort Algorithm

Anna Soós, Judit Robu

Babes Bolyai University, Romania
asoos@math.ubbcluj.ro robu@cs.ubbcluj.ro

Abstract

Our aim in this work is to prove the existence and uniqueness of solution for recurrence equations associated to the asimptotic complexity analysis of Quicksort algorithms using some results from the theory of probabilistic metric spaces. GeoGebra application to Quicksort algorithns teaching will be given.

Keywords: fixed points, probabilistic metric space, Quicksort Algorithm

MSC: 60G57, 28A80, 68W40

References

[1] KOLUMBÁN, J., SOÓS, A., Invariant sets in Menger spaces, *Studia Univ. "Babes-Bolyai", Mathematica* Vol. 53 (1998), 39–48.

[2] ROMAGUERA, S., SAPENA, A., TIRADO, P., The Banach fixed point theorem in fuzzy quasi-metric spaces with application to the domain of words, *Topology and Its Applications*, Vol. 154 (2007), 2196–2203.

[3] SHAKERI, M., JALILI, M., SAADATI, R., VAEZPOUR, S.M., CIRIC, L., Quicksort Algorithms: Application of Fixed Point Theorem in Probabilistic Quasi-Metric Spaces at Domain of Words, *Journal of Applied Sciences*, Vol. 9 (2009), 397–400.