

Beyond the quasi-Cauchy sequences beyond the Cauchy sequences

Huseyin CAKALLI

Maltepe University, Graduate School of Science and Engineering, İstanbul,
Turkey

E-mail: hcakalli@gmail.com

Abstract:

In this paper, we investigate the concept of upward continuity. A real valued function on a subset E of \mathbf{R} , the set of real numbers, is upward continuous if it preserves upward quasi Cauchy sequences in E , where a sequence (x_k) of points in \mathbf{R} is called upward quasi Cauchy if for every $\varepsilon > 0$ there exists a positive integer n_0 such that $x_n - x_{n+1} < \varepsilon$ for $n \geq n_0$. It turns out that the set of upward continuous functions is a proper subset of the set of continuous functions.

Keywords: Sequences, series, summability, continuity

2010 Mathematics Subject Classification: 40A05, 40A35, 26A15

REFERENCES

- [1] Burton, D., and Coleman J., “Quasi-Cauchy Sequences”, *Amer. Math. Monthly*, Vol. 117, No.5, pp. 328-333, 2010.
- [2] Cakalli, H., “Forward continuity”, *J. Comput. Anal. Appl.*, Vol.13, No.2, pp. 225-230, 2011.
- [3] Caserta, A., and Kocinac, Ljubisa D.R., “On statistical exhaustiveness”, *Appl. Math. Lett.*, Vol.25, No.10, pp. 1447-1451, 2012.
- [4] Canak, I. and Dik M., “New types of continuities”, *Abstr. Appl. Anal.*, Vol.2010, Article ID 258980, 6 pages, 2010.
- [5] Collins, J. and Zimmer, J. “An asymmetric Arzela-Ascoli theorem”, *Topology and its Applications*, Vol.154, pp. 2312-2322, 2007.
- [6] Reilly I.L., Subrahmanyam, P.V., and Vamanamurthy, M.K., “Cauchy sequences in quasipseudometric spaces”, *Monatsh. Math.*, Vol.93 No.2, pp. 127-140, 1982.
- [7] Cakalli, H., “Sequential definitions of compactness”, *Appl. Math. Lett.*, Vol.21, No.6, pp. 594-598, 2008.
- [8] Cakalli, H., “On G-continuity”, *Comput. Math. Appl.*, Vol.61, pp. 313-318, 2011.
- [9] J. Connor and K.G. Grosse-Erdmann, “Sequential definitions of continuity for real functions”, *Rocky Mountain J. Math.*, Vol.33, No.1, pp. 93-121, 2003.
- [10] Cakalli, H., “Slowly oscillating continuity”, *Abstr. Appl. Anal.*, Vol.2008, Article ID 485706, 5 pages, 2008.
- [11] Mucuk, O., Sahan, T., “On G-Sequential Continuity”, *Filomat*, Vol.28, No.6, pp. 1181-1189, 2014.
- [12] Vallin, R.W., “Creating slowly oscillating sequences and slowly oscillating continuous functions”, *Acta Math. Univ. Comenianae*, Vol.25, pp. 71-78, 2011.