

Continuous extensions of maps between sequential cascades

Andrzej Starosolski

A sequential cascade is a tree, well-founded for the inverse order, and such that the set of immediate successors of each non-maximal element is infinitely countable. The contour (called also compression operator by Cook and Fisher, diagonal filter by Kowalsky and sum of filters by Frok) is a set-theoretic lower limit on some filtered collections of filters, that can be used, in complementary ways, to characterize both topologicity and regularity of convergences. Sequential cascades and their contours play an important role in the study of sequential and subsequential spaces. The contour inversion problem consists in recovering knowledge about component filters from that of their contour. A general solution to this problem is presented in terms of Alternative Theorem, which turns out to be a basic ingredient in the proof of a theorem on continuous extensions of maps from the extremal elements of sequential cascades to some of their full subcascades. The mentioned extension theorem extends a theorem on extension of injections formulated in [1]. Some of the main results on subsequential spaces of Franklin and Rajagopalan are recovered.

Joint work with Szymon Dolecki

- [1] Dolecki S., Starosolski A., Watson S., Extension of multisequences and countable uniradial class of topologies, *Comment. Math. Univ. Carolin.*, 2004, 44(1), 165-181.

Institute of Mathematics, Silesian University of Technology, Kaszubska 23, Gliwice, 44-100, Poland

E-mail: andrzej.starosolski@polsl.pl