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A continuous operator extending fuzzy ultrametrics

Comment.Math.Univ.Carolin. 52,4 (2011) 611–622.

Abstract: We consider the problem of simultaneous extension of fuzzy ultrametrics defined on closed subsets of a complete fuzzy ultrametric space. We construct an extension operator that preserves the operation of pointwise minimum of fuzzy ultrametrics with common domain and an operation which is an analogue of multiplication by a constant defined for fuzzy ultrametrics. We prove that the restriction of the extension operator onto the set of continuous, partial fuzzy ultrametrics is continuous with respect to the Hausdorff metric topology.

Keywords: fuzzy ultrametric, continuous extension operator, Hausdorff metric

AMS Subject Classification: 54A40, 54C20, 54E70

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