On K-ultrametrics and $*$-measures

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The notion of K-ultrametric is introduced in [1]. A metric d on a set X is called a K-ultrametric, where $K \in [0, \infty]$, if $d(x, y) \leq K$, whenever $\min\{d(x, z), d(y, z)\} \leq K$.

Any 0-ultrametric is a metric, and any ∞-ultrametric is an ultrametric.

Some resent results are devoted to the K-ultrametrization of various functorial constructions on the category of K-ultrametric spaces: hyperspaces, spaces of probability measures, spaces of idempotent measurers [1, 2].

The aim of the talk is provide a construction of K-ultrametrization of the spaces of $*$-measures. Recall that a t-norm is a binary operation $*$ on $[0, 1]$ which is associative, commutative, continuous, monotone, and 1 is a unit for it.

A functional $\mu : C(X, [0, 1]) \to [0, 1]$ is called an $*$-measure if

1) μ preserves constants;
2) $\mu(\max\{\varphi, \psi\}) = \max\{\mu(\varphi), \mu(\psi)\}$;
3) $\mu(\lambda * \varphi) = \lambda * \mu(\varphi)$.

It is proved that the mentioned construction determines a functor on the category of K-ultrametric spaces and K-nonexpanding maps.

References

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