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The Sugeno integral and functional representation of the monad of lattice-valued capacities.
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Summary: The Sugeno integral of an upper semicontinuous function from a compactum to a compact Hausdorff-Lawson lattice with respect to a lattice-valued capacity is introduced, and its characterization and properties are presented. It is proved that in a family of fuzzy integrals, the Sugeno integral is unique that provides a functional representation of the monad of lattice-valued capacities.

MSC:
28B15 Set functions, measures and integrals with values in ordered spaces
54B30 Categorical methods in general topology
18C15 Monads (= standard construction, triple or triad), algebras for monads, homology and derived functors for monads

Keywords:
Sugeno integral; monad; lattice-valued measure; capacity

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