

# Metrics, Betweenness Relations, and Entropies on Lattices and Applications

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**Abstract.** We discuss an algebraic axiomatization of the notion of entropy in the framework of lattices as well as characterizations of metric structures induced by such entropies. The proposed new framework takes advantage of the partial orders defined on lattices, in particular the semimodular lattice of partitions of a finite set to allow multiple applications in data mining: data discretization, recommendation systems, classification, and feature selection.