

Ordinal spaces as a generalization of metric spaces

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Ordinal data analysis is an interesting direction in machine learning. It often deals with data for which only the relationships ' $<$ ', ' $=$ ', ' $>$ ' between pairs of points are known. We do an attempt of formalizing structures behind ordinal data analysis by introducing the notion of ordinal spaces on the base of a strict axiomatic approach. For these spaces we study general properties as isomorphism conditions, connections with metric spaces, embeddability into Euclidean spaces, topological properties etc.