TOPOLOGY SEMINAR

Simplicial distributions and polyhedral geometry

By

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Abstract: Simplicial distributions are collections of probability distributions that satisfy certain compatibility conditions that can be encoded topologically using simplicial sets. For a simplicial scenario where the measurement space X and outcome space Y are finitely generated the space sDist(X,Y) of allowed simplicial distributions is a convex set, in fact, a convex polytope. By the Minskowski-Weyl theorem of polytope theory it is well-known that there are two equivalent descriptions of a convex polytope as the intersection of finitely many half-space inequalities (H-representation) or as the convex hull of finitely many extreme points (V-representation). In this talk we detail how one constructs the H-representation of sDist(X,Y) and discuss the conversion to its V-representation, known as the vertex enumeration problem. Time permitting, we will also discuss the Bell polytope, which delineates the boundary between contextual and noncontextual measurement statistics, and is a subpolytope of sDist(X,Y).

Date: Monday, Nov 18, 2024
Time: 13:30
Place: ZOOM

To request the event link, please send a message to cihan.okay@bilkent.edu.tr