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Goodness-of-fit tests for bivariate extreme-value dependence

It is often reasonable to assume that the dependence structure of a bivariate continuous distribution belongs to the class of extreme-value copulas. The latter are characterized by their Pickands dependence function. The talk is concerned with a procedure for testing whether this function belongs to a given parametric family. The test is based on a Cramér–von Mises statistic measuring the distance between an estimate of the parametric Pickands dependence function and either one of two nonparametric estimators thereof studied by Genest and Segers (2009). As the limiting distribution of the test statistic depends on unknown parameters, it must be estimated via a parametric bootstrap procedure, whose validity is established. Monte Carlo simulations are used to assess the power of the test, and an extension to dependence structures that are left-tail decreasing in both variables is considered.