

## On the construction of minimum information bivariate copula families

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**Abstract** Copulas have become very popular as modelling tools in probability applications. Given a finite number of expectation constraints for functions defined on the unit square, the minimum information copula is that copula which has minimum information (Kullback–Leibler divergence) from the uniform copula. This can be considered the most “independent” copula satisfying the constraints. We demonstrate the existence and uniqueness of such copulas, rigorously establish the relation with discrete approximations, and prove an unexpected relationship between constraint expectation values and the copula density formula.

**Keywords** Bivariate copulas · Information · Uncertainty modelling · Expert judgement