

# Abstract

The copula is a versatile modelling tool that allows highly flexible multivariate models to be constructed. One method by which new copulas can be constructed is through parameter-mixing.

Distributions constructed through parameter-mixing are usually more flexible than the unmixed distribution due to an increase in the number of parameters. However, in the copula context, past studies have not examined the link between mixture copulas and their parent copulas; in particular, the questions of whether and when mixture copulas display modelling advantages, as compared to their parents, has not been examined.

This thesis examines the application of parameter-mixing to a number of copula families commonly used in modelling. In particular, the extent to which parameter-mixing enhances the modelling properties of a copula are examined. Through a Monte Carlo experiment, and an applied example, it is demonstrated that parameter-mixing generates a non-nested model, which competes with the unmixed model on an equal footing, and which enjoys the greatest improvement when the data exhibits non-extreme dependence.