

# Copula-Based Markov Models

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Copulas have been used to model univariate time series by constructing Markov models.

For example, a copula-based markov model of order one assumes:

$$(Y_t, Y_{t+1}) \sim C(F(y_t), F(y_{t+1})),$$

with  $F$  the marginal distribution.

This approach differs from defining a copula over the entire sequence  $Y_1, \dots, Y_n$  and offers the computational advantage of using bivariate copulas, characterised by a likelihood simpler to evaluate.