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Heavy tailed time series with extremal independence

We consider heavy tailed time series whose finite-dimensional distributions are extremally independent in the sense that extremely large values cannot be observed consecutively. This calls for methods beyond the classical multivariate extreme value theory which is convenient only for extremally dependent multivariate distributions. We use the Conditional Extreme Value approach to study the effect of an extreme value at time zero on the future of the time series. In formal terms, we study the limiting conditional distribution of future observations given an extreme value at time zero. To this purpose, we introduce conditional scaling functions and conditional scaling exponents. We compute these quantities for a variety of models, including Markov chains, exponential autoregressive models, stochastic volatility models with heavy tailed innovations or volatilities.