

BINARY AND CATEGORICAL TIME SERIES MODELS WITH FEEDBACK

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We study the problem of ergodicity, stationarity and maximum likelihood estimation for multinomial logistic models that include a latent process. Our work includes various models that have been proposed for the analysis of binary and, more general, categorical time series. We give verifiable ergodicity and stationarity conditions for the analysis of such time series data. In addition, we study maximum likelihood estimation and prove that, under mild conditions, the estimator is asymptotically normally distributed. These results are applied to real and simulated data.

This is a joined work with Konstantinos Fokianos.

Keywords: autocorrelation; categorical data; hidden Markov models; latent process; logistic regression; multinomial regression; nominal data; weak dependence.