

## 20 Objective model selection in AR model

**Thaís C.O. Fonseca (Universidad Federal Rio de Janeiro)**

In several model selection problems one might be interested in being as objective as possible. An interesting direction is the use of noninformative priors for the parameters of interest. In this work, the Bayesian bridge is considered as a generalization of the lasso, ridge and elastic net as a shrinkage method for variable selection and a reference prior for the parameters in the model is developed. In particular, the order of an autoregressive (AR) model is estimated based on the reference prior proposed. The order selection is objective in the sense the reference prior proposed does not depend on tuning parameters. The resulting analysis is automatic as besides considering a general shrinkage approach, the prior for the parameters do not depend on hyperparameters. We compare the proposed prior with the well known Litterman prior for order selection in the AR models in a simulated study. Indeed the reference prior is more efficient in the order selection than the Litterman prior in several scenarios.