3.3: Forecasting ARMA Processes

Taylor

University of Virginia

Motivation

I PLAN ON SKIPPING THIS SECTION.

Assume $p, q \geq 1$. Consider the transformation of $\phi(B)X_t = \theta(B)X_t$.

$$W_t = \begin{cases} \sigma^{-1}X_t & t \in \{1, \ldots, \max(p,q)\} \\ \sigma^{-1}\phi(B)X_t & t > \max(p,q) \end{cases}$$

We apply the Innovations Algorithm to this.

$$W_t = \begin{cases} \sigma^{-1} X_t & t \in \{1, \ldots, \max(p, q)\} \\ \sigma^{-1} \phi(B) X_t & t > \max(p, q) \end{cases}$$

The autocovariances of W_t are

$$\kappa(i, j) = \begin{cases} \sigma^{-2} \gamma_X(i - j) & 1 \leq i, j \leq \max(p, q)\} \\ \sigma^{-1} \phi(B) X_t & t > \max(p, q) \end{cases}$$