ME384Q.3 / ORI 390R.3: Time-Series Analysis

Prof. Dragan Djurdjanovic

Homework 5

Assigned Wednesday, April 18th , 2019;
Due Thursday, April 30th, 2019, in class

Please do the following problems from the textbook:

Problem 7.4

Problem 7.5

Problem 7.9

Problem 9.4

Problem 9.5

Problem 10.1

Problem 10.4

Problem Related to the wholesales data:
Running of the PostulateARMA.m code on the wholesales data from which you removed a linear trend should give you an ARMA(14,13) model

a) For the ARMA(14,13) model explore all stochastic trends you could see.
b) Check appropriate parsimonious models and confirm if those trends.
c) For the ARMA(14,13) model explore all stochastic seasonalities you could see by observing pairs of complex conjugate roots of the AR characteristic polynomial that are close to the unit circle. For each pair report the corresponding period of seasonality. Do not check each parsimonious model (yet).
d) Do you think one can utilize the operator $(1-B^M)$ for some M to obtain a parsimonious model of this ARMA model? If yes, why?
e) Please check if the parsimonious model you suggested is adequate or not (run the appropriate F test).