

This thesis introduces weighted and unweighted portmanteau tests, which are used for testing goodness-of-fit of a fitted ARMA model. ARMA models are widely used for time series analysis. The reader is presented with weighted portmanteau tests with weights based on kernel functions and with geometrically decaying weights. Next, we deal with the asymptotic distribution of test statistics in greater detail. Lastly, we present an extensive simulation study in the R programming language, which computes the statistical size and power of the considered tests. The main goal of the simulation study is a comparison of weighted variants of portmanteau tests with Box-Pierce and Ljung-Box tests.