

Lab1

R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
set.seed(12345)
w = rnorm(100)

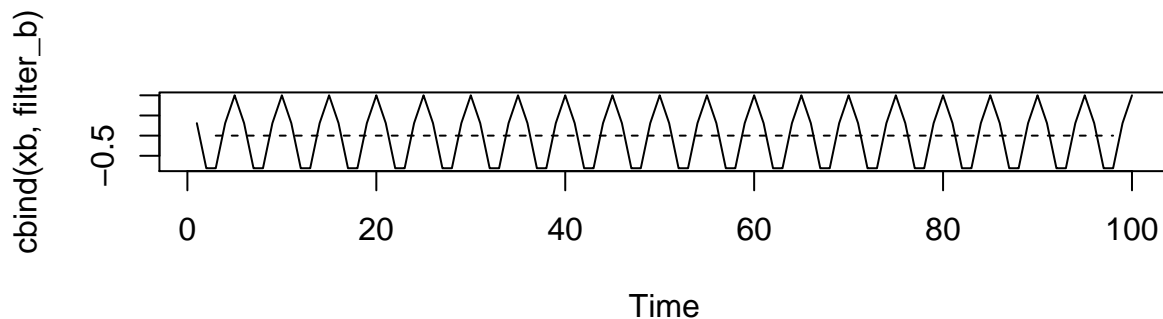
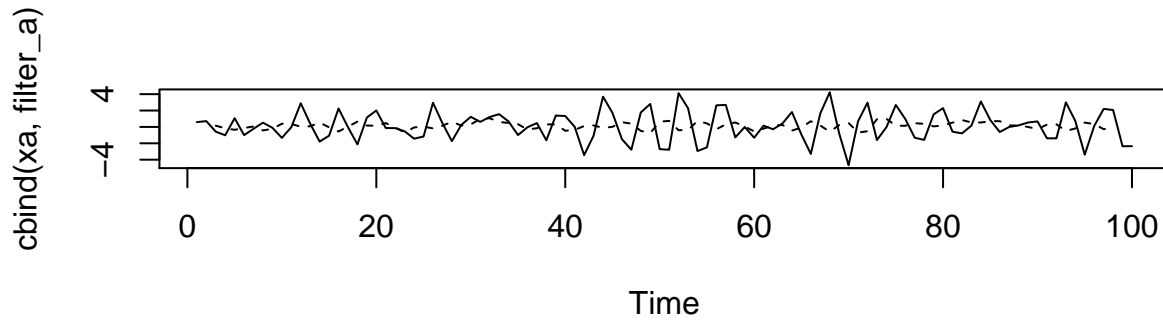
xa = filter(w,filter=c(0,-0.8),method = "recursive")

filter_a = filter(xa, filter = c(1/5,1/5,1/5,1/5,1/5),method = "convolution")

xb = cos(2*pi*(1:100)/5)

filter_b = filter(xb, filter = c(1/5,1/5,1/5,1/5,1/5),method = "convolution")

par(mfcol=c(2,1))
plot(cbind(xa, filter_a), plot.type="single", lty=1:2)
plot(cbind(xb, filter_b), plot.type="single", lty=1:2)
```



```
set.seed(12345)
w = rnorm(100)
```

```

b_series = arima.sim(list(ar = c(4/4,-2/4,0,0,-1/4), ma = c(0,3/4,0,1/4,0,-4/4)),n=1000)

set.seed(54321)

c_series = arima.sim(list(ar = c(-3/4), ma = c(-1/9)),n=1000)

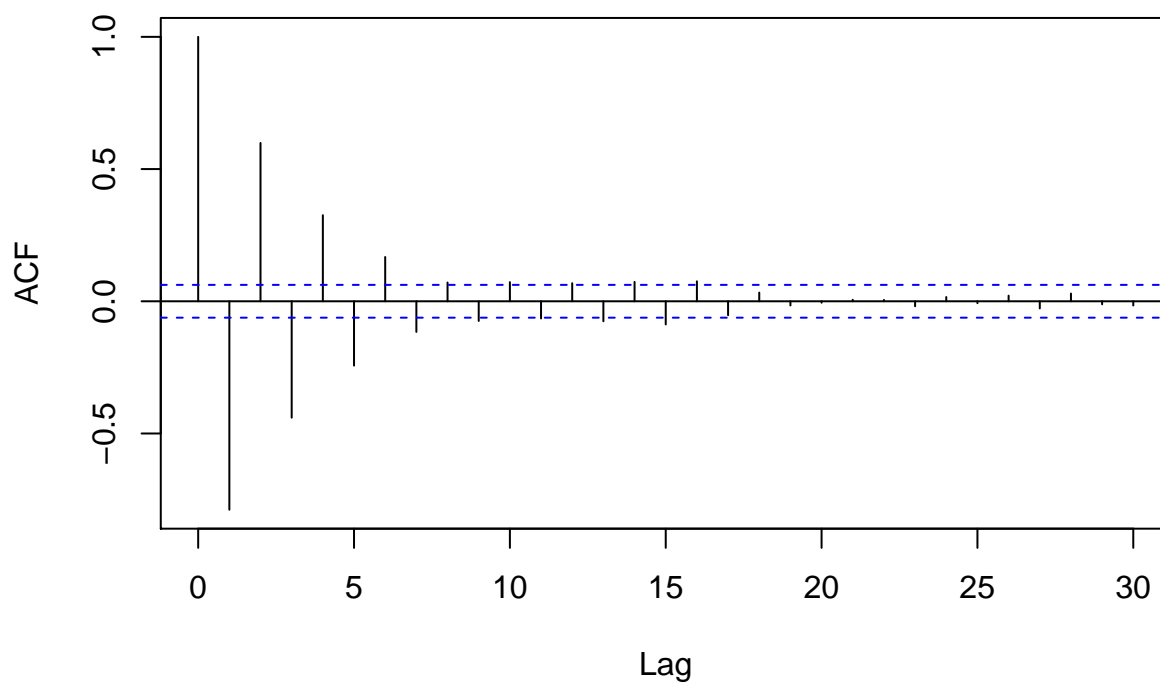
simulated_acf = acf(c_series)

theoretical_acf = ARMAacf(ar = c(-3/4), ma = c(-1/9), lag.max = 15)

plot(simulated_acf)

```

Series c_series



```

plot(theoretical_acf,type="h")

abline(h=0)

```

