

Monitoria Econometria Avançada

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Capítulo 1

1.

- (a) Discreta, univariada e unidimensional.

$Z(t)$ =Índice Diário Bovespa; t =dias; $r=1$; $p=1$.

- (b) Contínua, univariada e unidimensional.

$Z(t)$ =Registro de marés; t =tempo; $r=1$; $p=1$.

- (c) Contínua, univariada e unidimensional.

$Z(t)$ =Registro de marés; t =tempo; $r=1$; $p=1$.

- (d) Contínua, bivariada e unidimensional.

$Z(t) = [Z_1(t), Z_2(t)]$ = [Pressão uterina; Pressão sanguínea]; t =tempo; $r=2$; $p=1$.

- (e) Discreta, univariada e bidimensional.

$Z(t)$ = número de ocorrências de meningite; \mathbf{t} =[mês;município]; $r=1$; $p=2$.

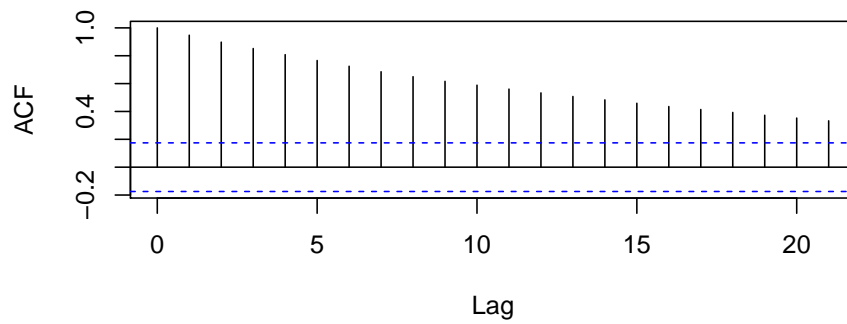
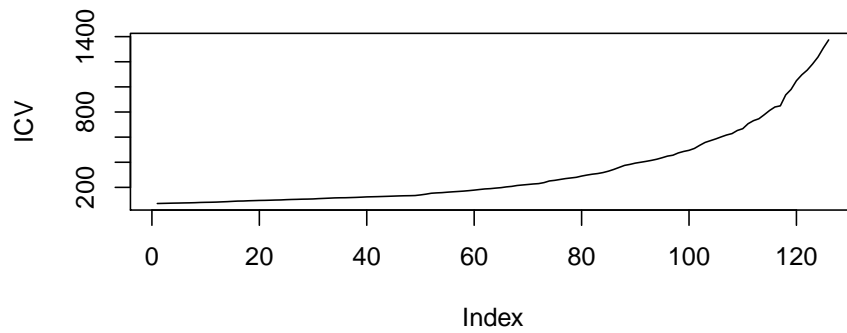
- (f) Contínua, trivariada e quadridimensional.

$Z(t)$ =Medidas das 3 componentes de velocidade; \mathbf{t} =[tempo;latitude;longitude;profundidade];
 $r=3$; $p=4$.

2.

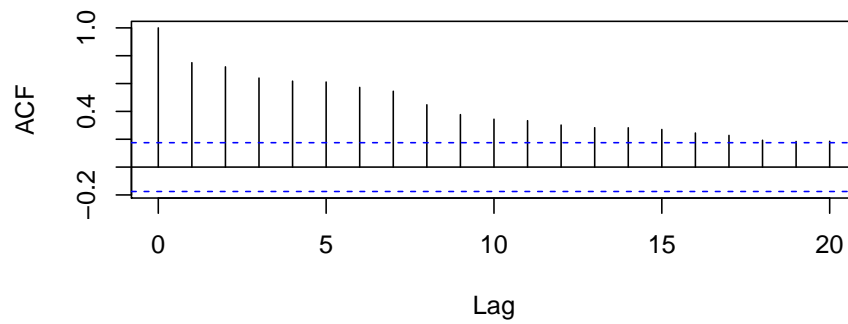
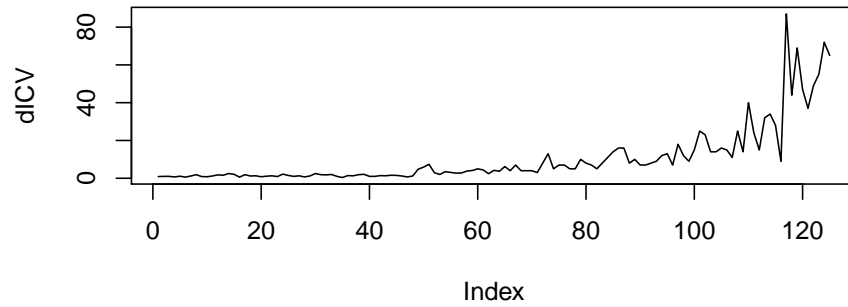
- (a) Podemos usar o seguinte comando no R (após baixar a série no site e transformá-la em formato .csv):

```
> M.ICV <- read.csv("~/Documents/Insper/M-ICV.csv", sep=";", dec=",")
> attach(M.ICV)
> par(mfrow=c(2,1))
> plot(ICV, type="l")
> acf(ICV, main="")
```



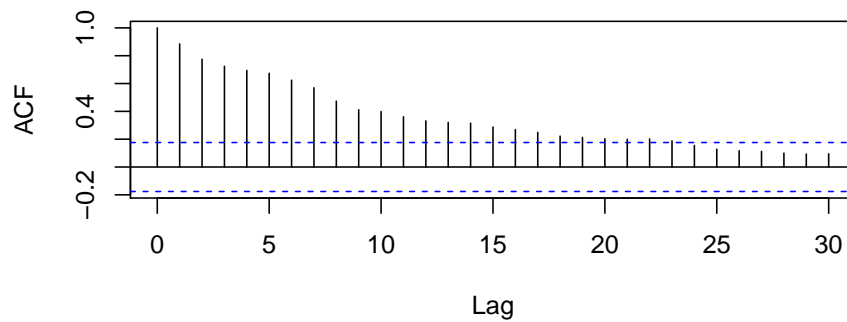
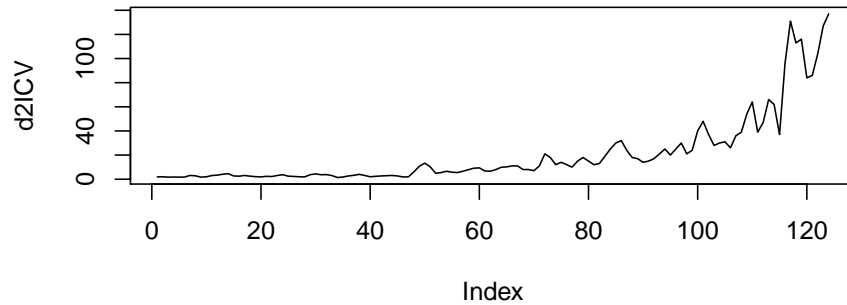
Pelo gráfico vemos que a série não é estacionária.

```
(b) > dICV <- diff(ICV,1)
> par(mfrow=c(2,1))
> plot(dICV,type="l")
> acf(dICV,main="")
```



Pelo gráfico vemos que a série não é estacionária.

```
(c) > d2ICV <- diff(ICV,2)
> par(mfrow=c(2,1))
> plot(d2ICV,type="l")
> acf(d2ICV,30,main="")
```

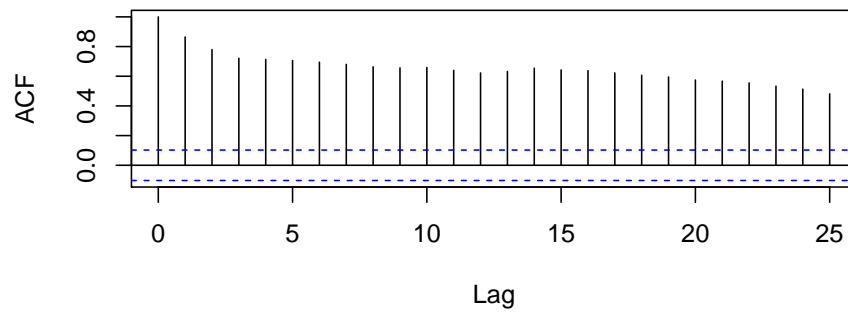
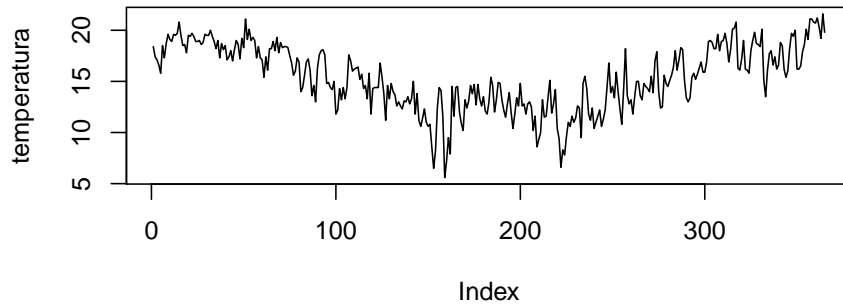


Pelo gráfico vemos que a série não é estacionária.

3.

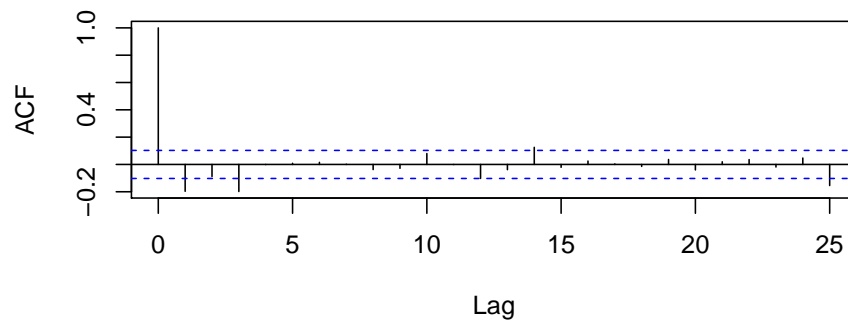
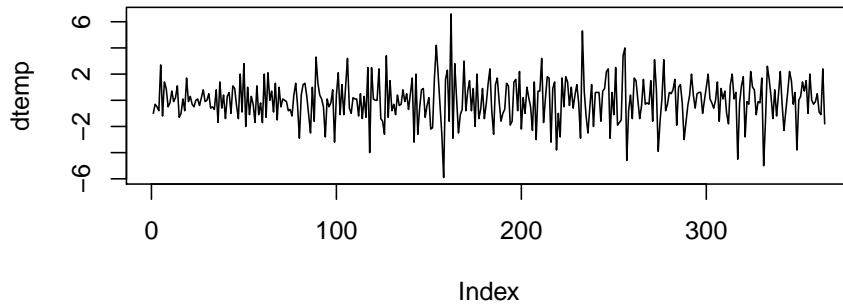
- (a) Podemos usar o seguinte comando no R (após baixar a série no site e transformá-la em formato .csv):

```
> atmosfera <- read.csv("~/Documents/Insper/atmosfera.csv", sep=";", dec=",")
> attach(atmosfera)
> par(mfrow=c(2,1))
> plot(temperatura,type="l")
> acf(temperatura,main="")
```

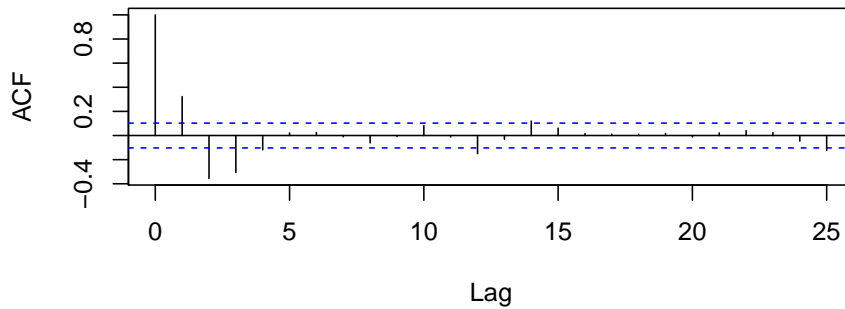
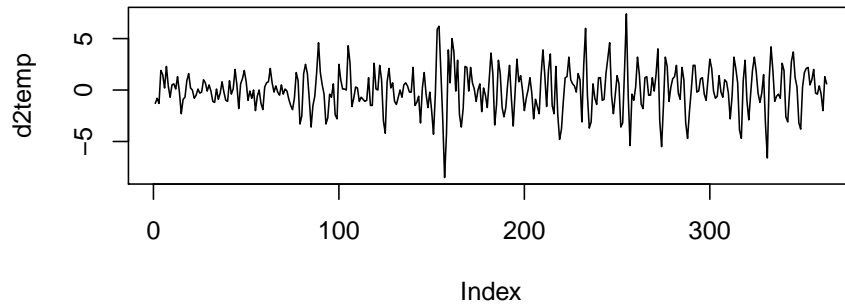


Pelo gráfico vemos que a série não é estacionária.

```
(b) > dtemp <- diff(temperatura,1)
> par(mfrow=c(2,1))
> plot(dtemp,type="l")
> acf(dtemp,main="")
```



```
> d2temp <- diff(temperatura,2)
> par(mfrow=c(2,1))
> plot(d2temp,type="l")
> acf(d2temp,main="")
```

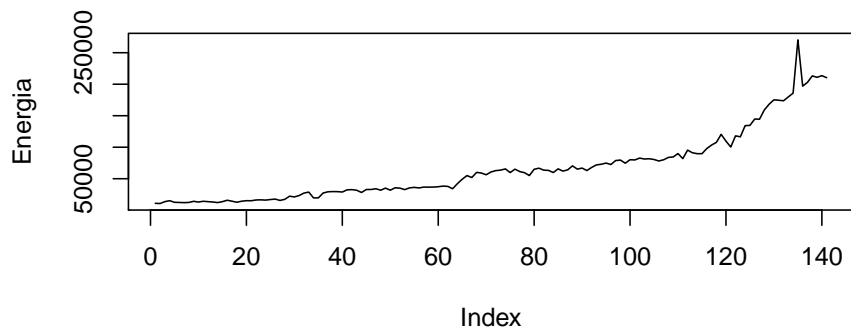


Pelos gráficos acima vemos que ambas as séries são estacionárias.

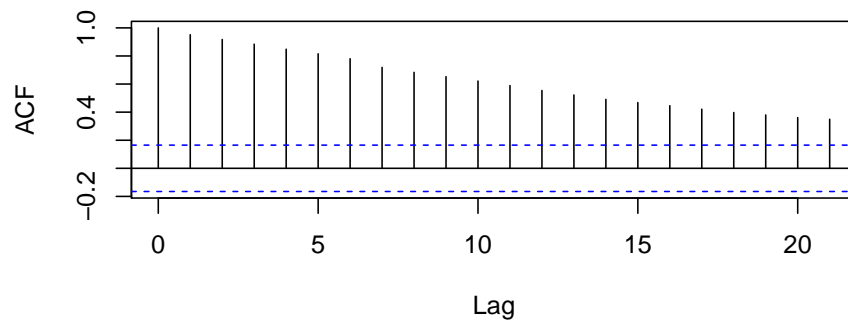
4.

(a) Podemos fazer o gráfico no R, usando os comandos:

```
> ENERGIA <- read.csv("~/Documents/Insper/ENERGIA.csv", sep=";")
> attach(ENERGIA)
> par(mfrow=c(2,1))
> plot(Energia,type="l")
> acf(Energia)
```



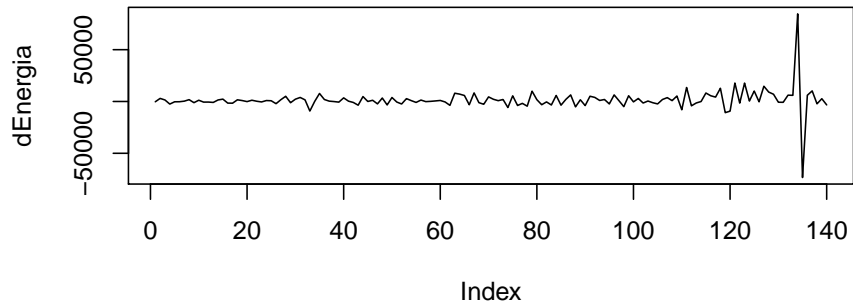
Series Energia



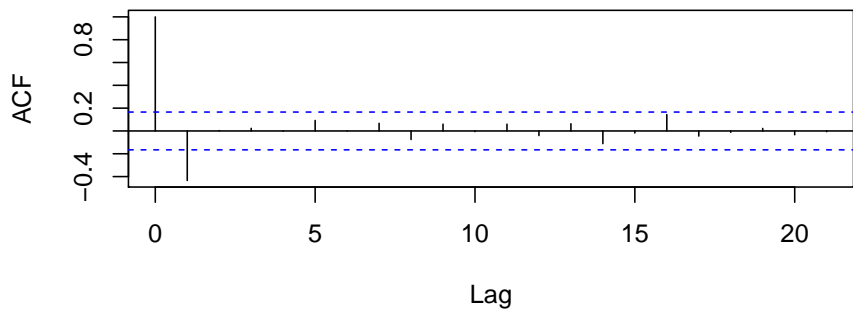
Pelo gráfico, vemos que a série tem tendência, sendo portanto não estacionária.

(b) Podemos fazer o gráfico da primeira diferença no R, usando os comandos:

```
> dEnergia <- diff(Energia,1)
> par(mfrow=c(2,1))
> plot(dEnergia,type="l")
> acf(dEnergia)
```

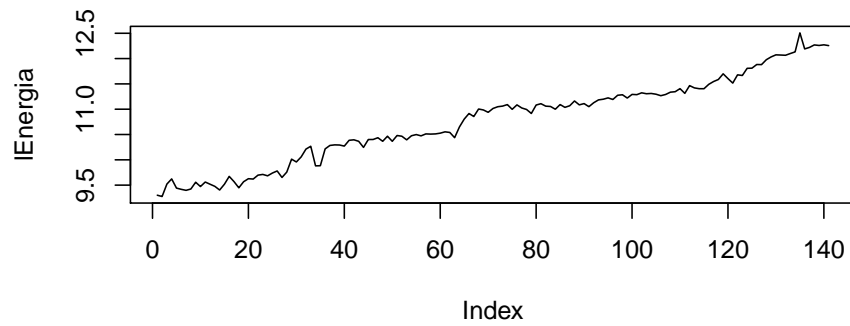



Series dEnergia

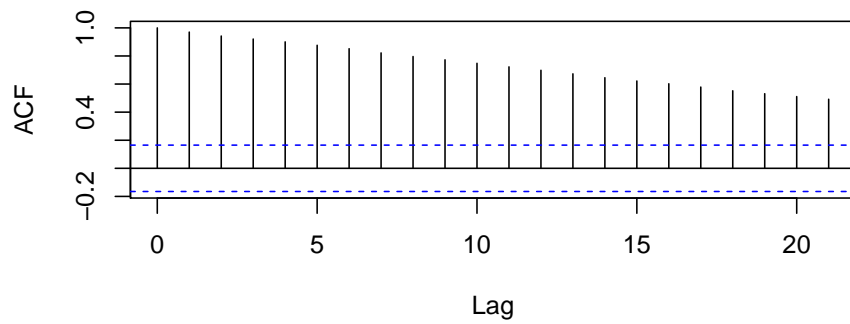


Pelo gráfico, vemos que a série é estacionária.

```
(c) > lEnergia <- log(Energia)
> par(mfrow=c(2,1))
> plot(lEnergia,type="l")
> acf(lEnergia)
```

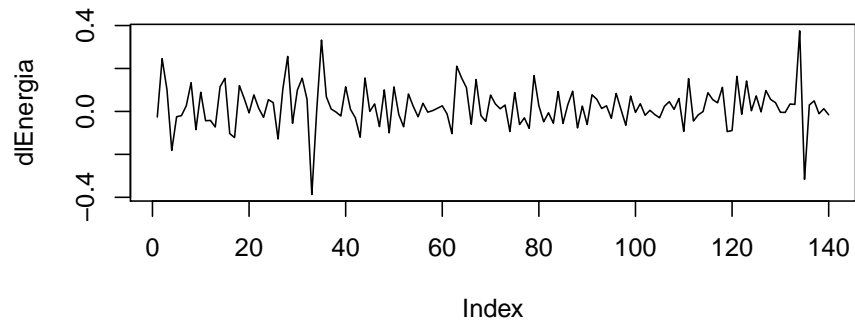


Series IEnergia

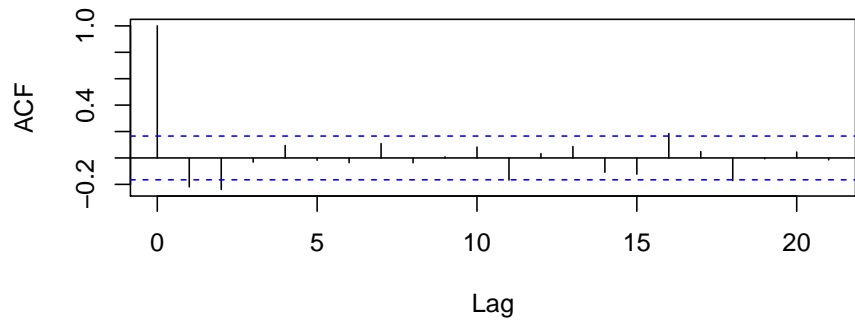


Pelo gráfico, vemos que a série apresenta leve tendência de alta, sendo não estacionária.

```
(d) > dlEnergia <- diff(lEnergia,1)
> par(mfrow=c(2,1))
> plot(dlEnergia,type="l")
> acf(dlEnergia)
```



Series dEnergia



Pelo gráfico, vemos que a série é estacionária.

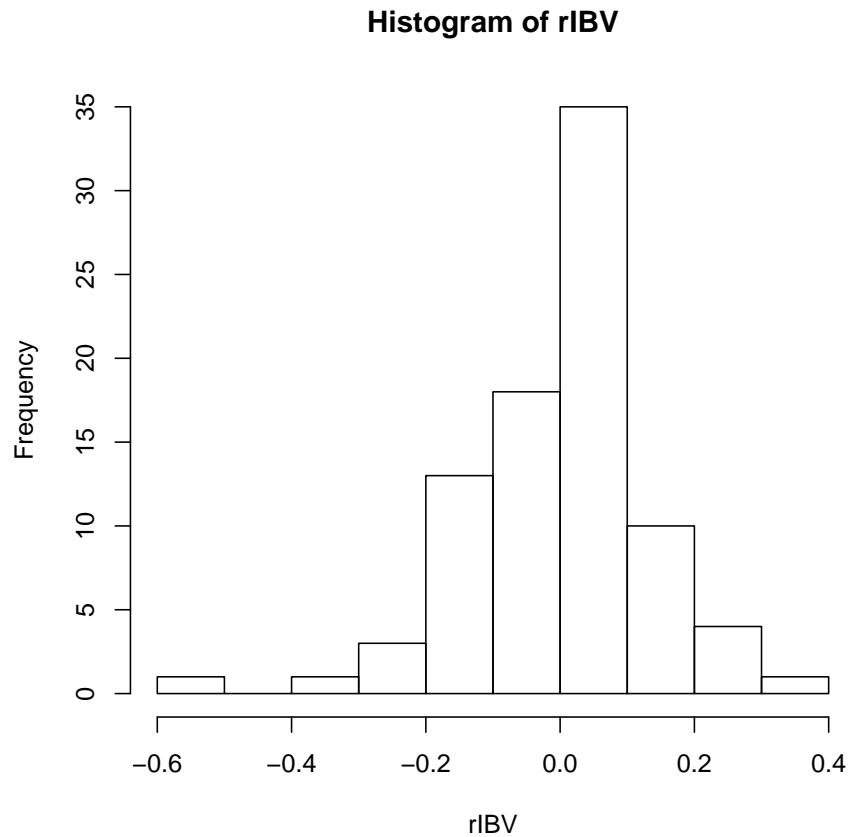
Capítulo 2

19.

- (a) Para calcular as estatísticas usamos o pacote "moments", que deve ser previamente instalado.

```
> library(moments)
> IBV <- read.csv("~/Documents/Insper/IBV.csv", sep=";", dec=",")
> attach(IBV)
> rIBV=diff(log(IBOV),1)
> mean(rIBV)
```

```
[1] 0.003872091
> var(rIBV)
[1] 0.01888636
> skewness(rIBV) #assimetria
[1] -0.5906121
> kurtosis(rIBV)-3 #excesso de curtose
[1] 1.798813
> max(rIBV)
[1] 0.3522736
> min(rIBV)
[1] -0.5149553
> hist(rIBV)
```



(b) `> acf(rIBV,plot=FALSE)`

Autocorrelations of series 'rIBV', by lag

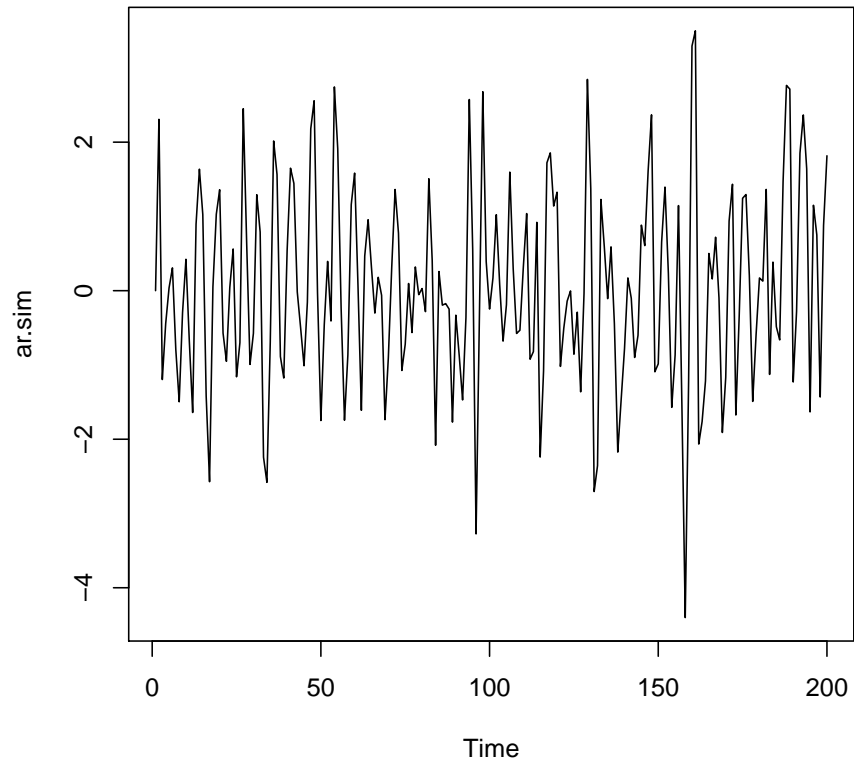
0	1	2	3	4	5	6	7	8	9	10
1.000	0.106	-0.196	-0.100	0.092	0.021	-0.132	-0.042	0.075	0.090	-0.023
11	12	13	14	15	16	17	18	19		
-0.110	0.130	0.000	-0.036	-0.042	-0.059	-0.052	-0.132	-0.198		

Capítulo 5

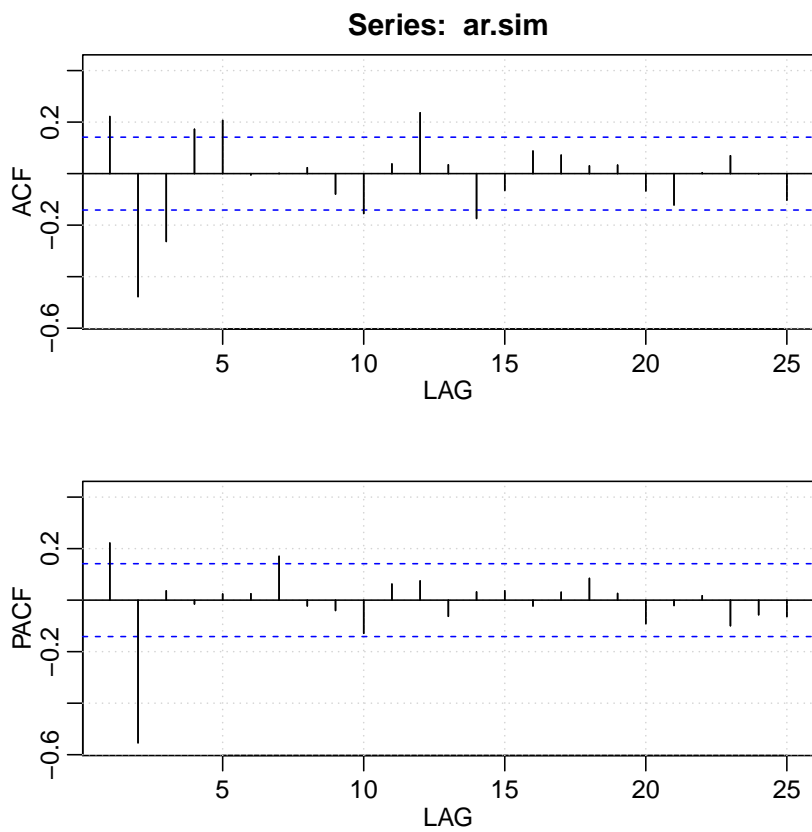
15.

Vamos simular o processo da letra (c) do Ex.1, Cap. 5:

```
> ar.sim<-arima.sim(model=list(ar=c(.3,-.6)),n=200,rand.gen=rnorm)
> plot(ar.sim)
```

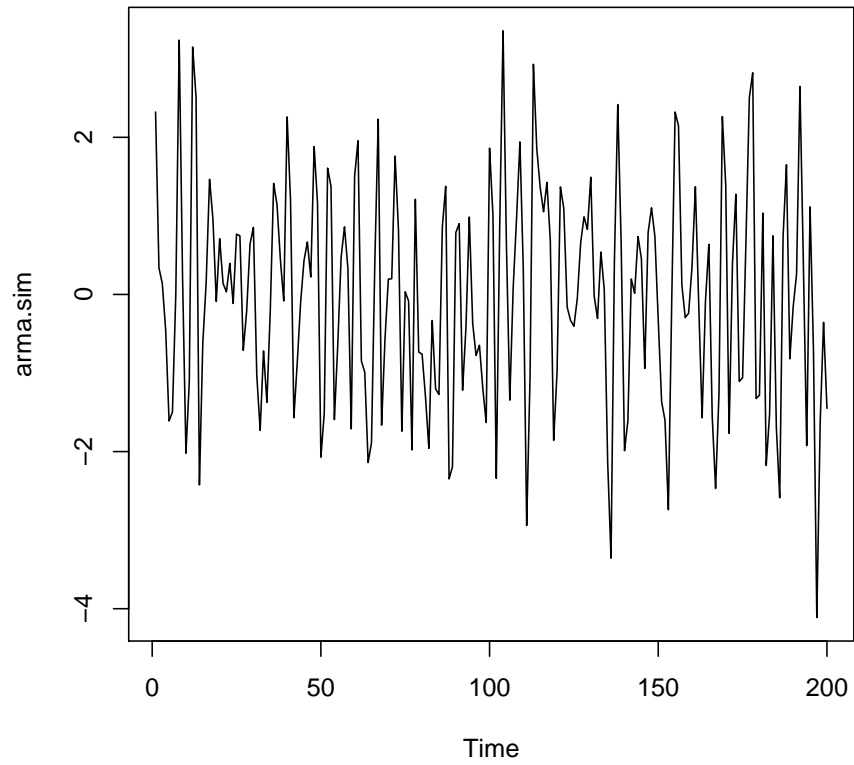


```
> library(asts) #para usar comando acf2  
> acf2(ar.sim)
```

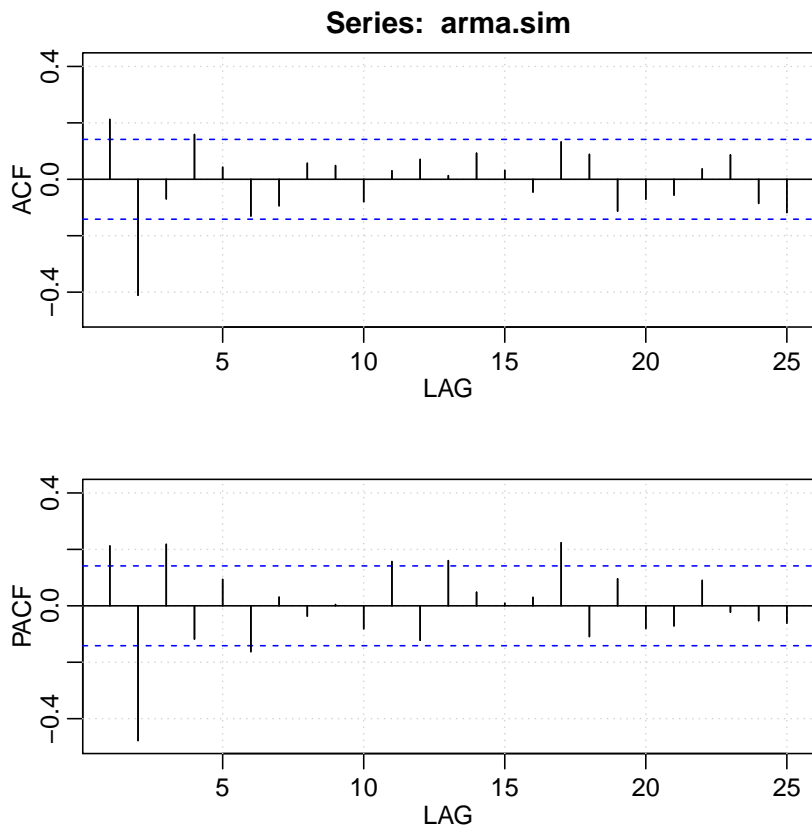


Vamos simular o processo da letra (d) do Ex.1, Cap. 5:

```
> arma.sim<-arima.sim(model=list(ar=.4,ma=c(.3,-.8)),n=200,rand.gen=rnorm)
> plot(arma.sim)
```

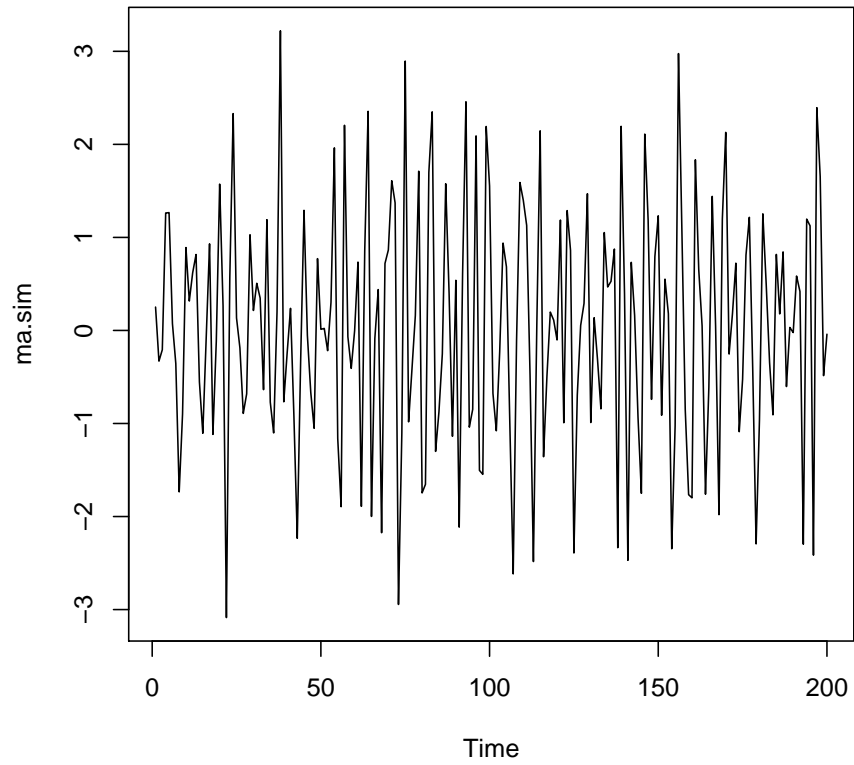


```
> library(astsa) #para usar comando acf2  
> acf2(arma.sim)
```

Vamos simular o processo da letra (d) do Ex.1, Cap. 5:

```
> ma.sim<-arima.sim(model=list(ma=c(-.3,-.6)),n=200,rand.gen=rnorm)
> plot(ma.sim)
```



```
> library(astsa) #para usar comando acf2  
> acf2(ma.sim)
```

Series: ma.sim

