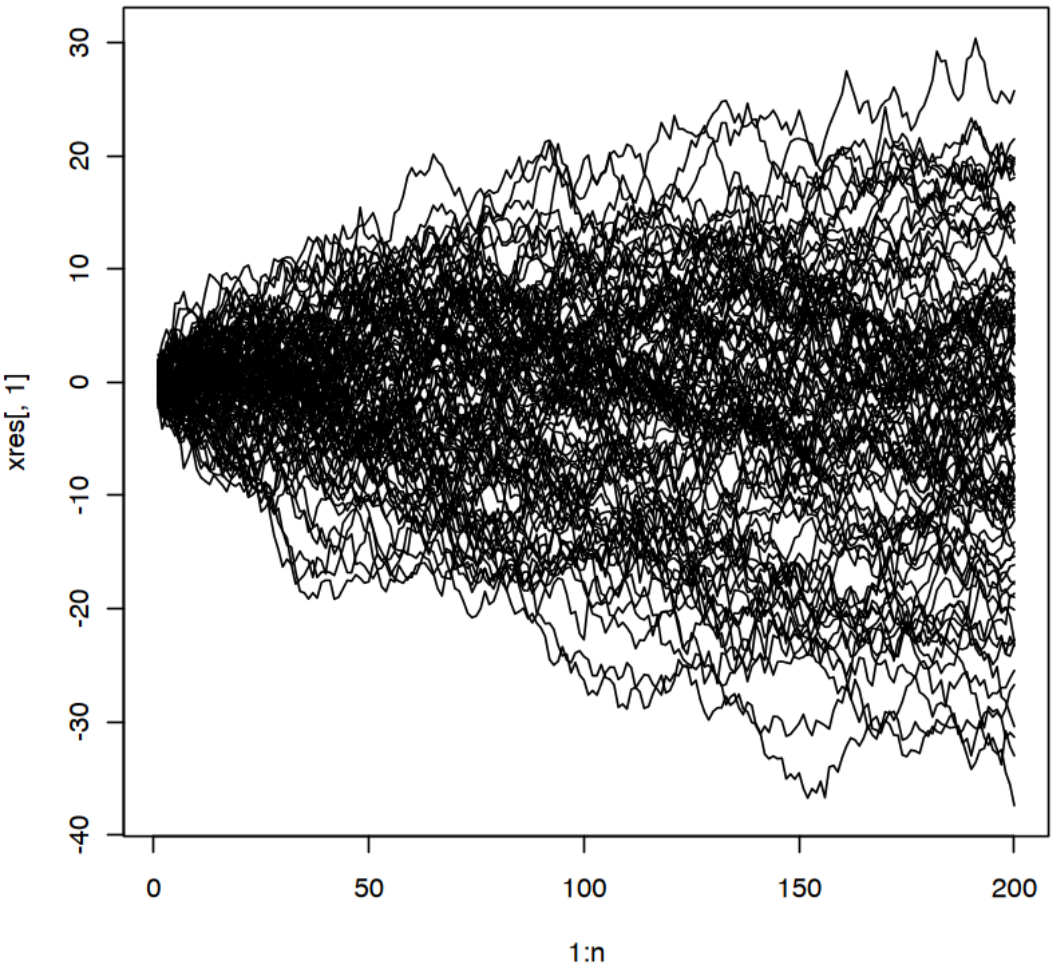
24-11-12

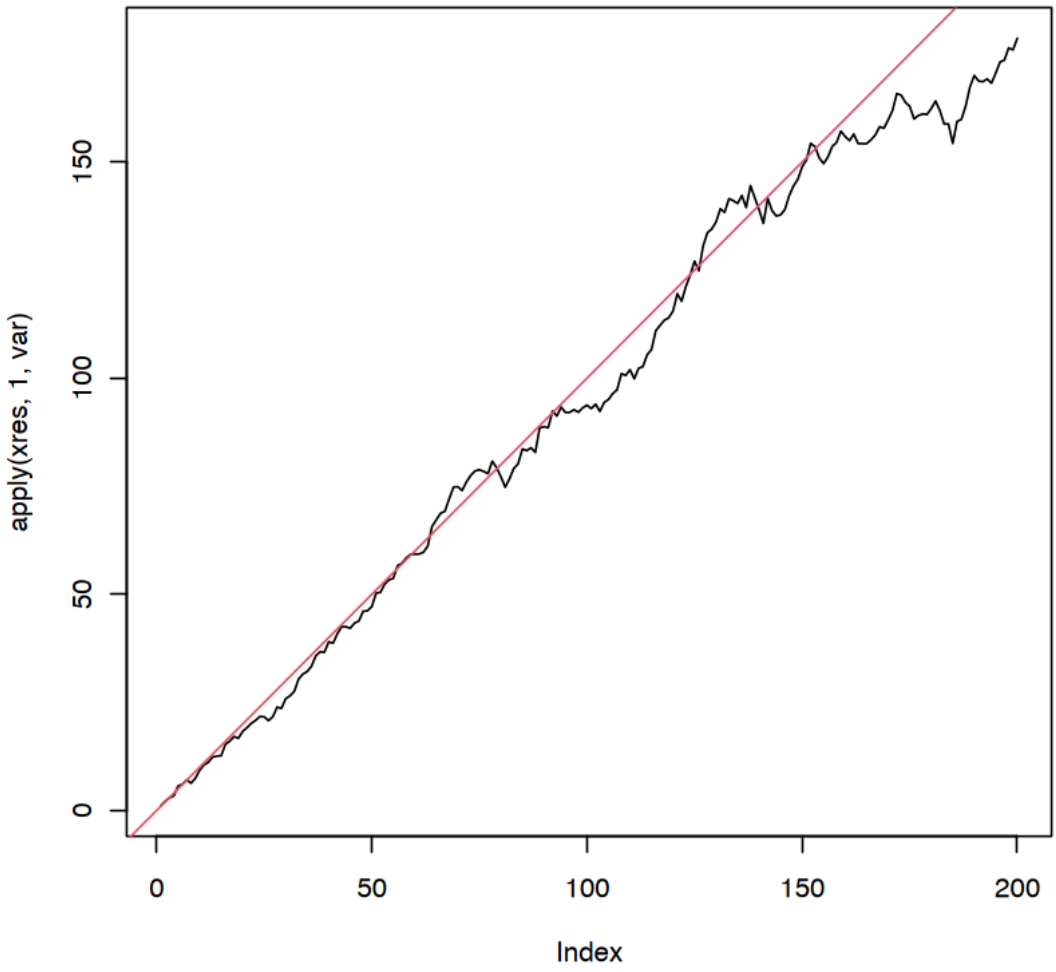
November 12, 2024

[ ]:
```
nsim = 100
n = 200
xres = matrix(NA, nrow=n, ncol= nsim)
sigma2 = 1
for(isim in 1:nsim)
{
  w = rnorm(n, 0, sigma2^0.5)
  xres[1,isim] = w[1]
  for(i in 2:n)
  {
    xres[i, isim] = xres[i-1, isim] +w[i]
  }
}
```

[17]:
```
plot(1:n, xres[, 1], type = "l", ylim = range(c(xres)))
for(isim in 2:nsim)
{
  lines(1:n, xres[, isim])
}
```



[21]:
```
plot(apply(xres, 1, var), type="l")
abline(a=0, b = 1, col=2)
```



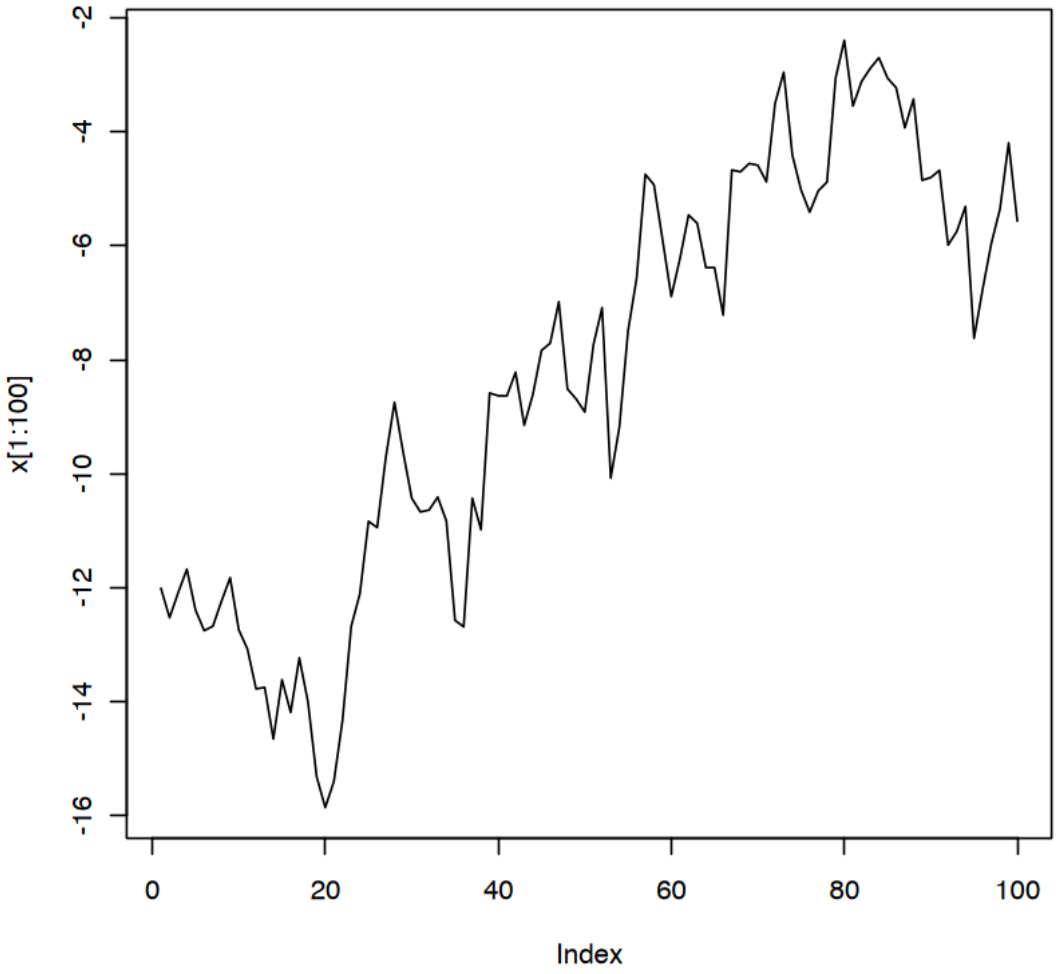
[27]:
```
nsim <- 100
n <- 200
mu = 10
xres_2 <- matrix(NA, nrow = n, ncol = nsim)
sigma2 = 1
for (isim in 1:nsim)
{
  w <- rnorm(n, 0, sigma2^0.5)
  xres_2[1, isim] <- w[1] + mu
  for (i in 2:n)
  {
    xres_2[i, isim] <- xres[i - 1, isim] + w[i] + mu
  }
```

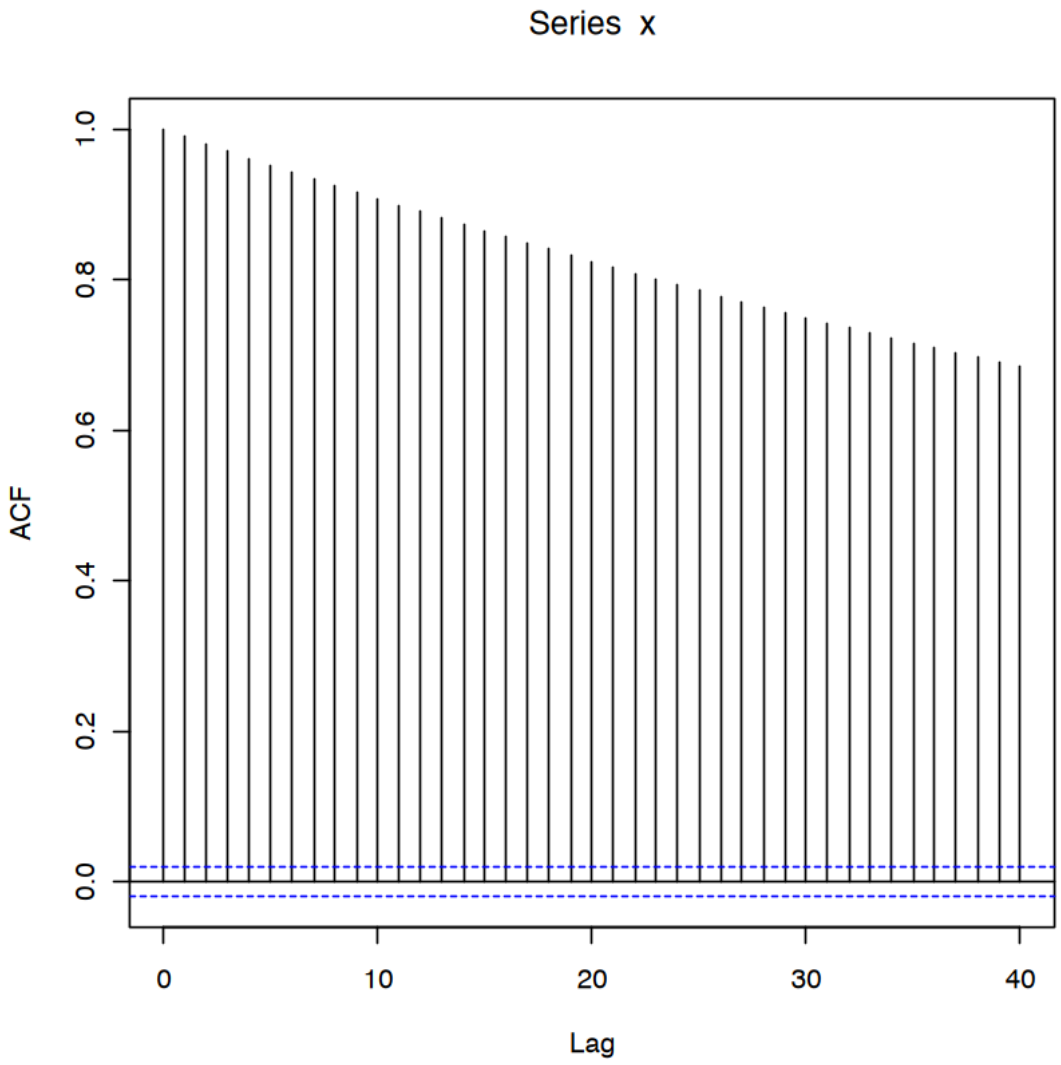
```
}
```

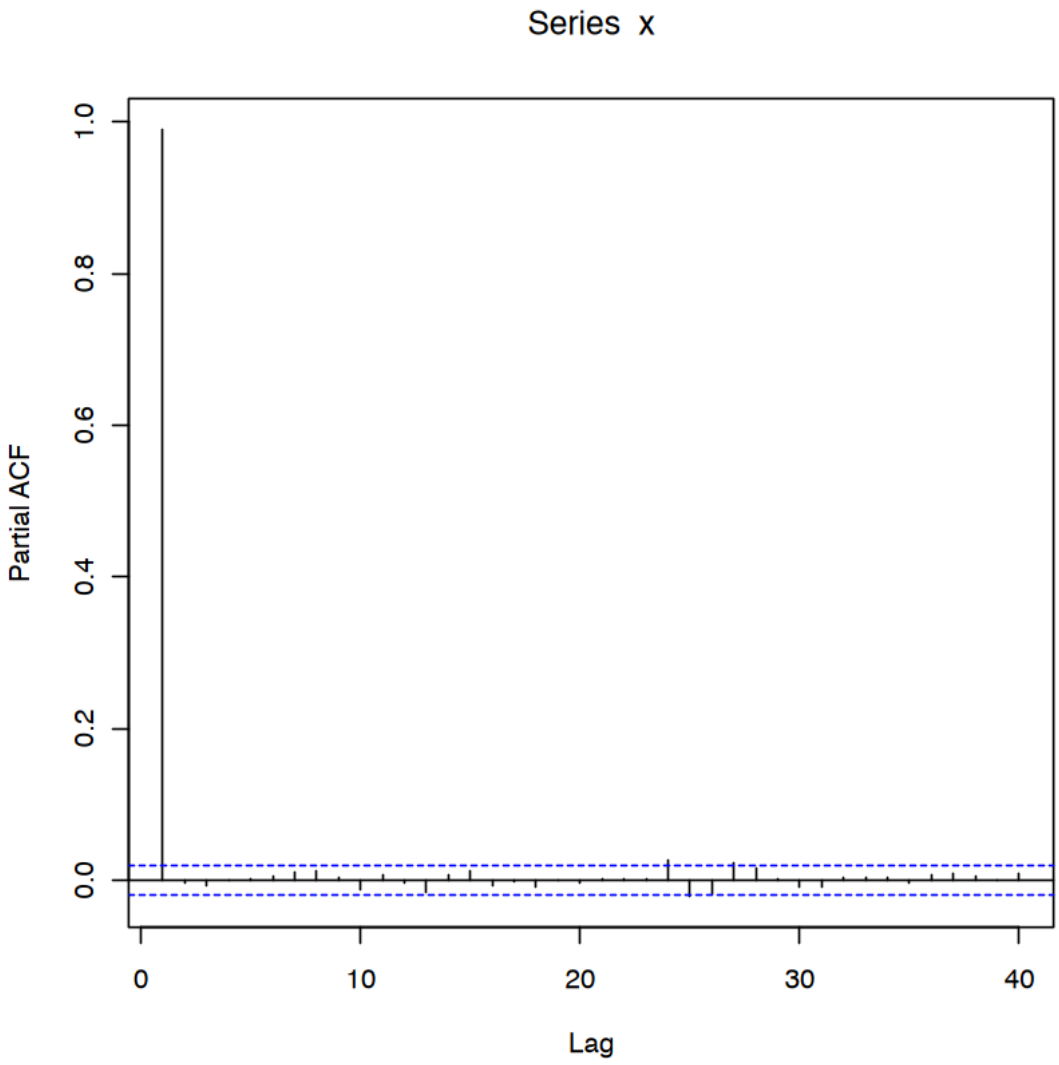
[58]:
```
alpha = 0.99
n = 10000
sigma2 = 1
x = rep(NA, n)
## Metodo 1
#x[1] = rnorm(1, 0, (sigma2 / (1 - alpha^2))^0.5)
#for(i in 2:n)
#{
#  x[i] = rnorm(1, alpha*x[i-1], sigma2^0.5)
#}

## Metodo 2
x[1] <- rnorm(1, 0, (sigma2 / (1 - alpha^2))^0.5)
w = rnorm(n, 0, sigma2^0.5)
#x[2:n] = alpha * x[1:(n-1)] + w[2:n]
for(i in 2:n)
{
  x[i] = alpha * x[i - 1] +  w[i]
}
```

[60]:
```
plot(x[1:100], type="l")
acf(x)
pacf(x)
```


x[1:100]
-2
-4
-6
-8
-10
-12
-14
-16
0
20
40
60
80
100
Index


Series x
ACF
1.0
0.8
0.6
0.4
0.2
0.0
0
10
20
30
40
Lag


Series x
Partial ACF
1.0
0.8
0.6
0.4
0.2
0.0
0
10
20
30
40
Lag