lezione 24-10-15

October 15, 2024

0.1

$$y_t|w_t \sim N(\beta_0 + \beta_1 t + w_t, \sigma^2)$$
$$w_t|w_{t-1} \sim N(\alpha w_{t-1}, \tau^2)$$

Il modello sopra è uguale a

$$y_t|w_t \sim N(w_t, \sigma^2)$$

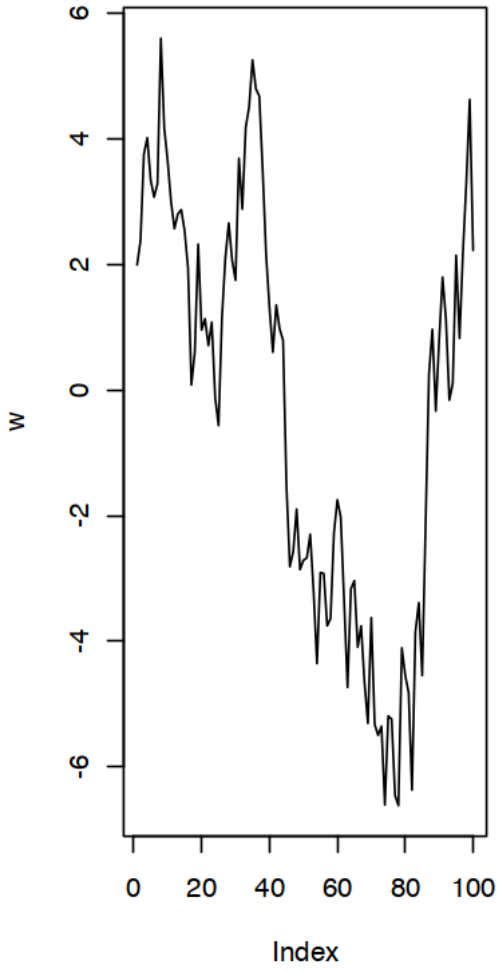
e

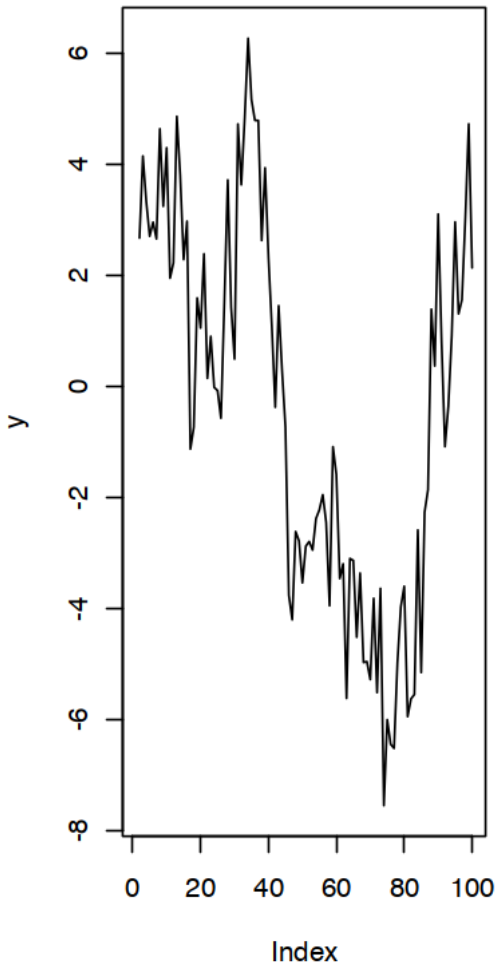
$$w_t|w_{t-1} \sim N(\beta_0 + \beta_1 t + \alpha(w_{t-1} - \beta_0 - \beta_1(t-1)), \tau^2)$$

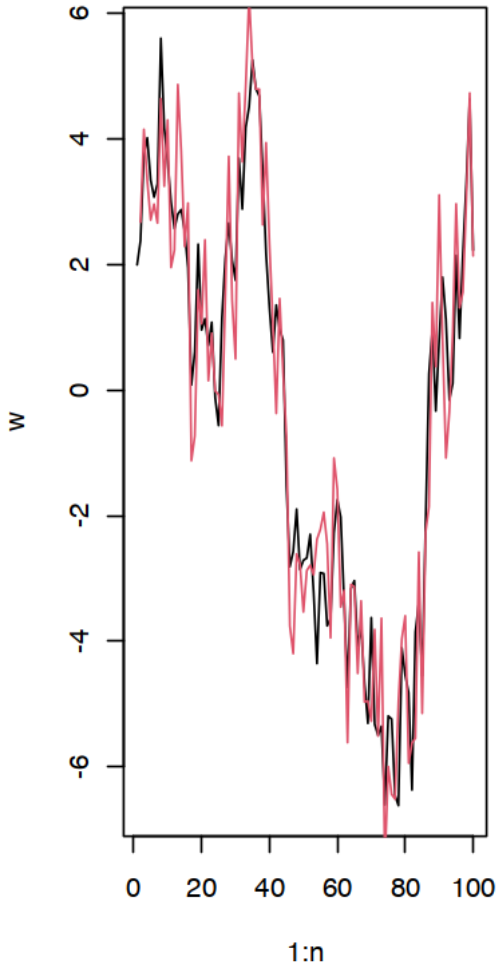
[2]:
```
n = 100
beta0 = 0
beta1 = 0
sigma2 = 1
tau2 = 1
alpha = 0.9

w = matrix(NA, ncol=1, nrow=n)
w[1] = 2
```

[3]:
```
y = matrix(NA, ncol=1, nrow=n)
for(i in 2:n)
{
    w[i] = rnorm(1, alpha*w[i-1], tau2^0.5)
    y[i] = rnorm(1, beta0+beta1*i +w[i], sigma2^0.5)
}
```

[5]:
```
par(mfrow=c(1,2))
plot(w, type="l")
plot(y, type="l")

plot(1:n,w, type="l")
lines(1:n,y, col=2)
```


w
6
4
2
0
-2
-4
-6
0
20
40
60
80
100
Index


y
6
4
2
0
-2
-4
-6
-8
0
20
40
60
80
100
Index


w
6
4
2
0
-2
-4
-6
0
20
40
60
80
100
1:n