Trabalho 4

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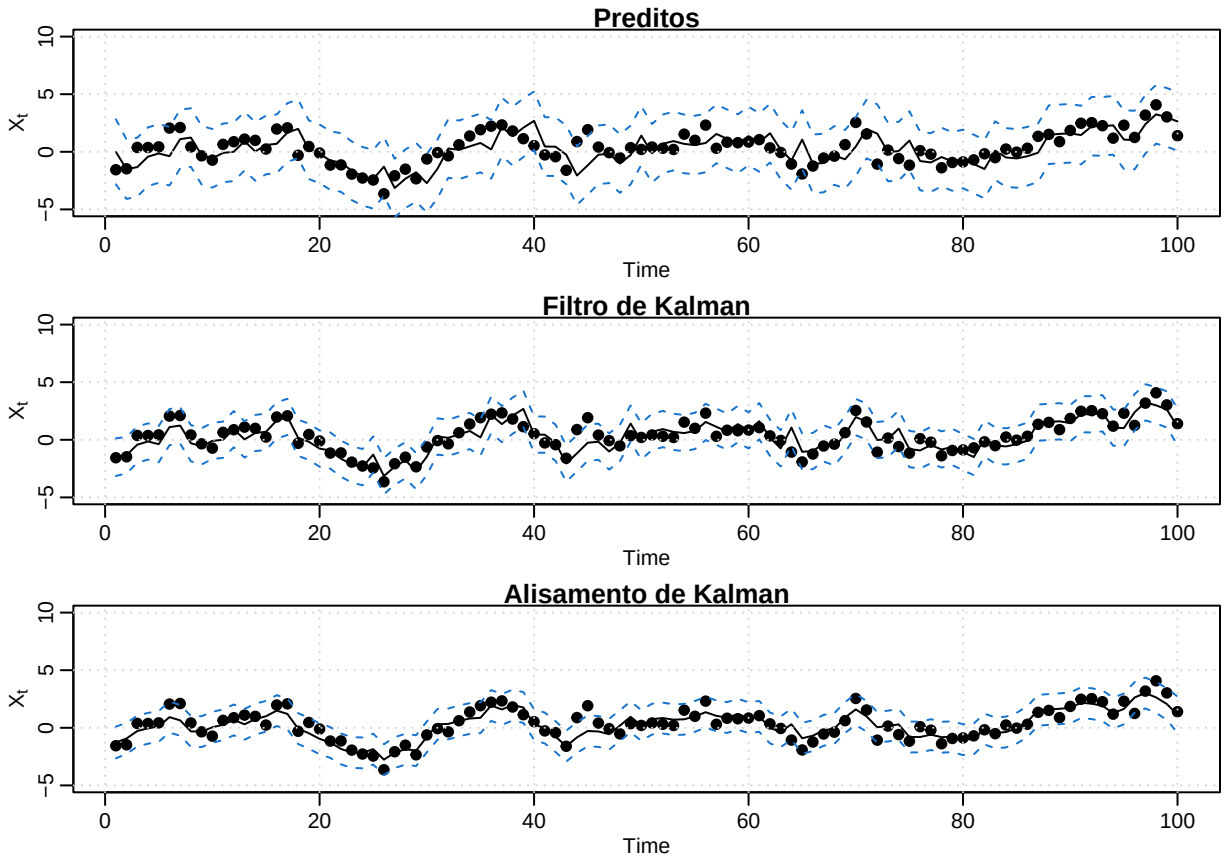
Questão 3

Gerando série de dados:

```
set.seed(123);
x <- numeric(100)
x[1] <- rnorm(1,0,2.78)

for(i in 2:100){
  x[i] <- x[i-1]*0.8 + rnorm(1)
}

v <- rnorm(100,0,1)
y <- x + v

num = 100
```

Filtro e alisamento:

```
ks = Ksmooth(y, A=1, mu0=0, Sigma0=1, Phi=1, sQ=1, sR=1)
```



Valores iniciais:

x1	X0n	P0n
-1.558122	-0.6389023	0.618034

Tabela com as 10 primeiras observações:

Y	Xp	Xf	Xs	Pp	Pf	Ps
-2.2685289	0.0000000	-1.5123526	-1.2778046	2.000000	0.6666667	0.4721360
-1.2197916	-1.5123526	-1.3295020	-0.9259827	1.666667	0.6250000	0.4508497
0.1306762	-1.3295020	-0.4255822	-0.2803520	1.625000	0.6190476	0.4477441
0.0248602	-0.4255822	-0.1471269	-0.0457493	1.619048	0.6181818	0.4472910
-0.5244086	-0.1471269	-0.3803079	0.1182437	1.618182	0.6180556	0.4472249
2.0118053	-0.3803079	1.0981069	0.9248891	1.618056	0.6180371	0.4472152
1.3214781	1.0981069	1.2361580	0.6446182	1.618037	0.6180344	0.4472138
-1.2478971	1.2361580	-0.2990726	-0.3125125	1.618034	0.6180341	0.4472136
-0.7310435	-0.2990726	-0.5660453	-0.3342586	1.618034	0.6180340	0.4472136
0.1926811	-0.5660453	-0.0971266	0.0407803	1.618034	0.6180340	0.4472136

Questão 23

```r
set.seed(1) # Mudando a seed pois a seed 123 não achou convergencia no modelo

data <- polio

model <- depmix(data ~ 1, nstates = max(data), data= data.frame(polio), family=poisson())
```

```r
fit01 <- fit(model)
```

```
## converged at iteration 340 with logLik: -224.6812
```

Como a função não salvou a matriz de transição nem os parâmetros, irei soltar a summary() inteira no próximo chunk

```
summary(fit01)
```

```
## Initial state probabilities model
##  pr1  pr2  pr3  pr4  pr5  pr6  pr7  pr8  pr9 pr10 pr11 pr12 pr13 pr14
##    0    0    0    0    0    0    0    0    0    0    0    1    0    0
##
## Transition matrix
##         toS1 toS2 toS3 toS4  toS5  toS6  toS7  toS8  toS9 toS10 toS11 toS12
## fromS1     0    0    0    0 0.000 0.207 0.000 0.000 0.000 0.000     0 0.000
## fromS2     0    0    1    0 0.000 0.000 0.000 0.000 0.000 0.000     0 0.000
## fromS3     0    0    0    1 0.000 0.000 0.000 0.000 0.000 0.000     0 0.000
## fromS4     0    0    0    0 0.000 0.000 0.686 0.314 0.000 0.000     0 0.000
## fromS5     0    0    0    0 0.000 0.000 0.487 0.000 0.000 0.000     0 0.513
## fromS6     0    0    0    0 0.000 0.000 0.000 0.000 0.000 0.000     0 0.000
## fromS7     0    0    0    0 0.708 0.000 0.292 0.000 0.000 0.000     0 0.000
## fromS8     0    0    0    0 0.000 0.000 0.000 0.000 0.000 0.000     1 0.000
## fromS9     0    1    0    0 0.000 0.000 0.000 0.000 0.000 0.000     0 0.000
## fromS10    0    0    0    0 0.000 0.000 0.000 0.636 0.000 0.000     0 0.364
## fromS11    0    0    0    0 0.000 0.203 0.395 0.402 0.000 0.000     0 0.000
## fromS12    0    0    0    0 0.000 0.000 0.000 0.000 0.309 0.691     0 0.000
## fromS13    0    0    0    0 0.000 0.924 0.000 0.076 0.000 0.000     0 0.000
## fromS14    1    0    0    0 0.000 0.000 0.000 0.000 0.000 0.000     0 0.000
##         toS13 toS14
## fromS1  0.000 0.793
## fromS2  0.000 0.000
## fromS3  0.000 0.000
## fromS4  0.000 0.000
## fromS5  0.000 0.000
## fromS6  0.971 0.029
## fromS7  0.000 0.000
## fromS8  0.000 0.000
## fromS9  0.000 0.000
## fromS10 0.000 0.000
## fromS11 0.000 0.000
## fromS12 0.000 0.000
## fromS13 0.000 0.000
## fromS14 0.000 0.000
##
## Response parameters
## Resp 1 : poisson
##      Re1.(Intercept)
## St1          -62.519
## St2            0.288
## St3            1.675
## St4            2.336
## St5            1.248
## St6           -1.298
## St7            0.768
## St8            0.024
## St9         -128.099
## St10           0.110
## St11          -0.084
## St12        -156.877
```

```
## St13           0.109
## St14           0.000
```