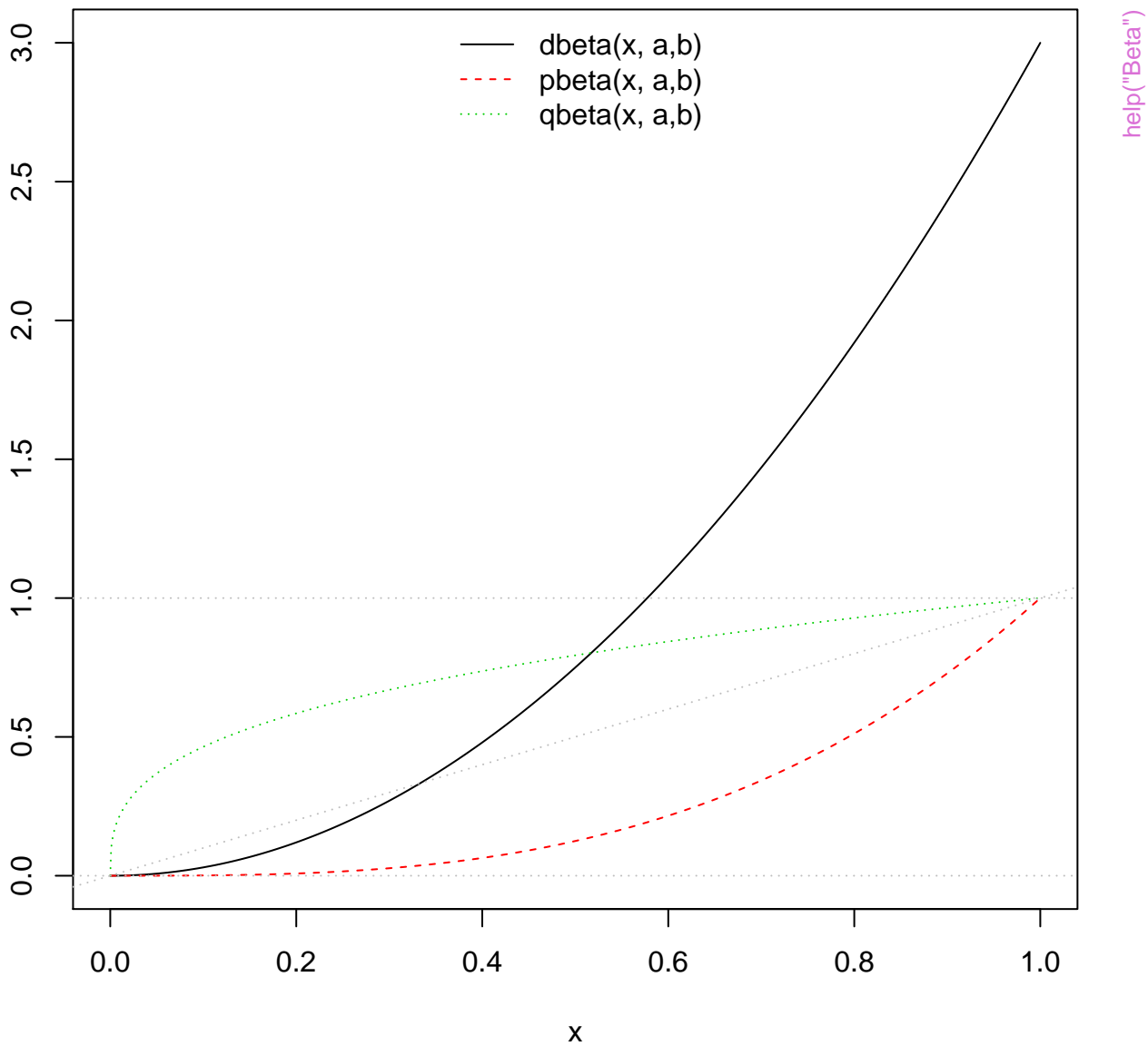
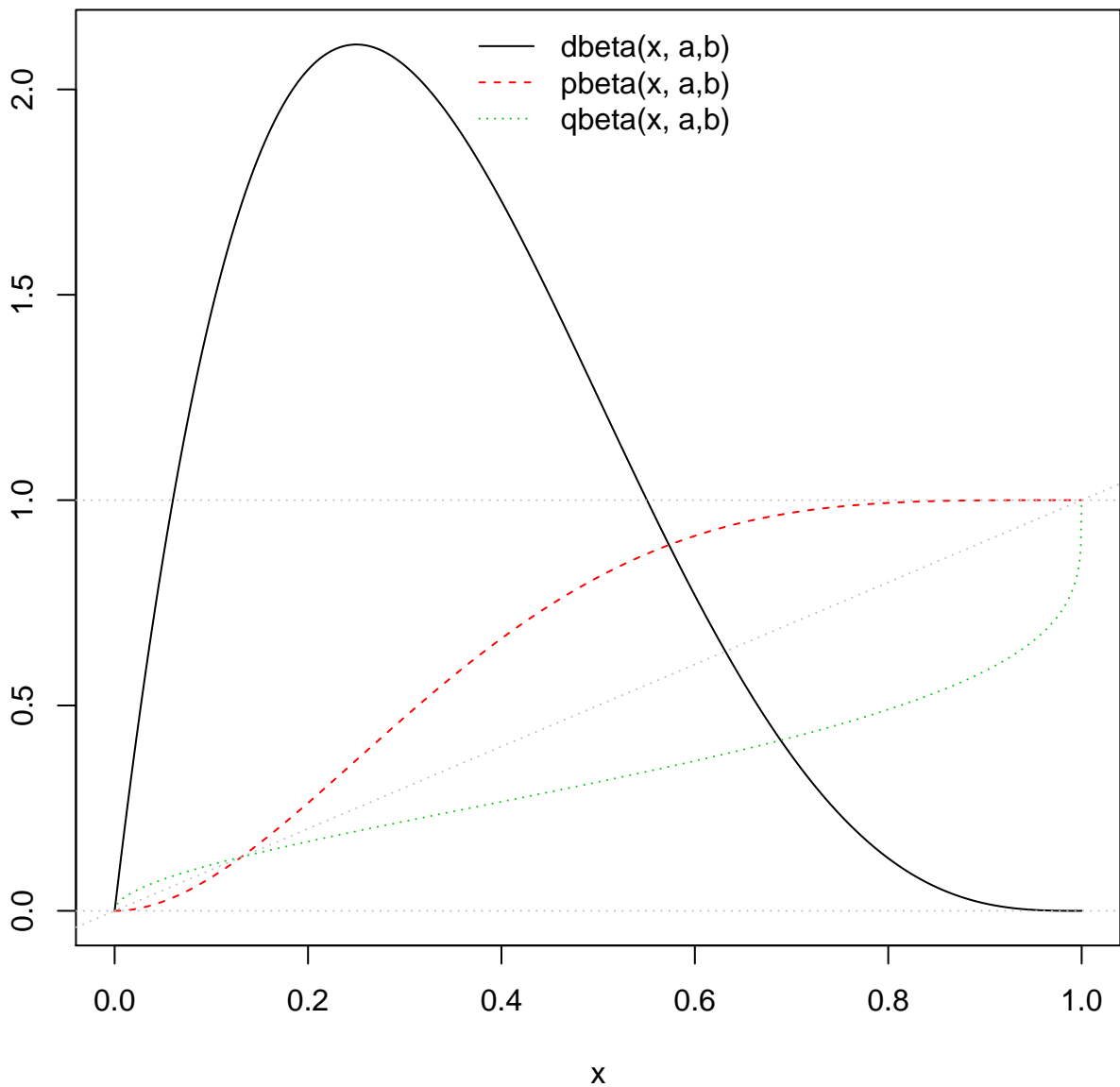


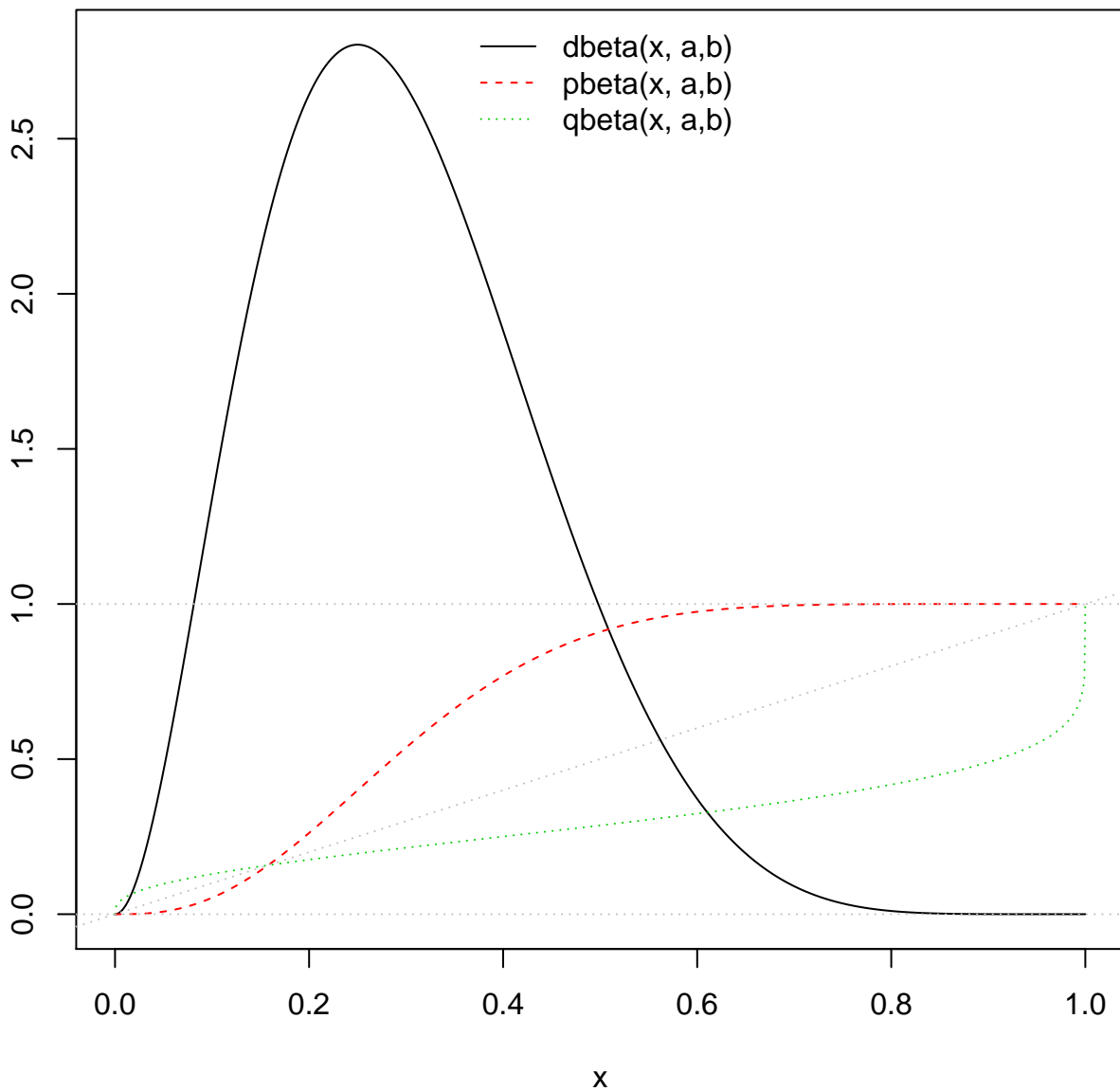
[dpq]beta(x, a=3, b=1)



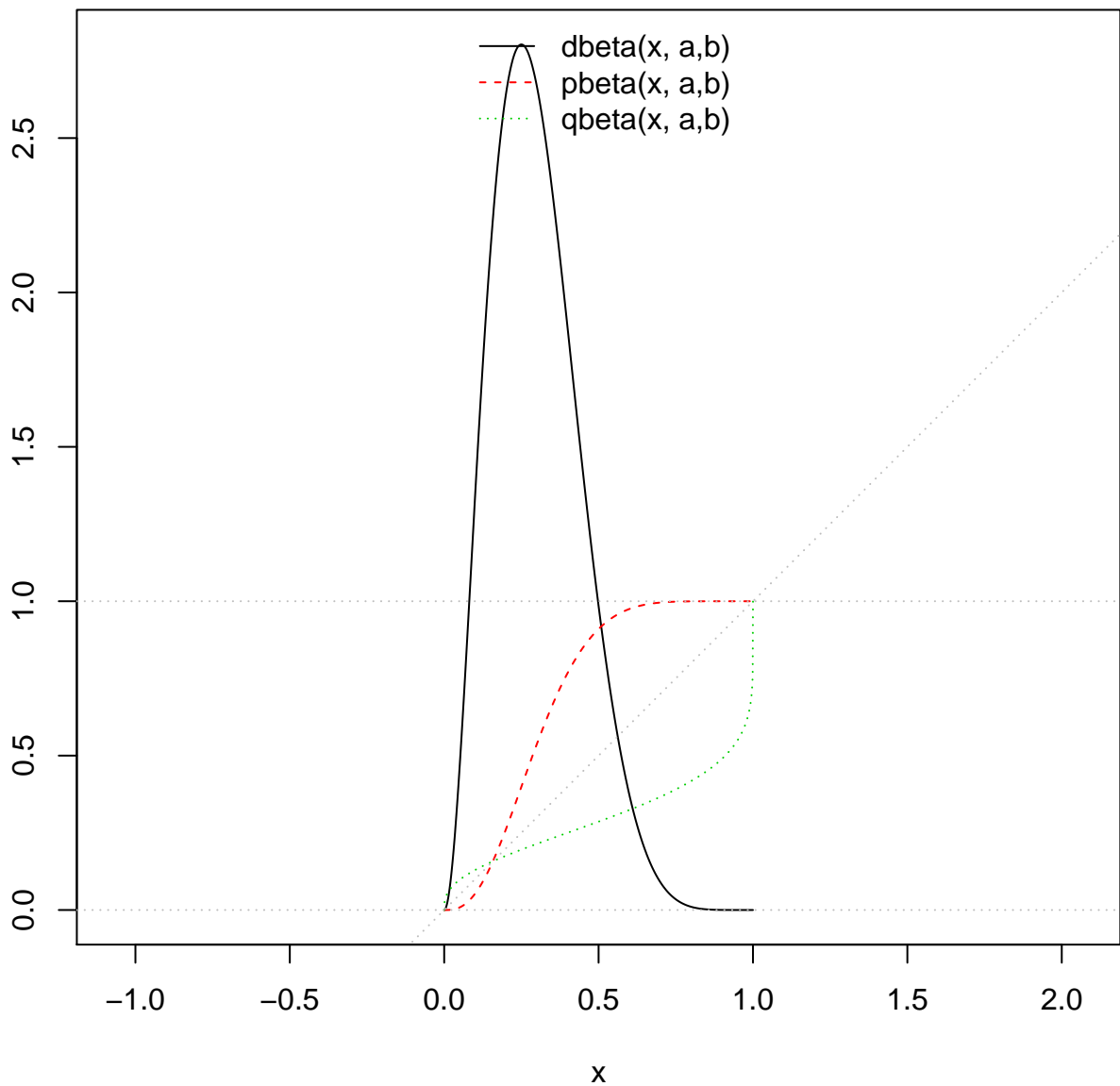
[dpq]beta(x, a=2, b=4)



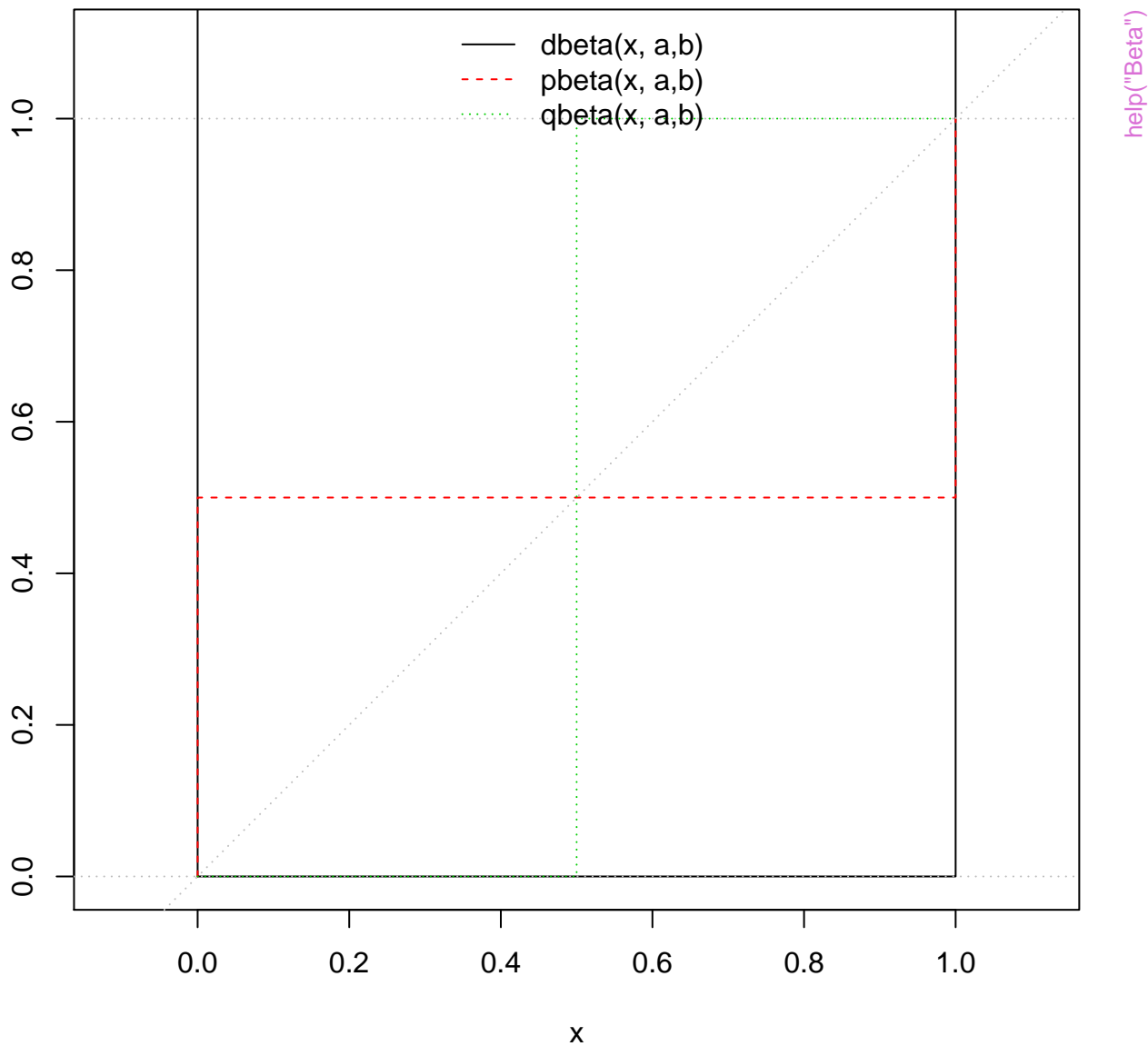
[dpq]beta(x, a=3, b=7)



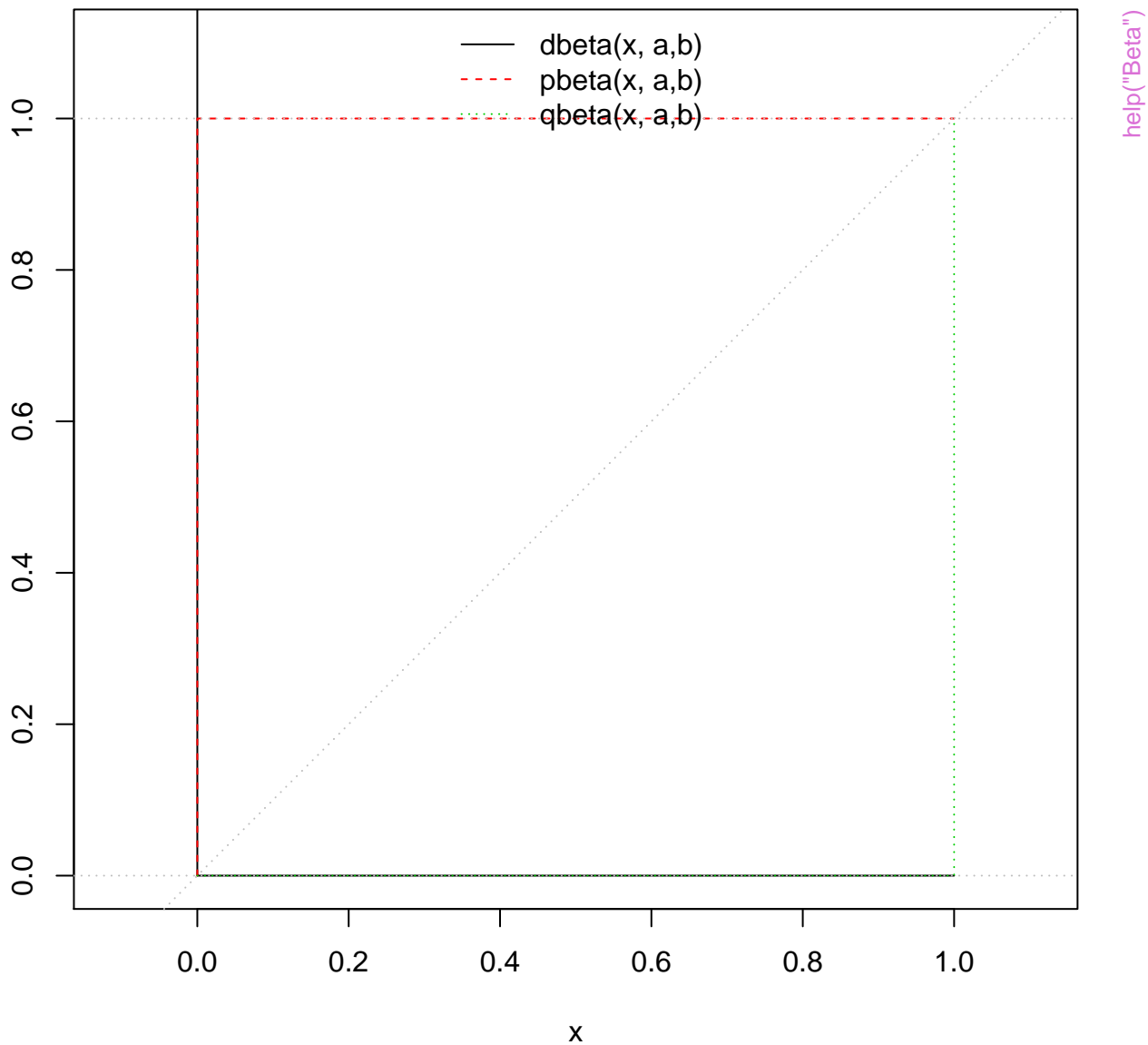
[dpq]beta(x, a=3, b=7)



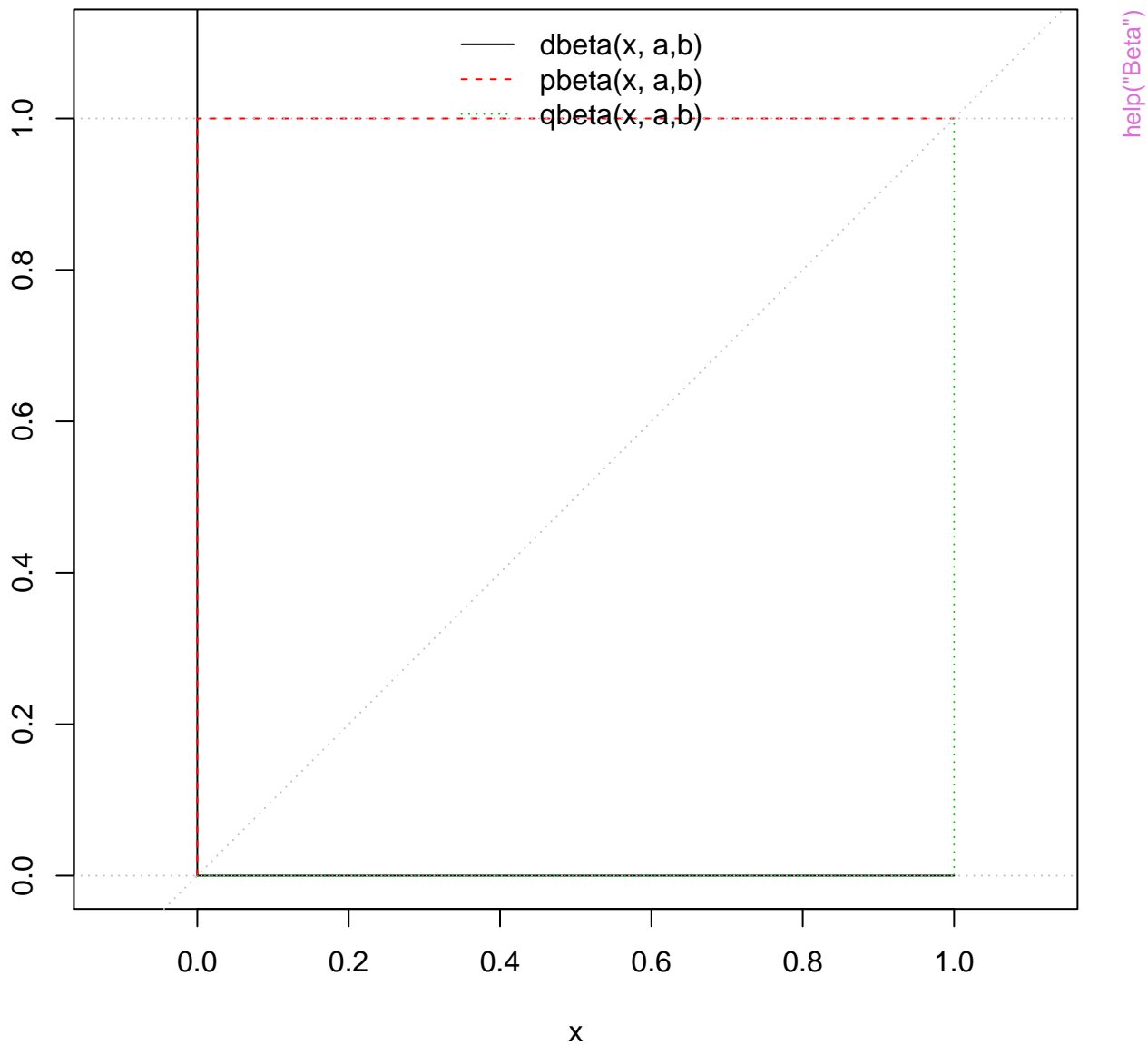
[dpq]beta(x, a=0, b=0)



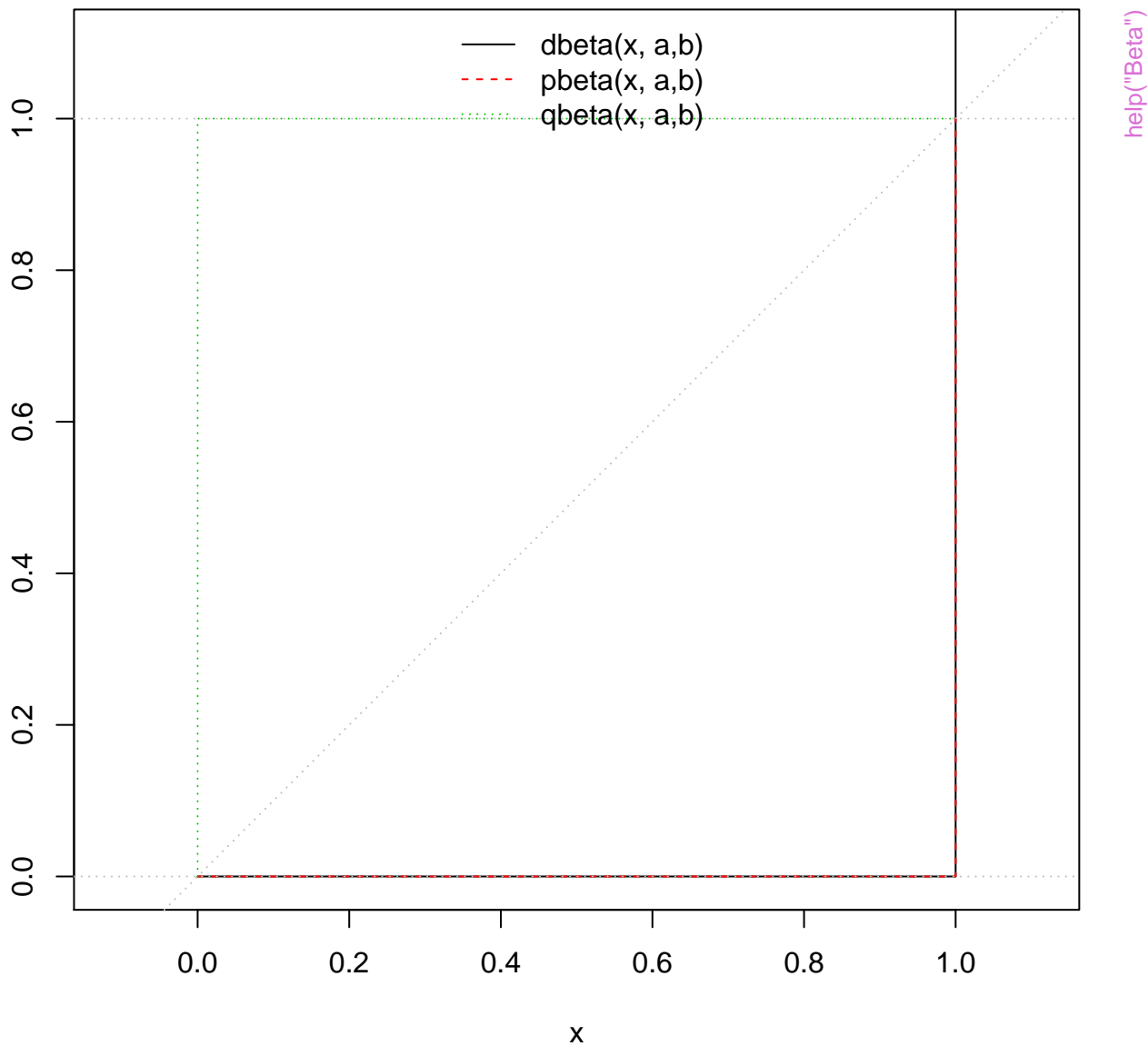
[dpq]beta(x, a=0, b=2)



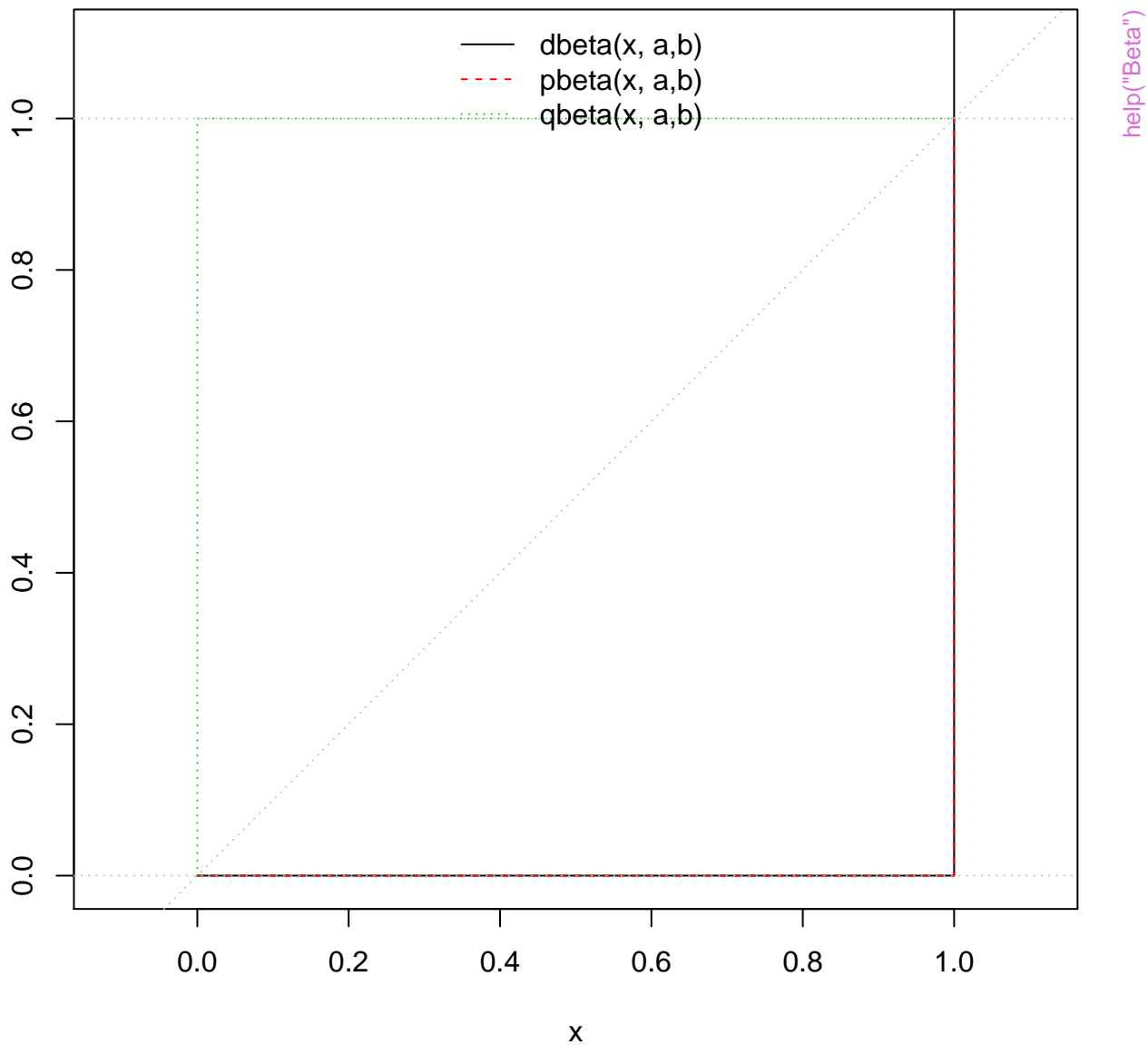
[dpq]beta(x, a=1, b=Inf)



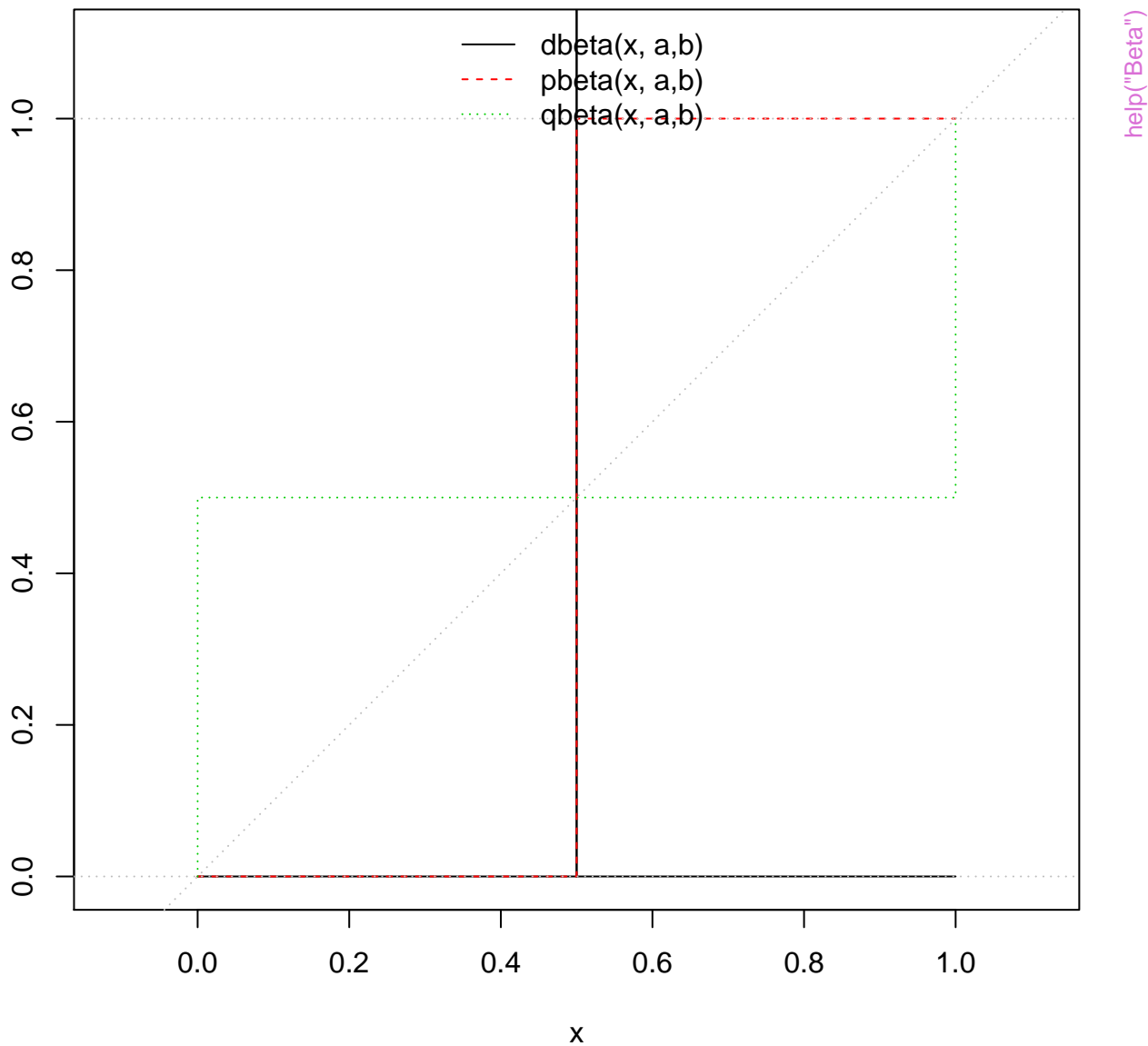
[dpq]beta(x, a=Inf, b=2)



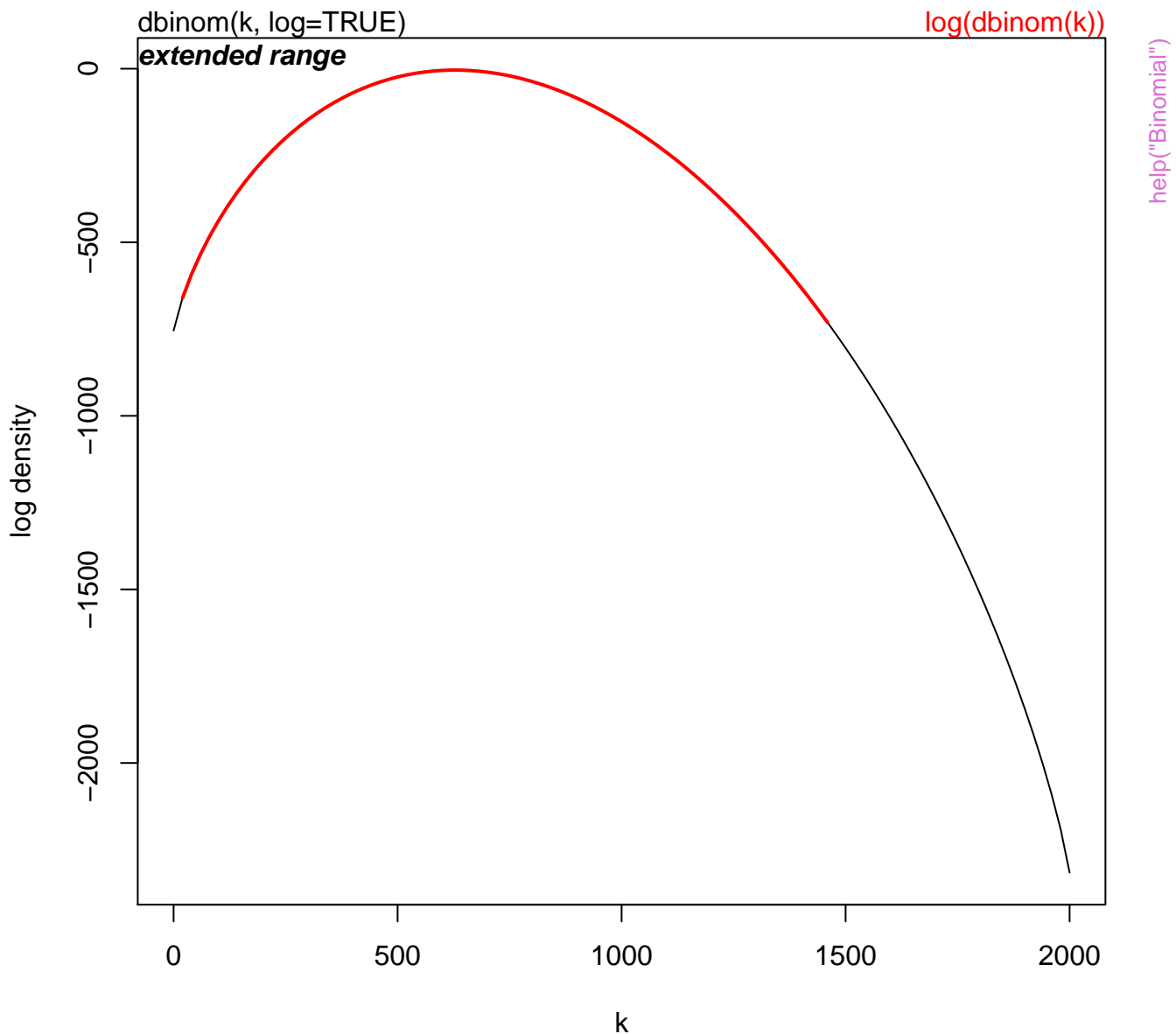
[dpq]beta(x, a=3, b=0)

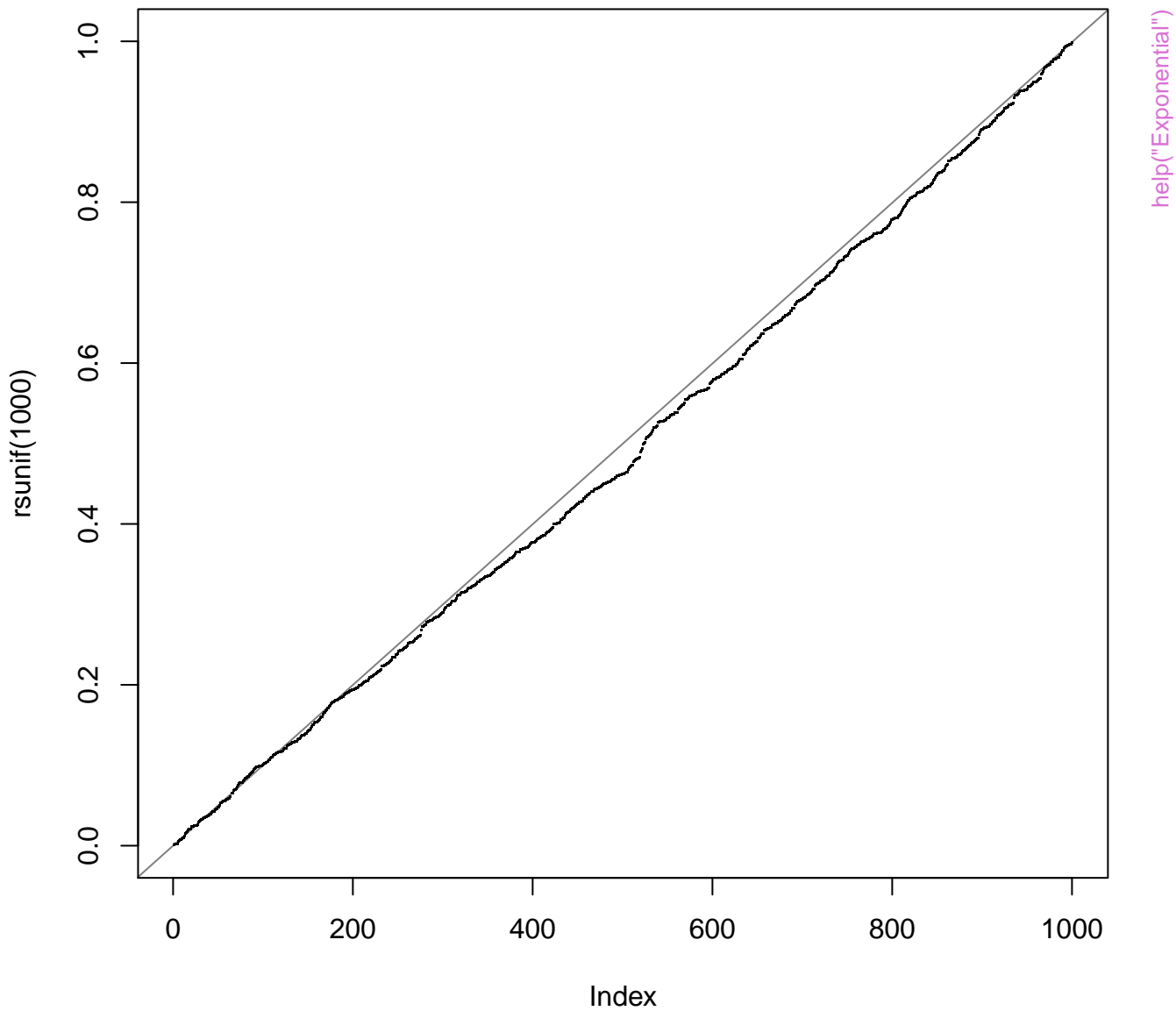


[dpq]beta(x, a=Inf, b=Inf)

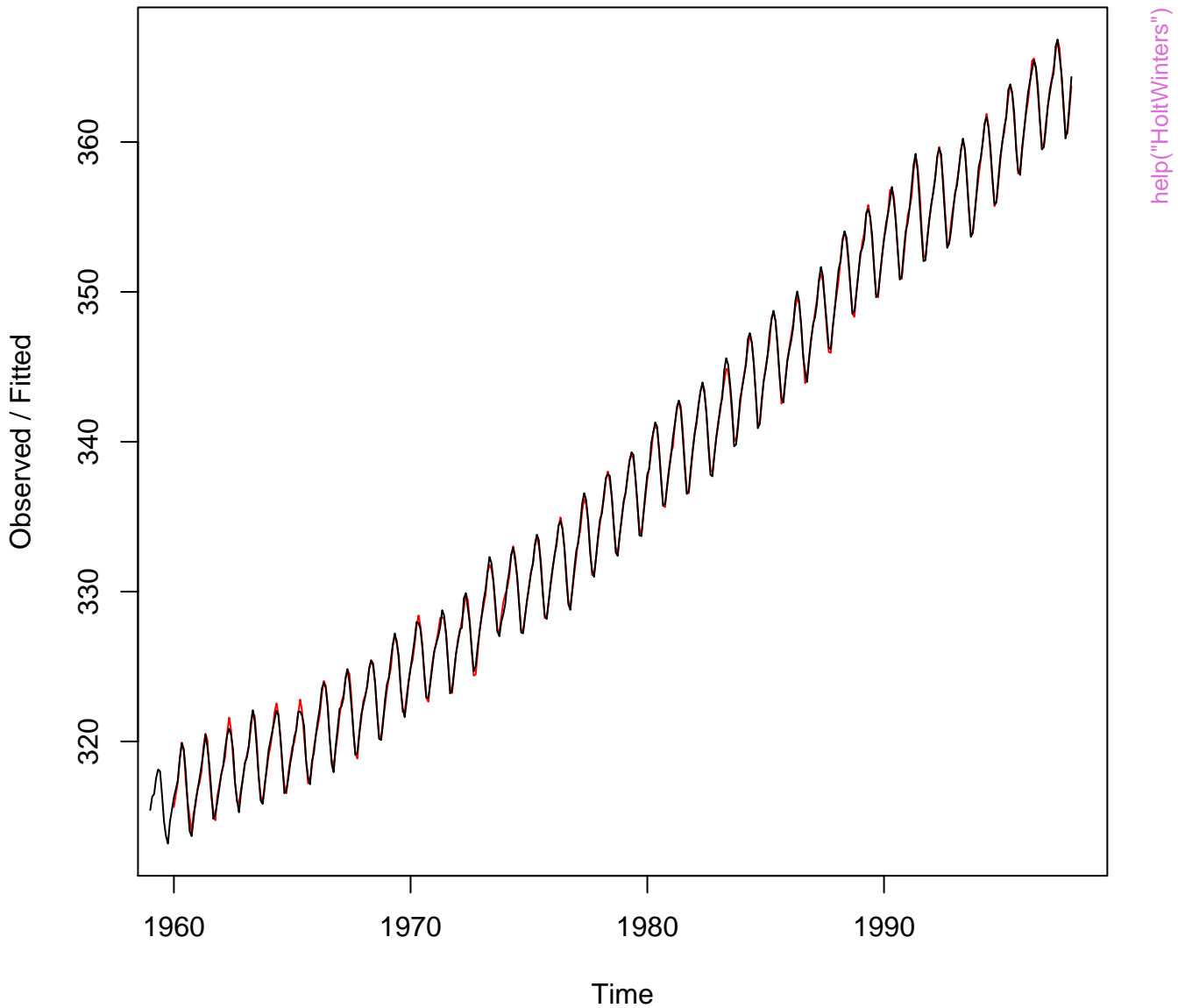


dbinom(*, log=TRUE) is better than log(dbinom(*))

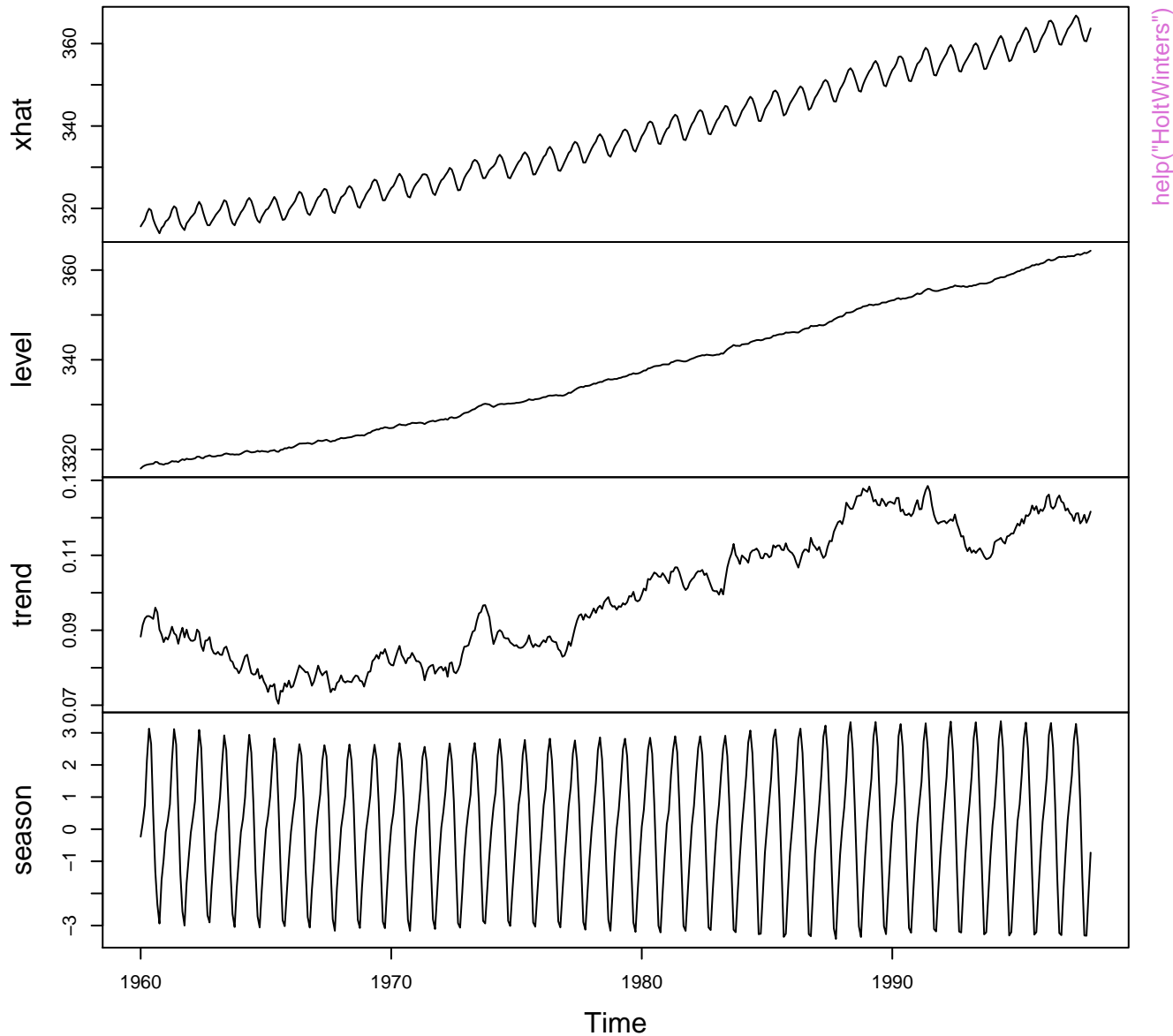




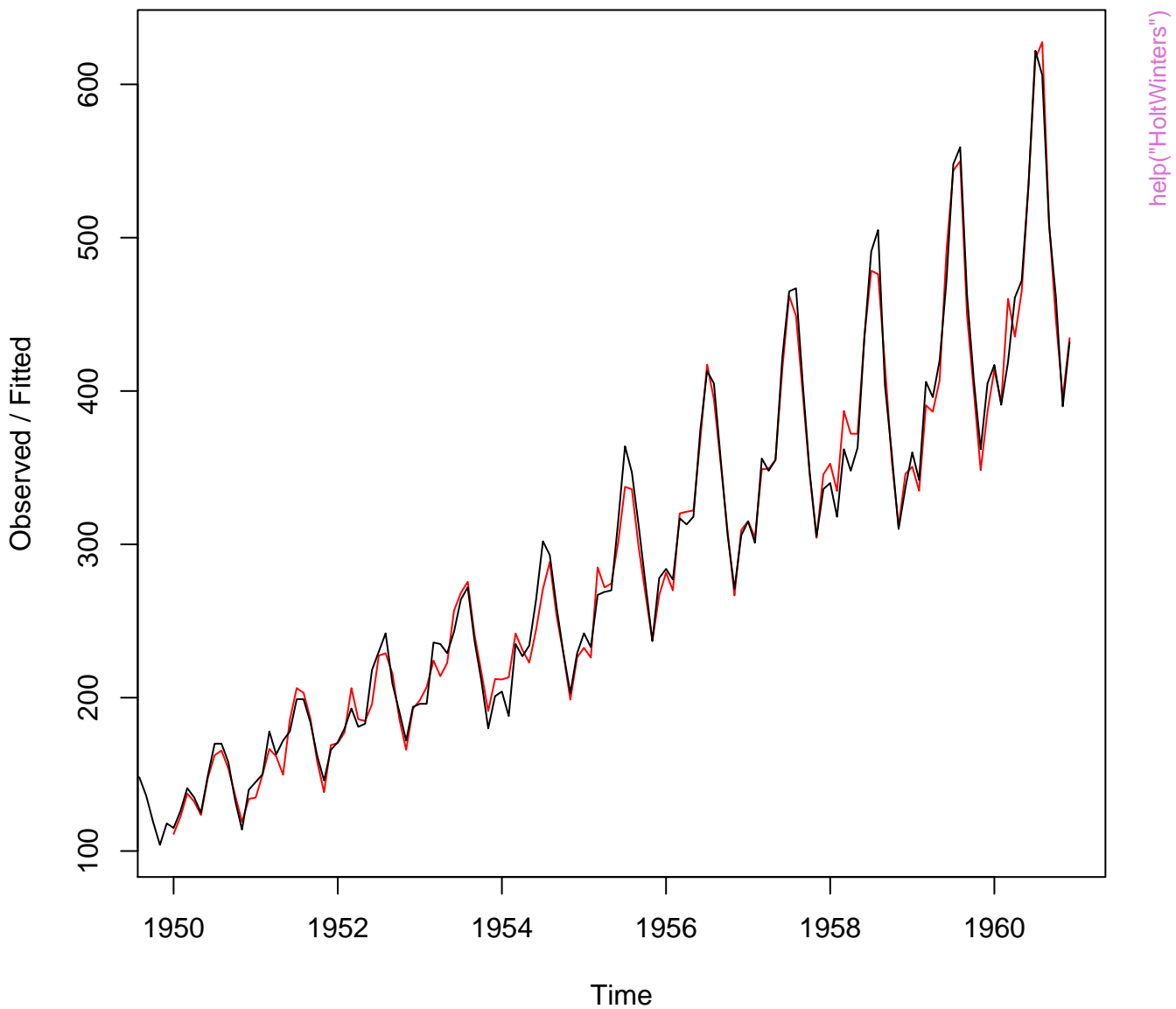
Holt-Winters filtering



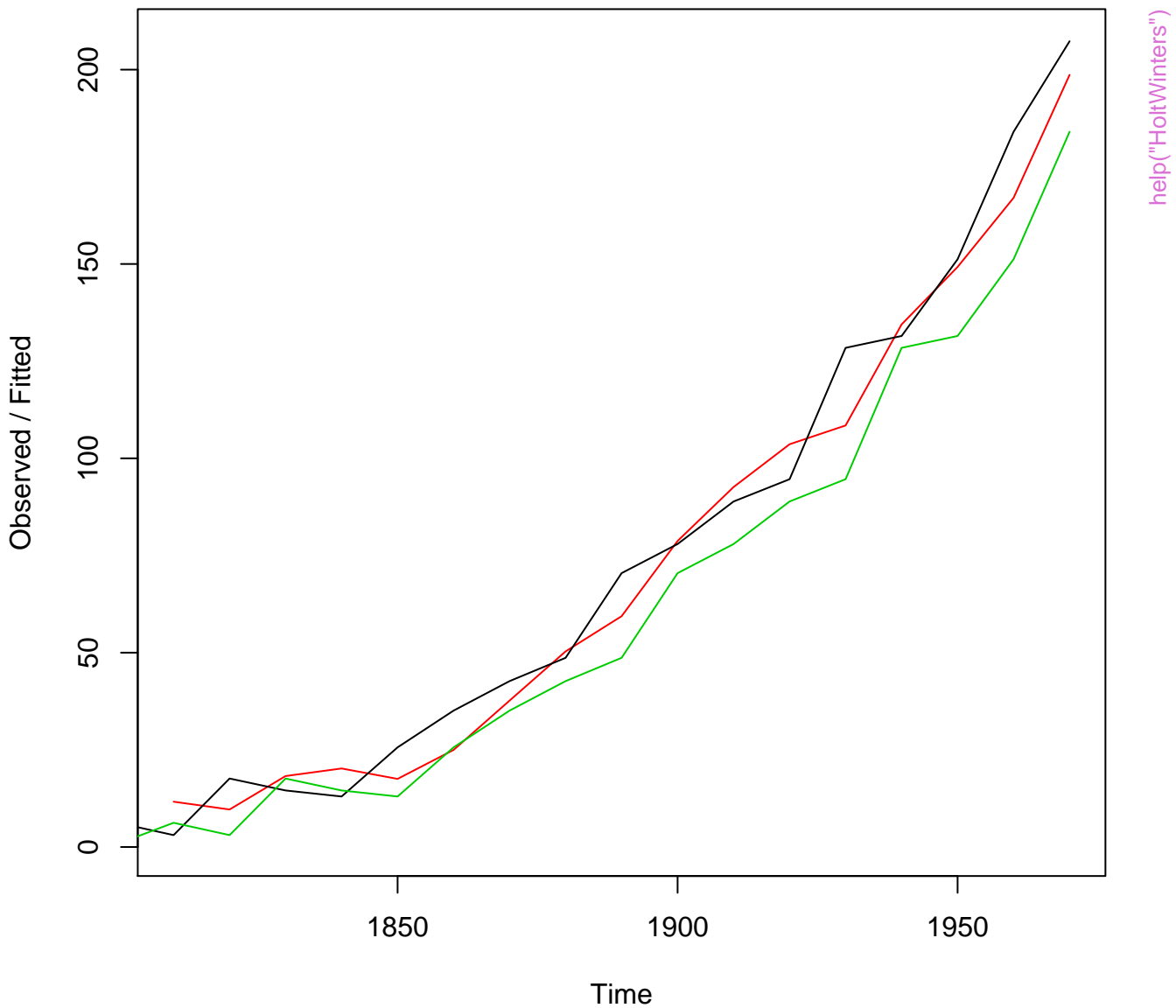
fitted(m)



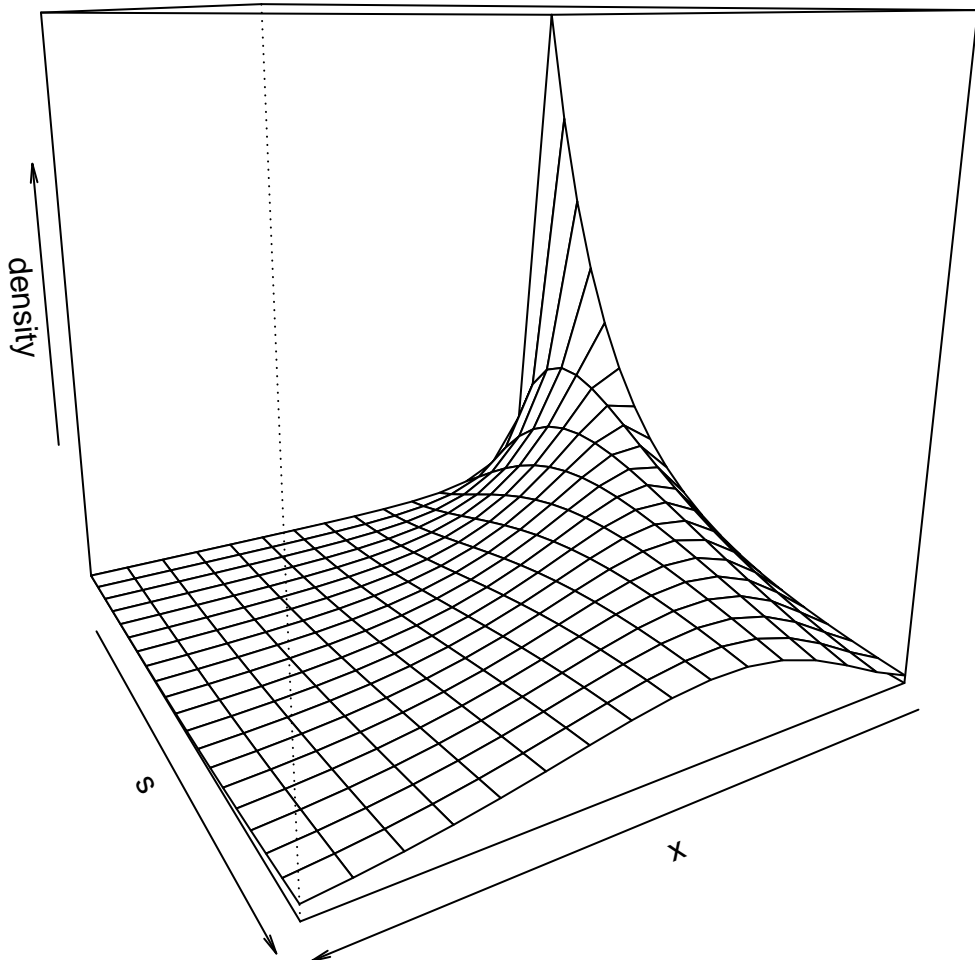
Holt-Winters filtering



Holt-Winters filtering

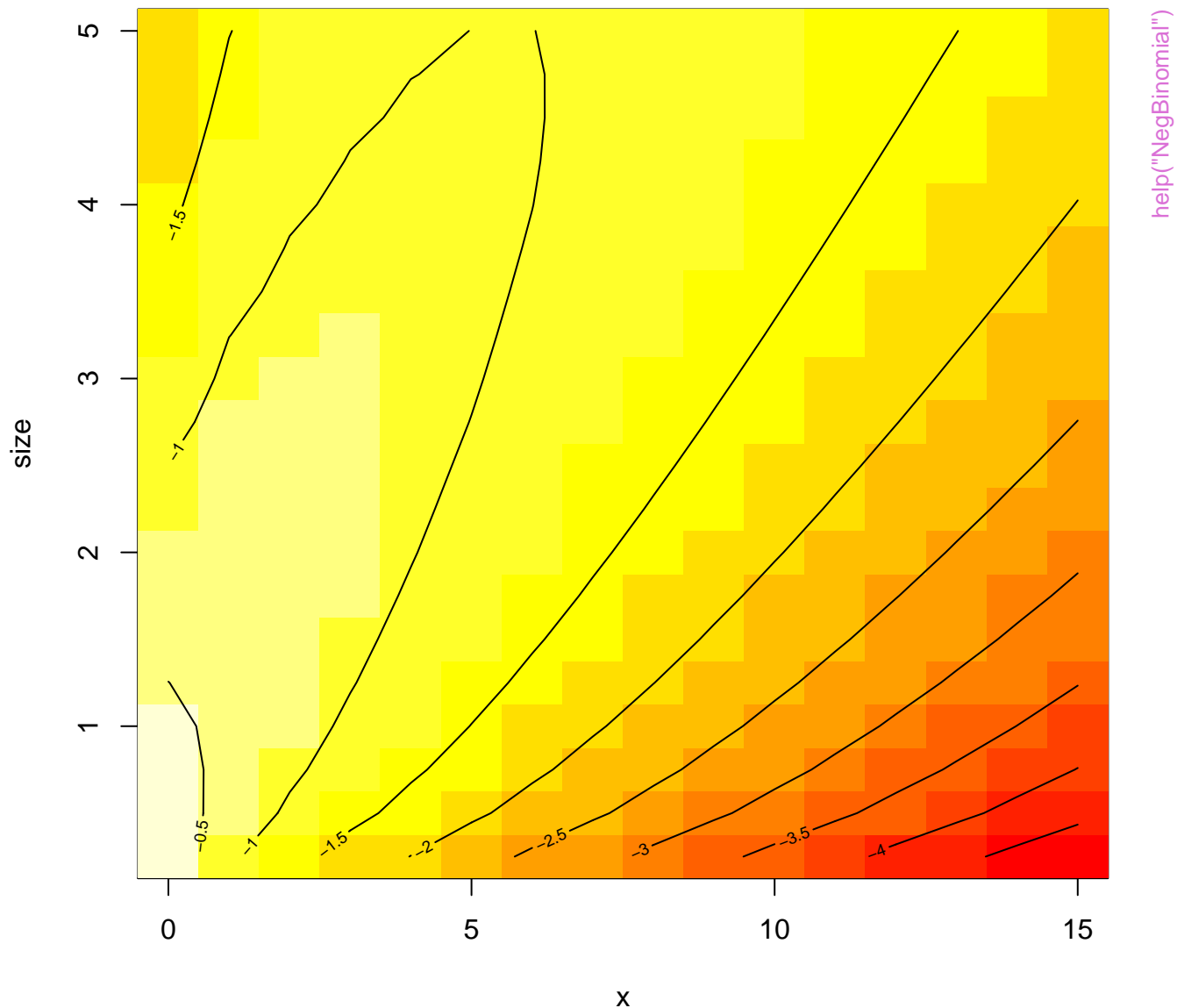


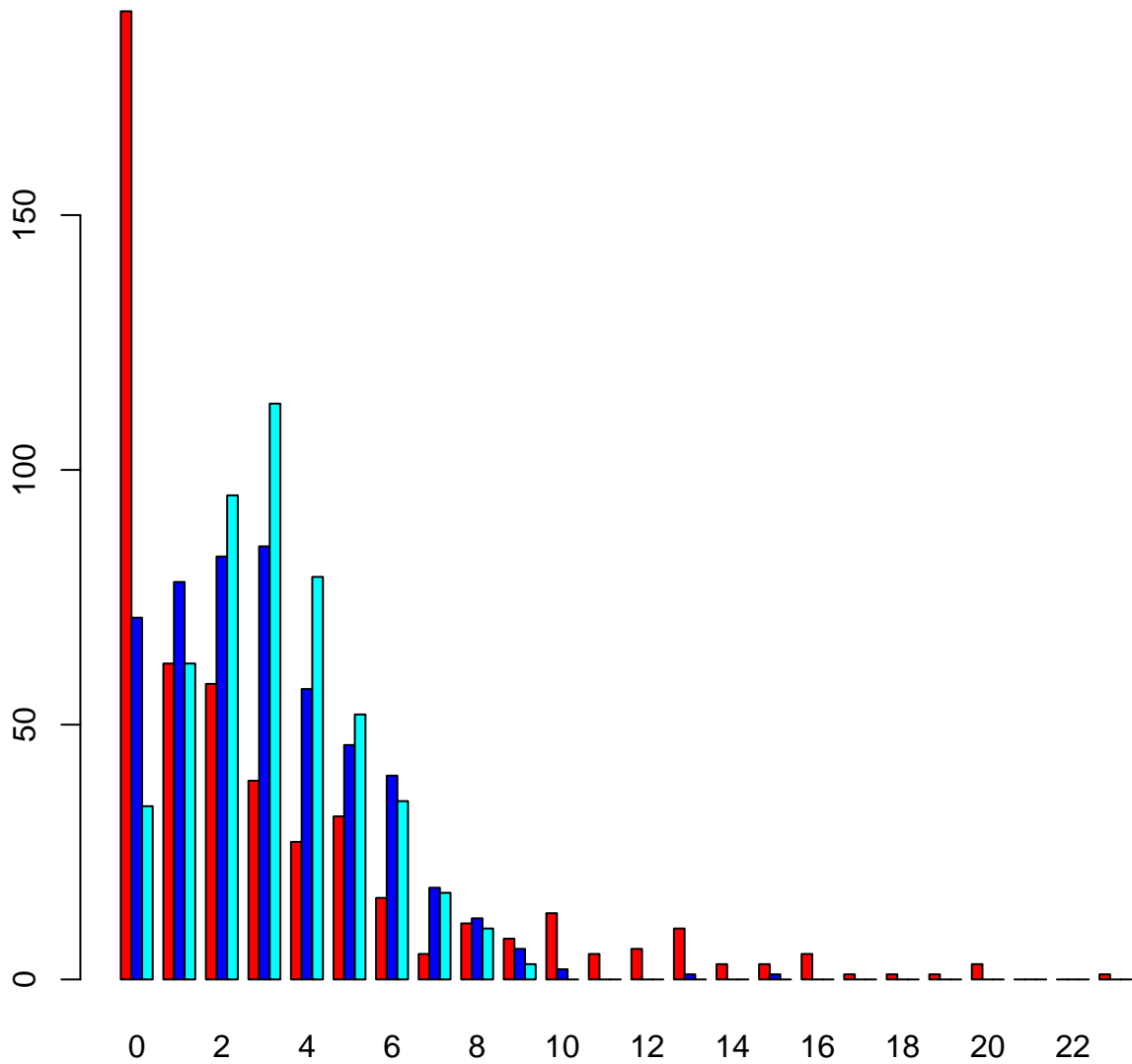
negative binomial density($x, s, pr = 0.4$) vs. x & s



`help("NegBinomial")`

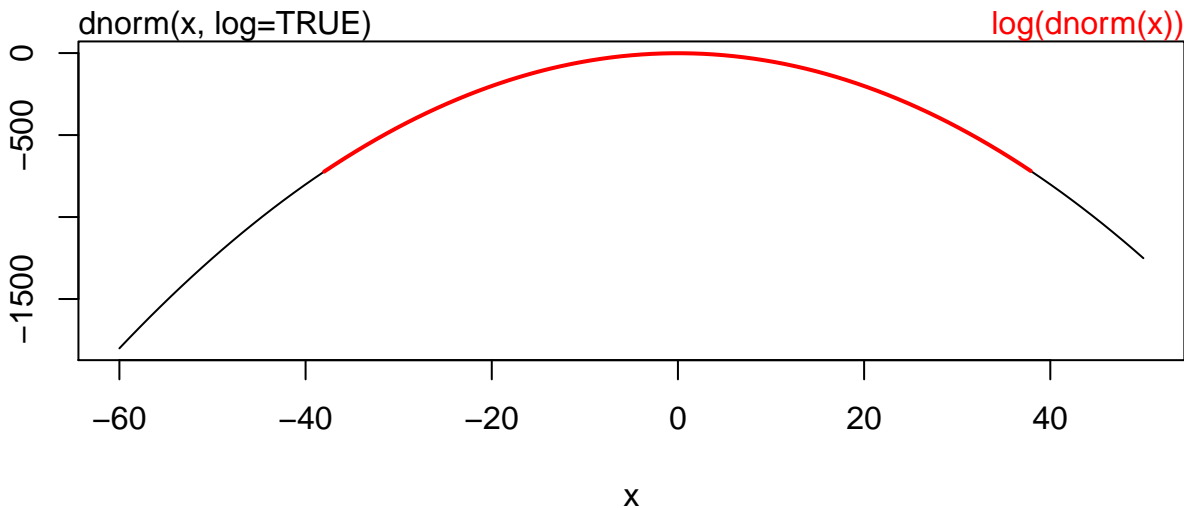
log [negative binomial density(x,s, pr = 0.4) vs. x & s]





function(x) dnorm(x, log = TRUE)

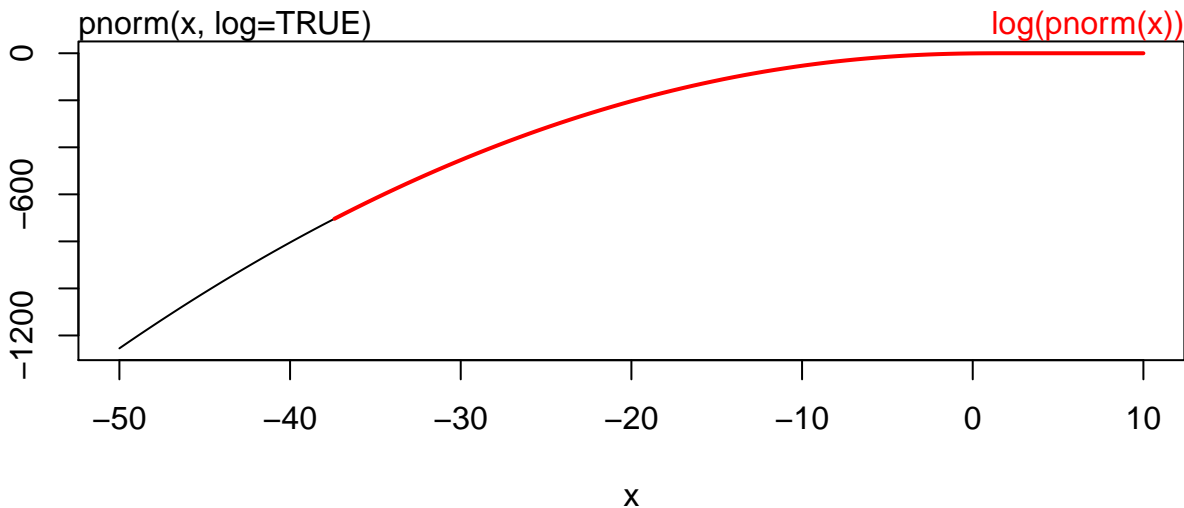
log { Normal density }



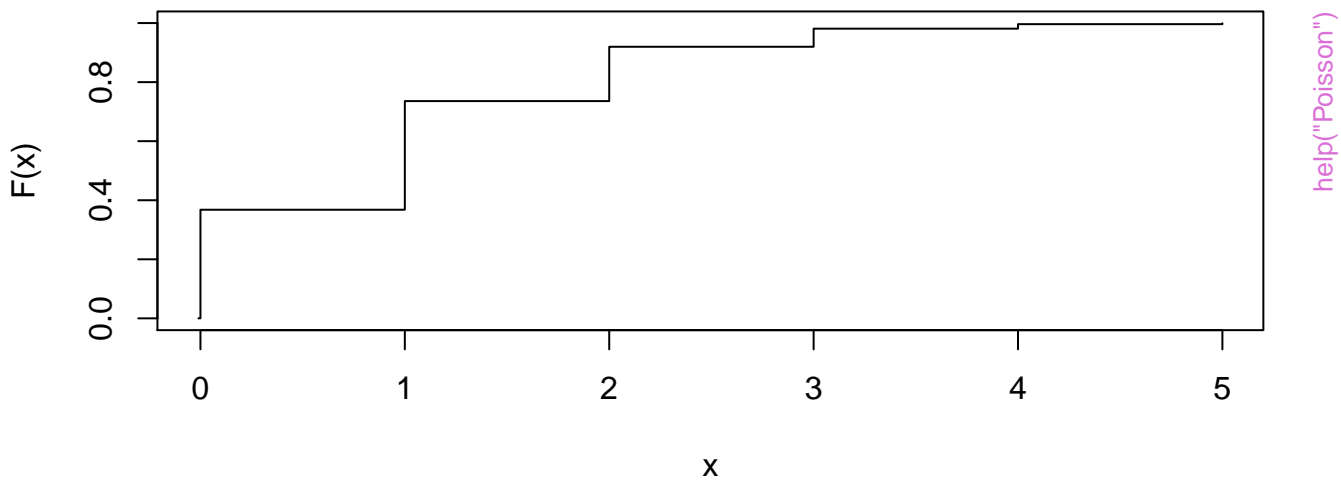
help("Normal")

function(x) pnorm(x, log.p = TRUE)

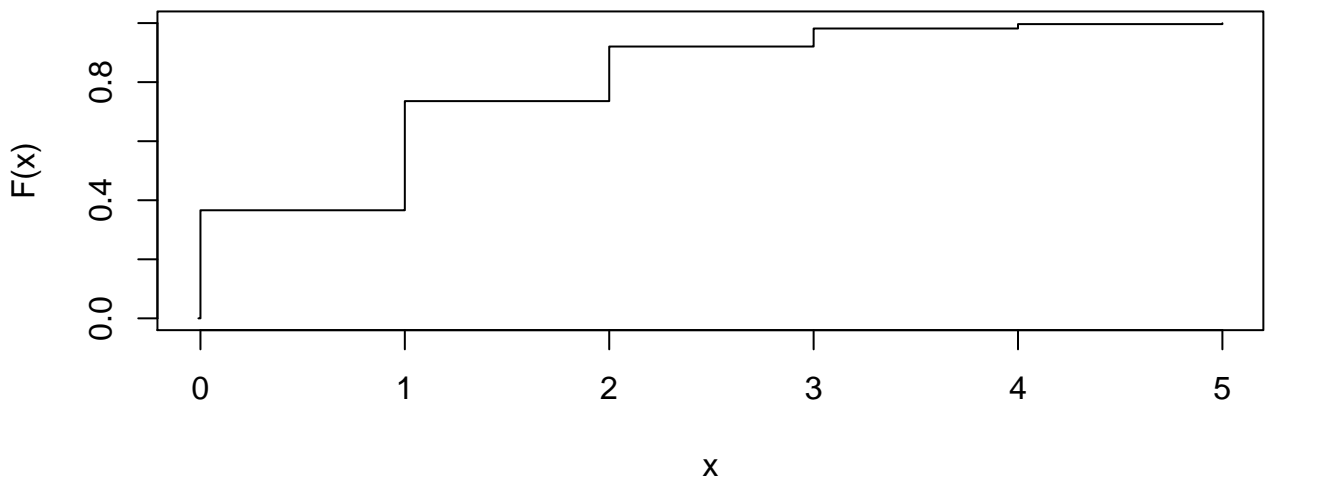
log { Normal Cumulative }



Poisson(1) CDF

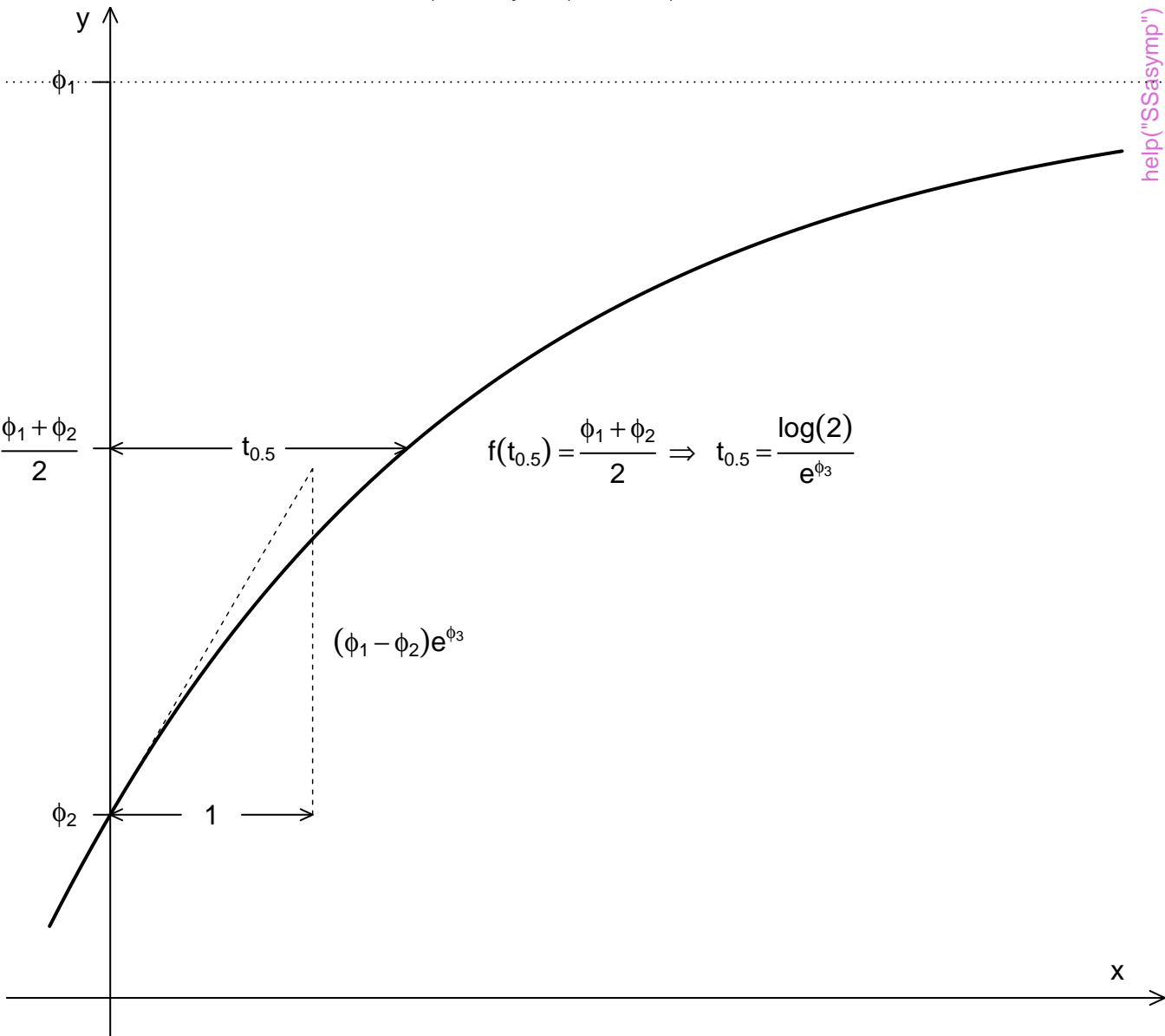


Binomial(100, 0.01) CDF

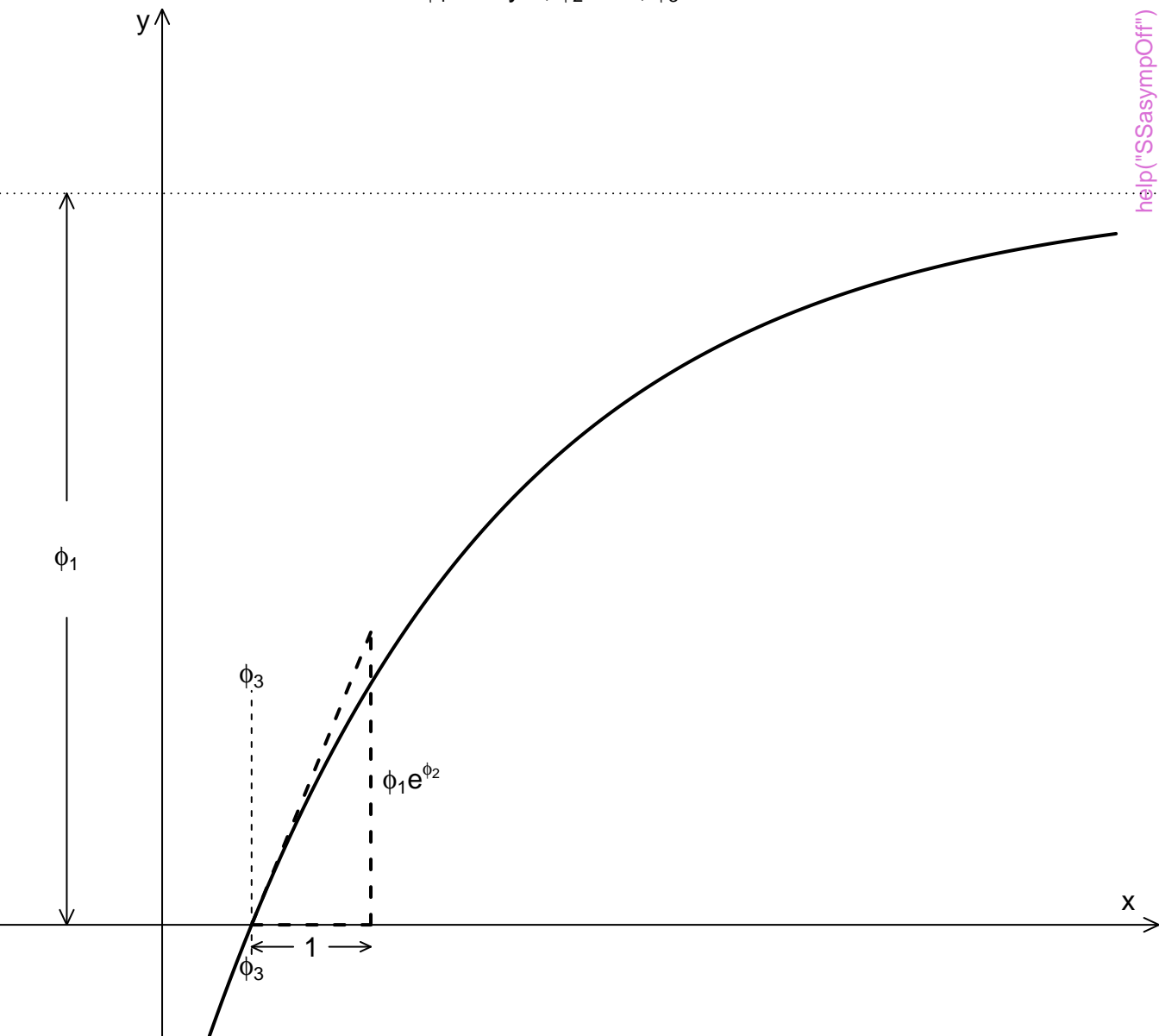


Parameters in the SSasympt model $f_{\phi}(x) = \phi_1 + (\phi_2 - \phi_1) e^{-e^{\phi_3} x}$

$\phi_1 = \text{Asym}$, $\phi_2 = R0$, $\phi_3 = \text{lrc}$

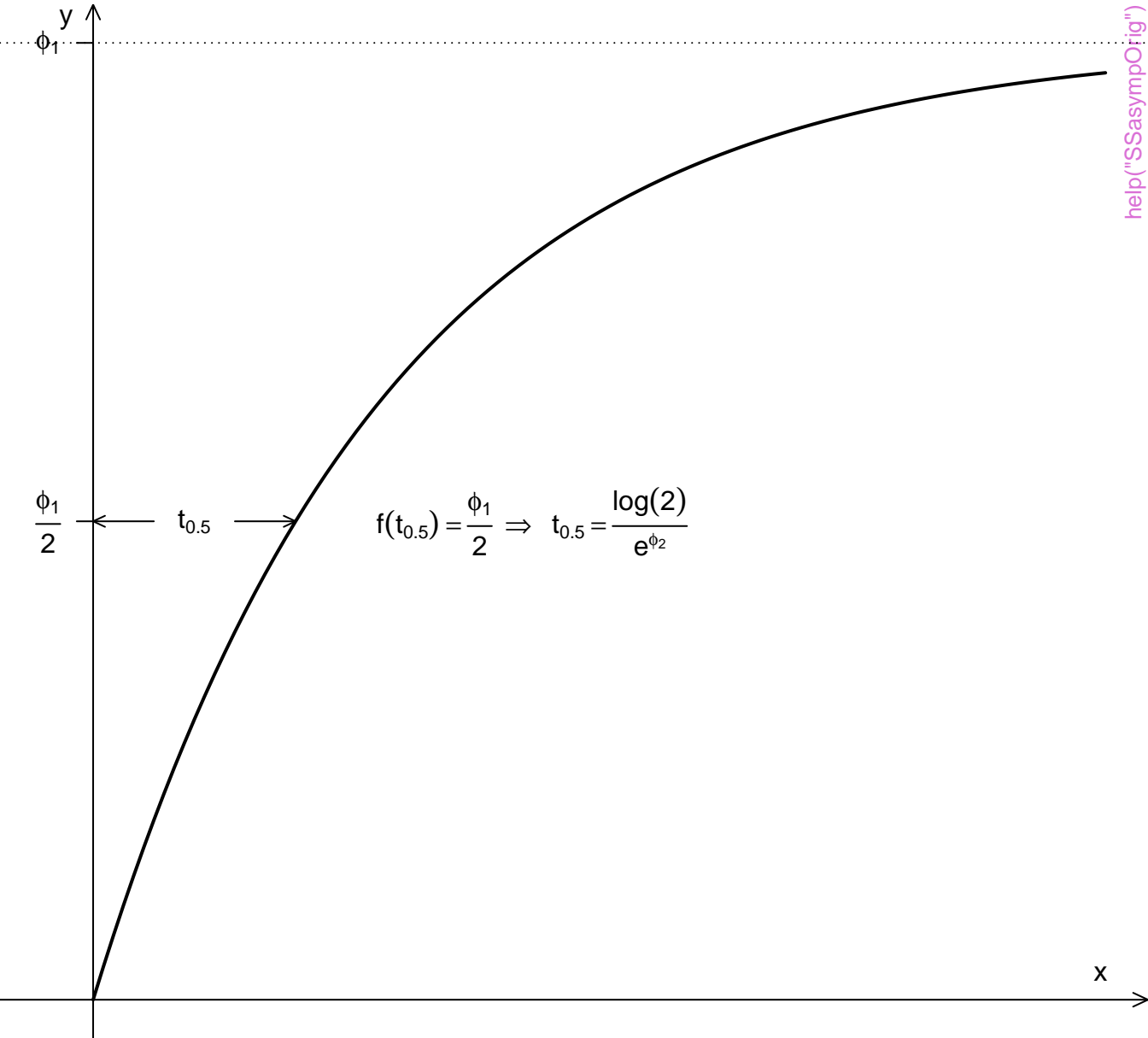


Parameters in the SSasympOff model

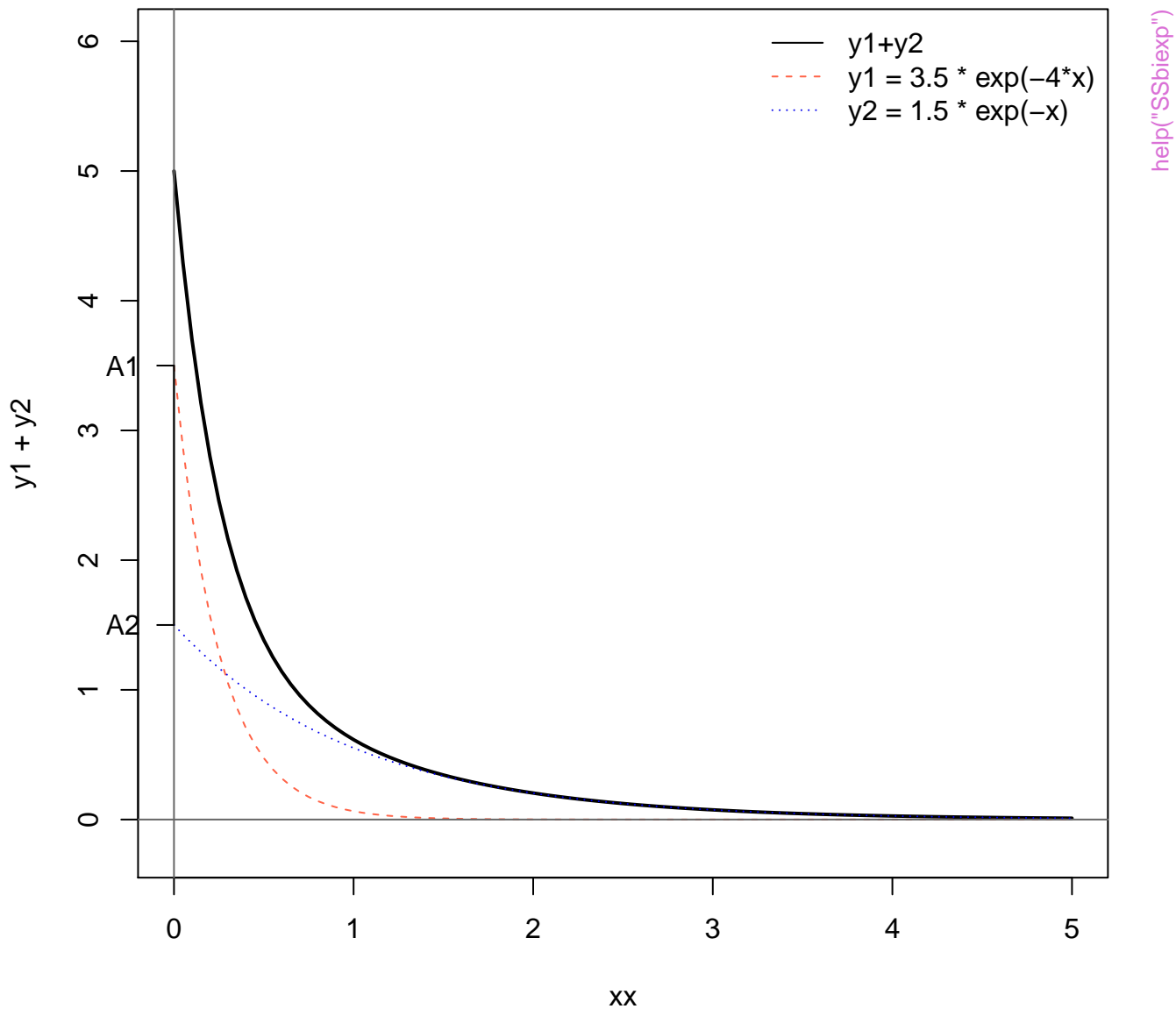
$$\phi_1 = \text{Asym}, \phi_2 = \text{lrc}, \phi_3 = \text{c0}$$


Parameters in the SSasymptOrig model $f_{\phi}(x)$

$\phi_1 = \text{Asym}, \phi_2 = \text{lrc}$

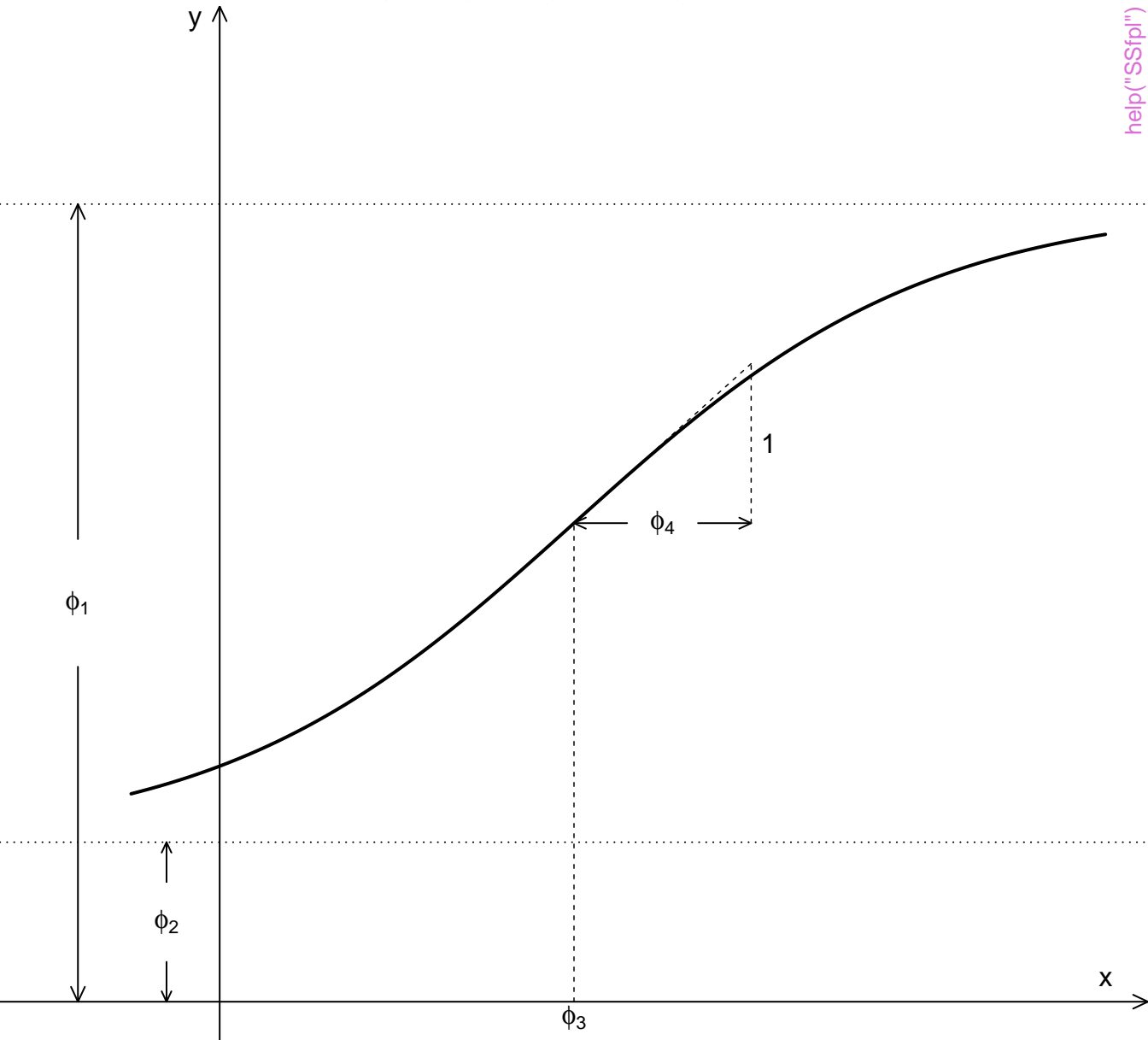


Components of the SSbiexp model



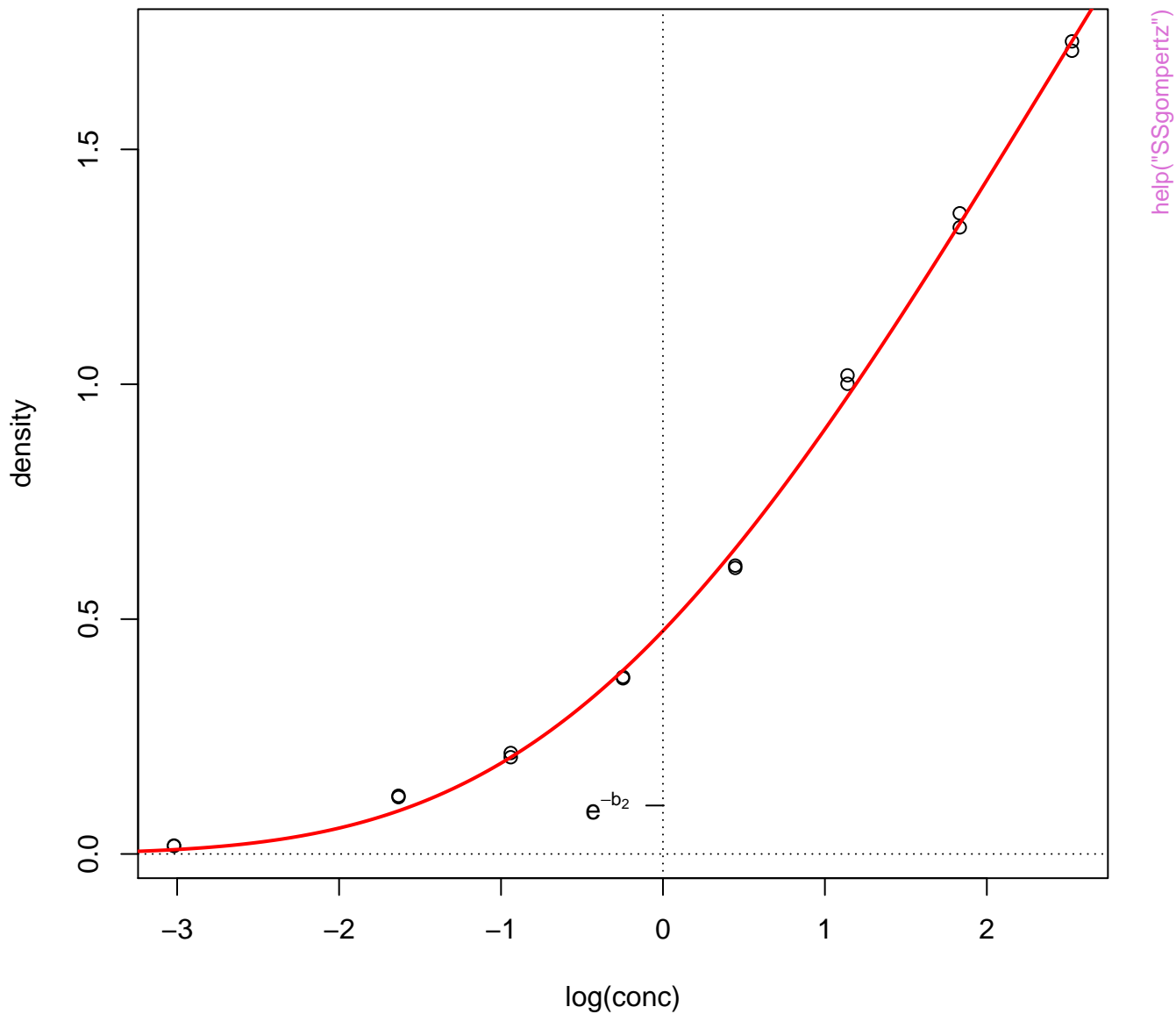
Parameters in the SSfpl model

$\phi_1 = A$, $\phi_2 = B$, $\phi_3 = x_{mid}$, $\phi_4 = scal$



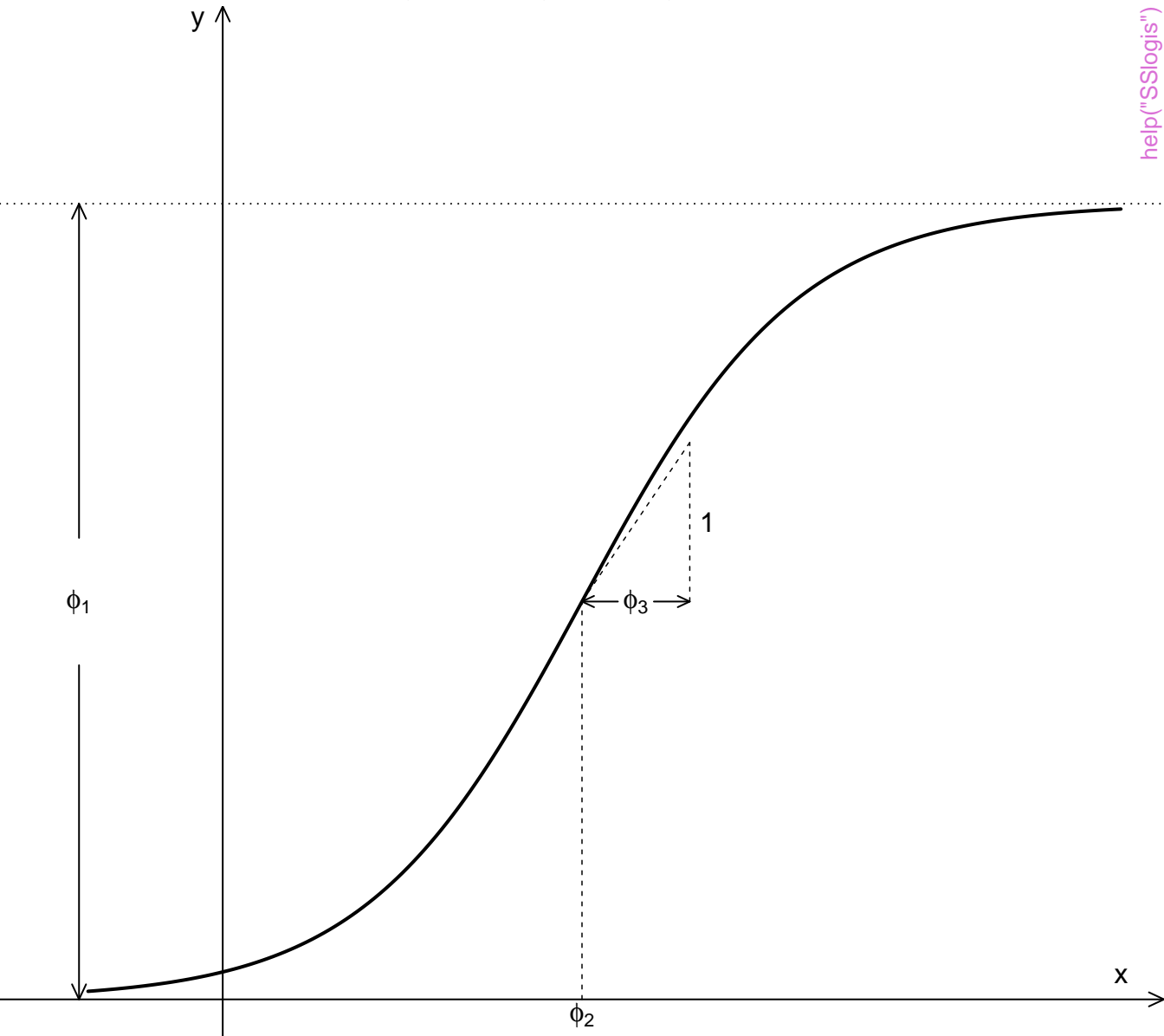
help("SSfpl")

SSgompertz() fit to DNase.1



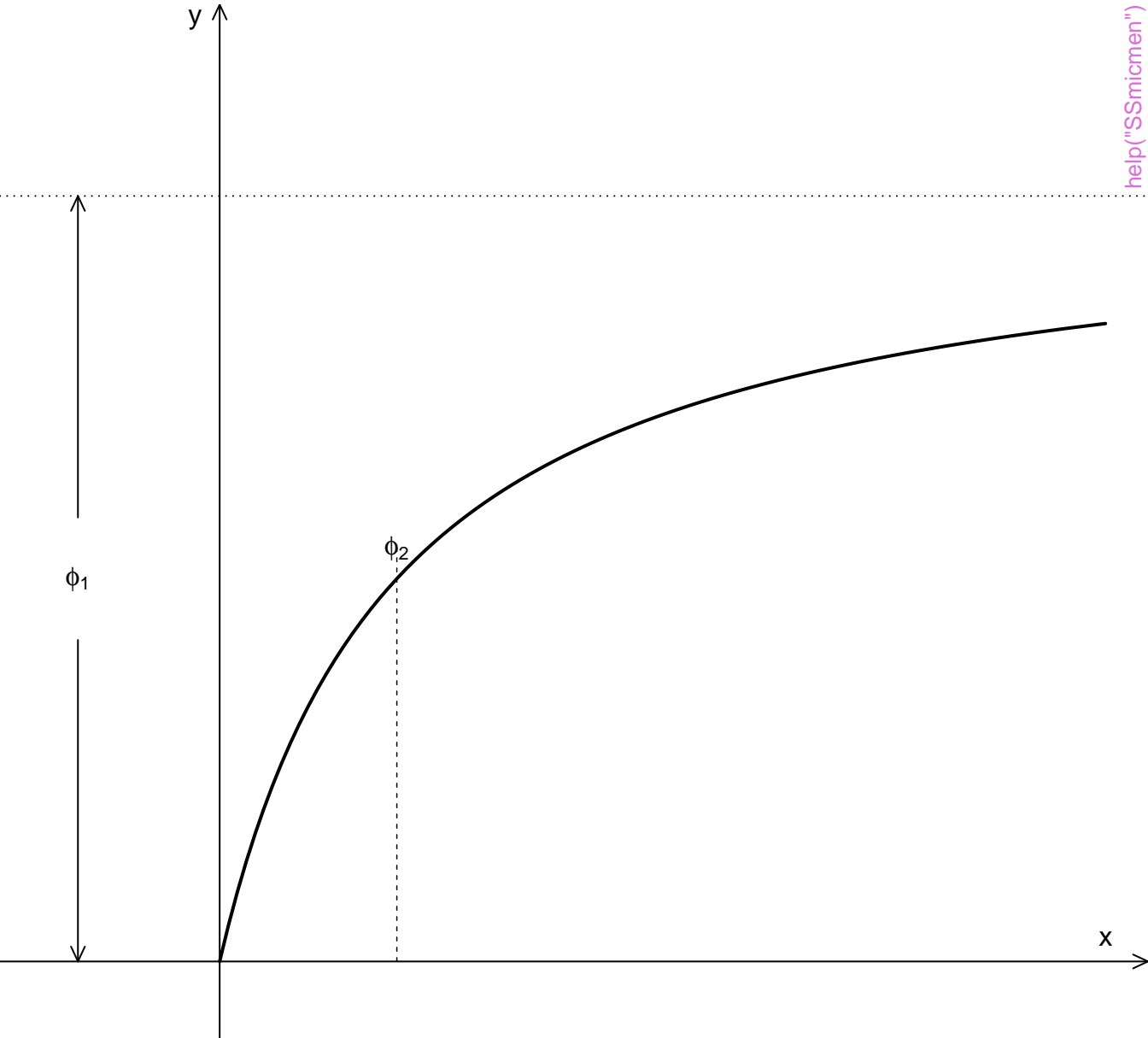
Parameters in the SSlogis model

$\phi_1 = \text{Asym}, \phi_2 = \text{xmid}, \phi_3 = \text{scal}$

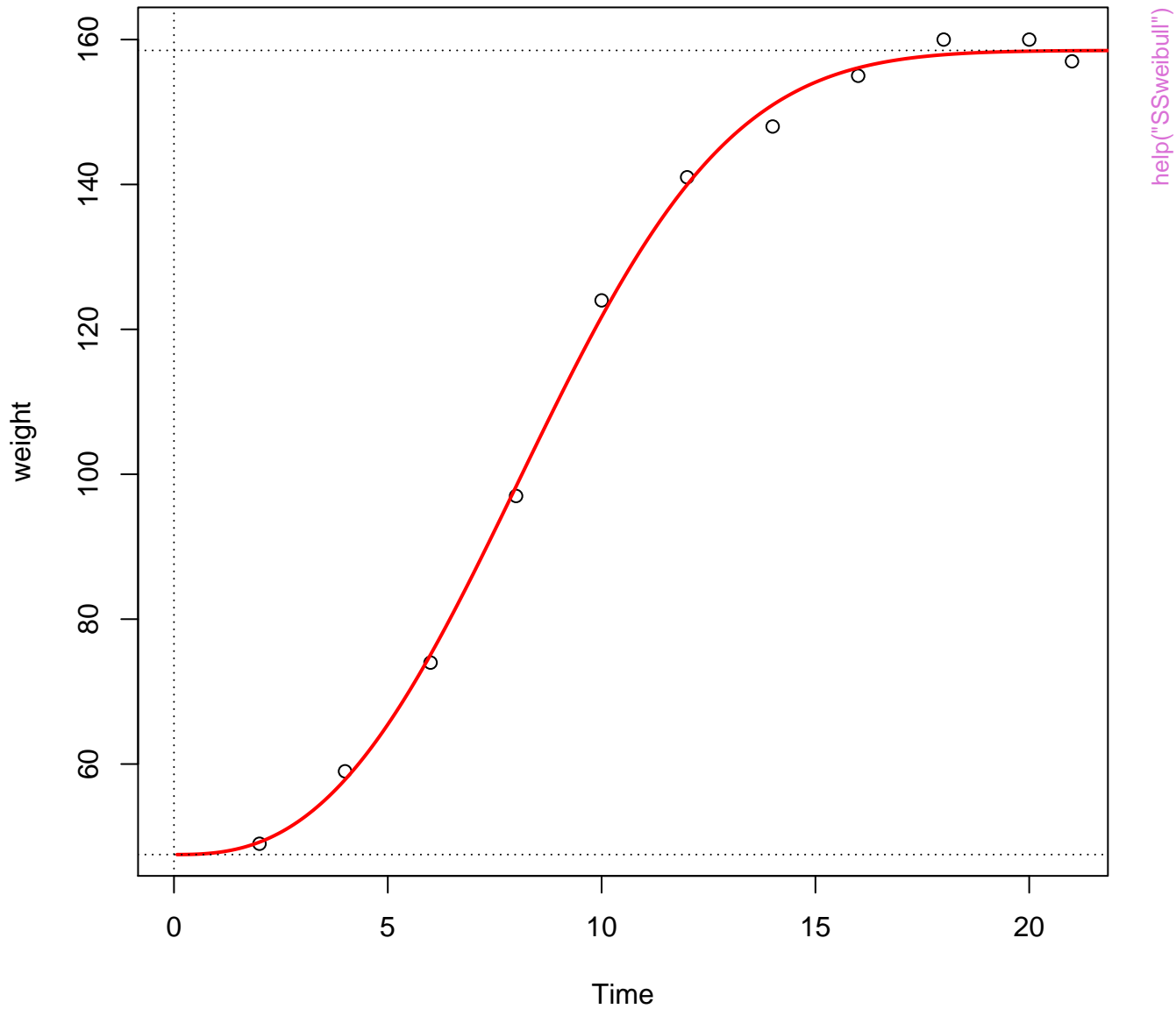


help("SSlogis")

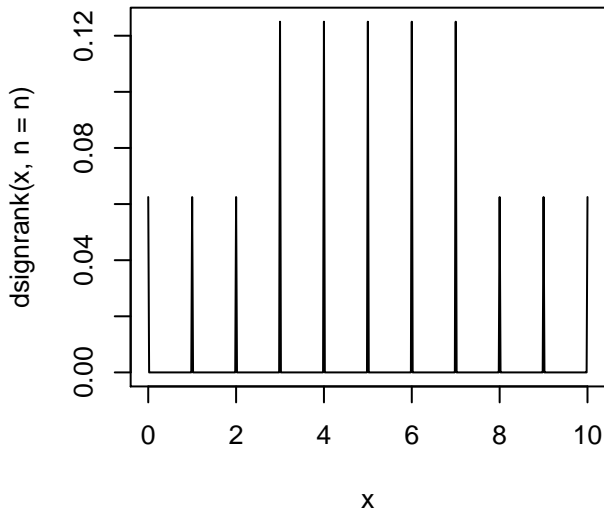
$$\phi_1 = Vm, \phi_2 = K$$



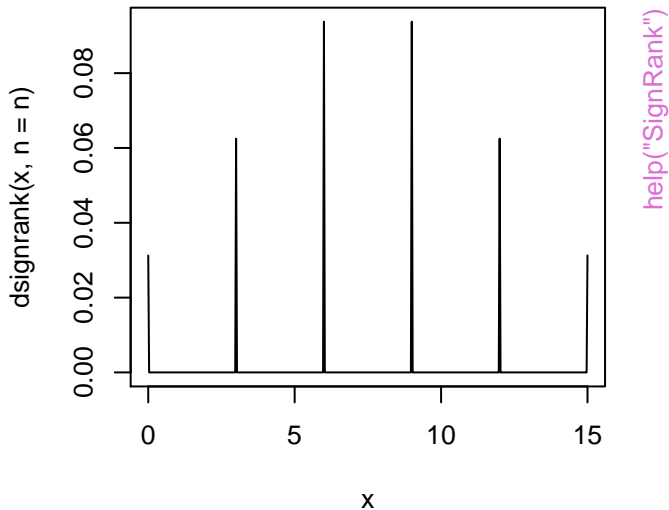
SSweibull() fit to Chick.6



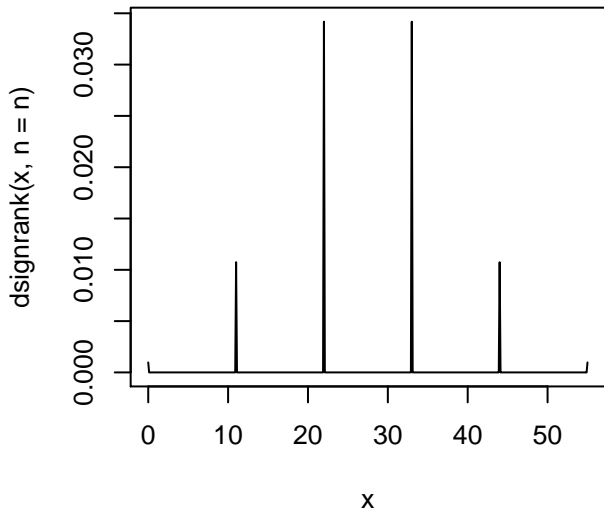
dsignrank(x, n = 4)



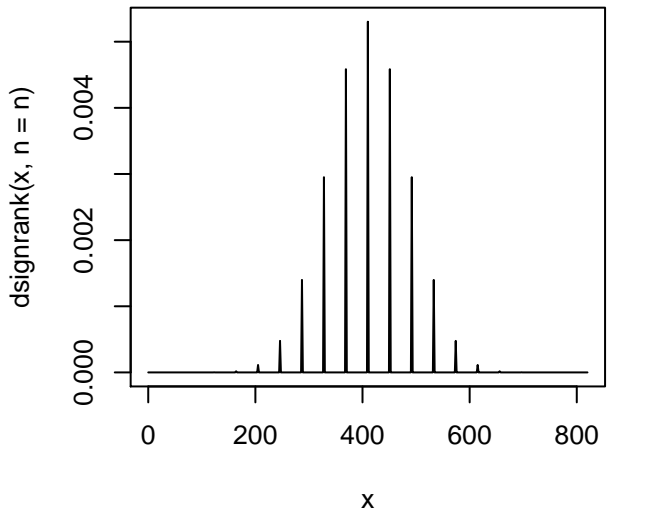
dsignrank(x, n = 5)



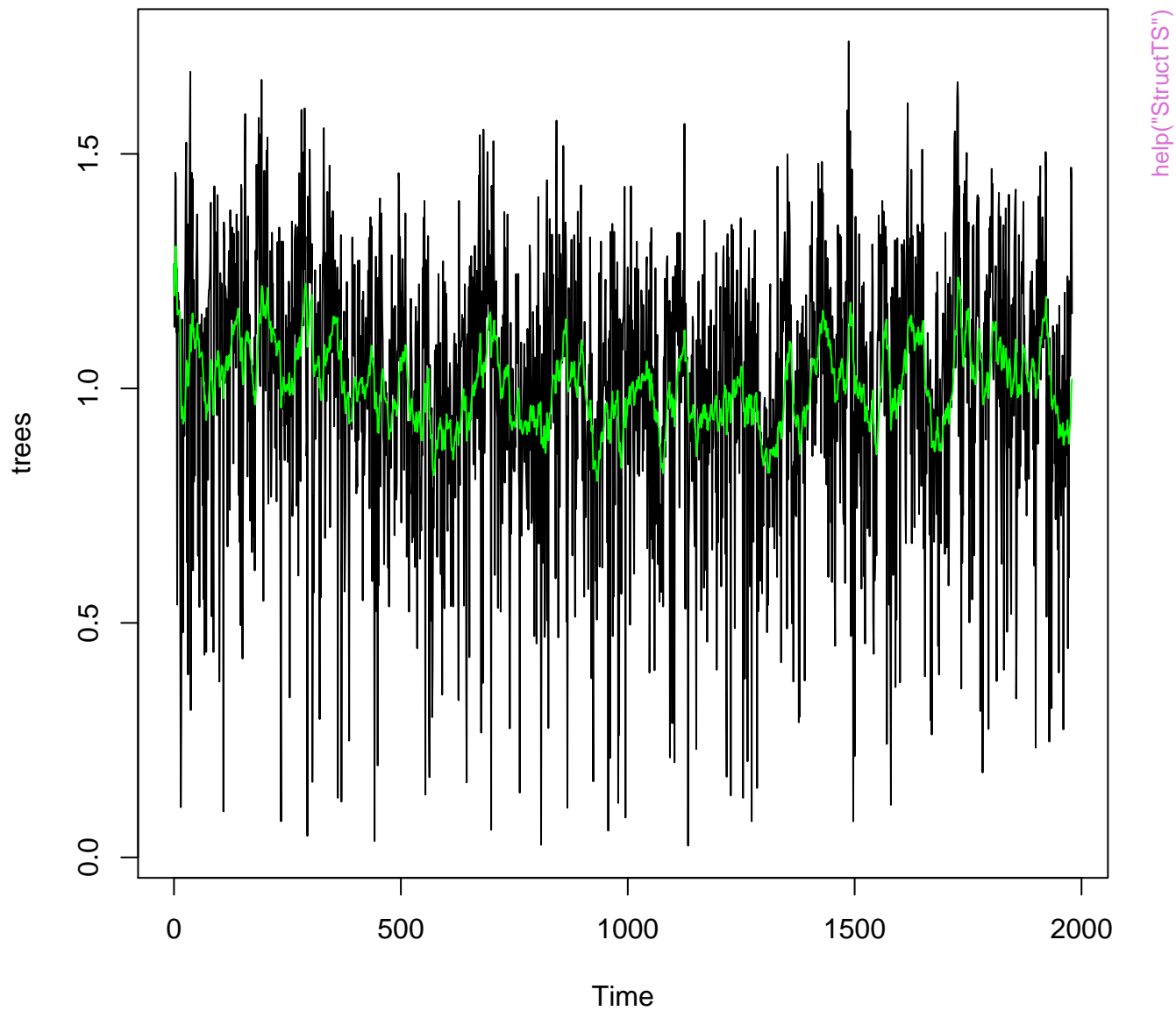
dsignrank(x, n = 10)



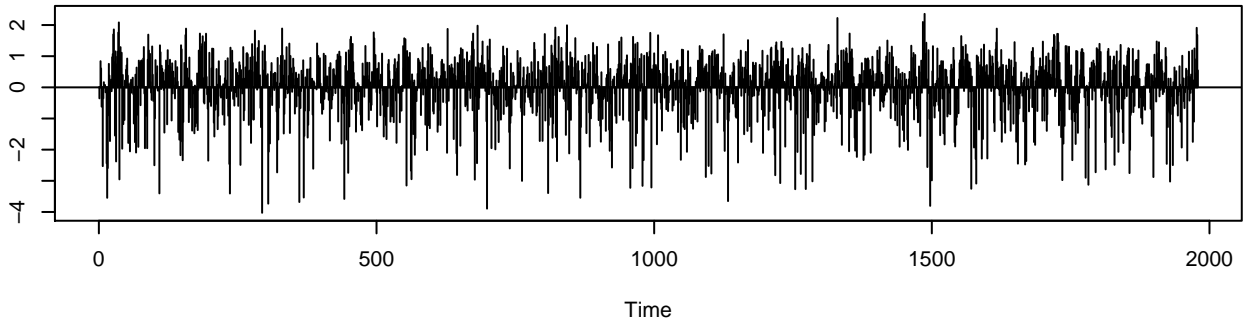
dsignrank(x, n = 40)



help("SignRank")

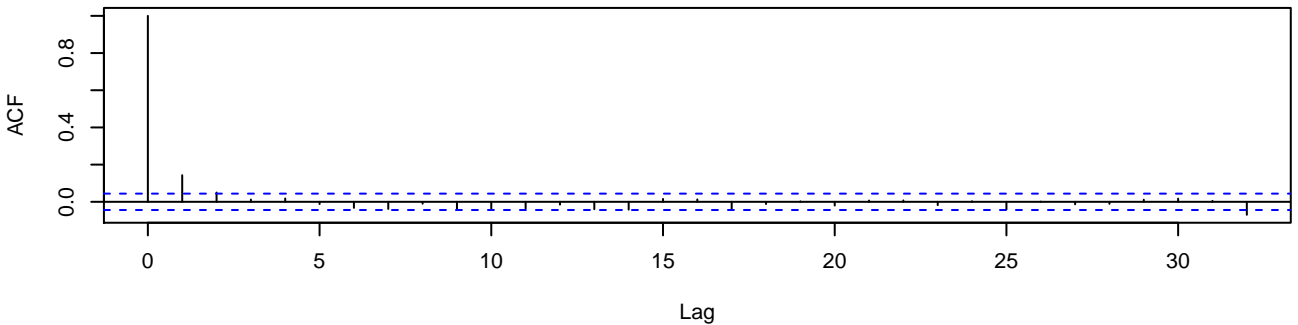


Standardized Residuals

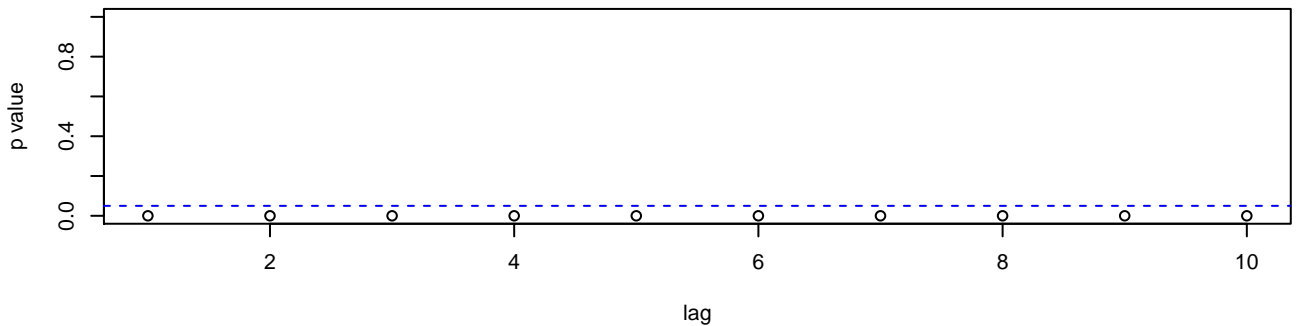


help("StructTS")

ACF of Residuals



p values for Ljung–Box statistic



log10(UKgas)

2.0 2.6

1960

1965

1970

1975

1980

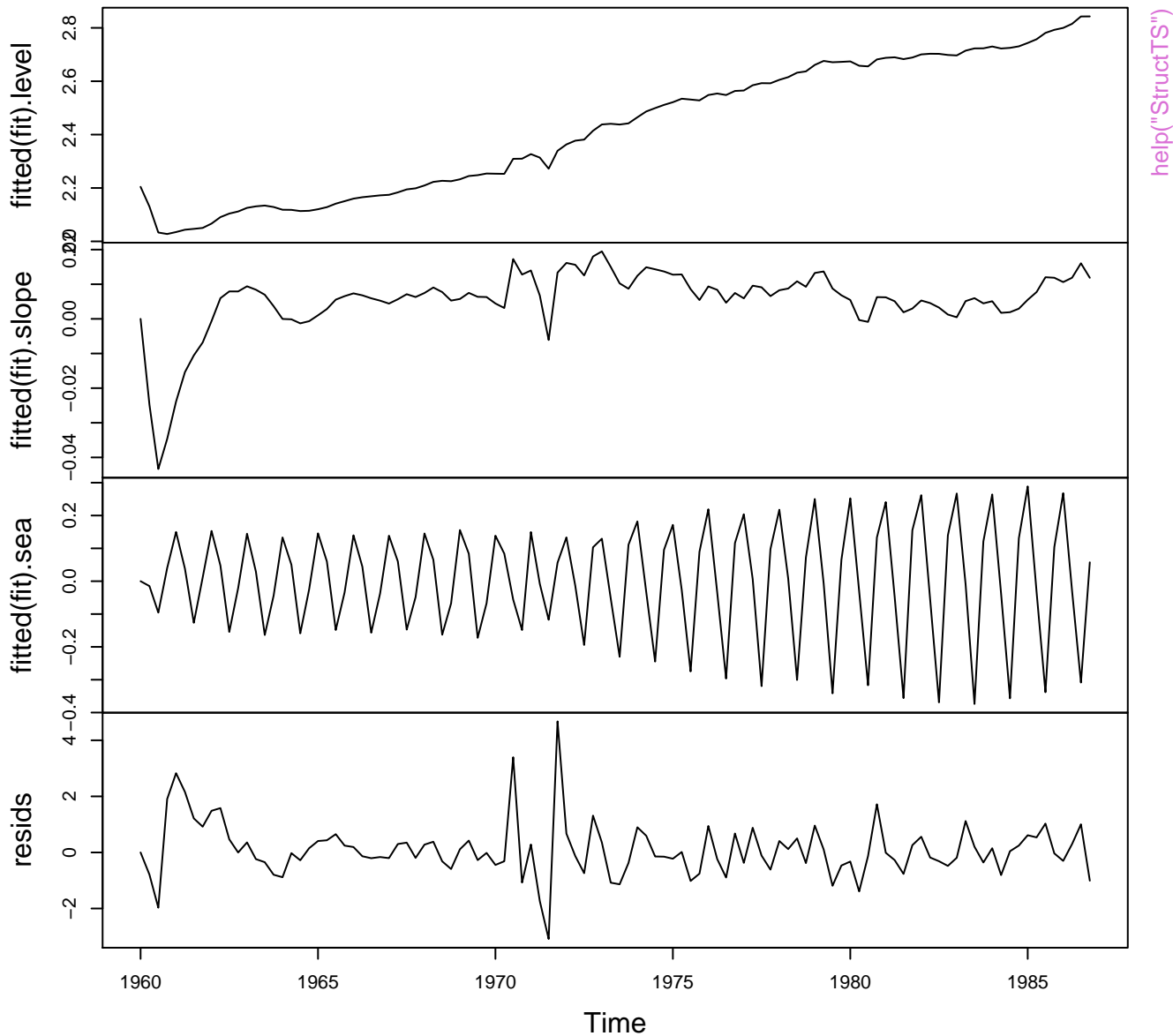
1985

Time

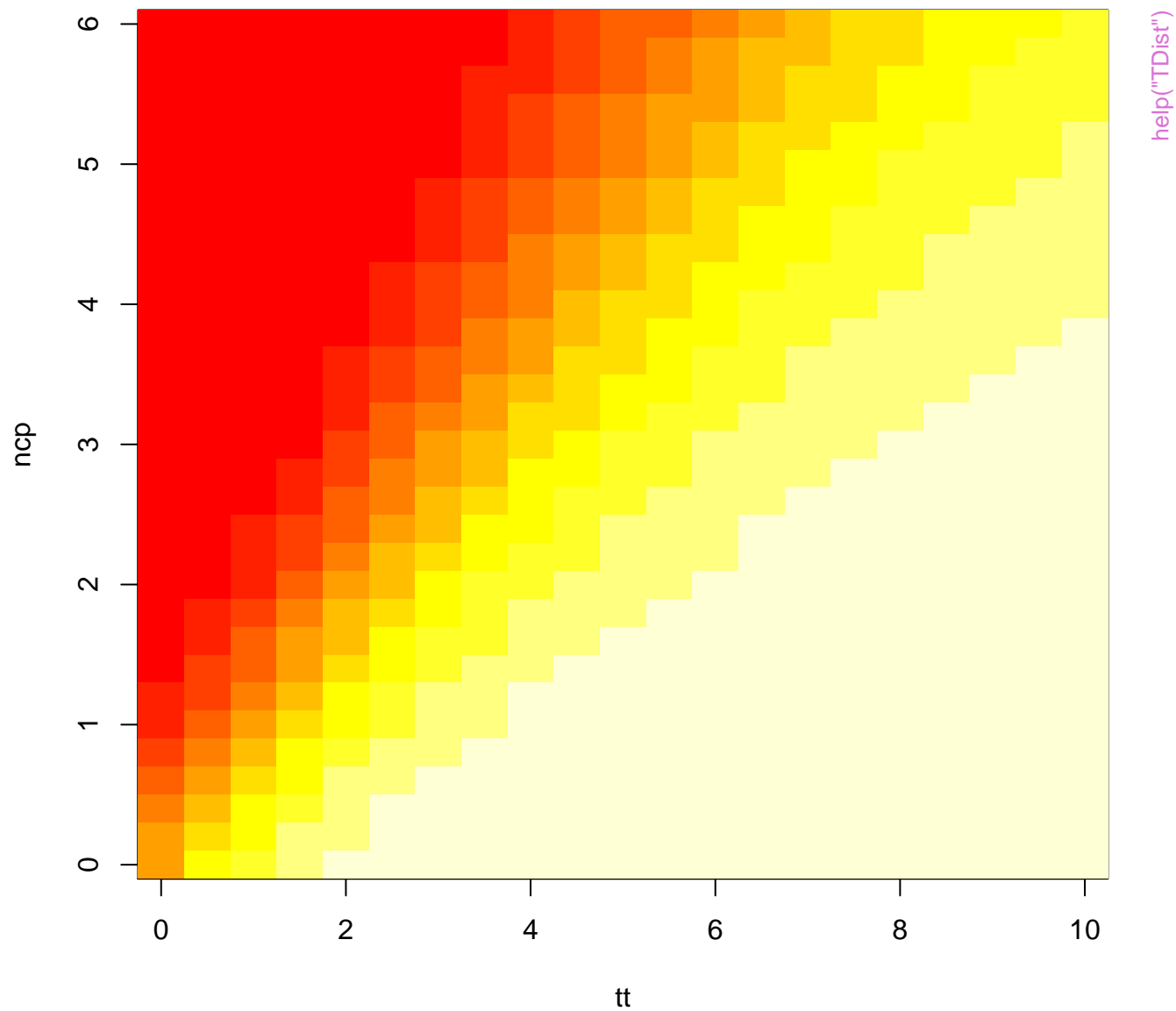
help("StructTS")



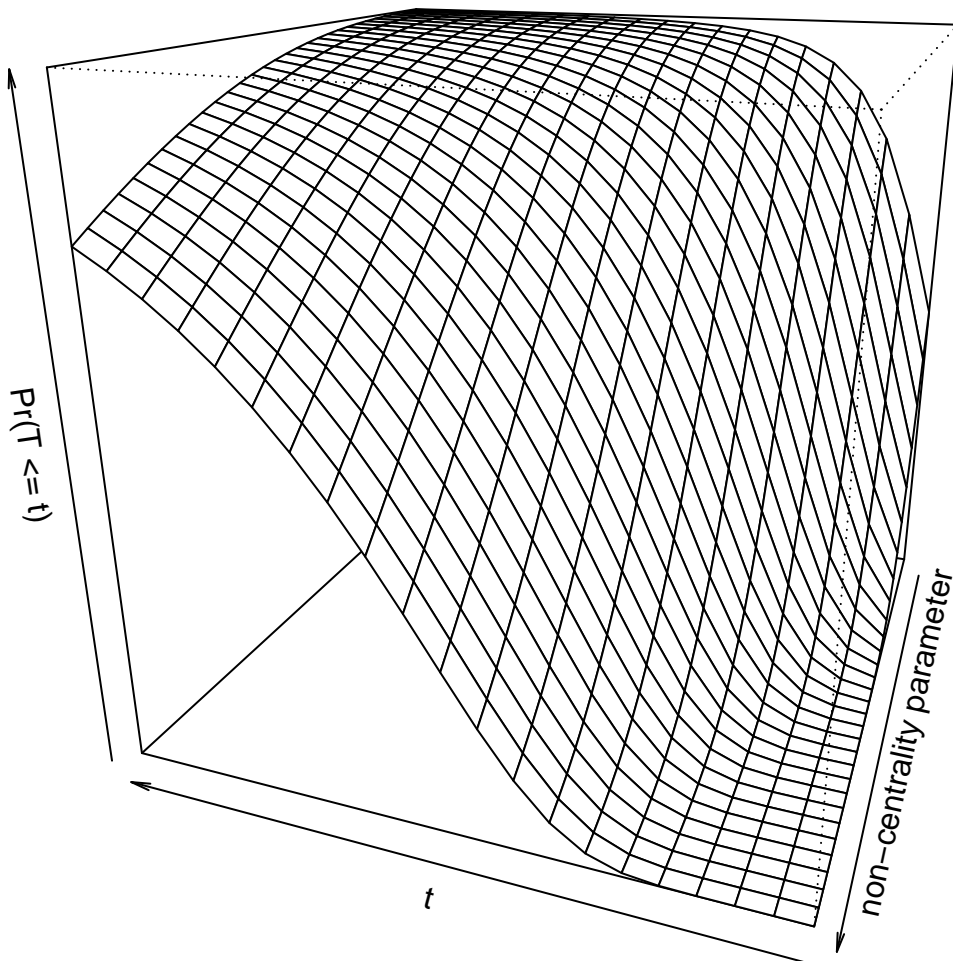
UK gas consumption



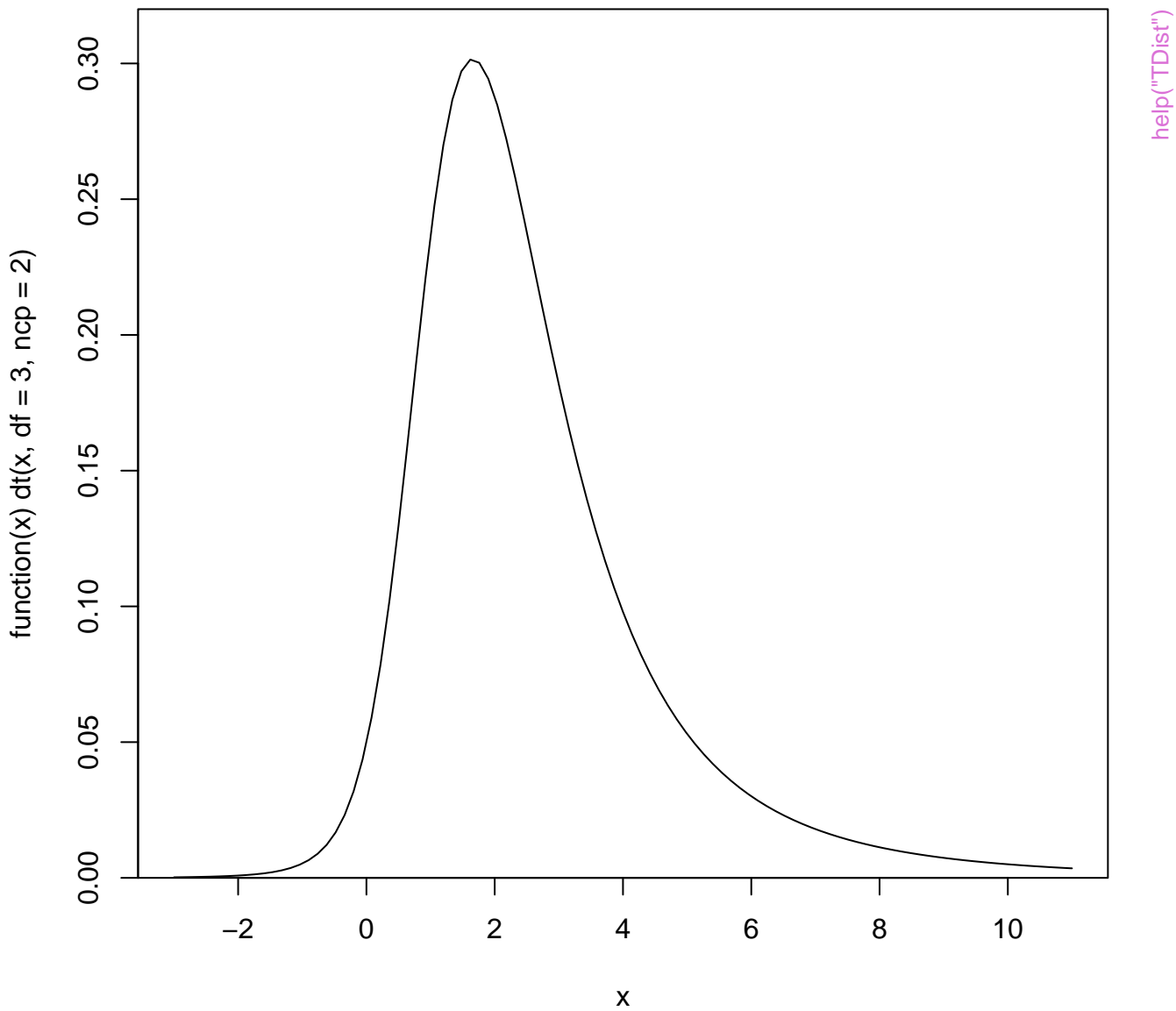
Non-central t – Probabilities



Non-central t – Probabilities

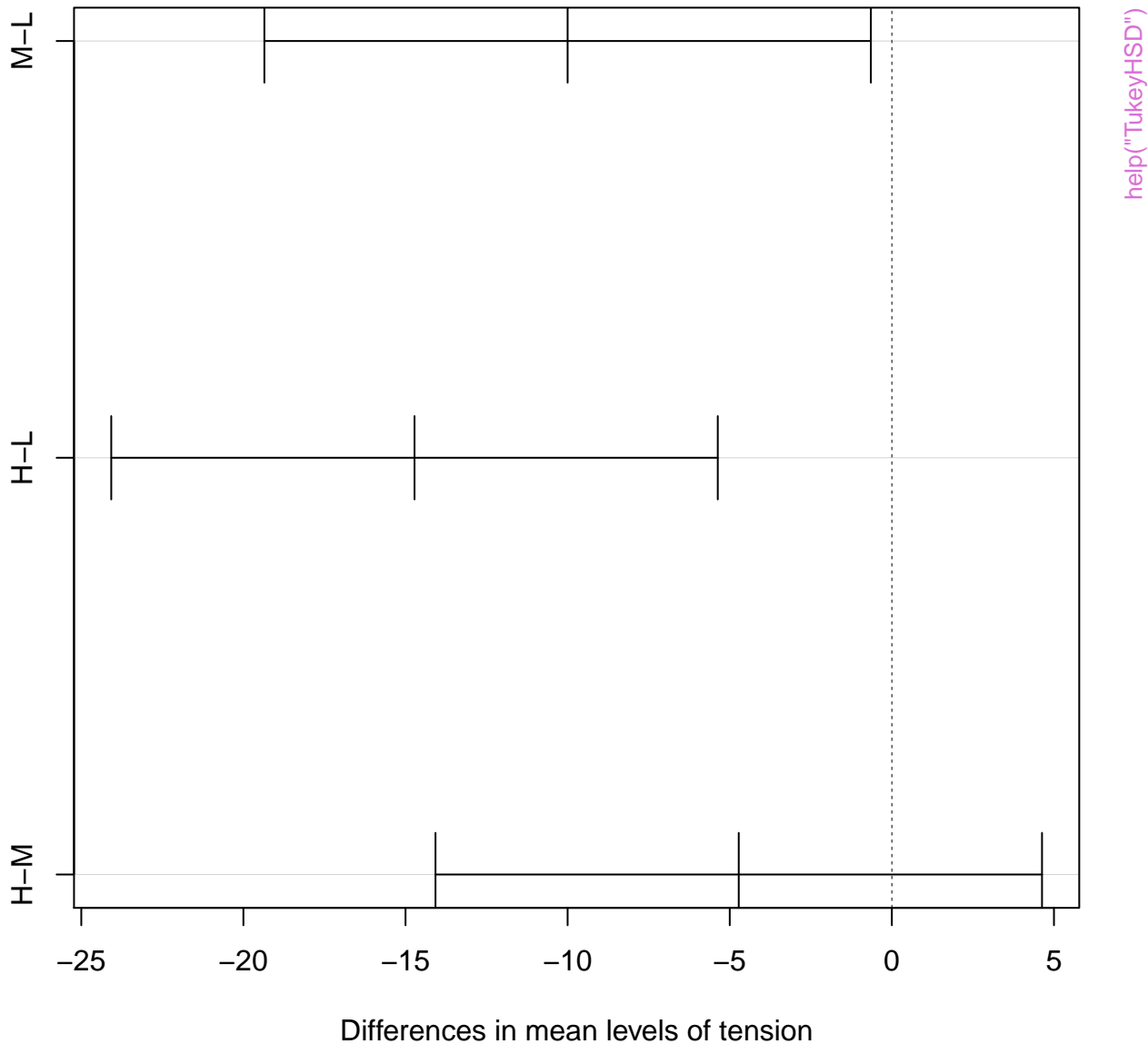


Non-central t – Density

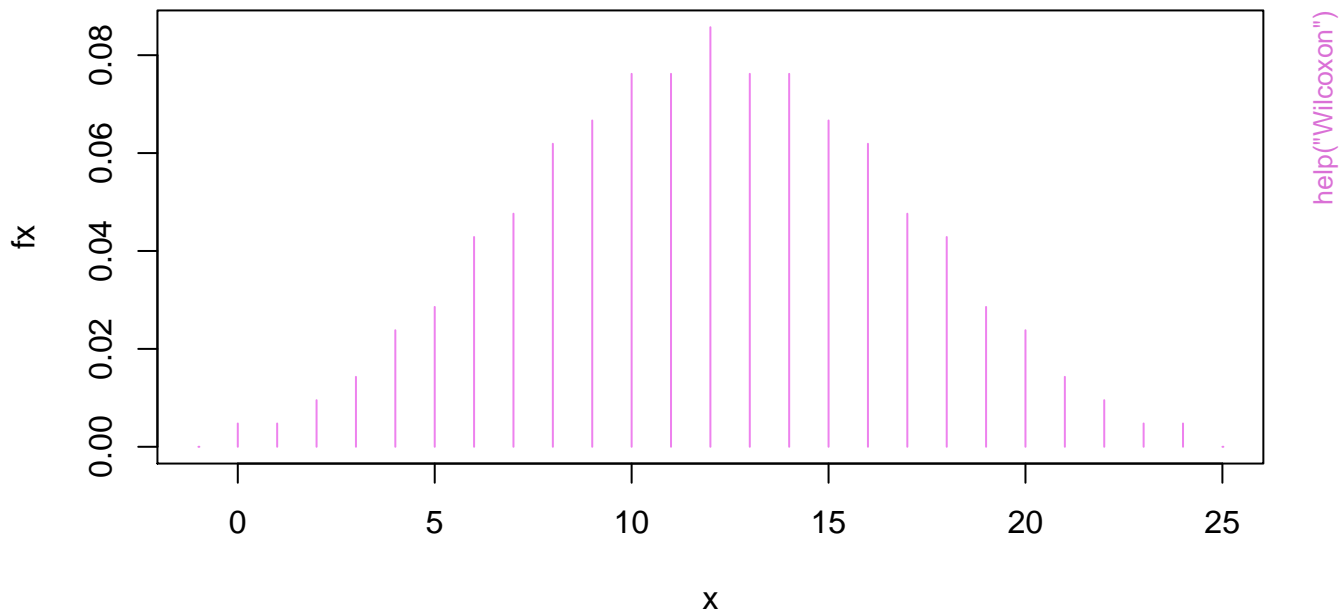


help("TDist")

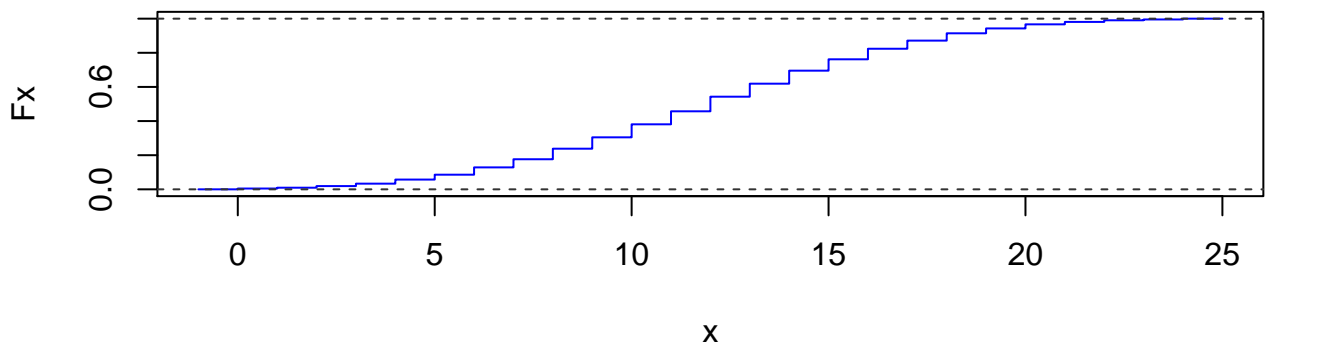
95% family-wise confidence level



Probabilities (density) of Wilcoxon-Statist.(n=6, m=4)

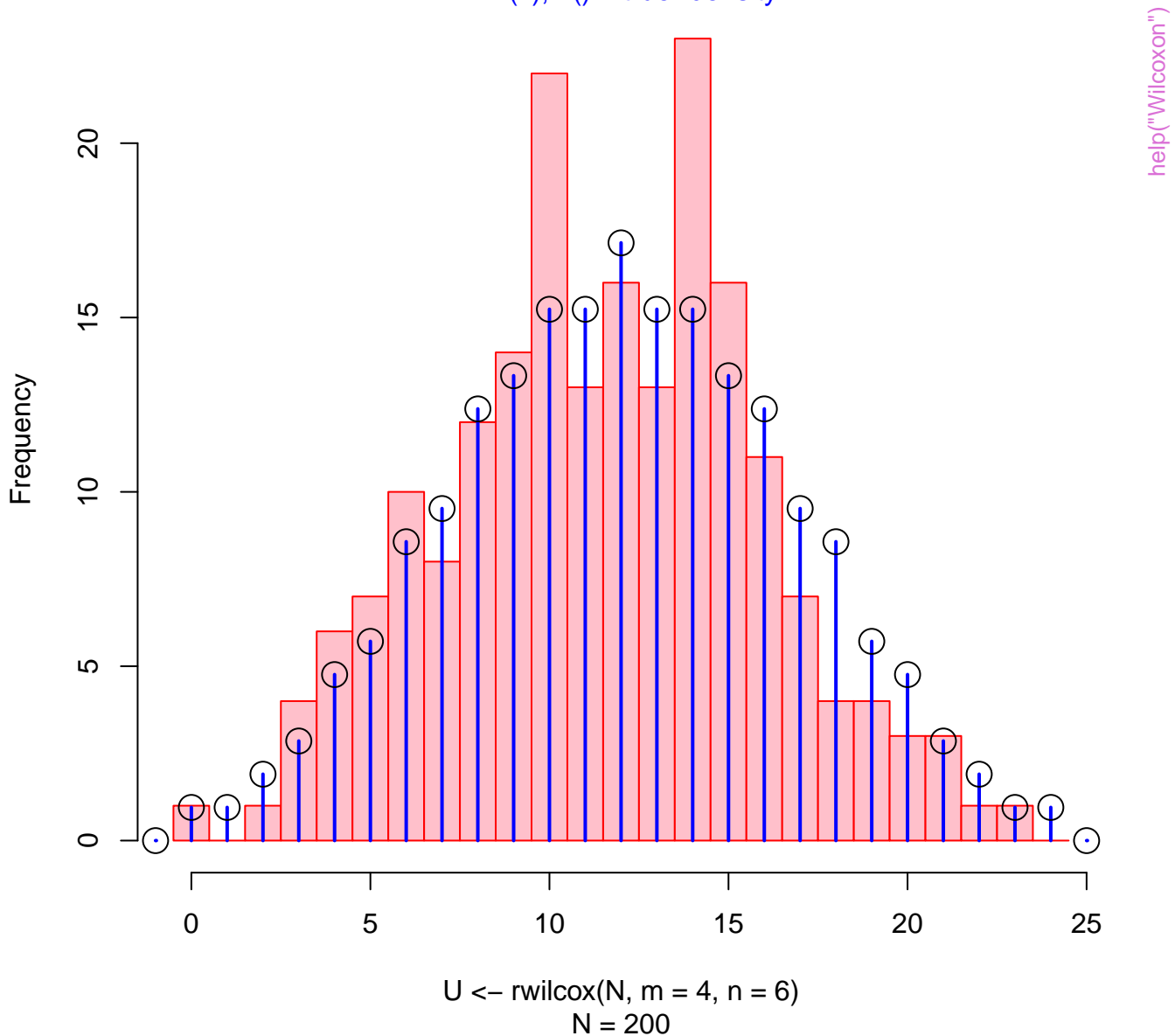


Distribution of Wilcoxon-Statist.(n=6, m=4)

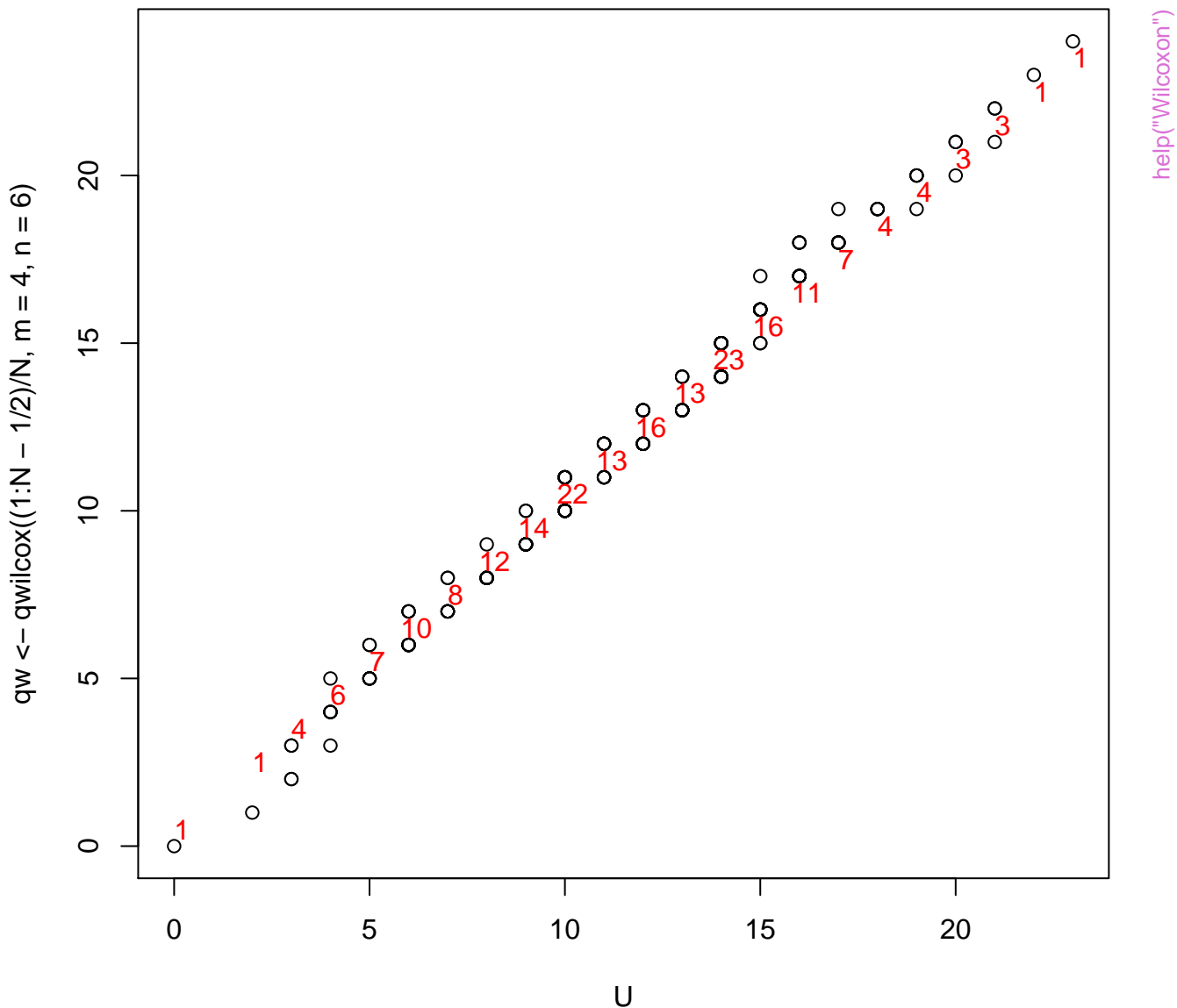


Histogram of $U \leftarrow \text{rwilcox}(N, m = 4, n = 6)$

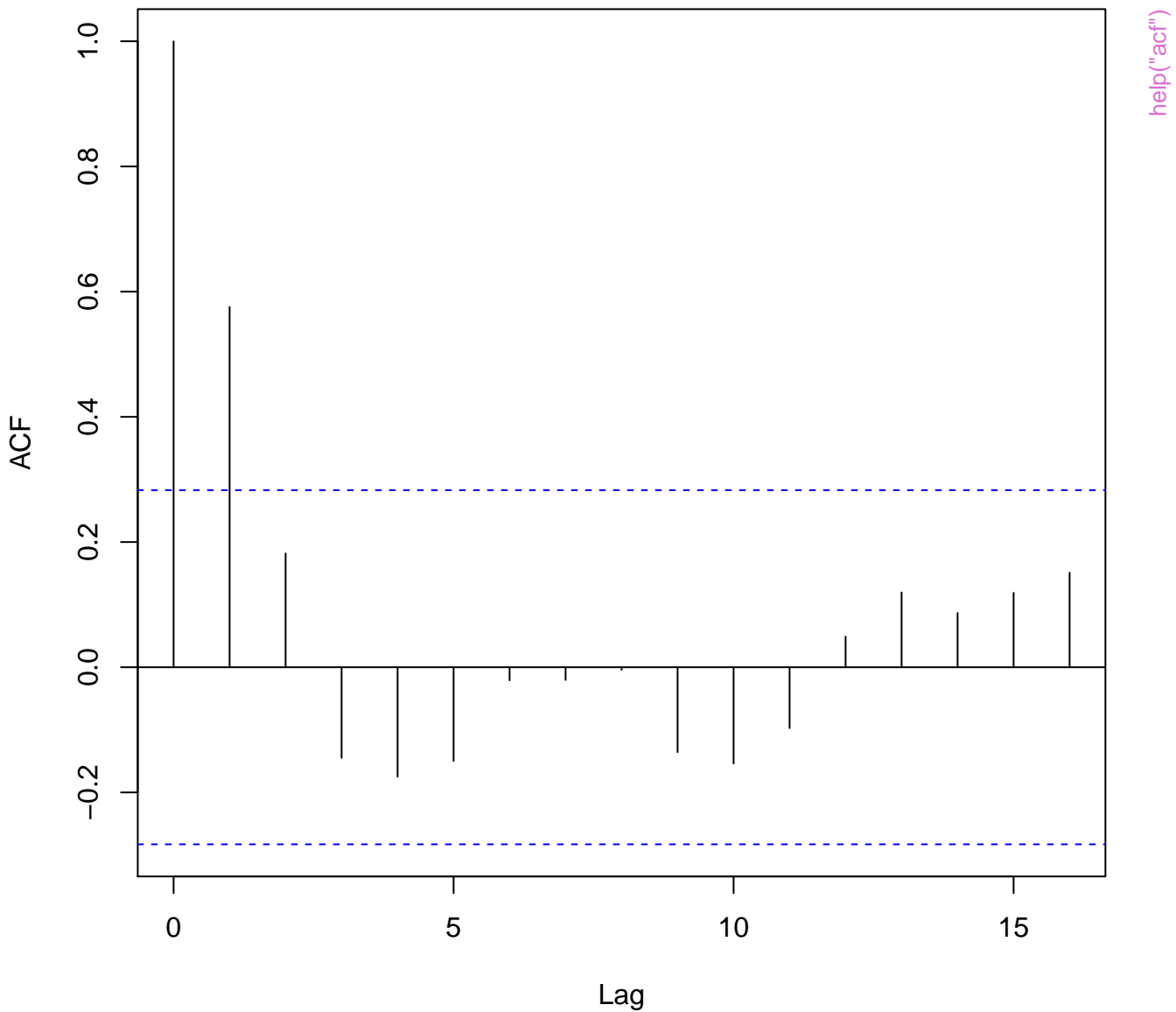
$N * f(x), f() = \text{true "density"}$



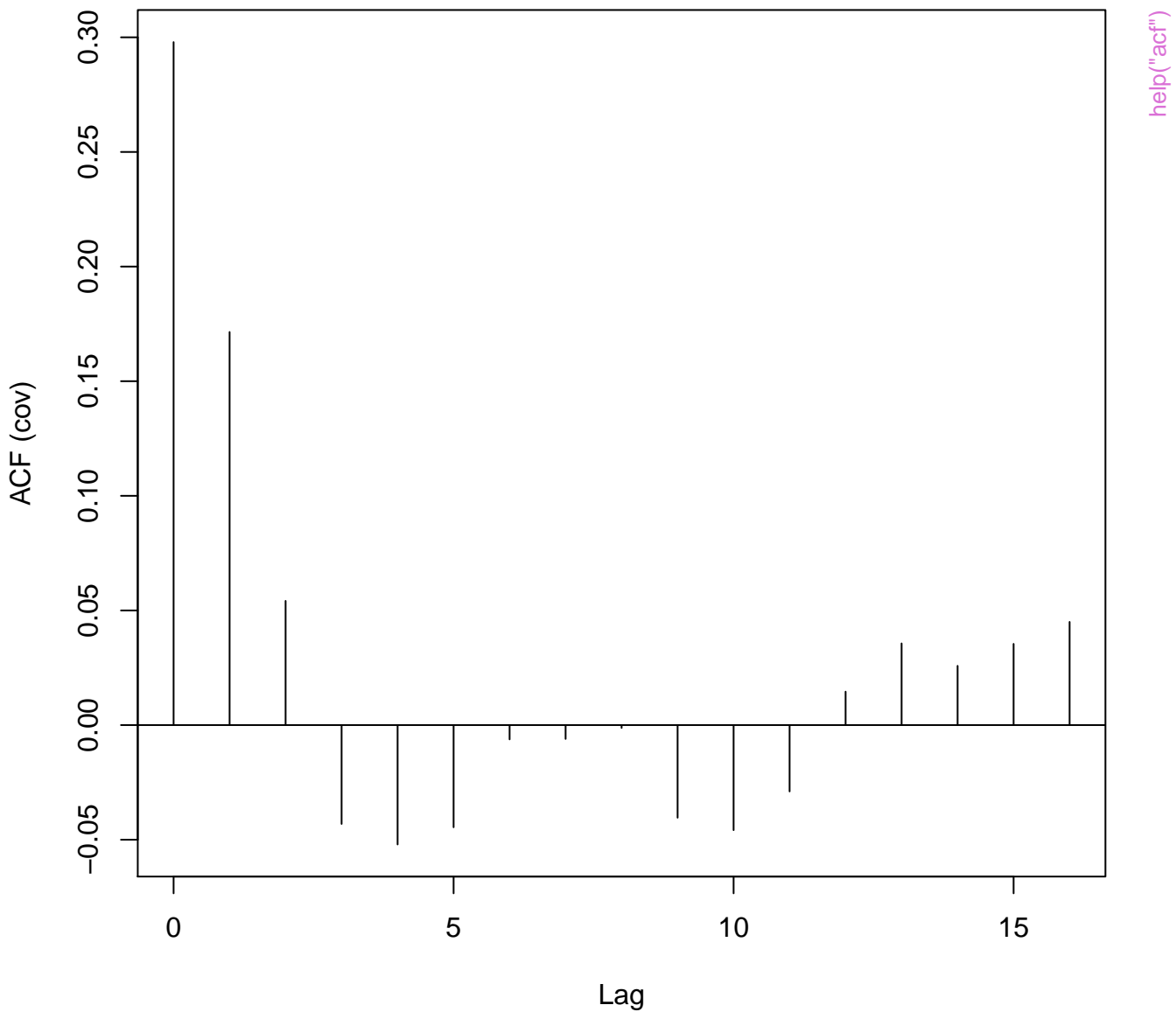
Q-Q-Plot of empirical and theoretical quantiles Wilcoxon Statistic, (m=4, n=6)



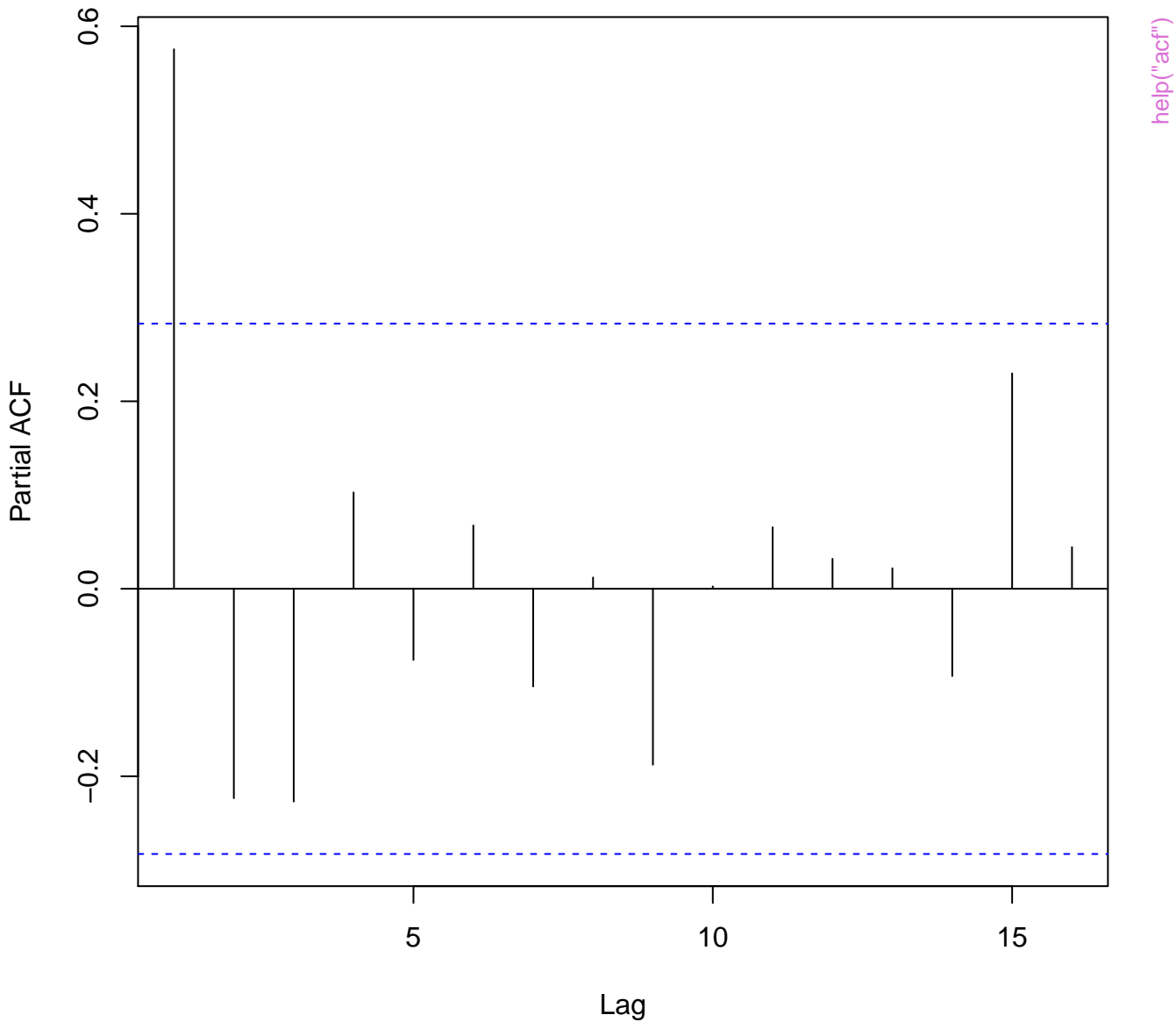
Series lh



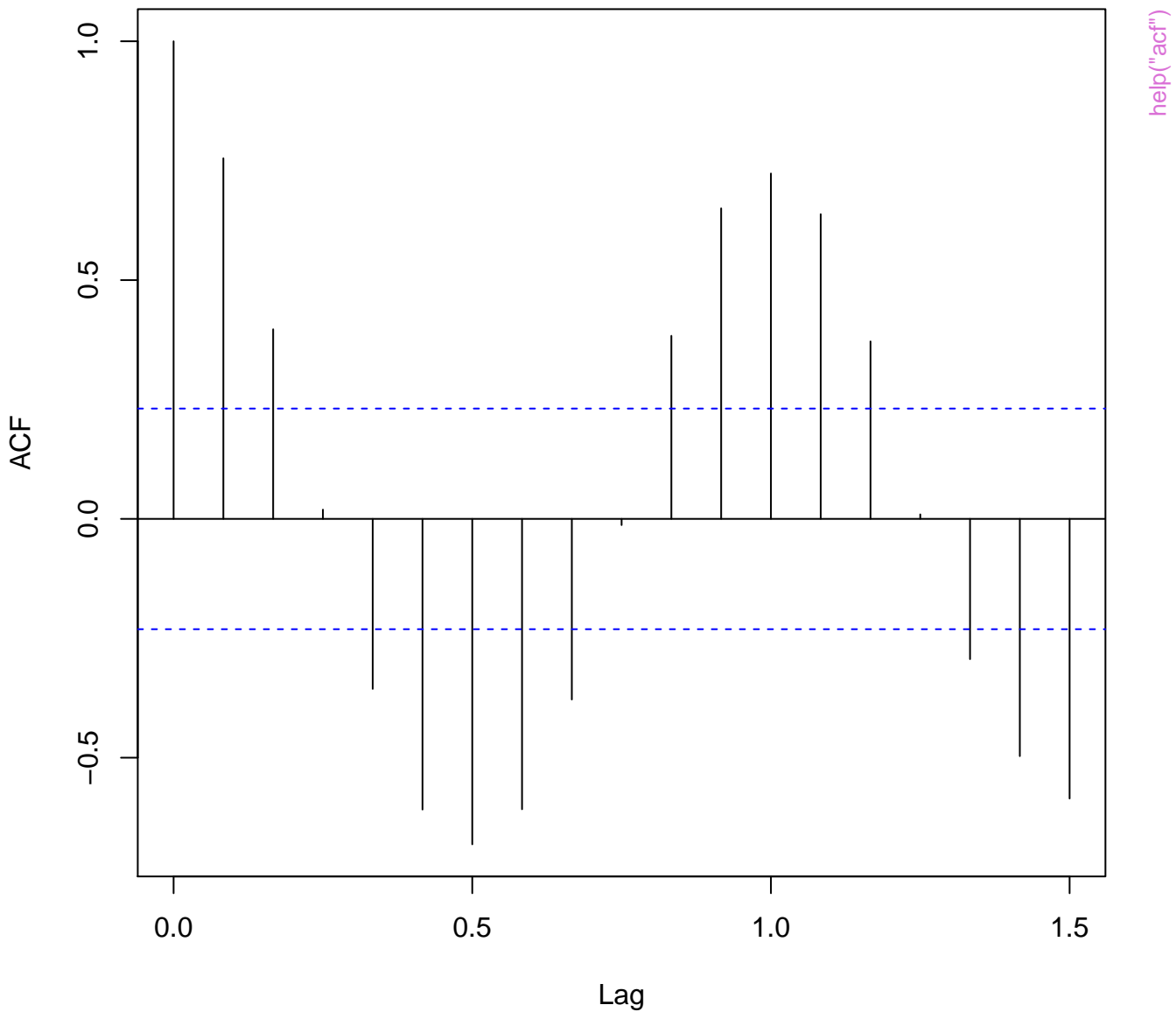
Series lh



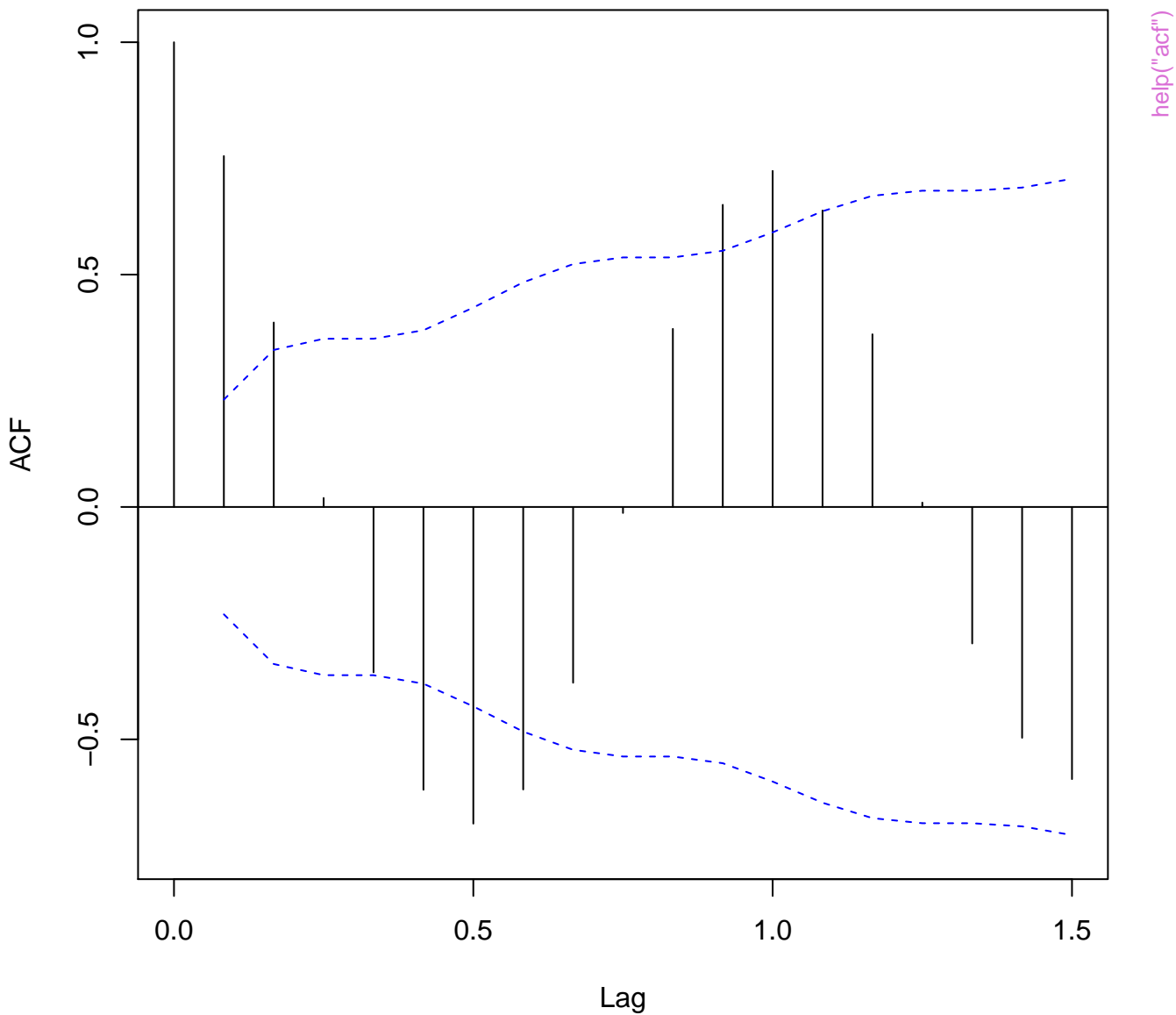
Series 1h



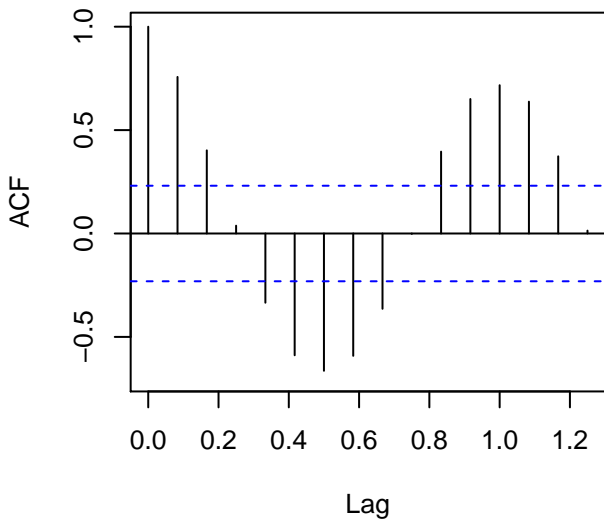
Series Ideaths



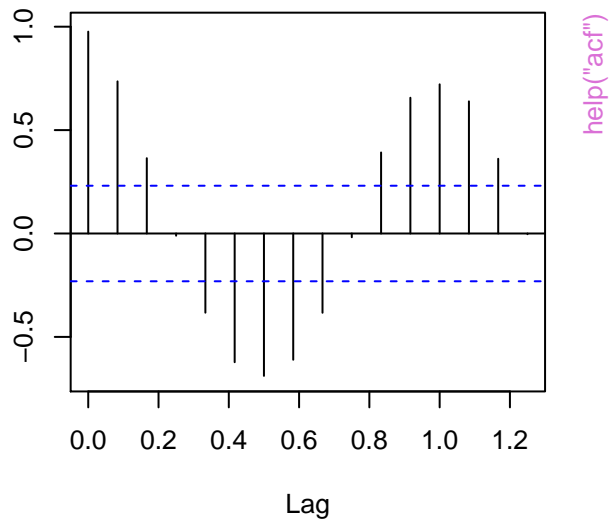
Series Ideaths



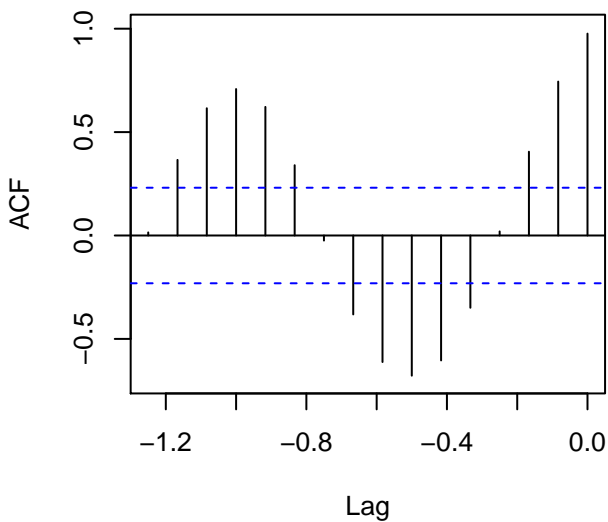
mdeaths



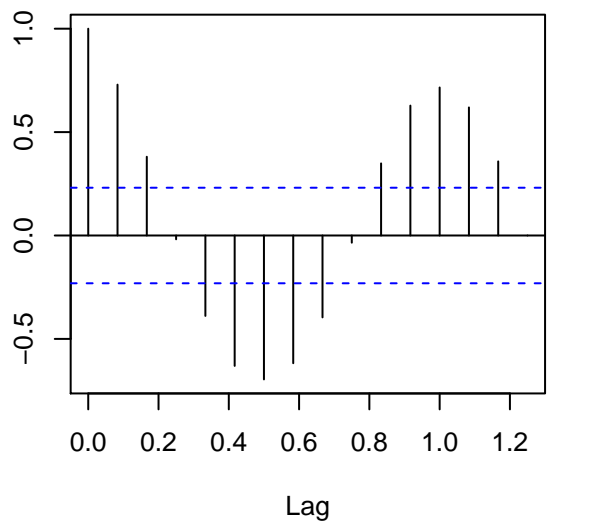
mdeaths & fdeaths



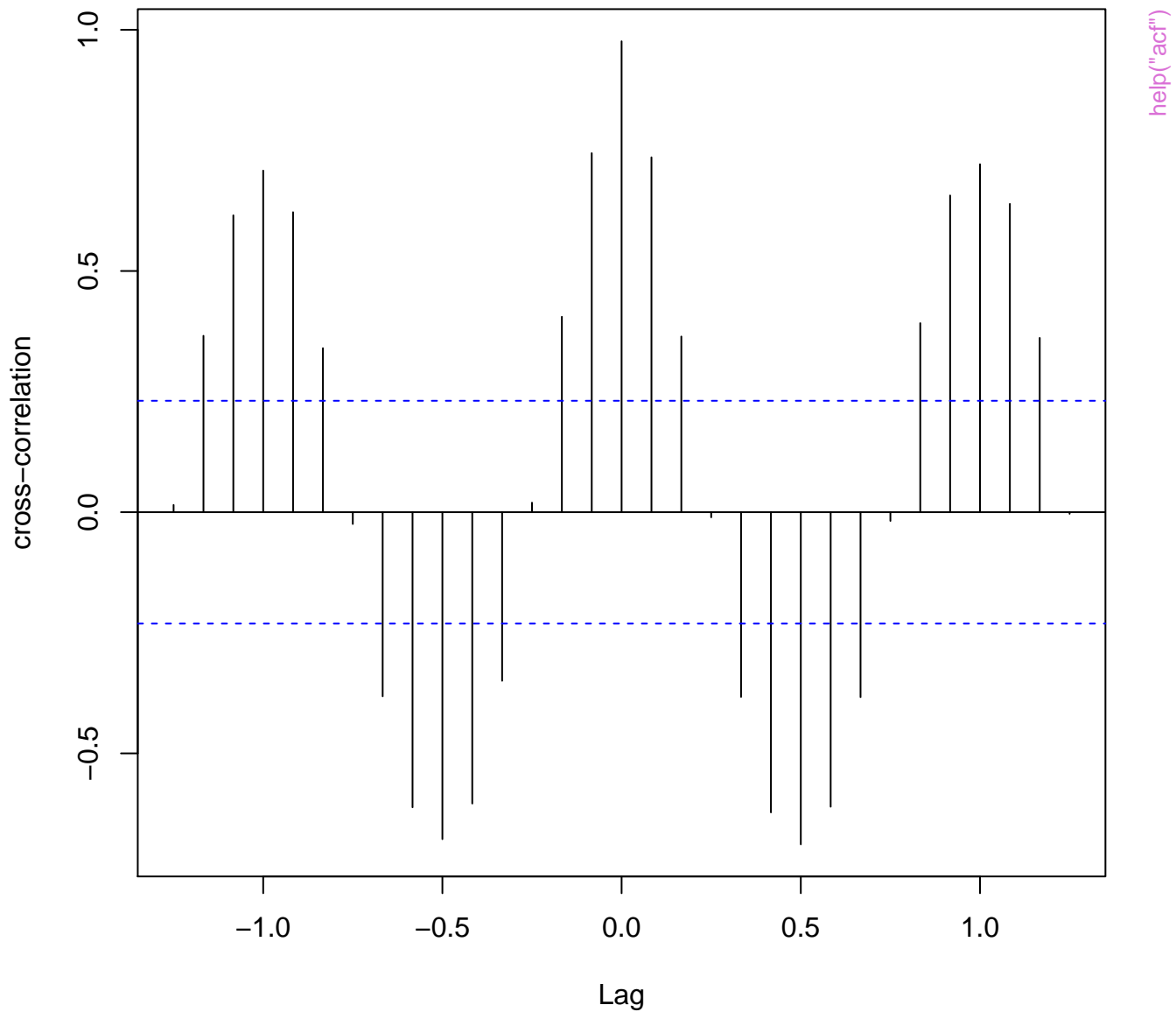
fdeaths & mdeaths



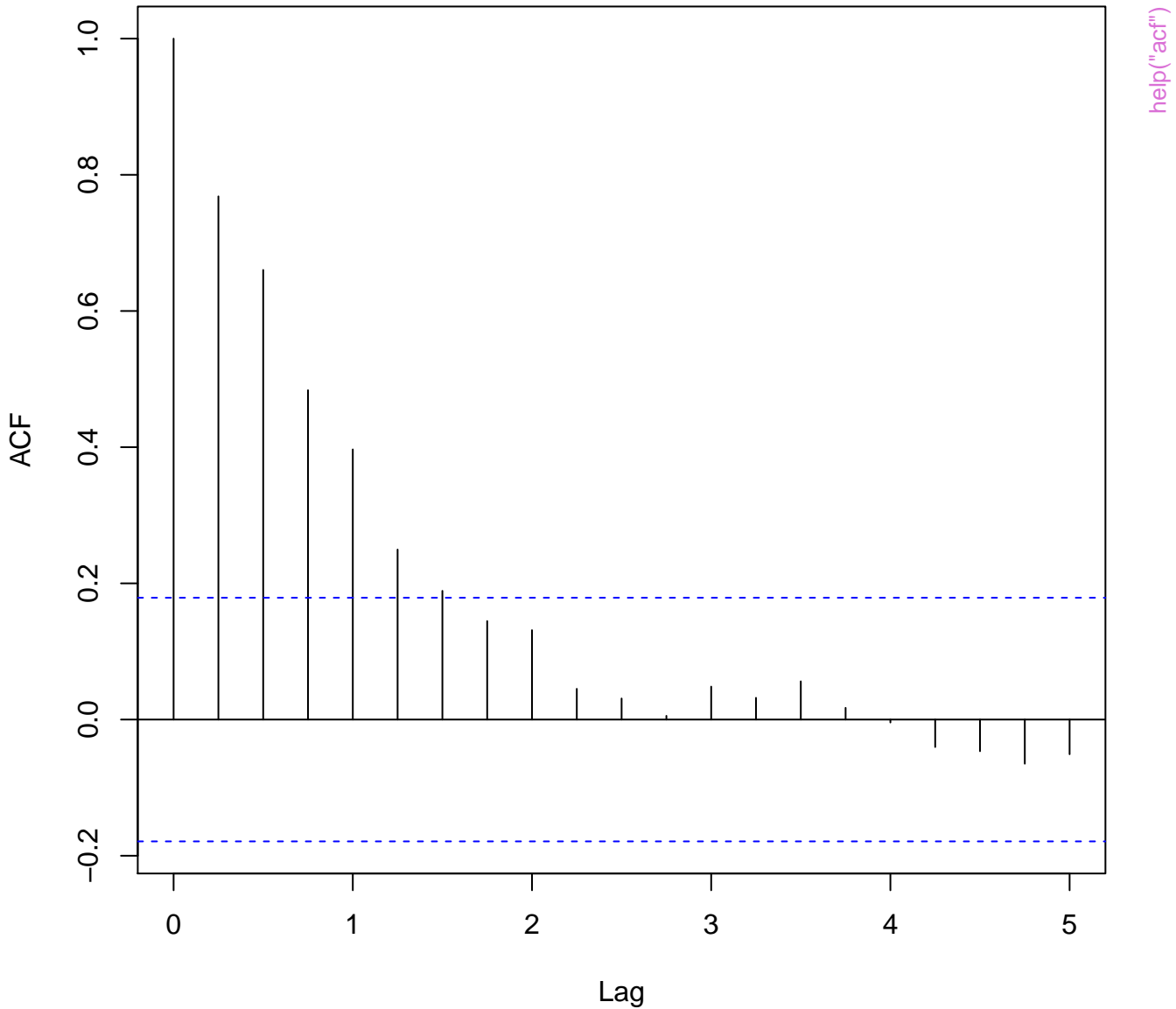
fdeaths



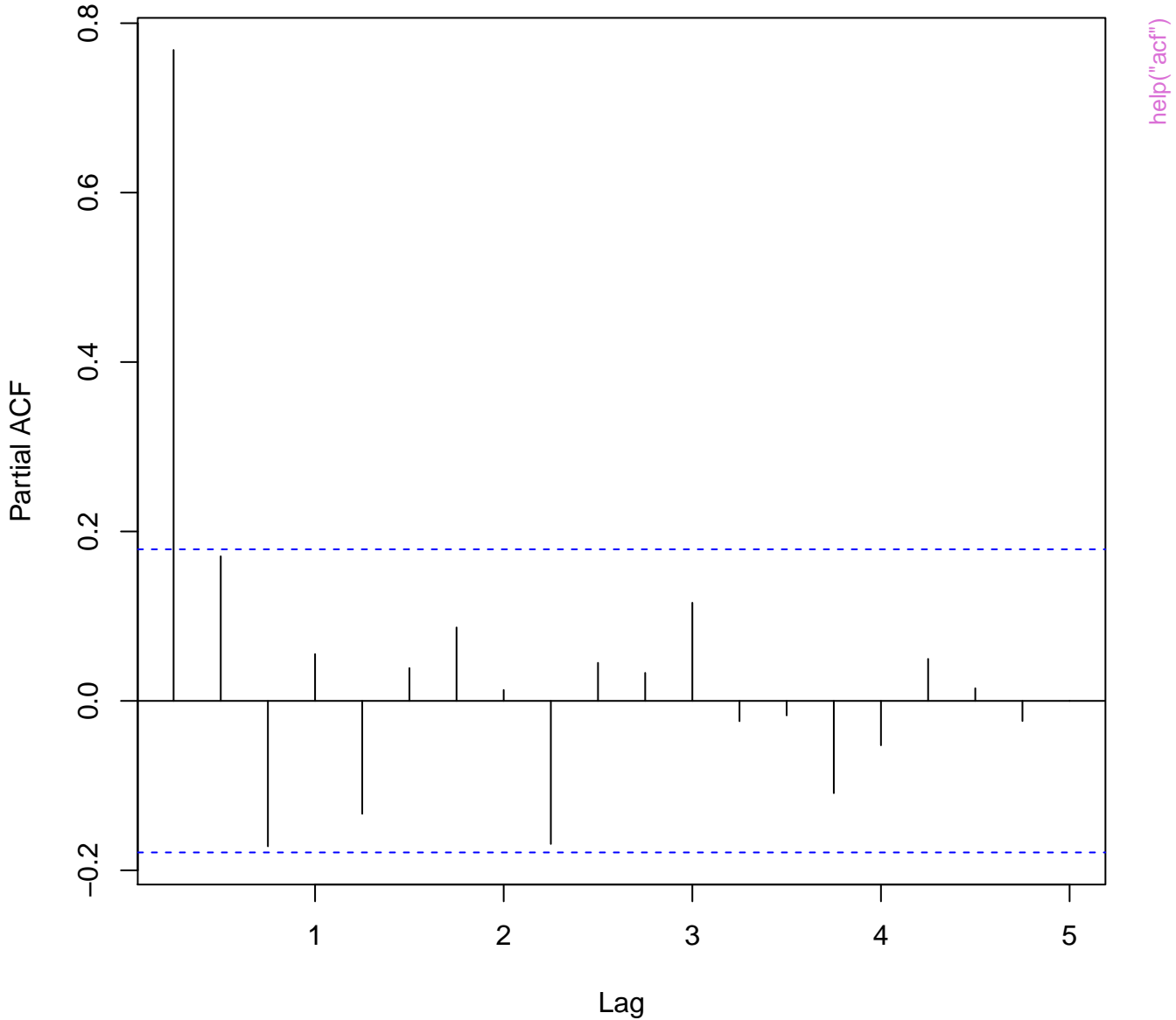
mdeaths & fdeaths

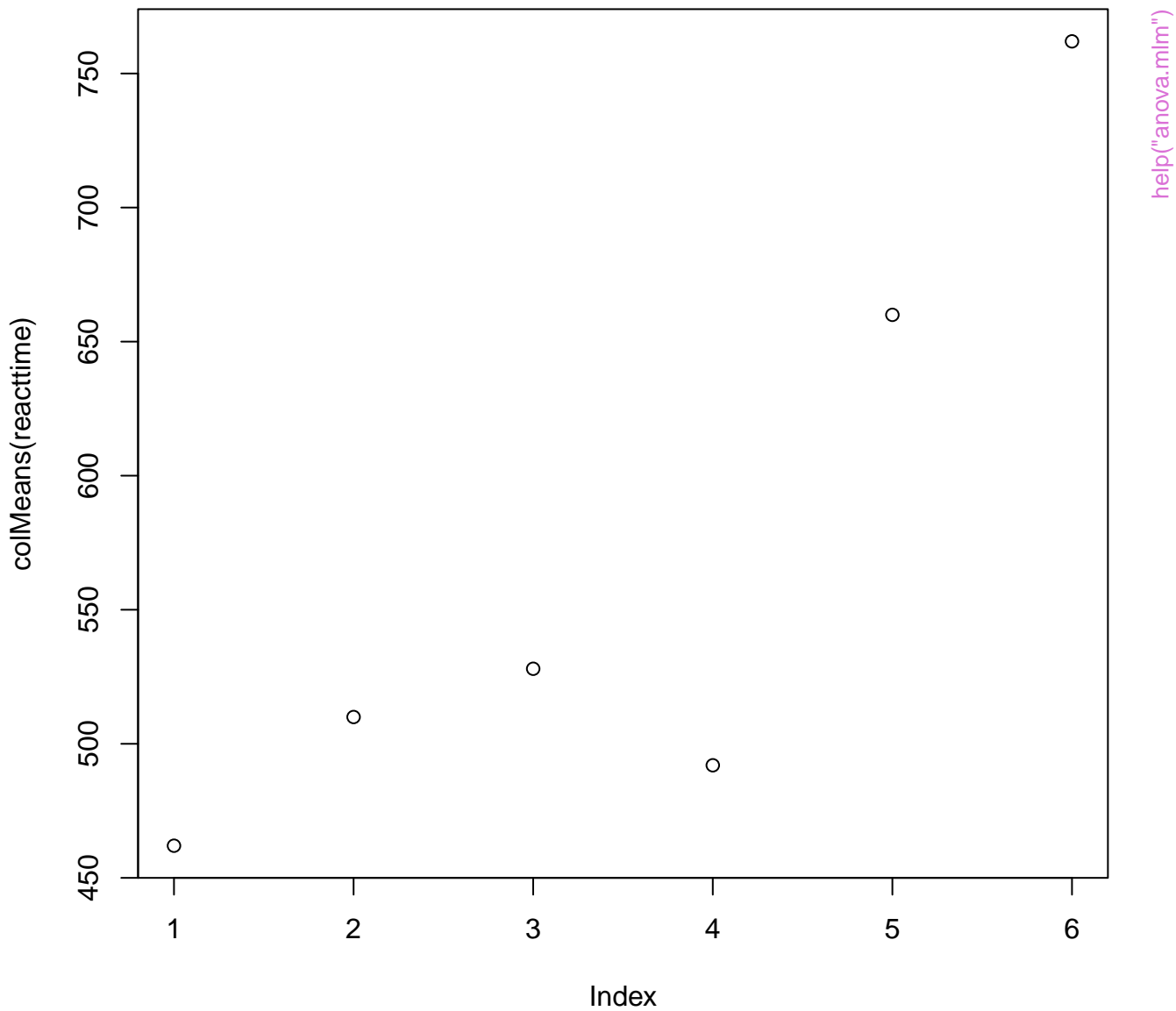


Series presidents

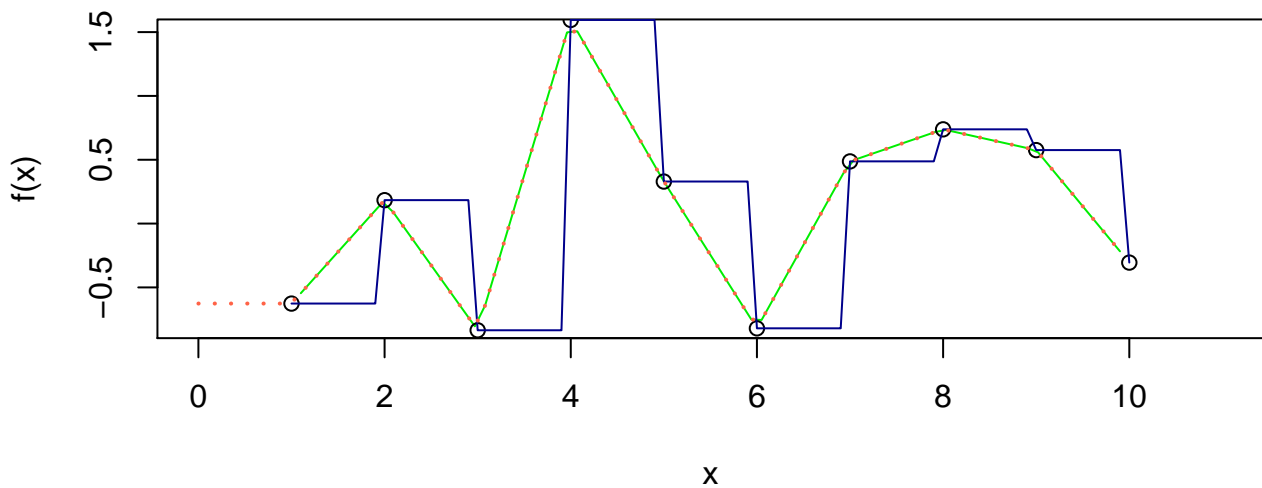
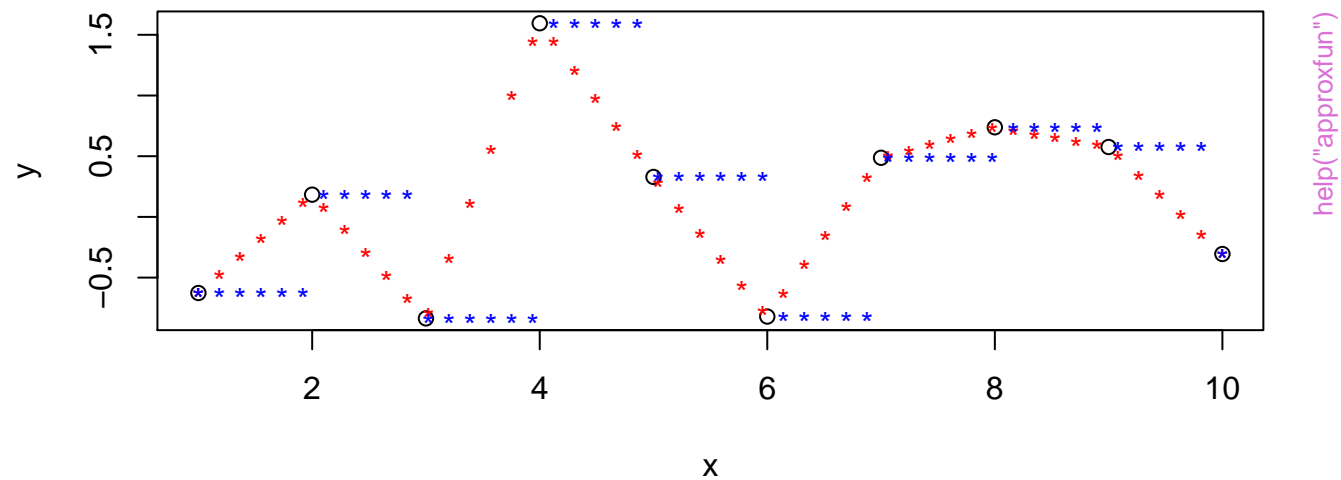


Series presidents

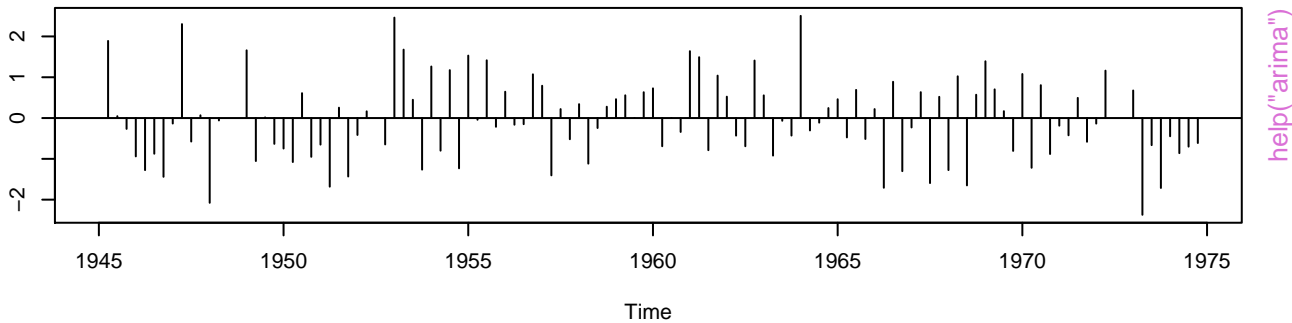




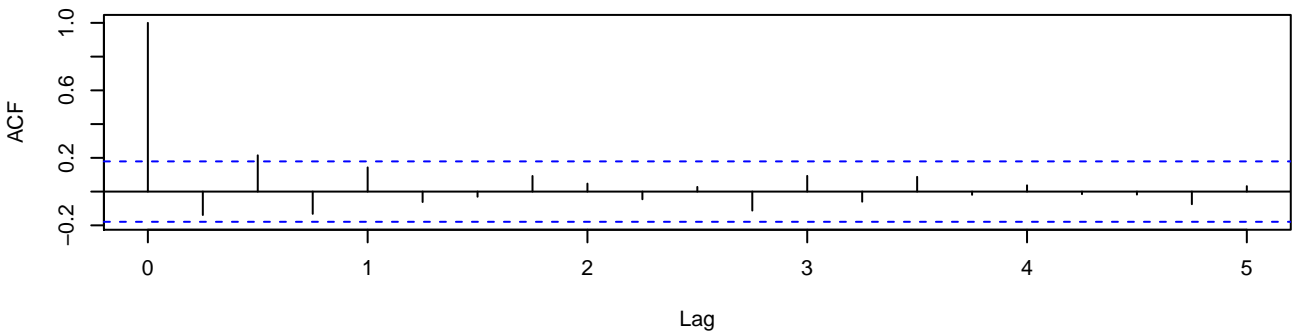
approx(.) and approxfun(.)



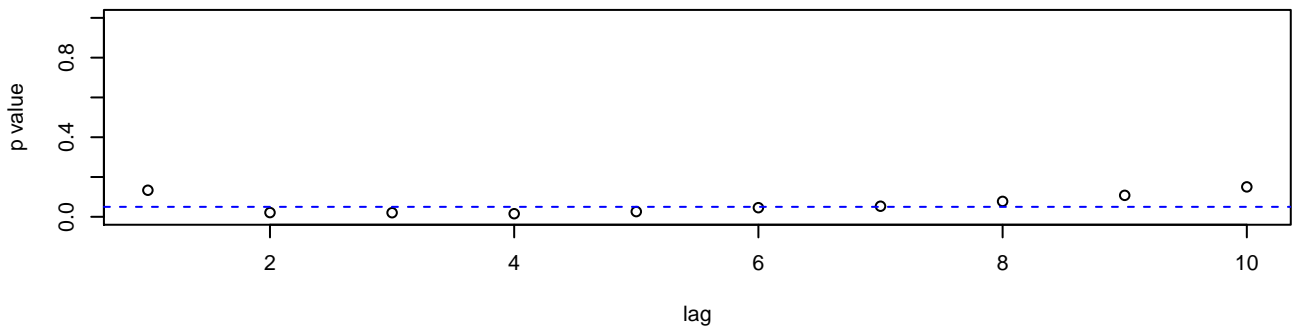
Standardized Residuals



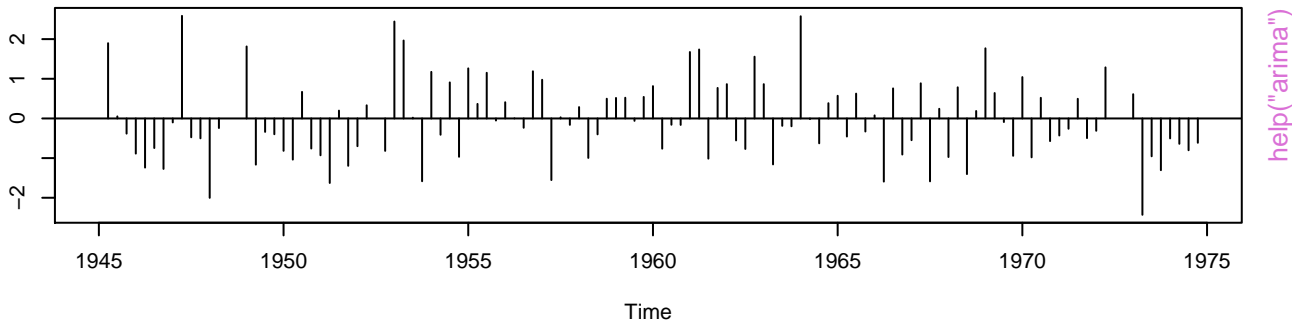
ACF of Residuals



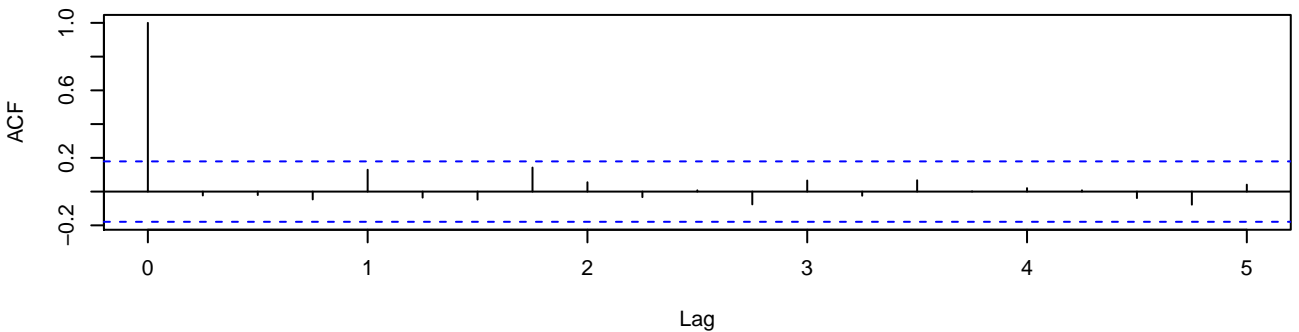
p values for Ljung–Box statistic



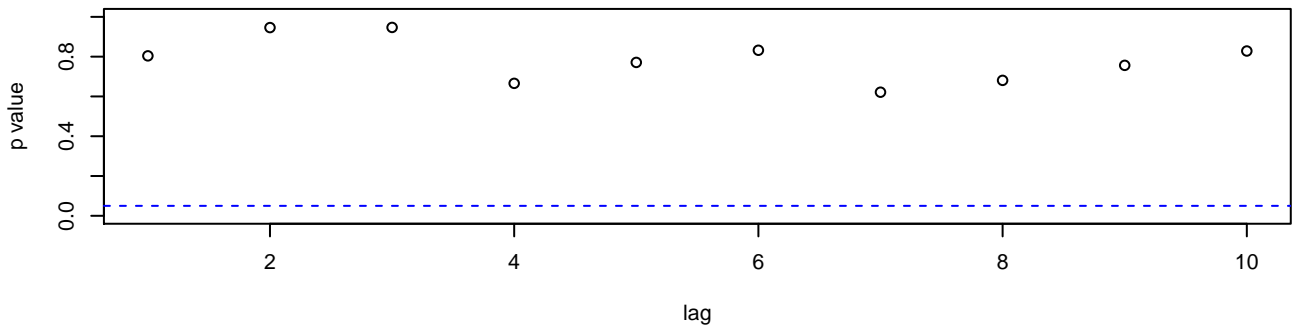
Standardized Residuals

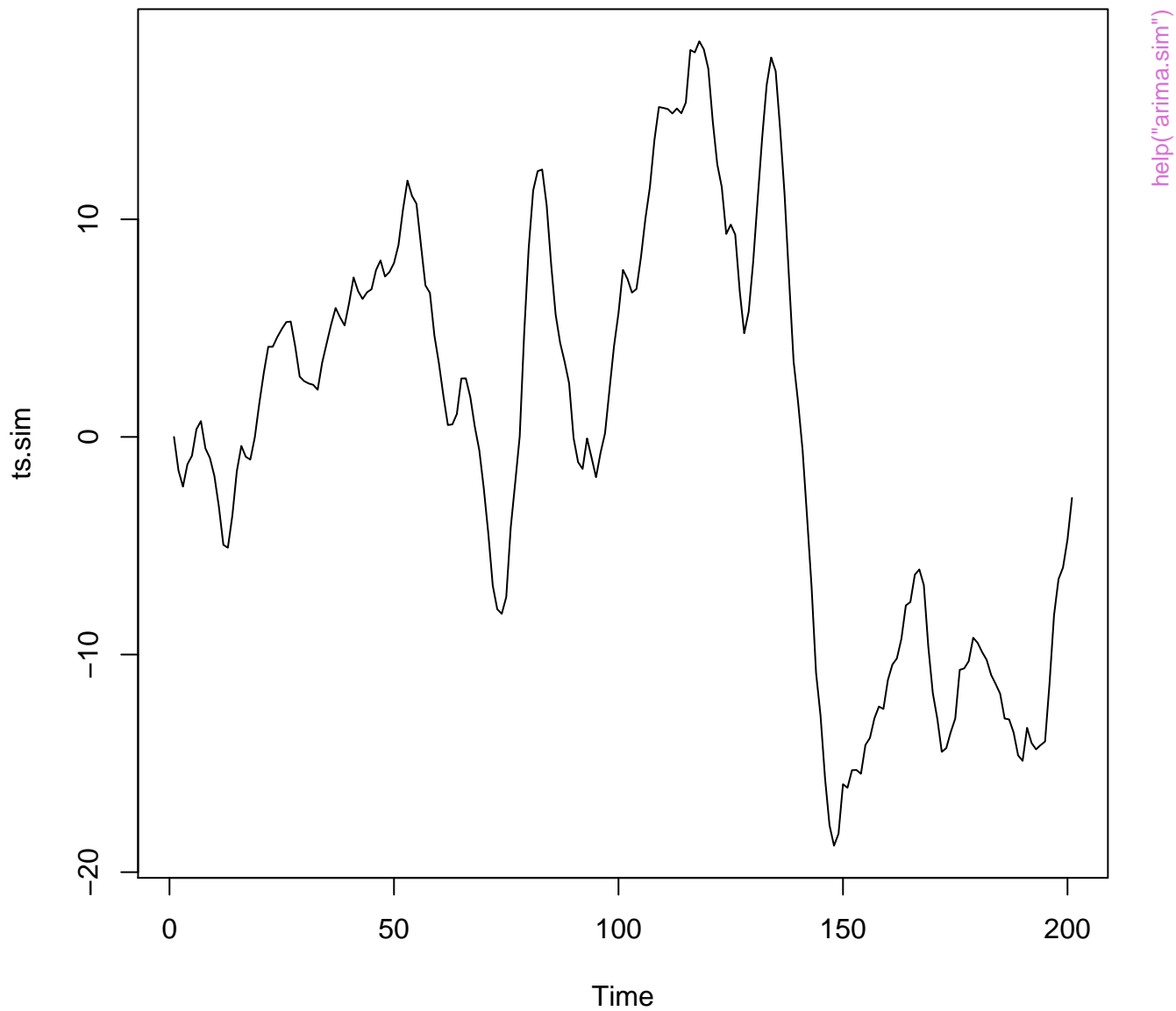


ACF of Residuals

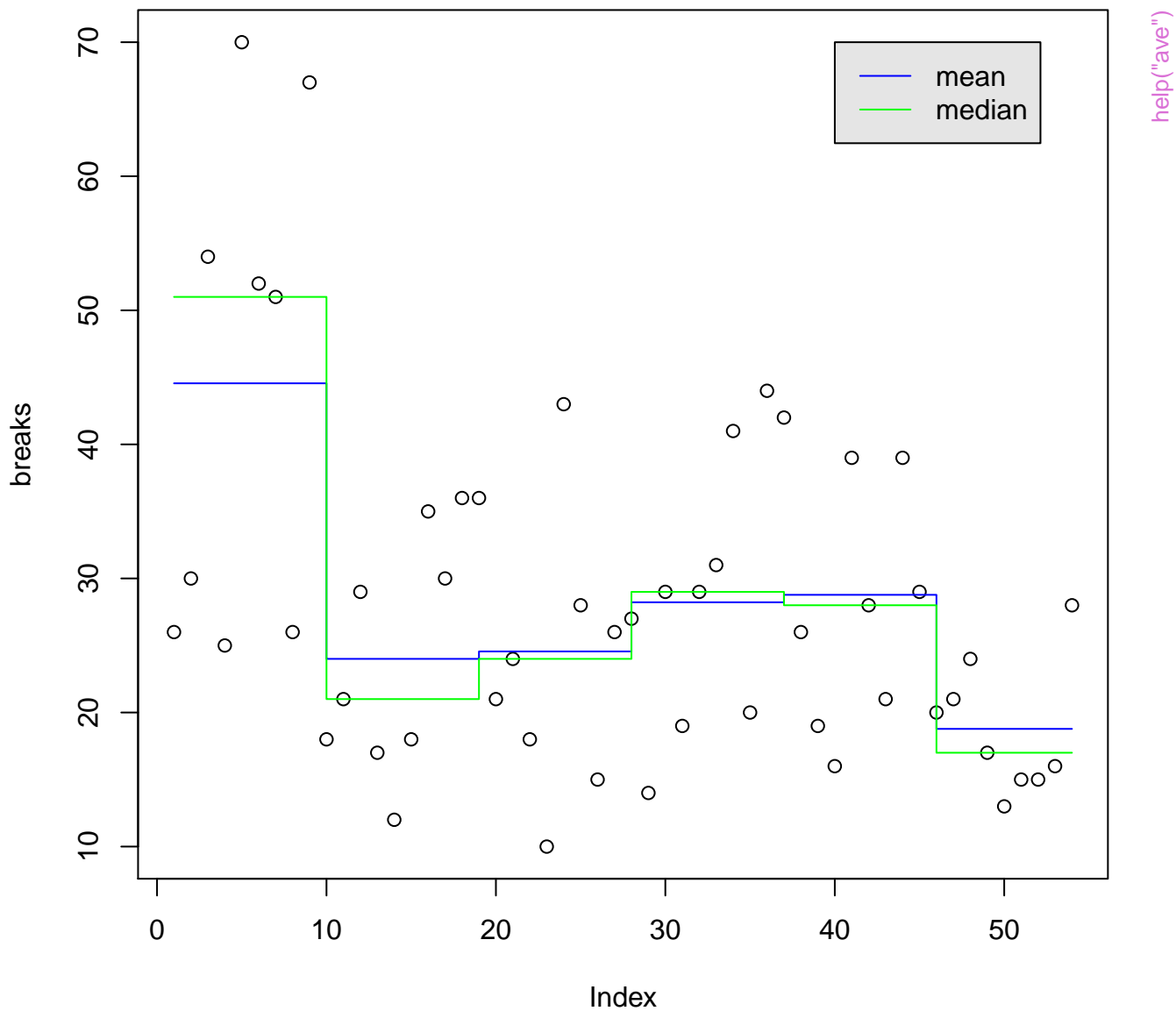


p values for Ljung-Box statistic

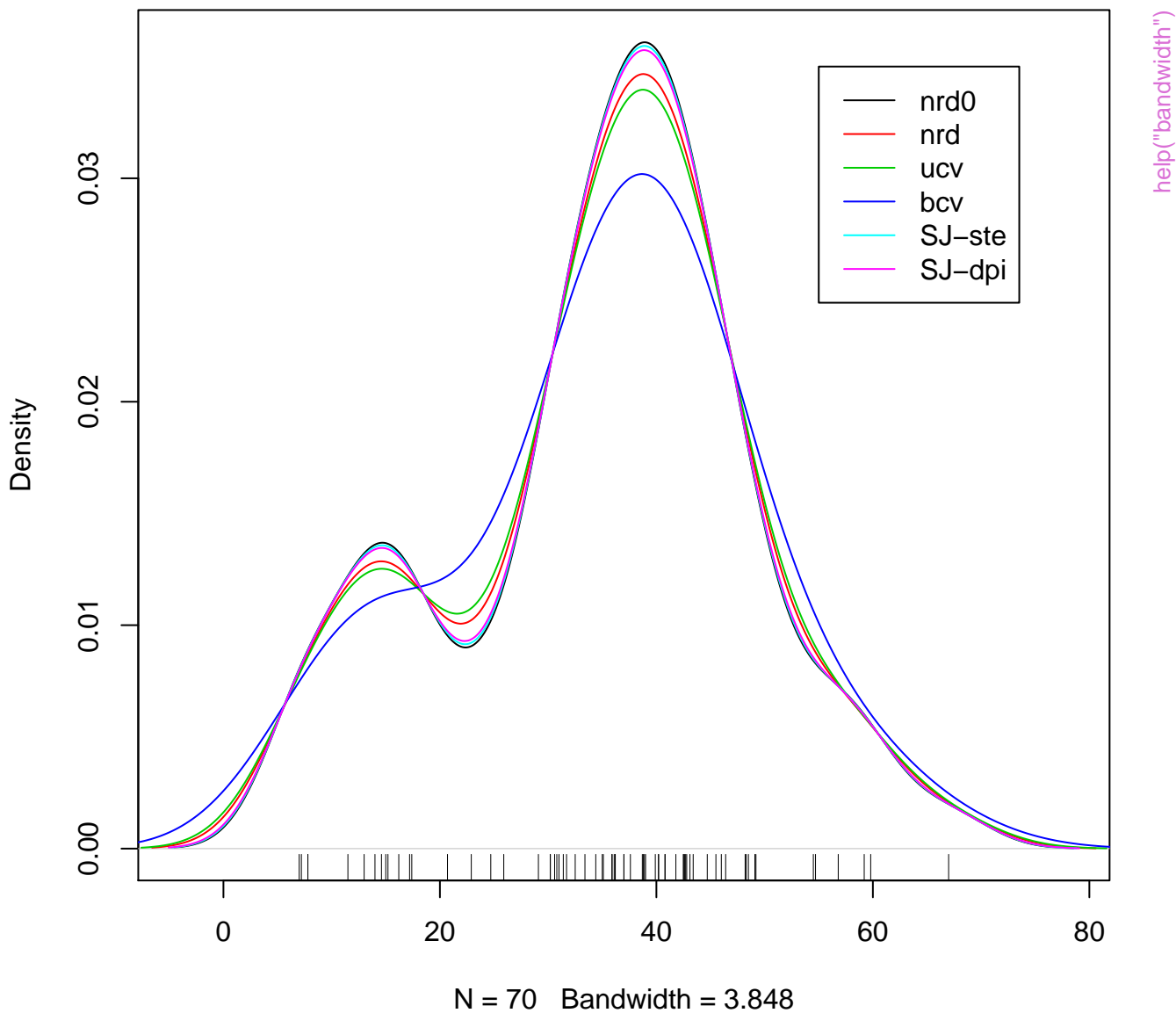


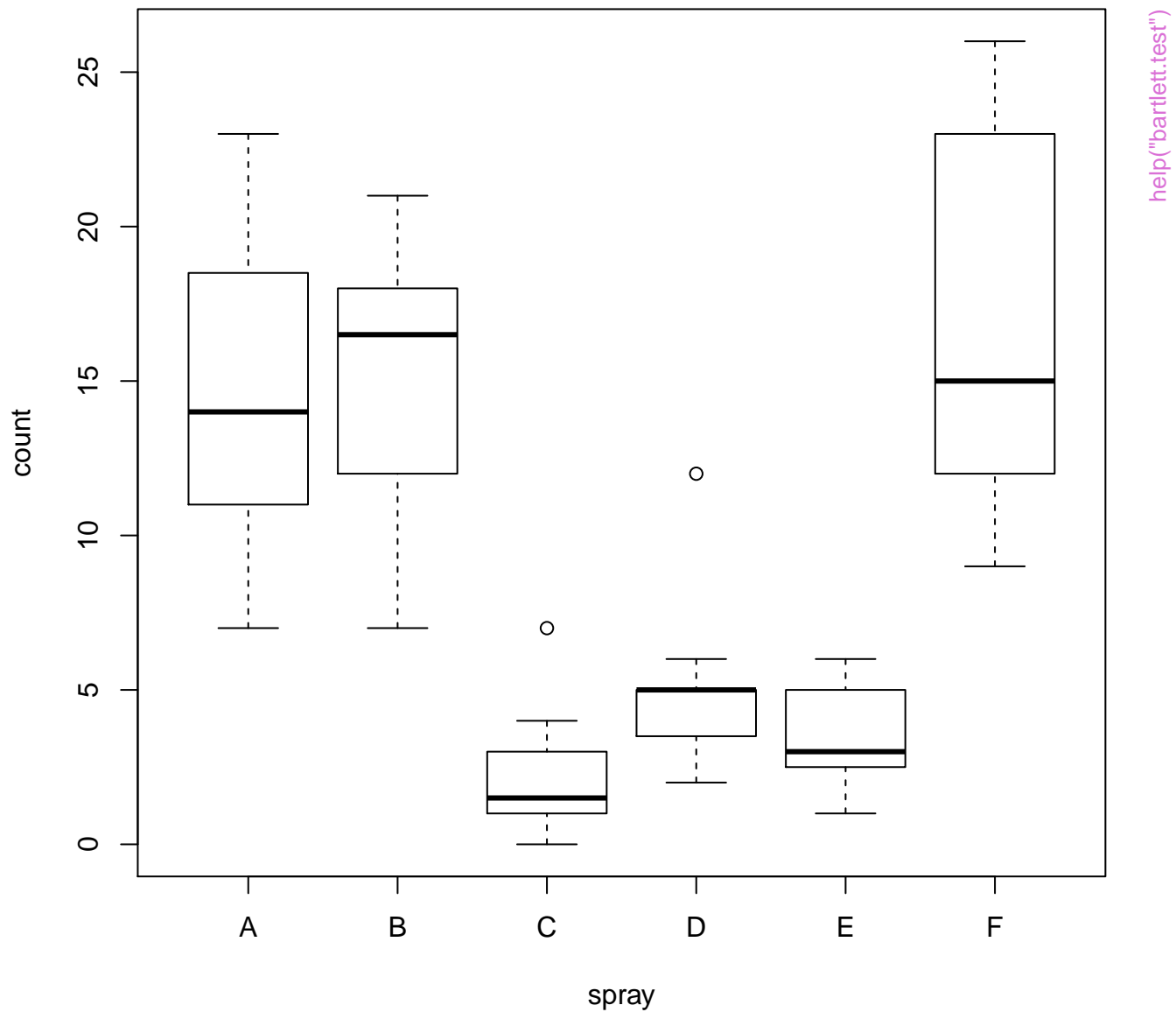


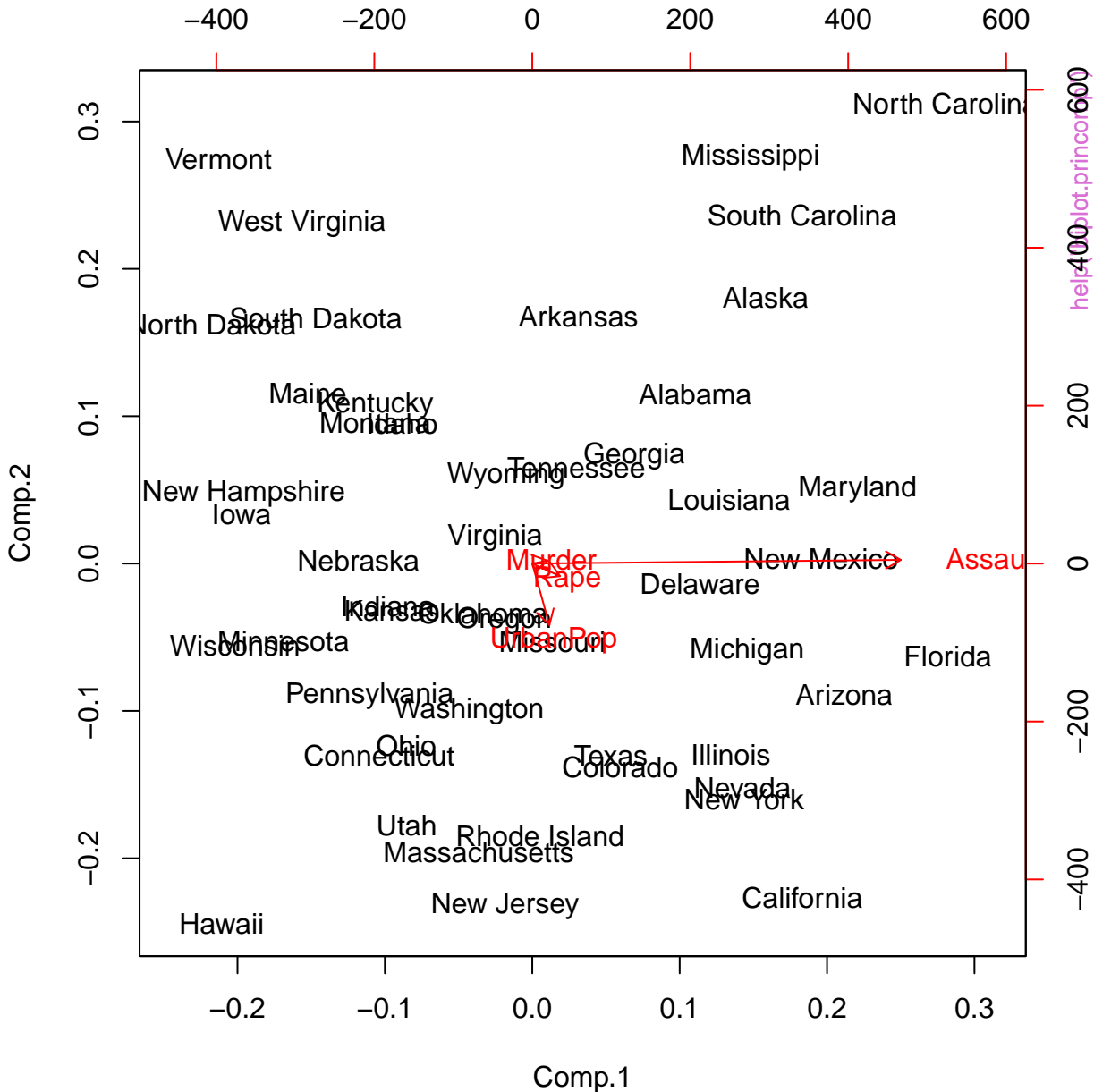
ave(Warpbreaks) for wool x tension combinations



density.default(x = precip, n = 1000)





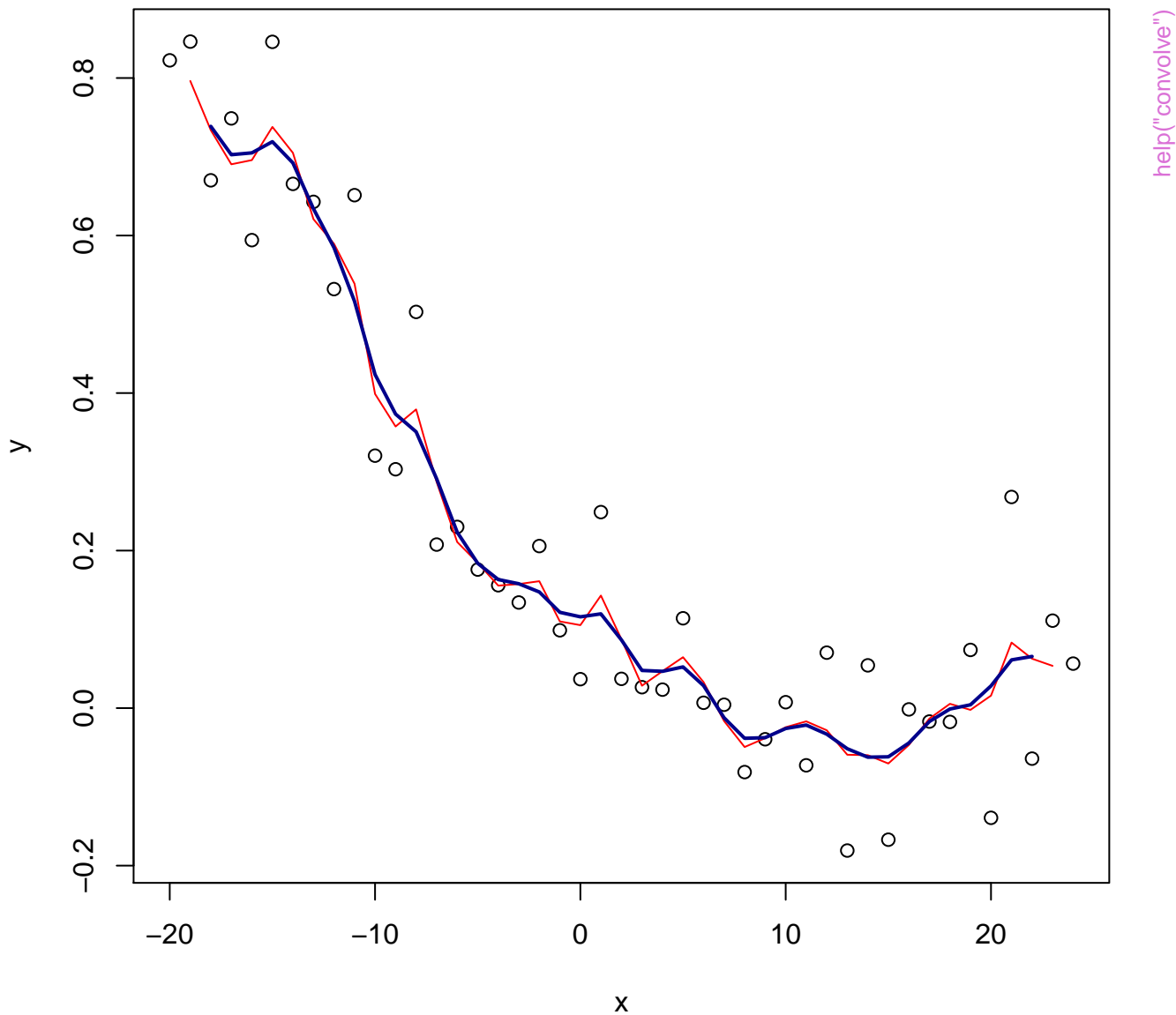


cmdscale(eurodist)

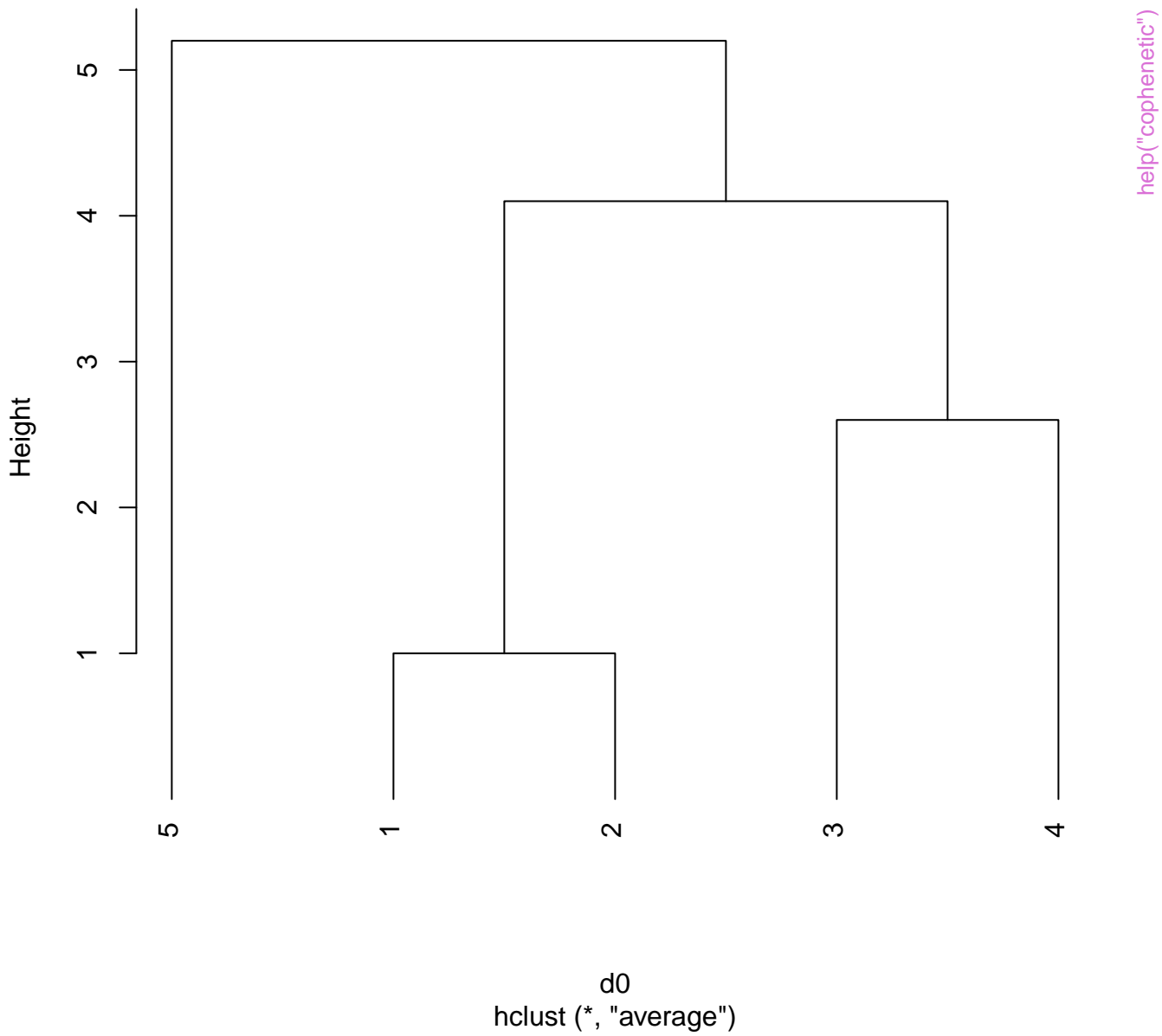


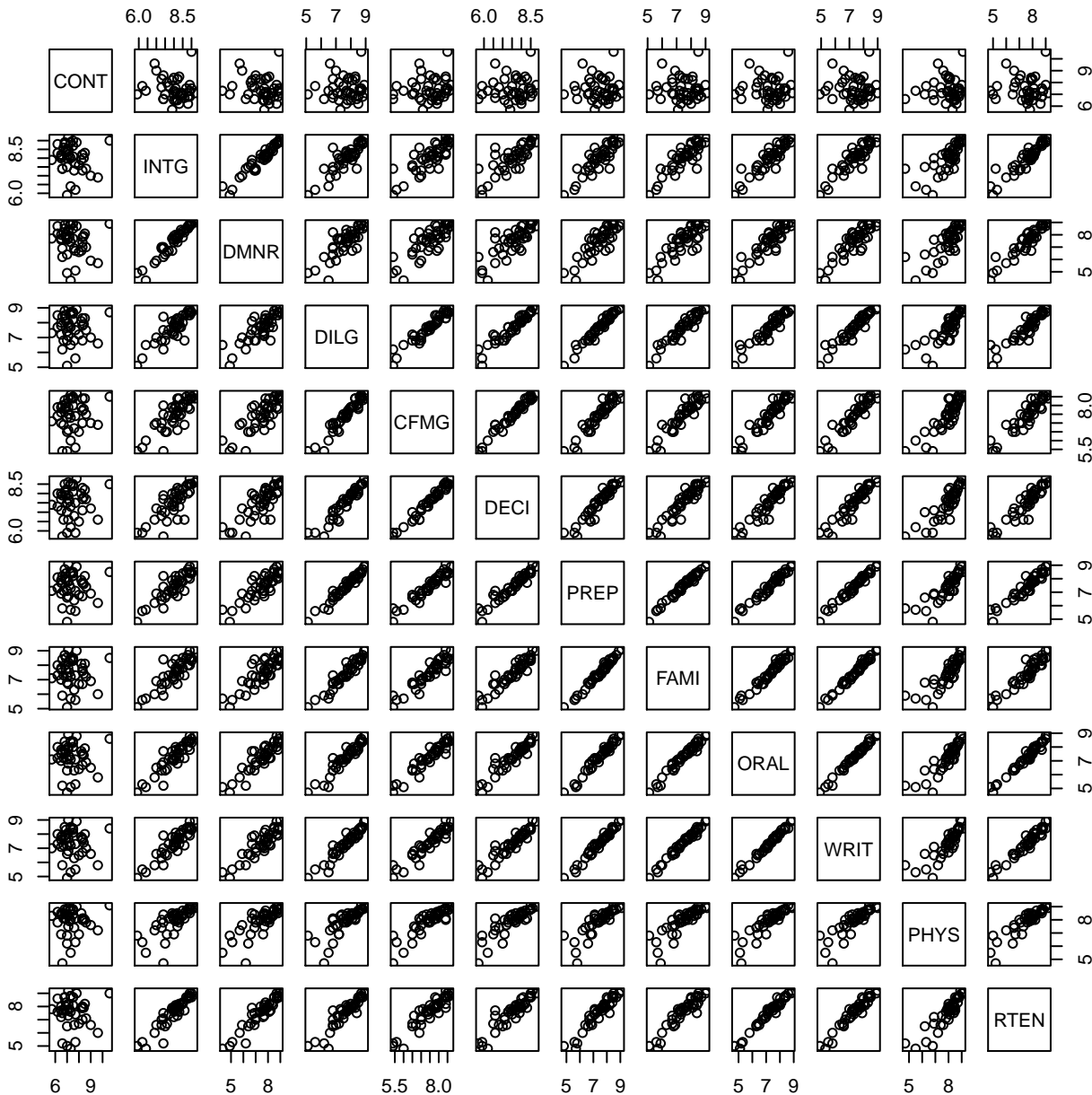
help("cmdscale")

Using `convolve(.)` for Hanning filters



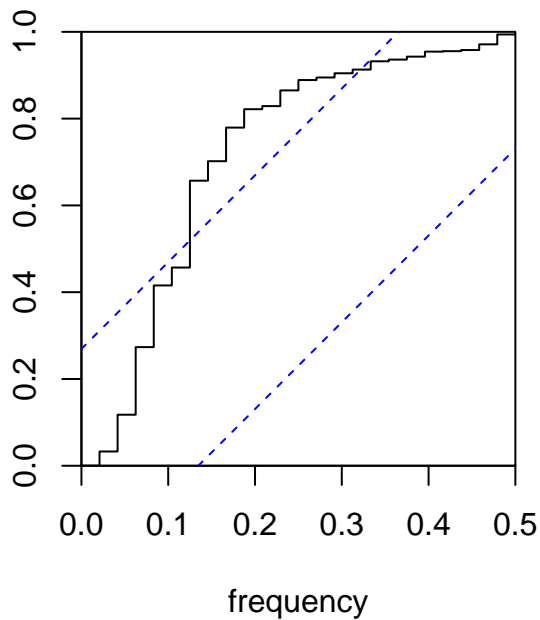
Cluster Dendrogram



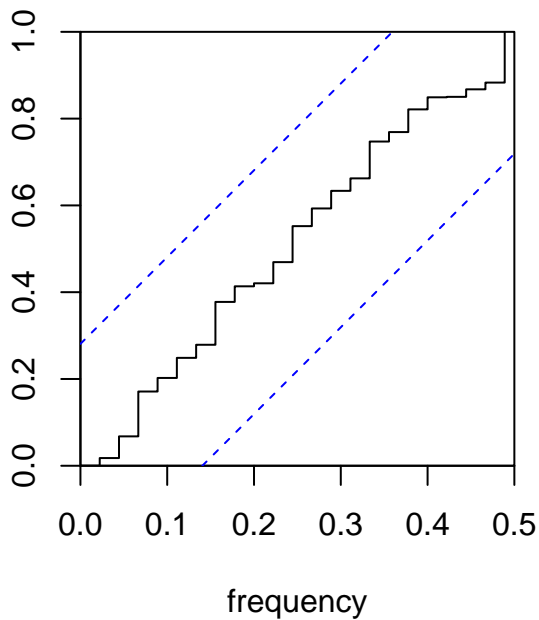


help("cor.test")

Series: lh

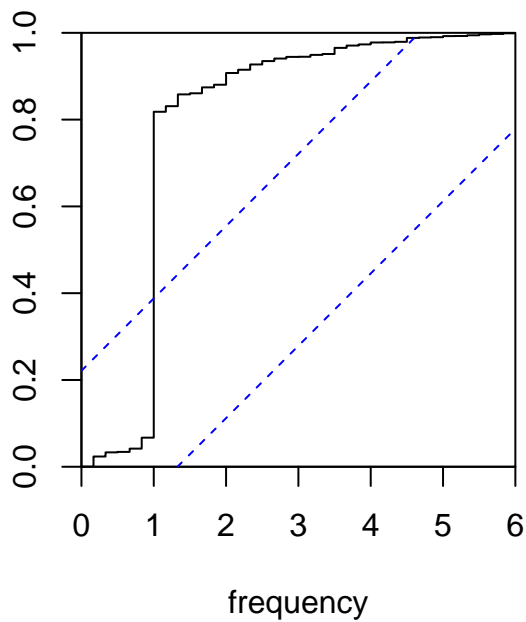


AR(3) fit to lh

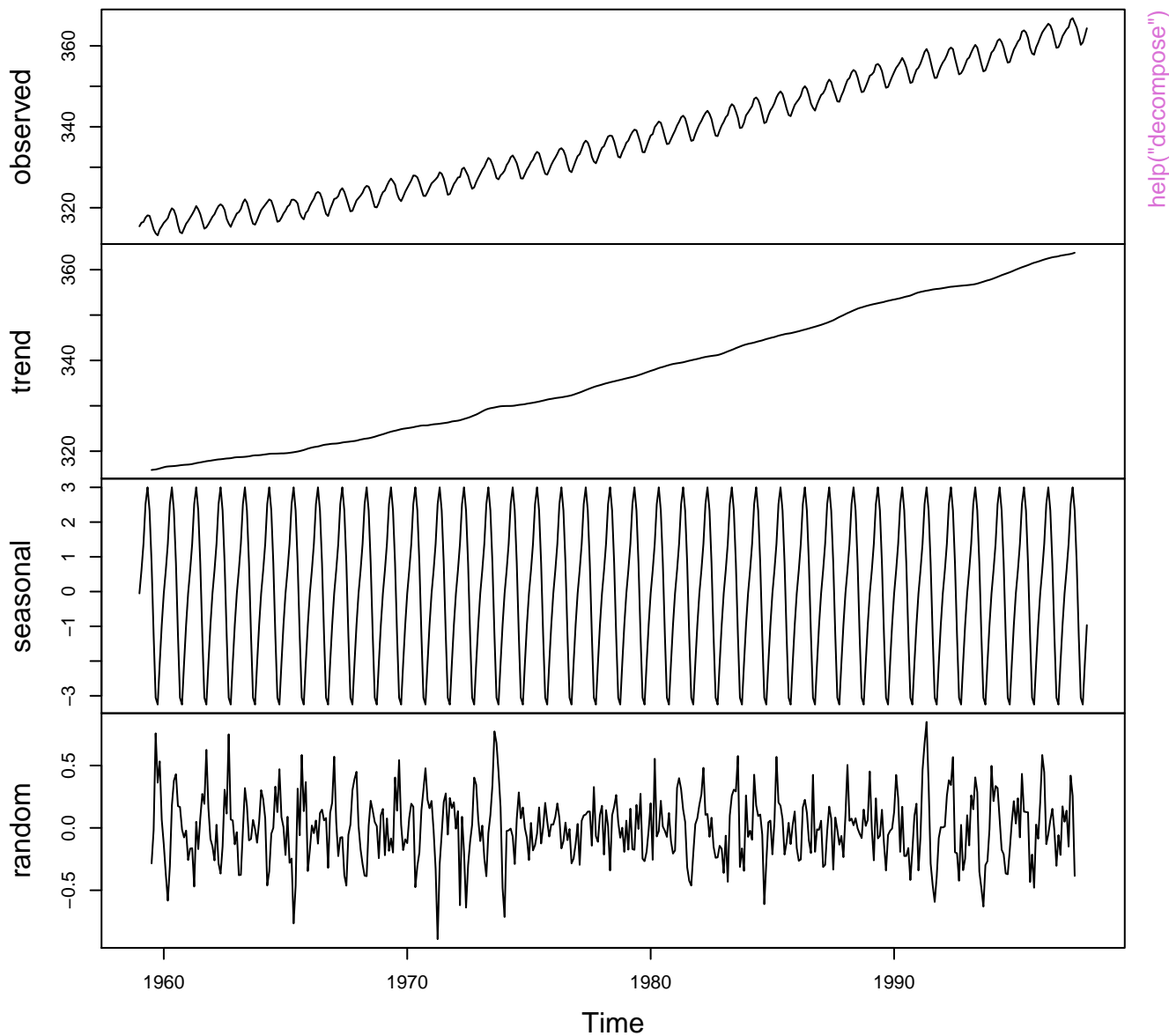


help("cpgram")

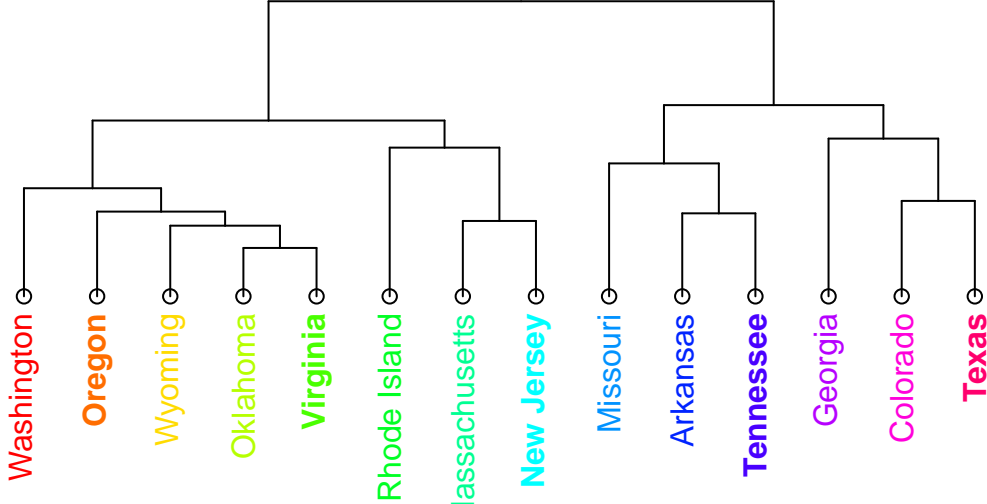
Series: Ideaths



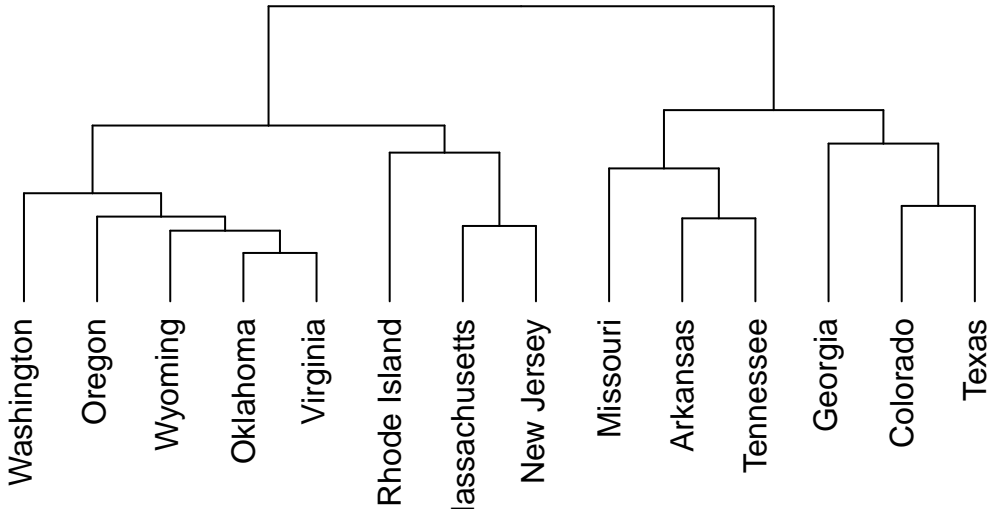
Decomposition of additive time series

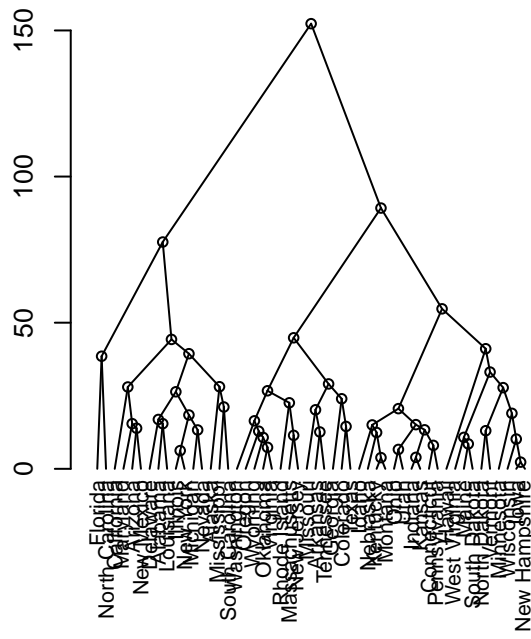
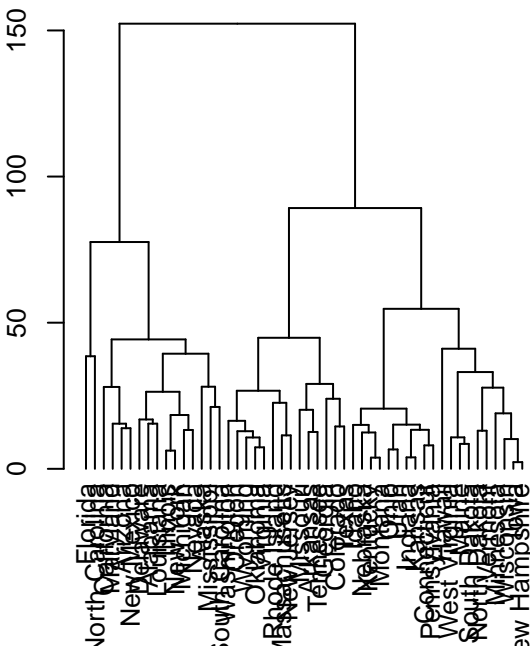


0 10 20 30 40

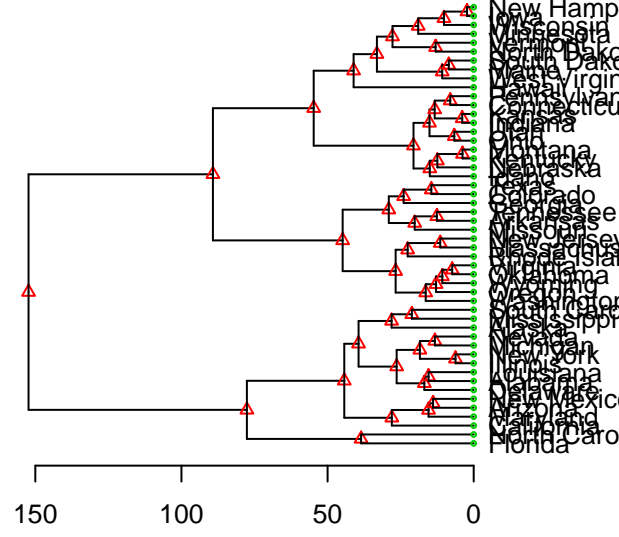
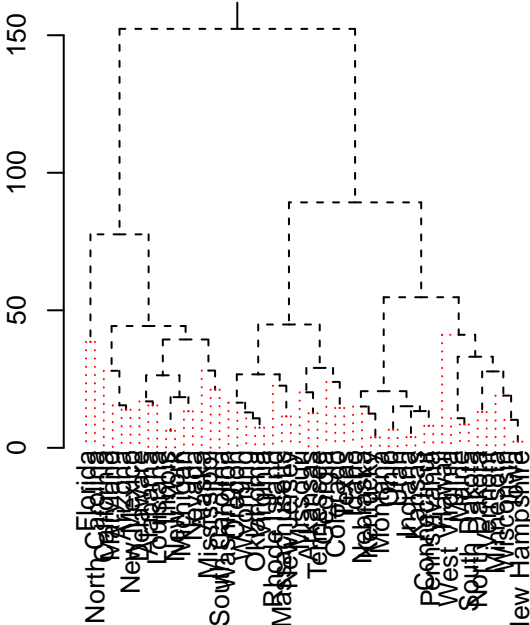


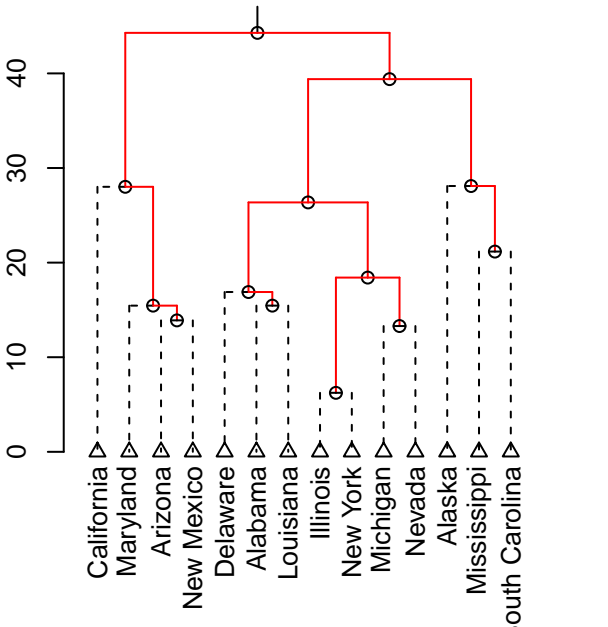
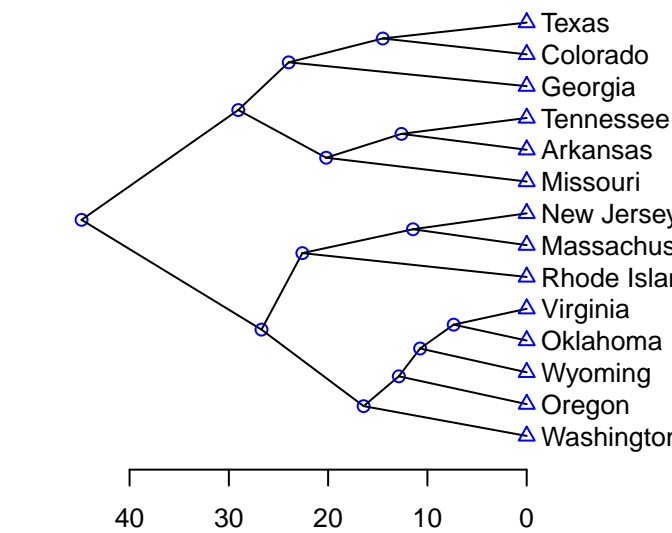
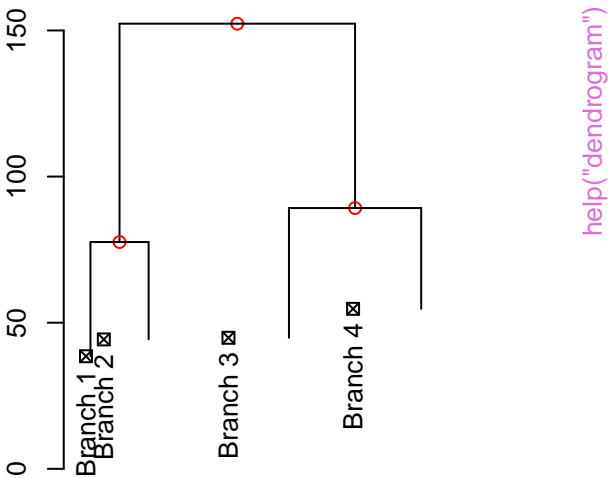
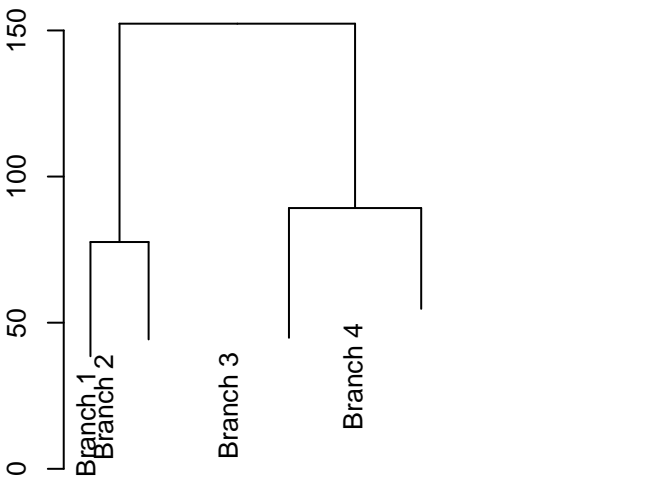
0 10 20 30 40





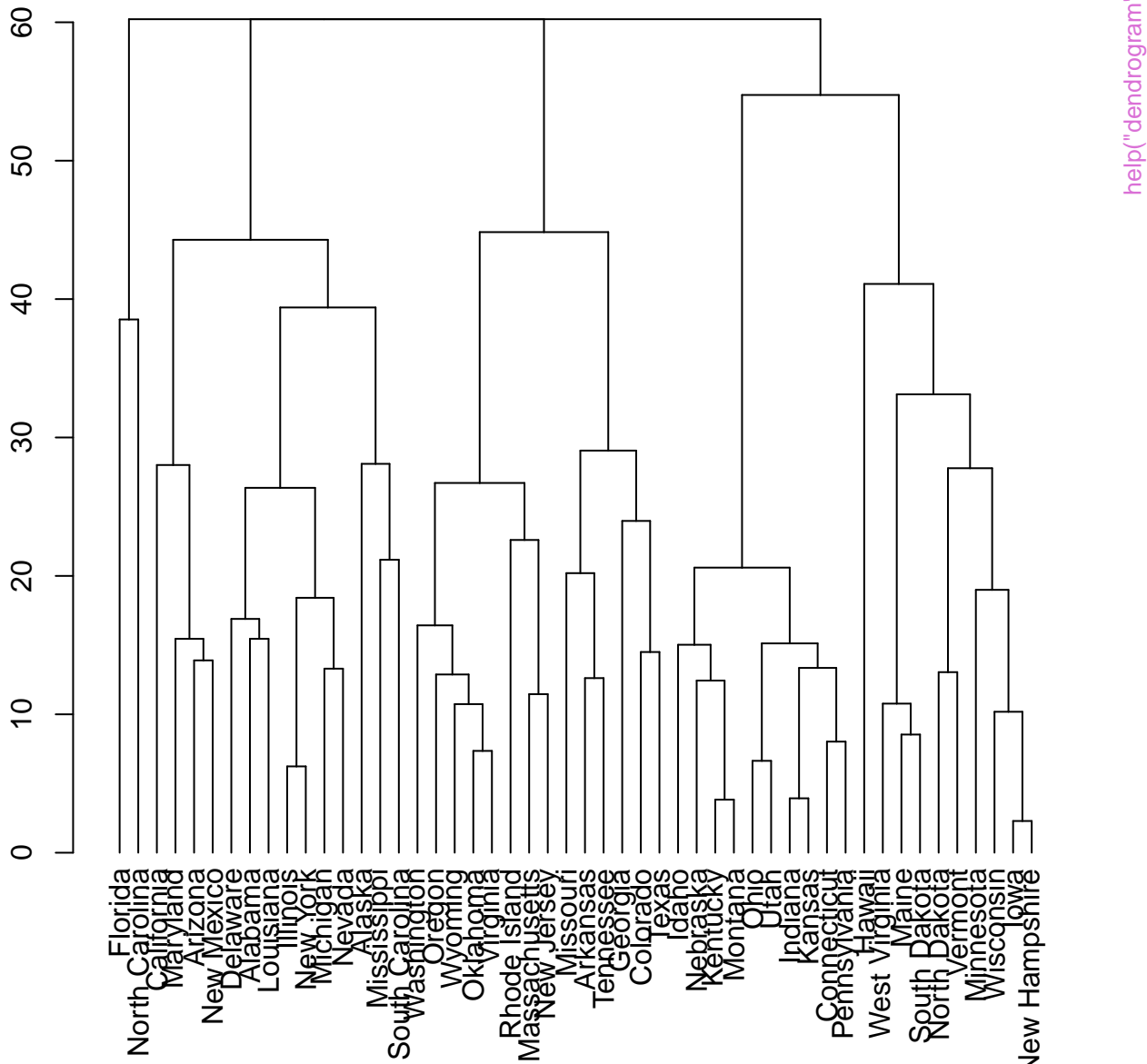
help("dendrogram")

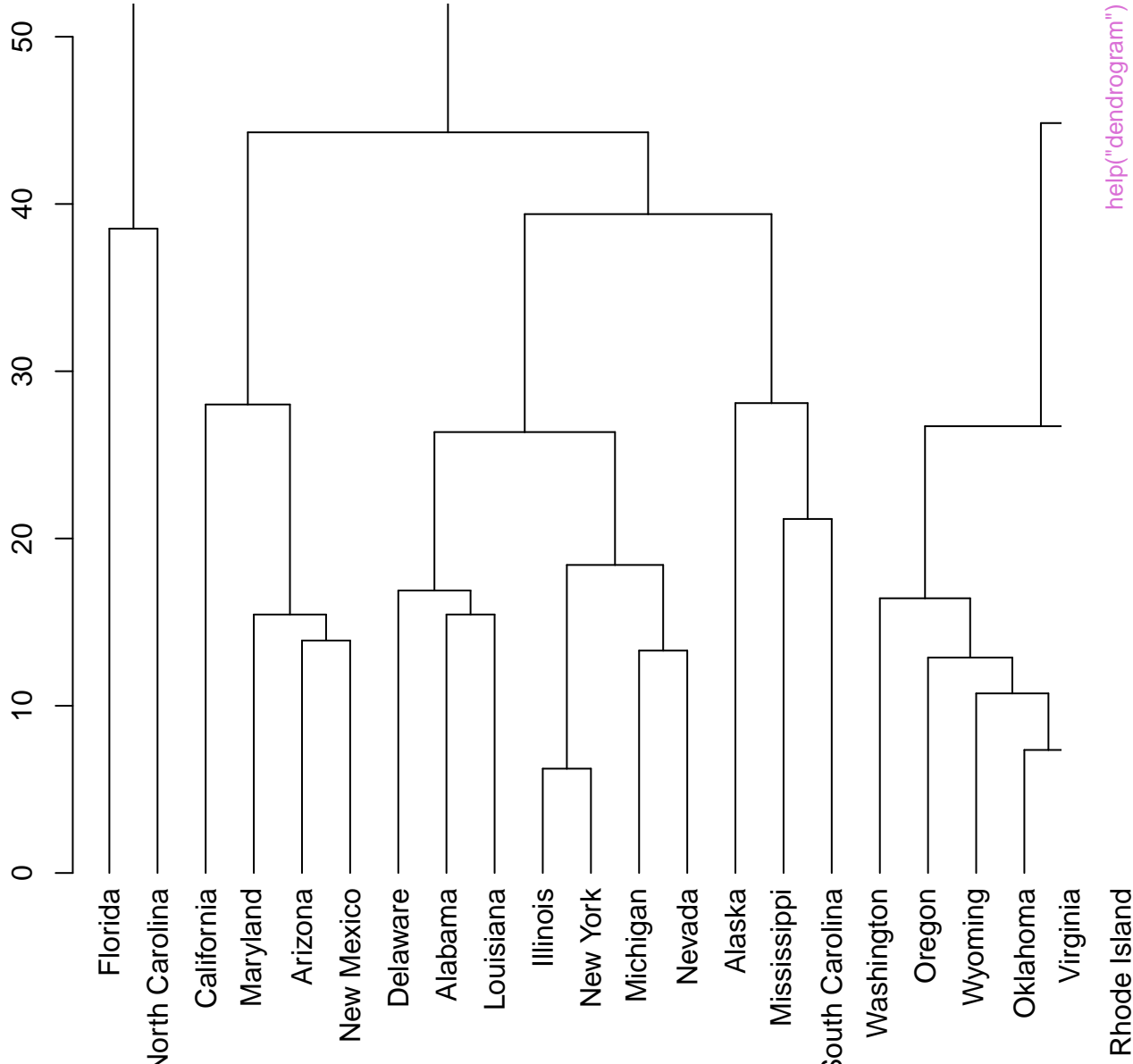


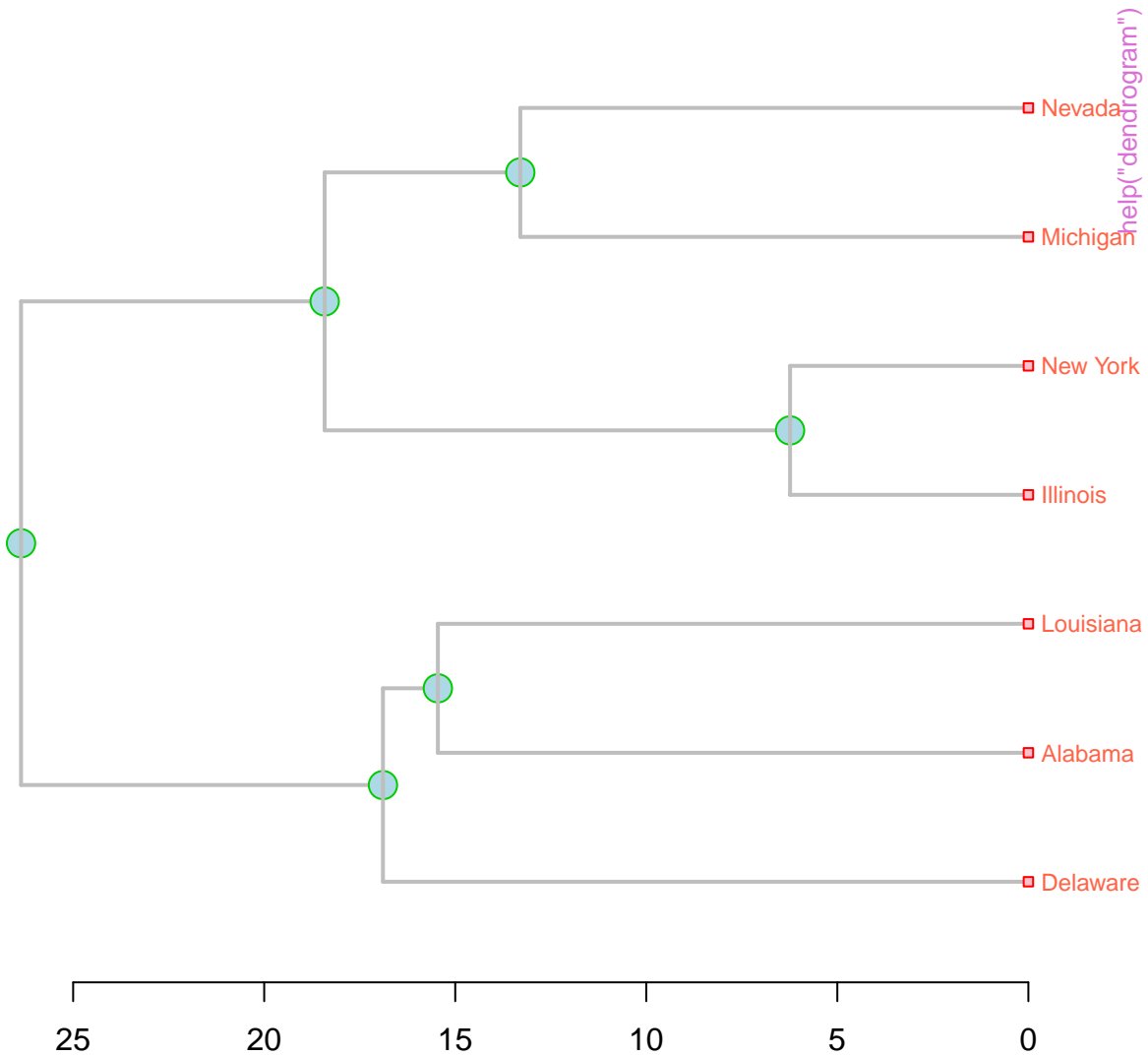


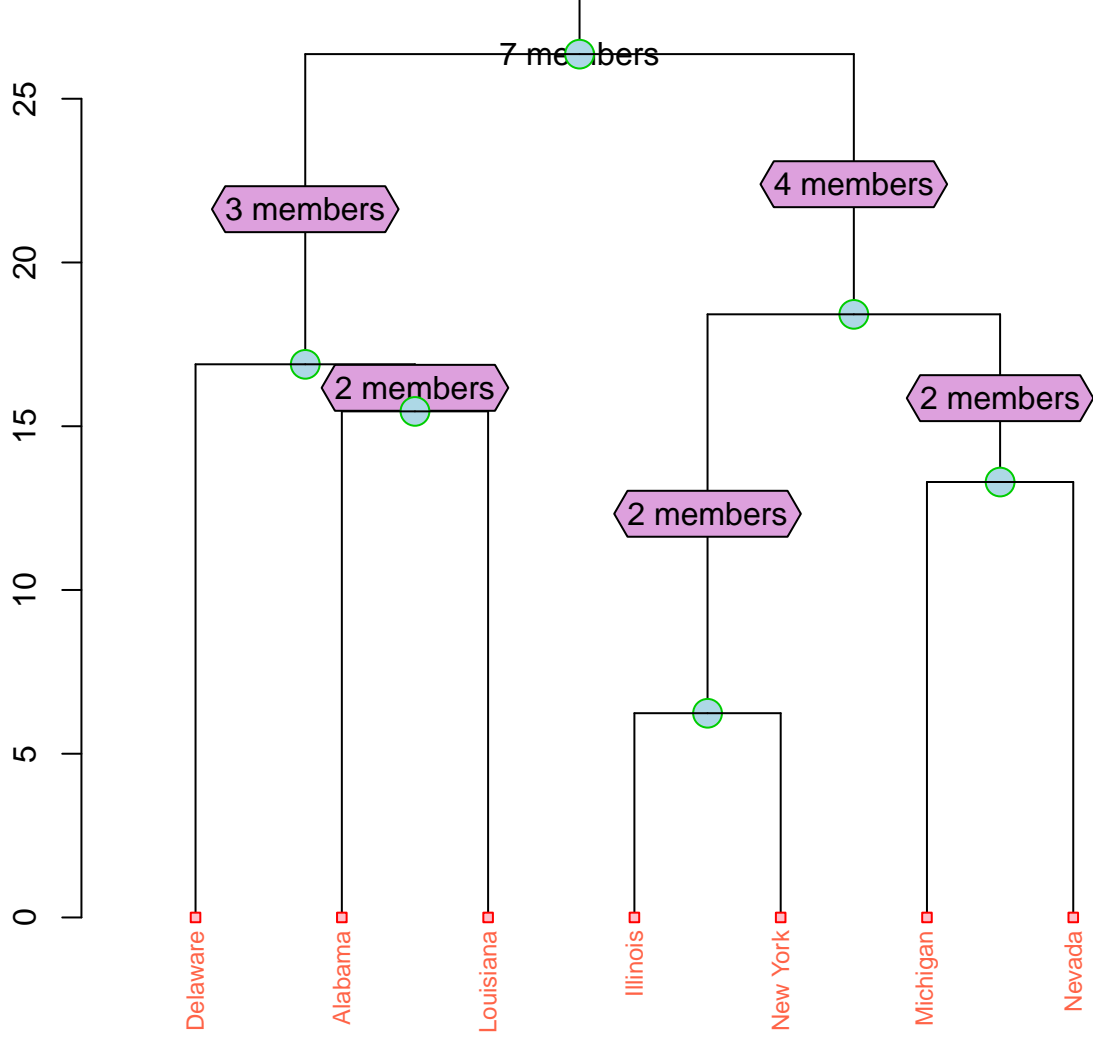
help("dendrogram")

merge(d1, d2, d3, d4) |-> dendrogram with a 4-split

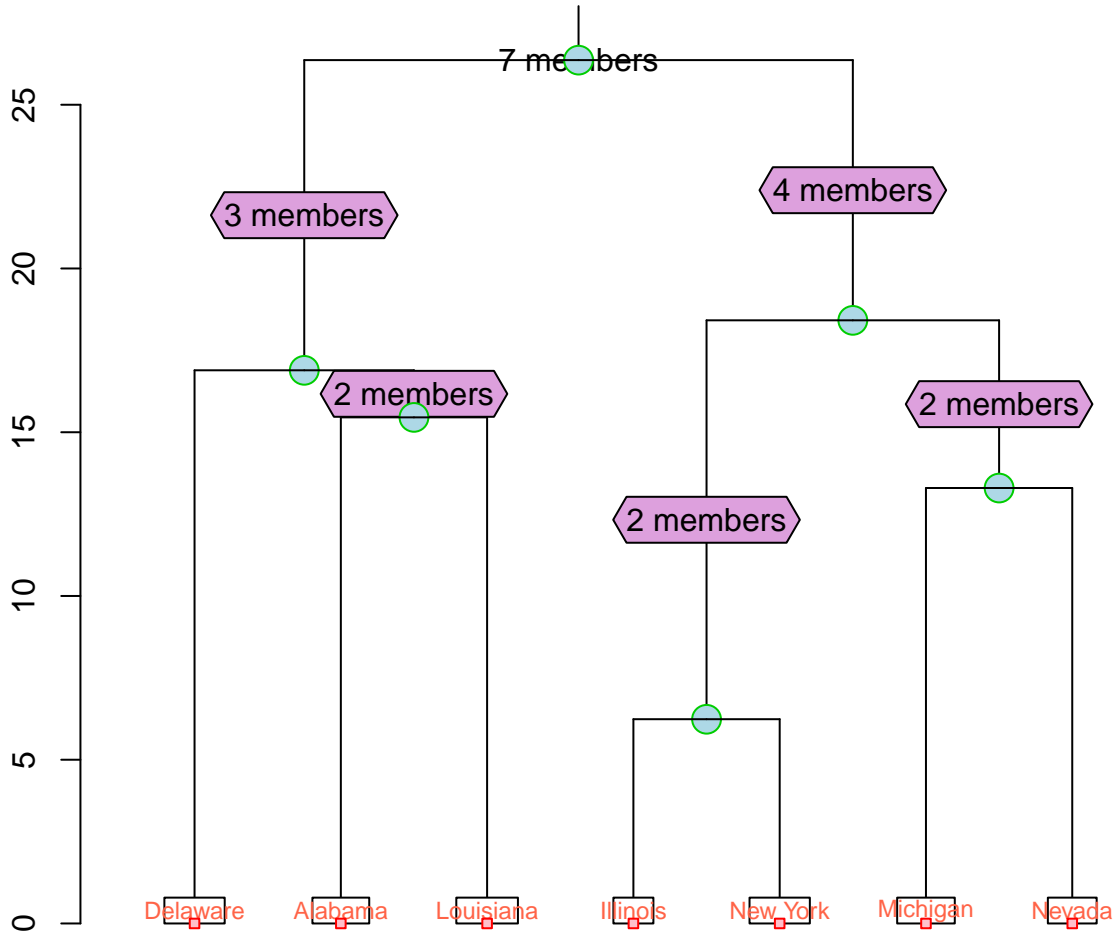






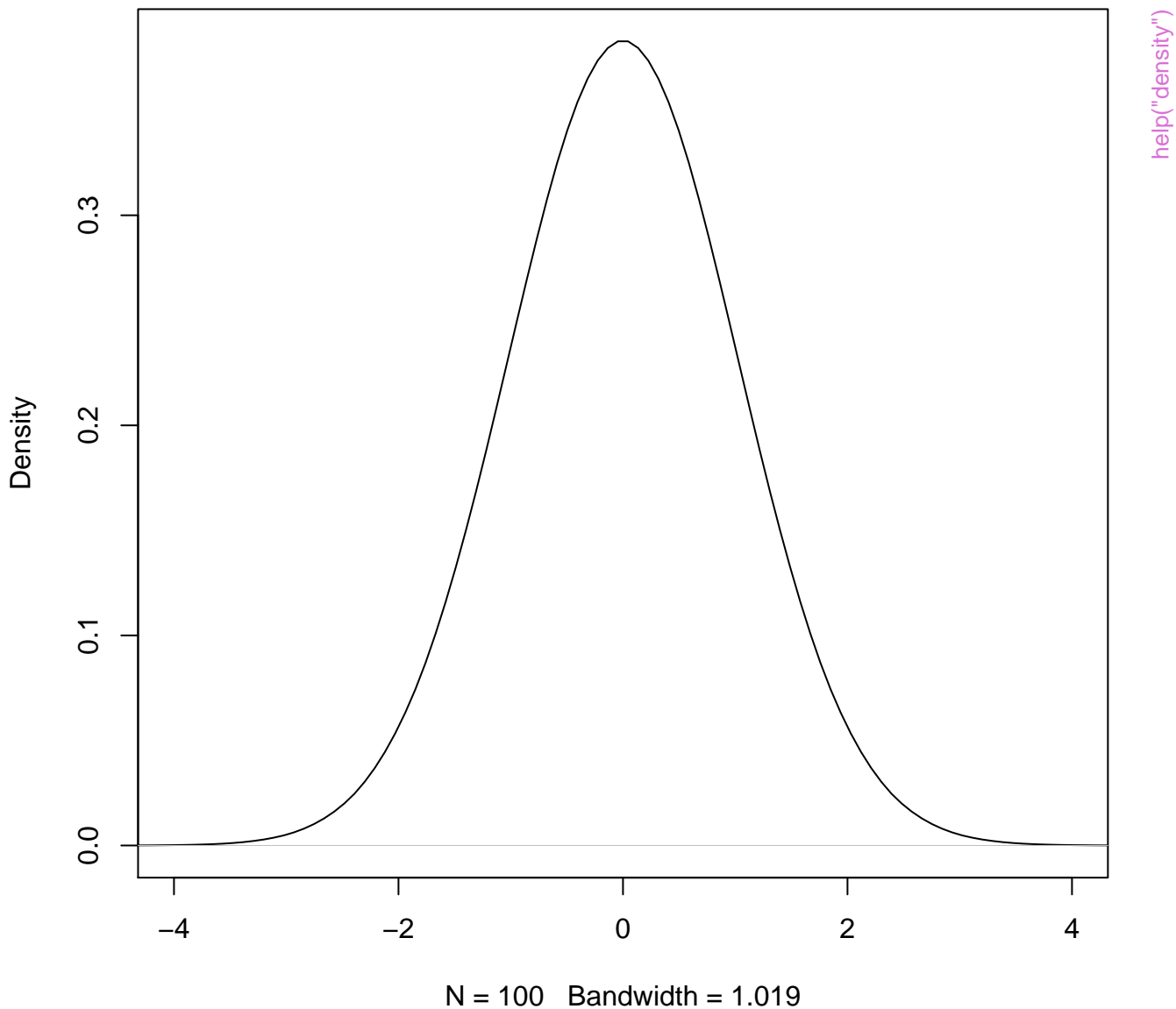


help("dendrogram")

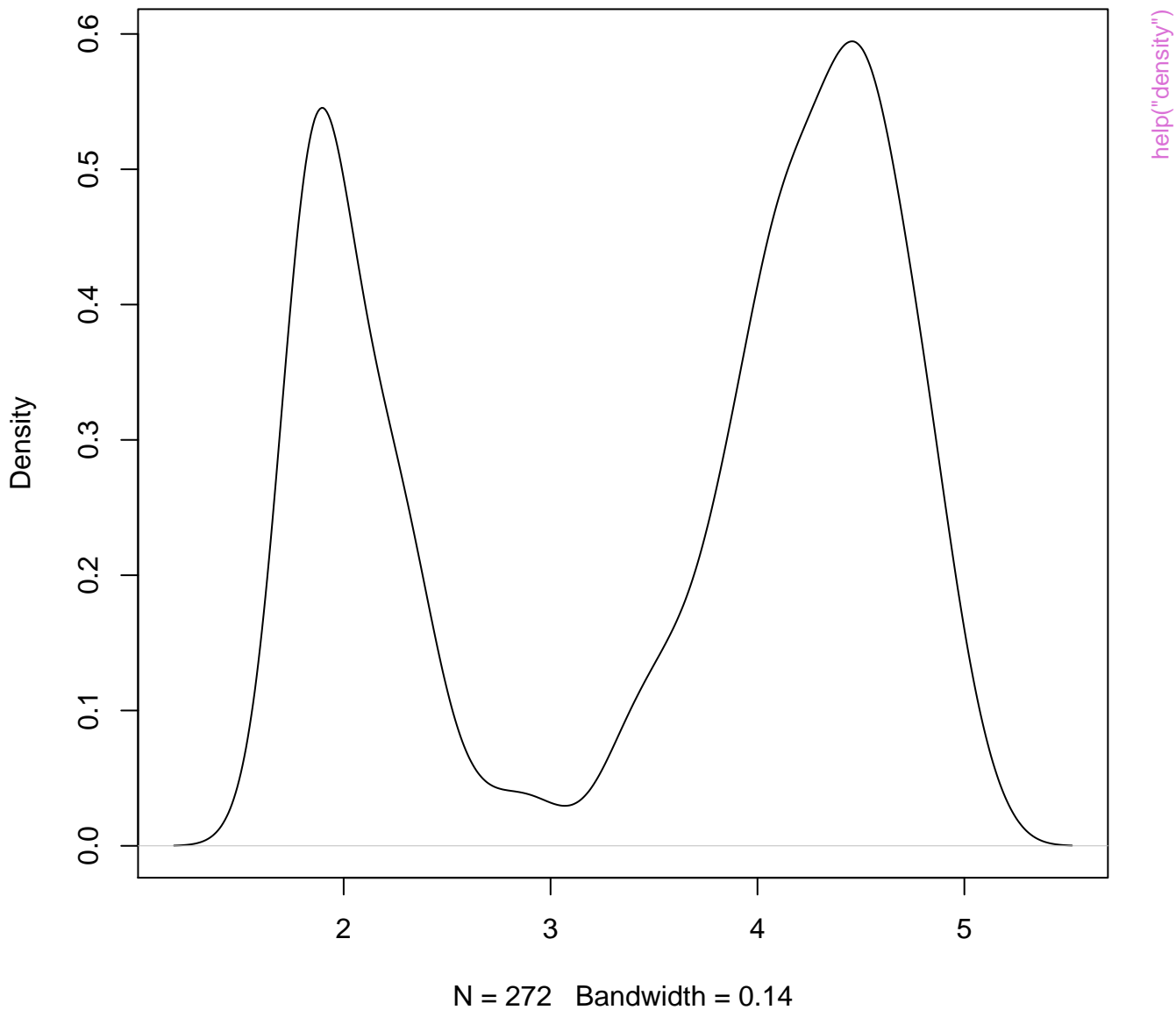


help("dendrogram")

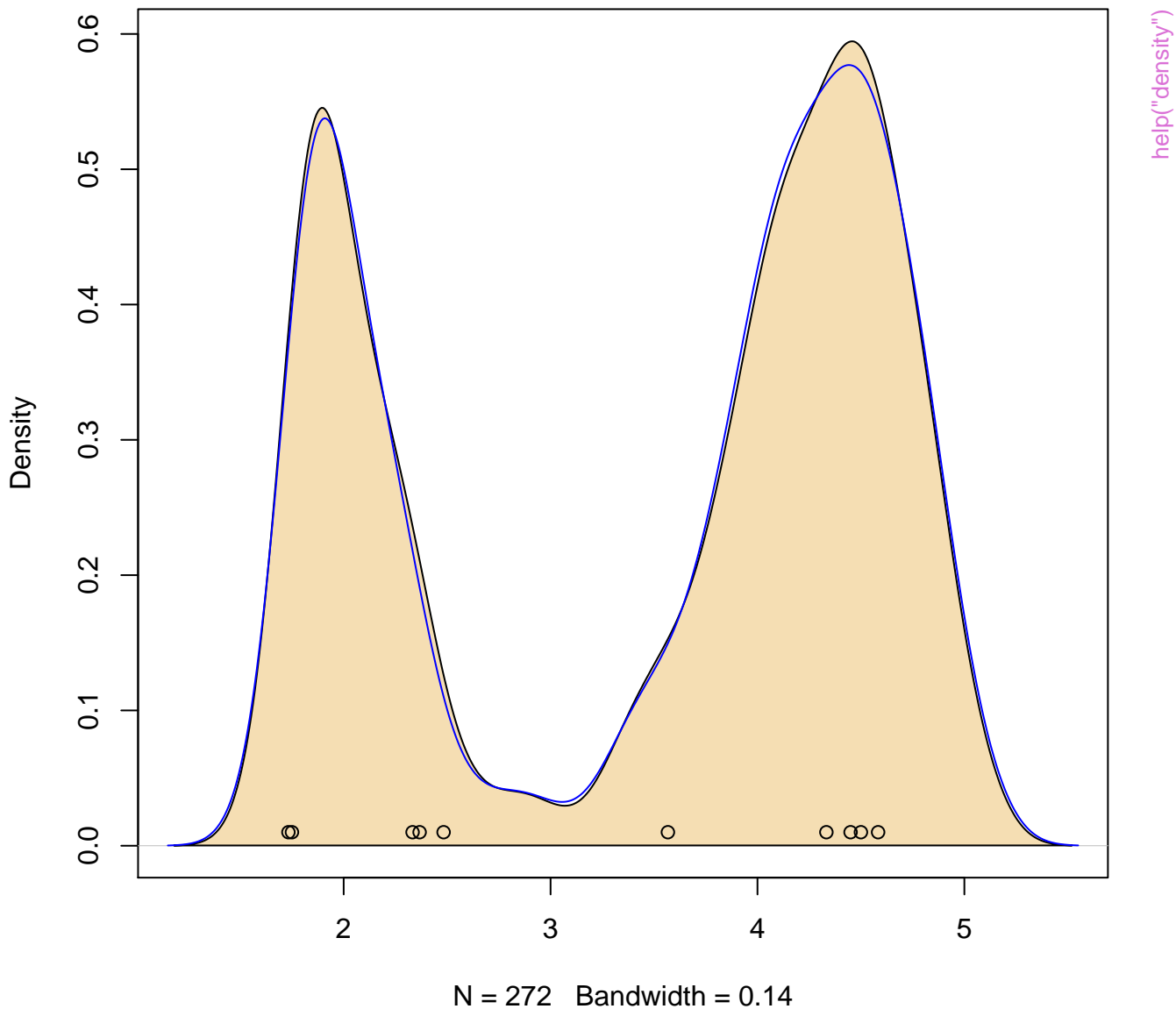
density.default(x = c(-20, rep(0, 98), 20))



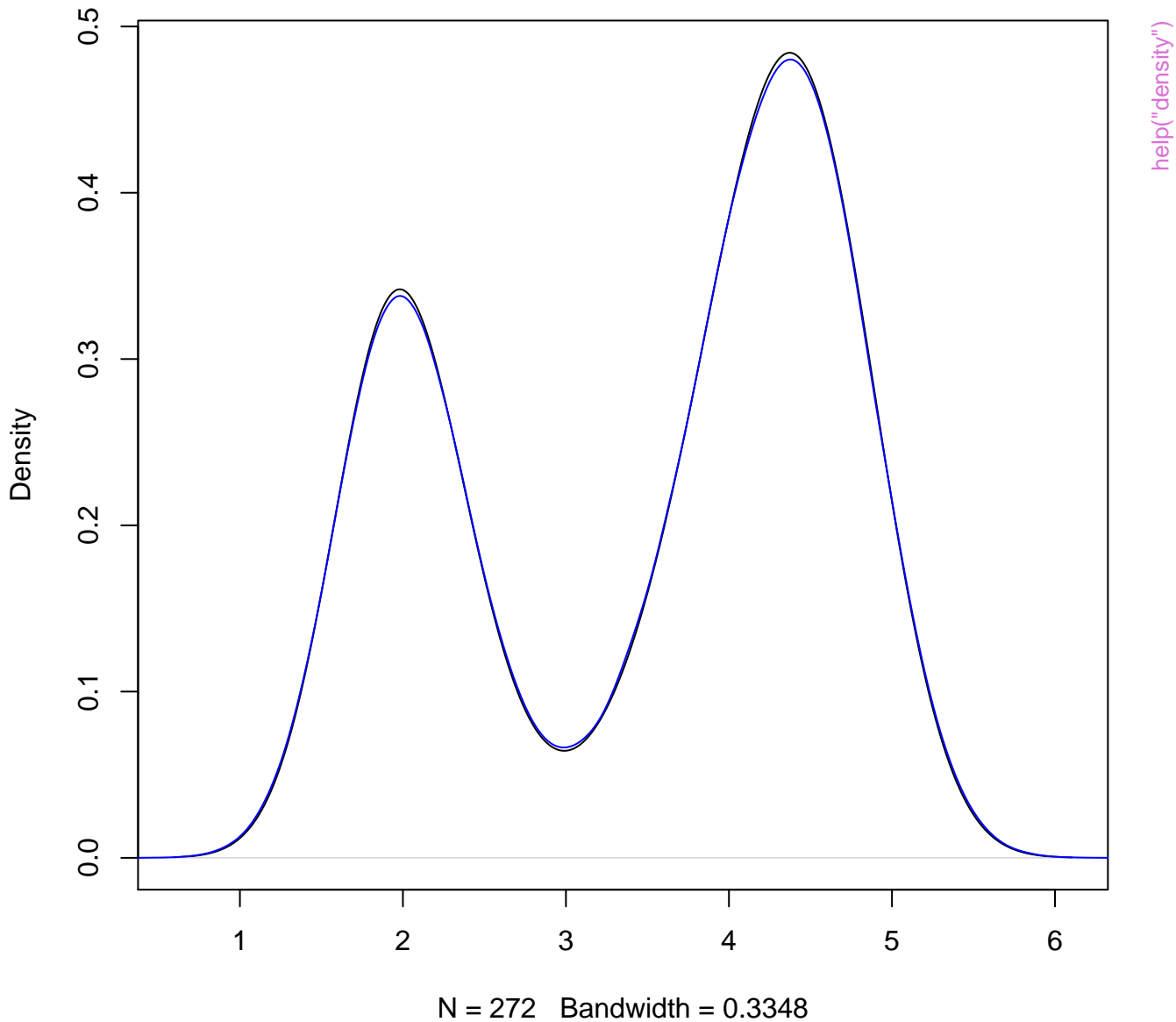
density.default(x = faithful\$eruptions, bw = "sj")



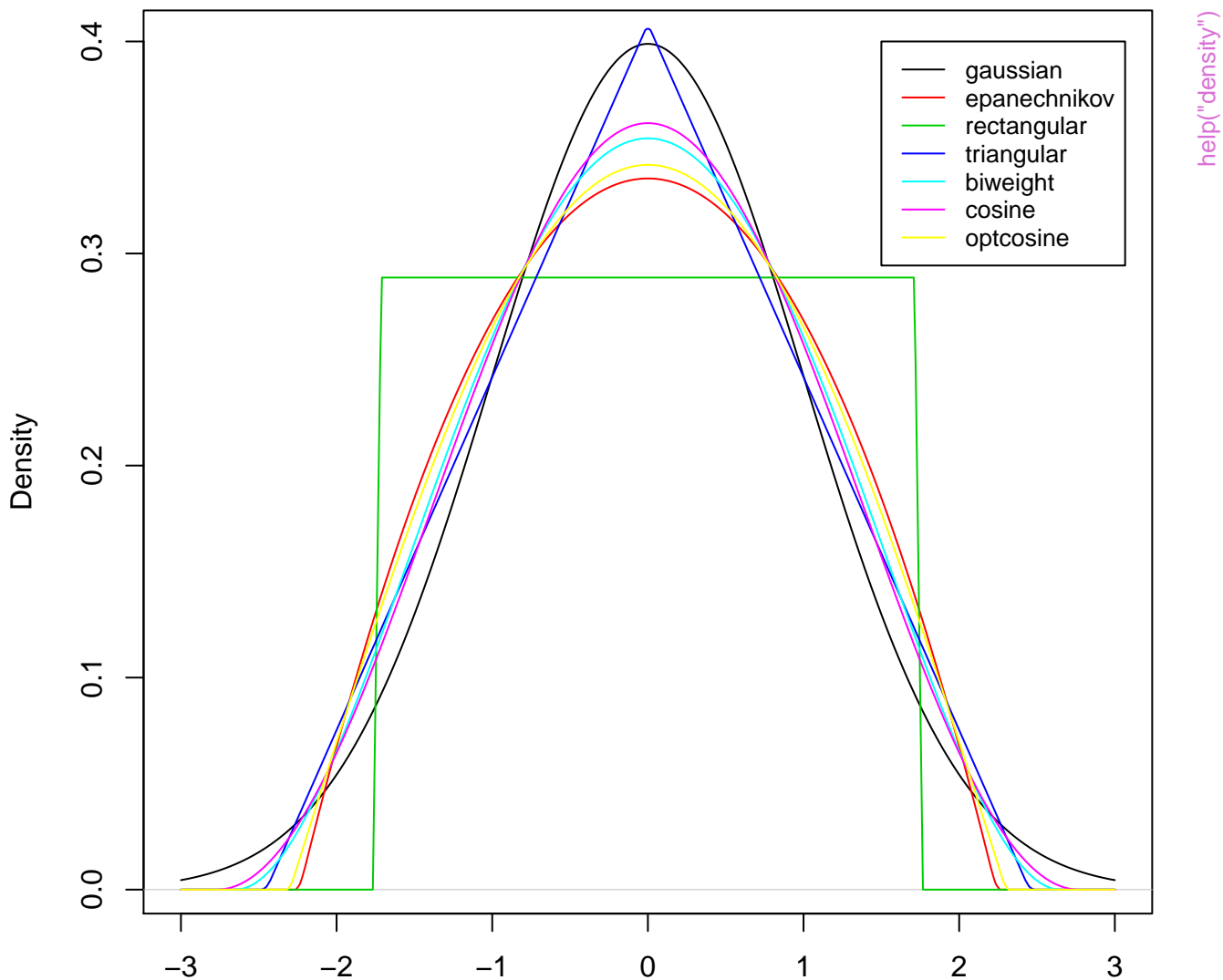
density.default(x = faithful\$eruptions, bw = "sj")



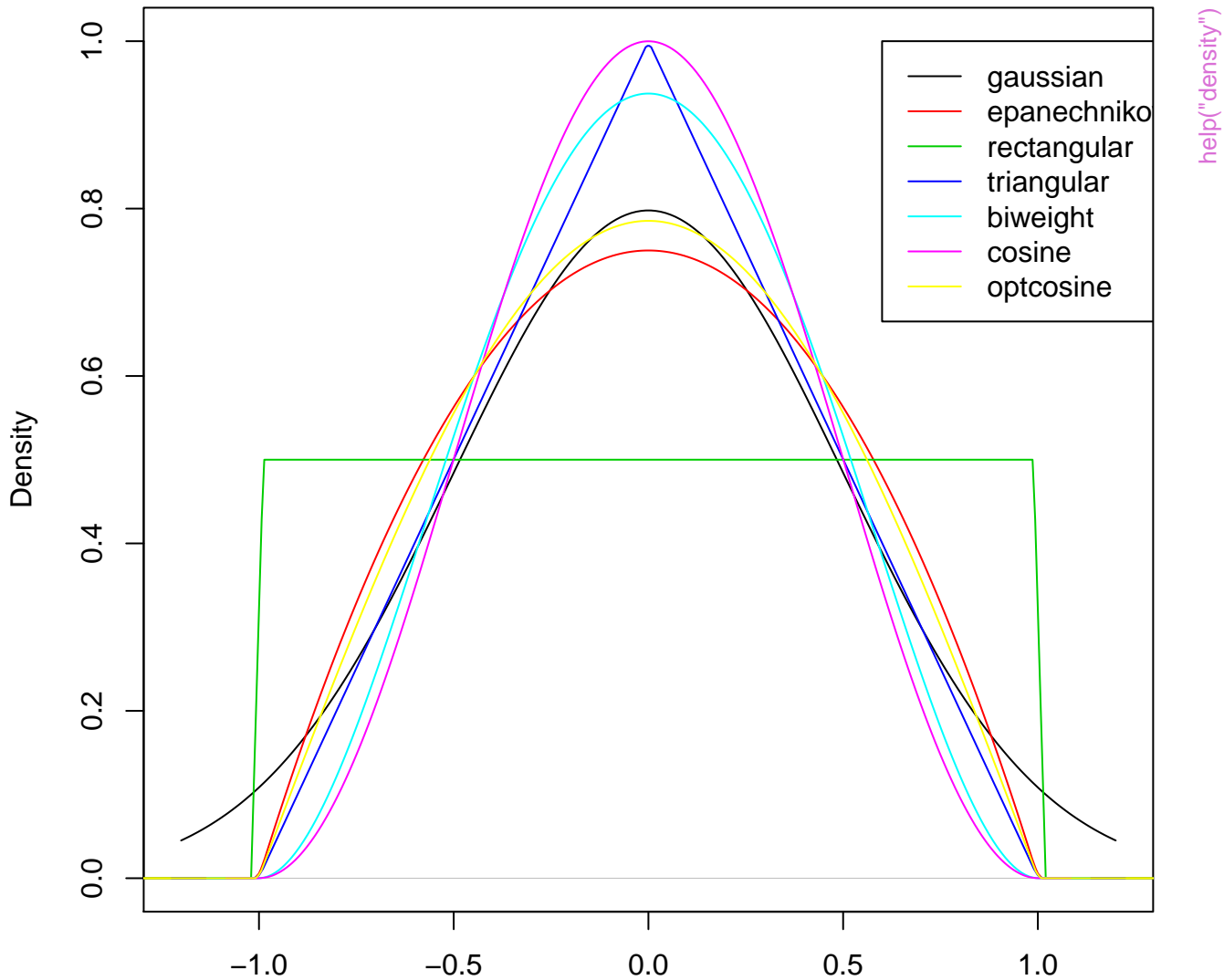
density.default(x = xx)



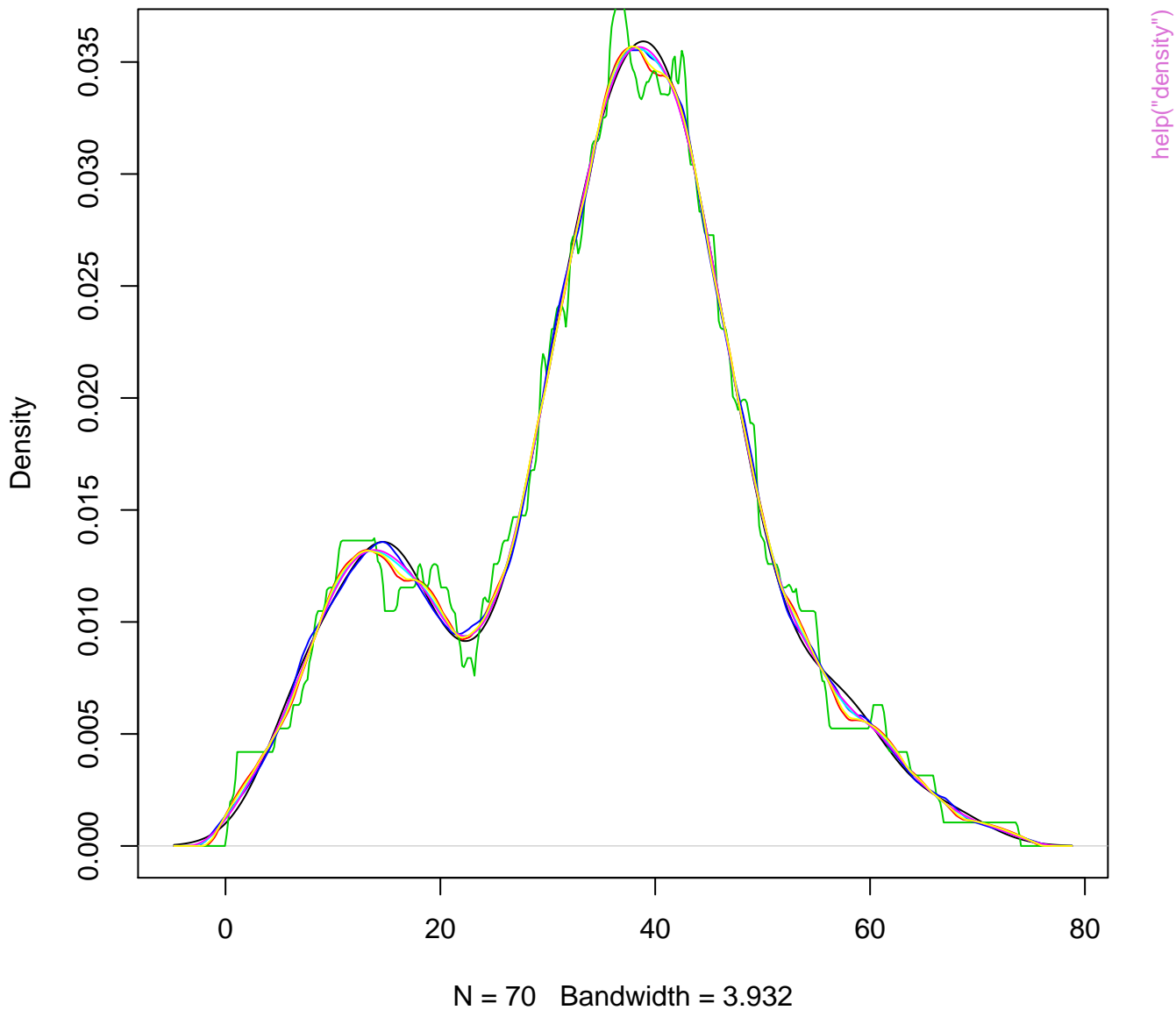
R's density() kernels with bw = 1



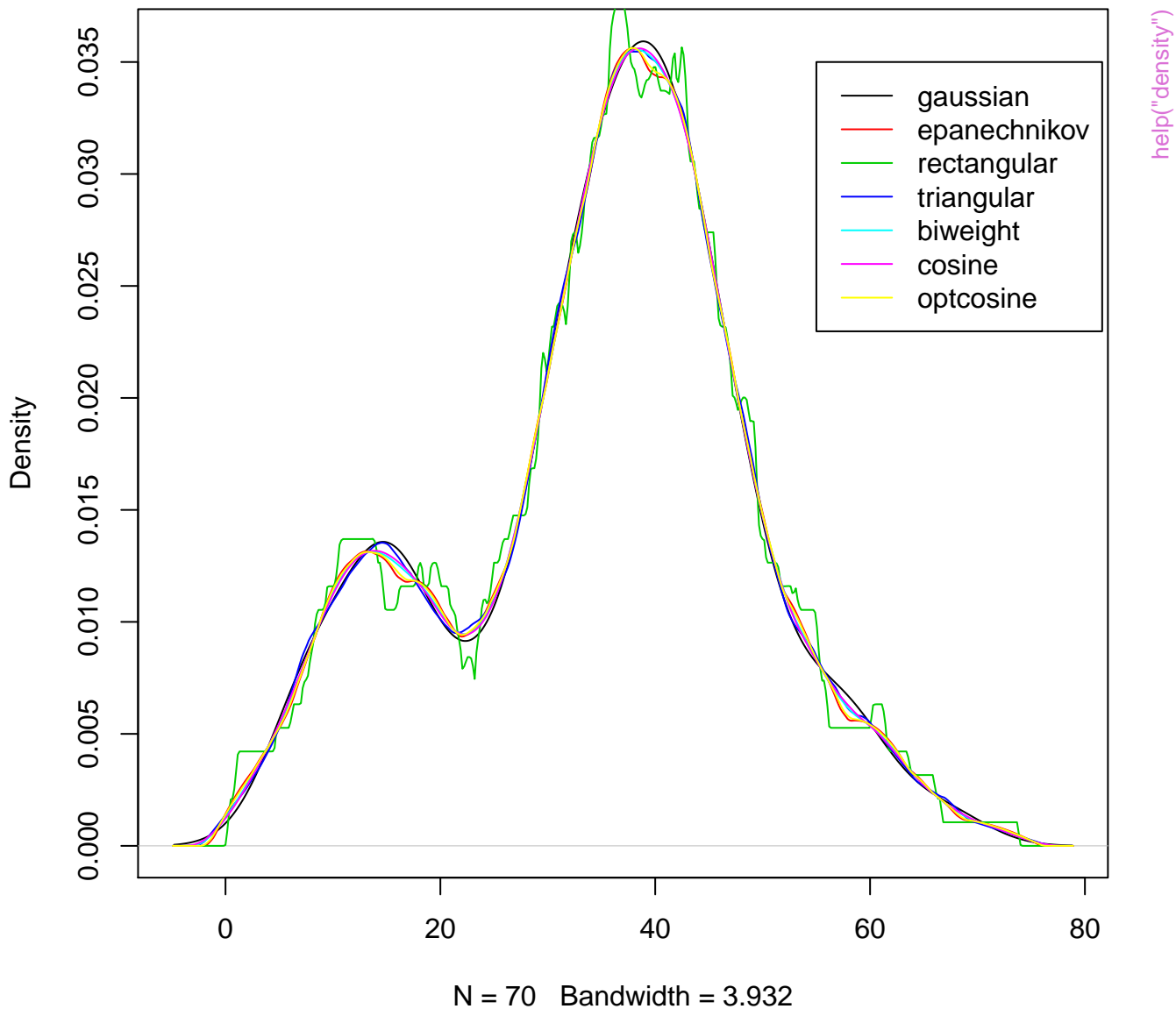
R's density() kernels with width = 1



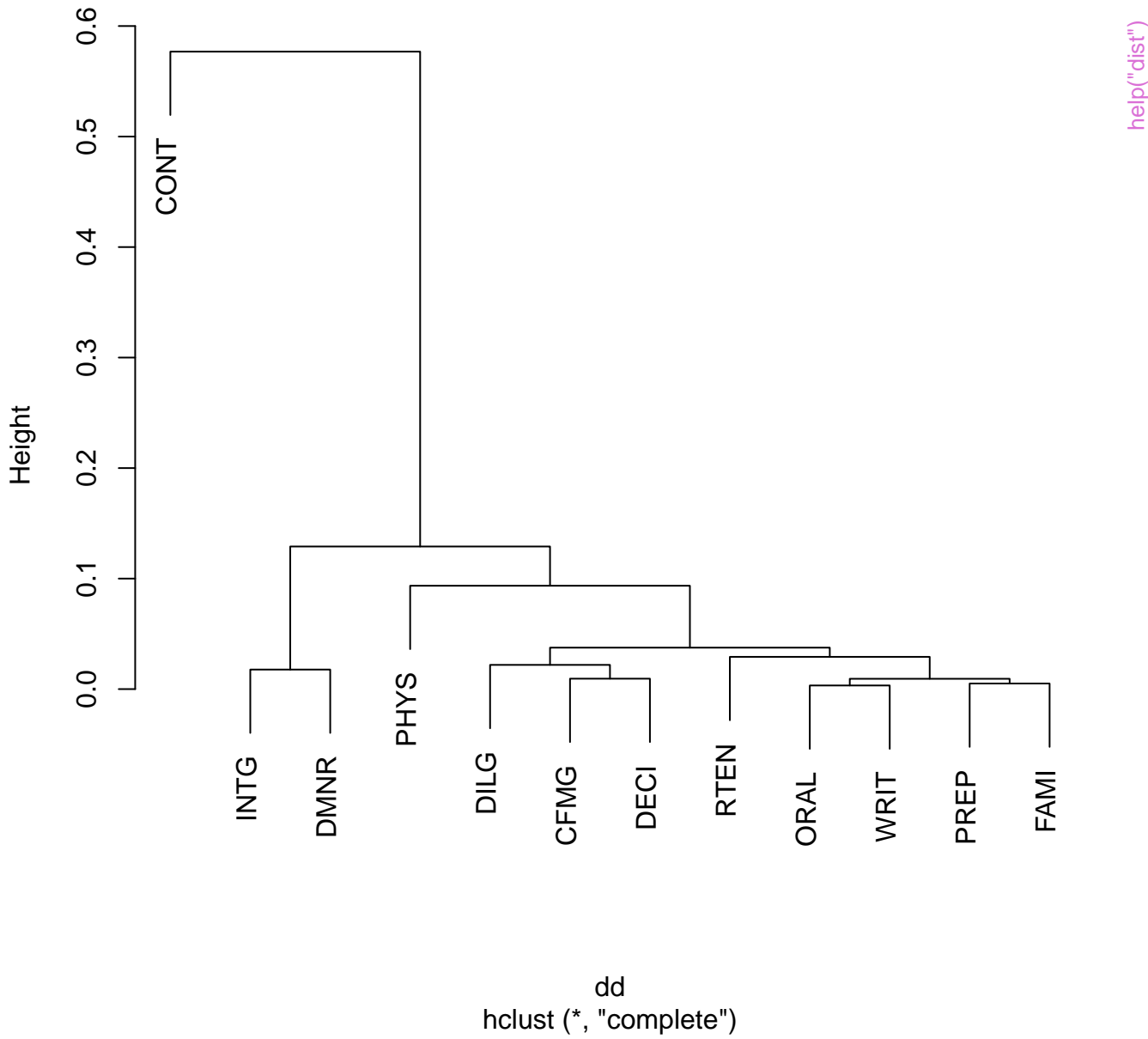
same sd bandwidths, 7 different kernels



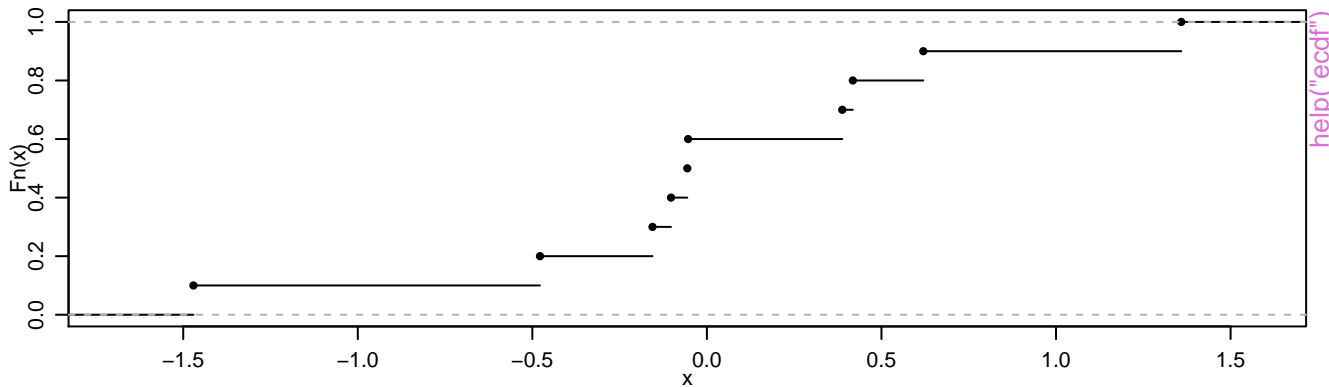
equivalent bandwidths, 7 different kernels



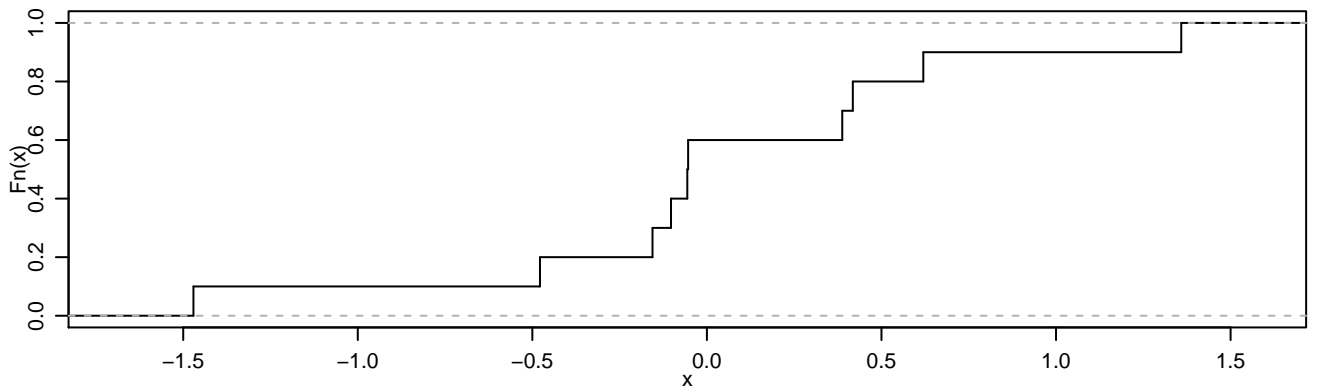
Cluster Dendrogram



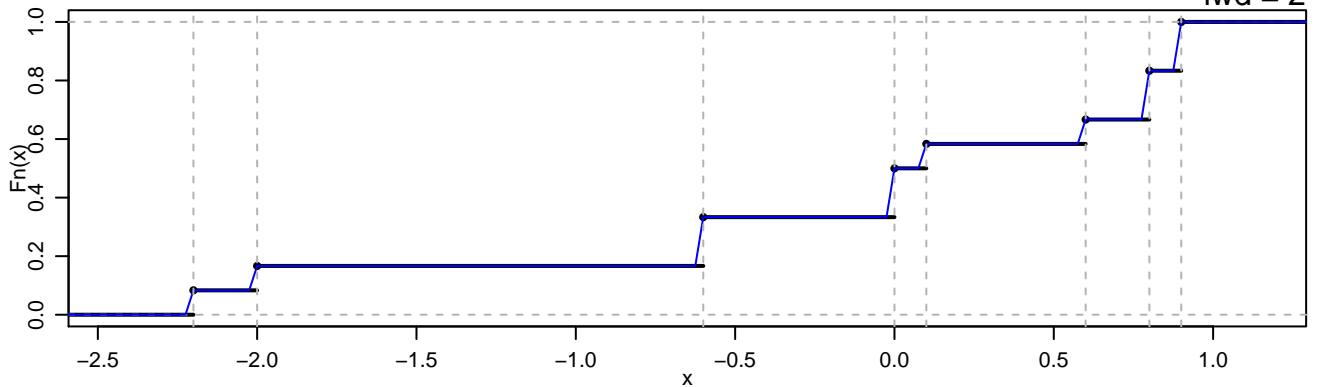
ecdf(rnorm(10))

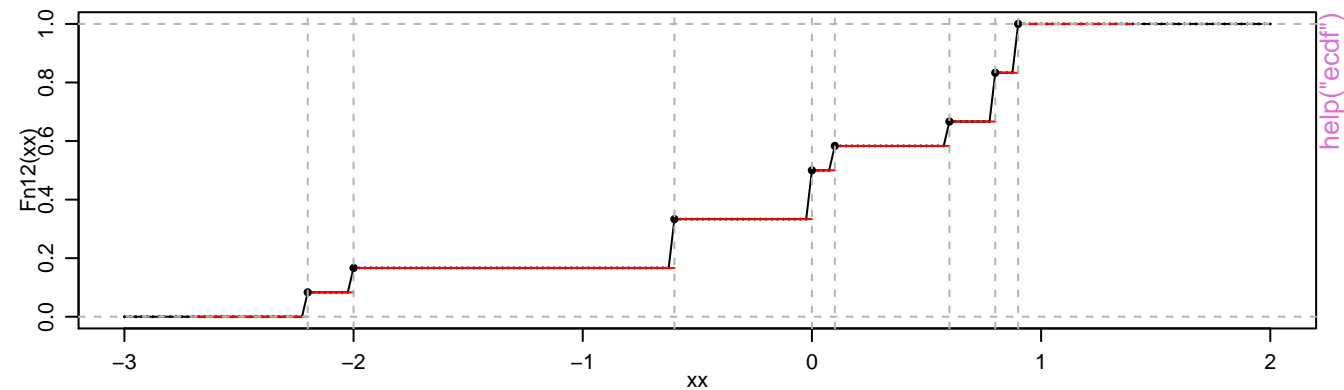


ecdf(rnorm(10))

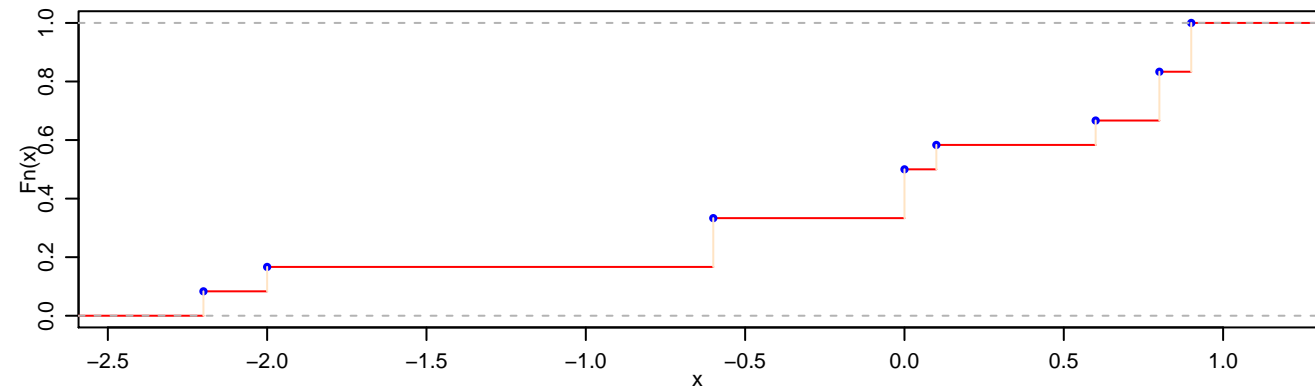


ecdf(y)



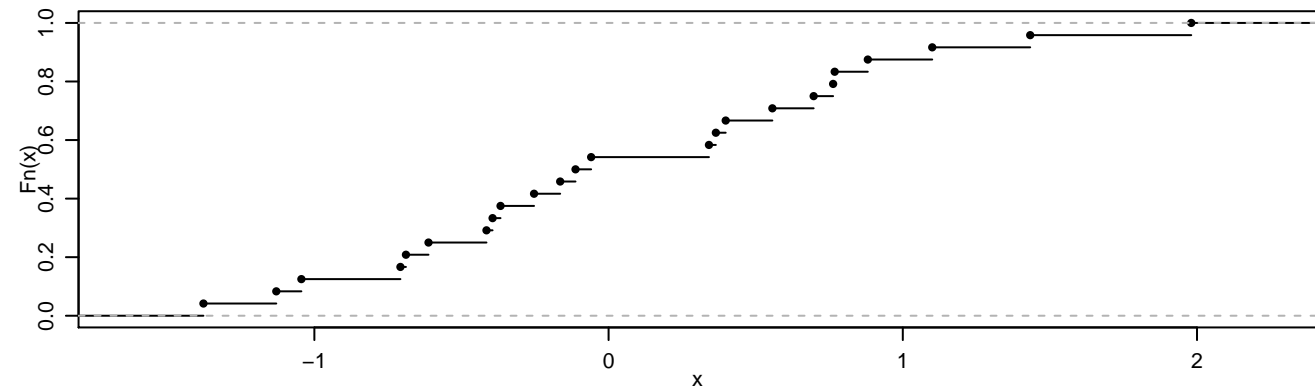


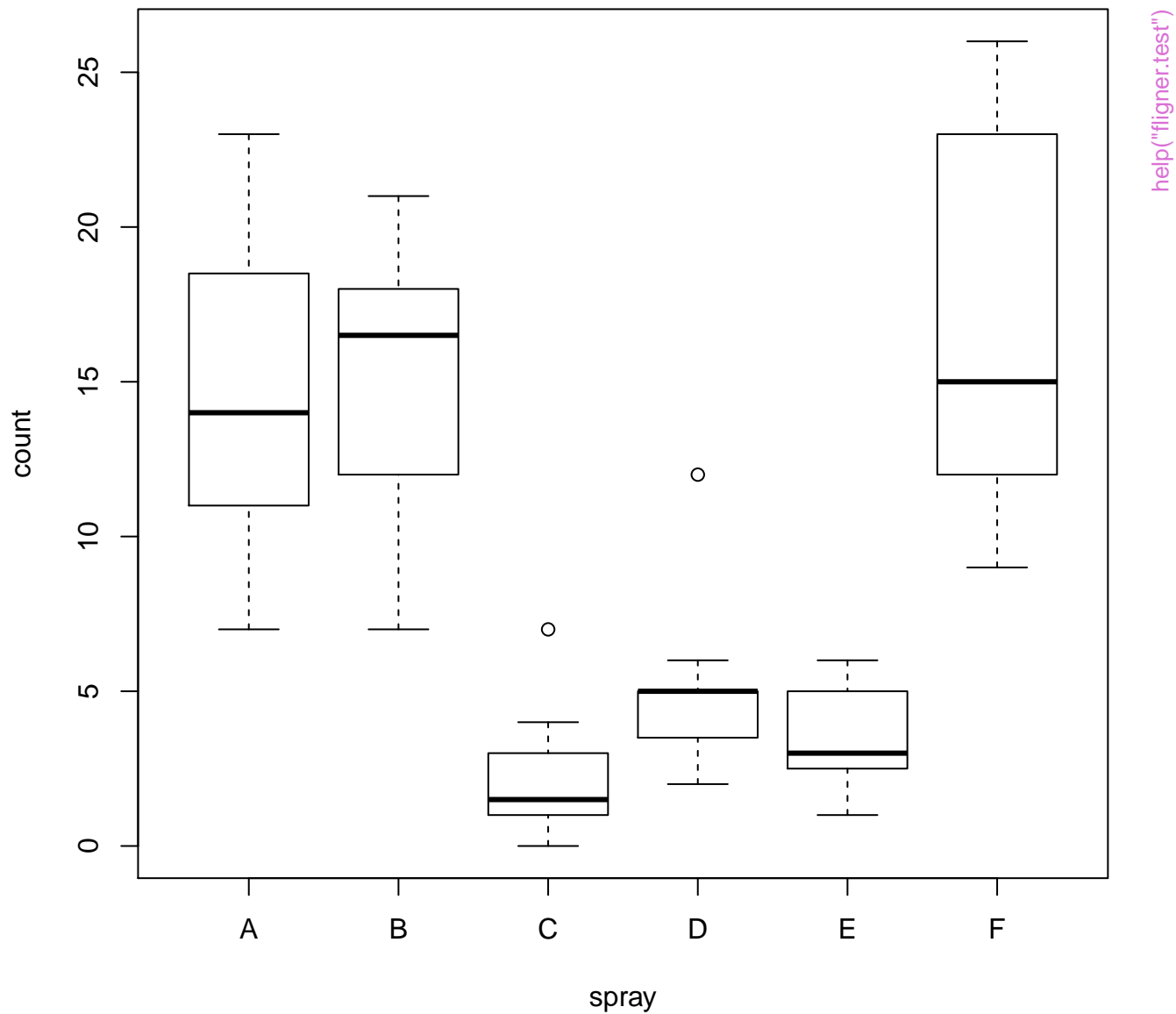
ecdf(y)



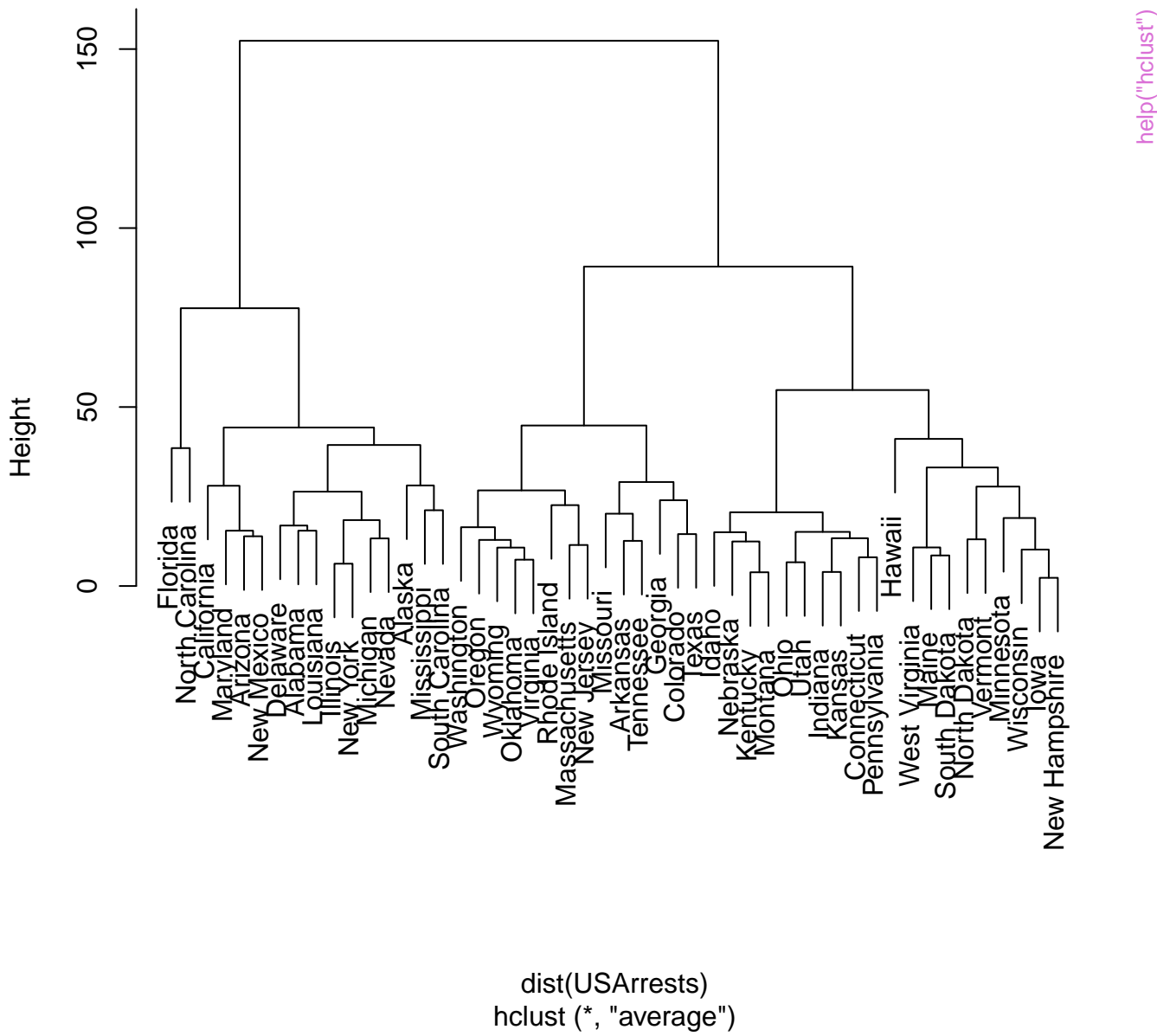
ecdf(x)

via simple plot.ecdf(x)

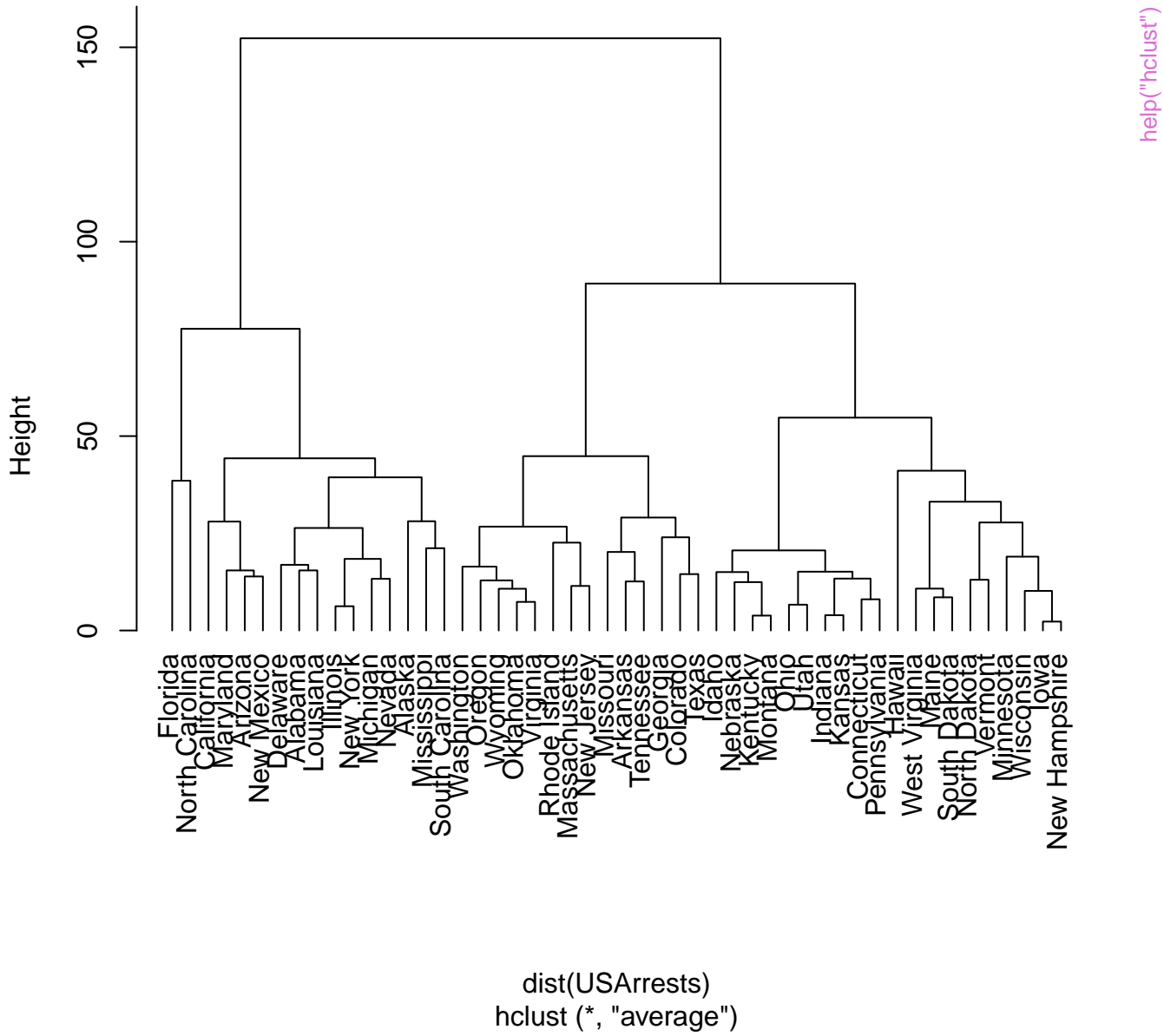




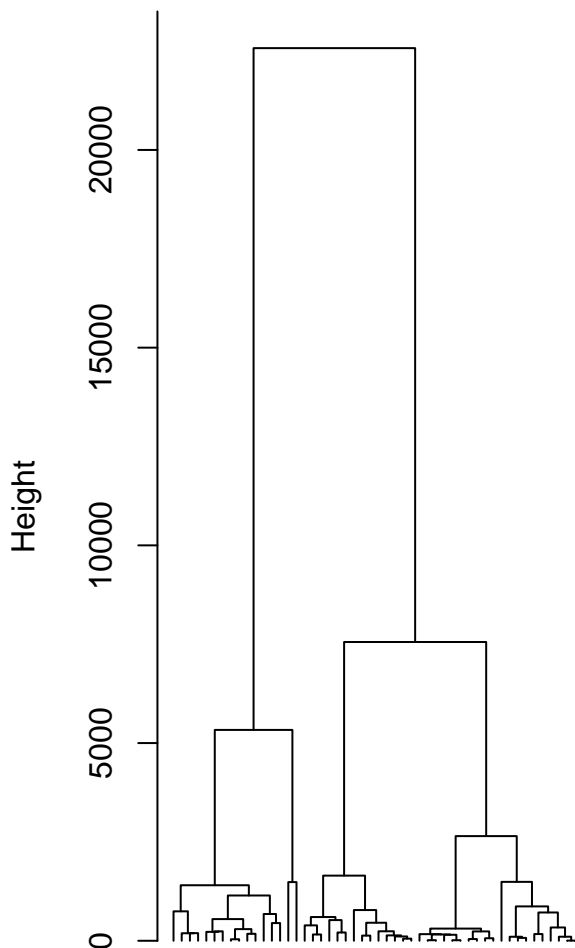
Cluster Dendrogram



Cluster Dendrogram

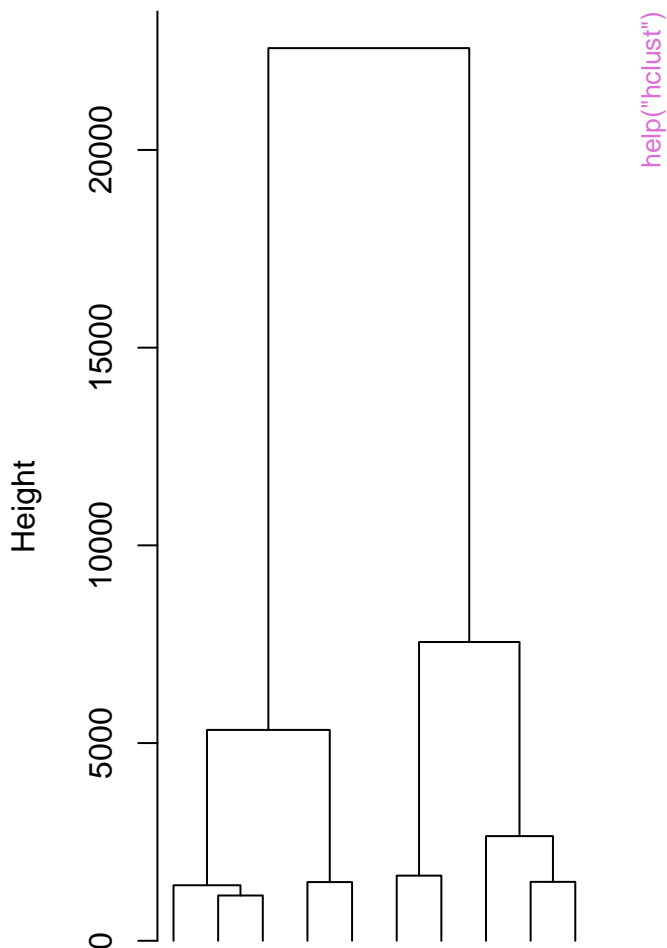


Original Tree



`dist(USArrests)^2`
`hclust (*, "centroid")`

Re-start from 10 clusters



`dist(cent)^2`
`hclust (*, "centroid")`

`help("hclust")`

Seattle

NewYork

Chicago

Washington.DC

Denver

SanFrancisco

Atlanta

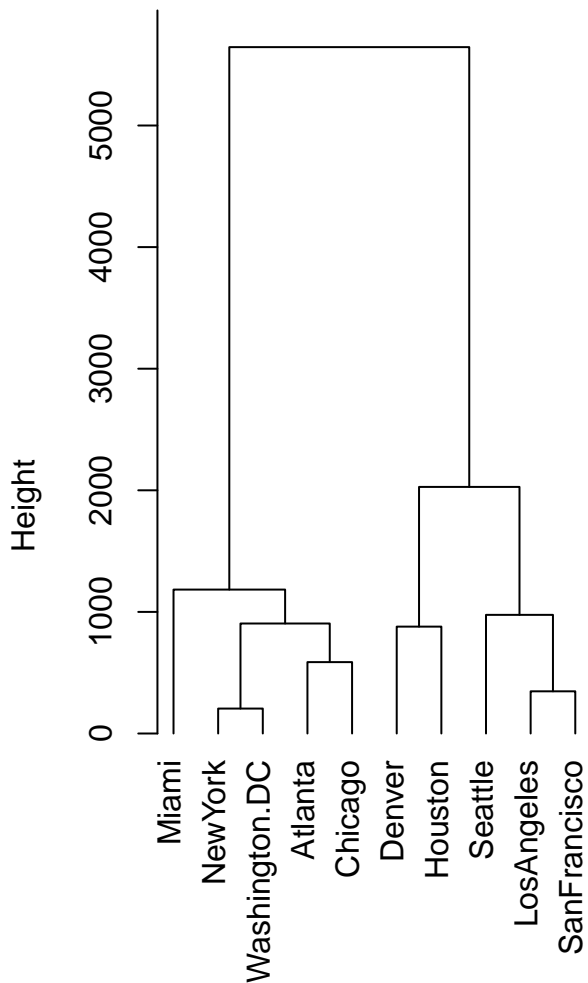
LosAngeles

Houston

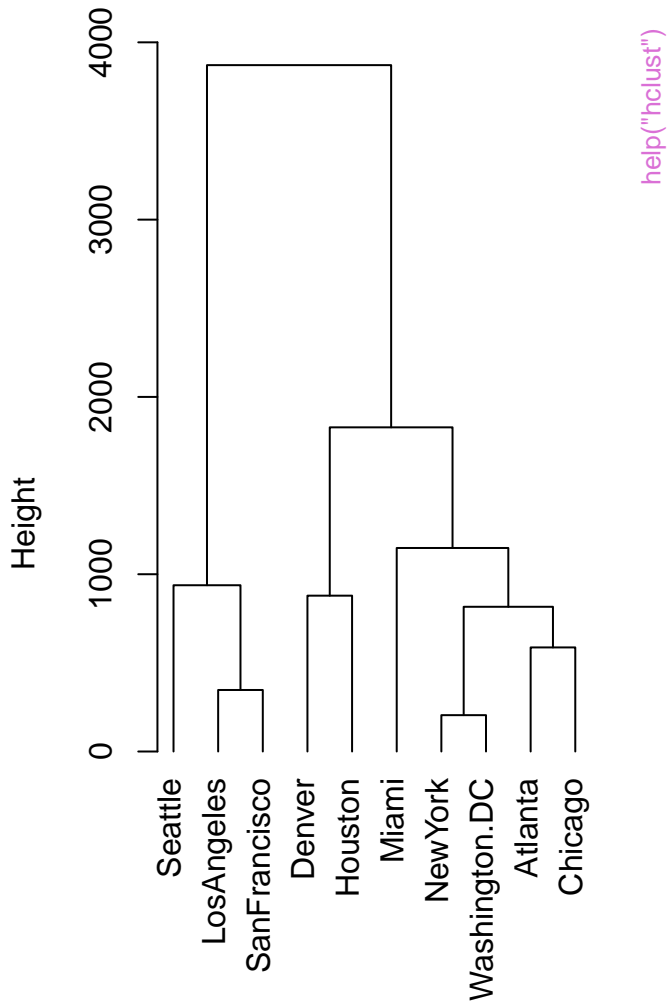
Miami

help("hclust")

Cluster Dendrogram

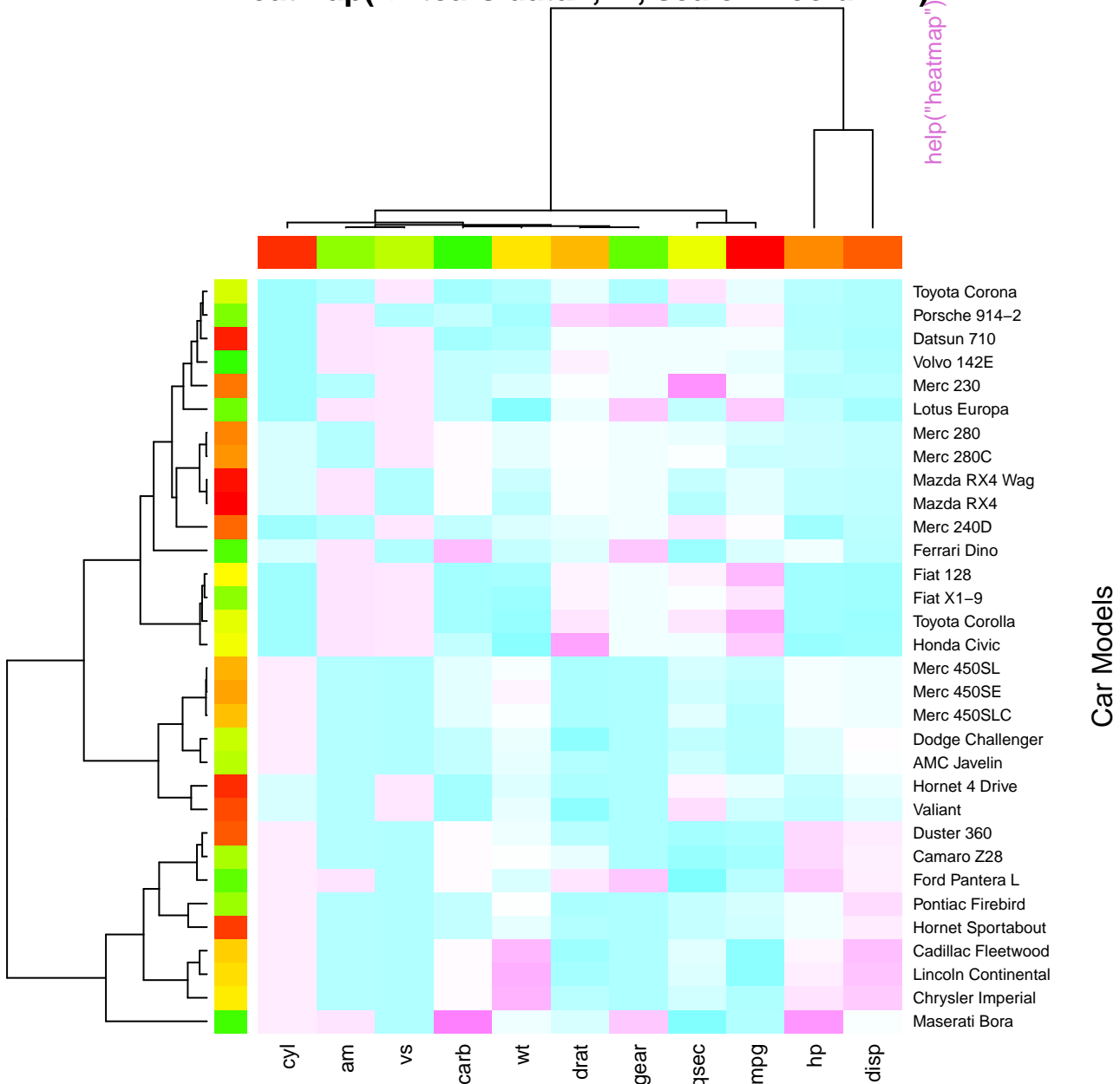


Cluster Dendrogram



heatmap(<Mtcars data>, ..., scale = "column")

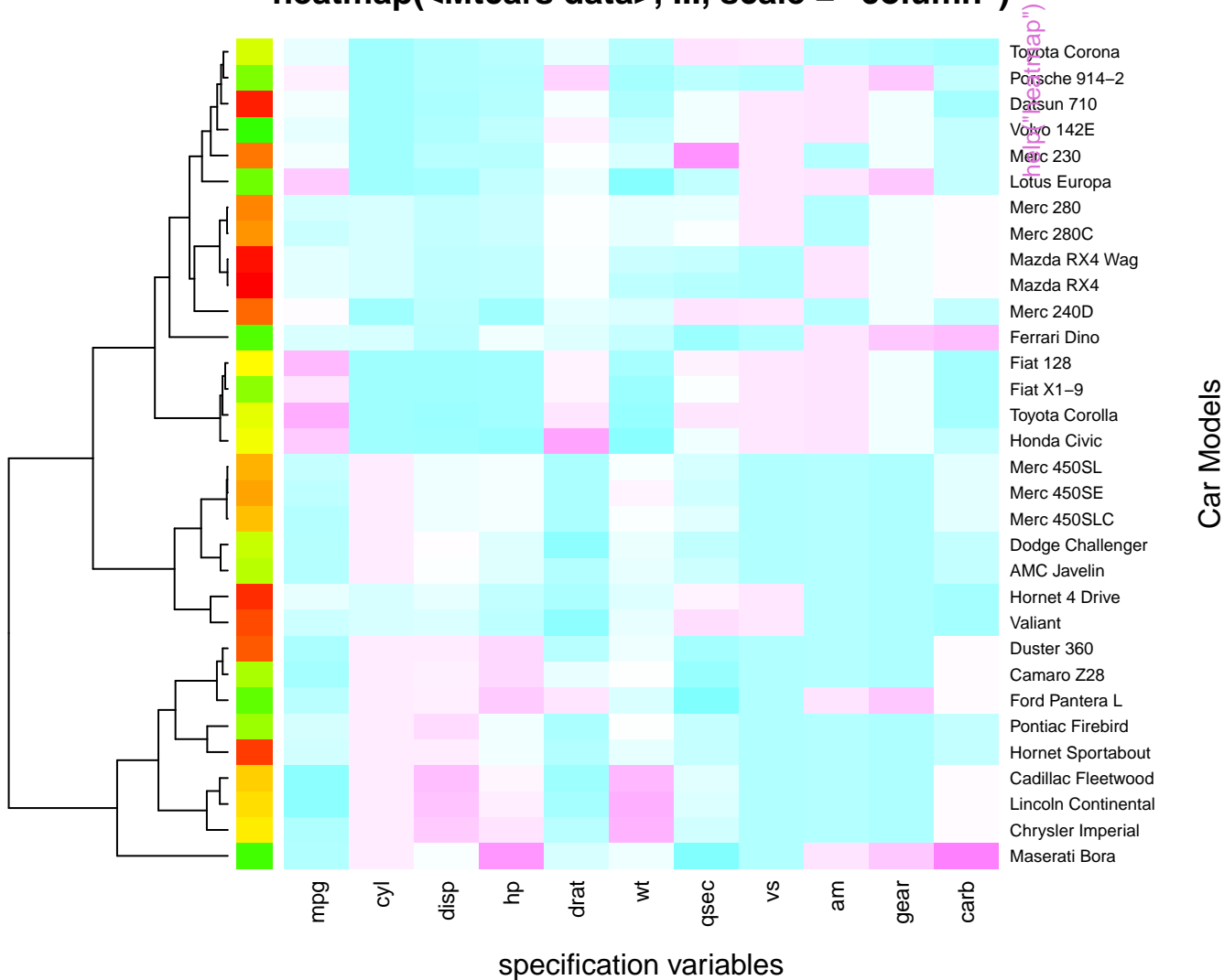
help("heatmap")

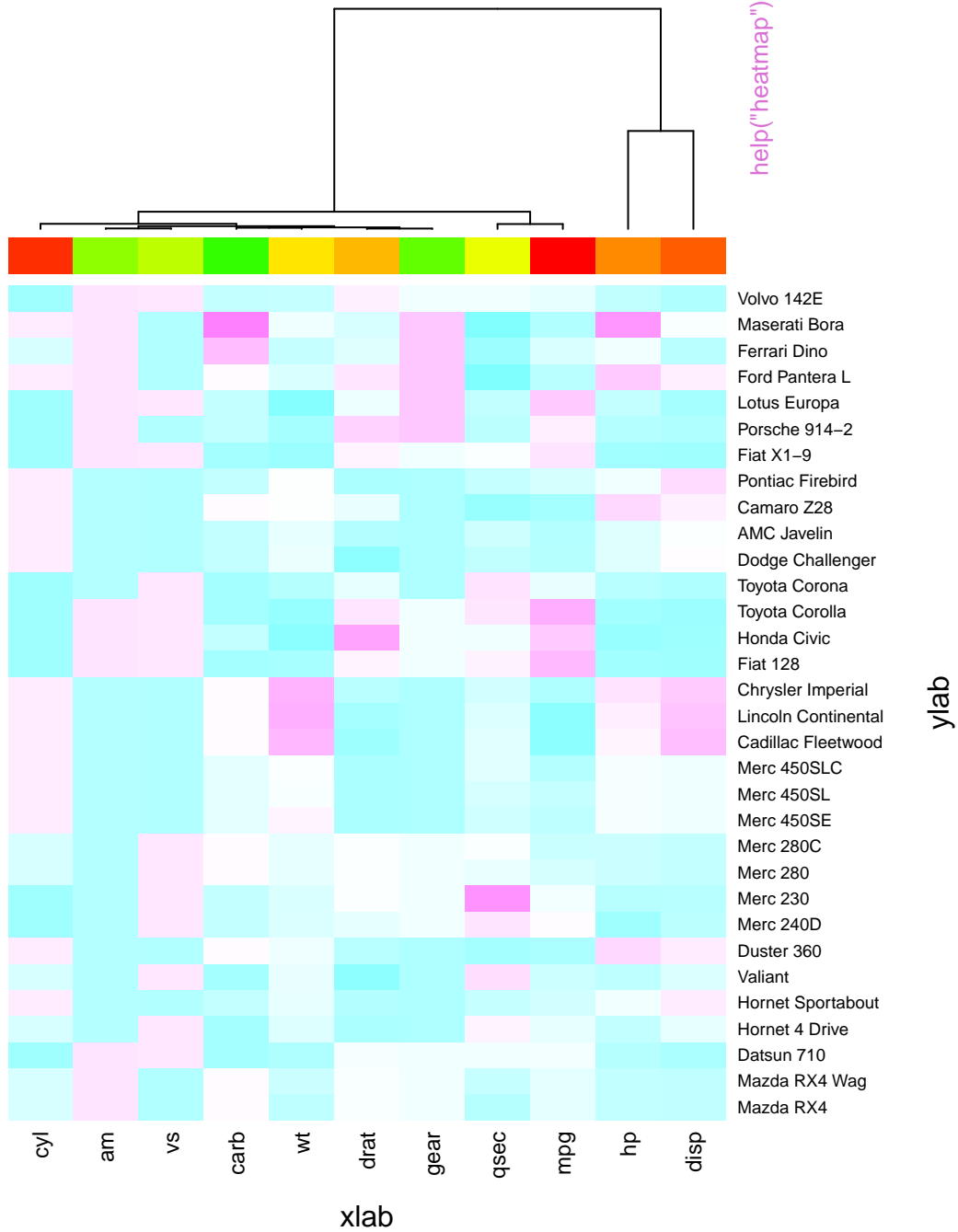


Car Models

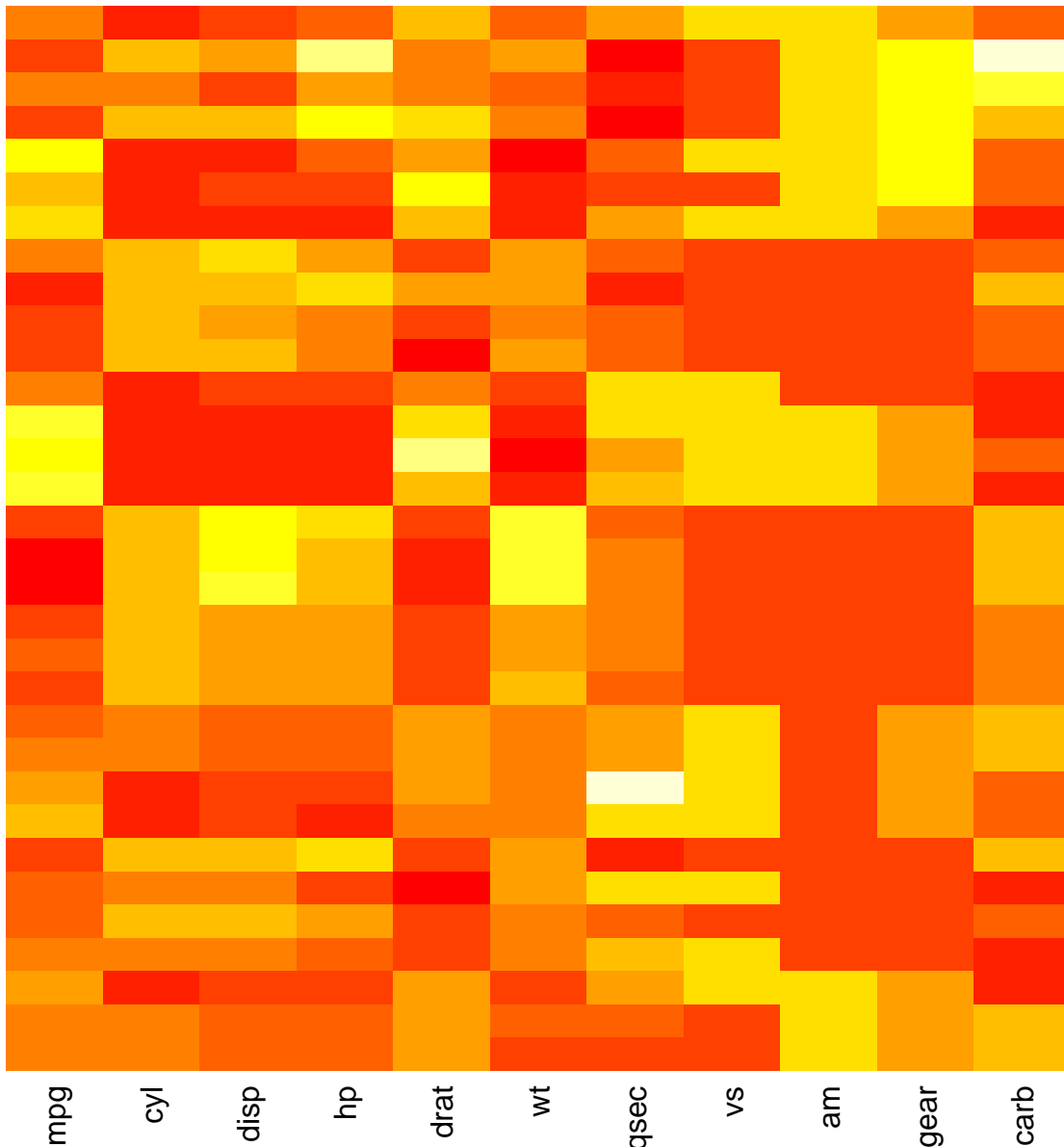
specification variables

heatmap(<Mtcars data>, ..., scale = "column")

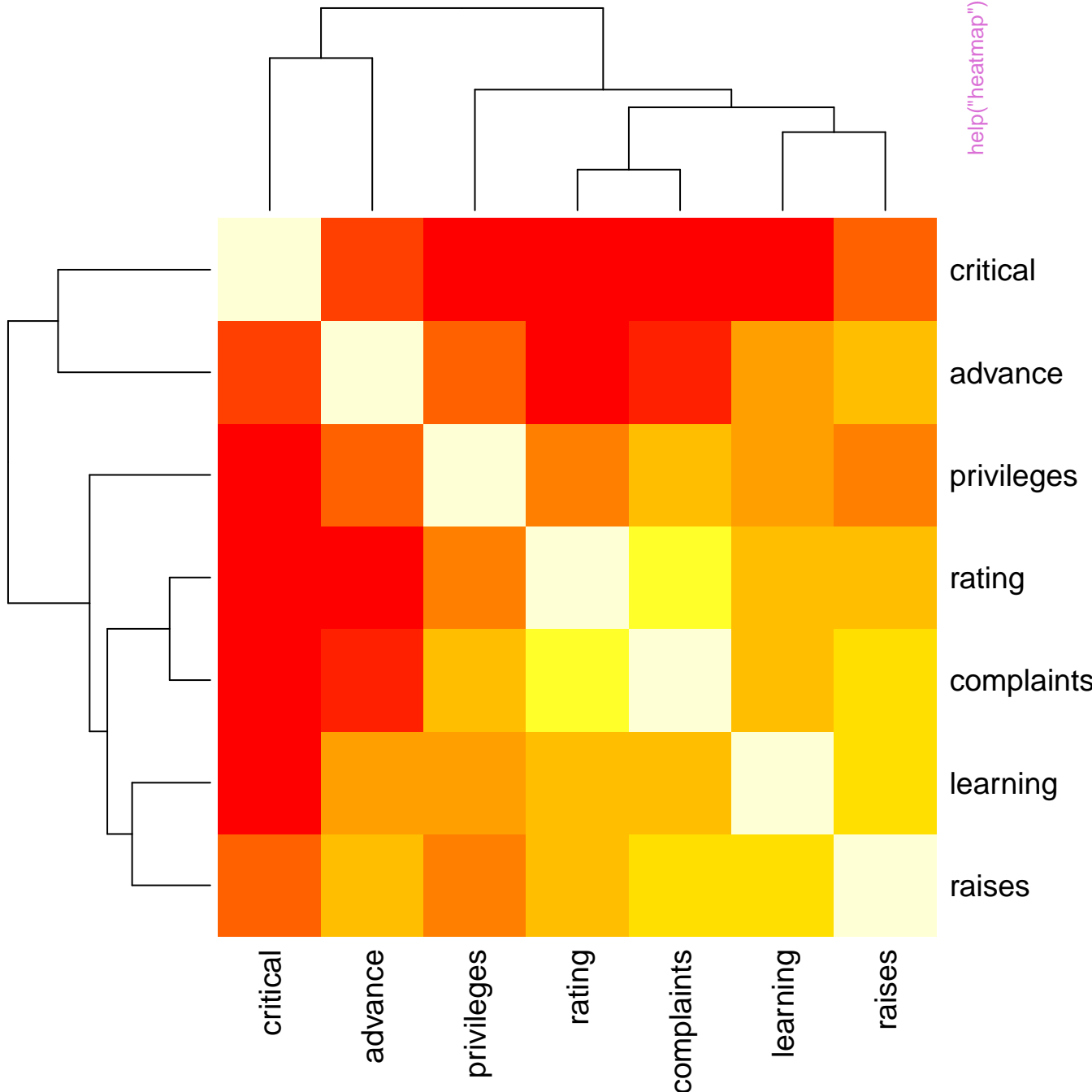


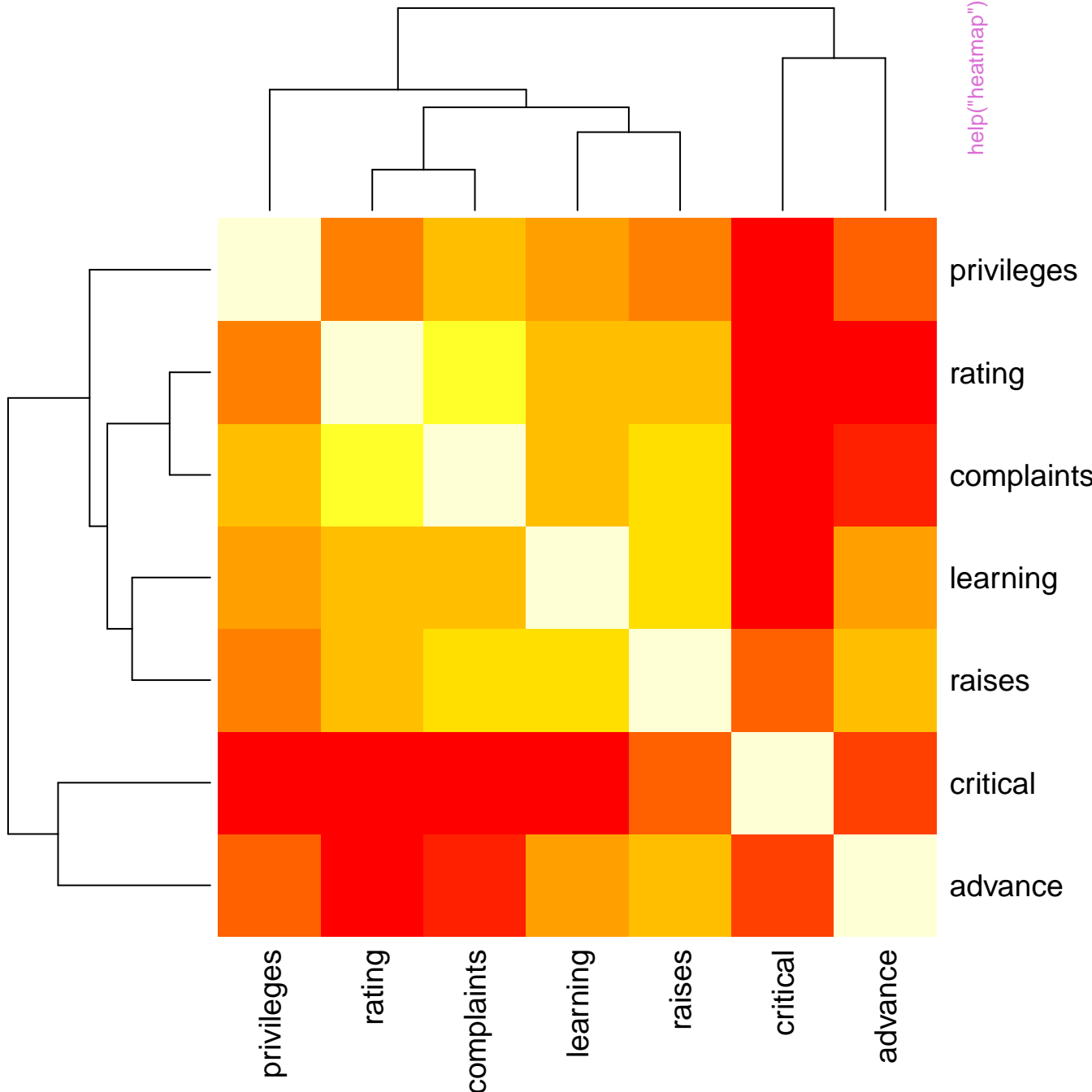


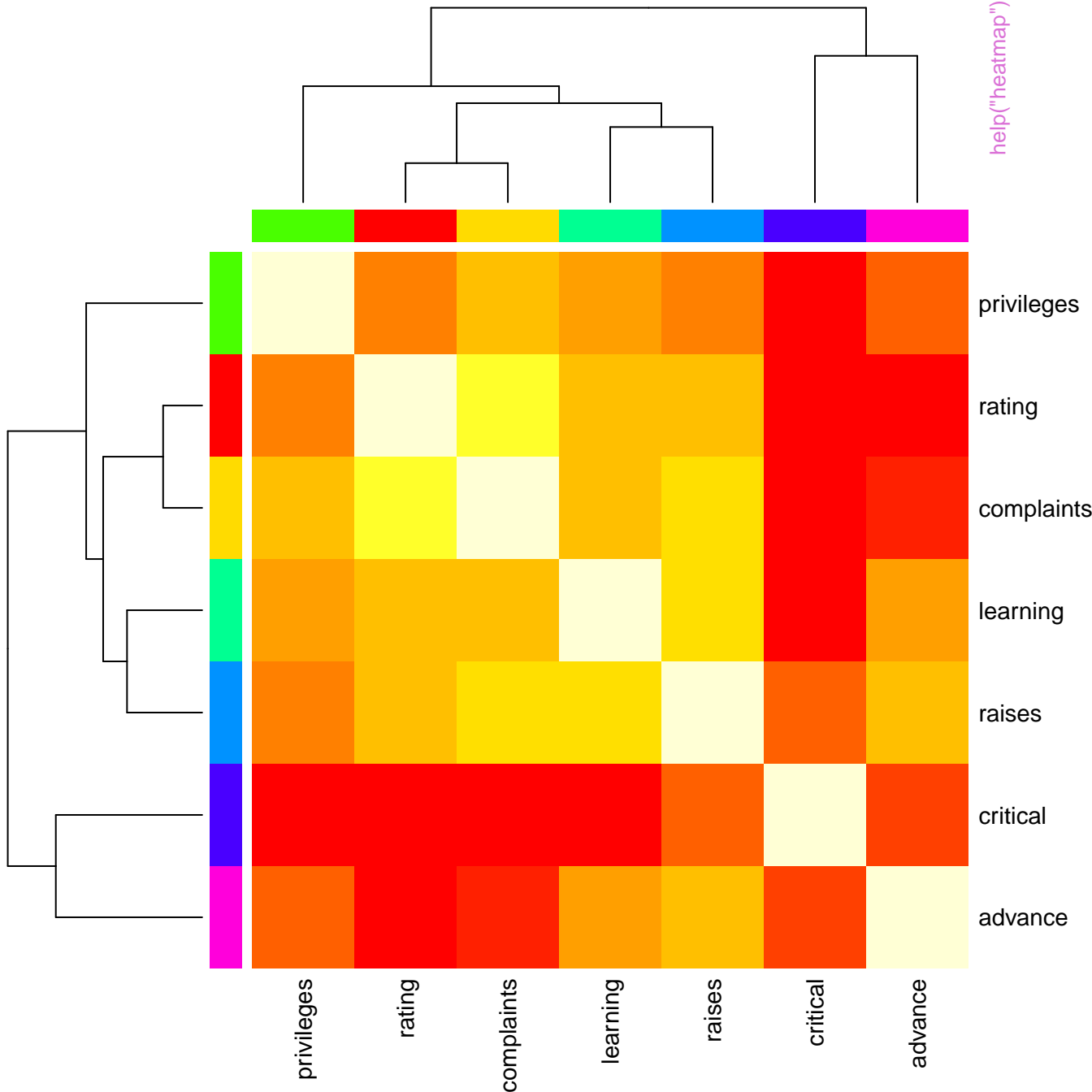
heatmap(*, NA, NA) ~= image(t(x))

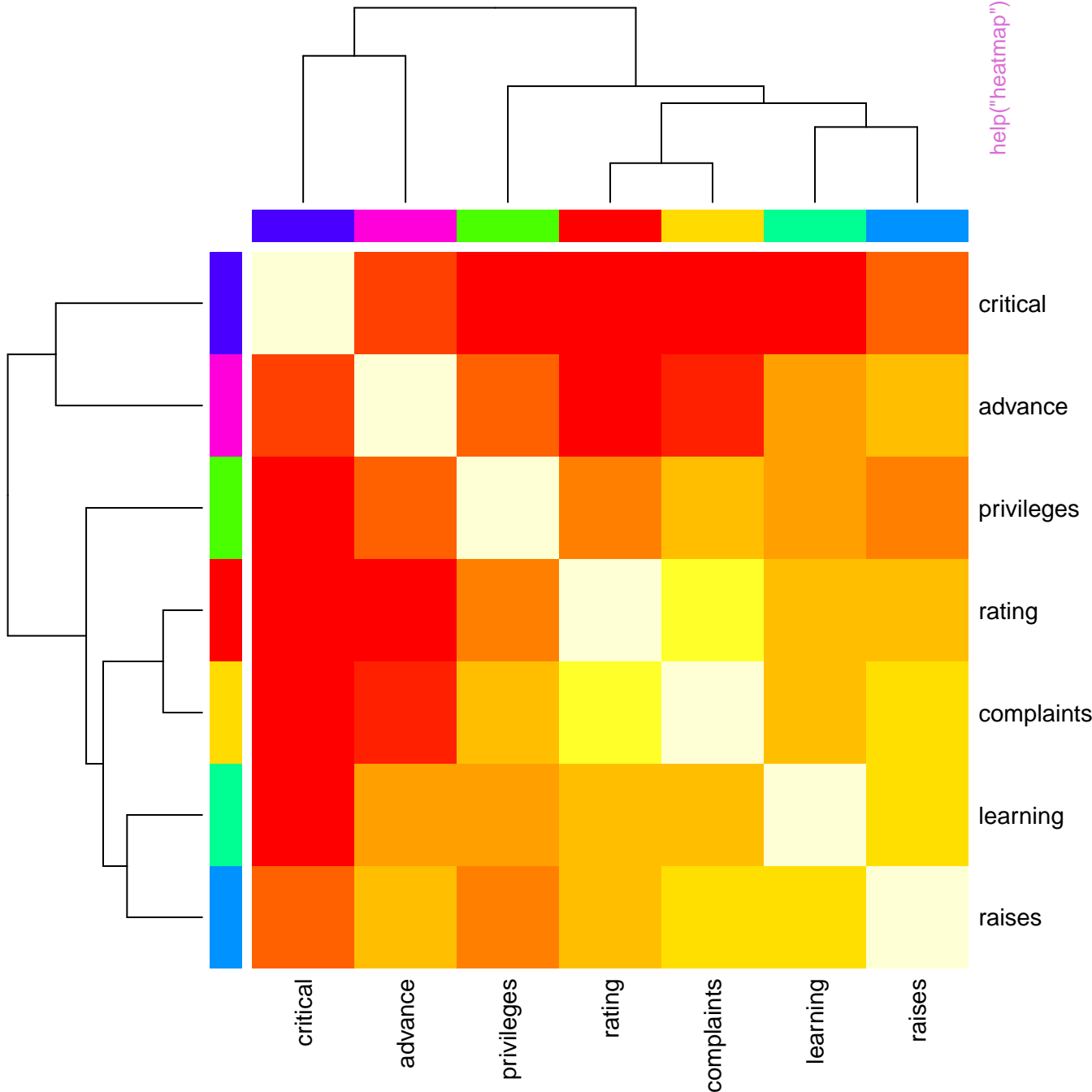


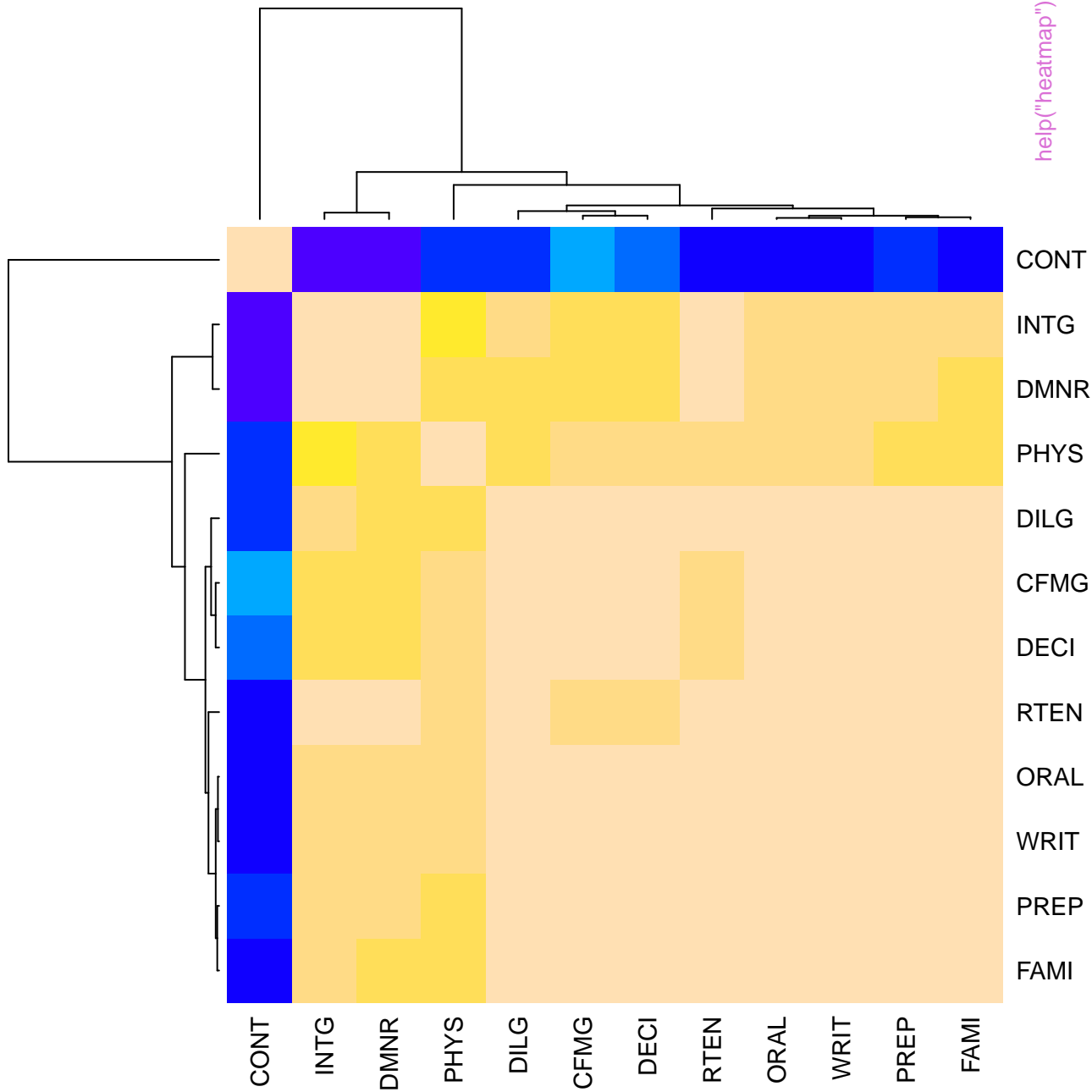
heatmap(*, NA, NA)



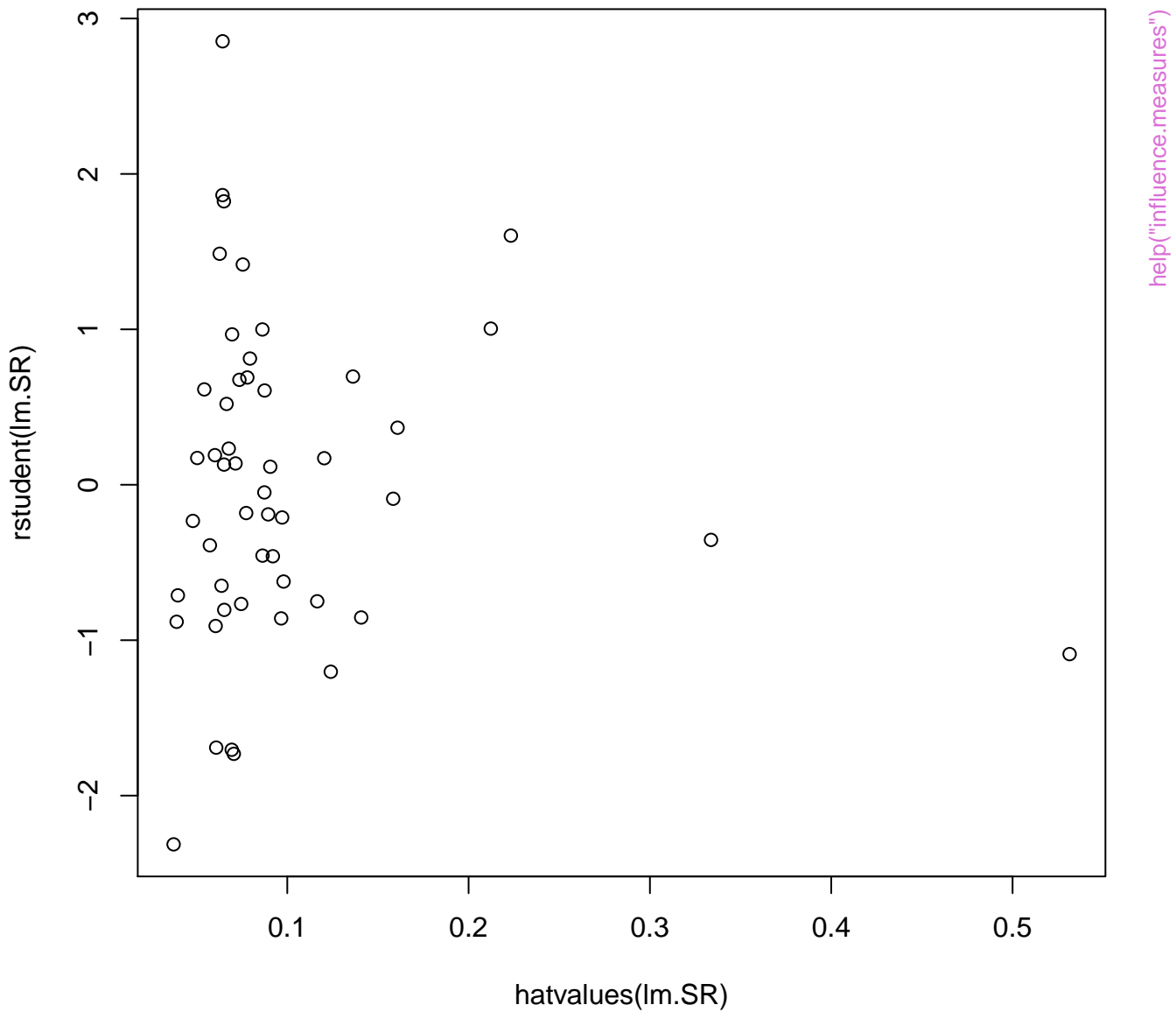






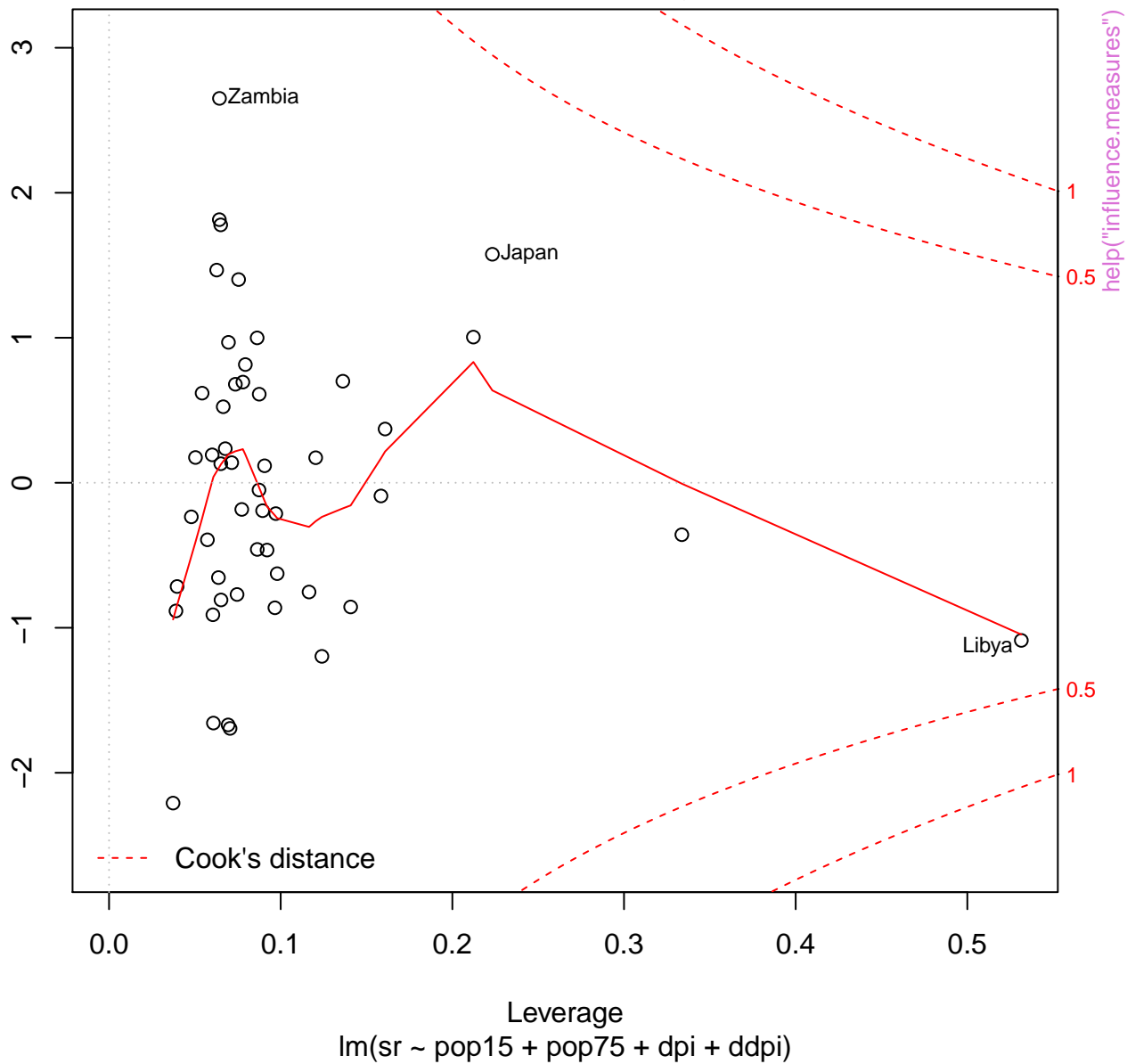


help("heatmap")

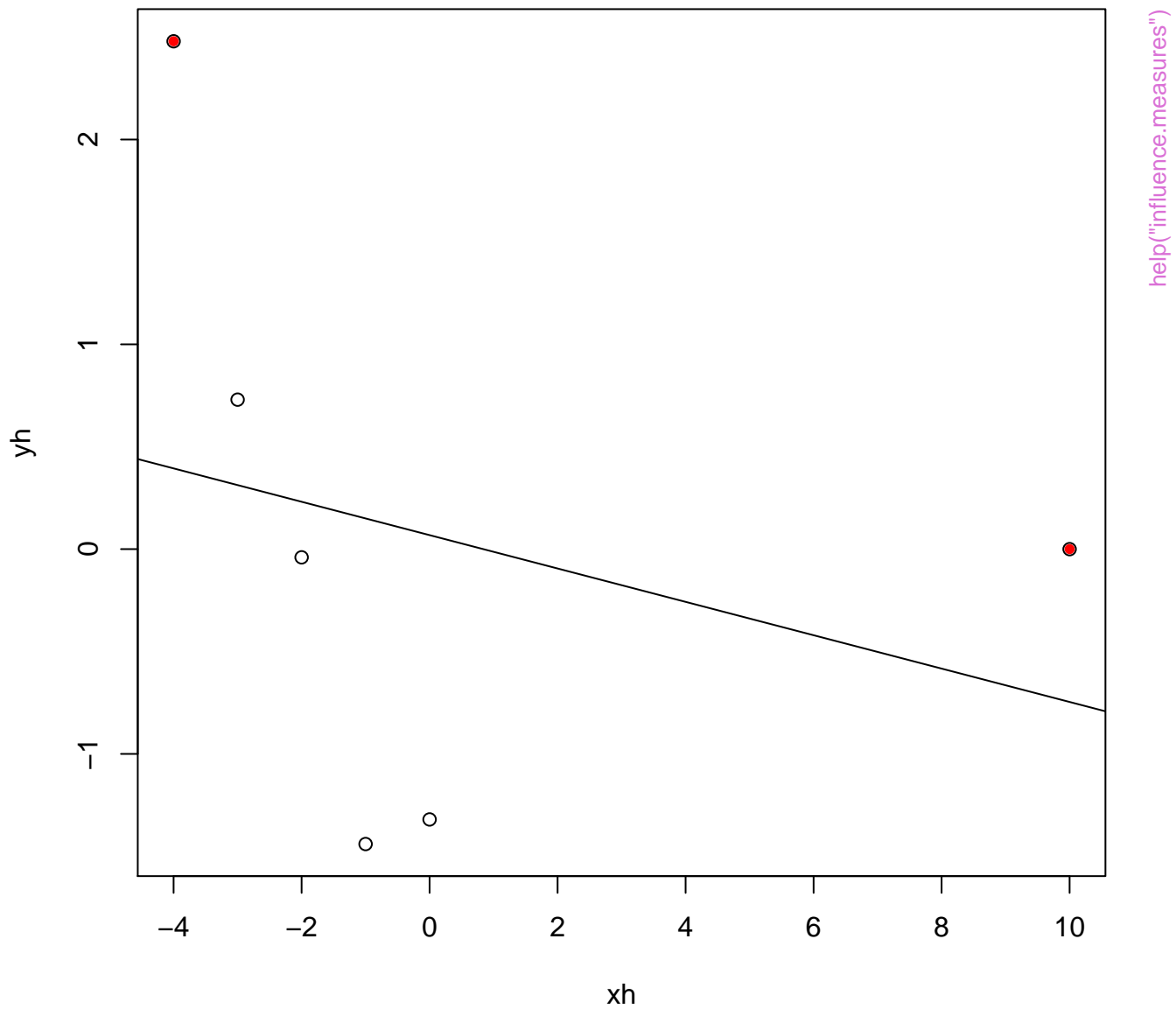


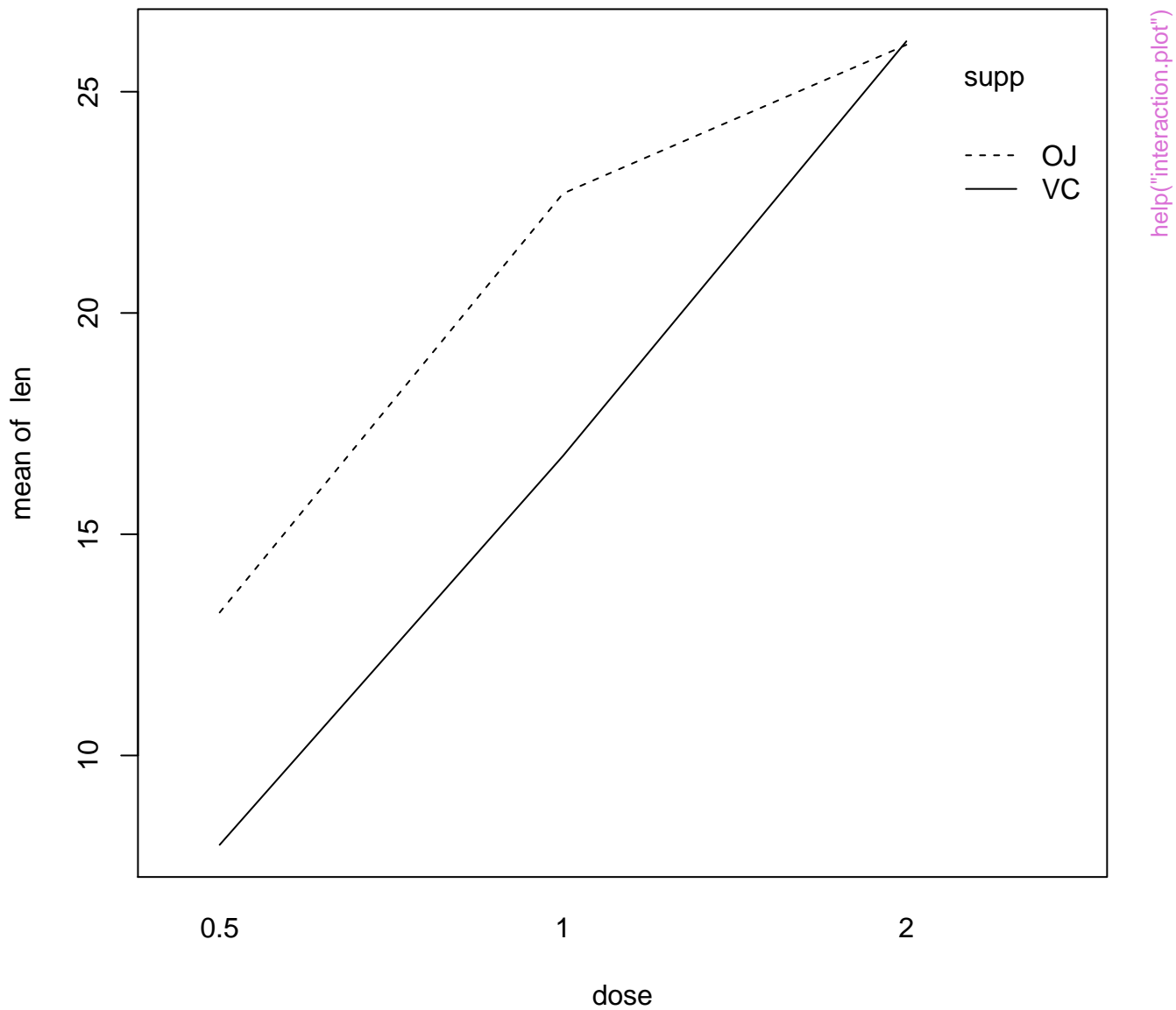
Standardized residuals

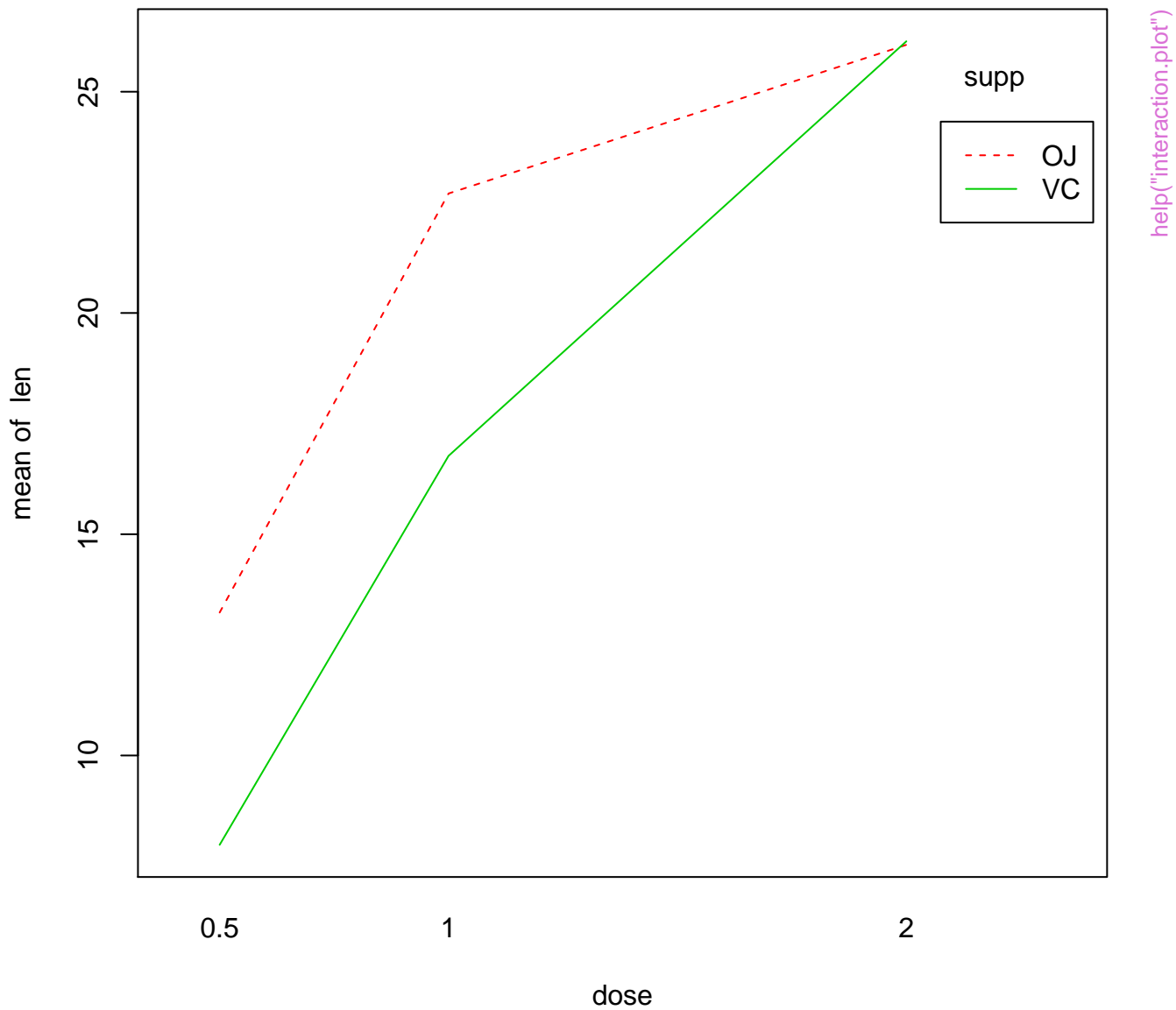
Residuals vs Leverage

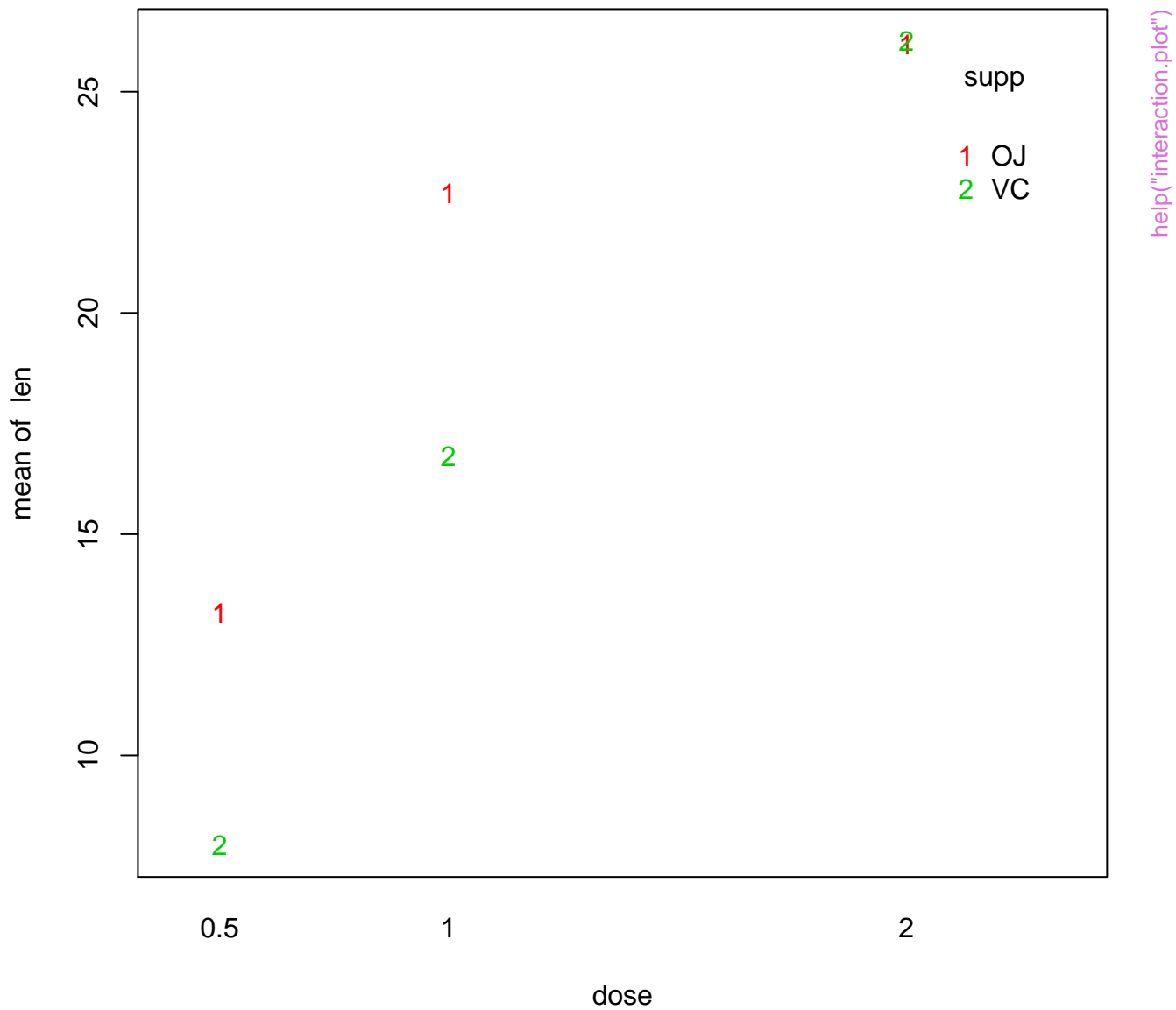


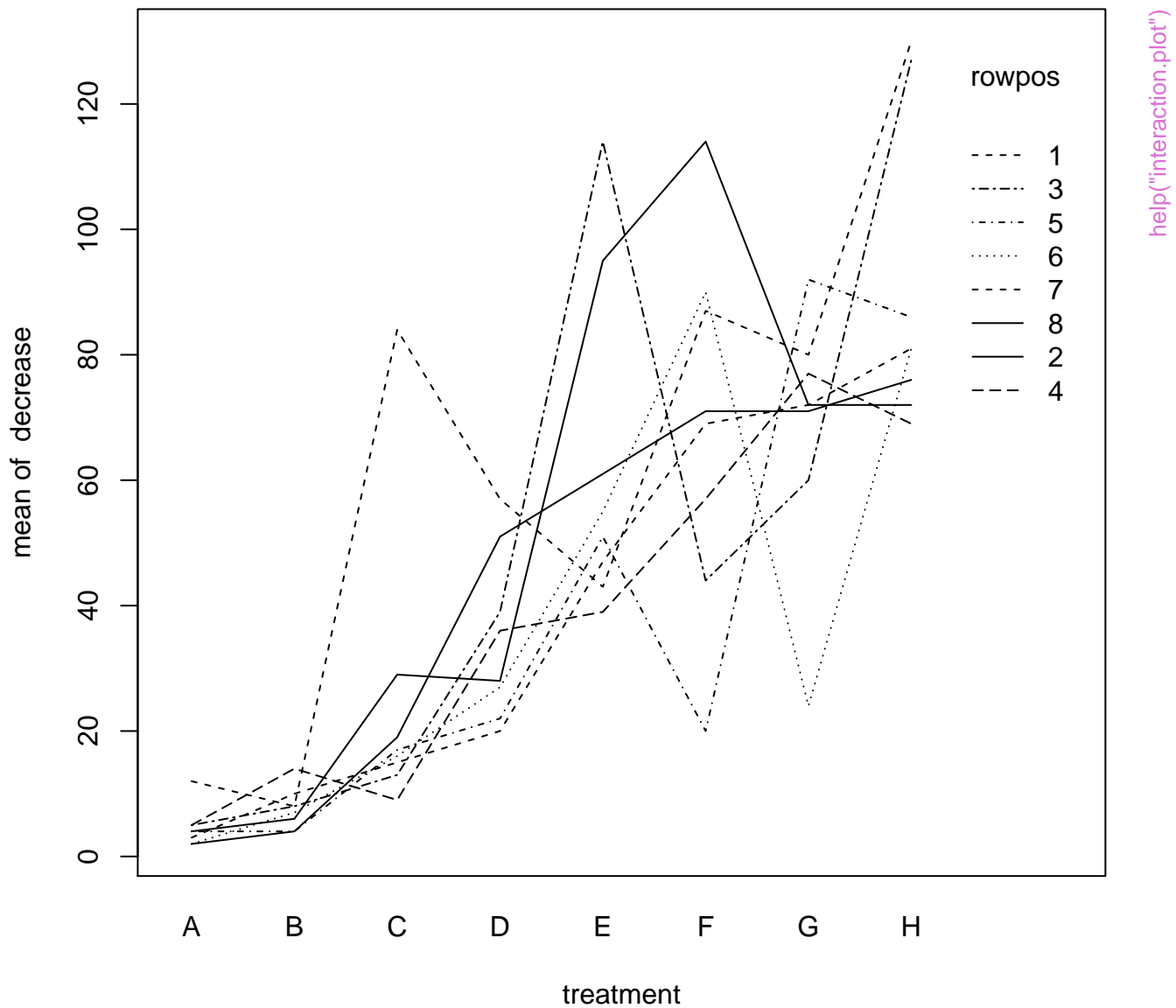
Huber's data: L.S. line and influential obs.

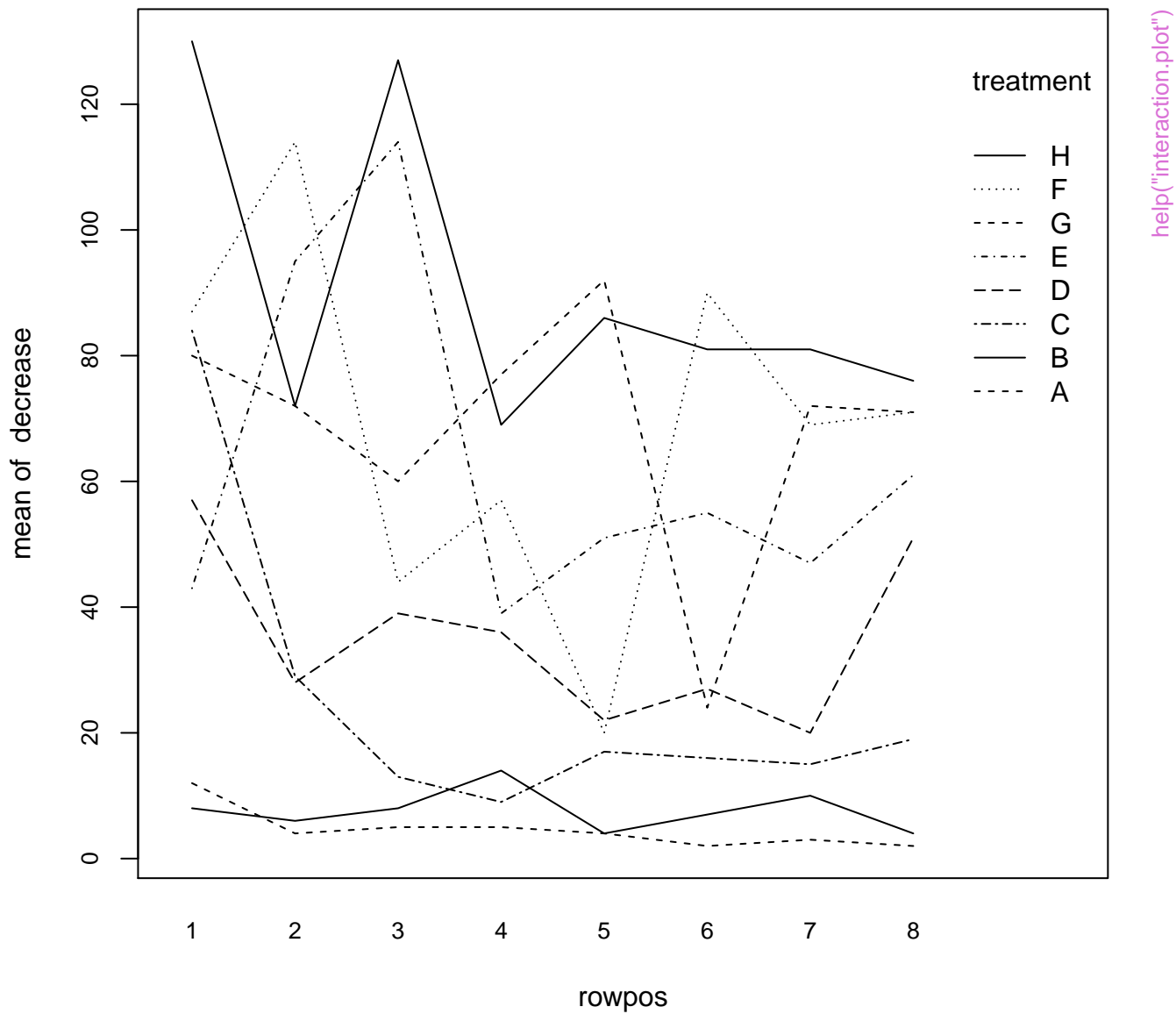


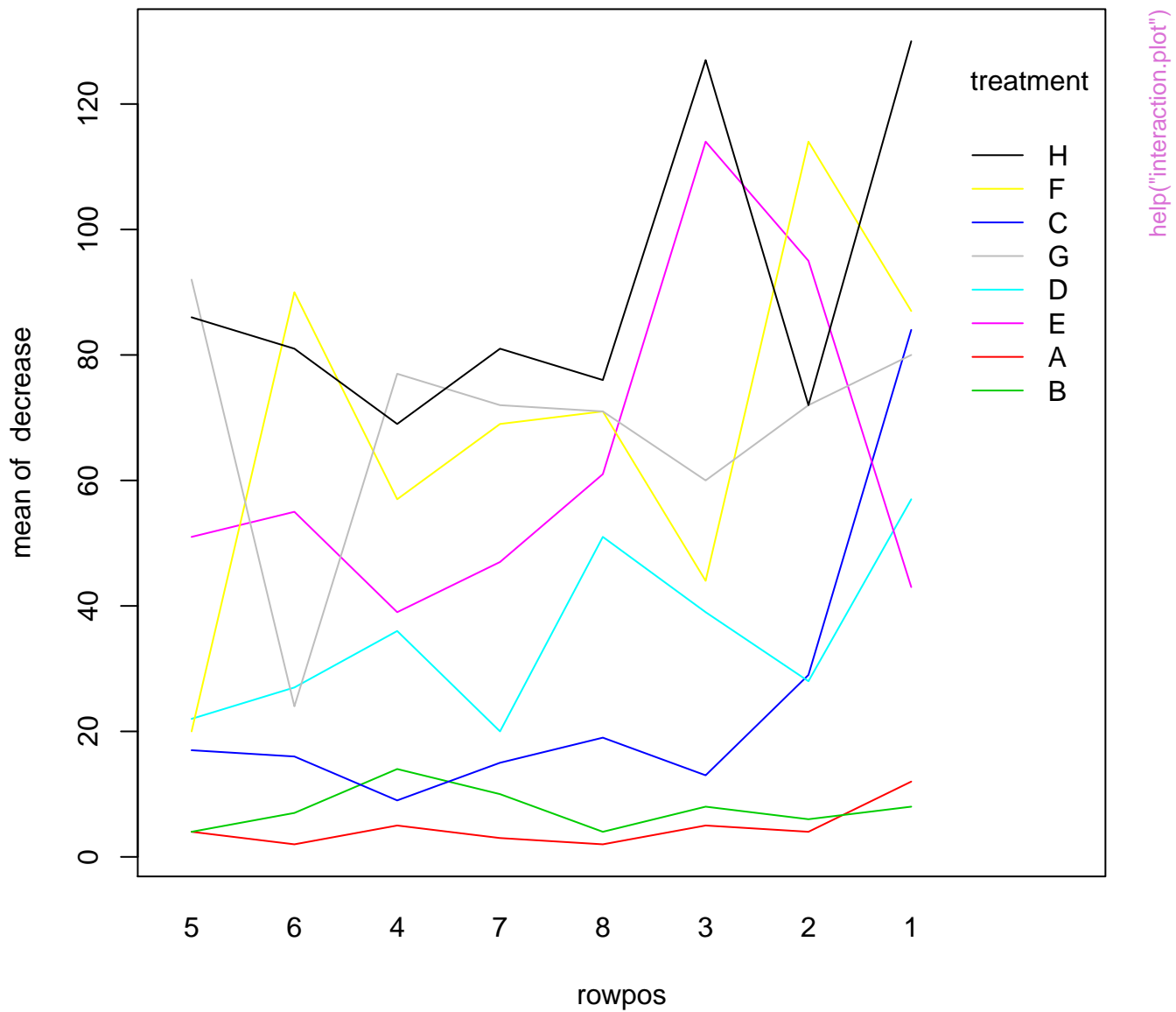




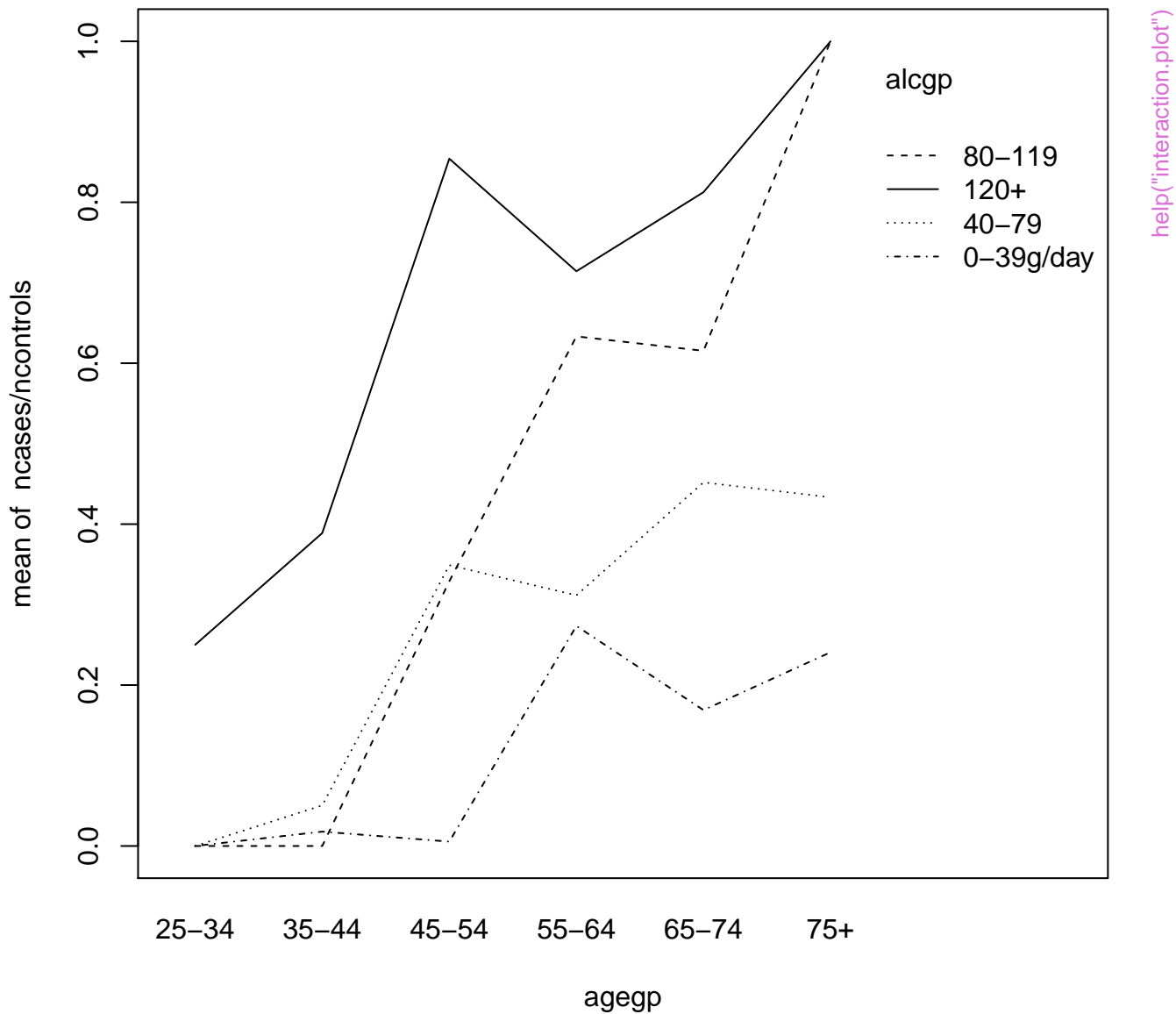


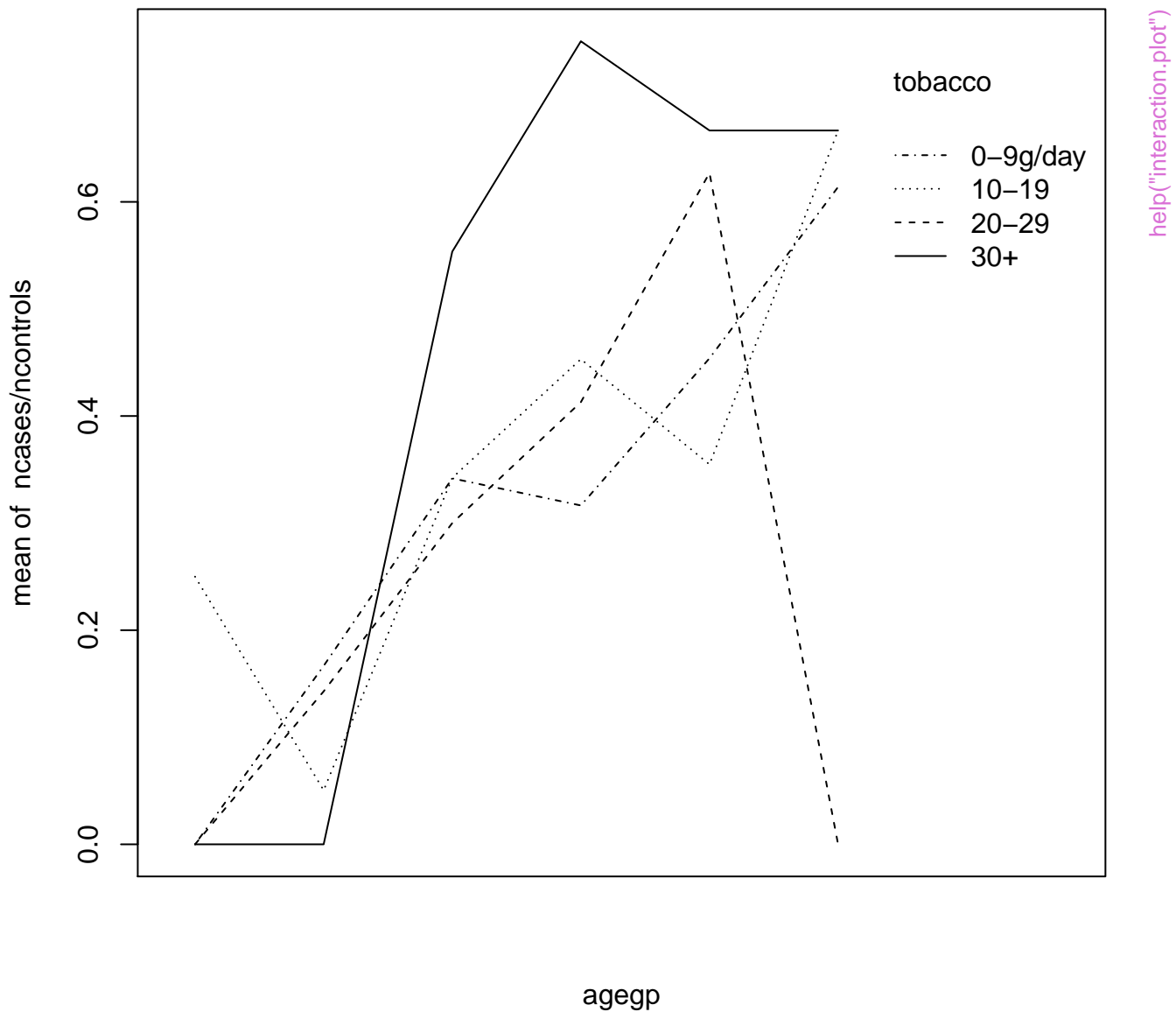


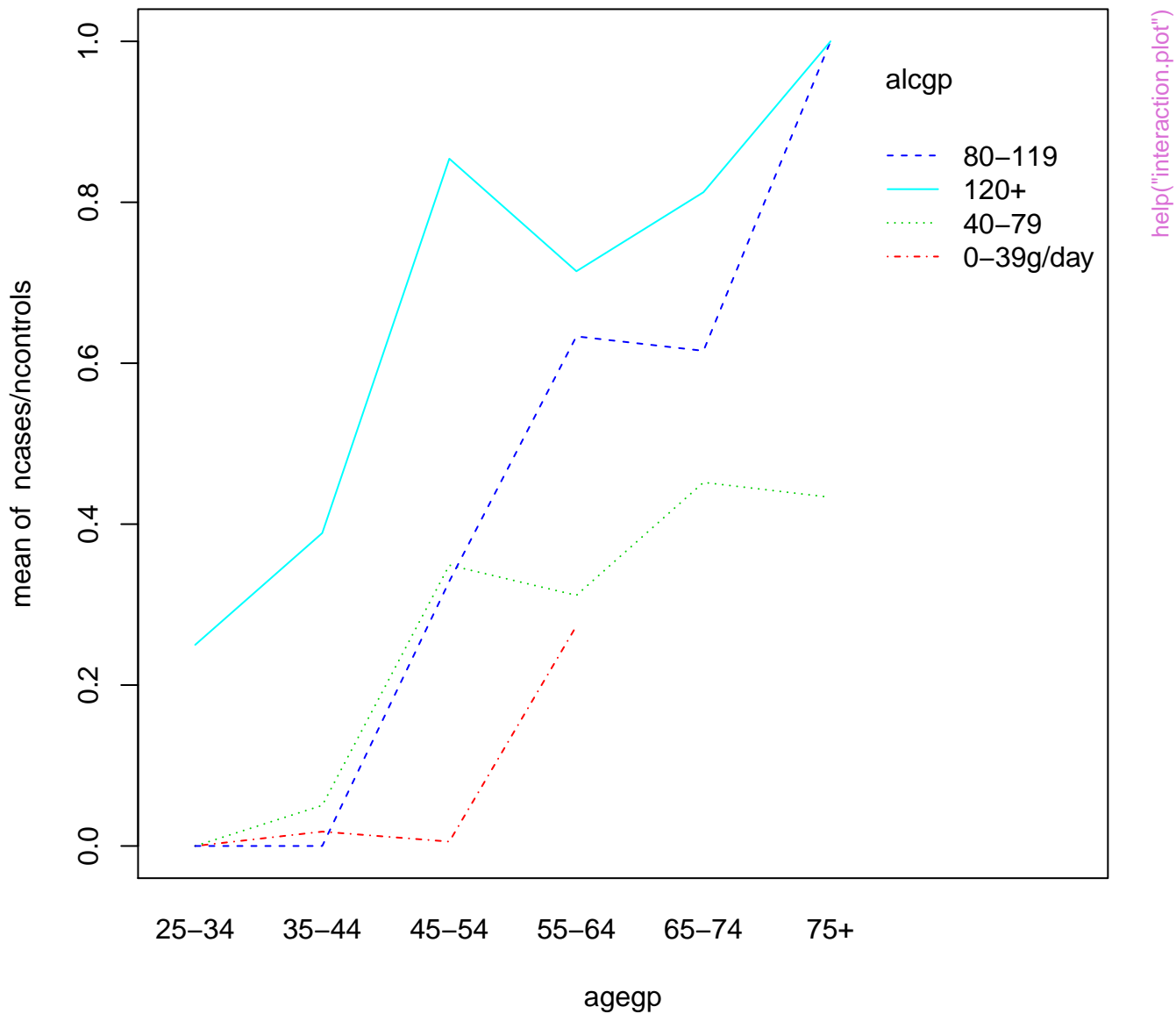




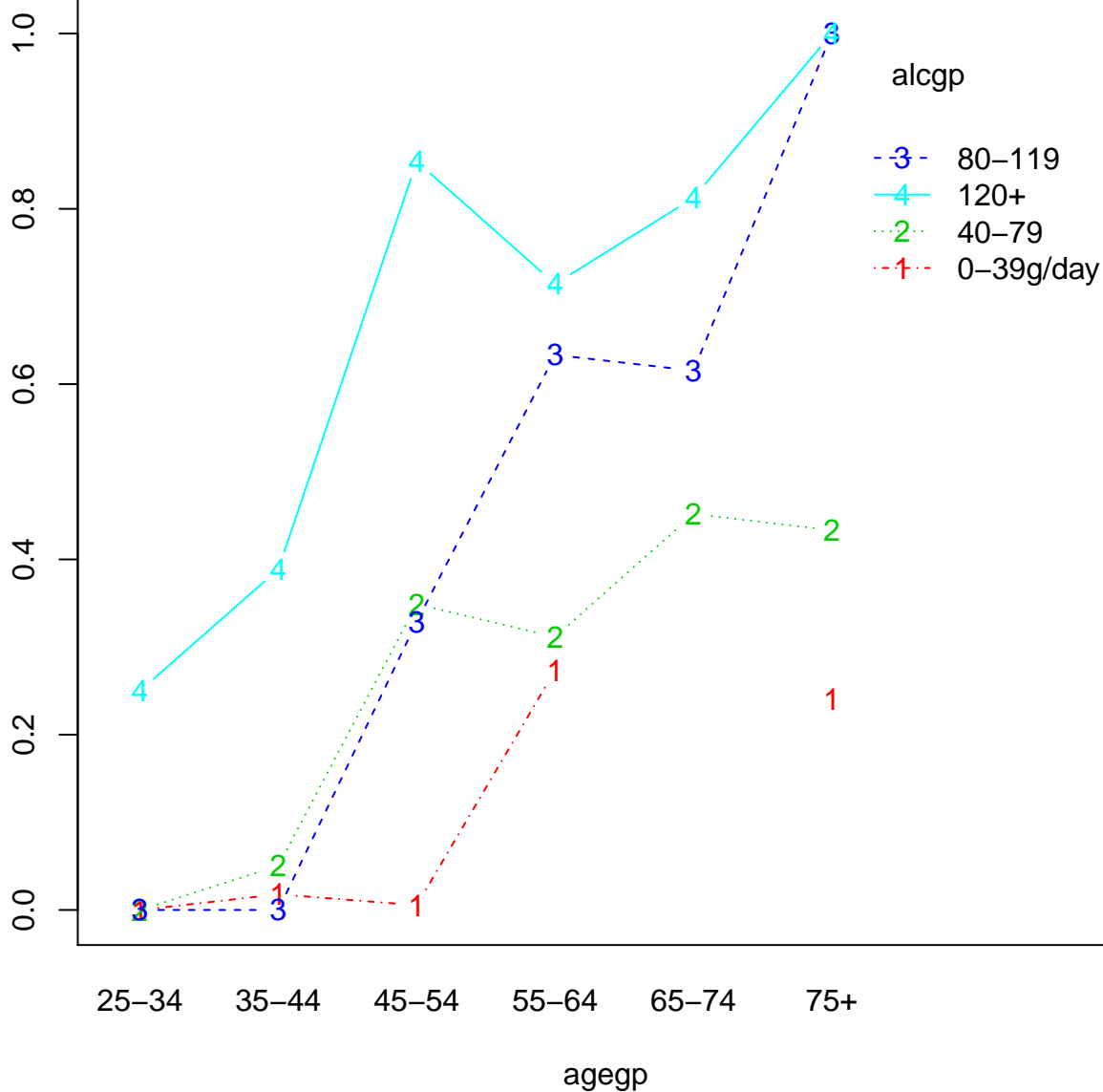
'esoph' Data



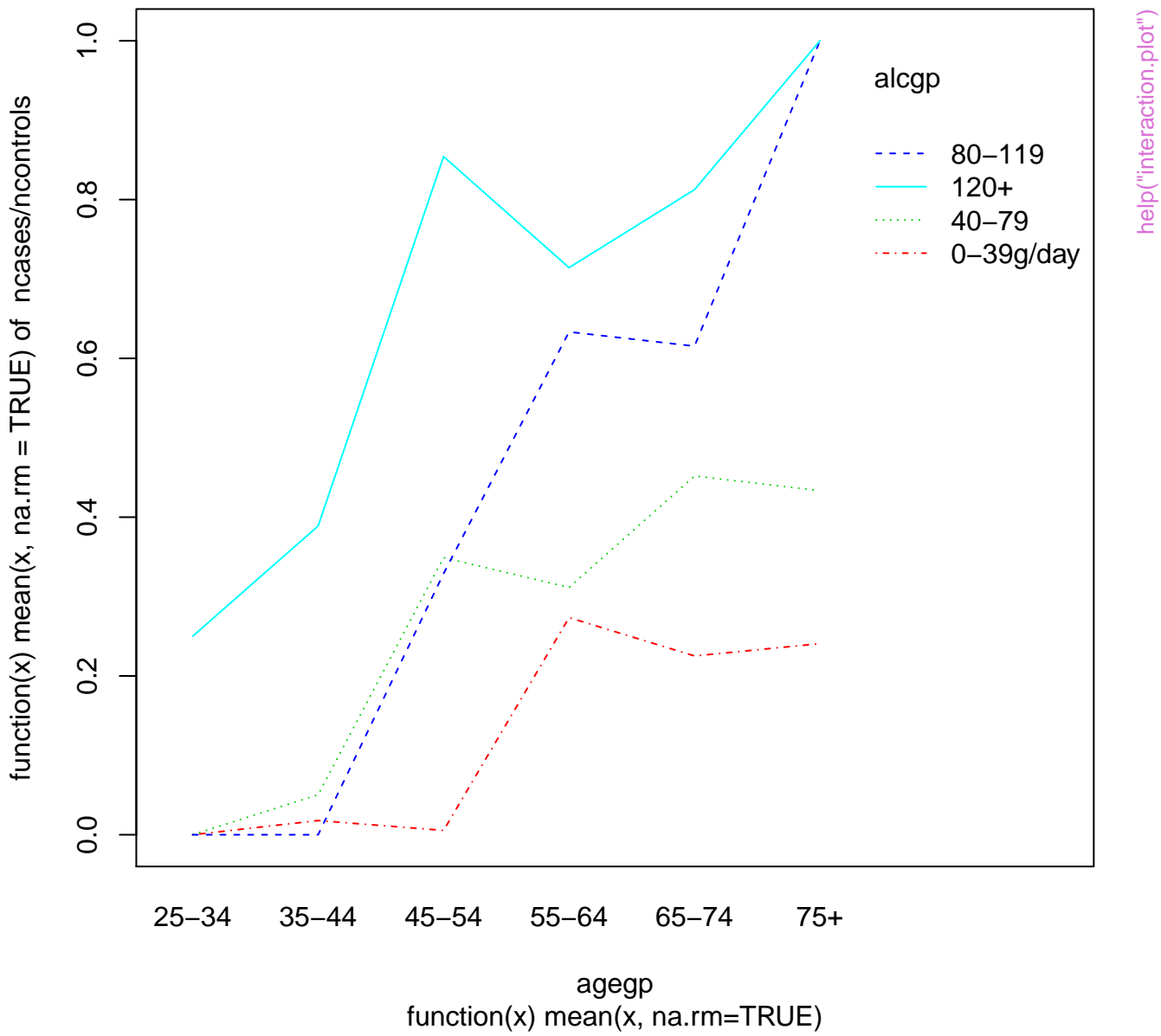




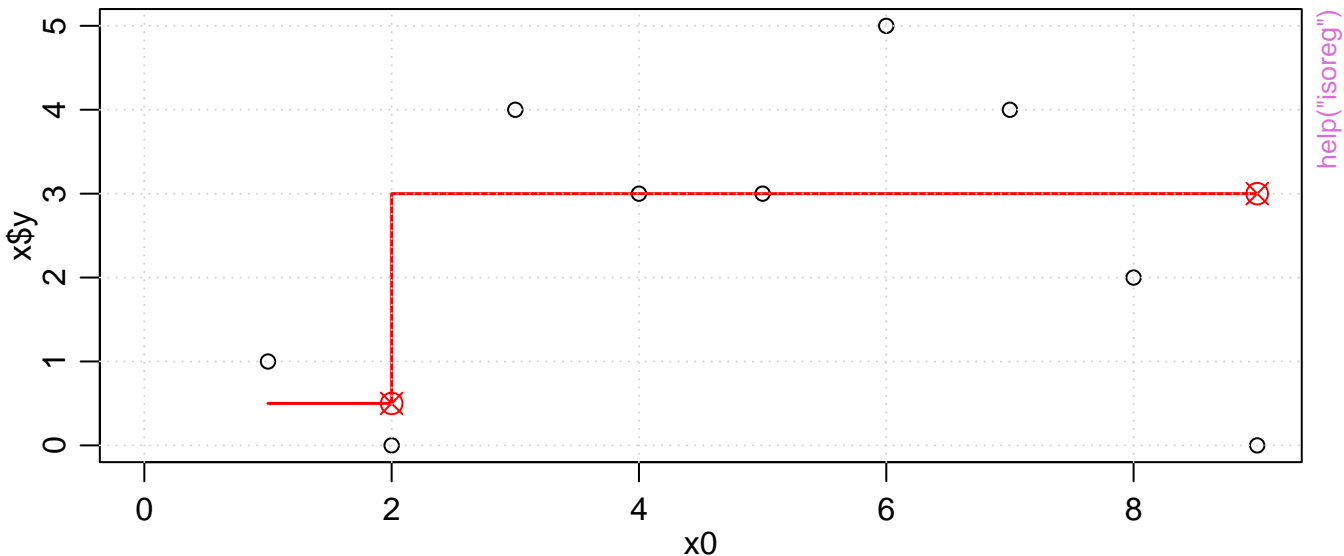
mean of ncases/hcontrols



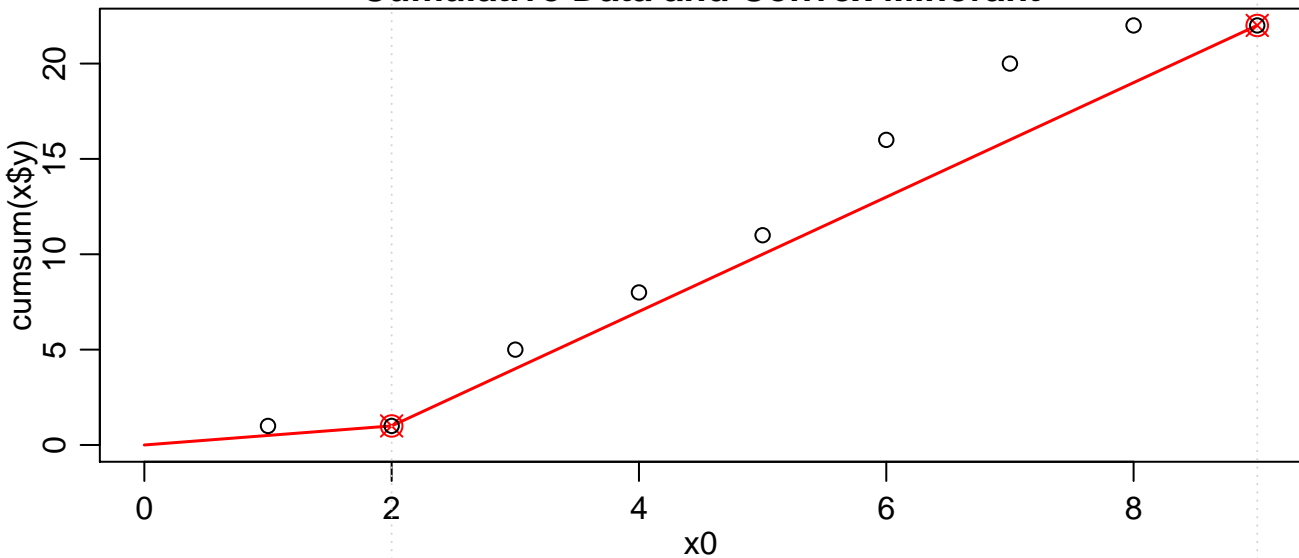
help("interaction.plot")



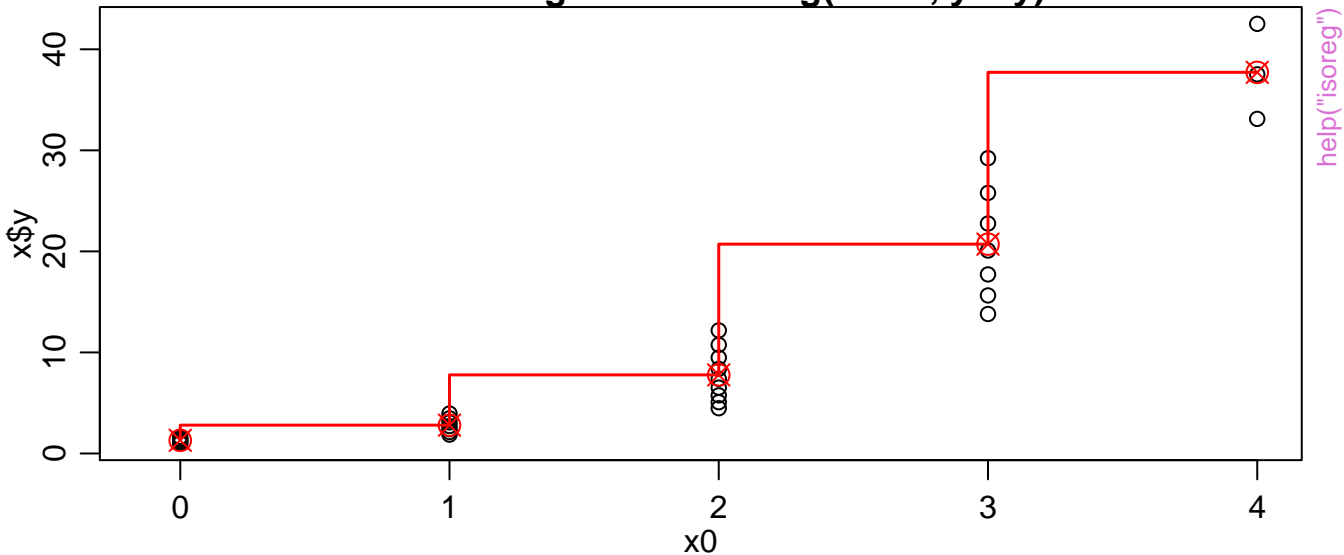
Isotonic regression isoreg(x = c(1, 0, 4, 3, 3, 5, 4, 2, 0))



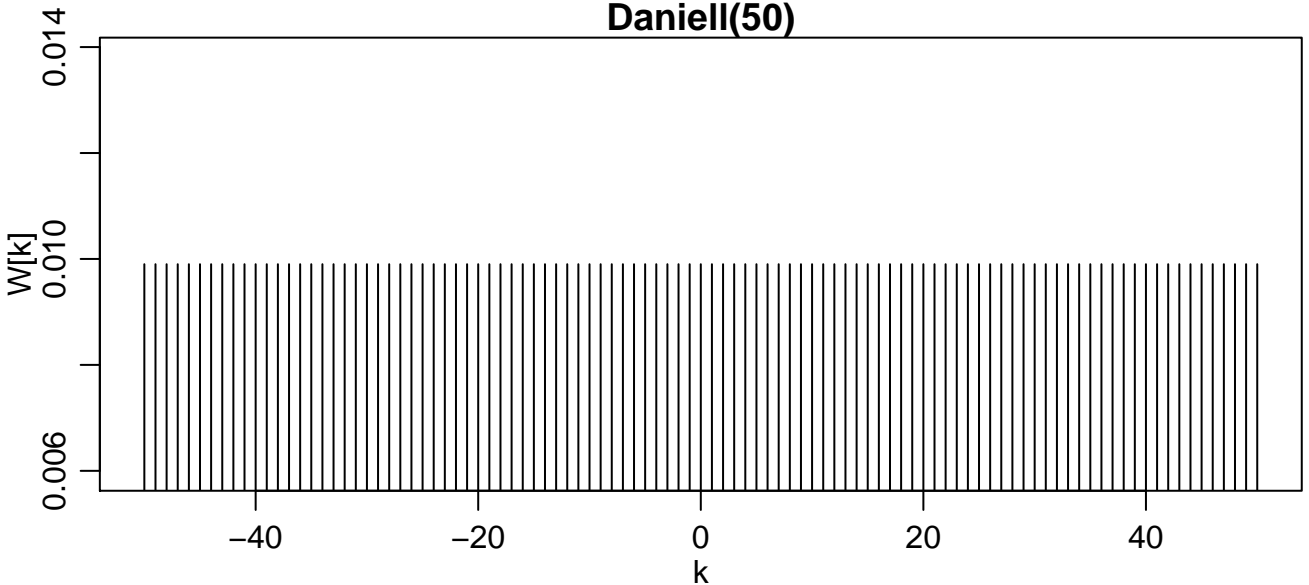
Cumulative Data and Convex Minorant



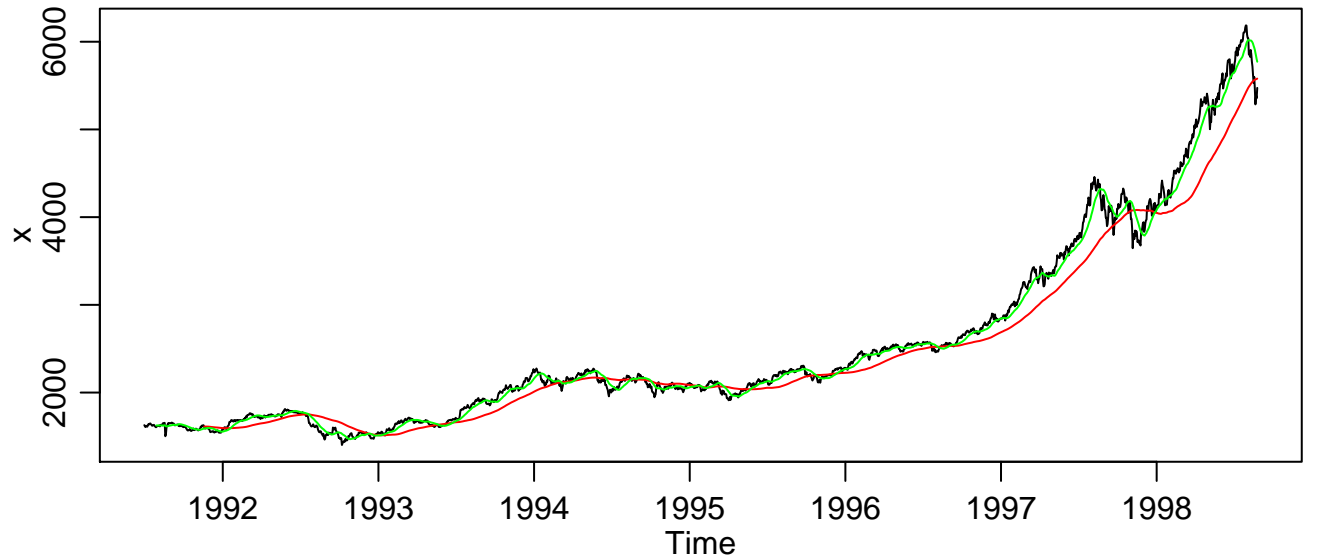
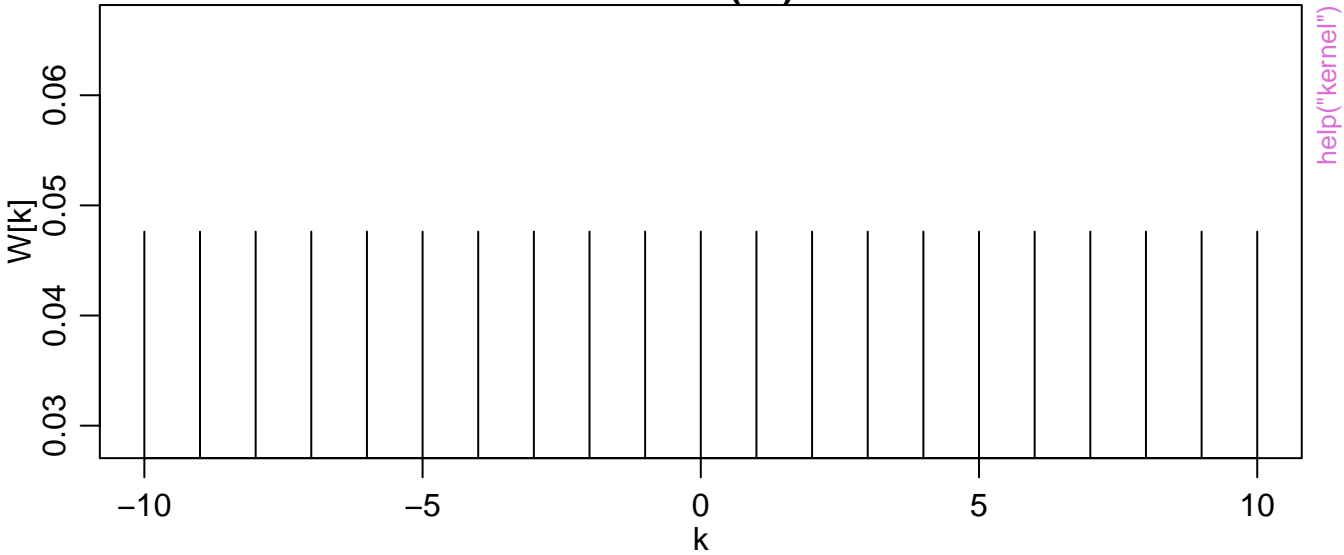
Isotonic regression isoreg($x = x.$, $y = y$)

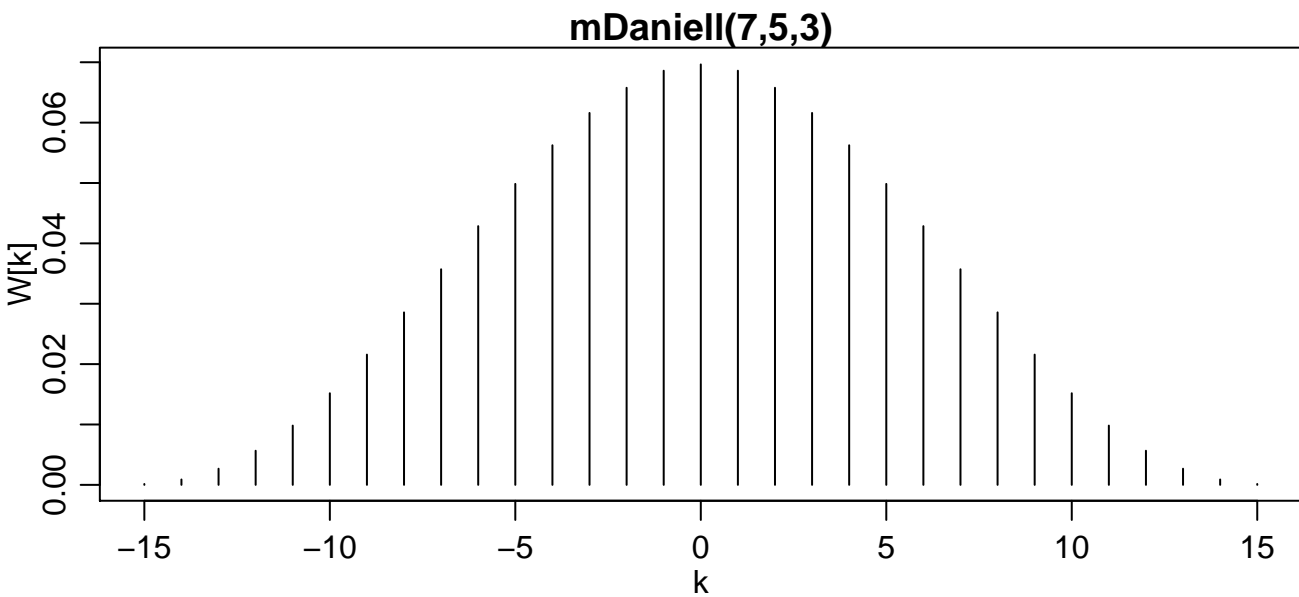
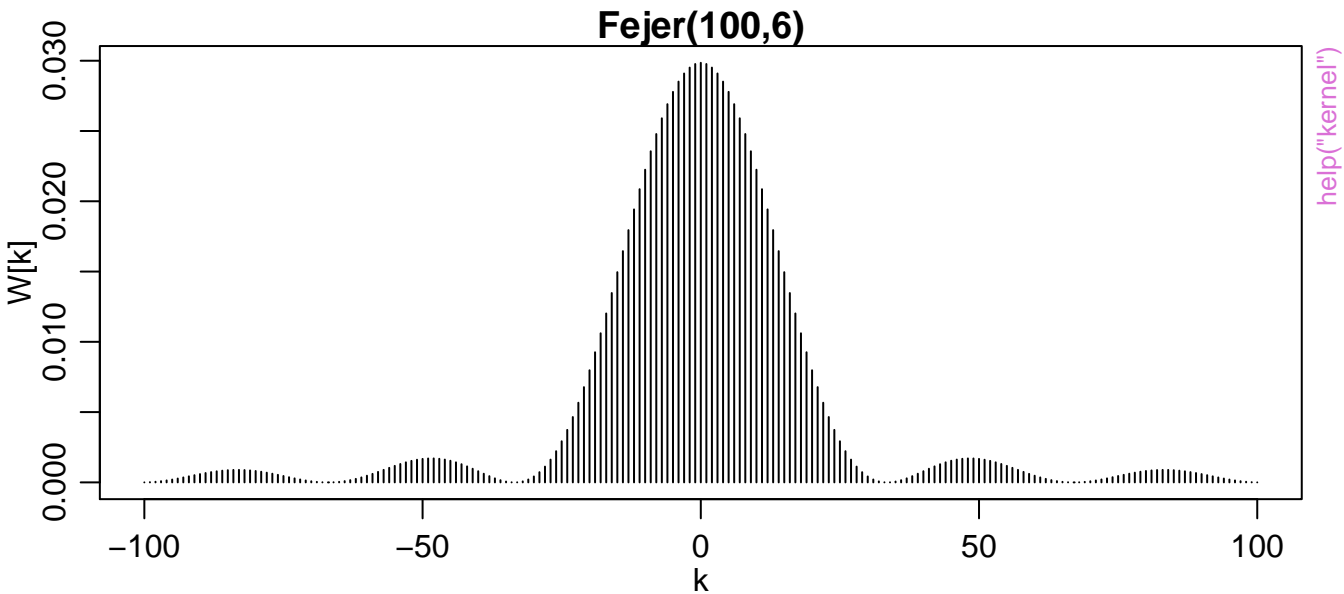


Daniell(50)



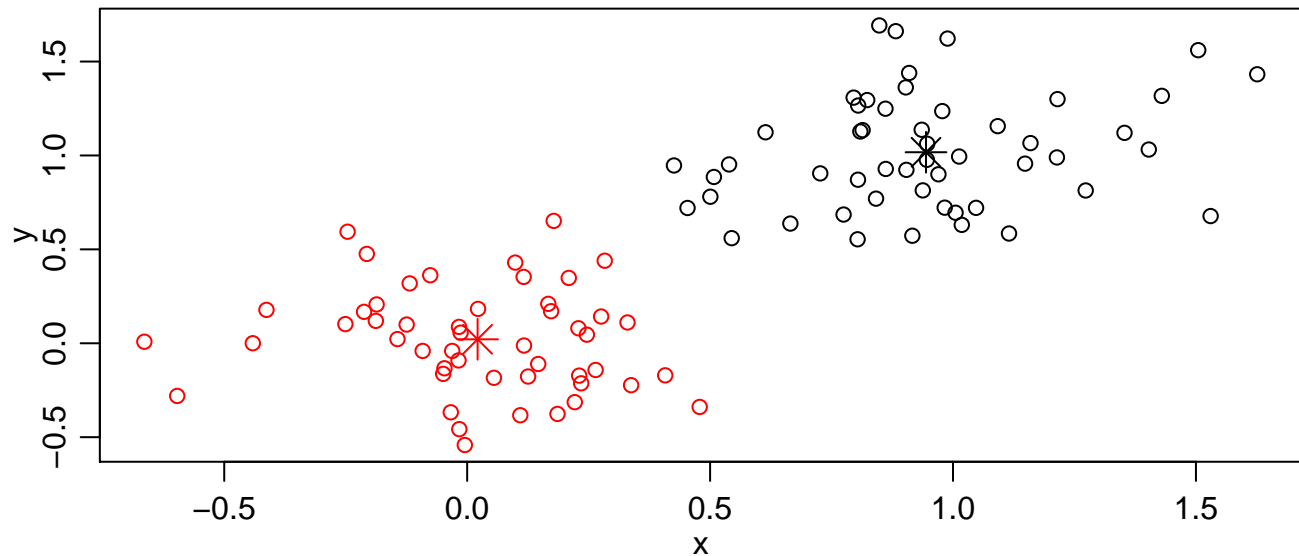
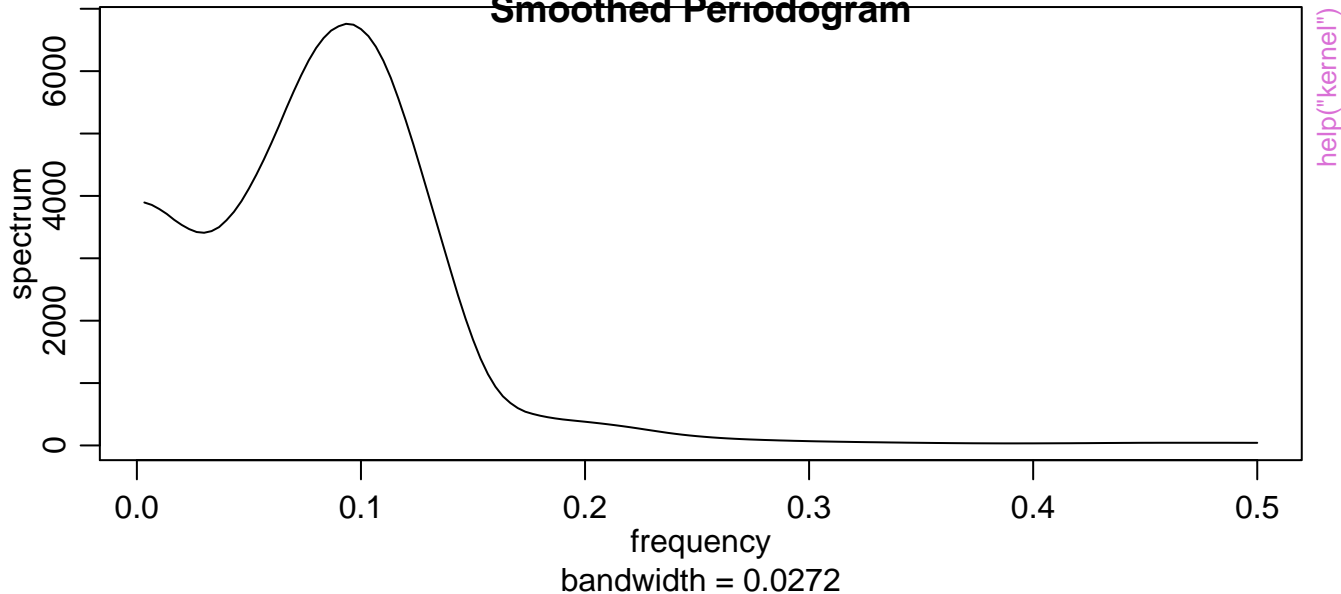
Daniell(10)

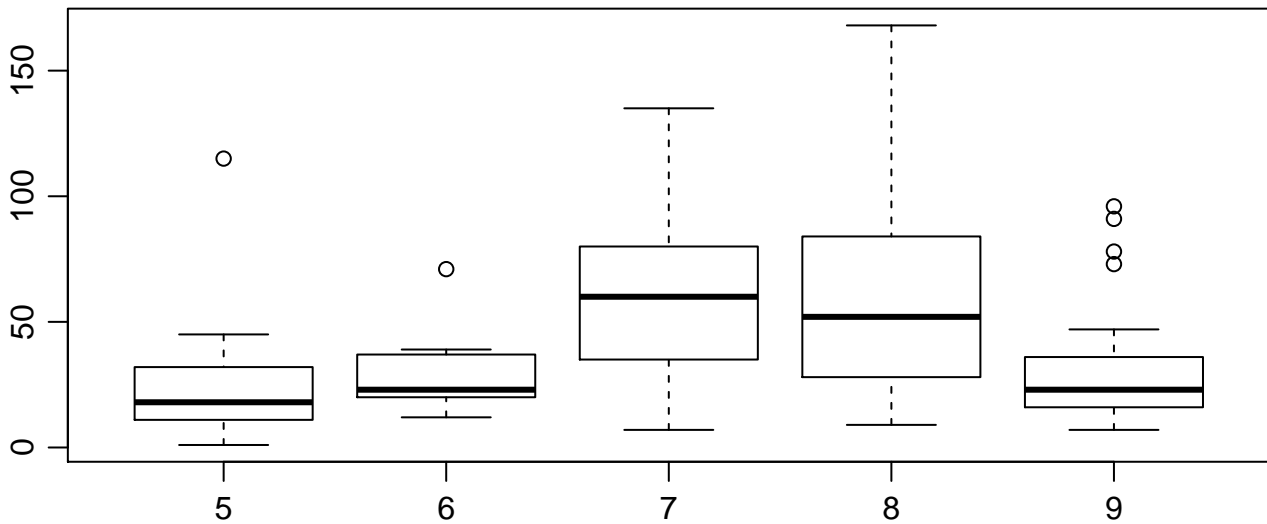
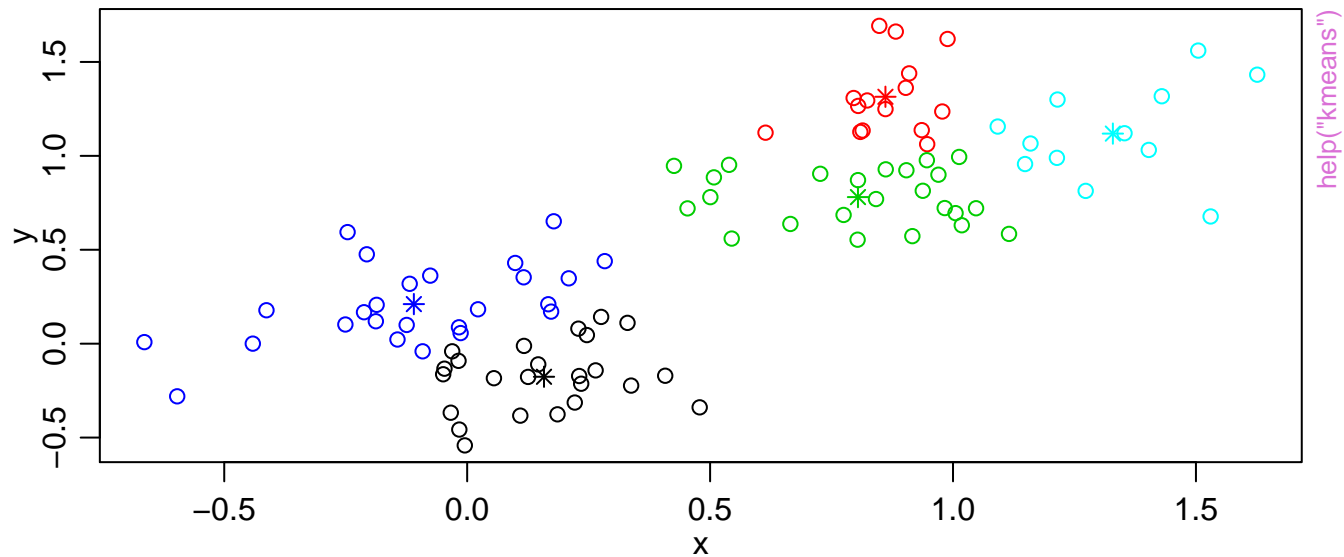


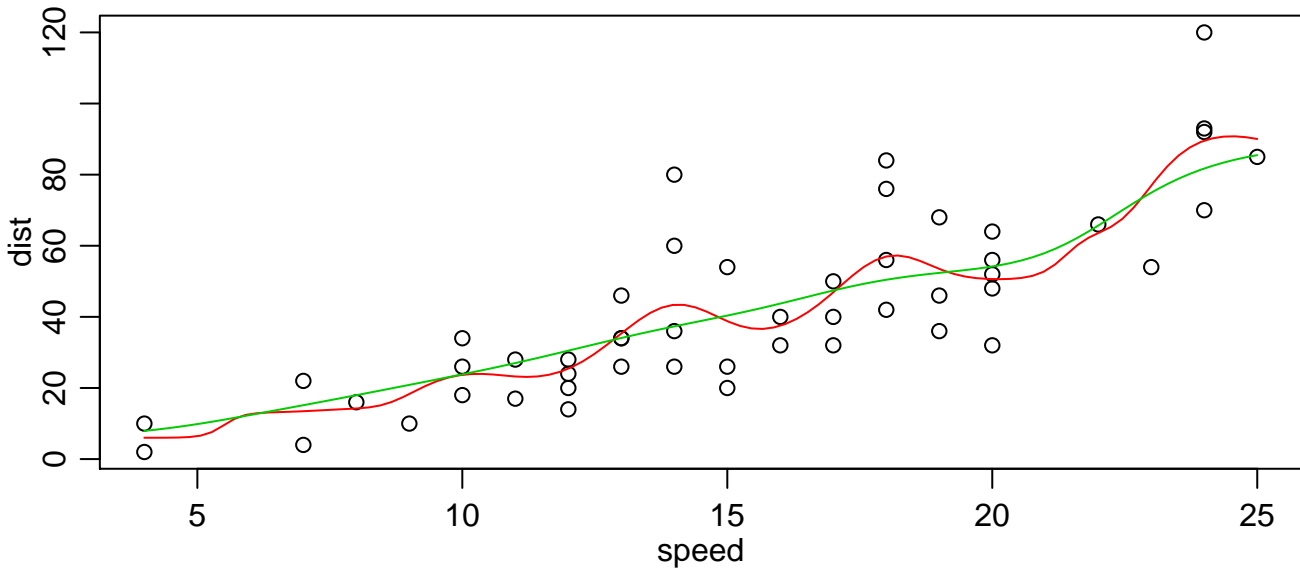
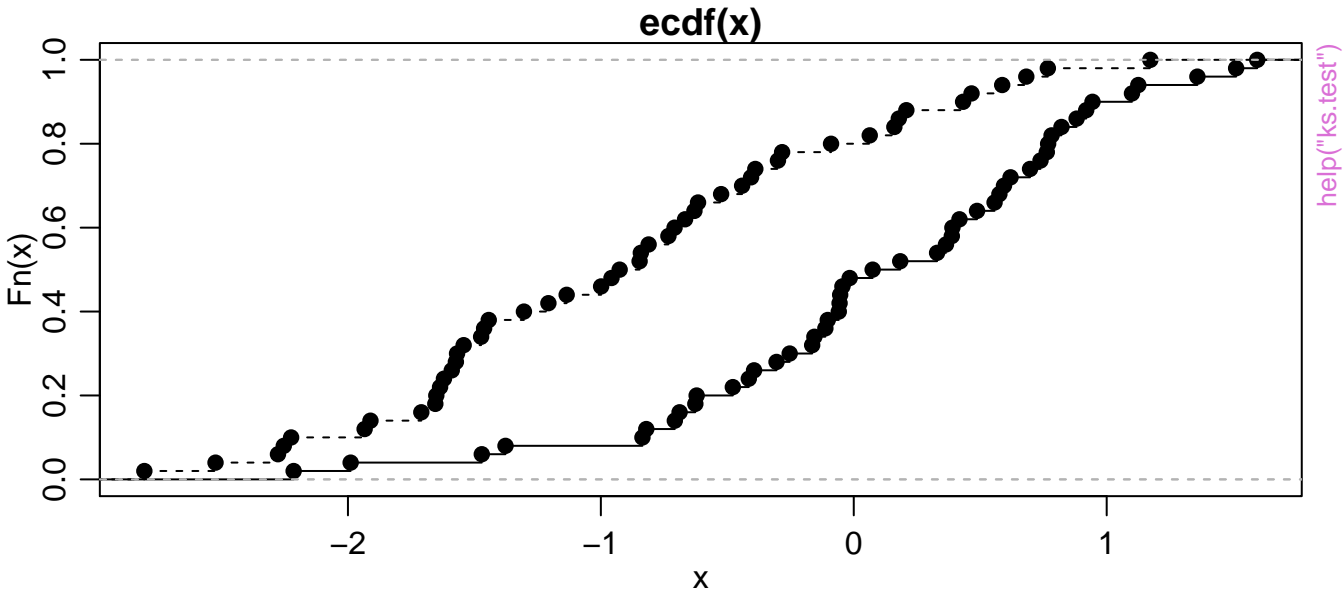


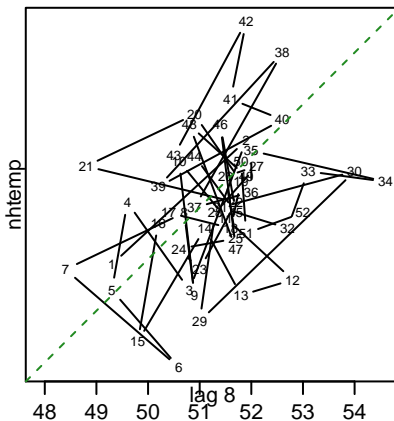
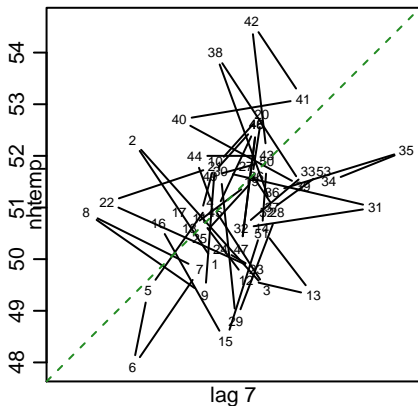
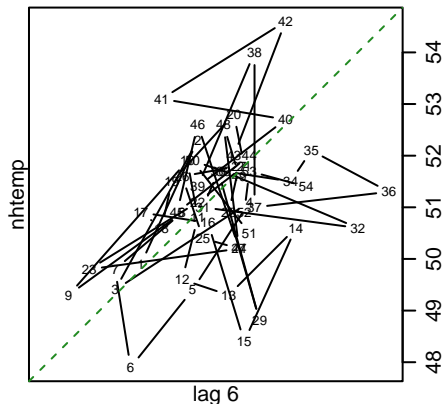
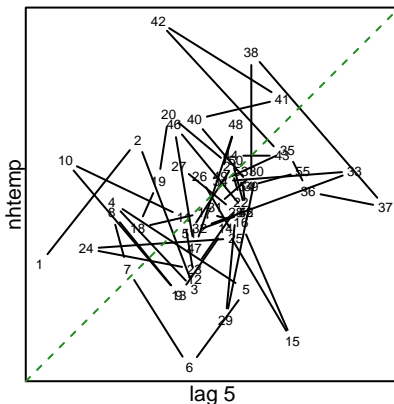
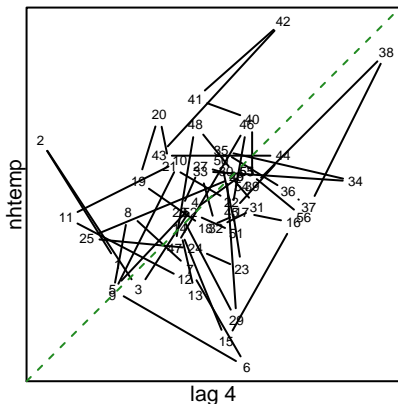
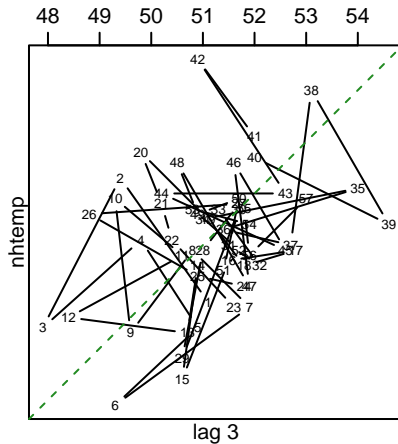
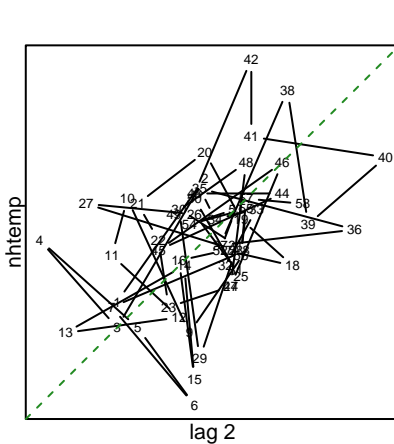
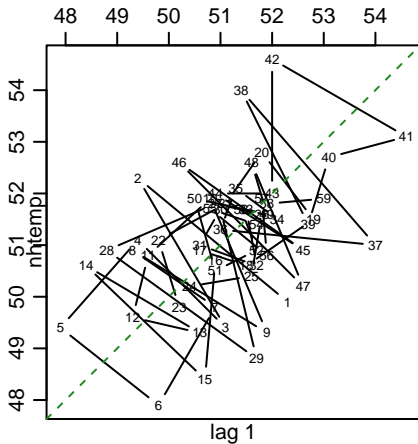
SERIES: A

Smoothed Periodogram



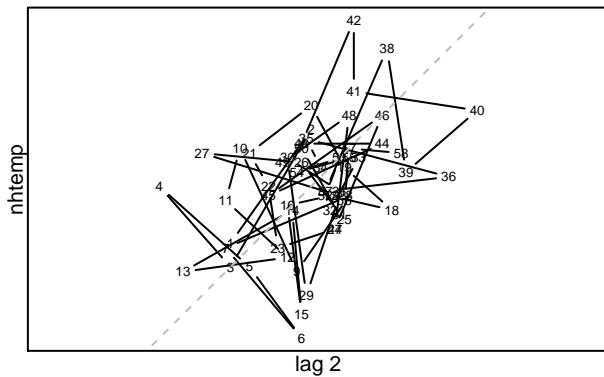
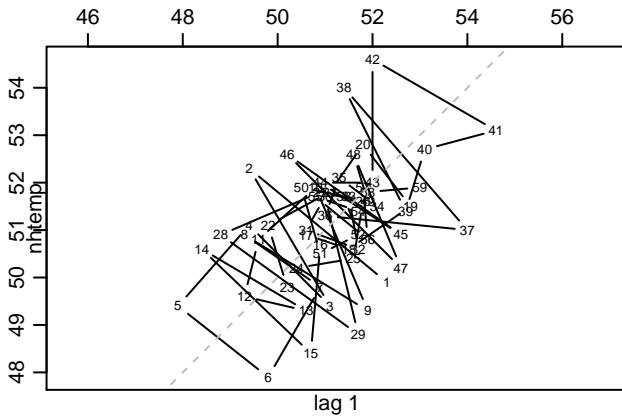




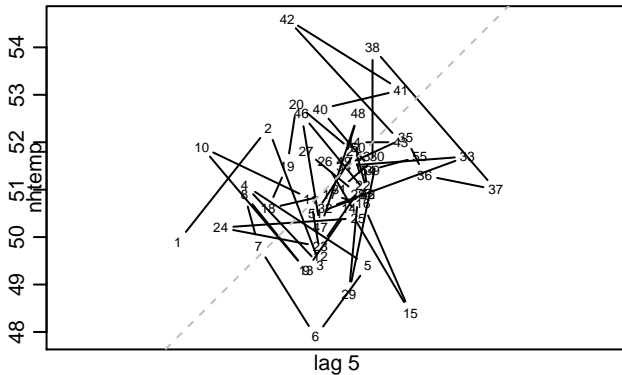
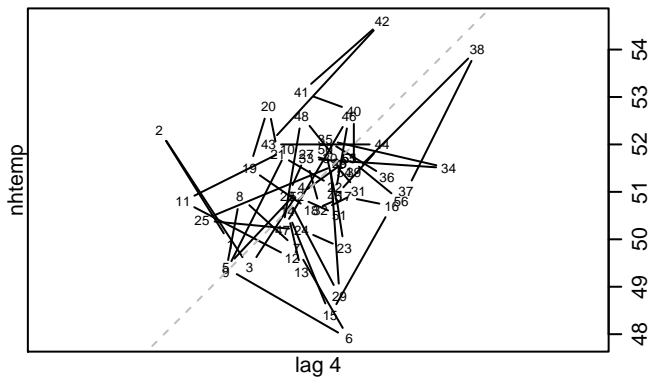
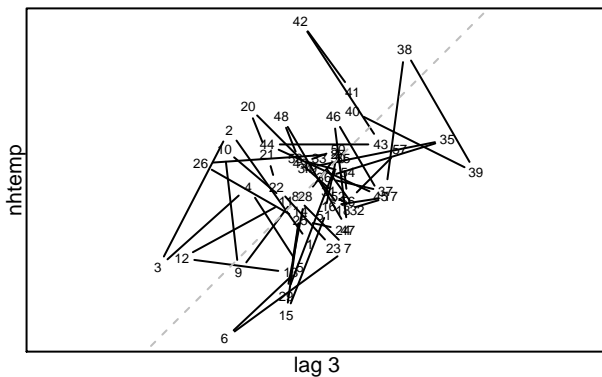


help("lag.plot")

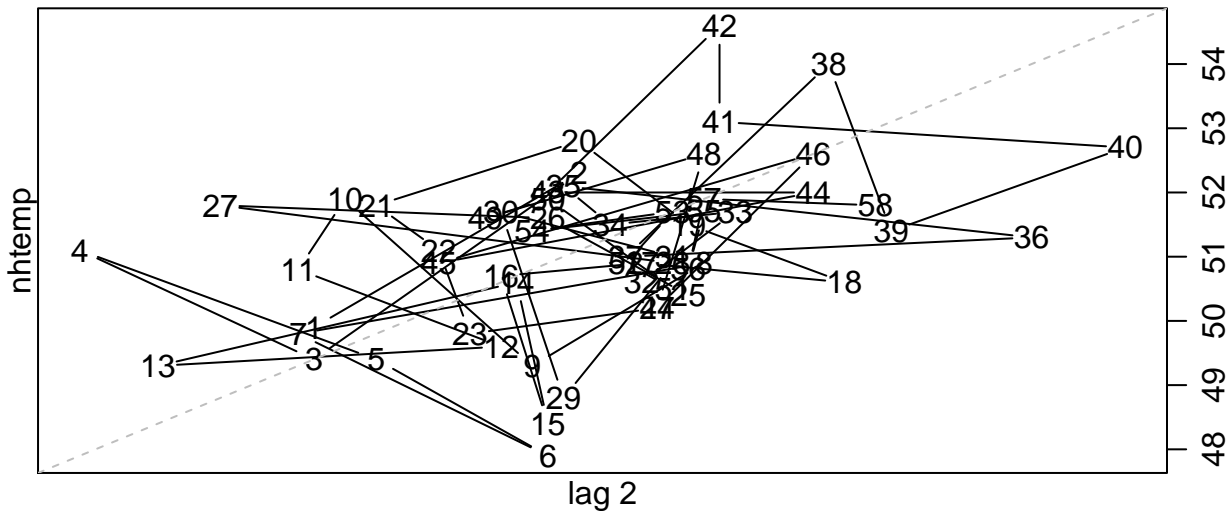
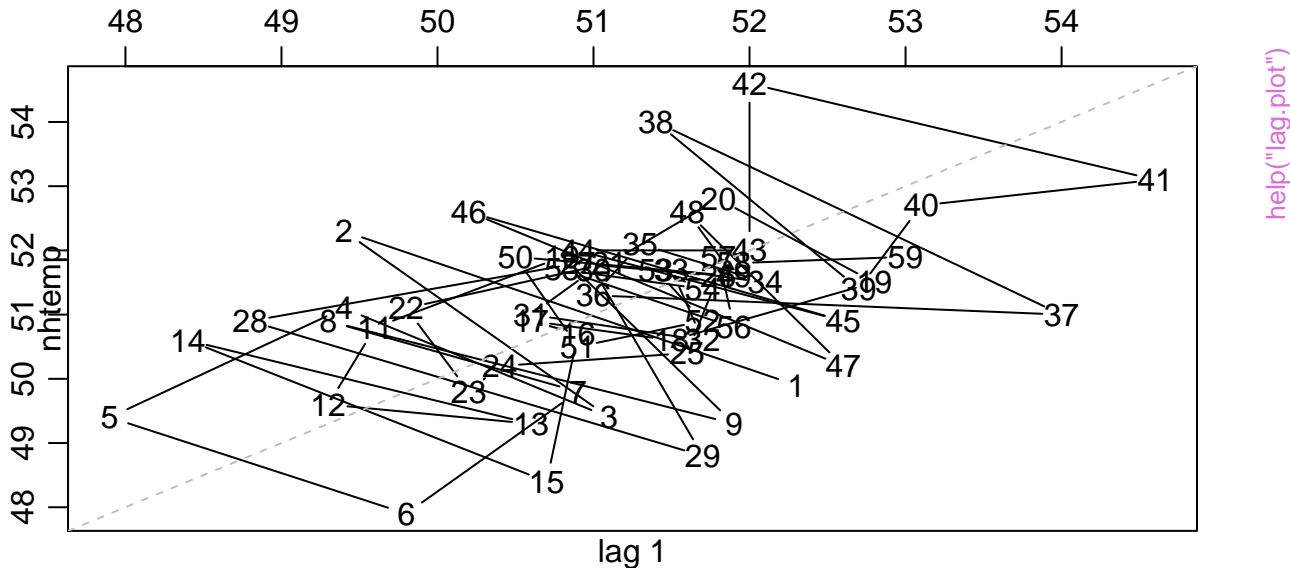
Average Temperatures in New Haven



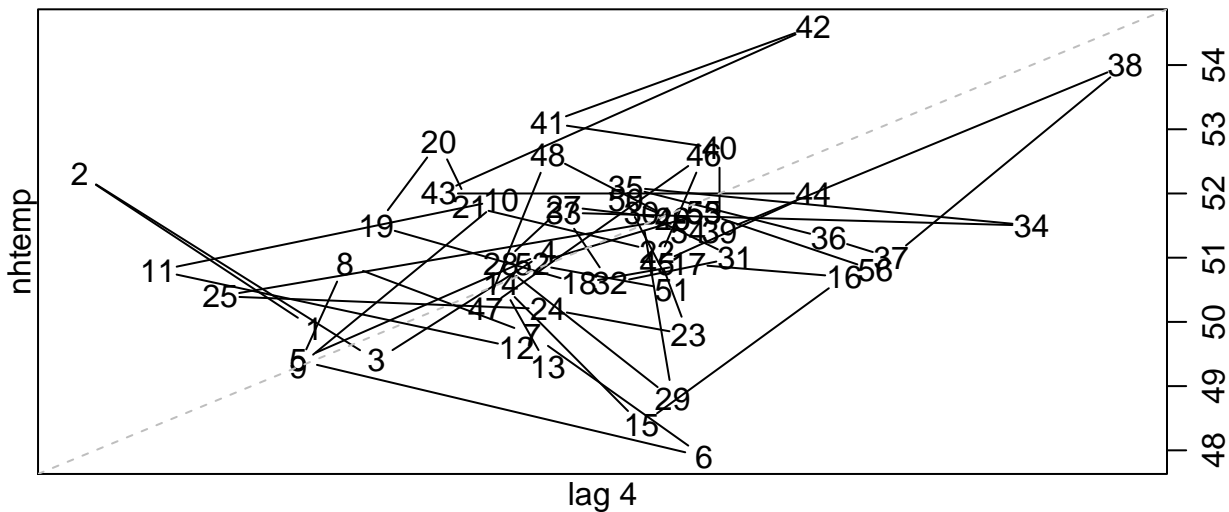
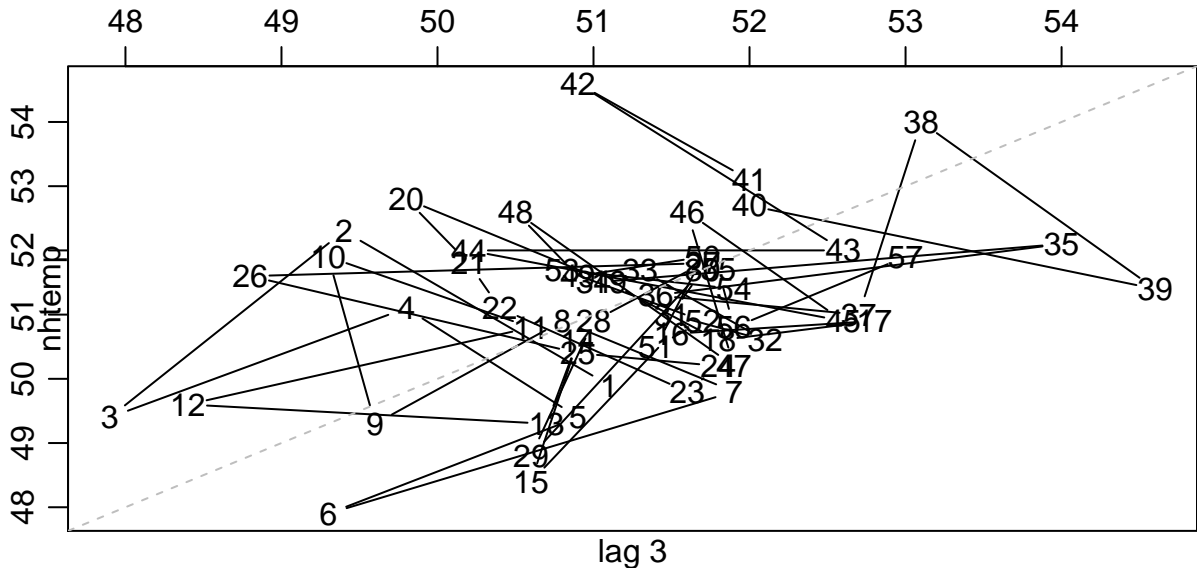
[help\("lag.plot"\)](#)



New Haven Temperatures

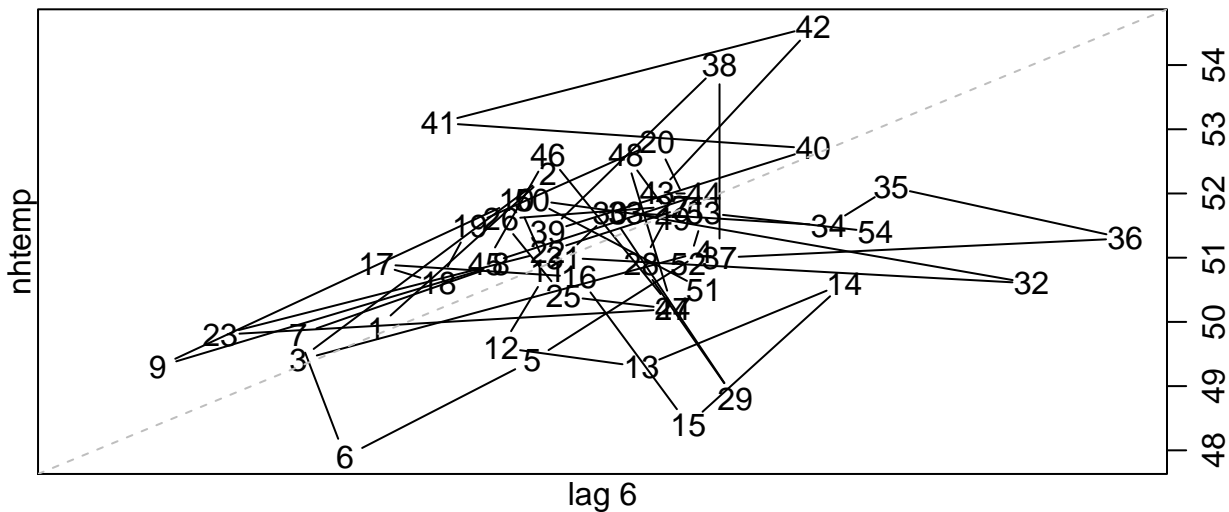
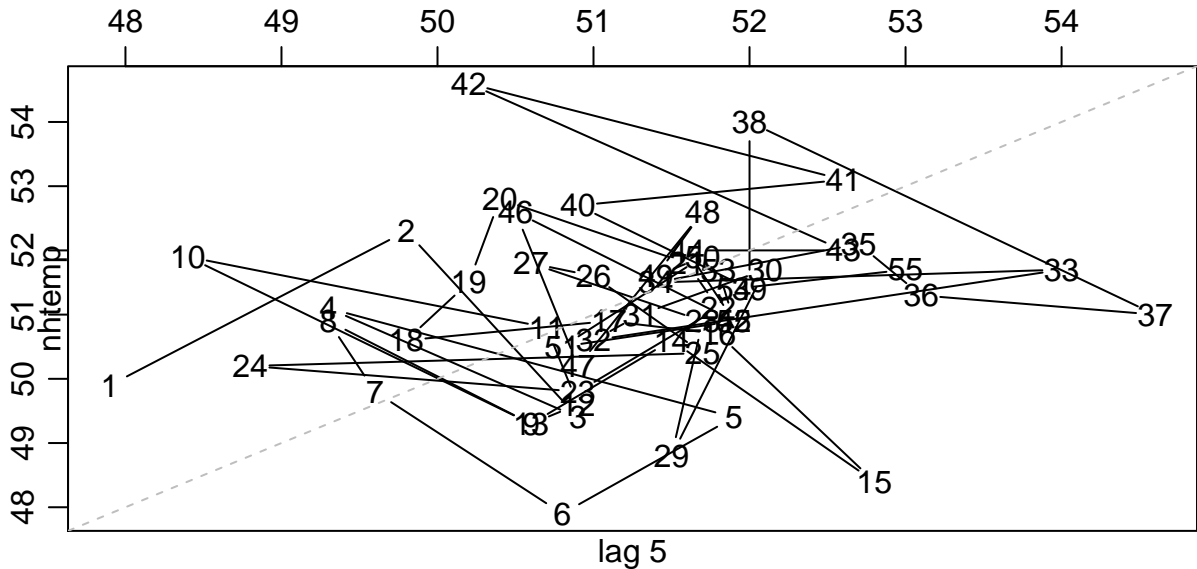


New Haven Temperatures

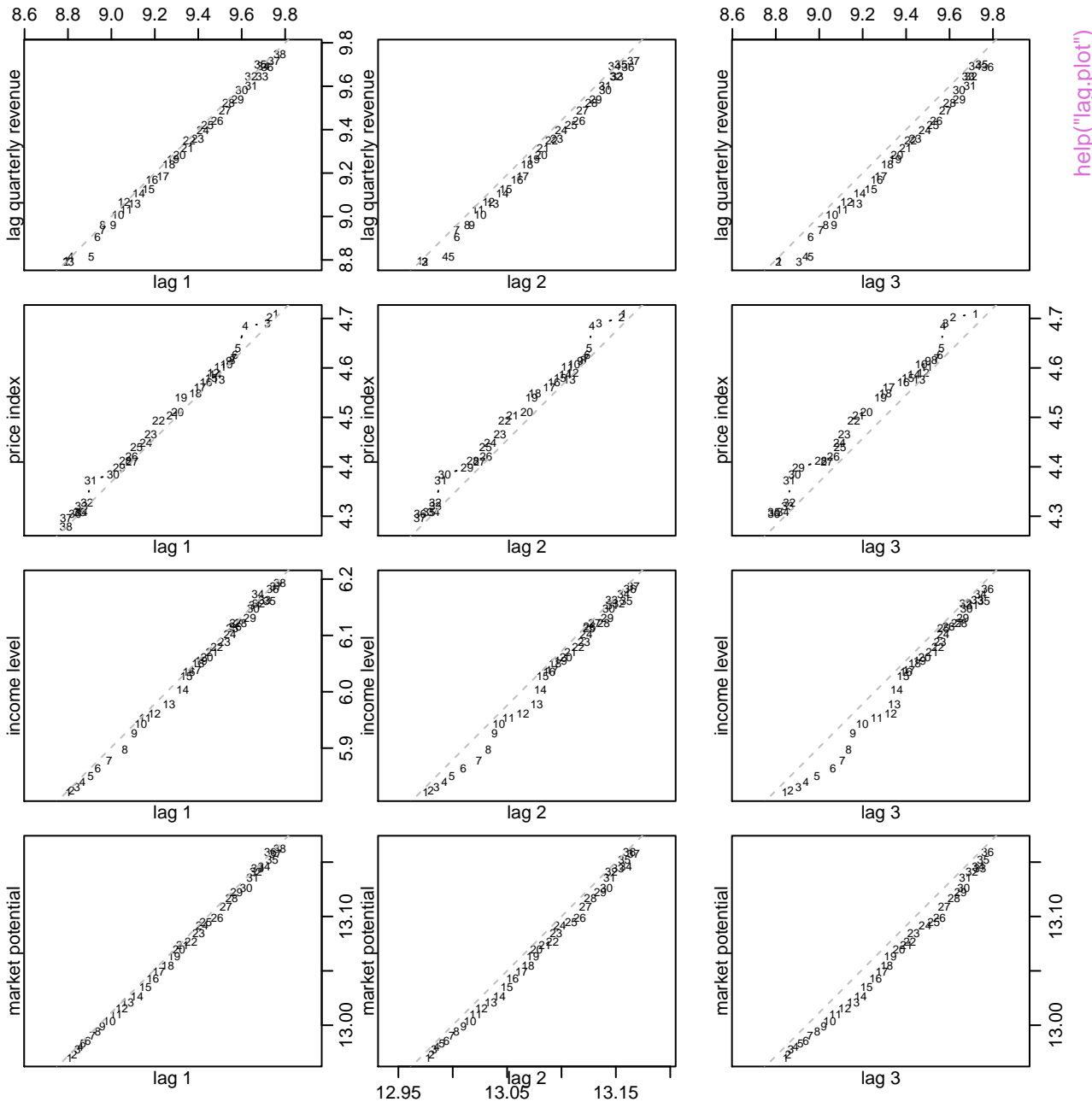


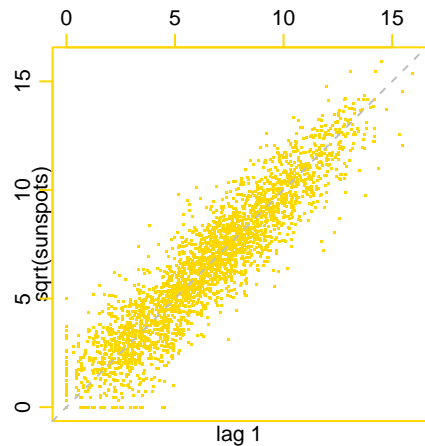
[help\("lag.plot"\)](#)

New Haven Temperatures

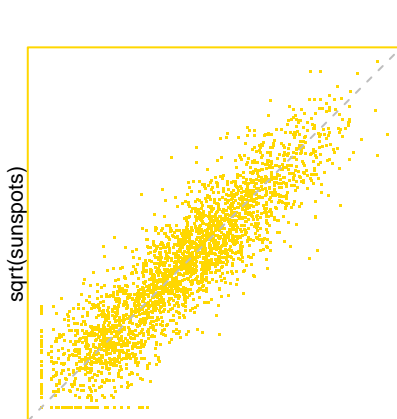


[help\("lag.plot"\)](#)

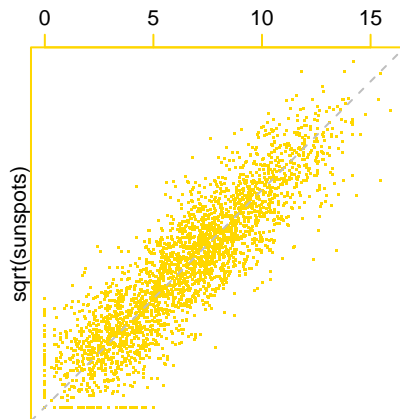




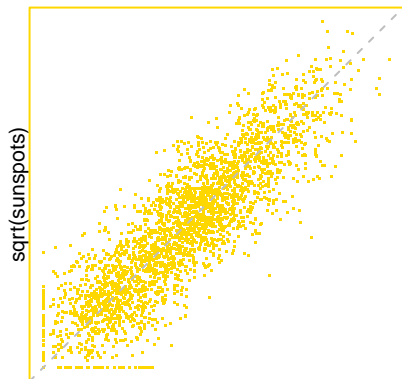
lag 1



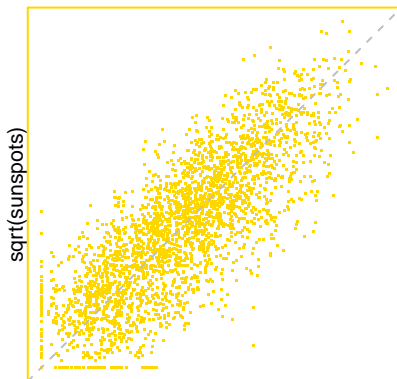
lag 2



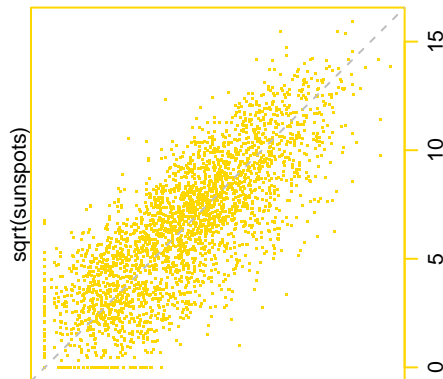
lag 3



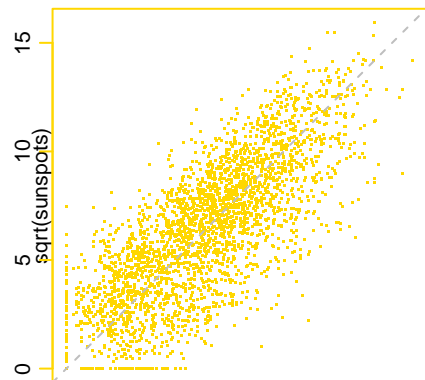
lag 4



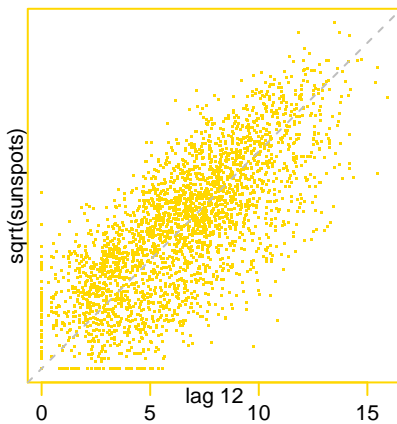
lag 9



lag 10

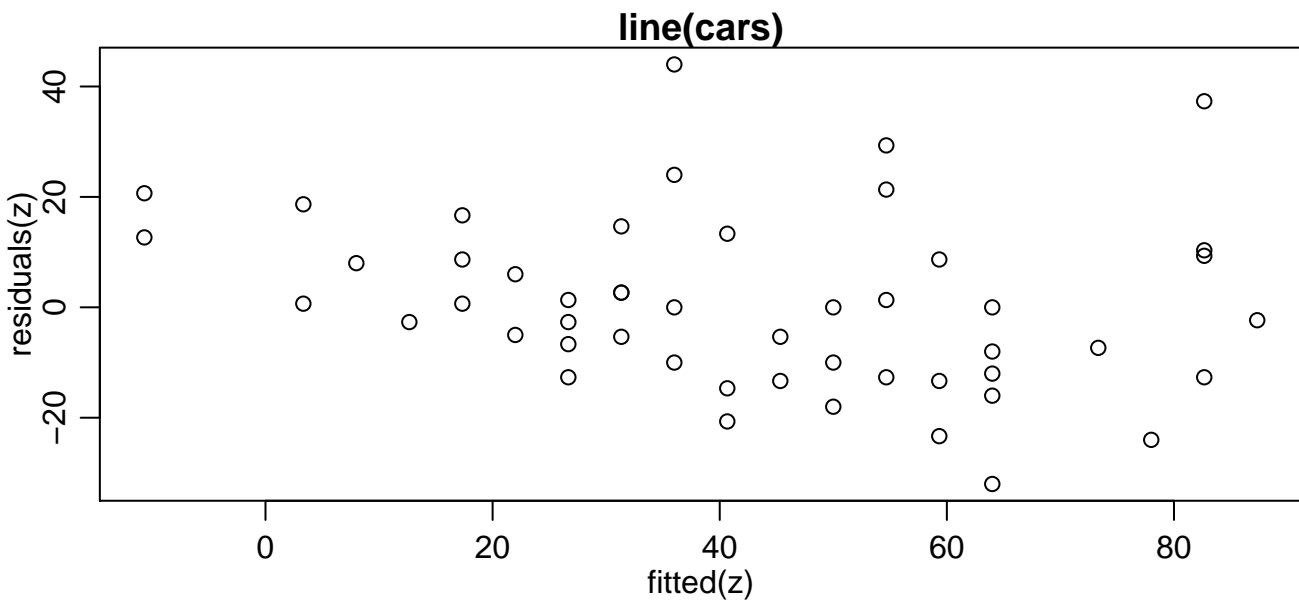
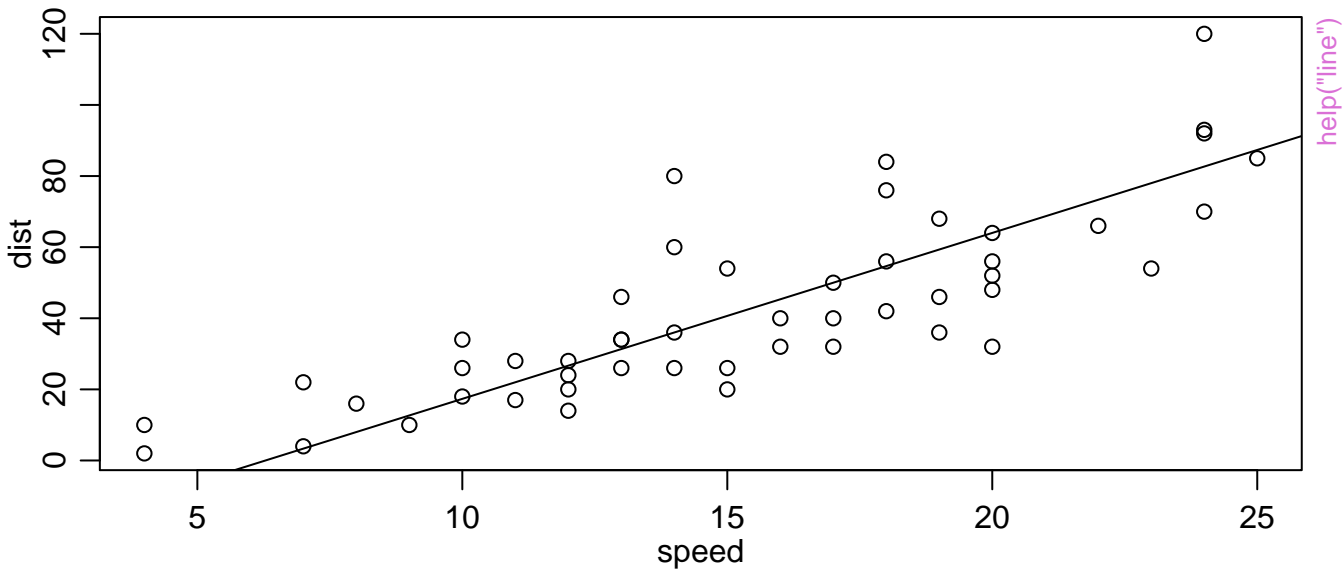


lag 11



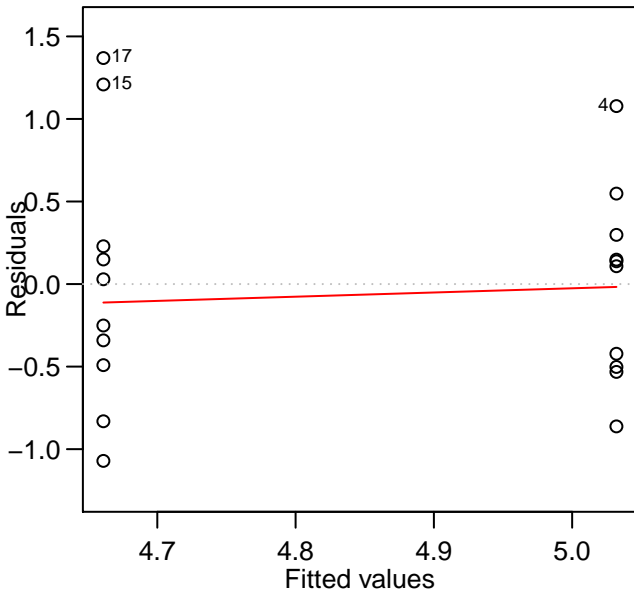
lag 12

help("lag.plot")

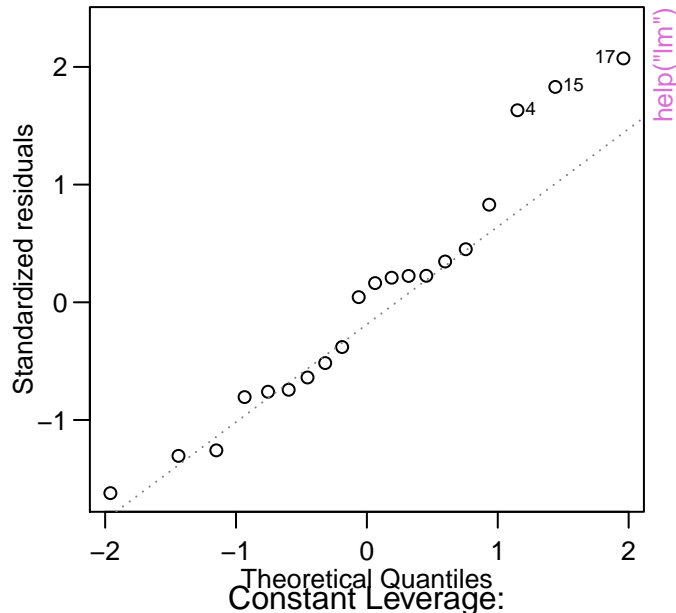


lm(weight ~ group)

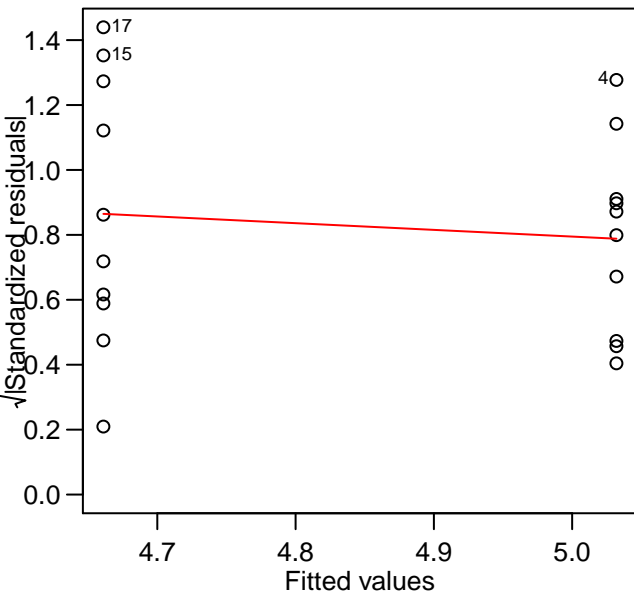
Residuals vs Fitted



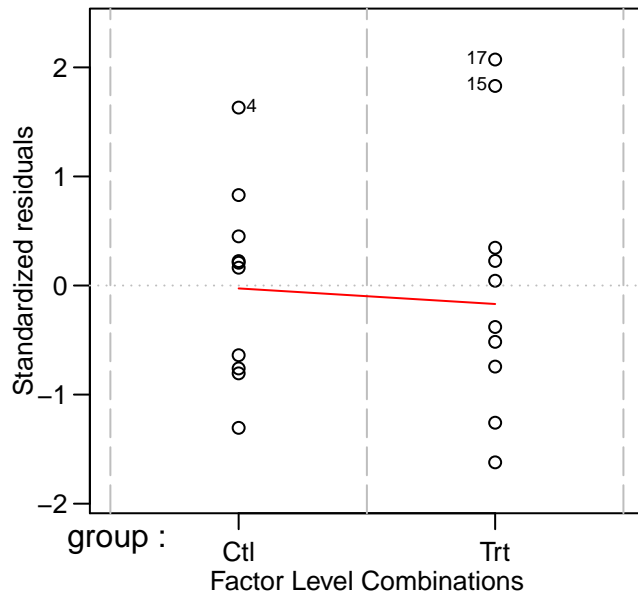
Normal Q-Q



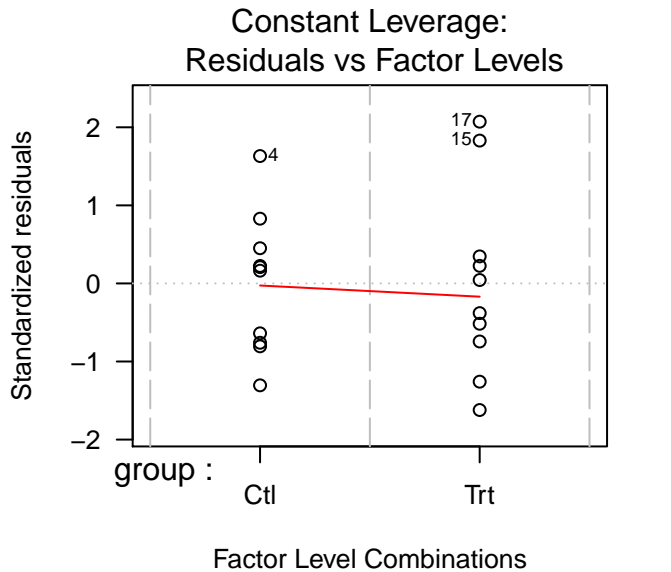
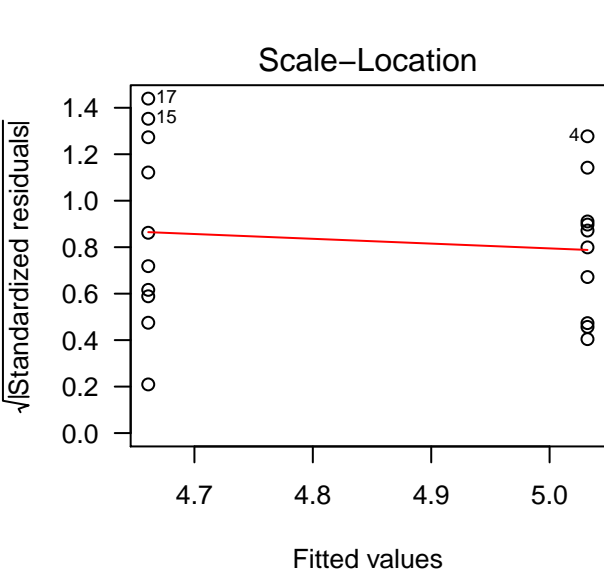
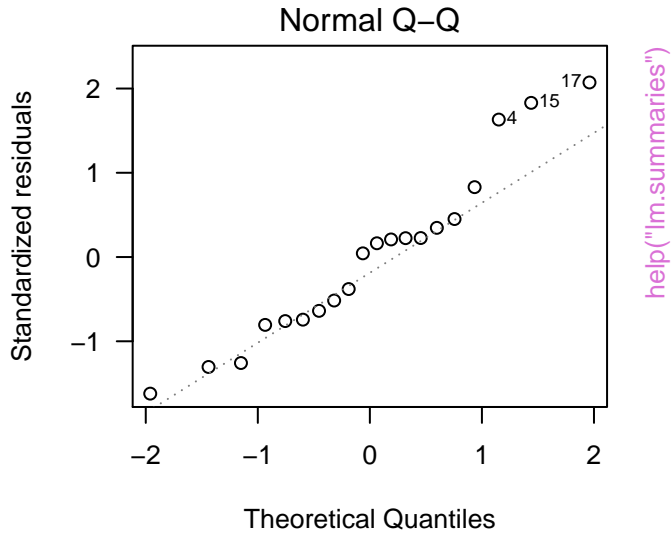
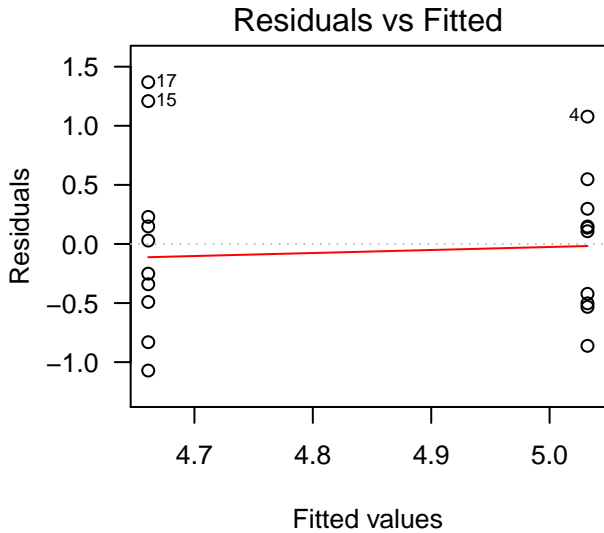
Scale-Location



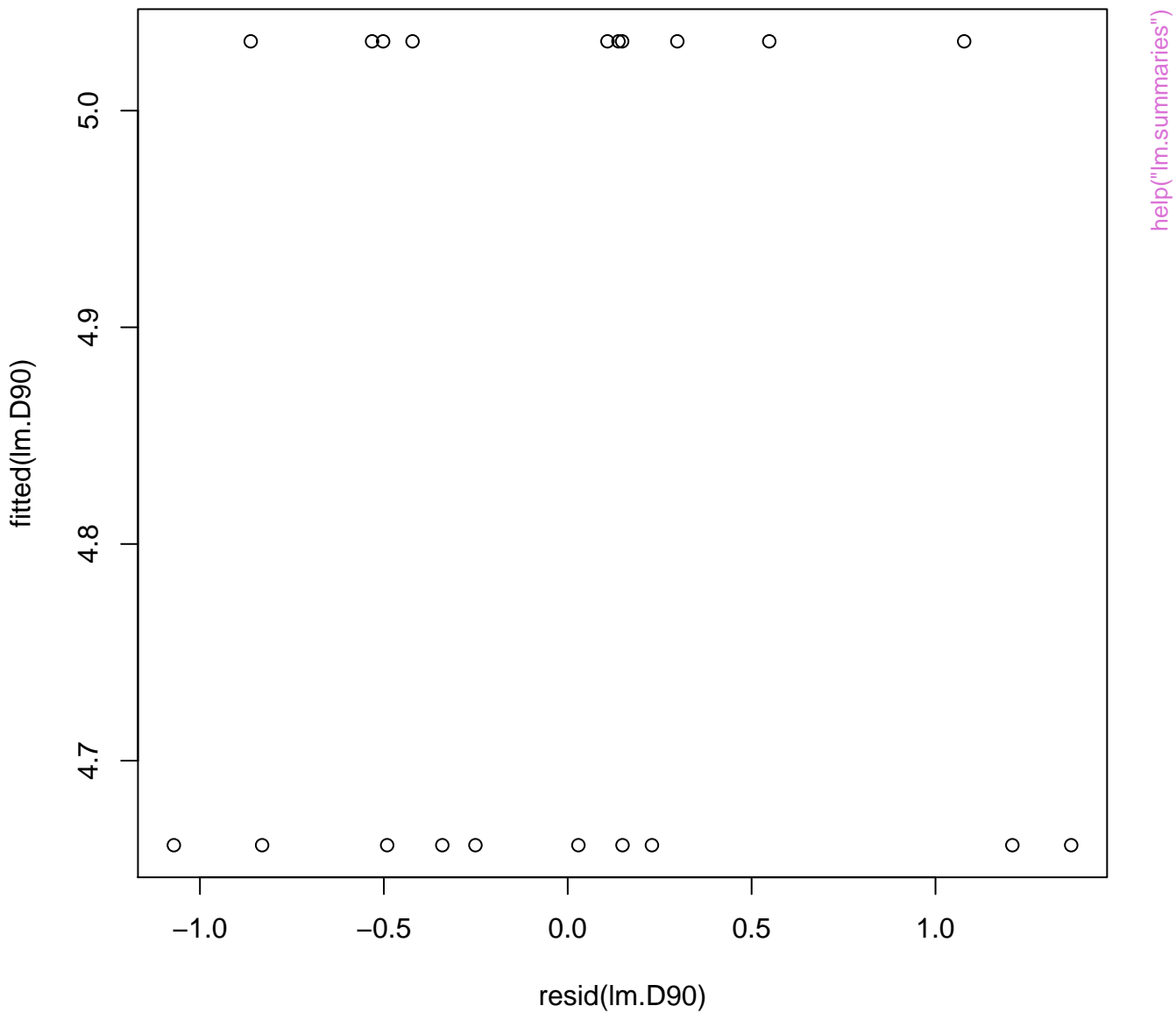
Residuals vs Factor Levels



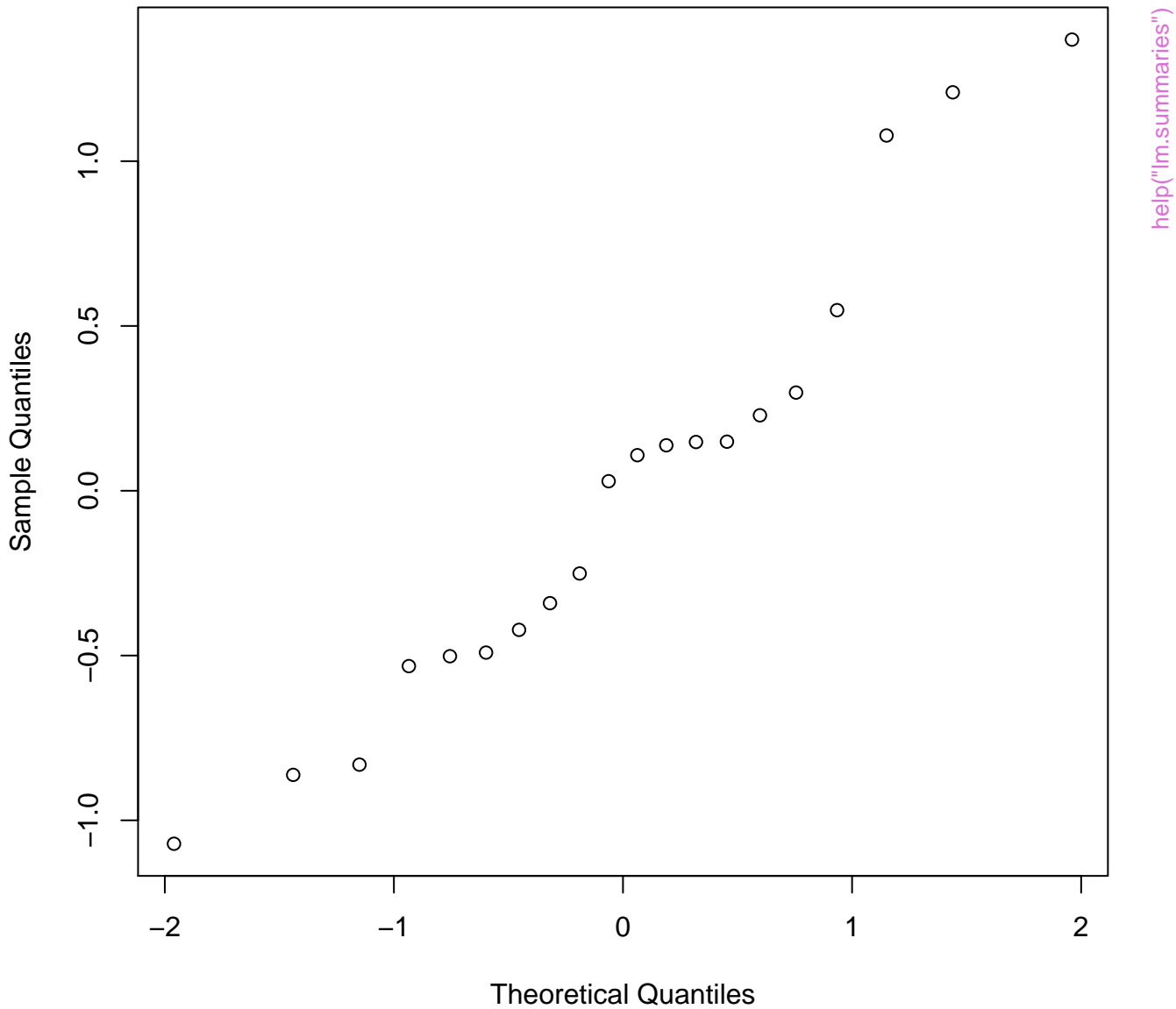
lm(weight ~ group)



help("lm.summaries")

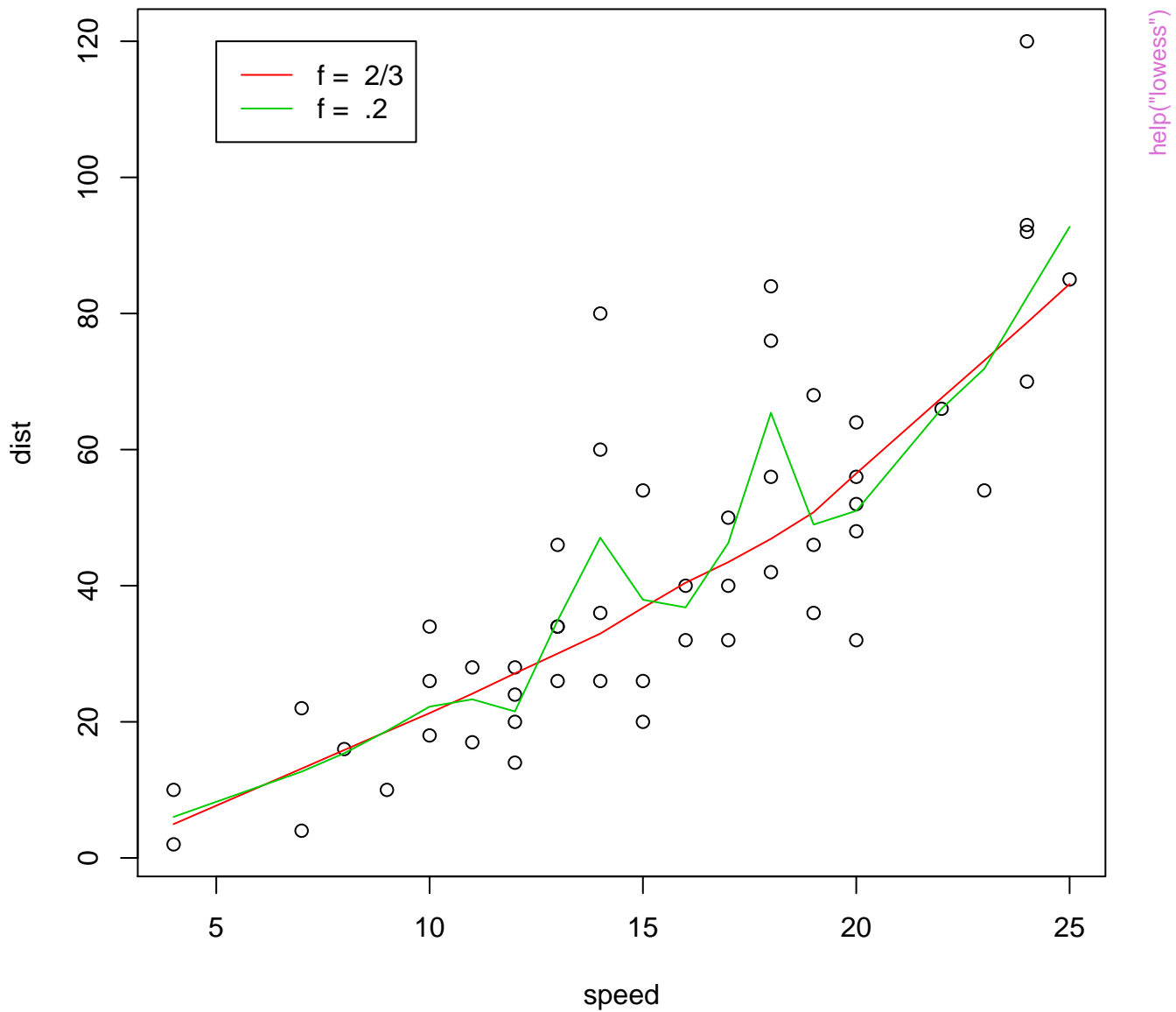


Normal Q-Q Plot

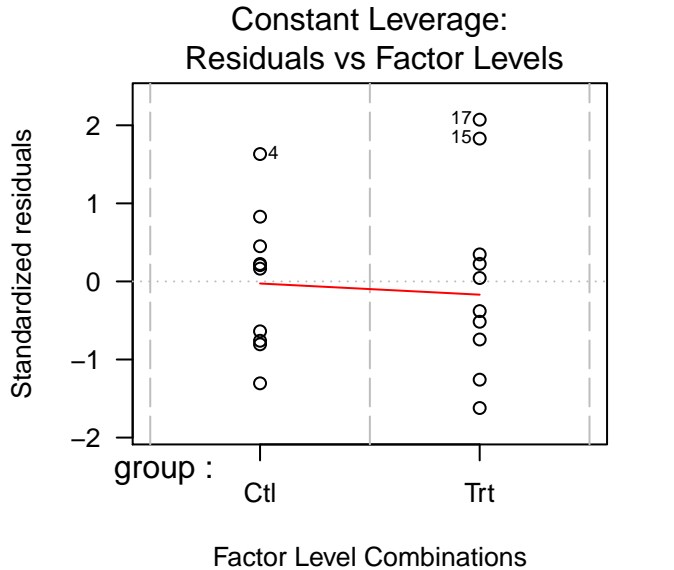
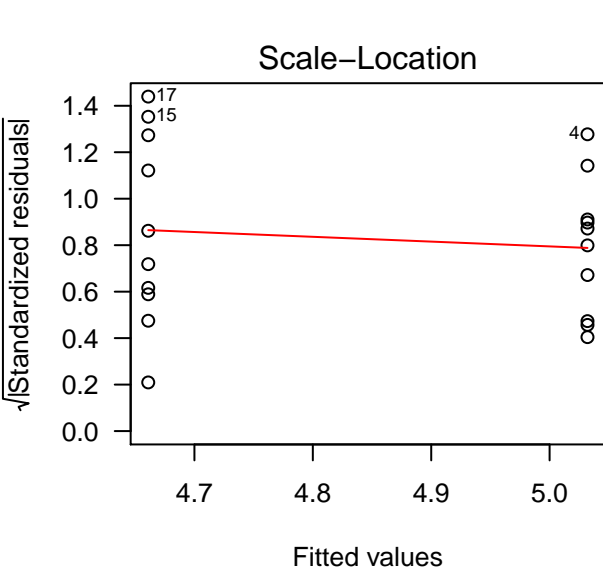
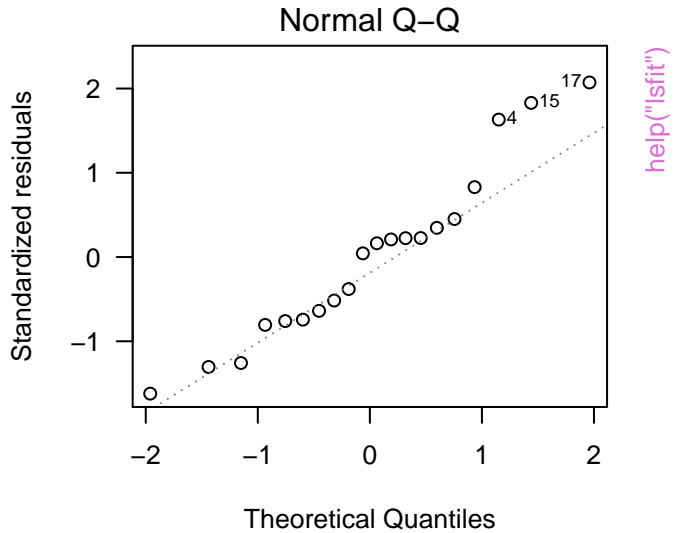
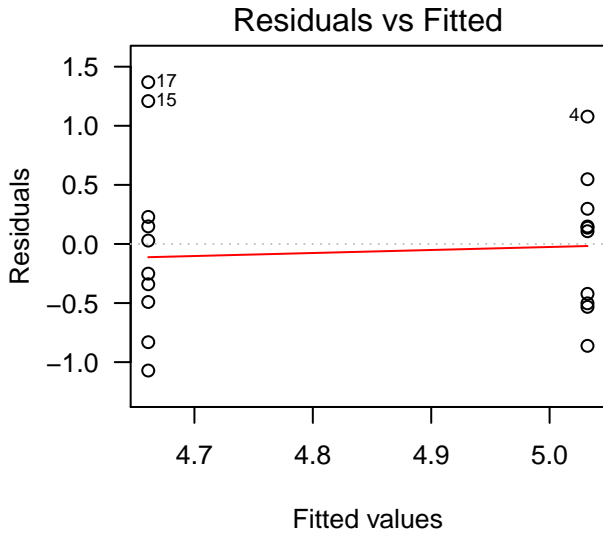


[help\("lm.summaries"\)](#)

lowess(cars)

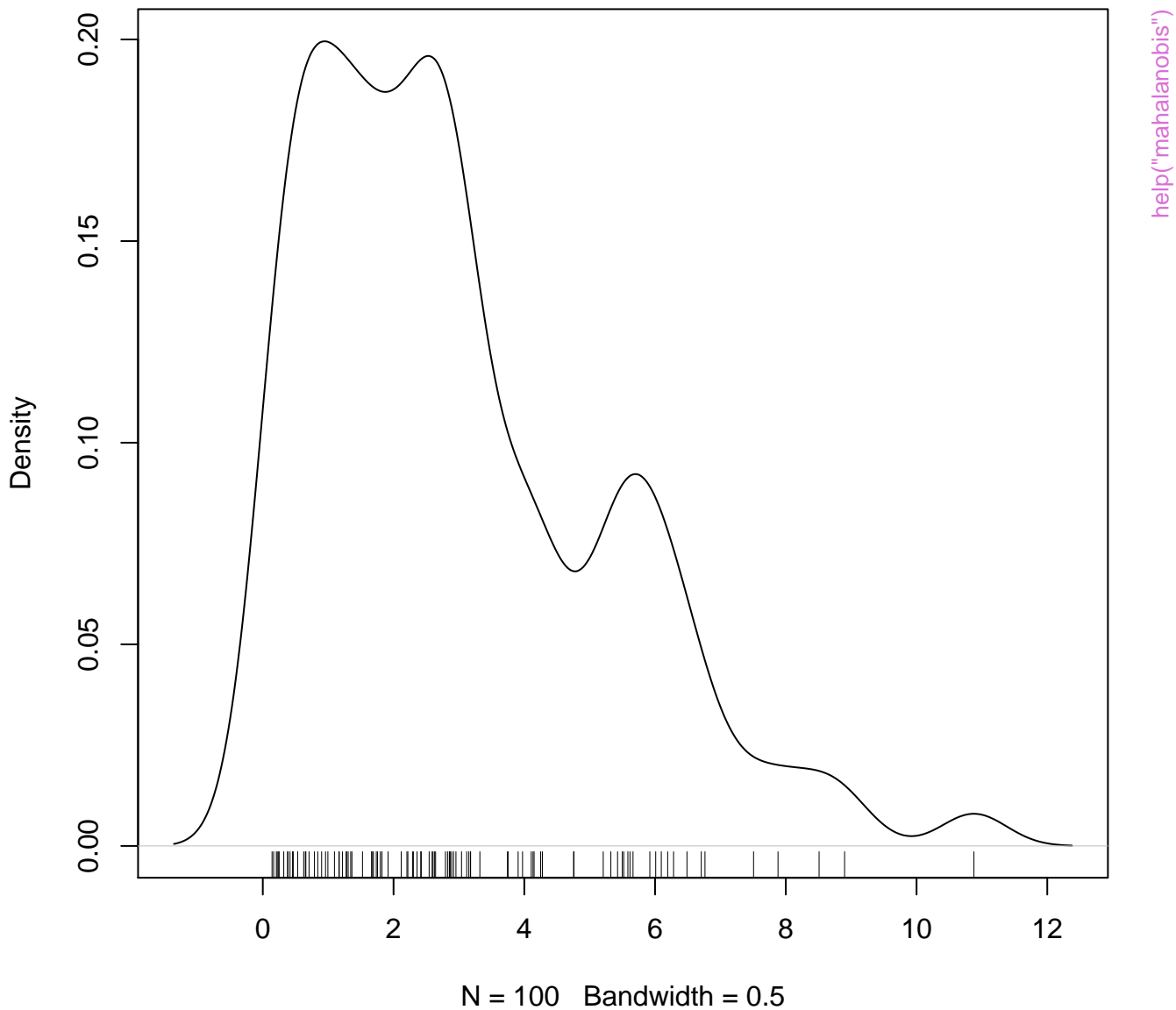


lm(weight ~ group)

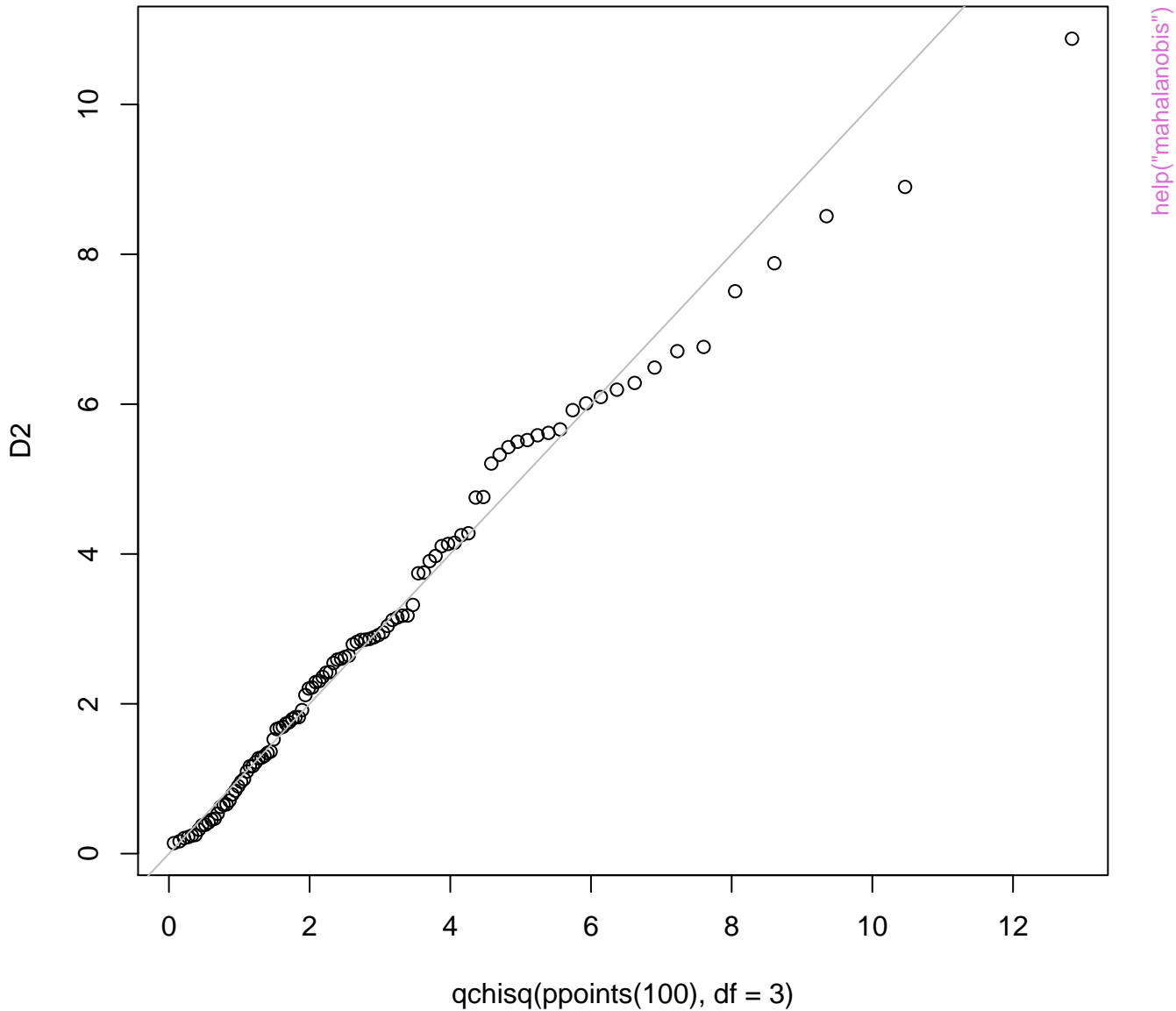


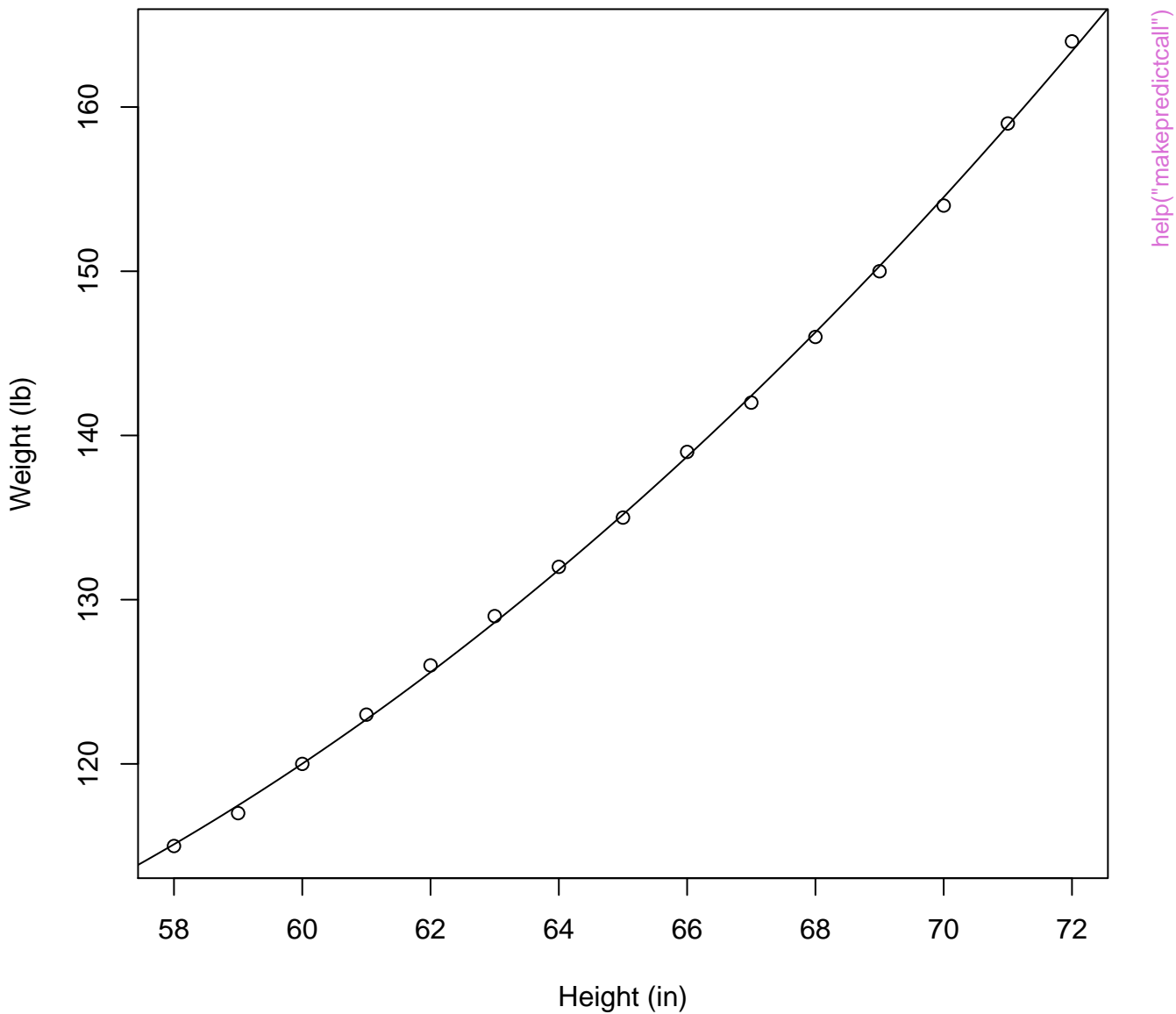
help("lsfit")

Squared Mahalanobis distances, n=100, p=3

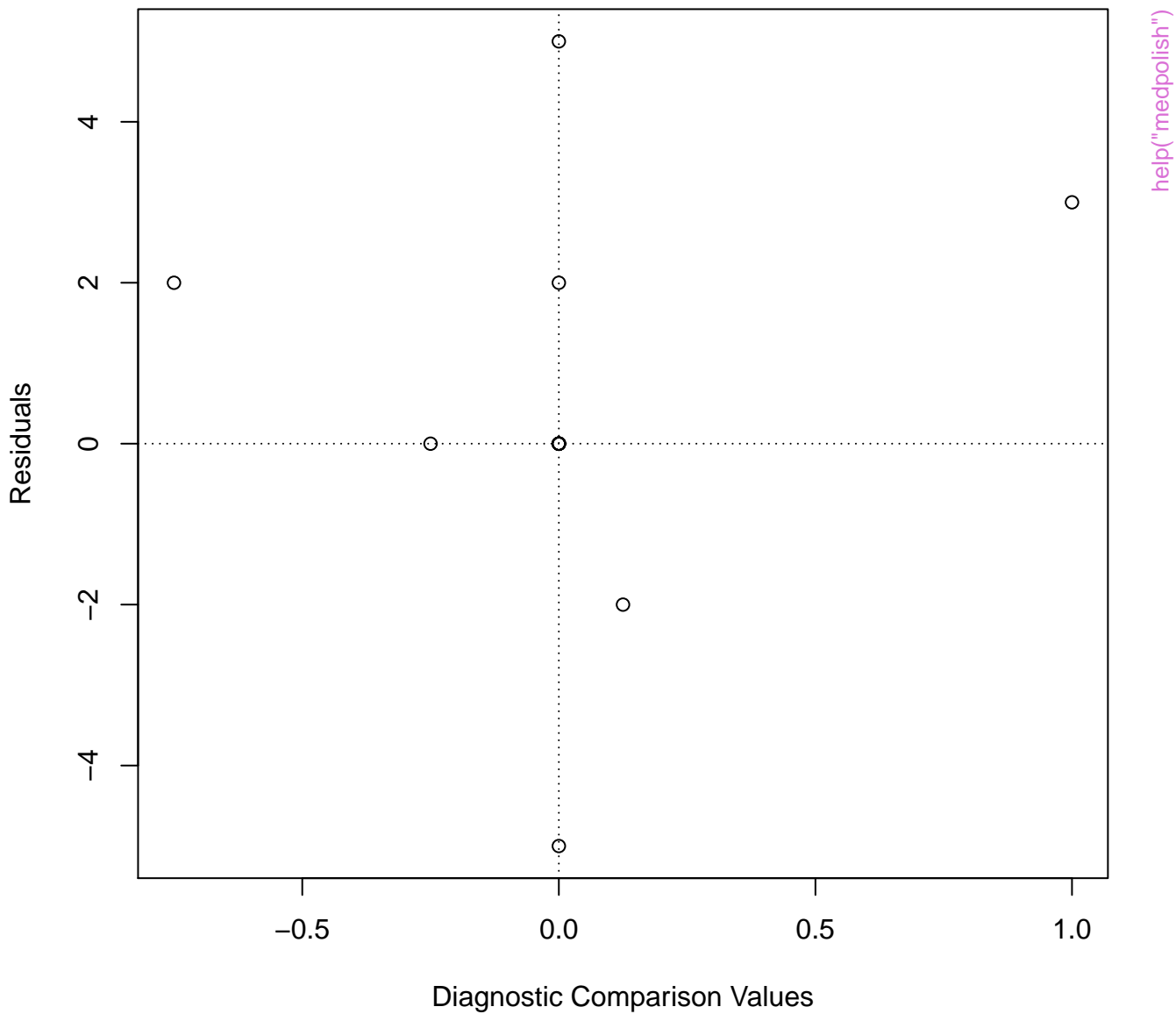


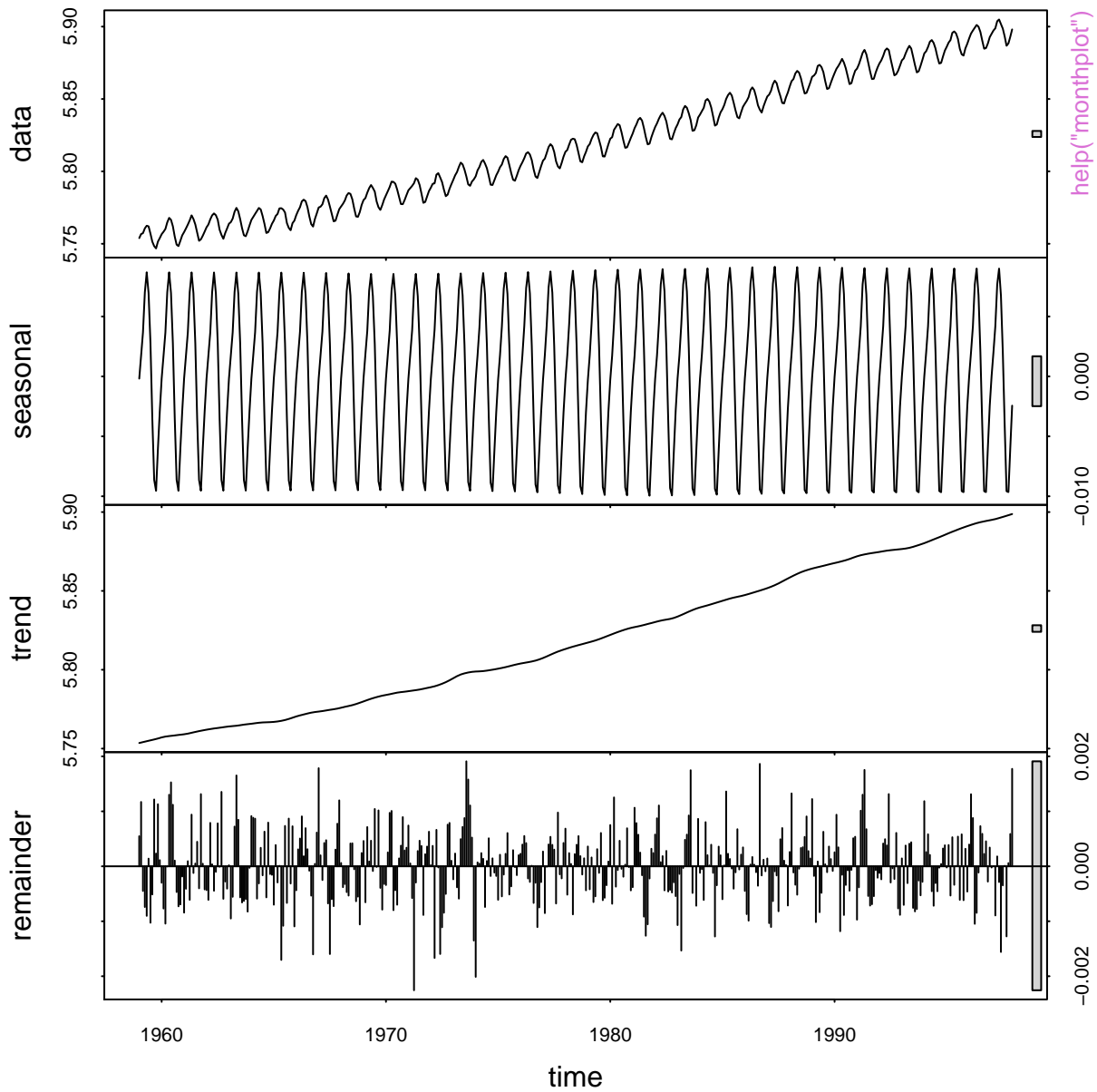
Q-Q plot of Mahalanobis D^2 vs. quantiles of χ^2_3



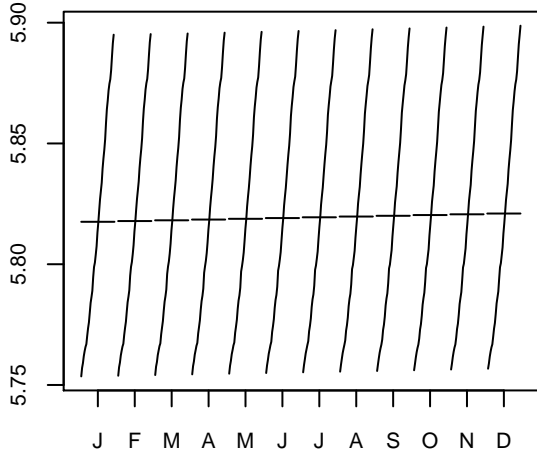


Tukey Additivity Plot

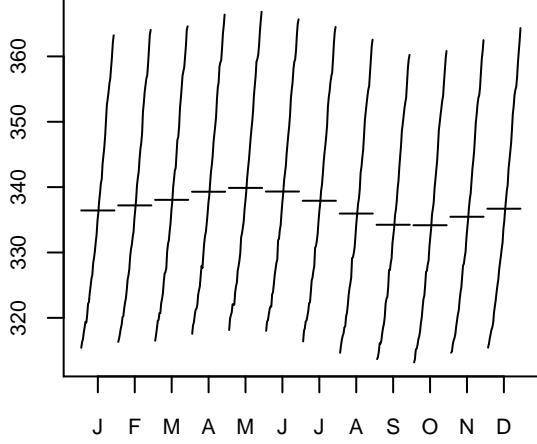




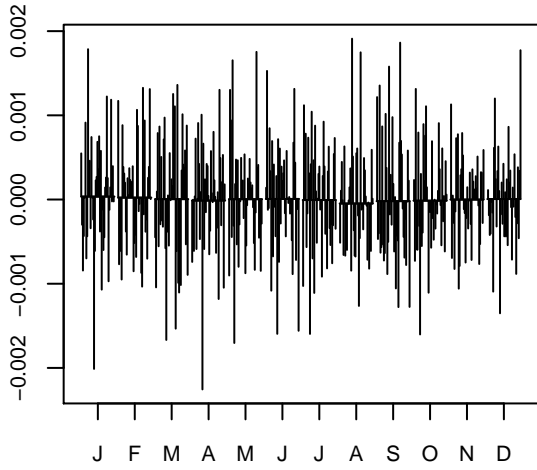
trend



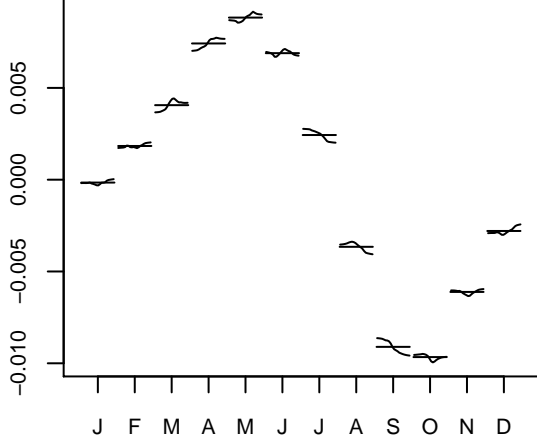
data



remainder

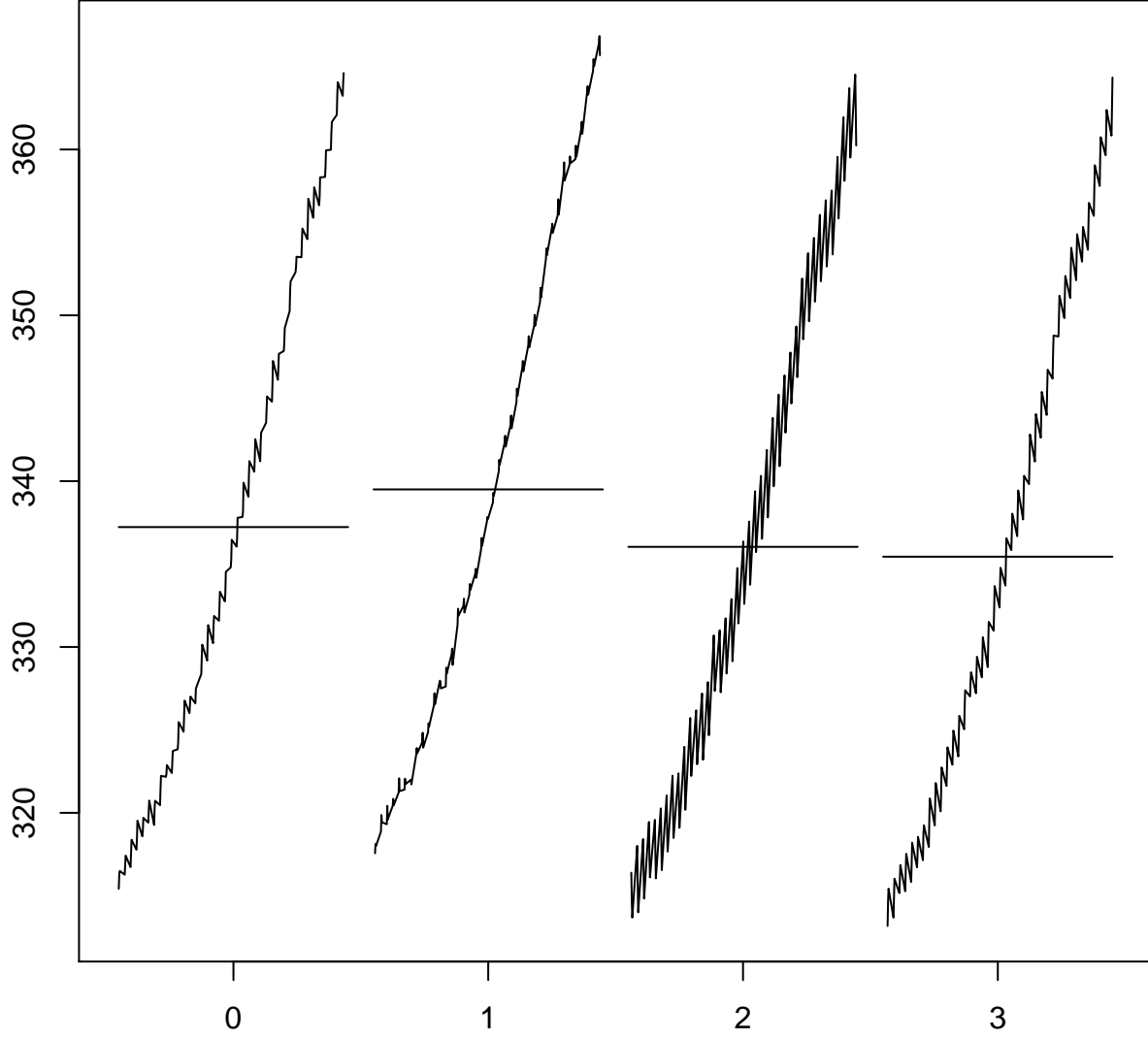


seasonal



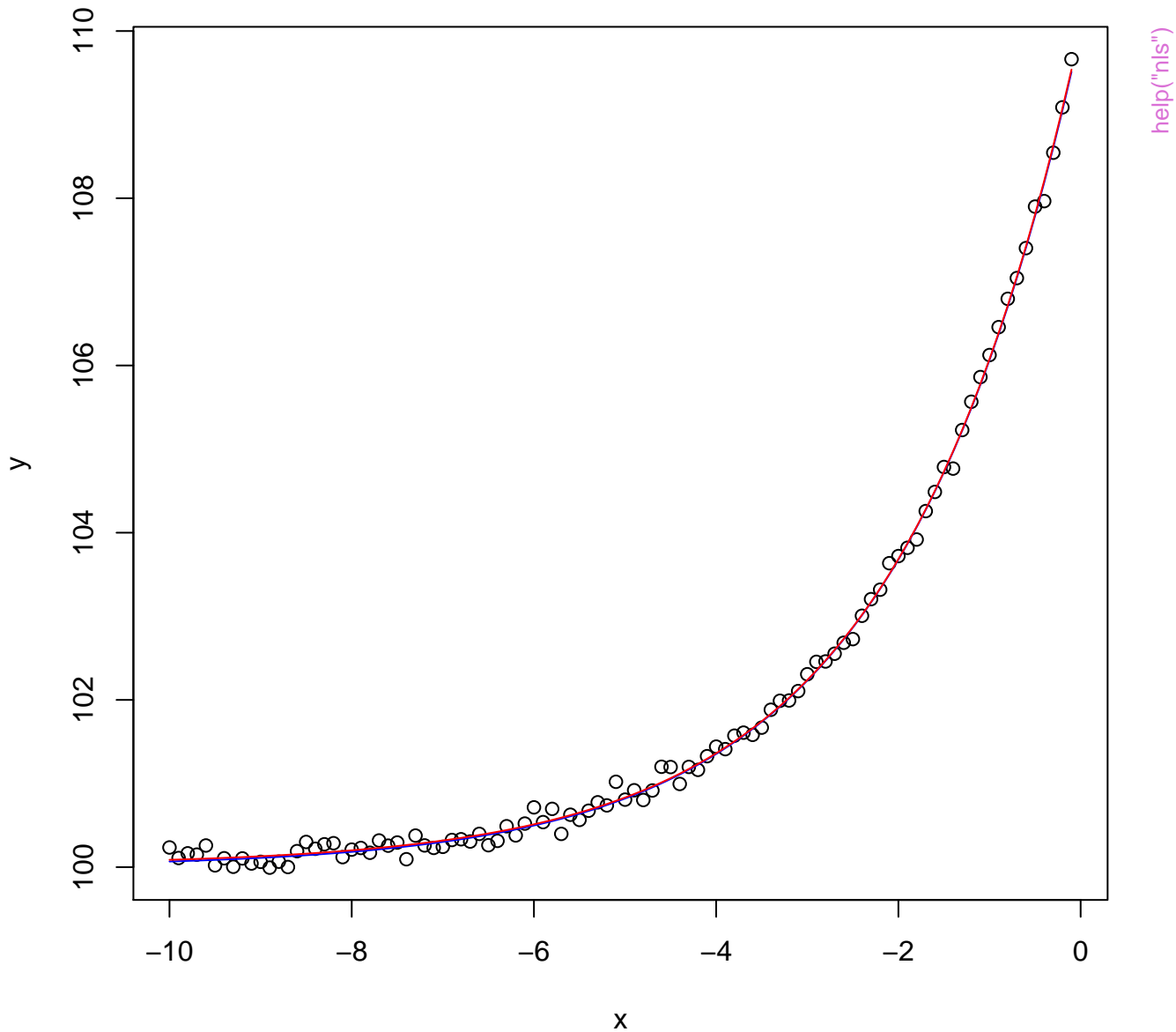
[help\("monthplot"\)](#)

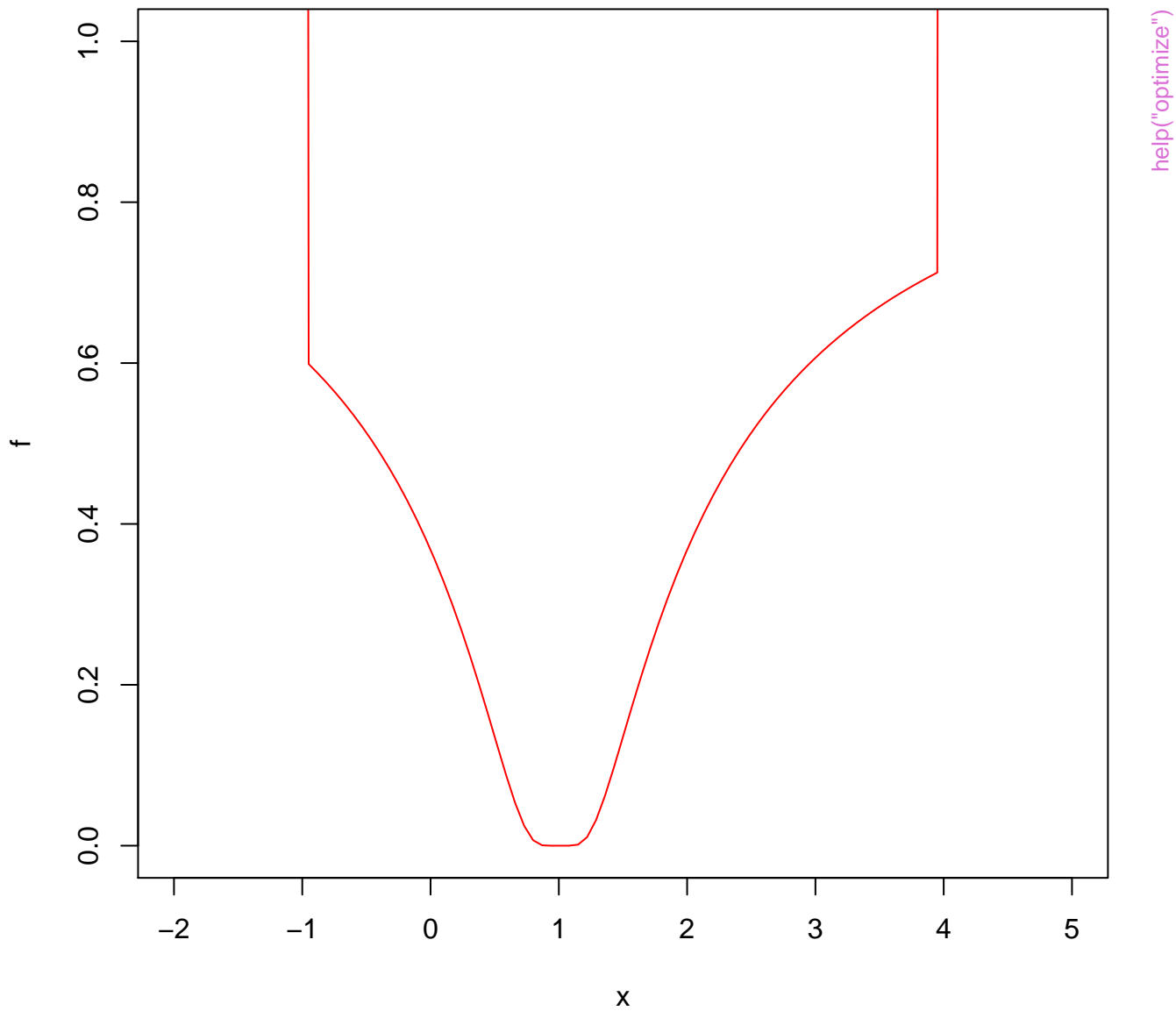
co2



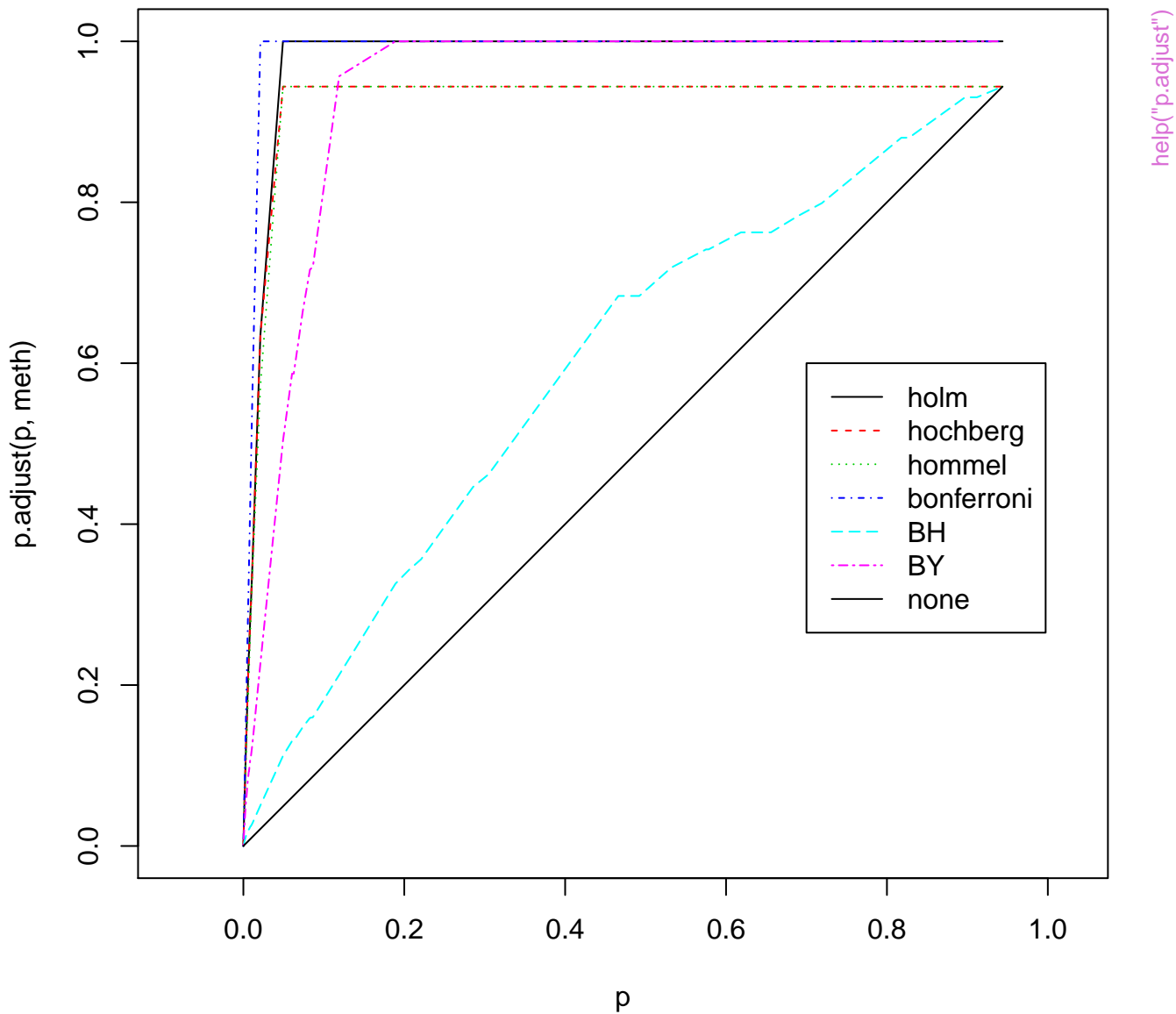
help("monthplot")

nls(*), data, true function and fit, n=100

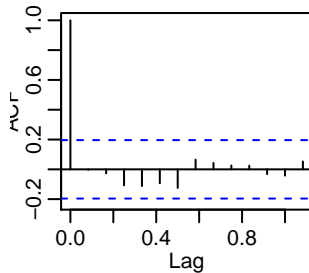




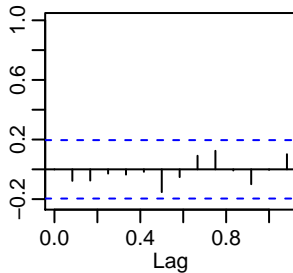
P-value adjustments



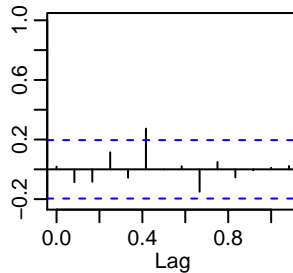
Series 1



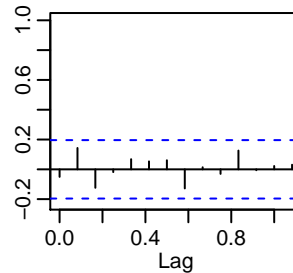
Srs1 & Srs2



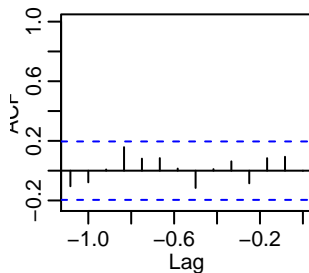
Srs1 & Srs3



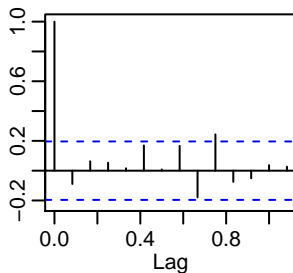
Srs1 & Srs4



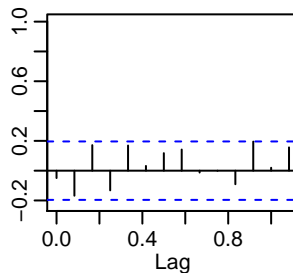
Srs2 & Srs1



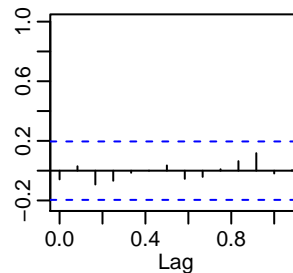
Series 2



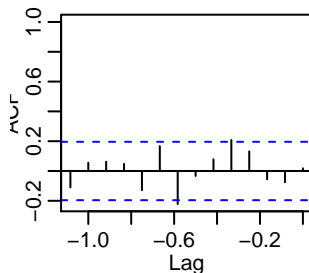
Srs2 & Srs3



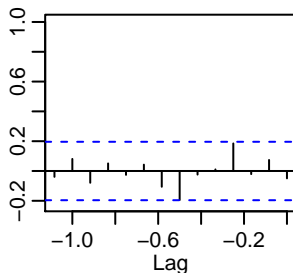
Srs2 & Srs4



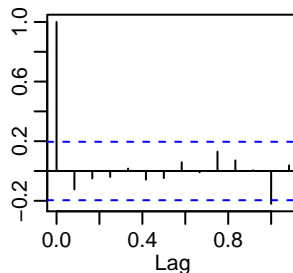
Srs3 & Srs1



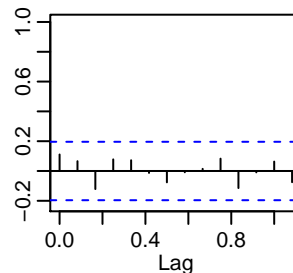
Srs3 & Srs2



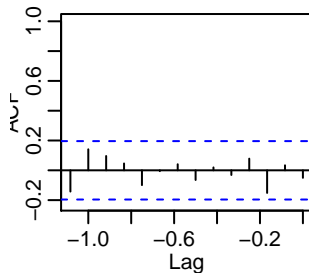
Series 3



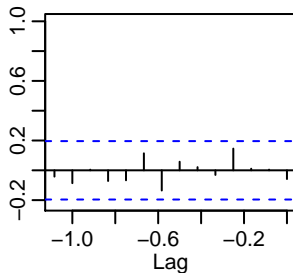
Srs3 & Srs4



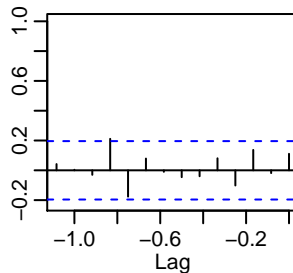
Srs4 & Srs1



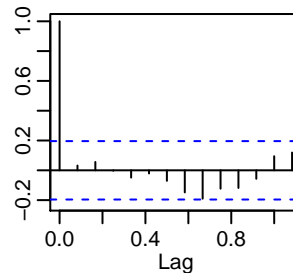
Srs4 & Srs2

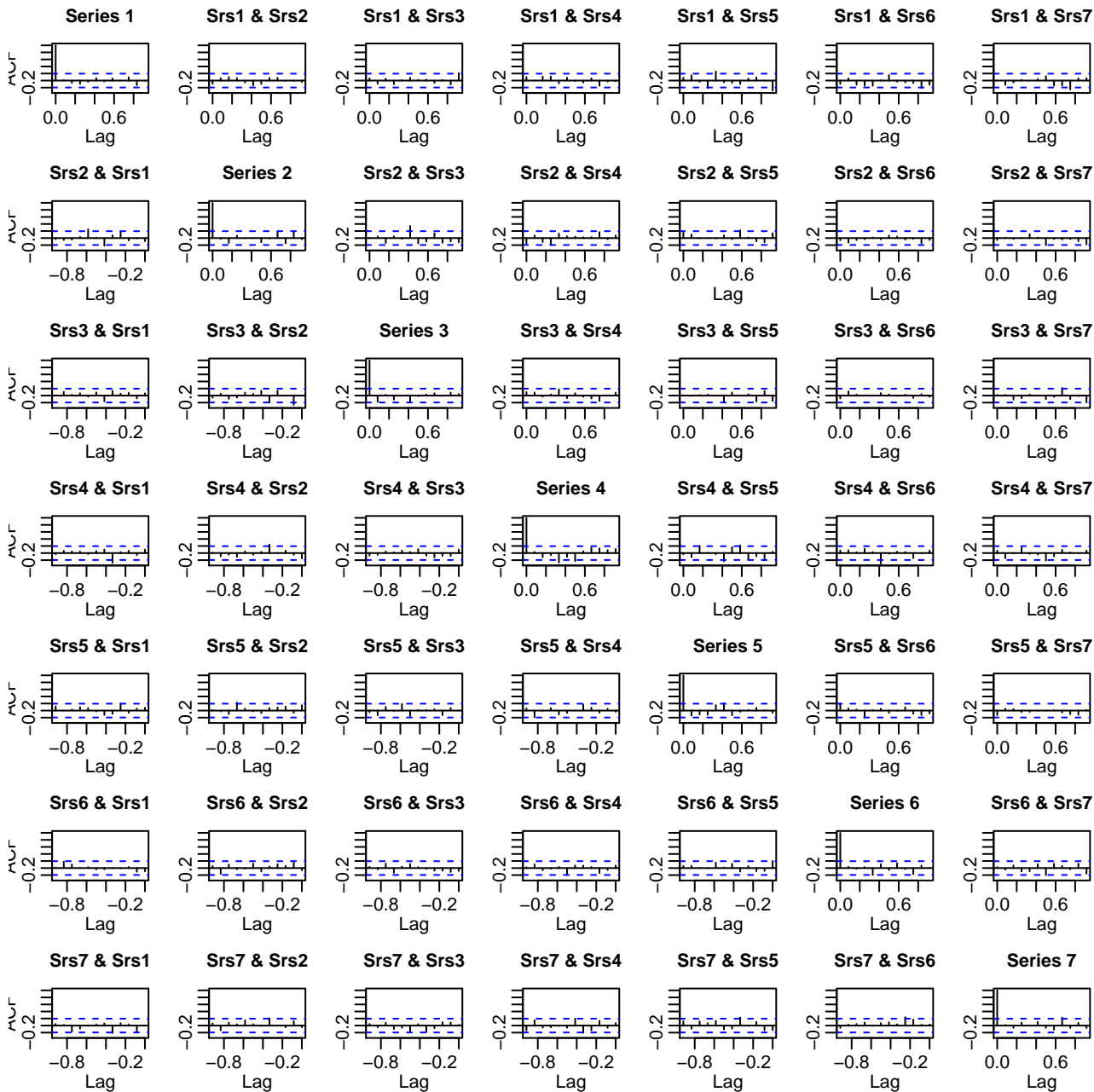


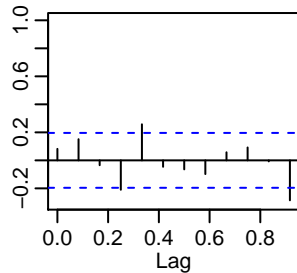
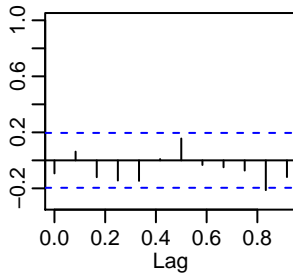
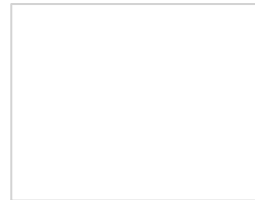
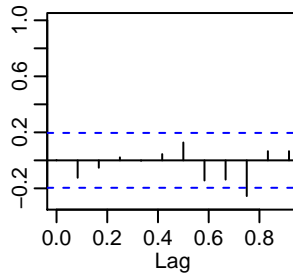
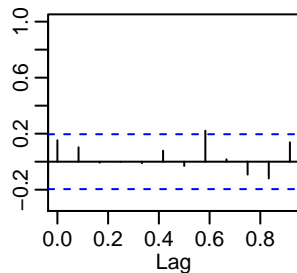
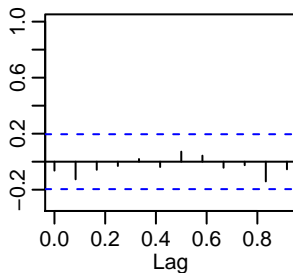
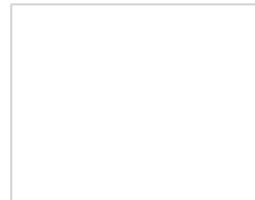
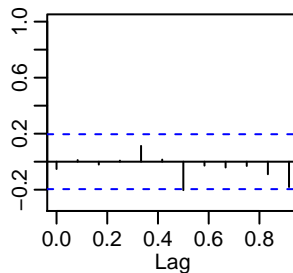
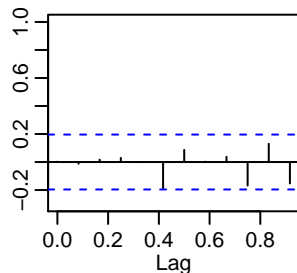
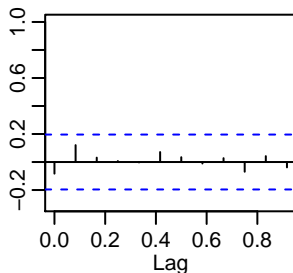
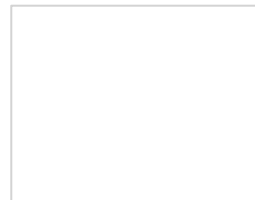
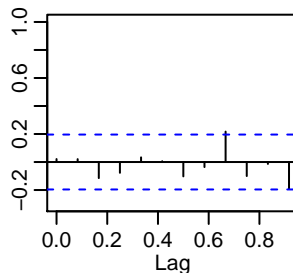
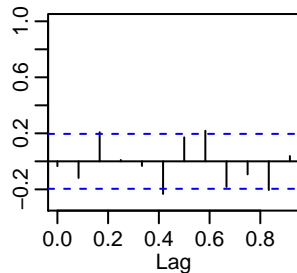
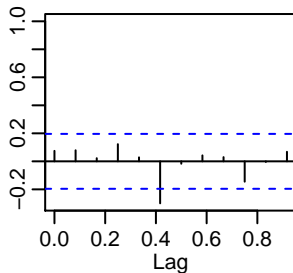
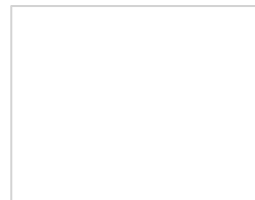
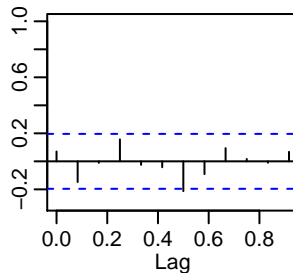
Srs4 & Srs3



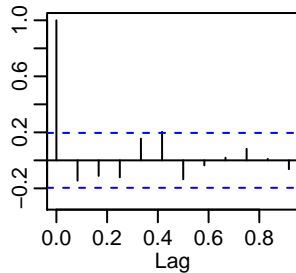
Series 4



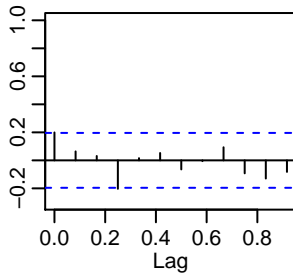


Srs1 & Srs5**Srs1 & Srs6****Srs1 & Srs7****Srs2 & Srs5****Srs2 & Srs6****Srs2 & Srs7****Srs3 & Srs5****Srs3 & Srs6****Srs3 & Srs7****Srs4 & Srs5****Srs4 & Srs6****Srs4 & Srs7**

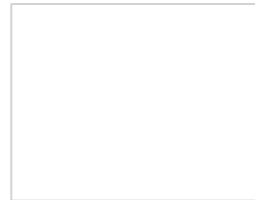
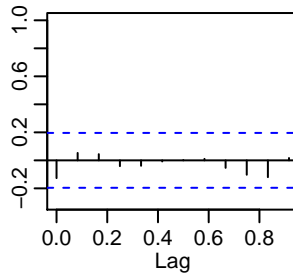
Series 5



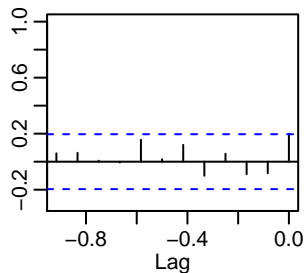
Srs5 & Srs6



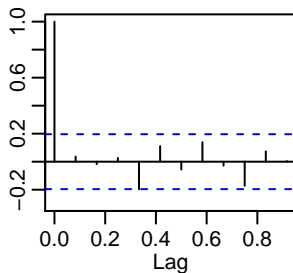
Srs5 & Srs7



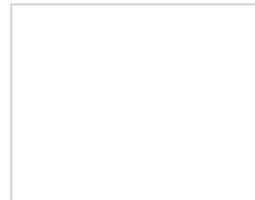
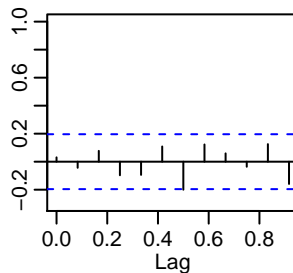
Srs6 & Srs5



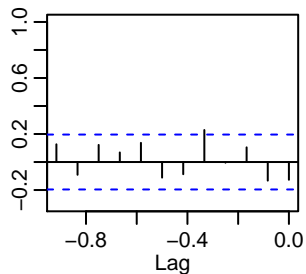
Series 6



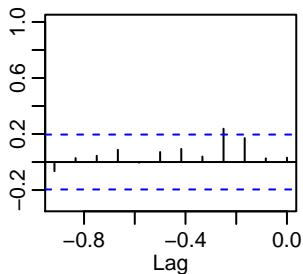
Srs6 & Srs7



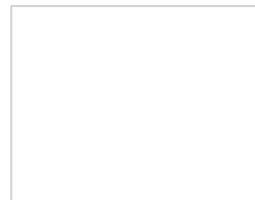
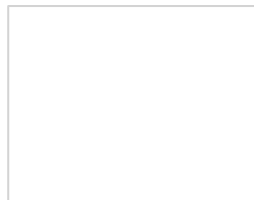
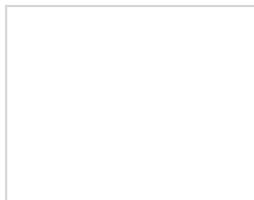
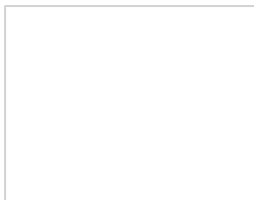
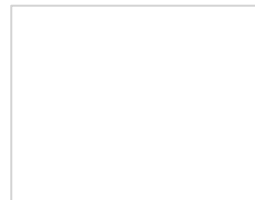
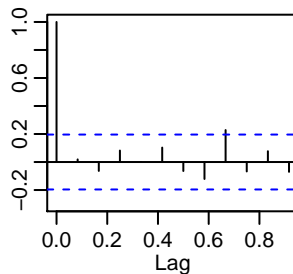
Srs7 & Srs5



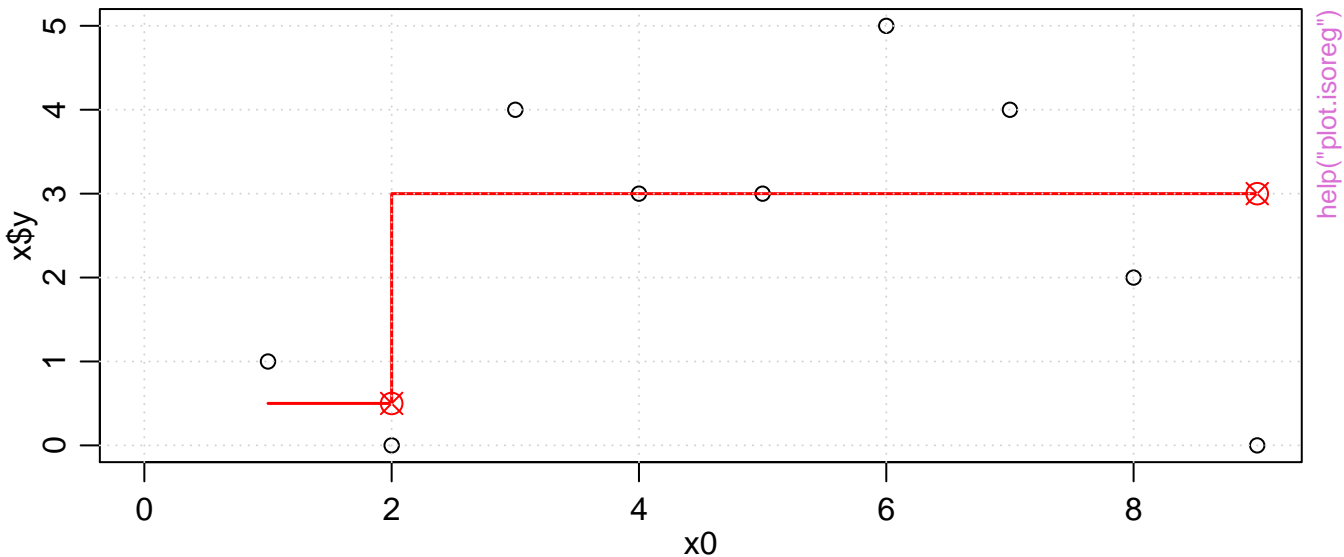
Srs7 & Srs6



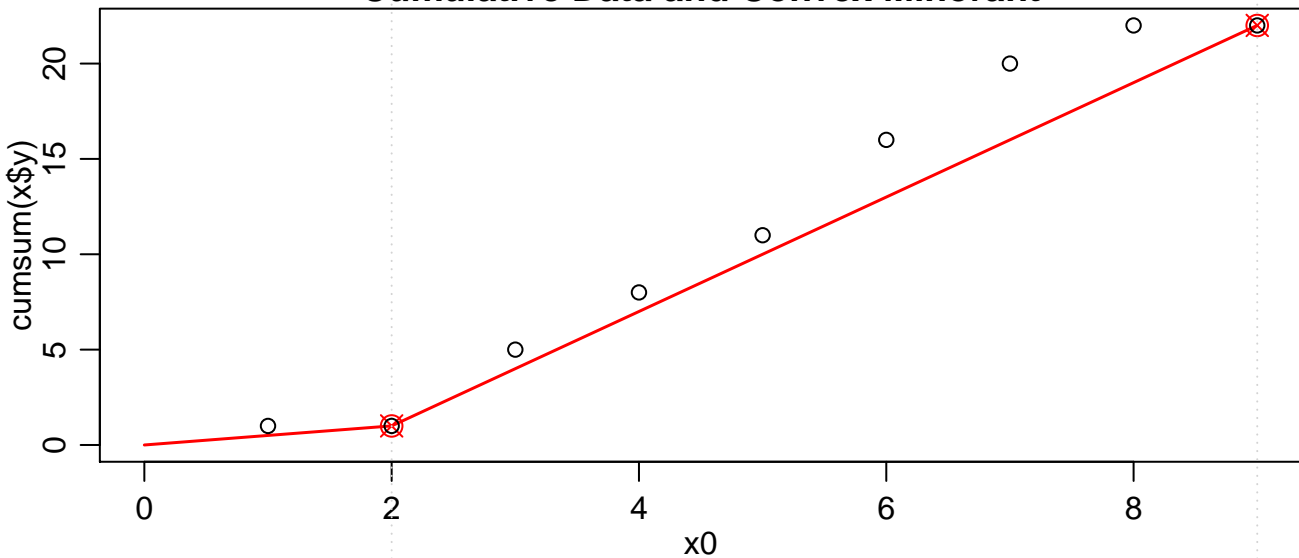
Series 7



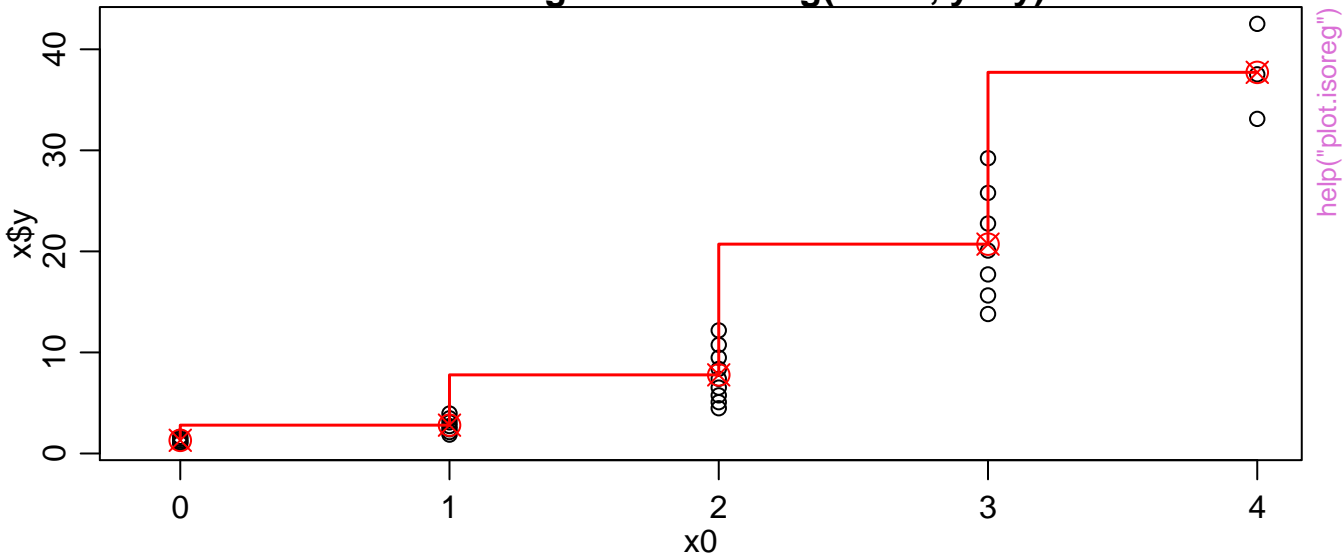
Isotonic regression isoreg(x = c(1, 0, 4, 3, 3, 5, 4, 2, 0))



Cumulative Data and Convex Minorant

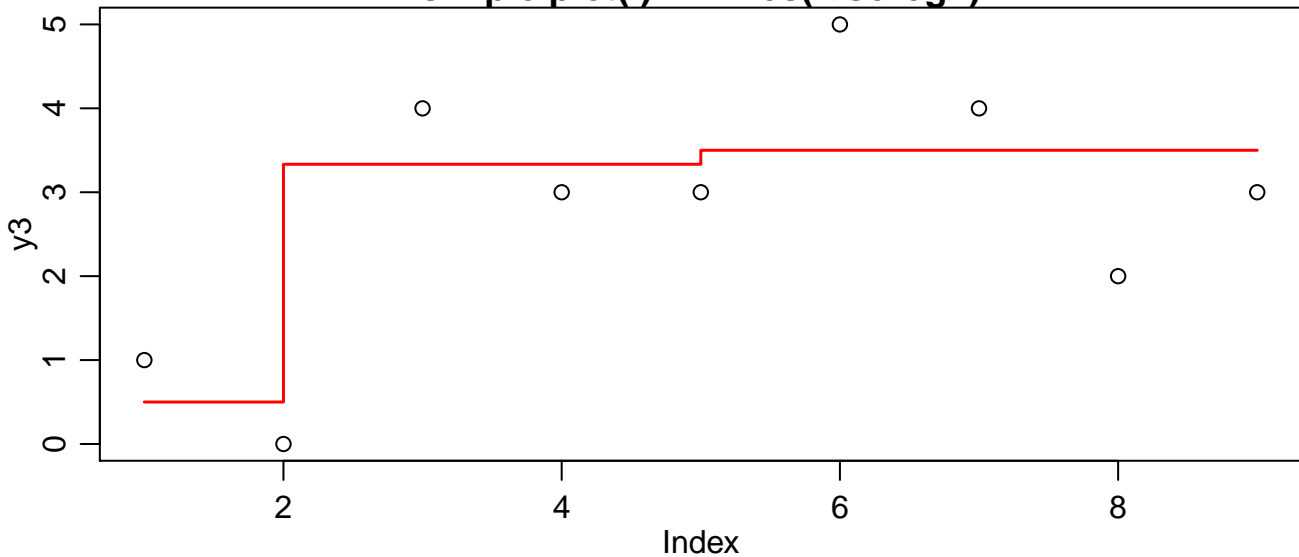


Isotonic regression isoreg(x = x., y = y)

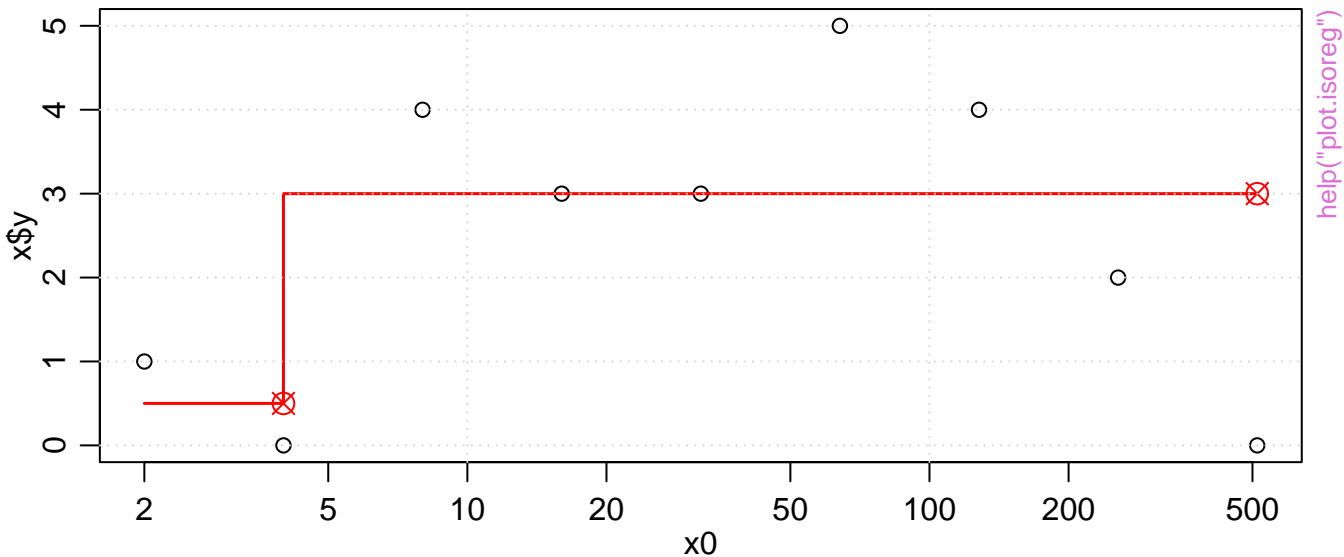


help("plot.isoreg")

simple plot(.) + lines(<isoreg>)

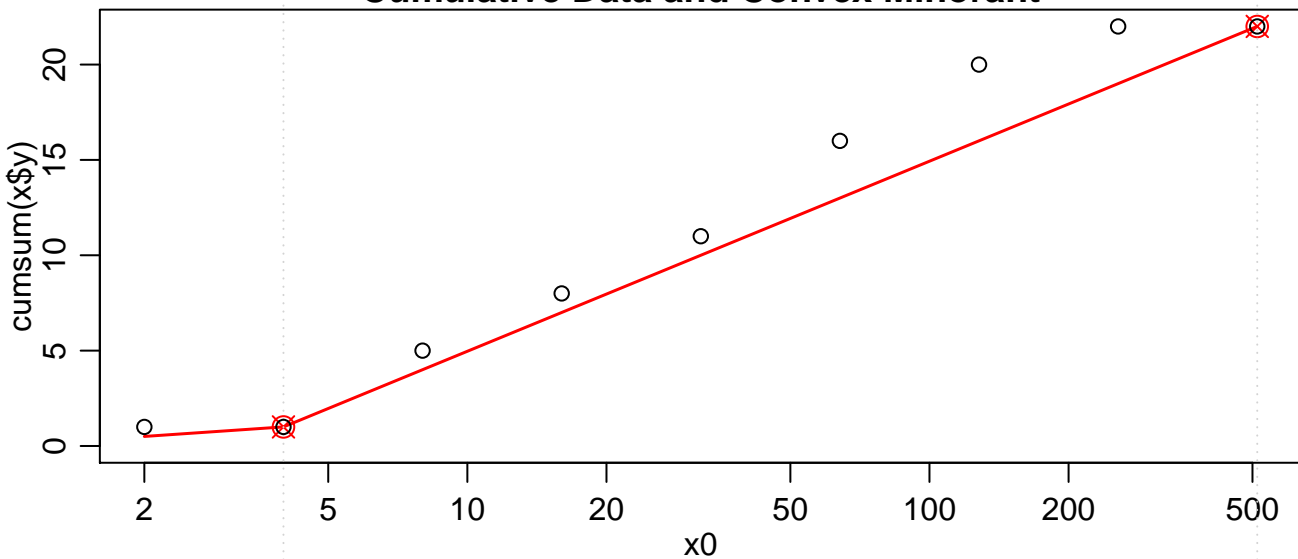


Isotonic regression isoreg($x = 2^{(1:9)}$, $y = c(1, 0, 4, 3, 3, 5, 4, 2, 0)$)

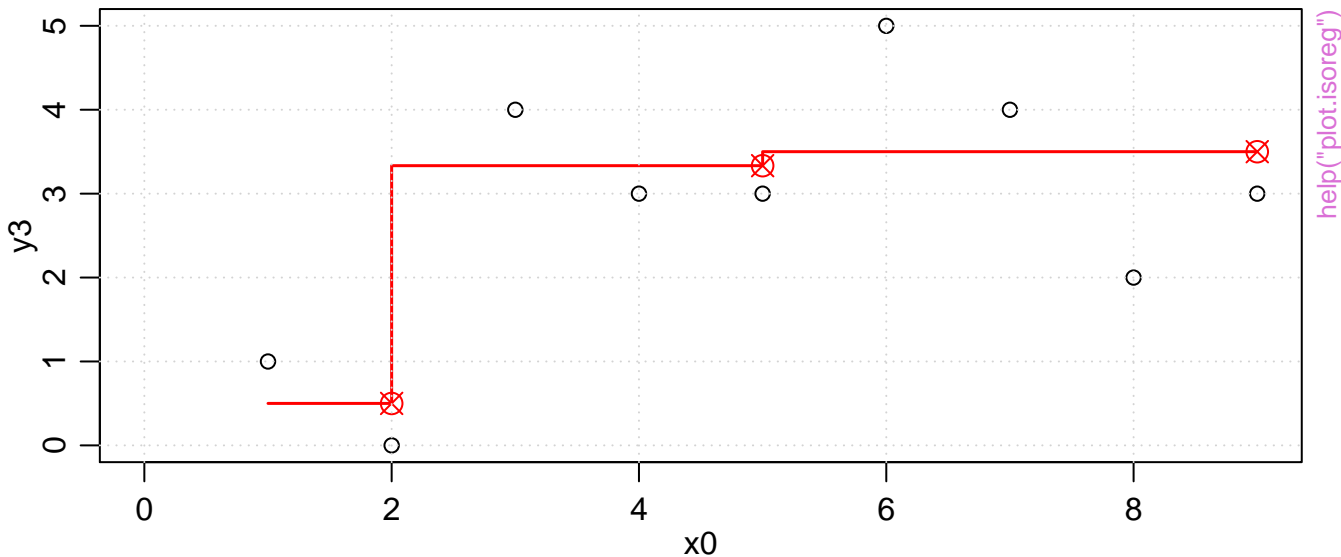


help("plot.isoreg")

Cumulative Data and Convex Minorant

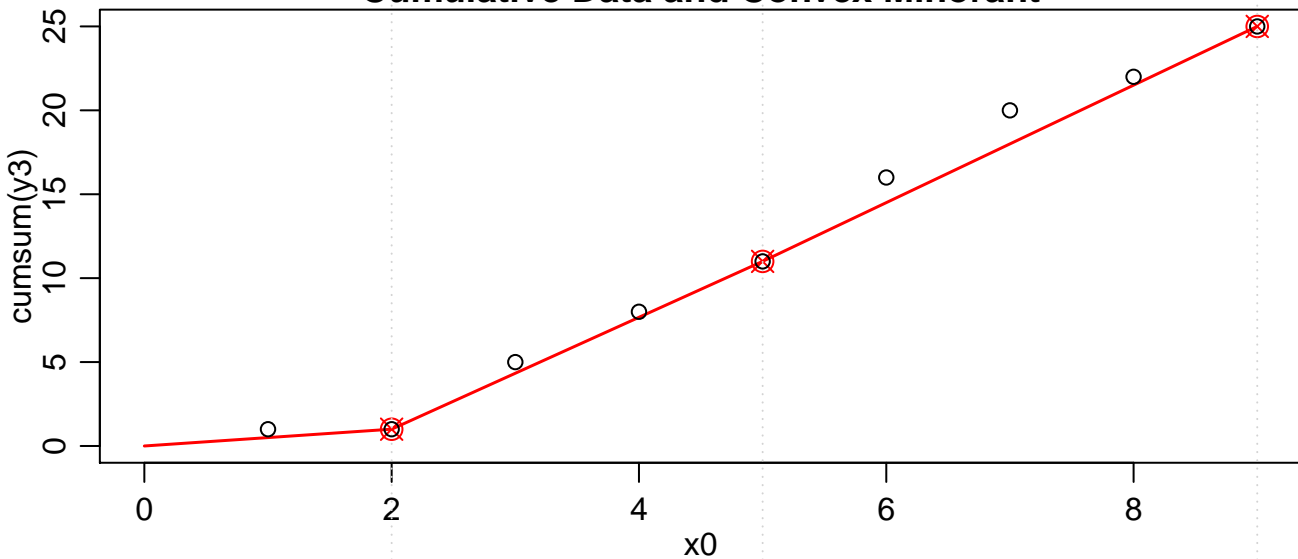


Isotonic regression `isoreg(x = y3 <- c(1, 0, 4, 3, 3, 5, 4, 2, 3))`

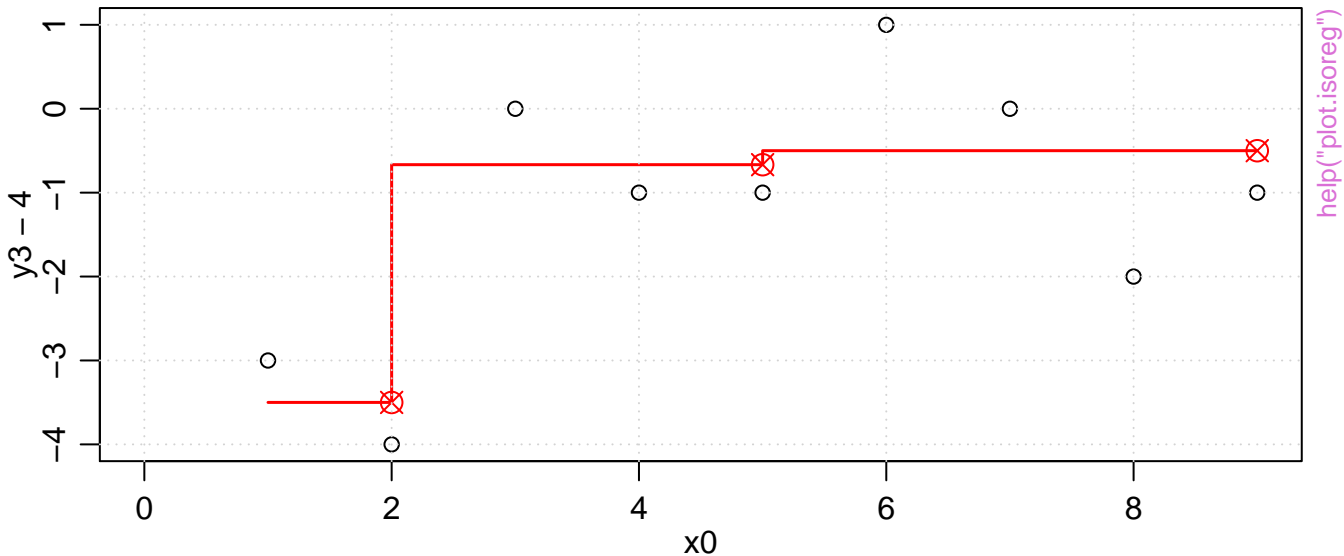


help("plot.isoreg")

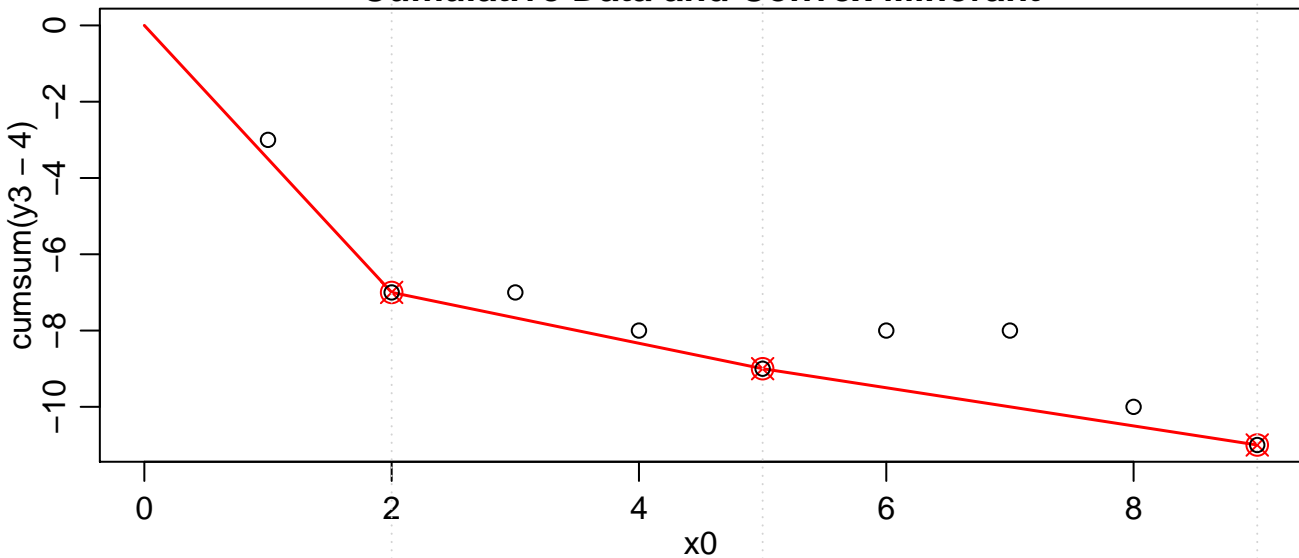
Cumulative Data and Convex Minorant



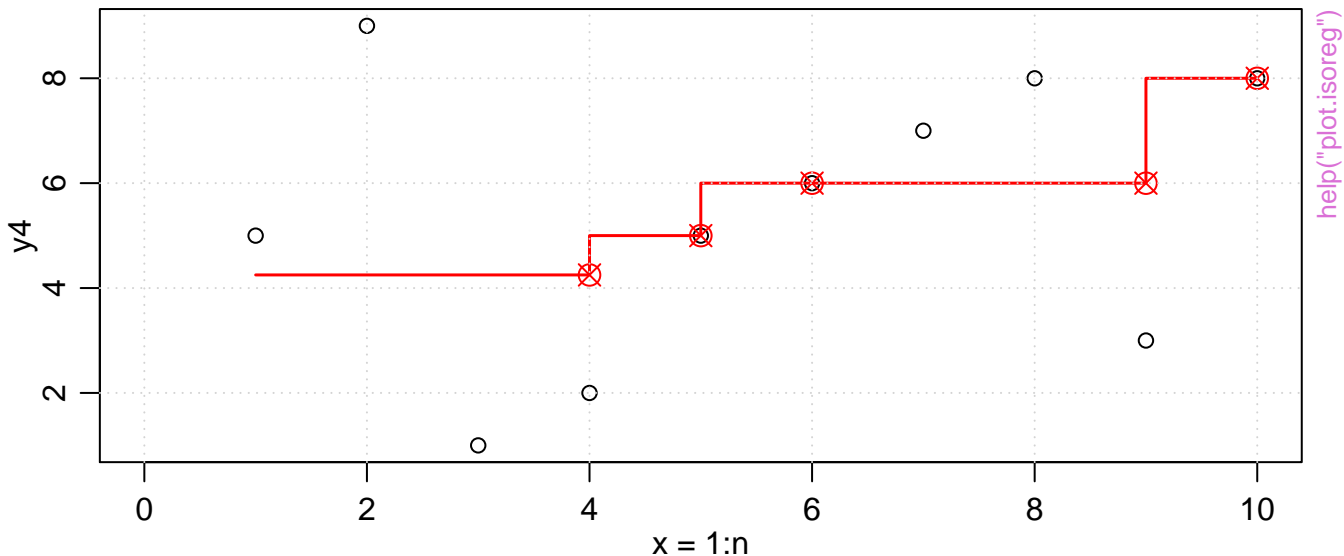
Isotonic regression isoreg($x = y_3 - 4$)



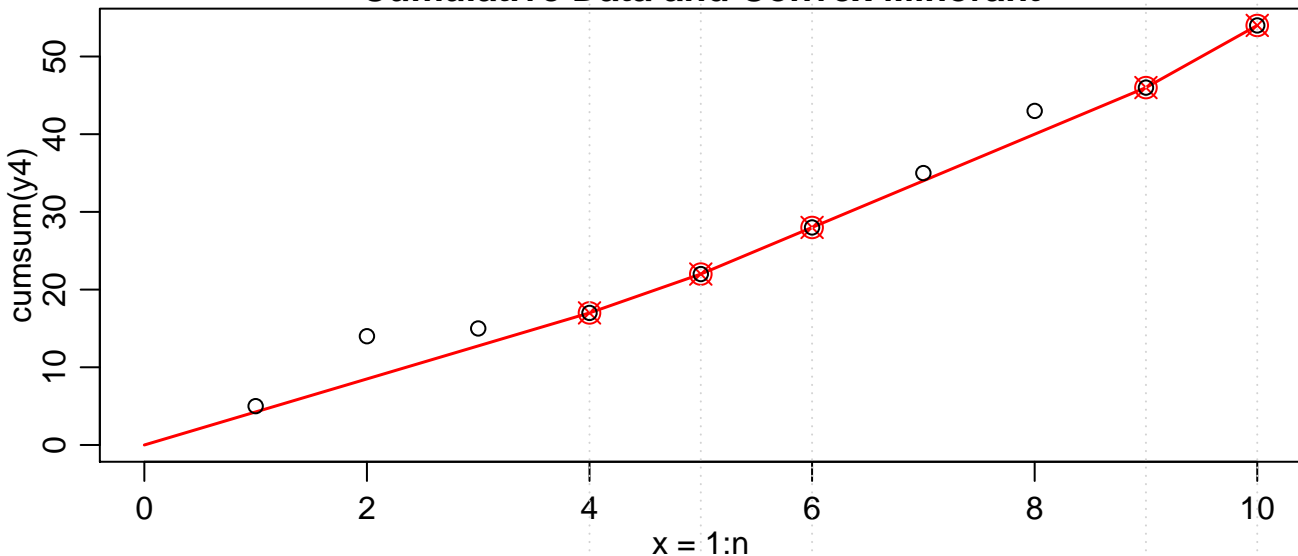
Cumulative Data and Convex Minorant



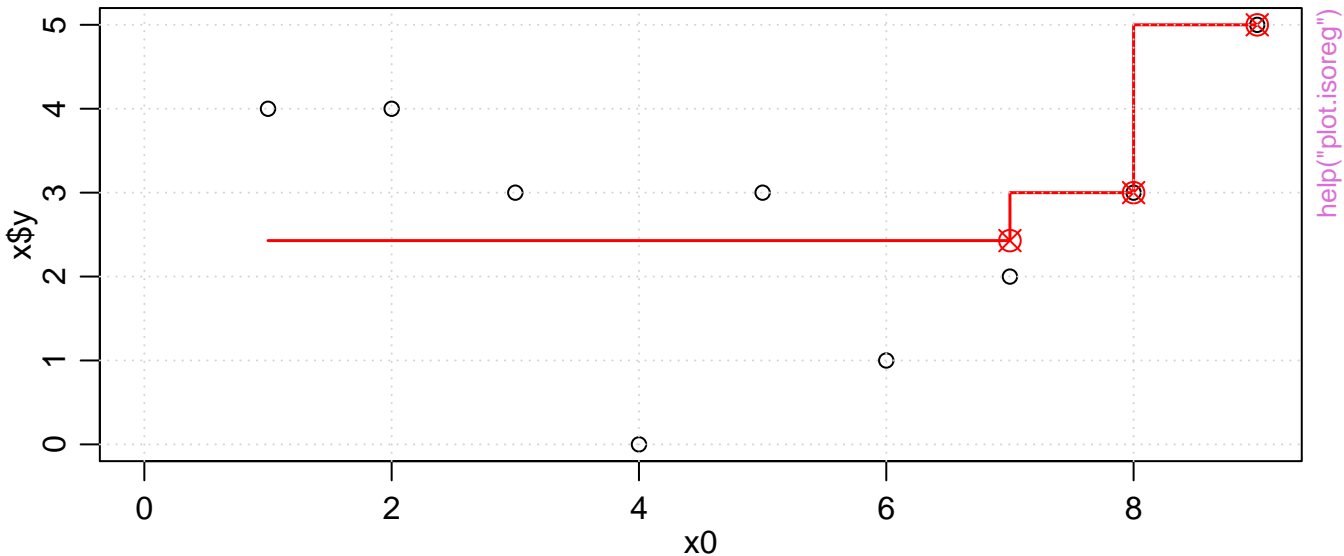
Isotonic regression isoreg(x = 1:10, y = y4 <- c(5, 9, 1:2, 5:8, 3, 8))



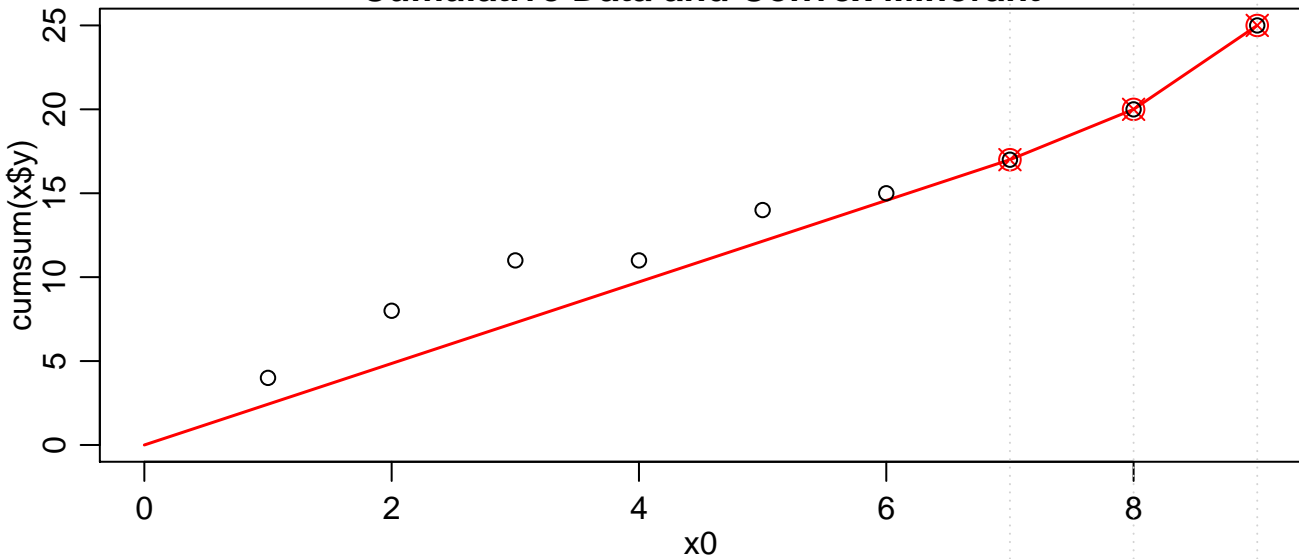
Cumulative Data and Convex Minorant



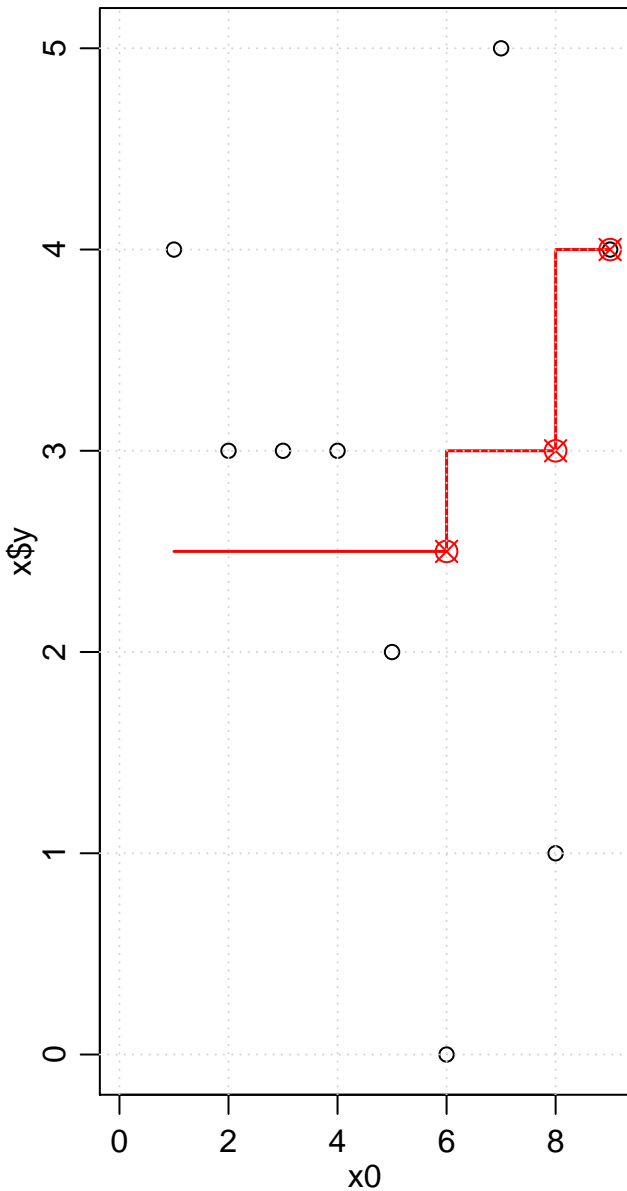
Isotonic regression isoreg($x = \text{sample}(9)$, $y = y3$)



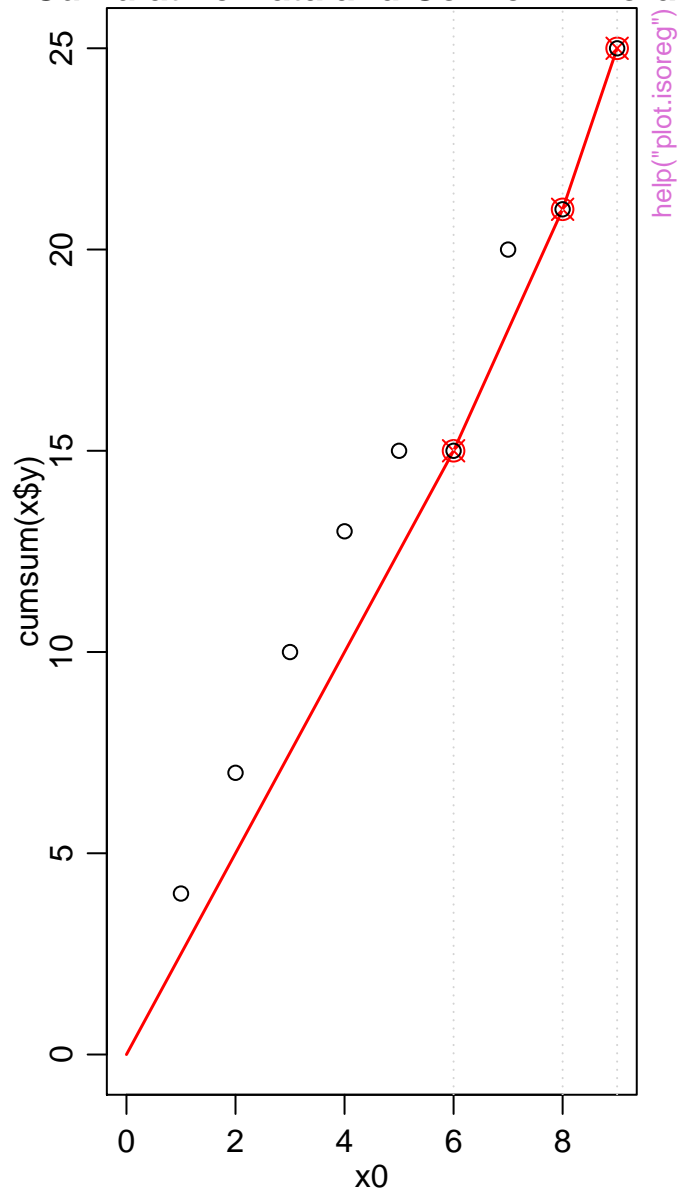
Cumulative Data and Convex Minorant



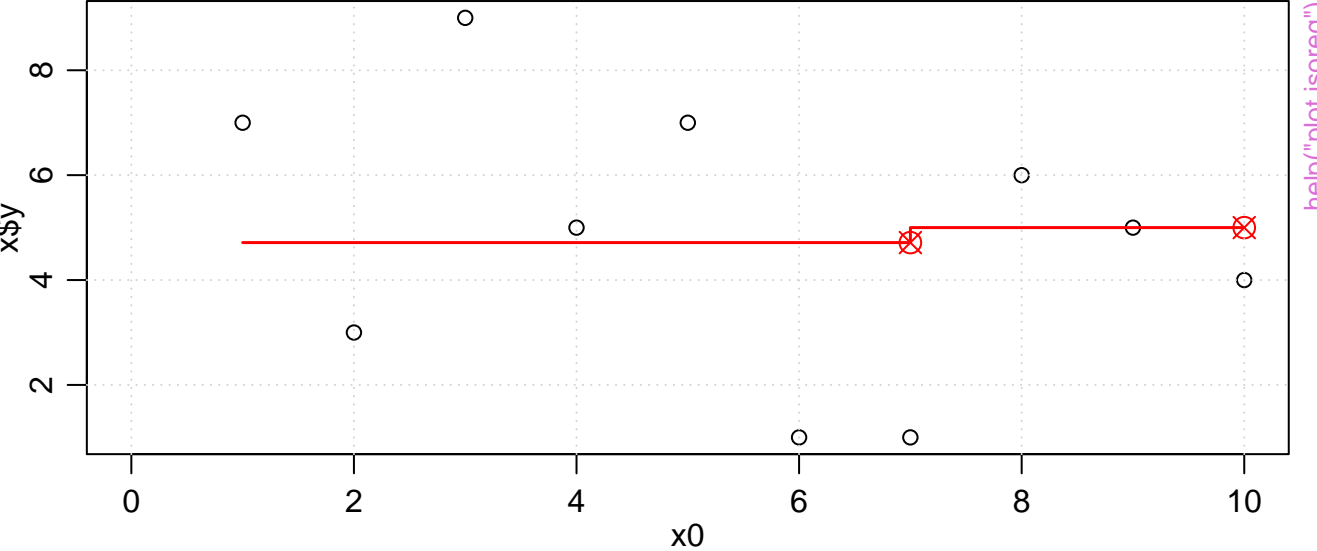
Isotonic regression isoreg(x = sample(9), y = y3)



Cumulative Data and Convex Minora

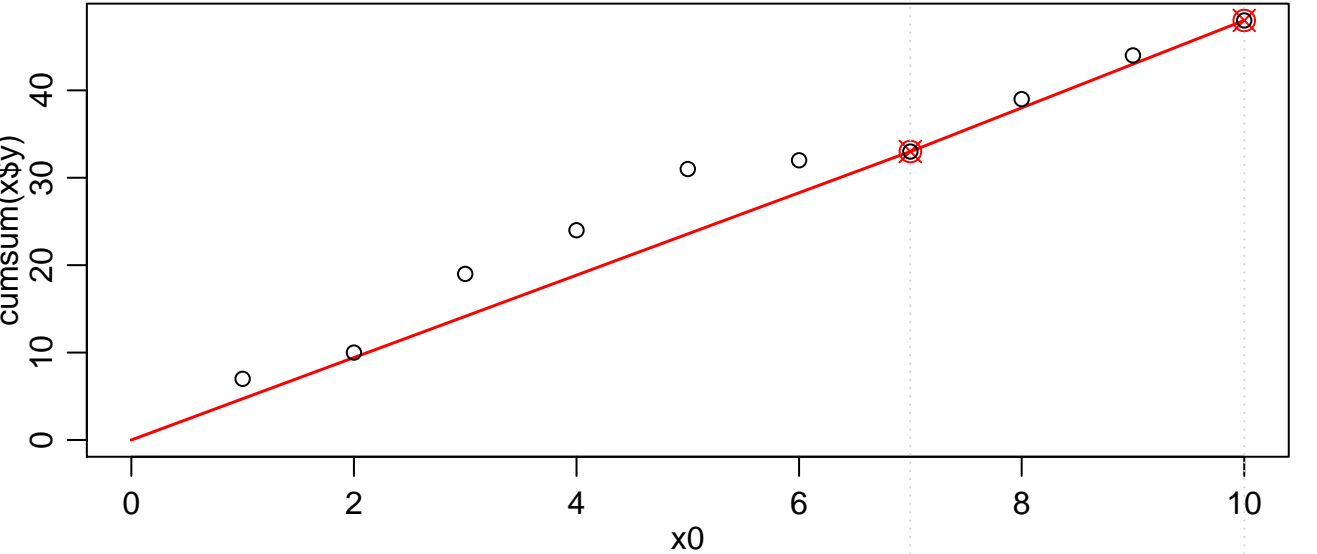


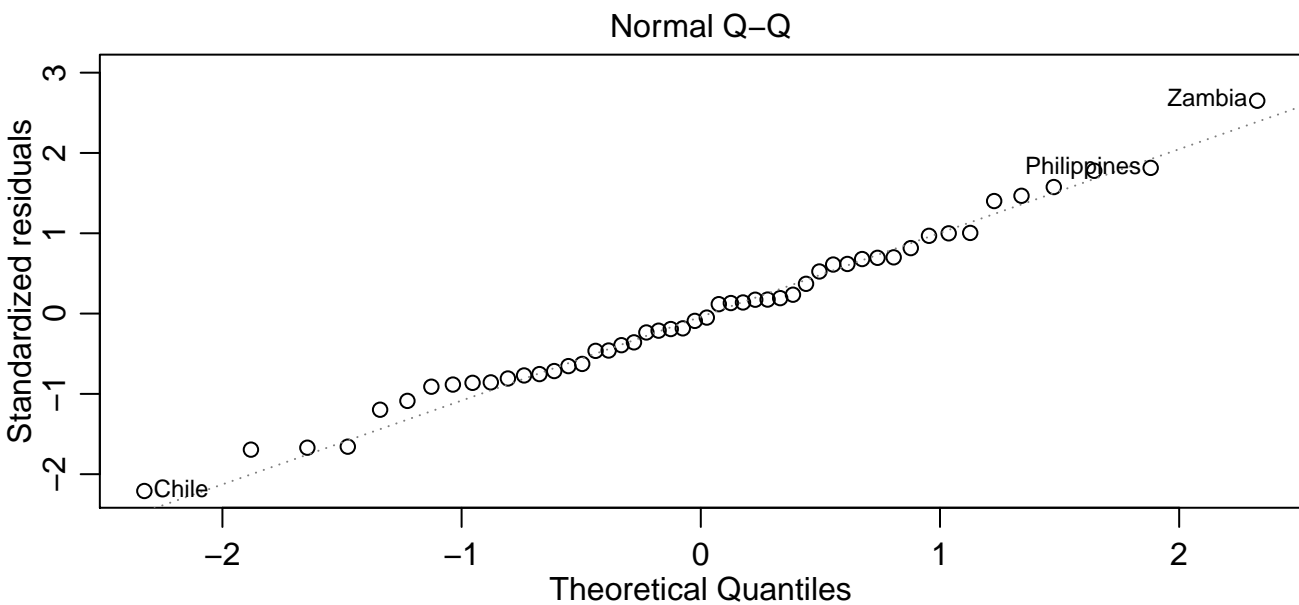
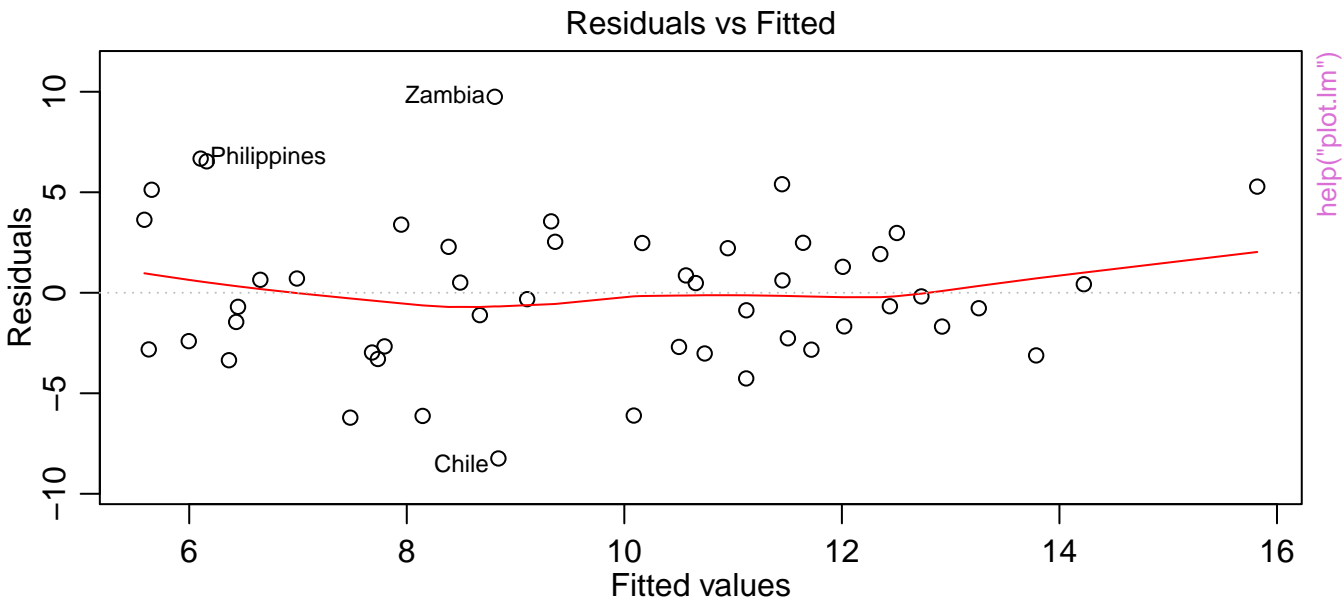
Isotonic regression `isoreg(x = sample(10), y = sample(10, replace = TRUE))`



help("plot.isoreg")

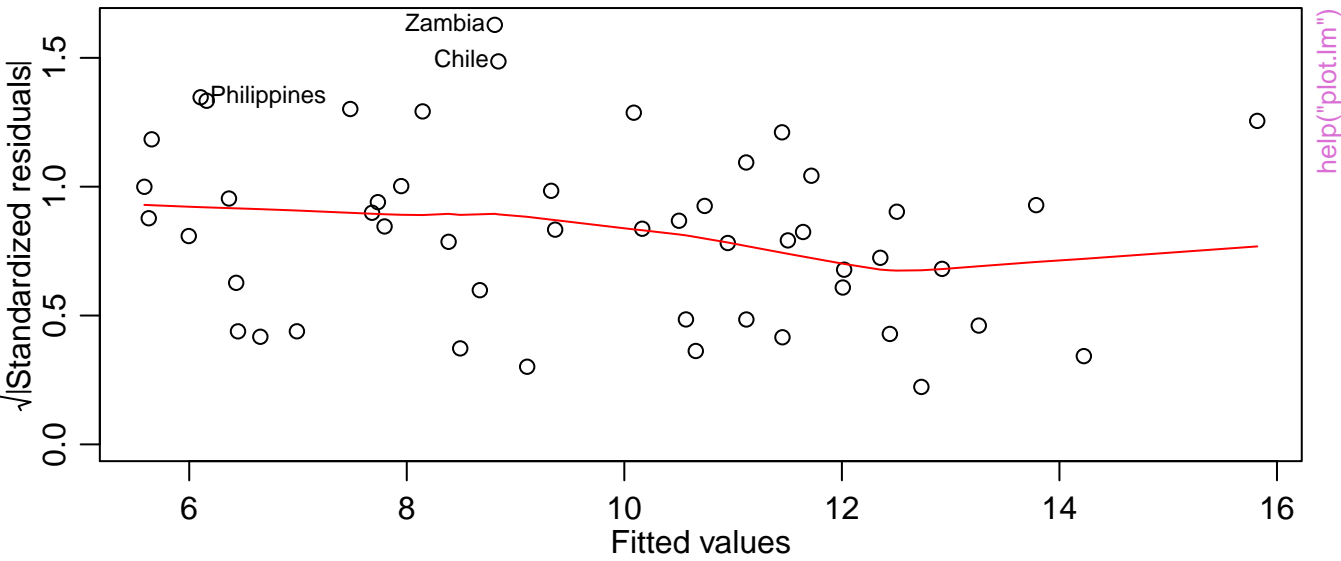
Cumulative Data and Convex Minorant



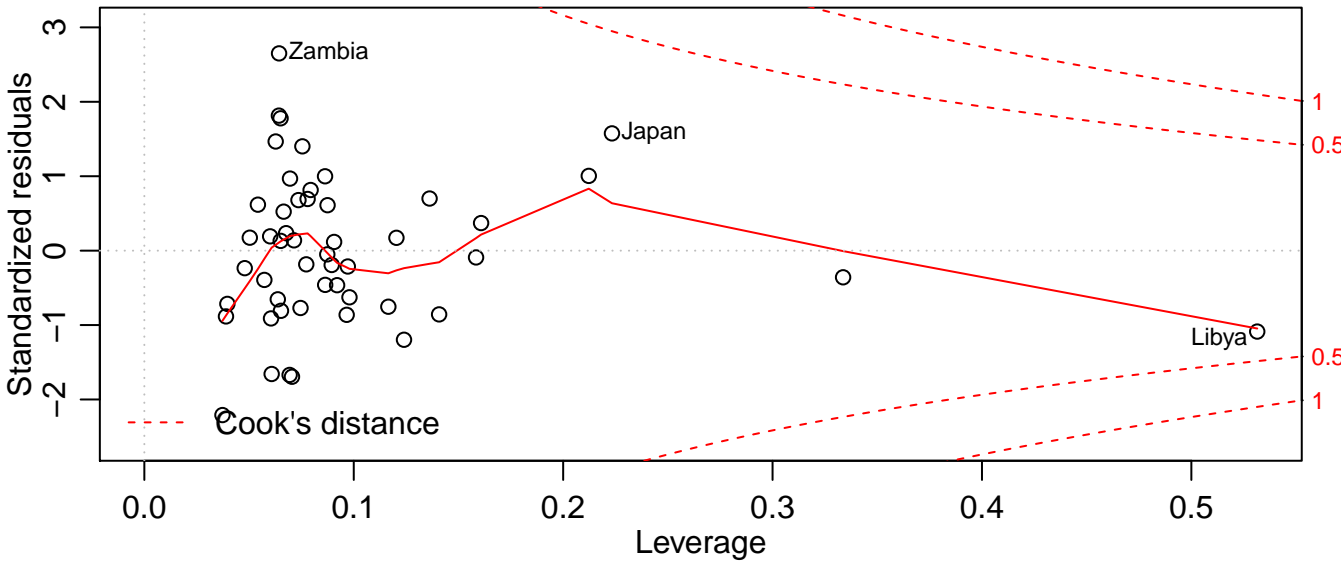


lm(sr ~ pop15 + pop75 + dpi + ddpi)

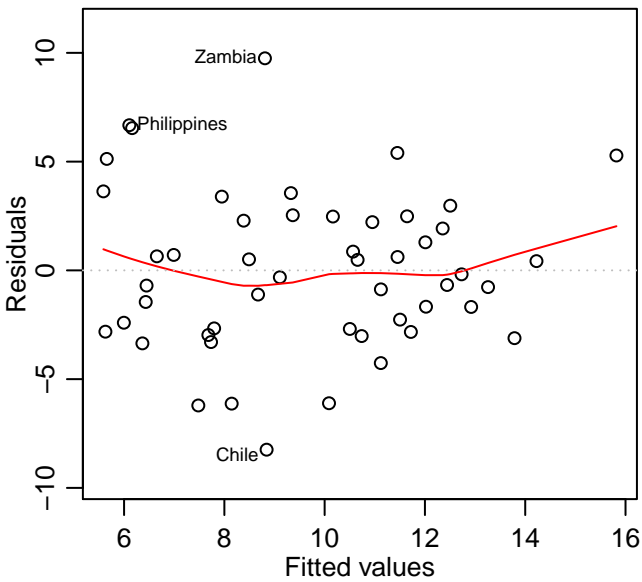
Scale-Location



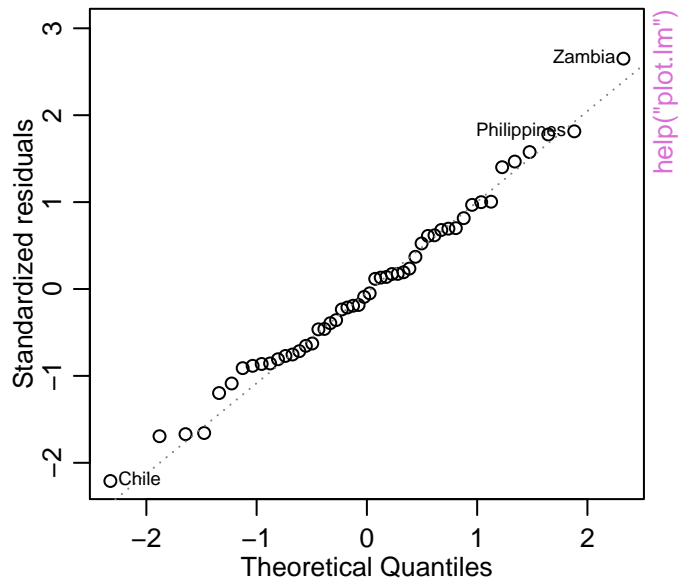
Residuals vs Leverage



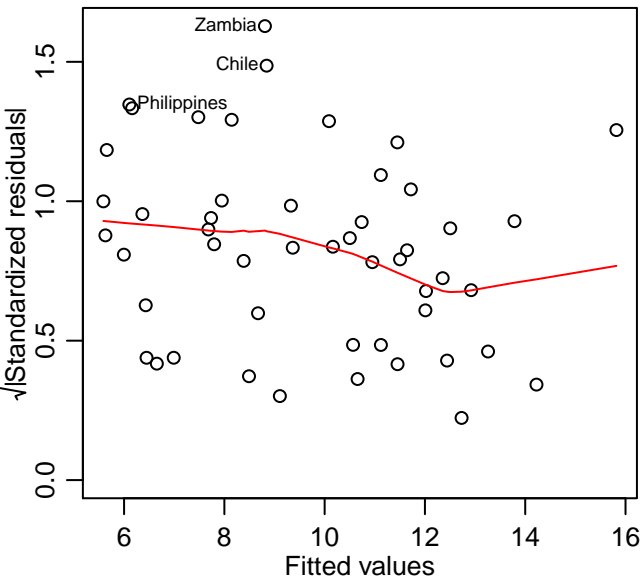
lm(sr ~ pop15 + pop75 + dpi + ddpi)
Residuals vs Fitted



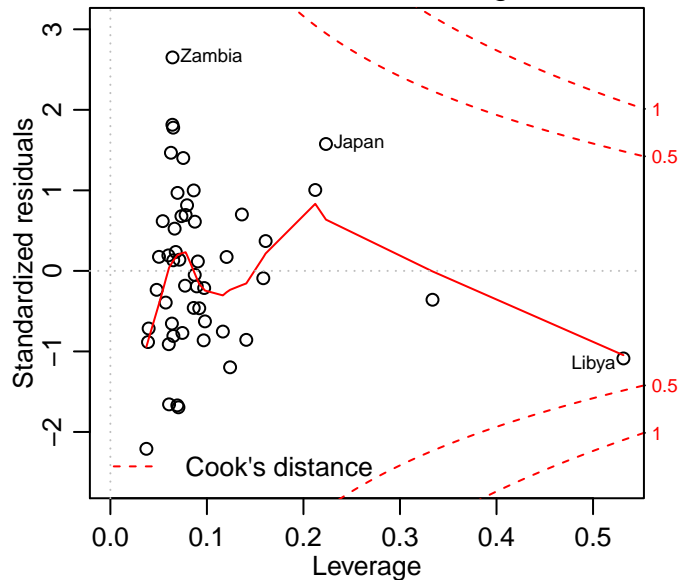
Normal Q-Q



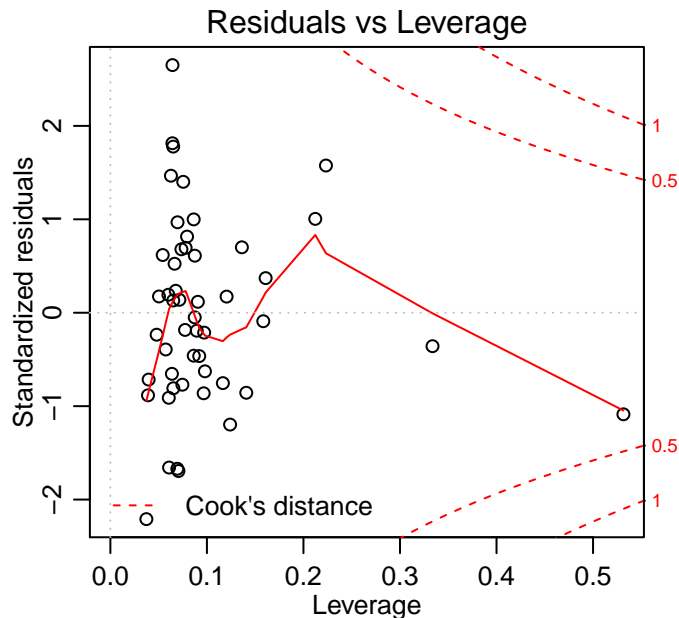
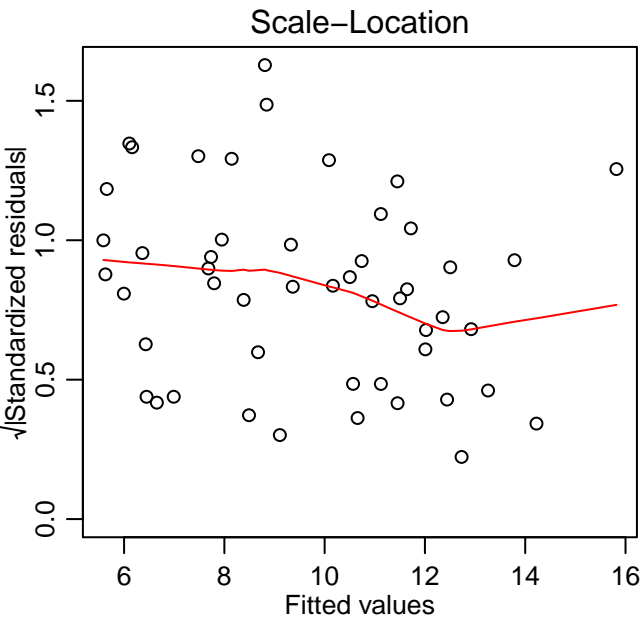
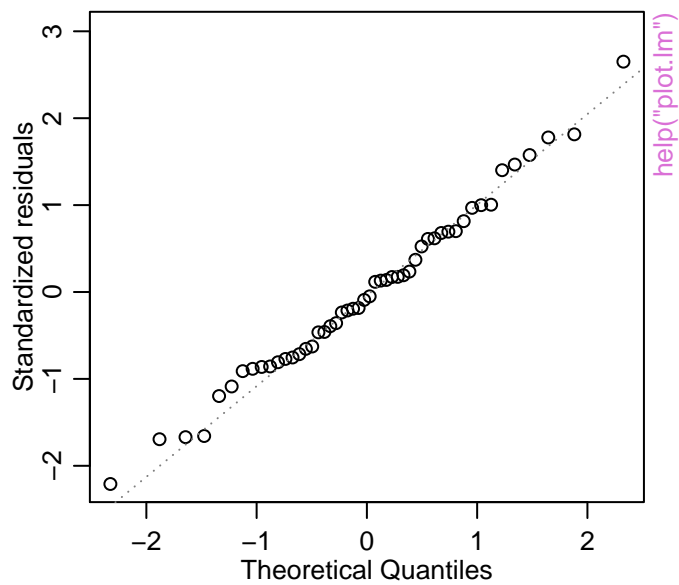
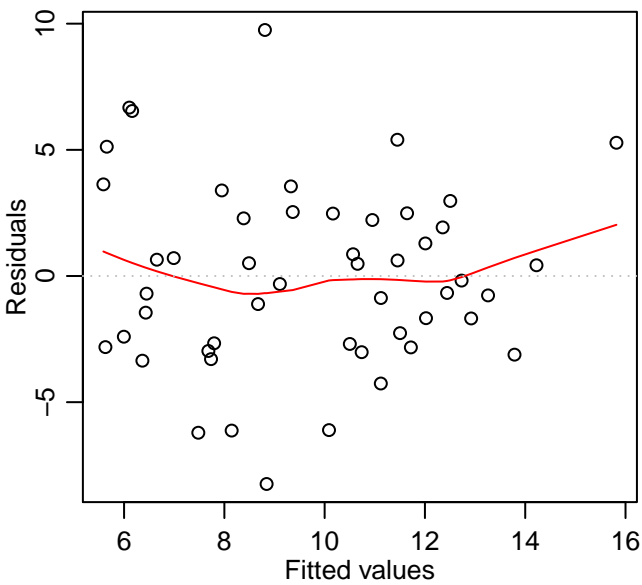
Scale-Location



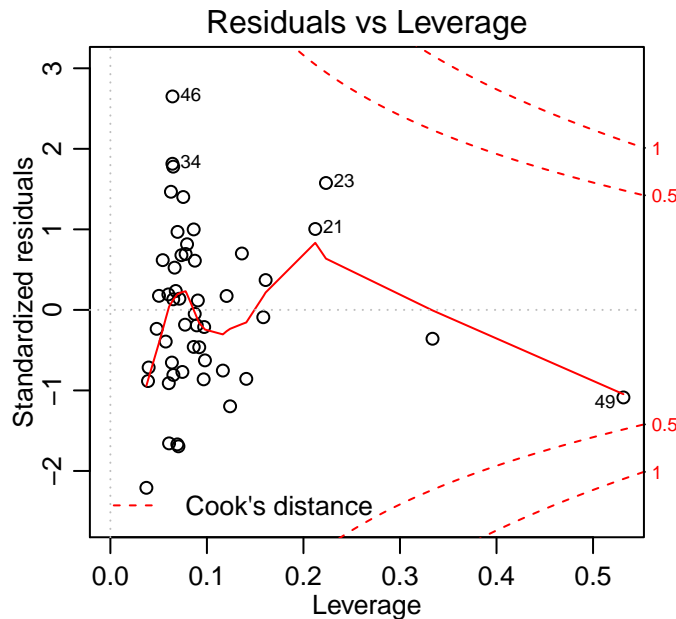
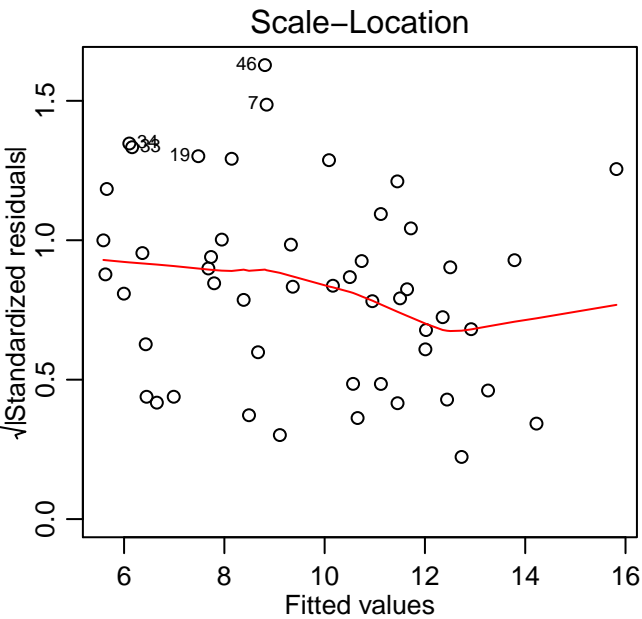
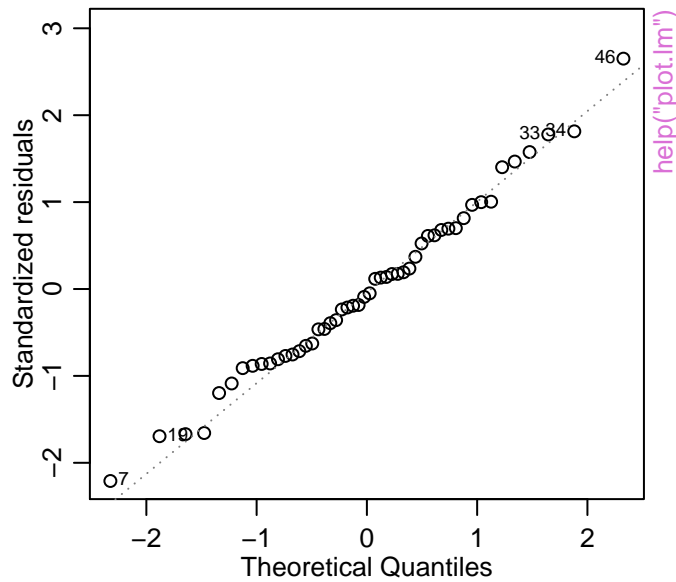
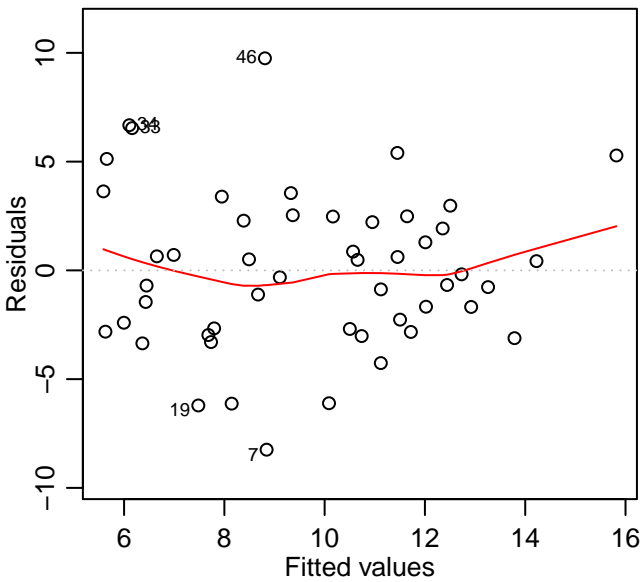
Residuals vs Leverage



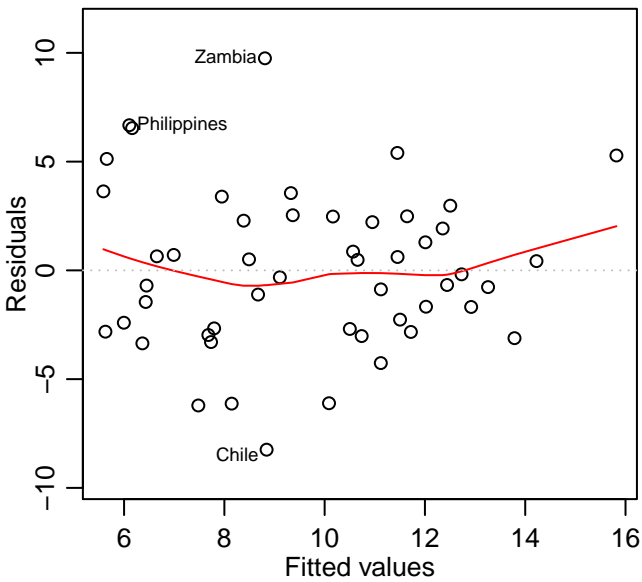
lm(sr ~ pop15 + pop75 + dpi + ddpi)



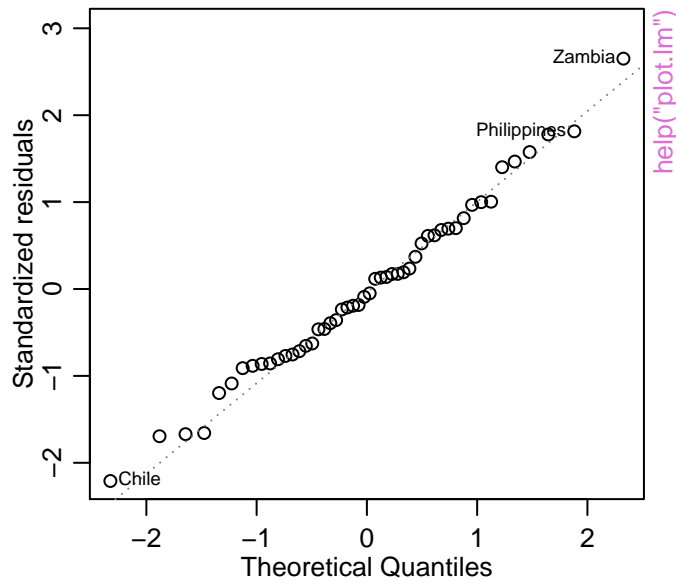
lm(sr ~ pop15 + pop75 + dpi + ddpi)



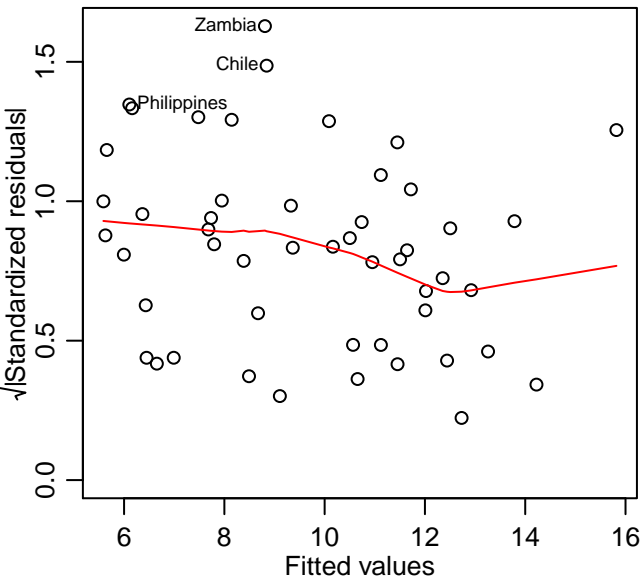
lm(sr ~ pop15 + pop75 + dpi + ddpi)
Residuals vs Fitted



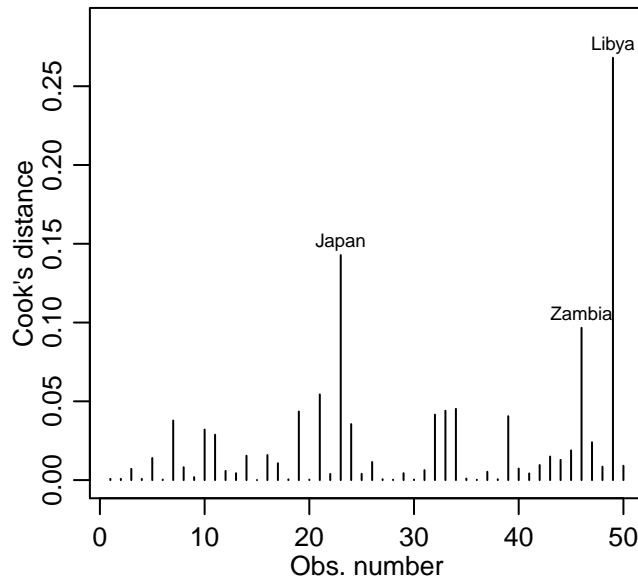
Normal Q-Q



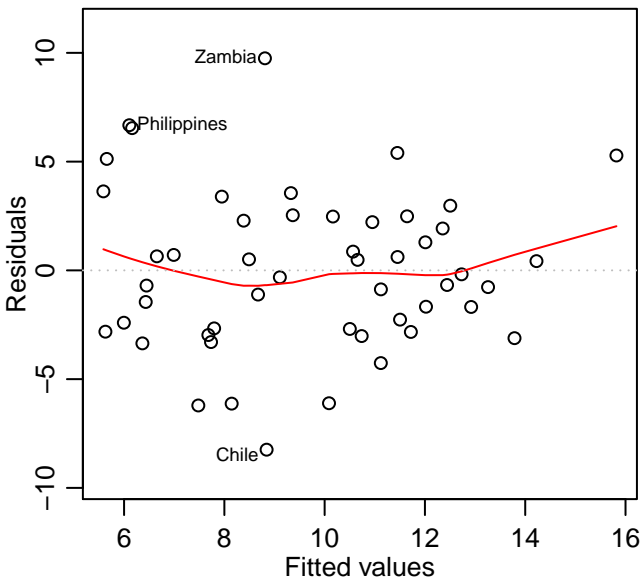
Scale-Location



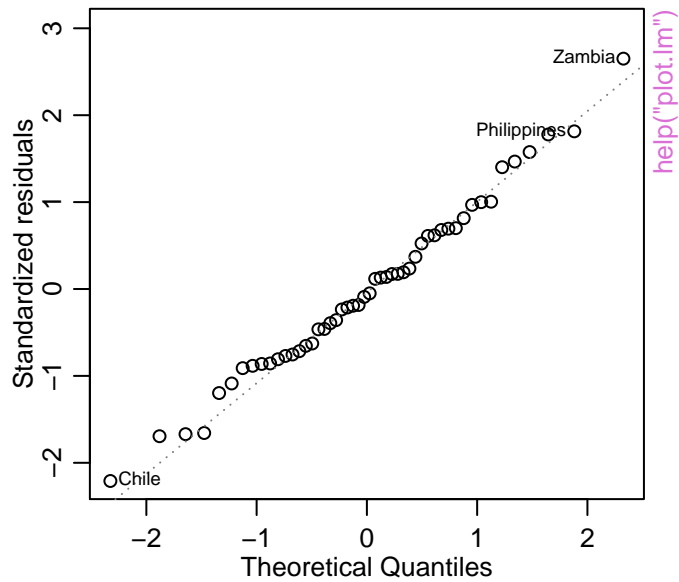
Cook's distance



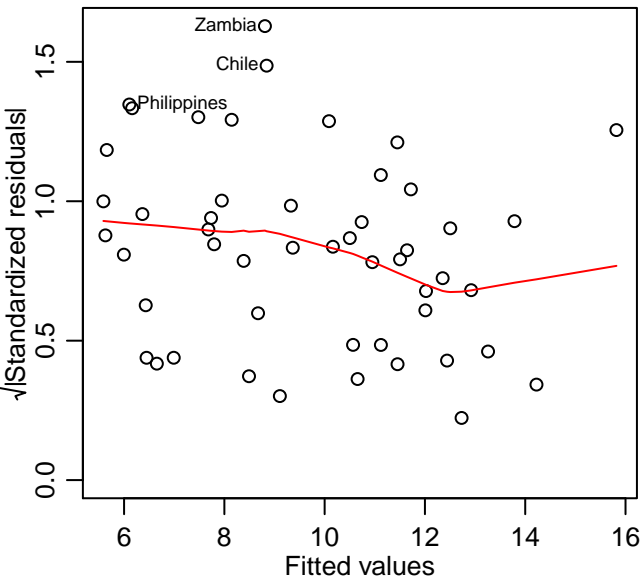
lm(sr ~ pop15 + pop75 + dpi + ddpi)
Residuals vs Fitted



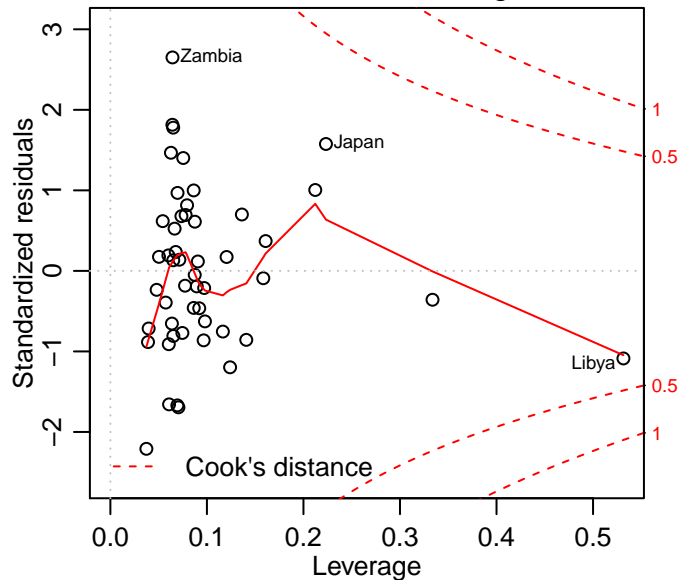
Normal Q-Q



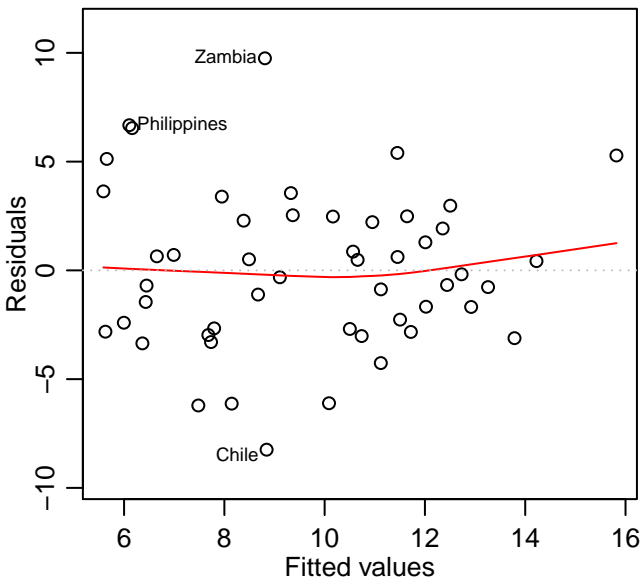
Scale-Location



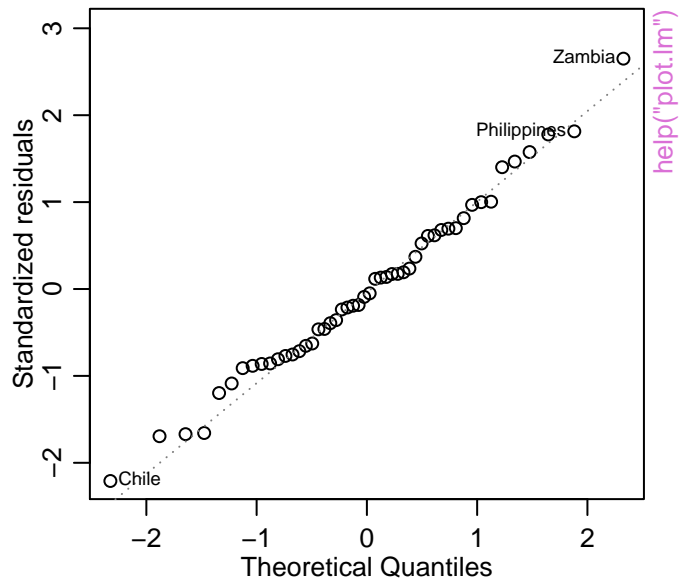
Residuals vs Leverage



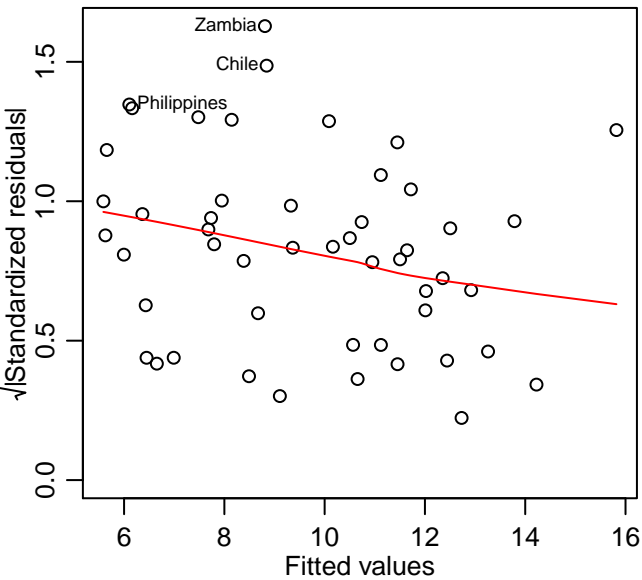
lm(sr ~ pop15 + pop75 + dpi + ddpi)
Residuals vs Fitted



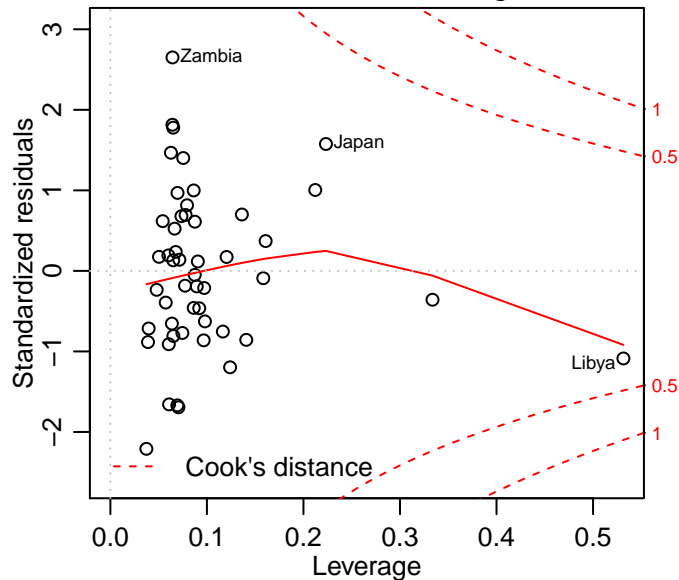
Normal Q-Q



Scale-Location

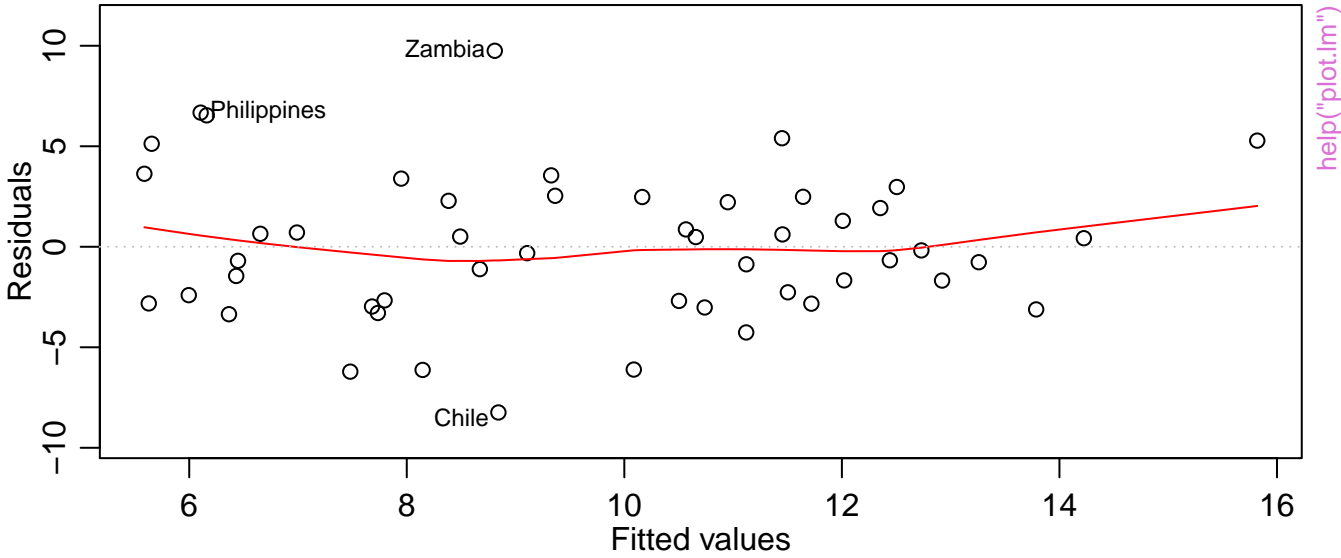


Residuals vs Leverage

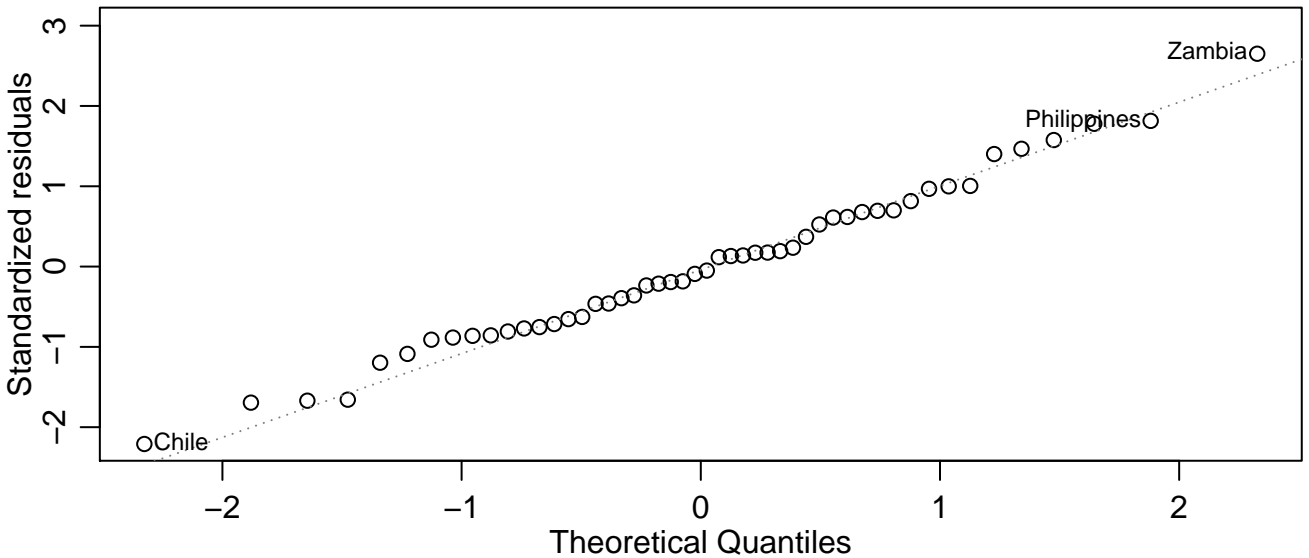


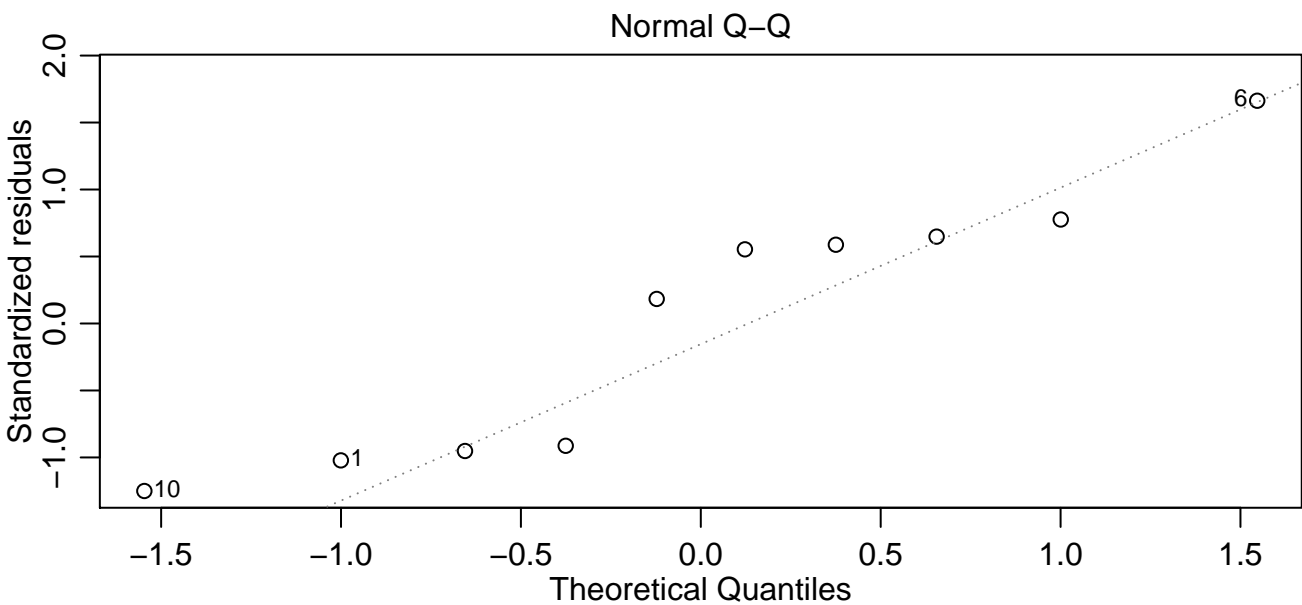
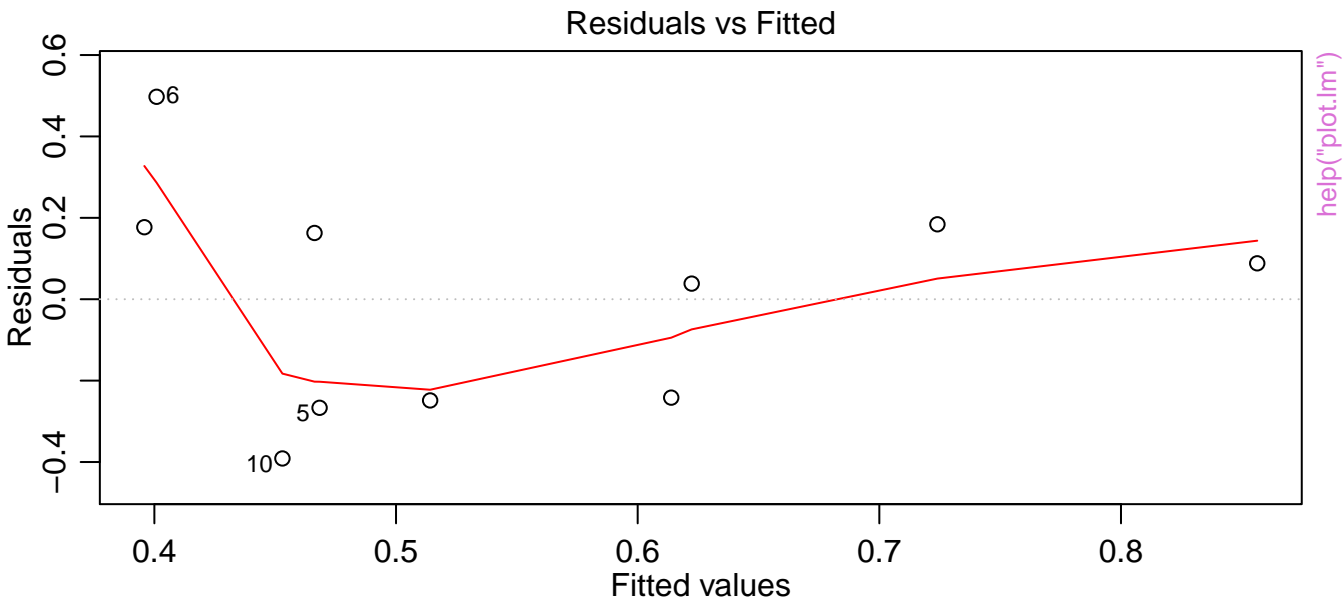
Saving Rates, $n=50$, $p=5$

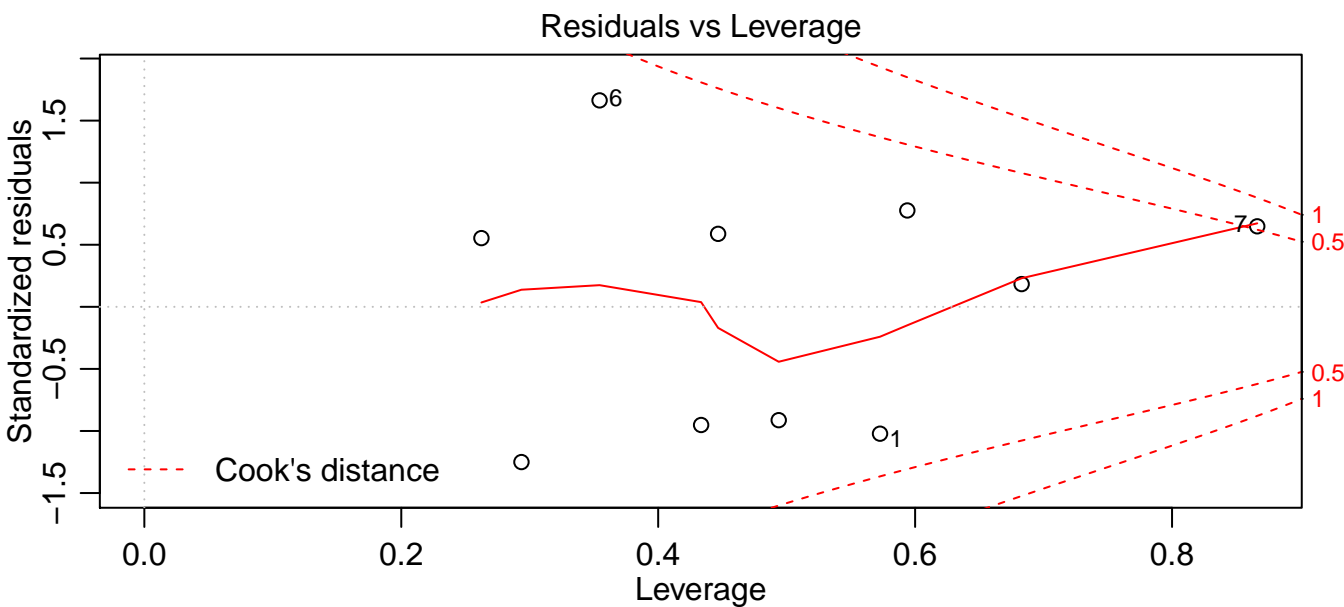
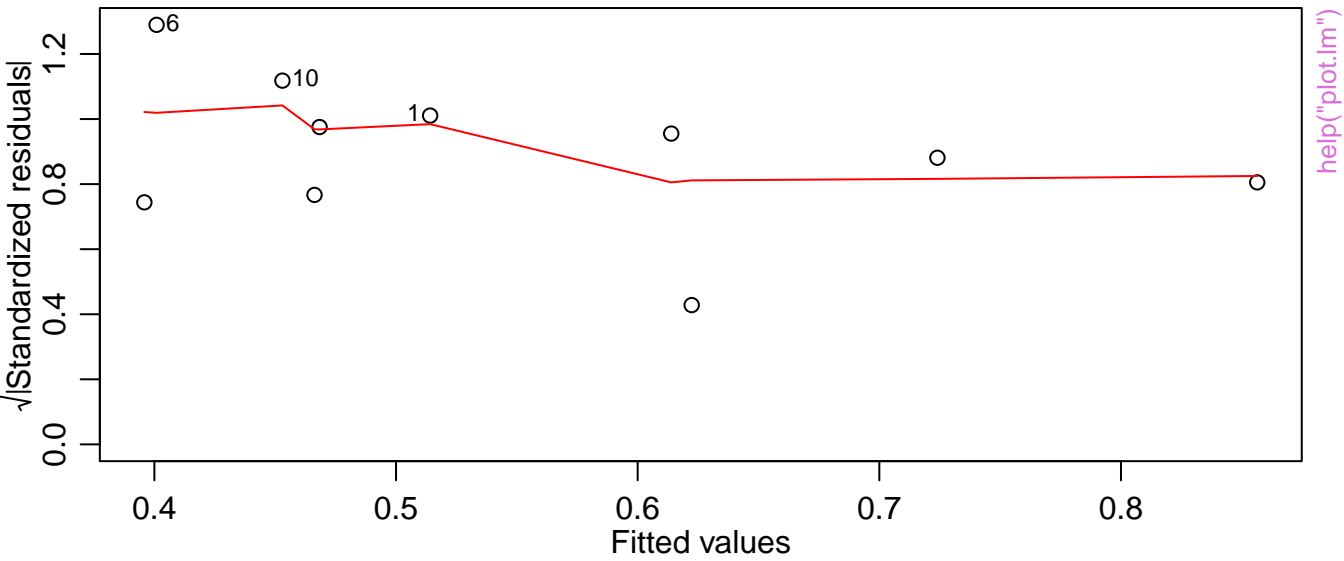
Residuals vs Fitted



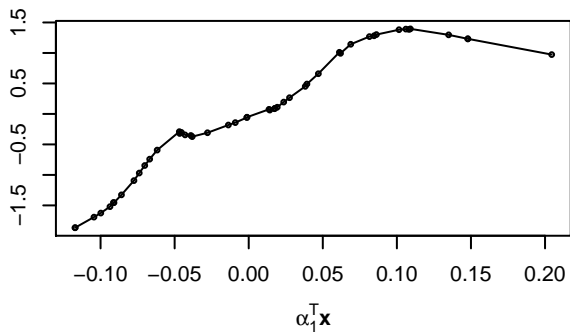
Normal Q-Q



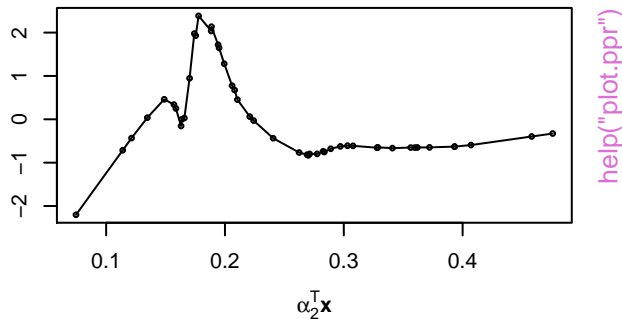


$$n(\text{long.var.name.1} \sim \text{long.var.name.2} + \text{long.var.name.3} + \text{long.var.name.4} + \text{Scale-Location})$$


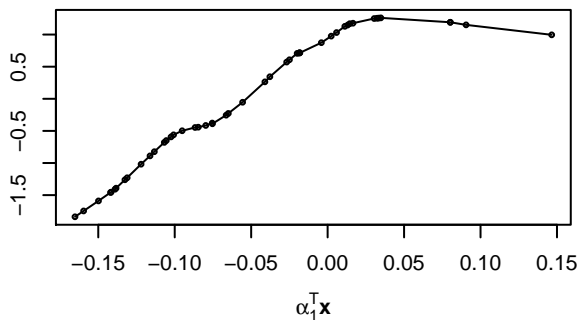
ppr(log(perm)~ ., nterms=2, max.terms=5)



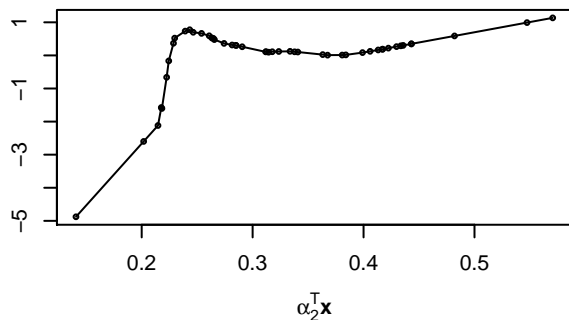
ppr(log(perm)~ ., nterms=2, max.terms=5)



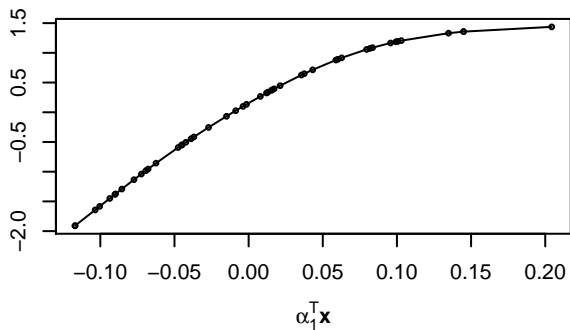
update(..., bass = 5)



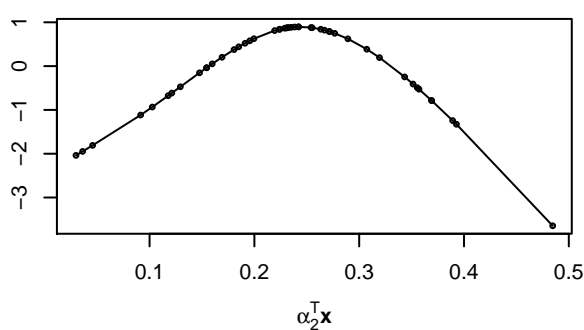
update(..., bass = 5)



update(..., sm.method="gcv", gcvpen=2)

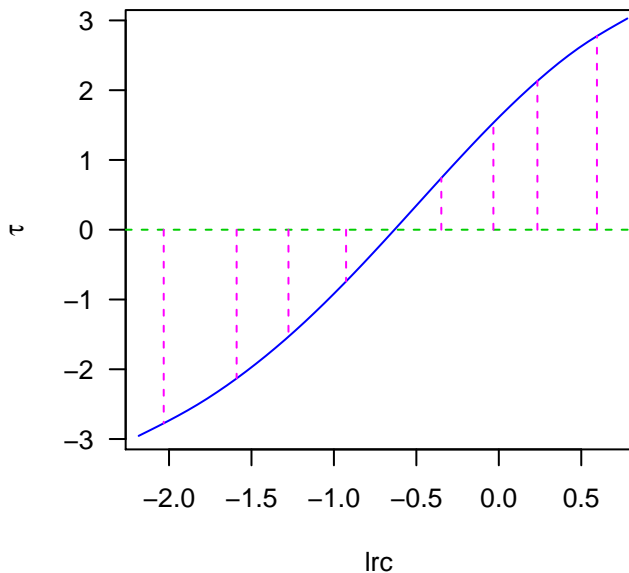
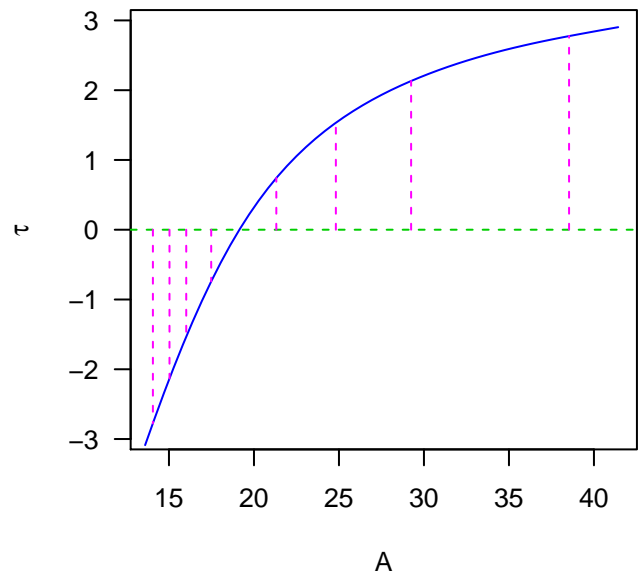
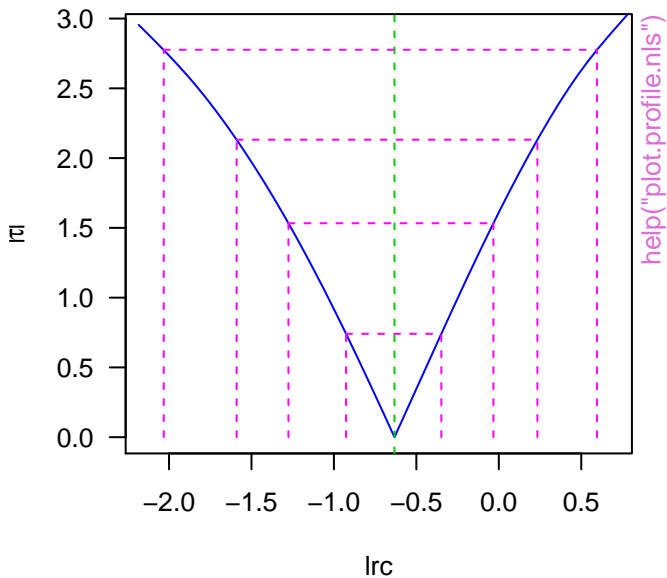
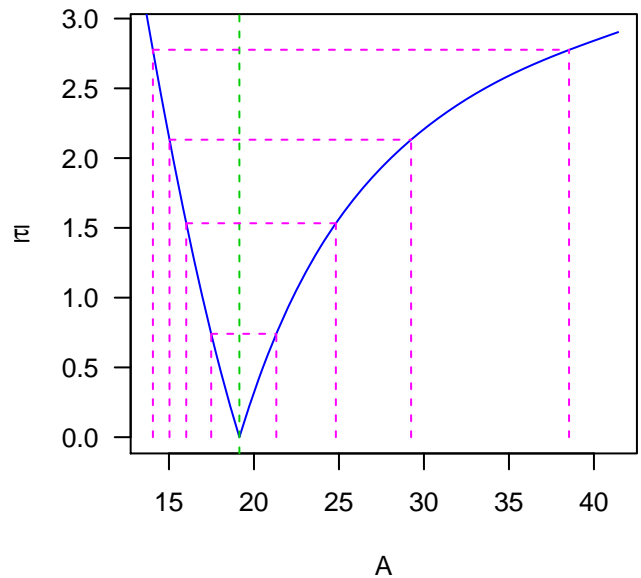


update(..., sm.method="gcv", gcvpen=2)



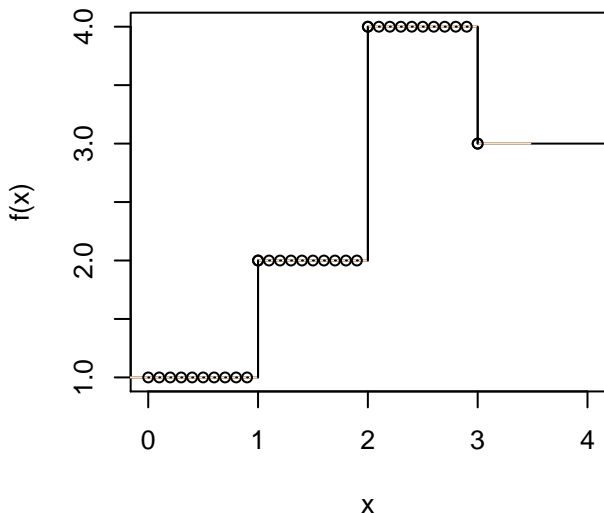
help("plot.ppr")

Confidence intervals based on the profile sum of squares

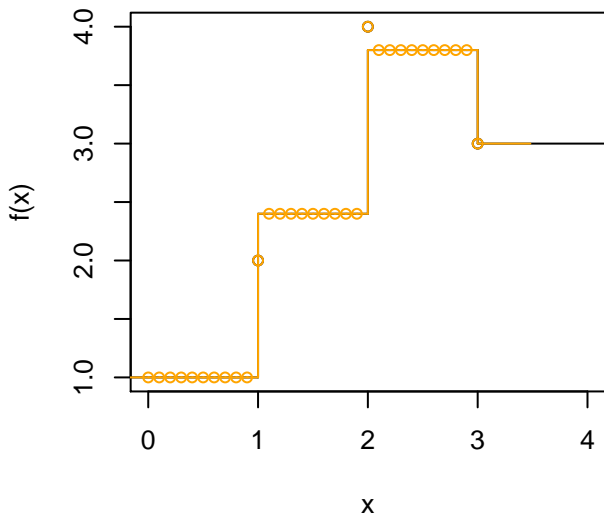


BOD data – confidence levels of 50%, 80%, 90% and 95%

stepfun(1:3, y0, f = 0)

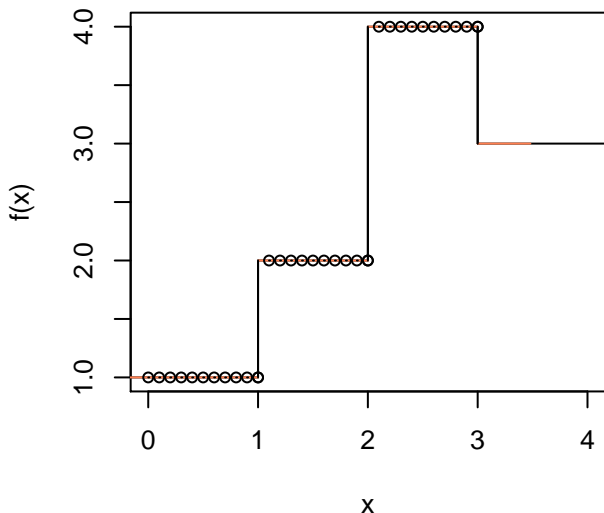


stepfun(1:3, y0, f = 0.2)

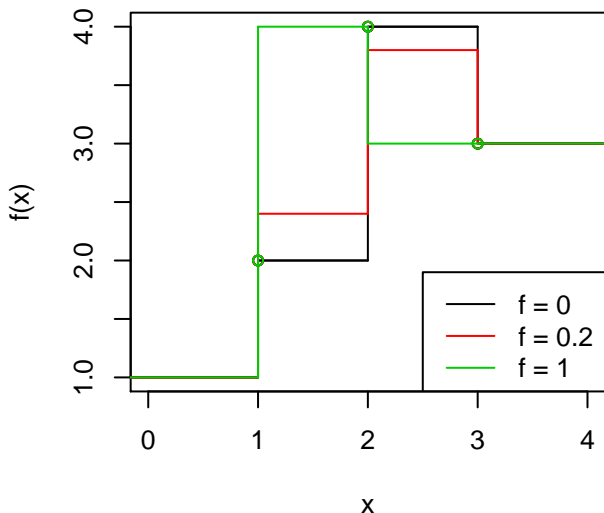


help("plot.stepfun")

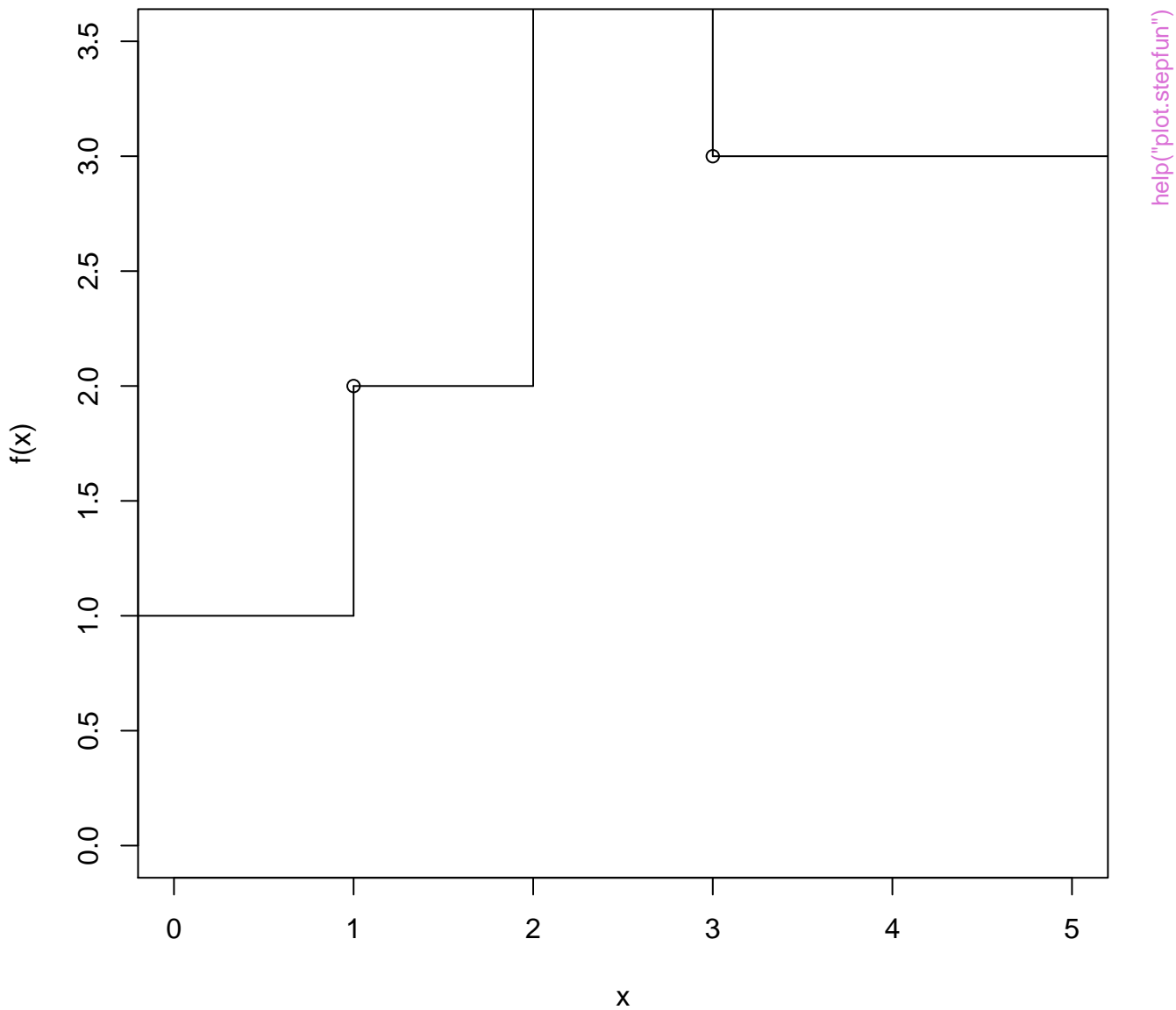
stepfun(1:3, y0, right = TRUE)



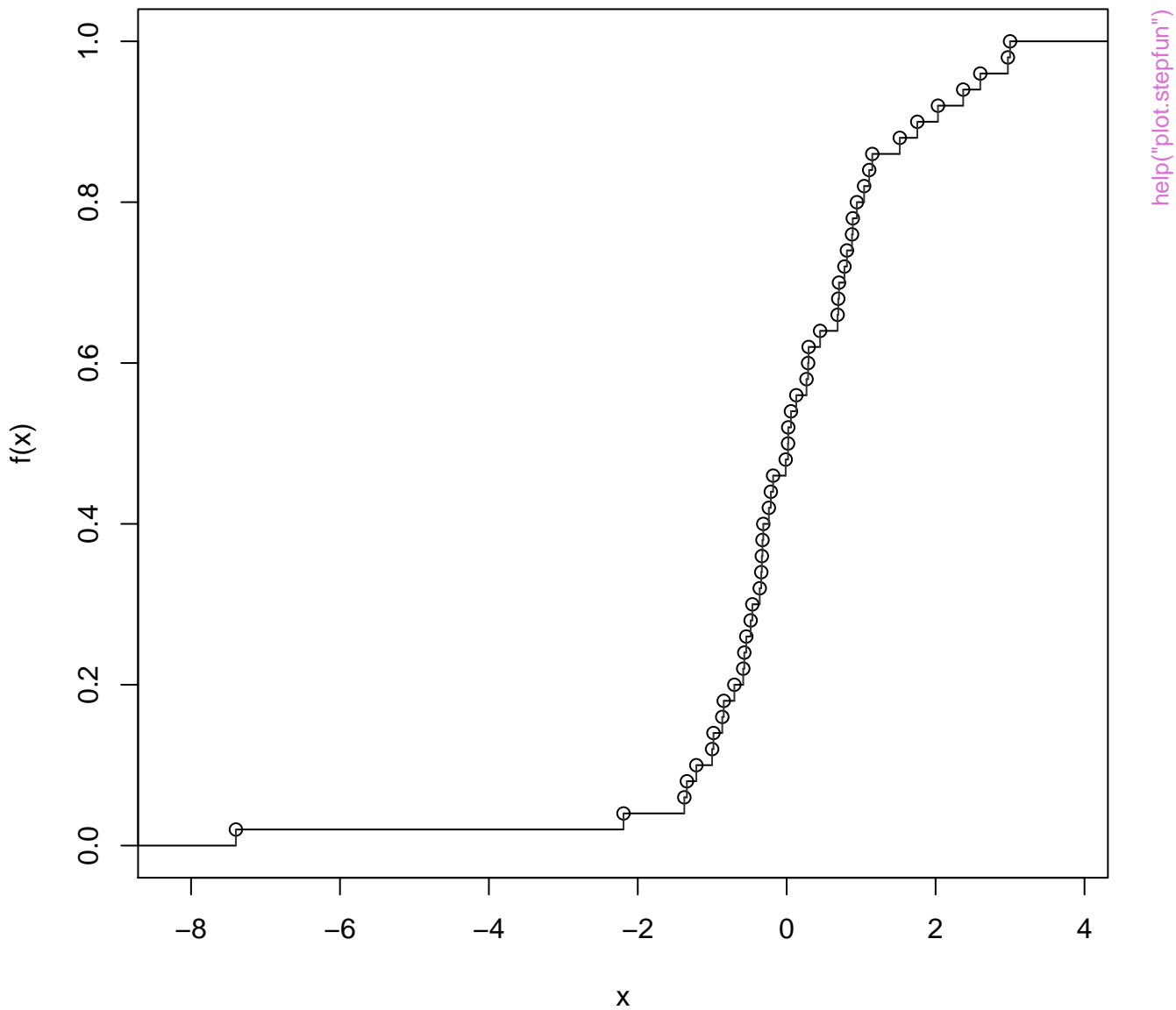
stepfun(x, y0, f=f) for f = 0, .2, 1

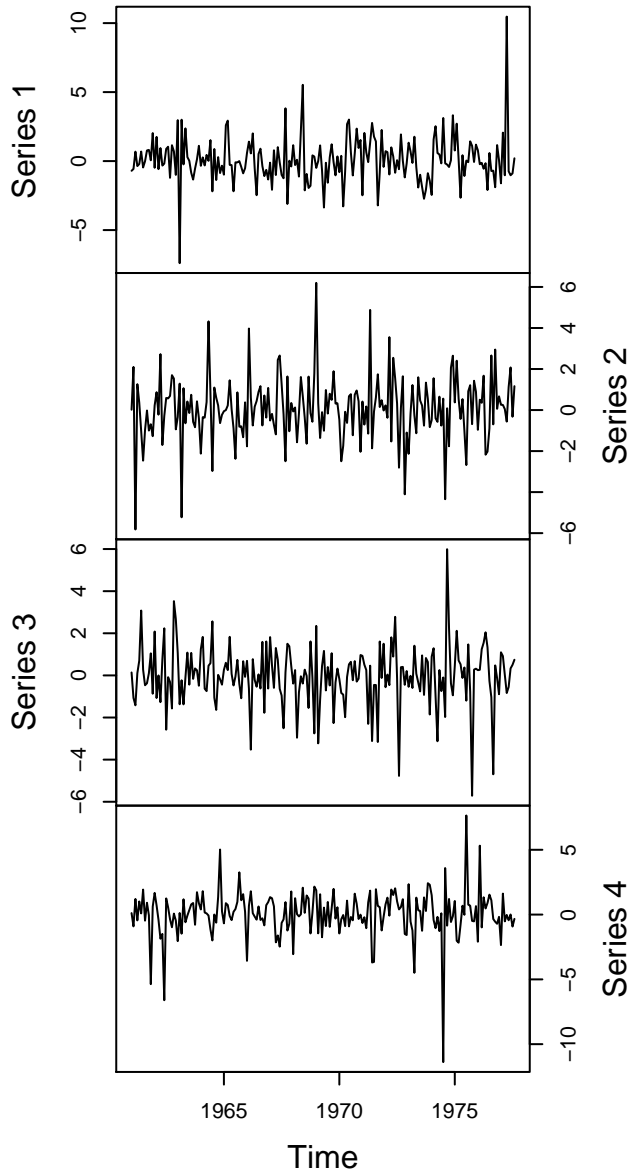


`plot(stepfun(*), xlim= . , ylim = .)`

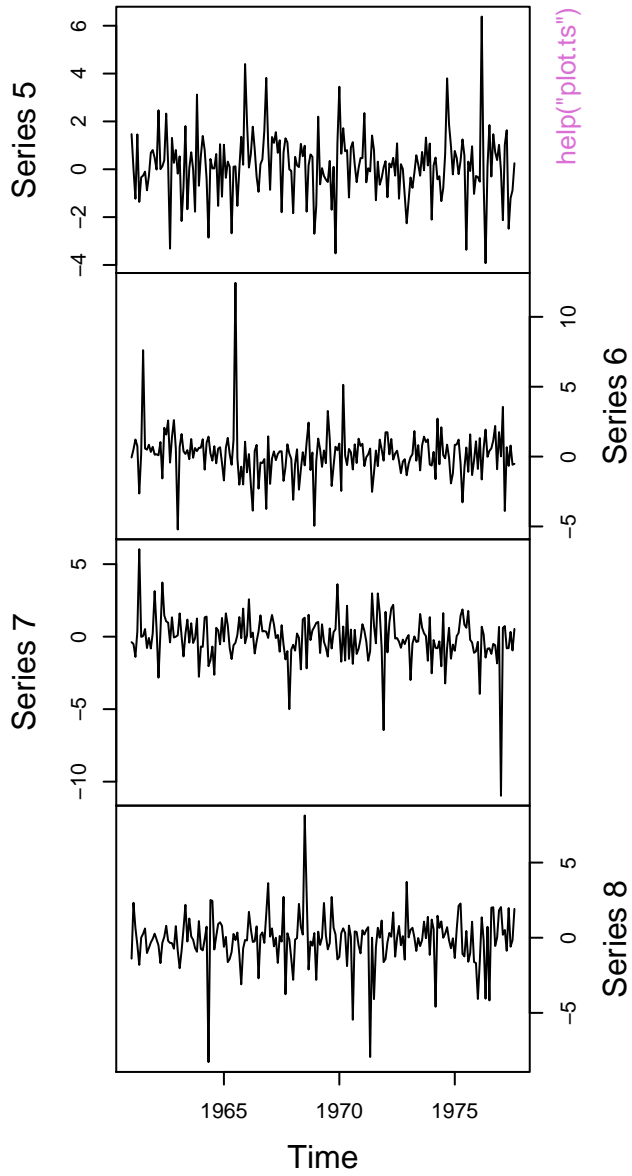


ecdf(rt(50, df = 3))

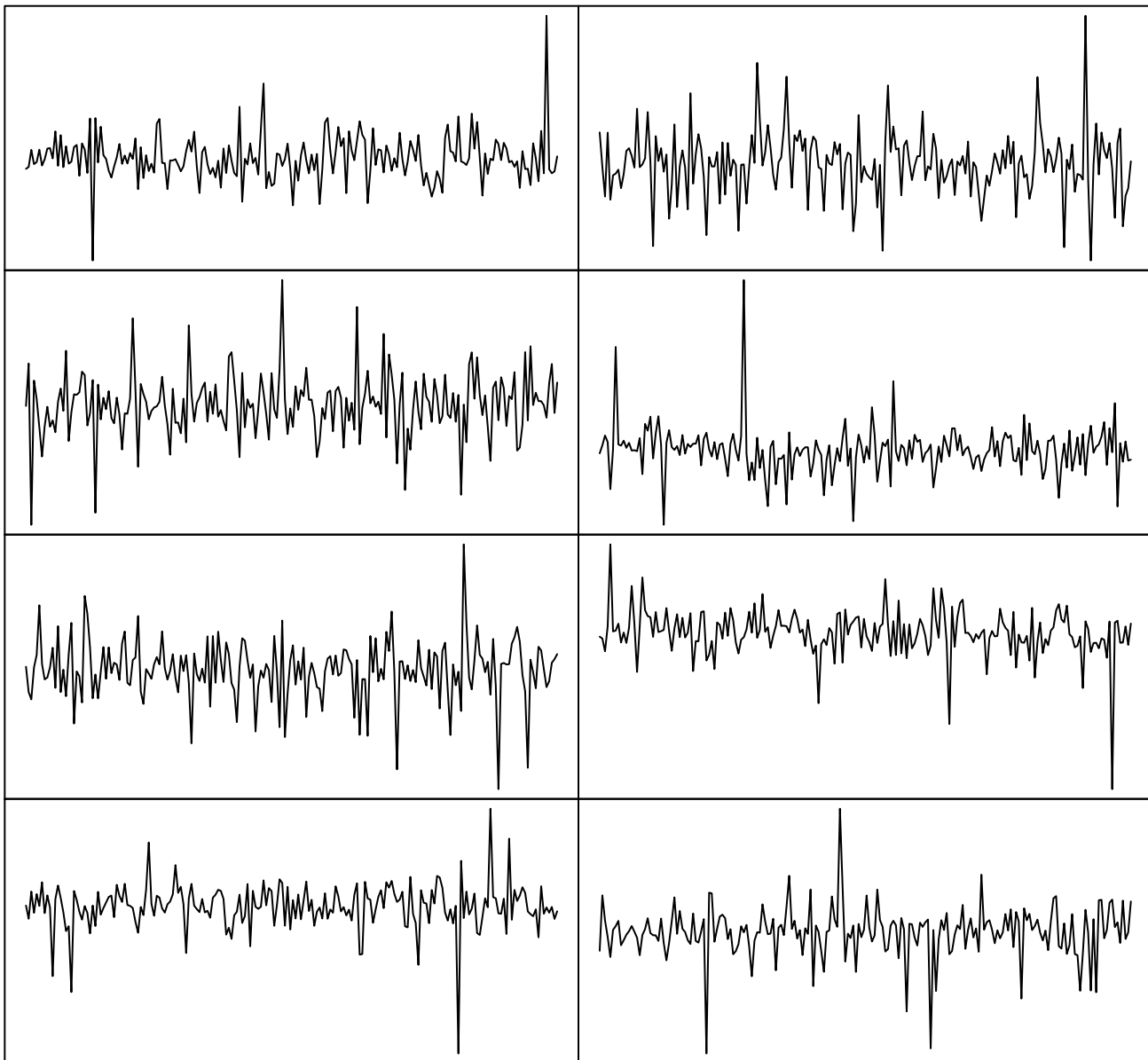




z

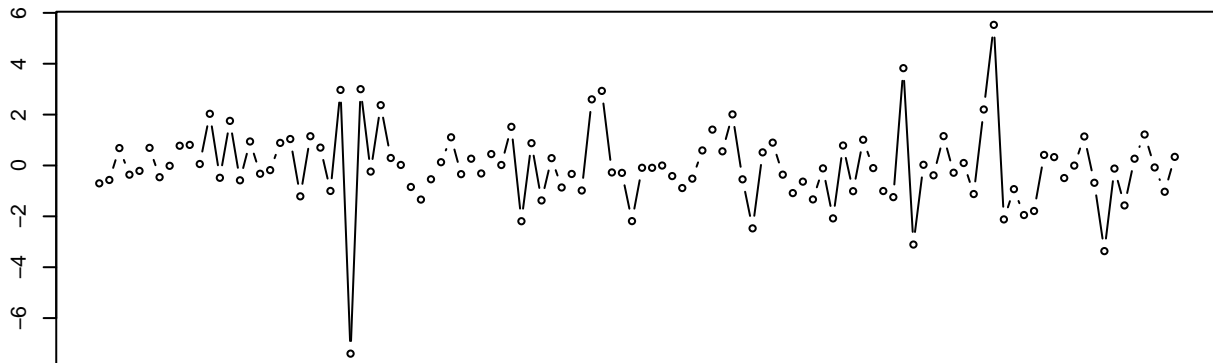


plot(ts(..), axes=FALSE, ann=FALSE, frame.plot=TRUE, mar..., oma...)

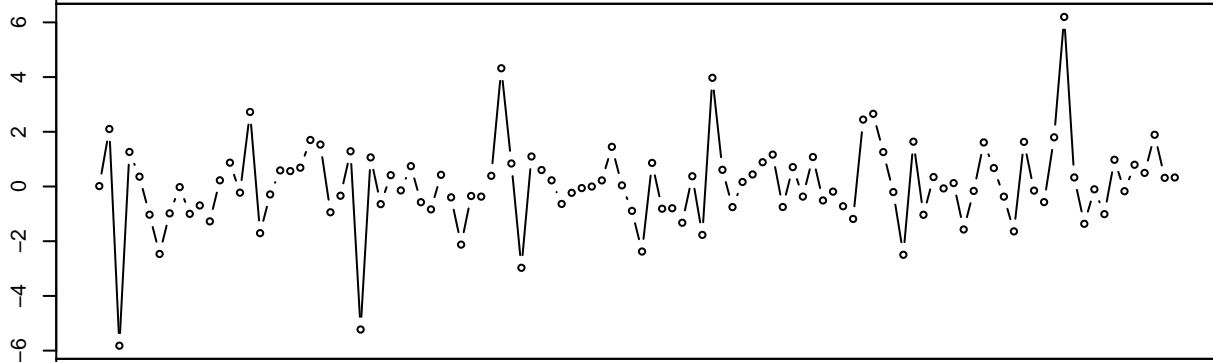


z

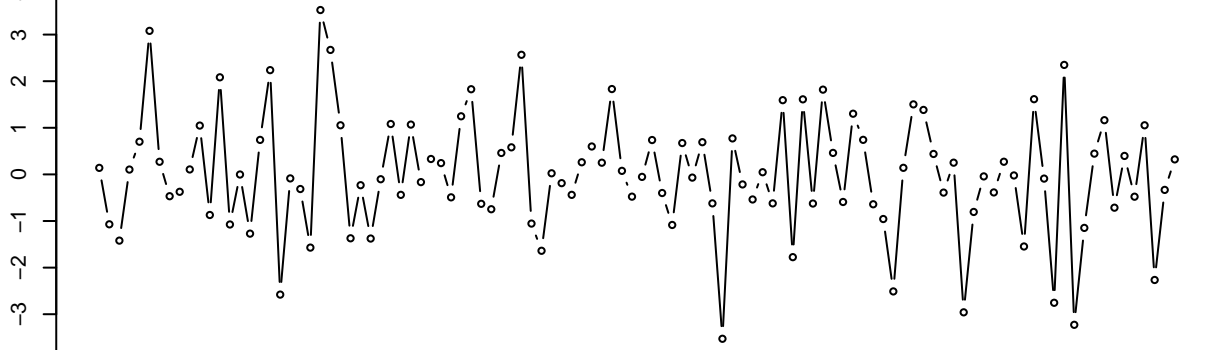
Series 1



Series 2



Series 3



1962

1964

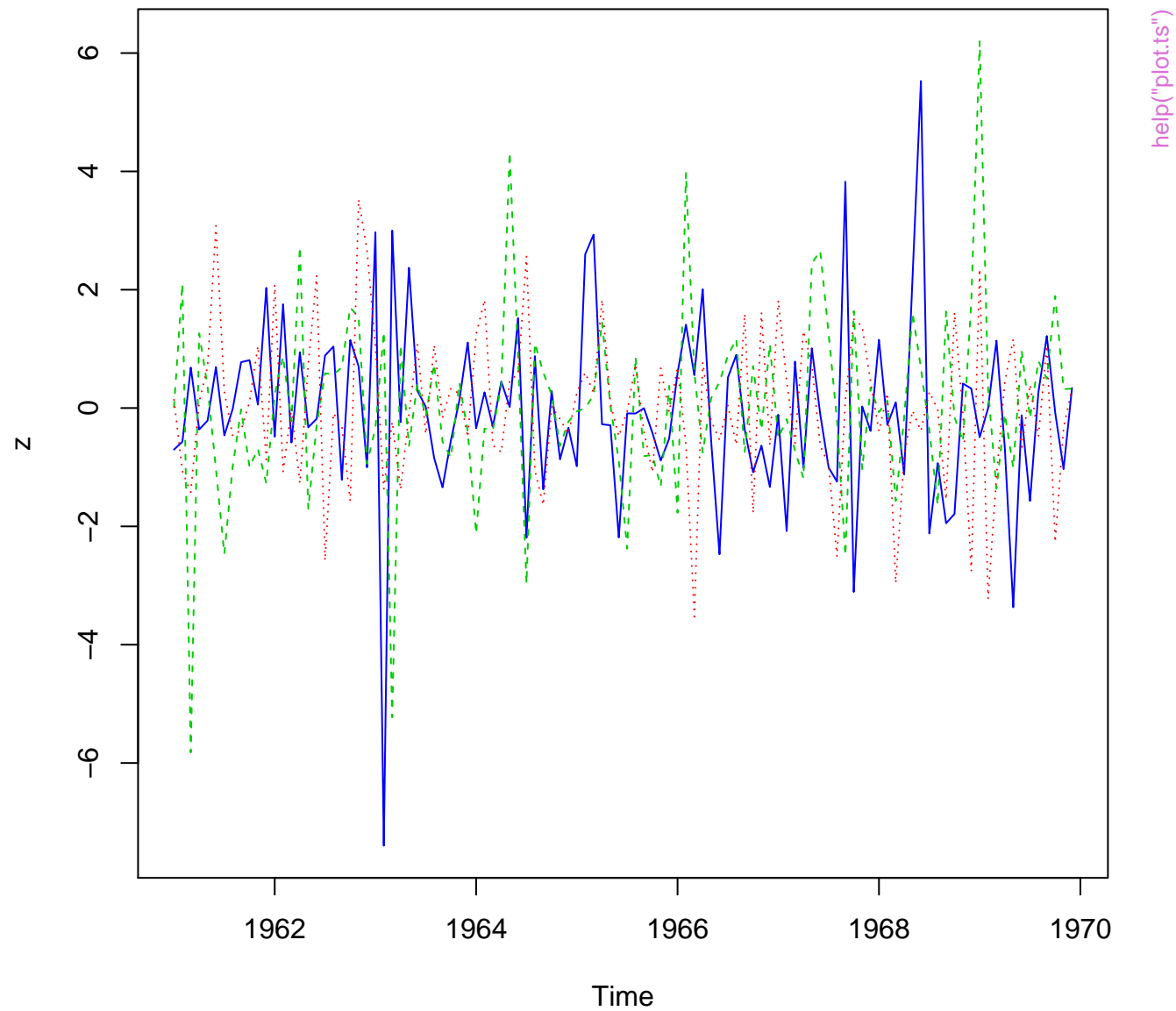
1966

1968

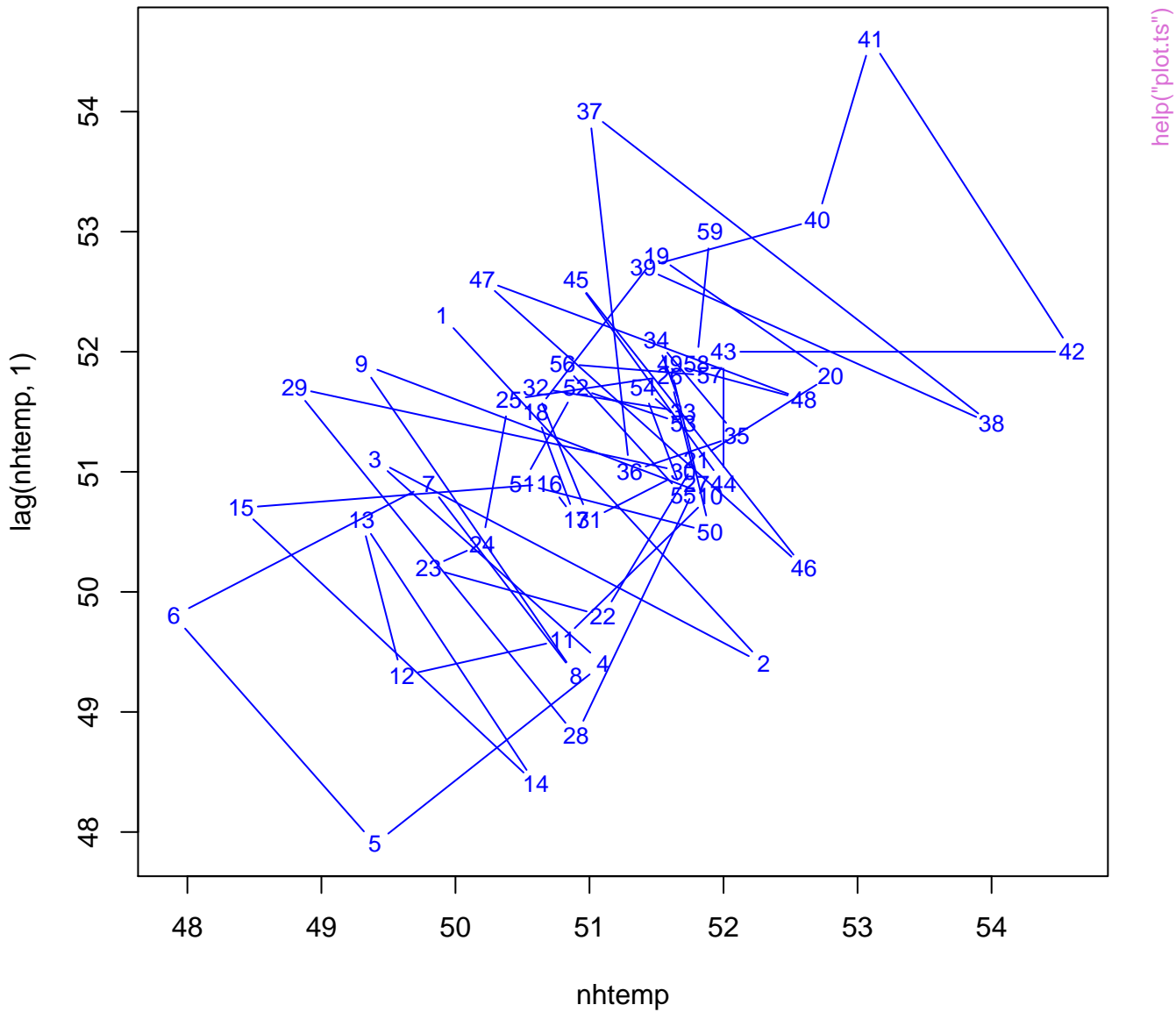
1970

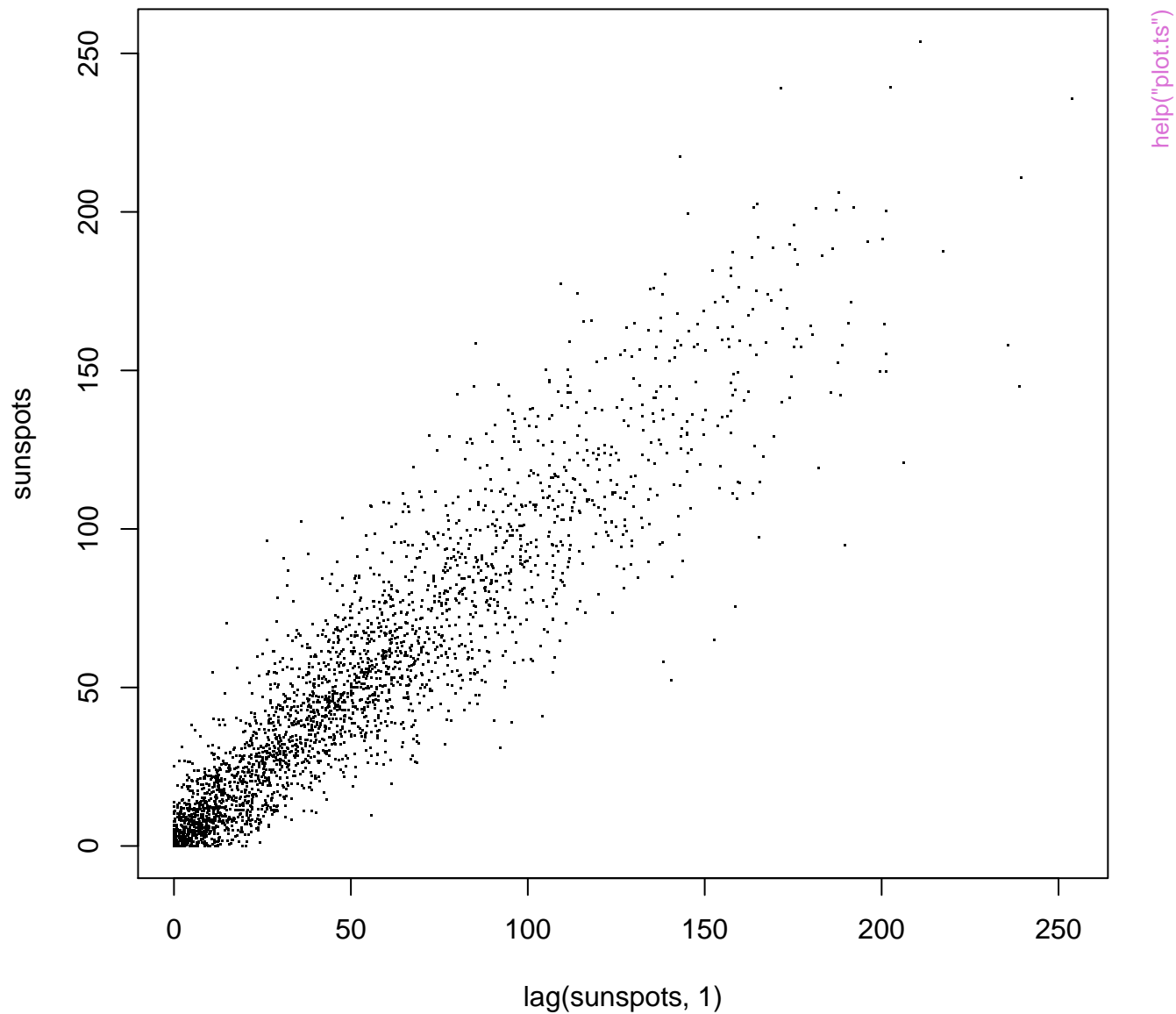
Time

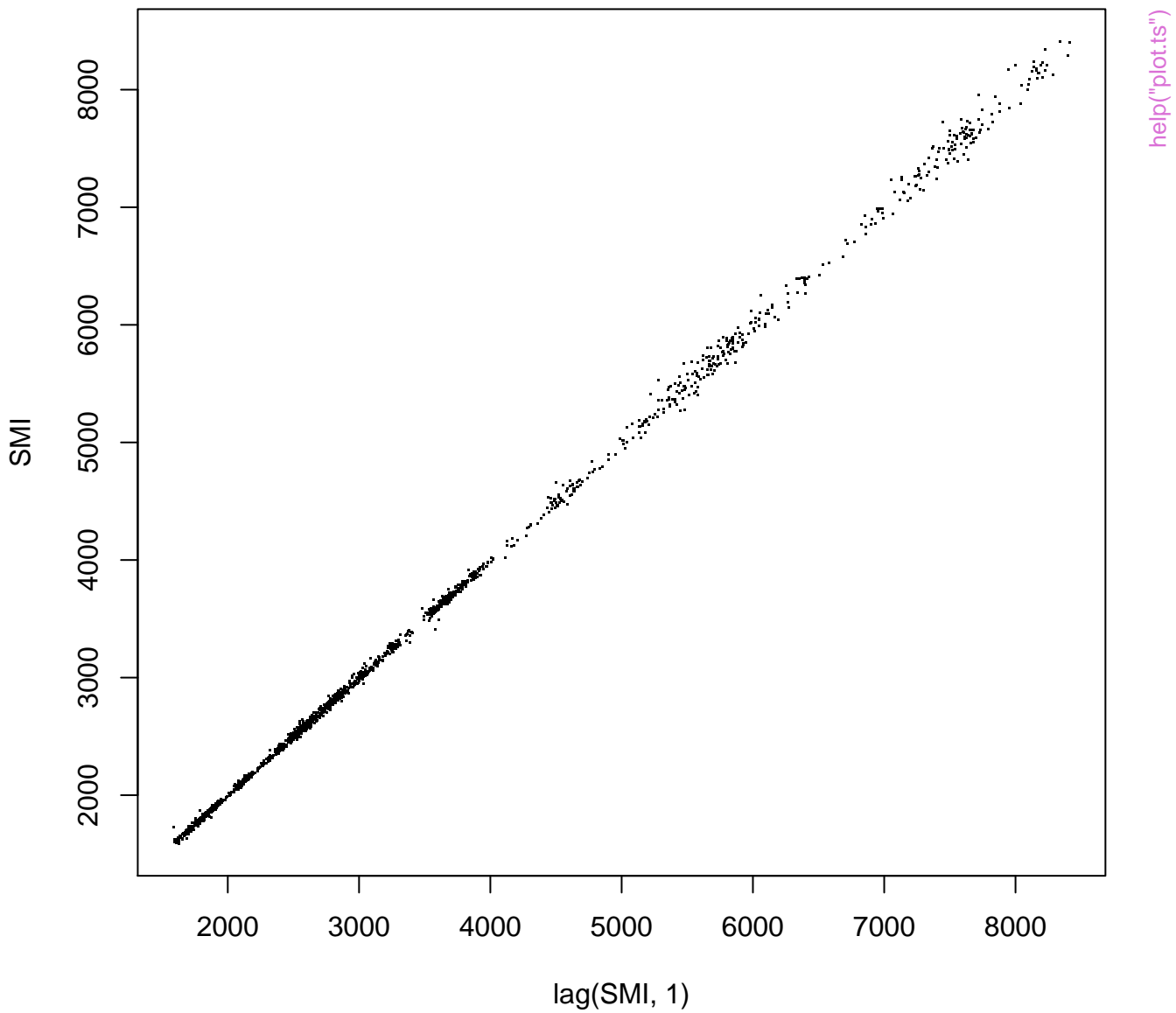
[help\("plot.ts"\)](#)



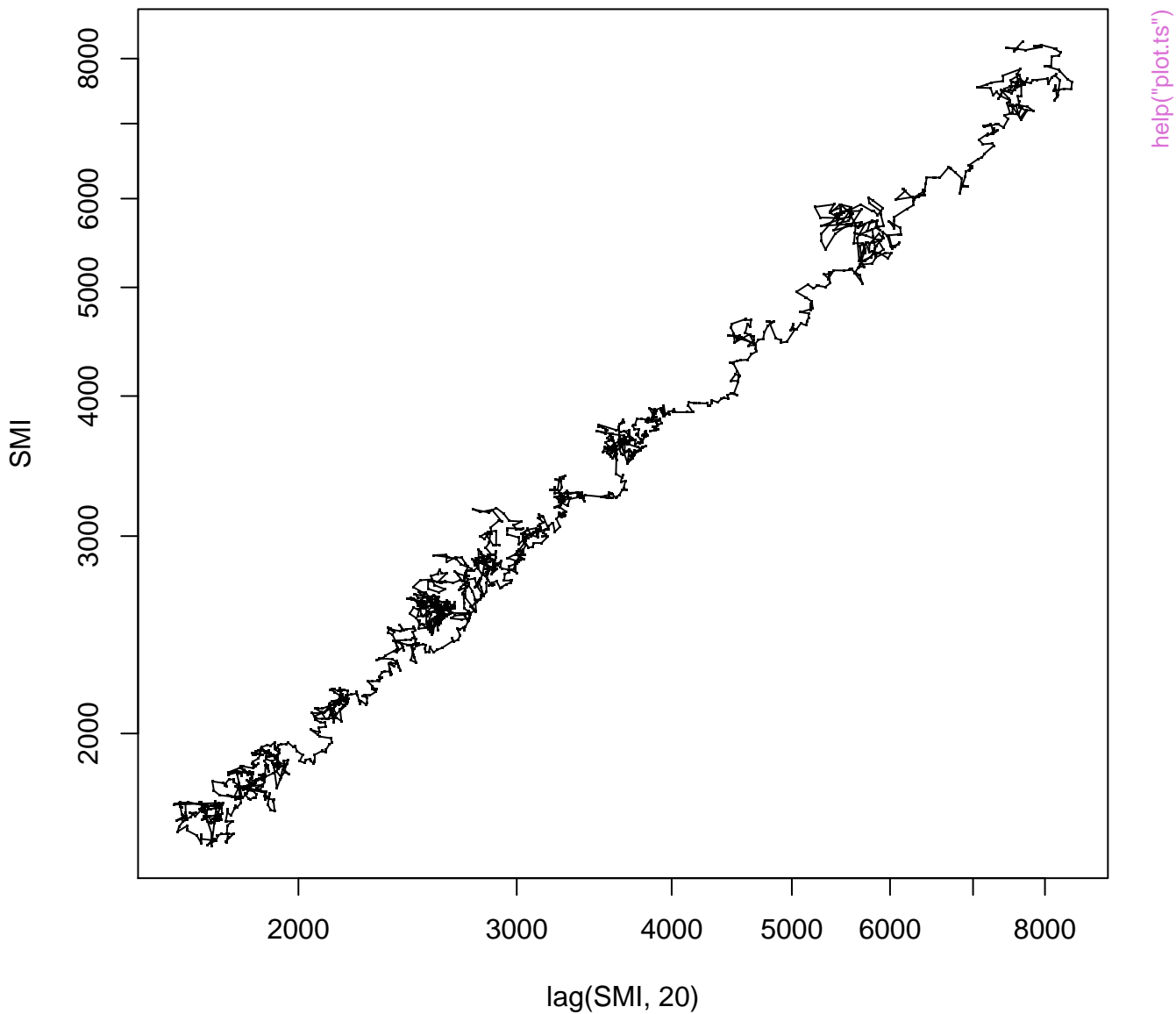
Lag plot of New Haven temperatures



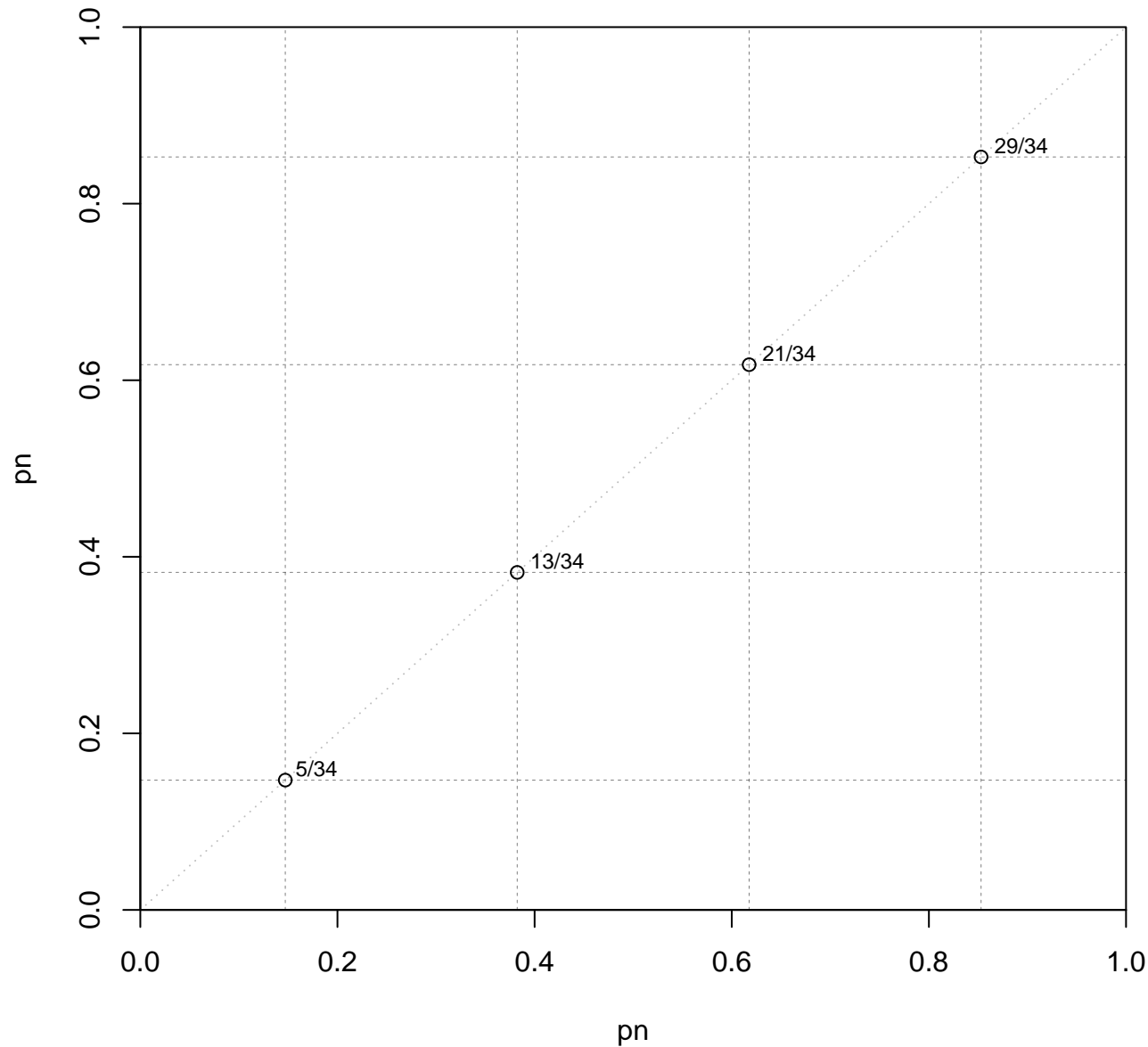




4 weeks lagged SMI stocks -- log scale

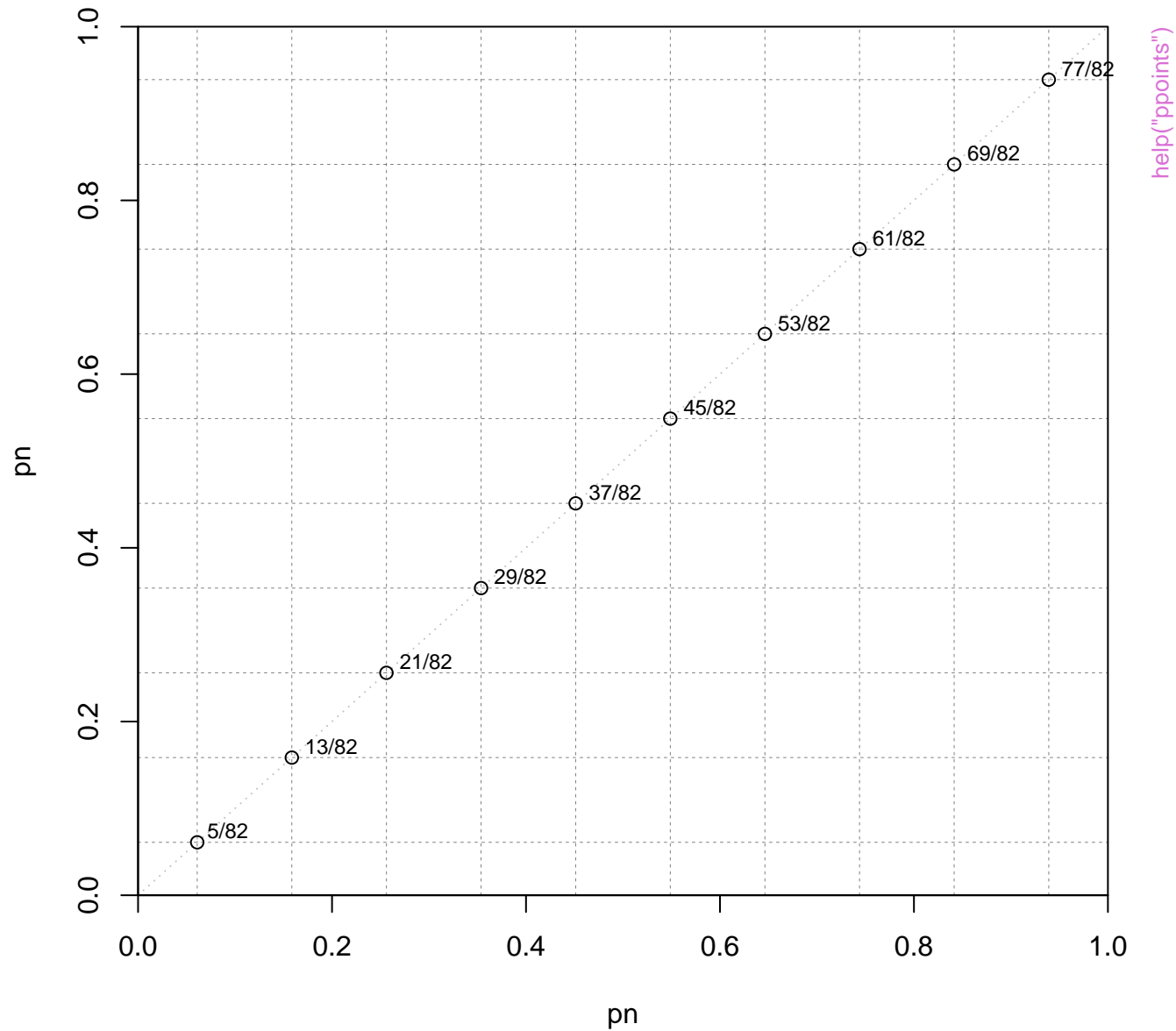


ppoints(n = 4)



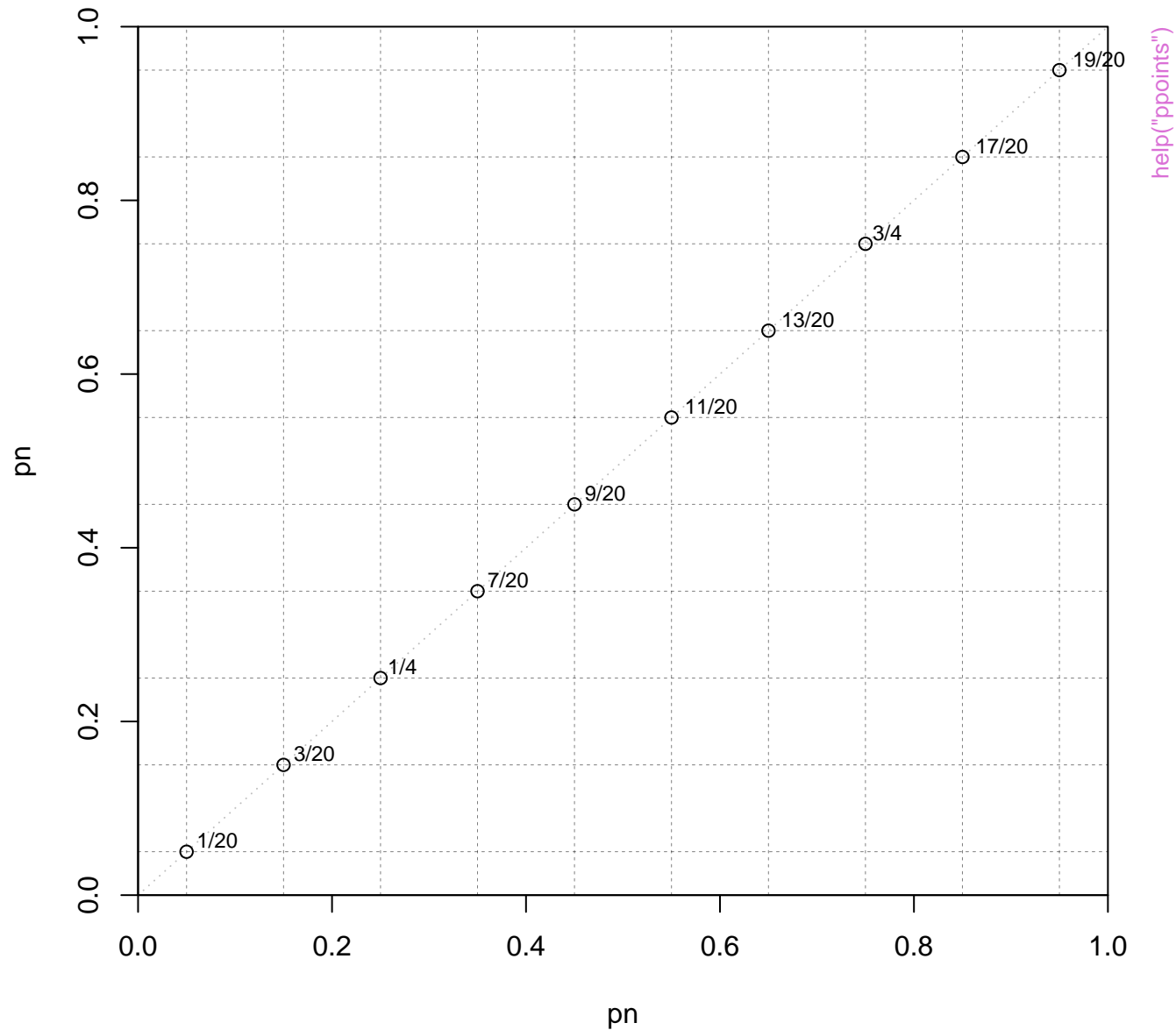
help("ppoints")

ppoints(n = 10)

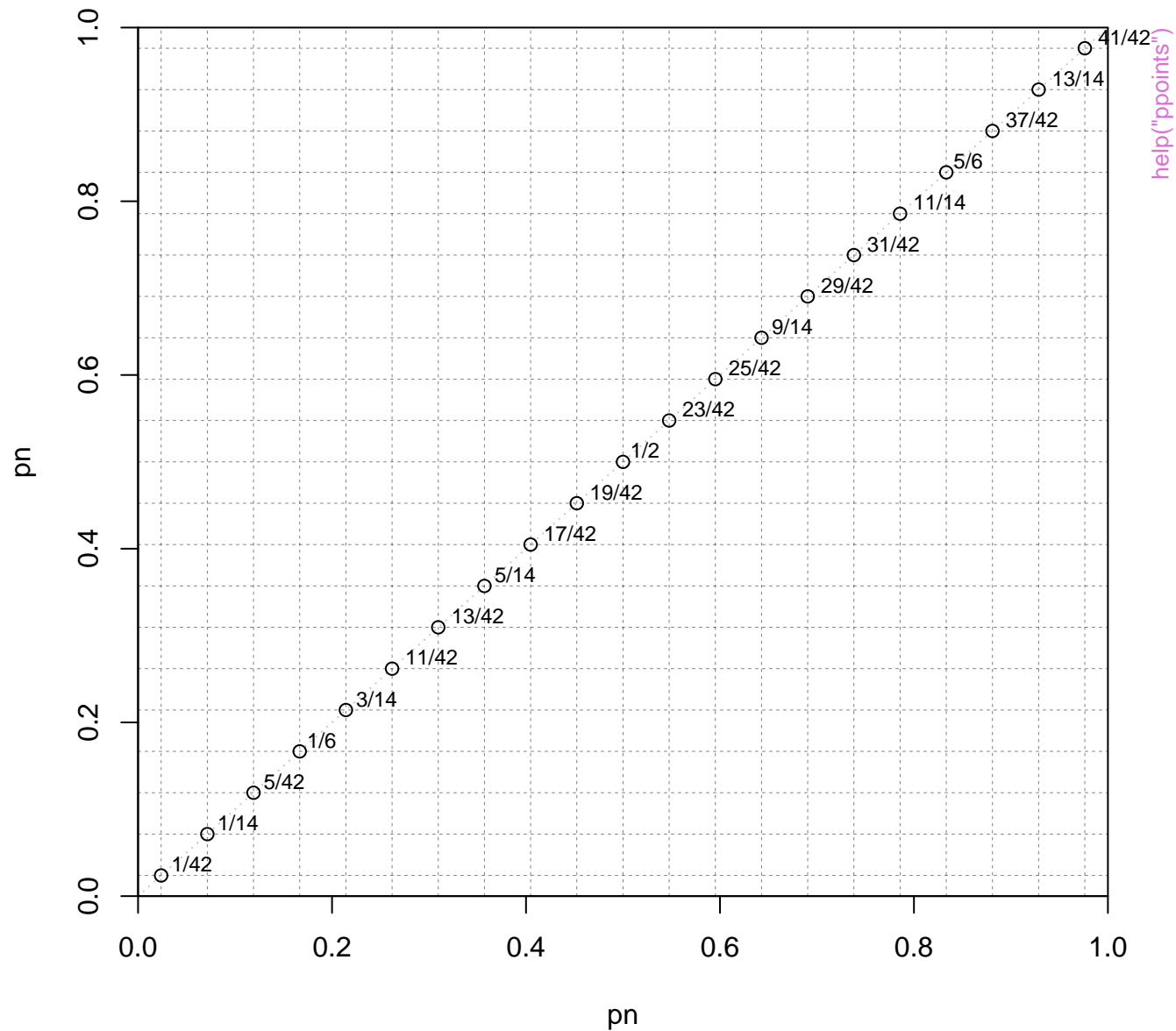


help("ppoints")

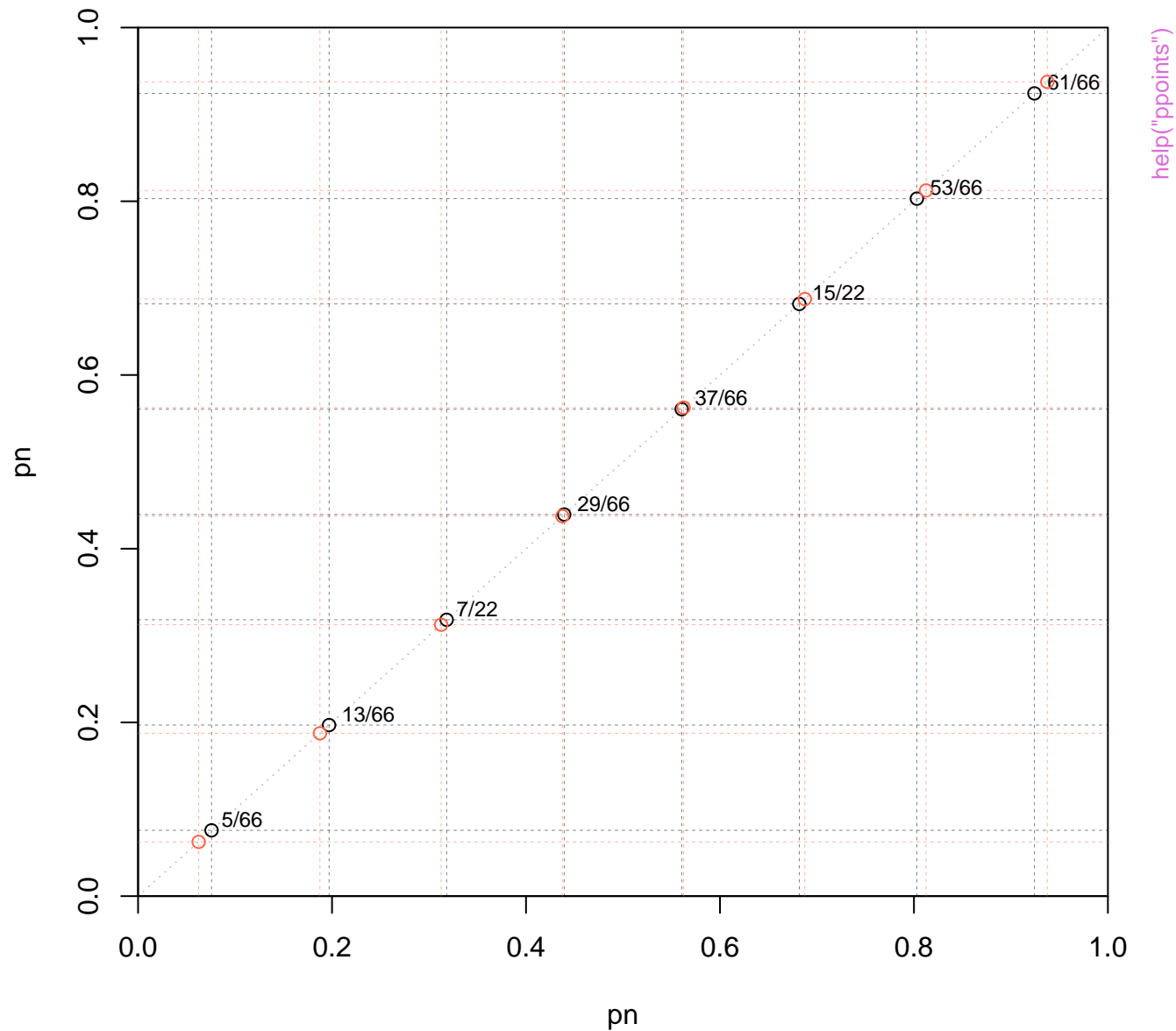
ppoints(n = 10, a = 1/2)



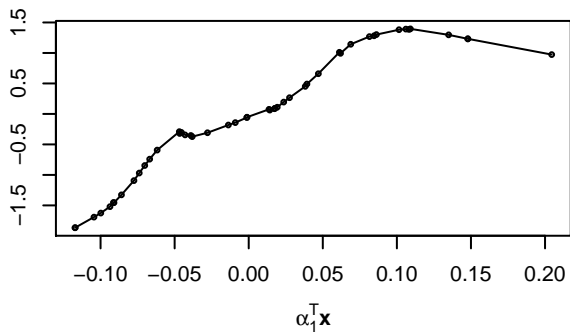
ppoints(n = 21)



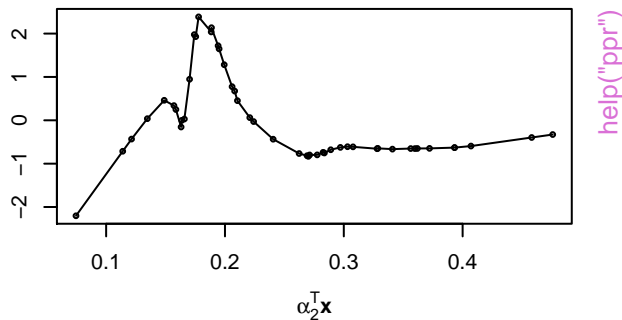
ppoints(n = 8)



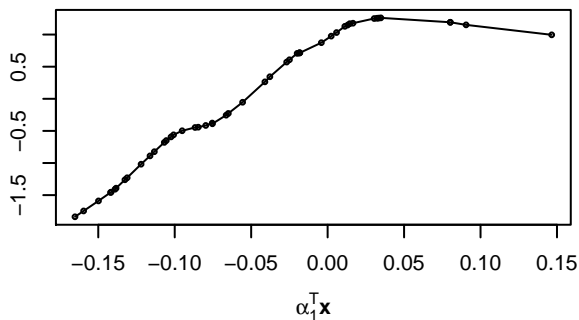
ppr(log(perm)~ ., nterms=2, max.terms=5)



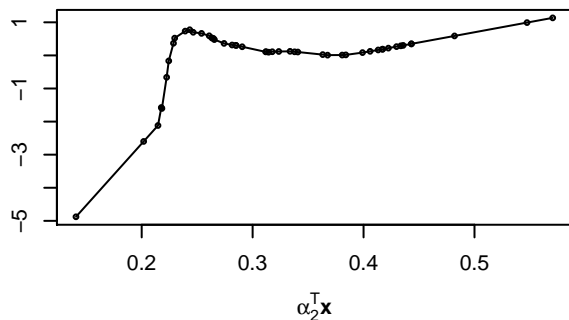
ppr(log(perm)~ ., nterms=2, max.terms=5)



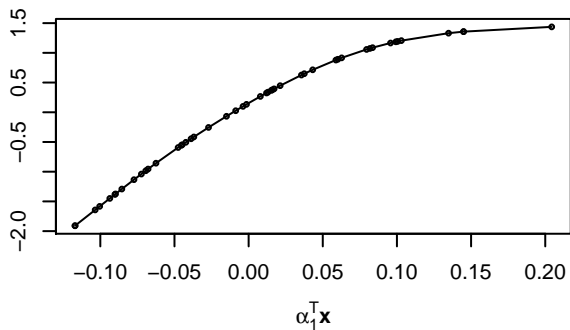
update(..., bass = 5)



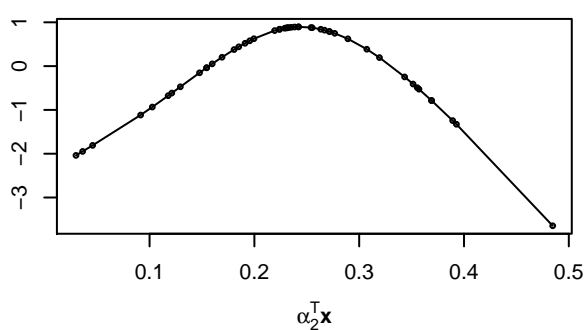
update(..., bass = 5)



update(..., sm.method="gcv", gcvpen=2)

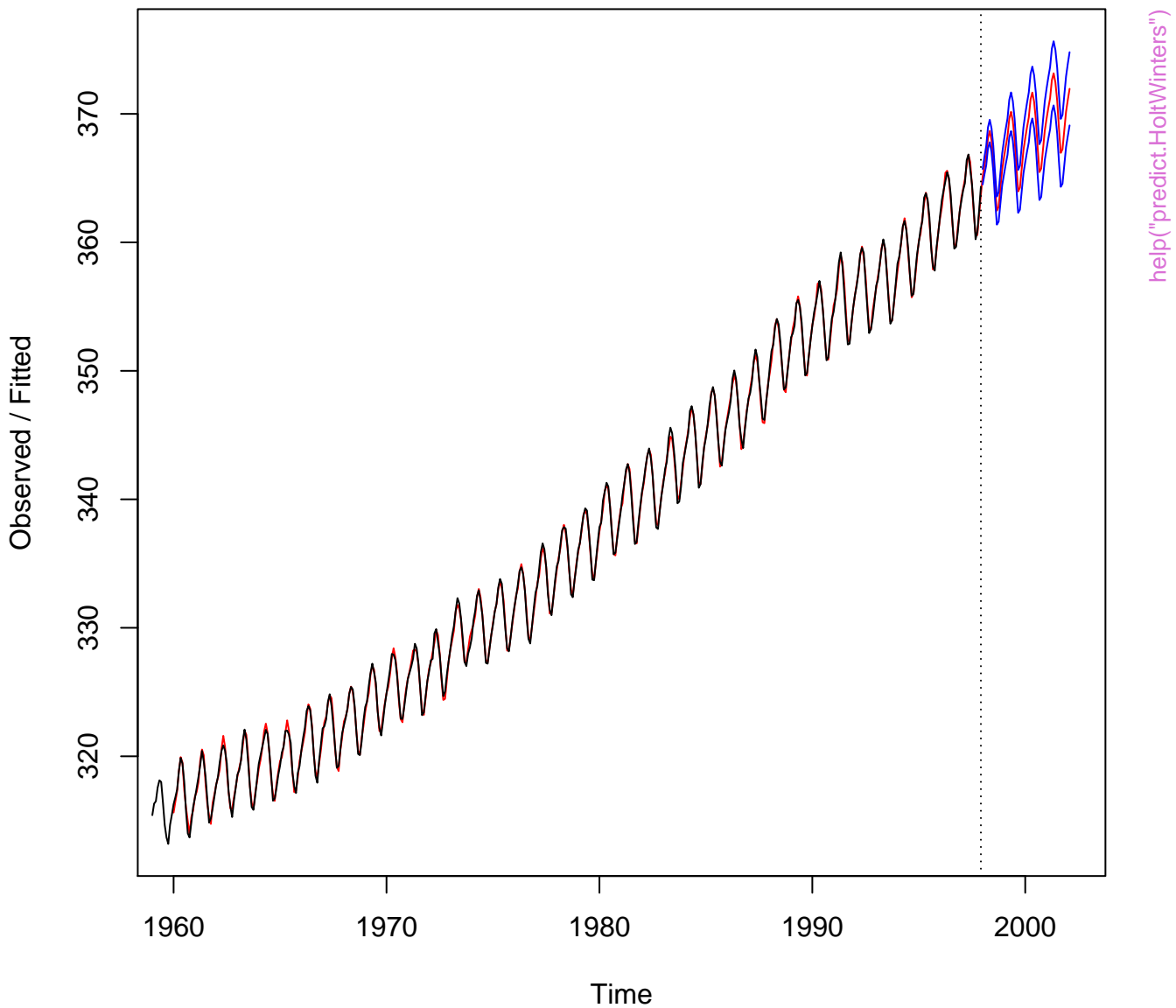


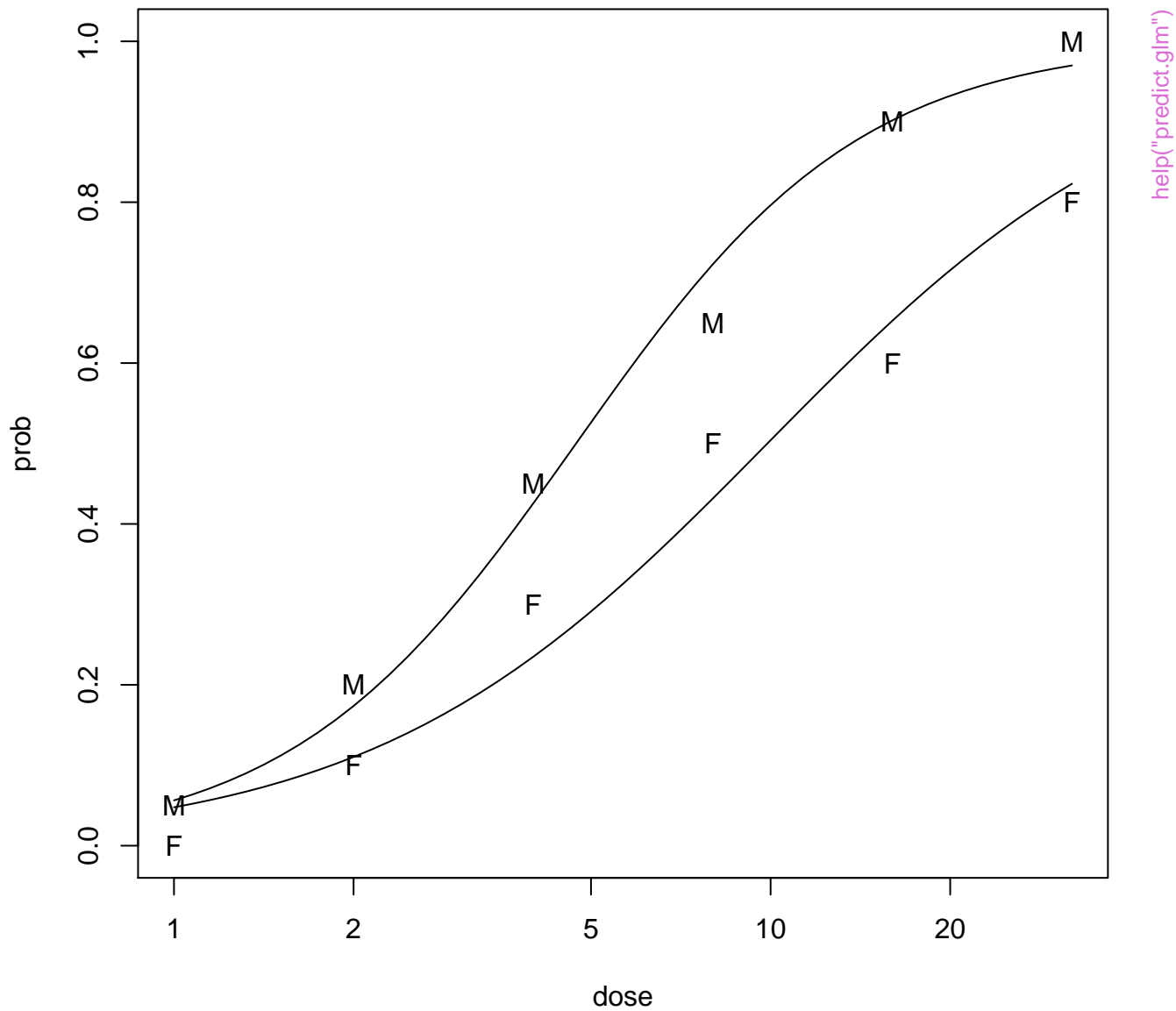
update(..., sm.method="gcv", gcvpen=2)

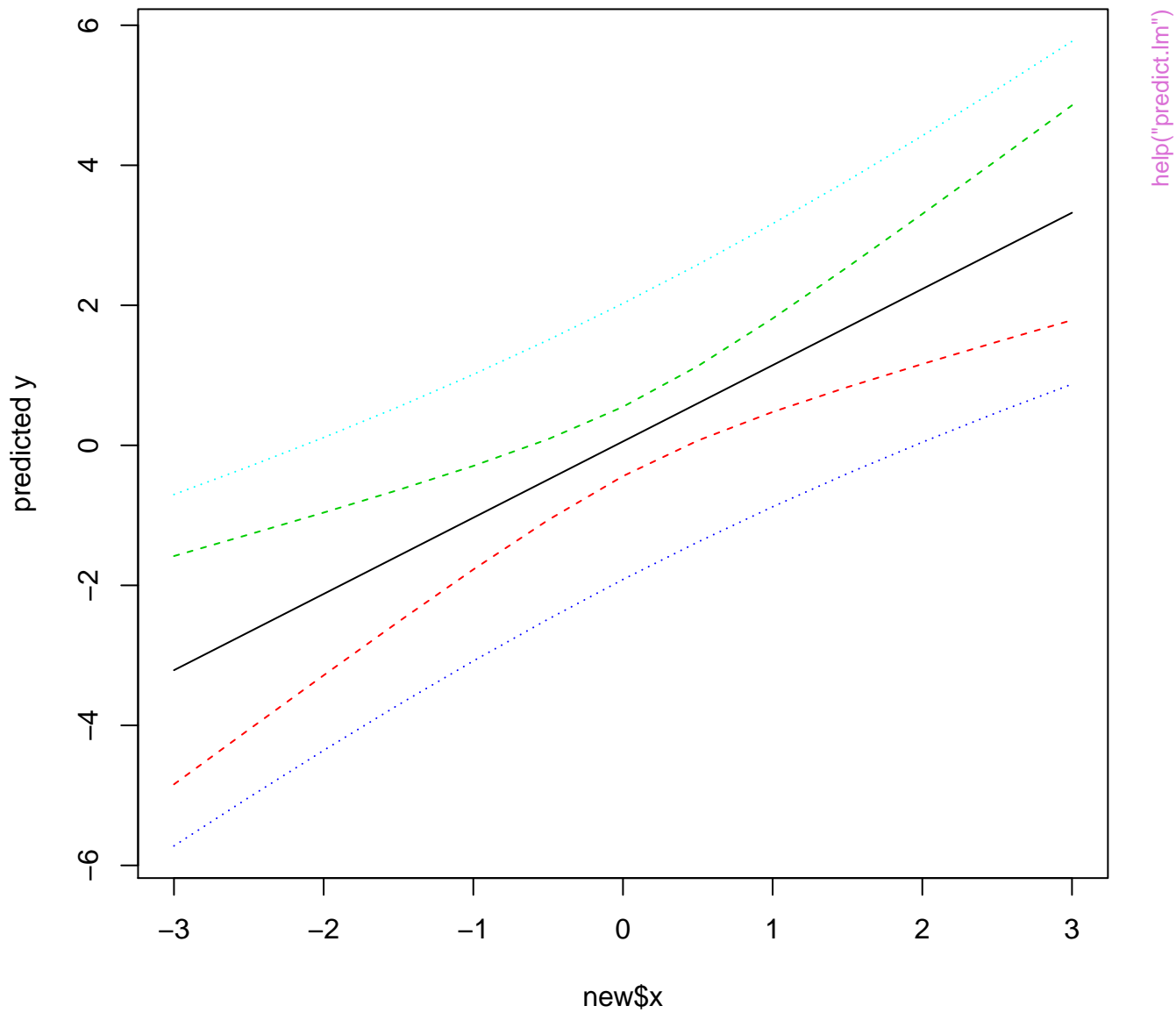


help("ppr")

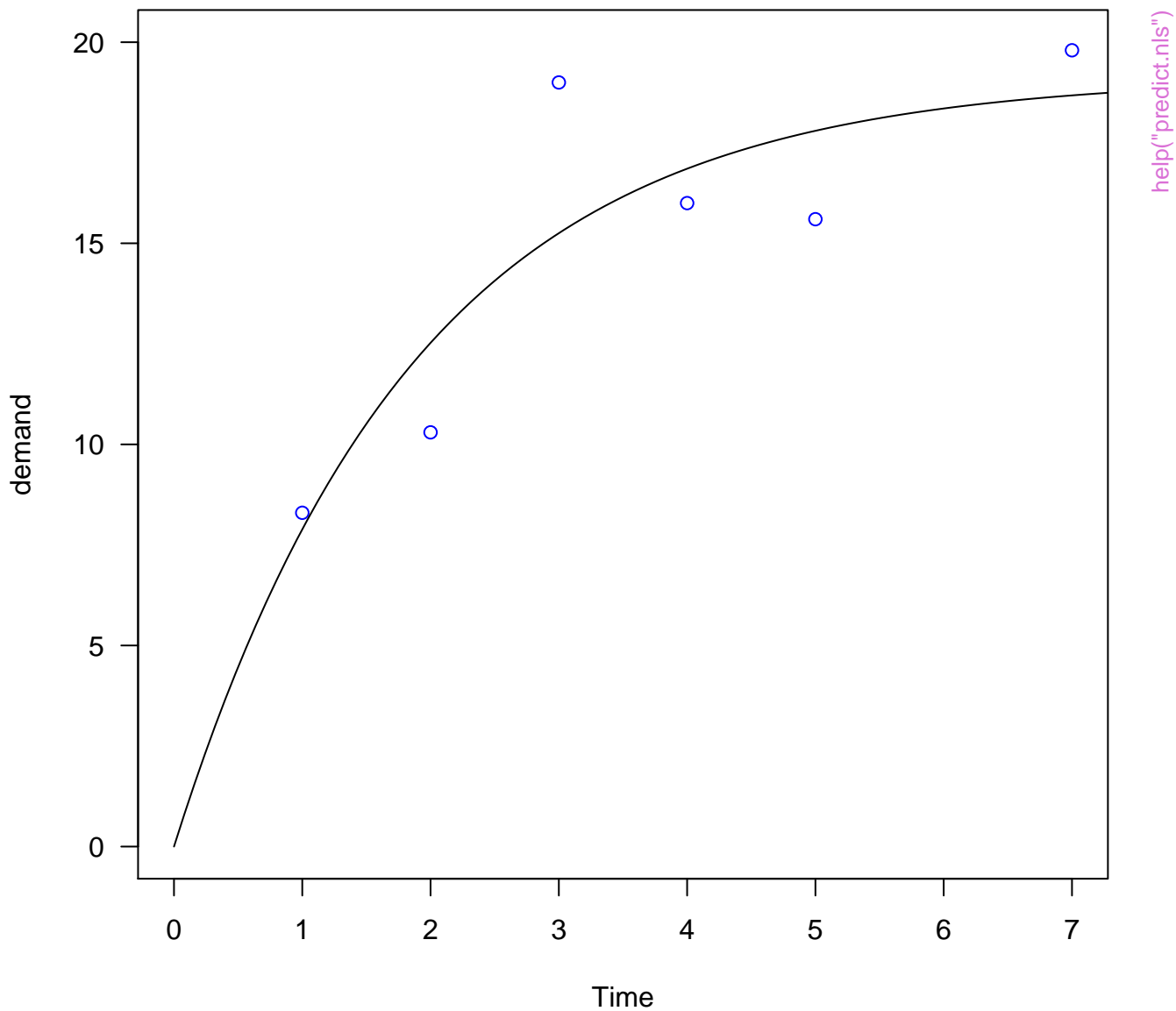
Holt-Winters filtering



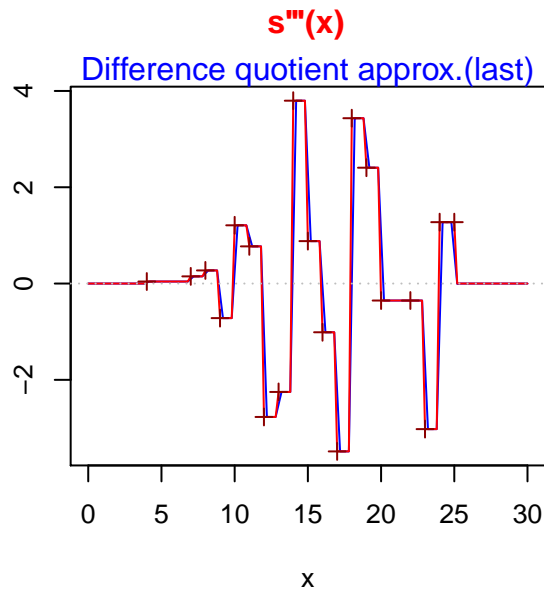
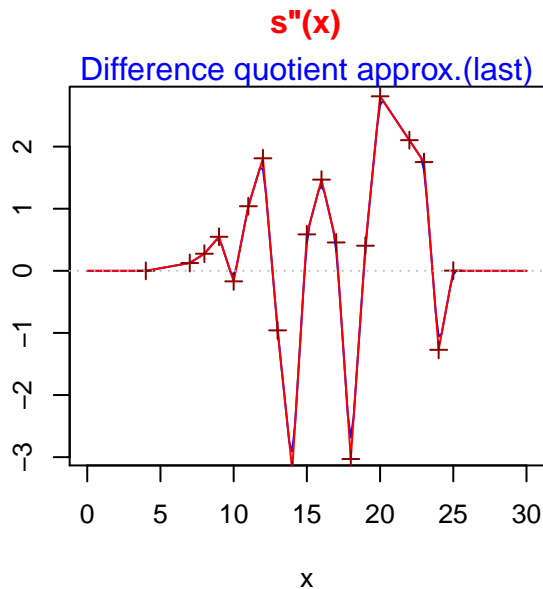
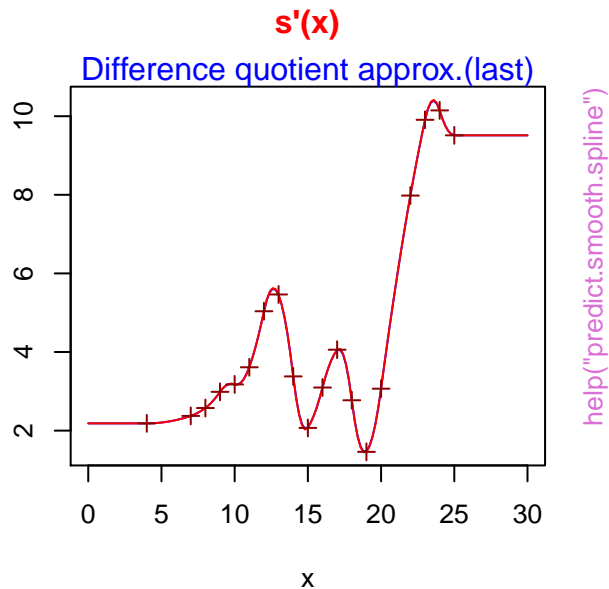
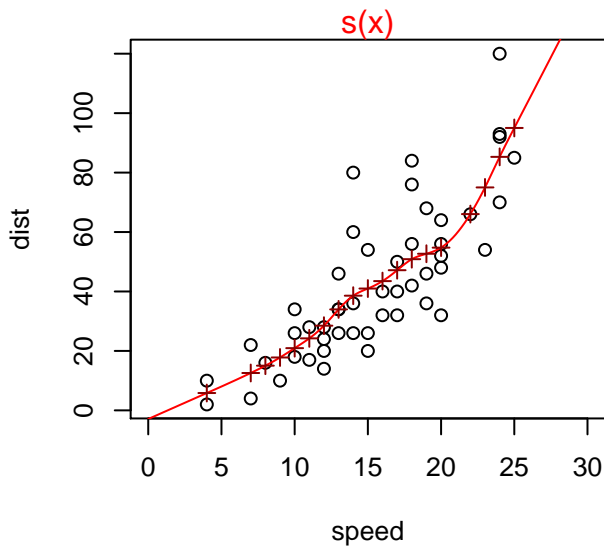




BOD data and fitted first-order curve

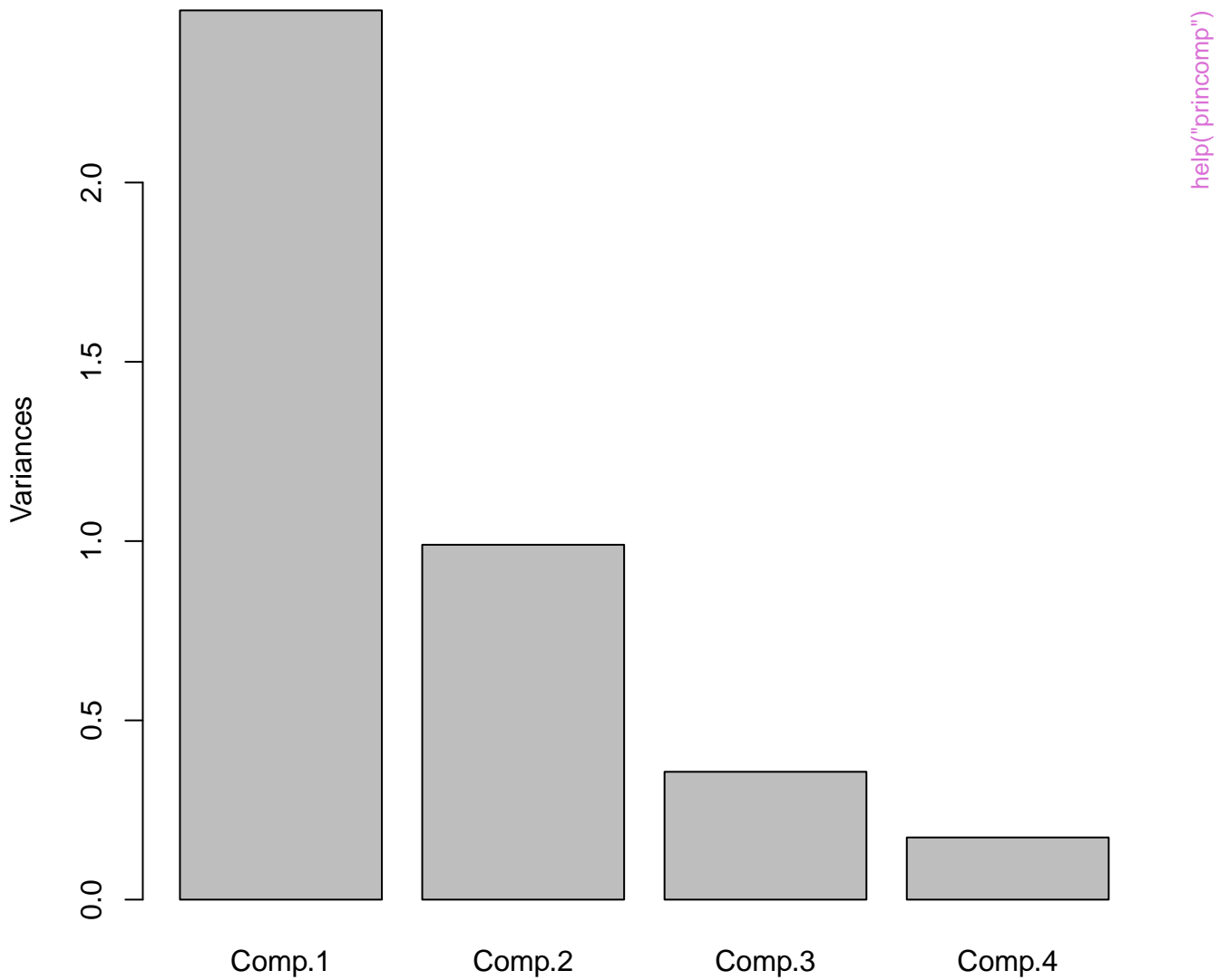


Smooth.spline & derivatives

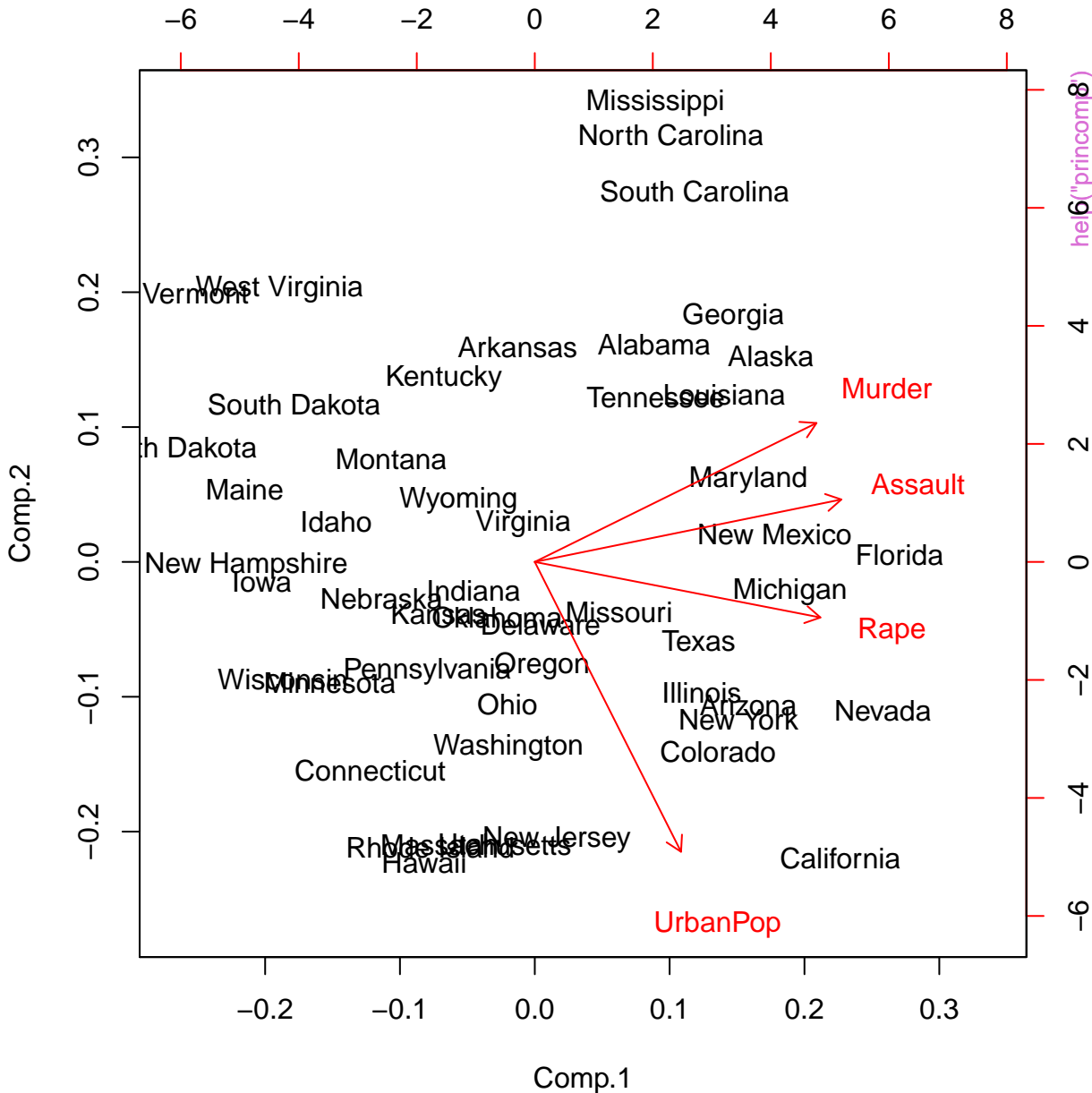


help("predict.smooth.spline")

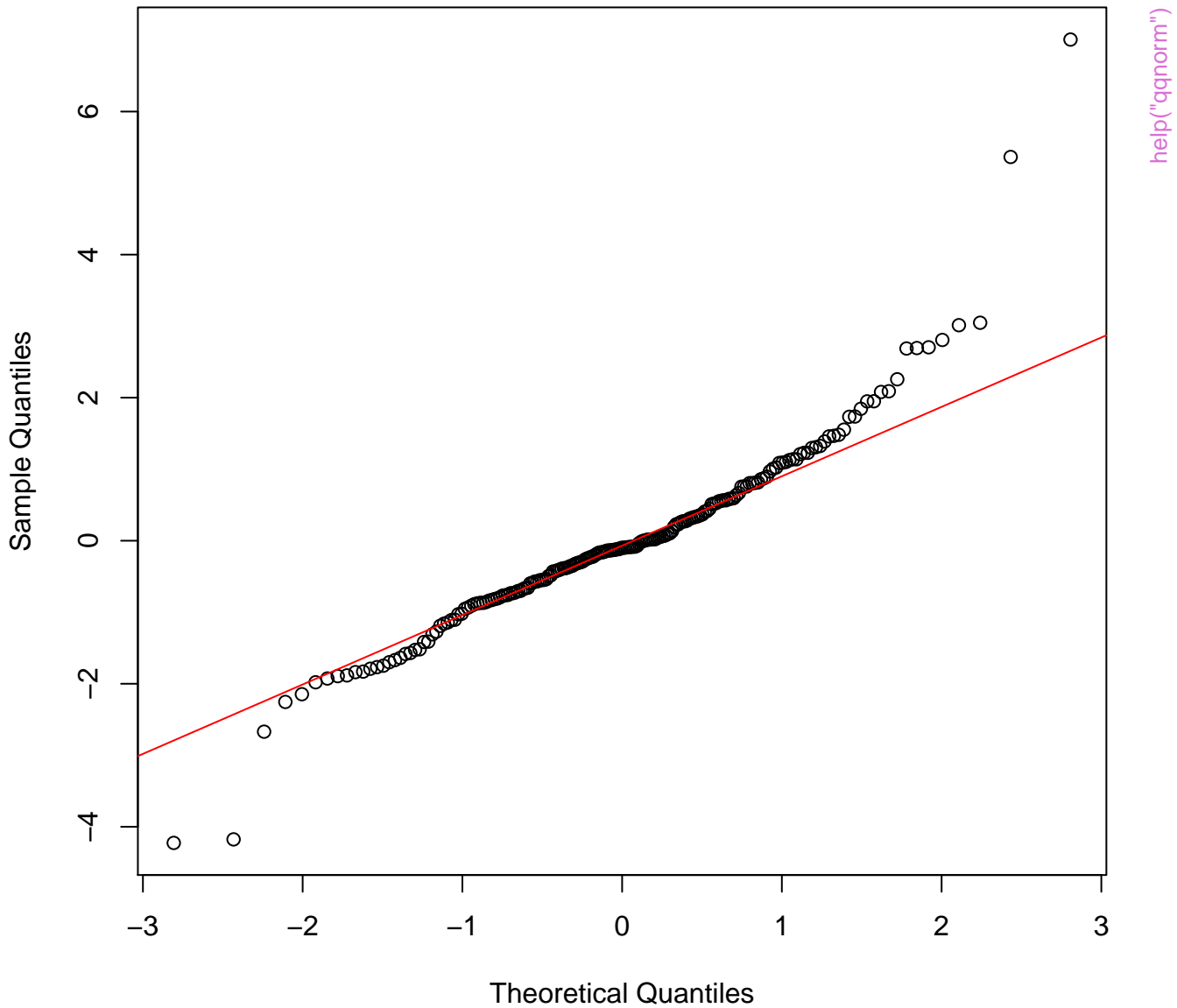
pc.cr

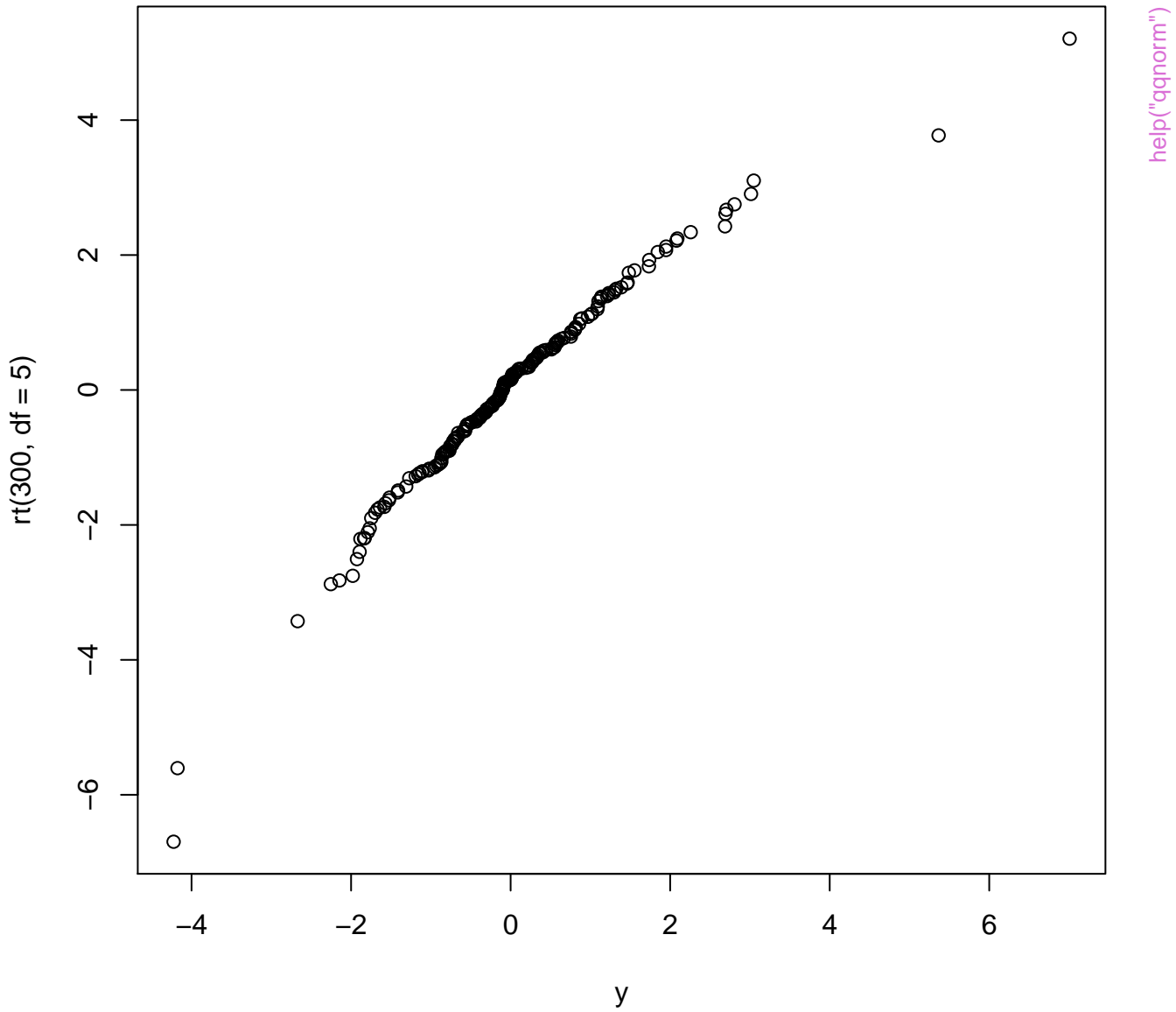


`help("princomp")`

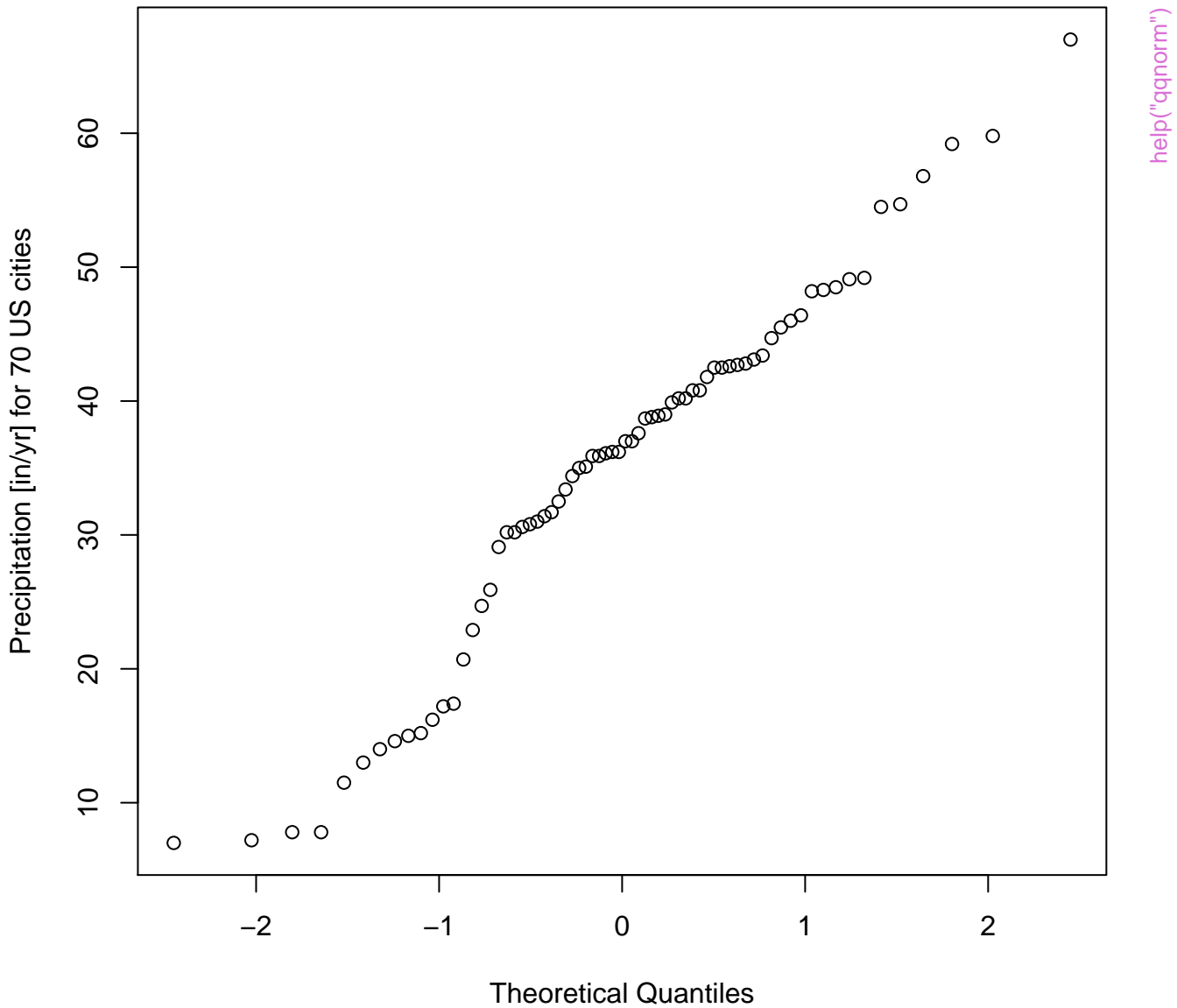


Normal Q-Q Plot





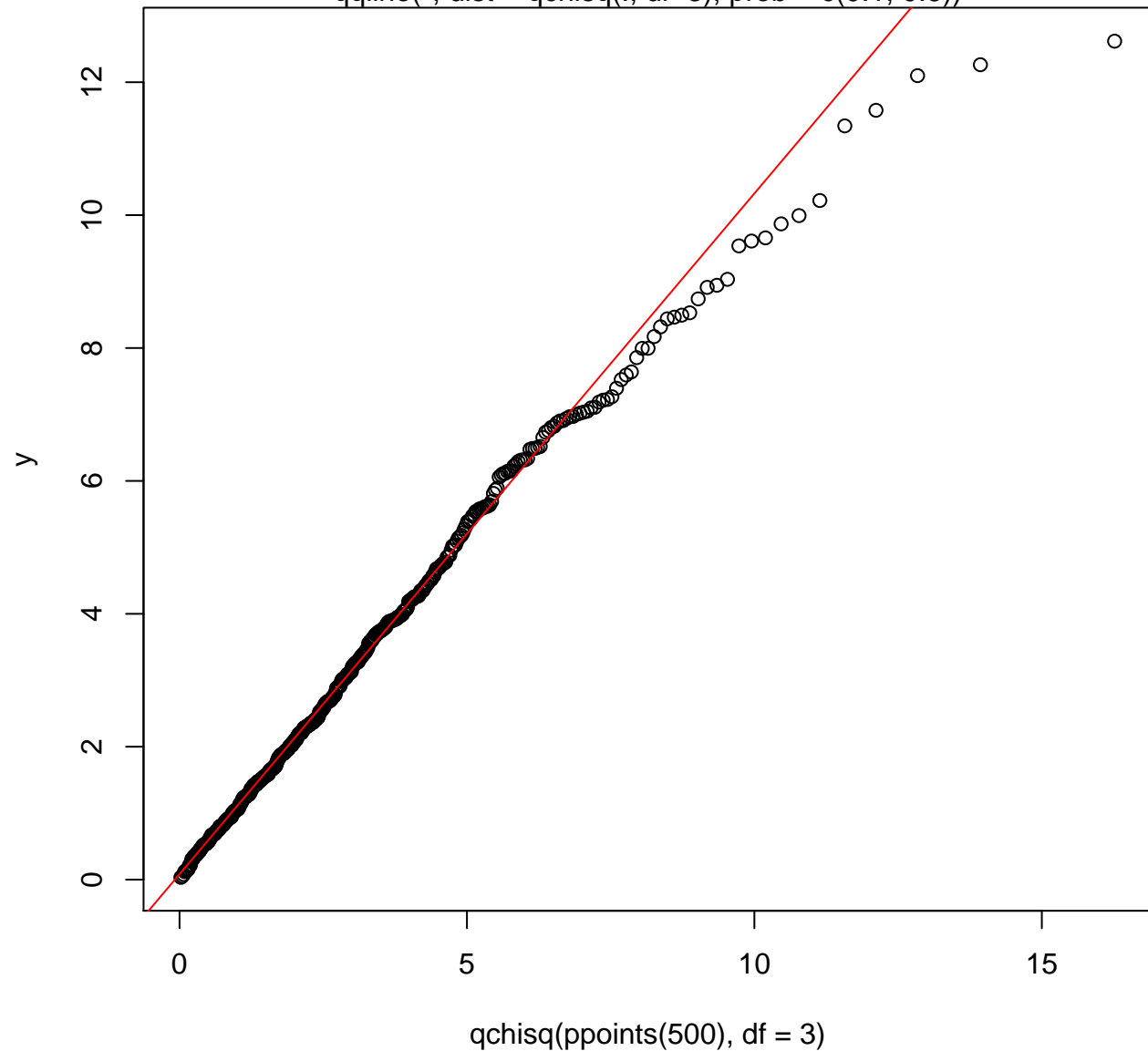
Normal Q-Q Plot



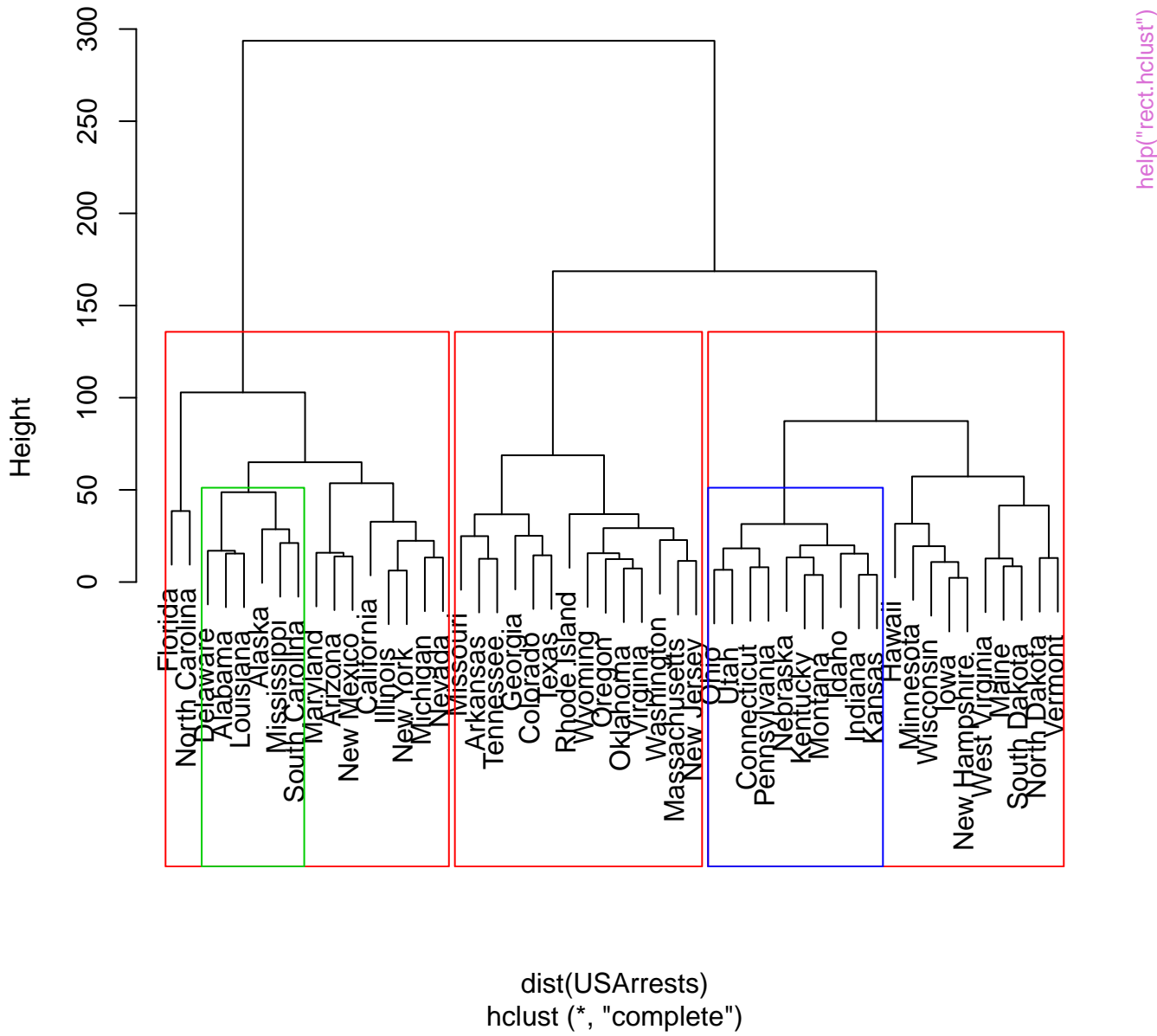
Q-Q plot for $\chi^2_{v=3}$

`qqline(*, dist = qchisq(., df=3), prob = c(0.1, 0.6))`

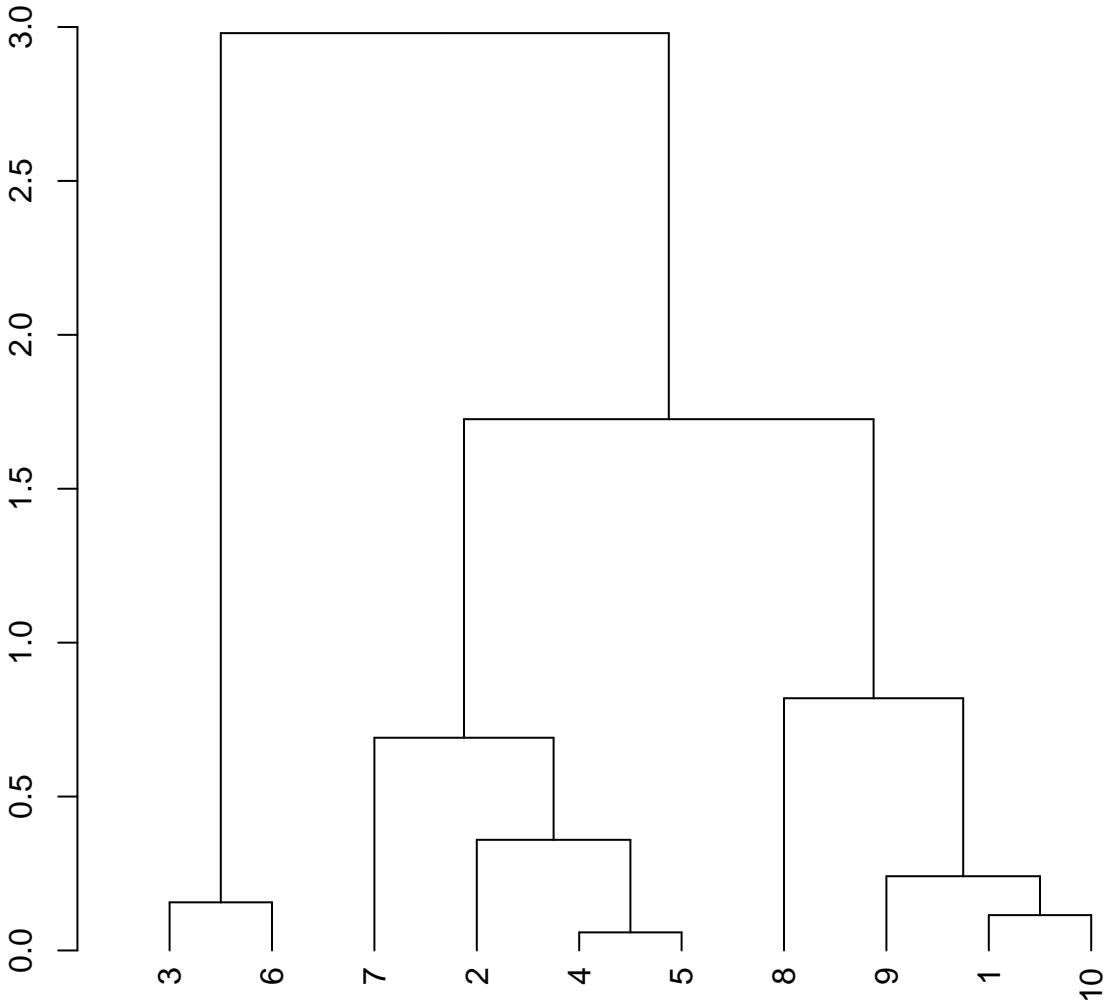
`help("qqnorm")`



Cluster Dendrogram

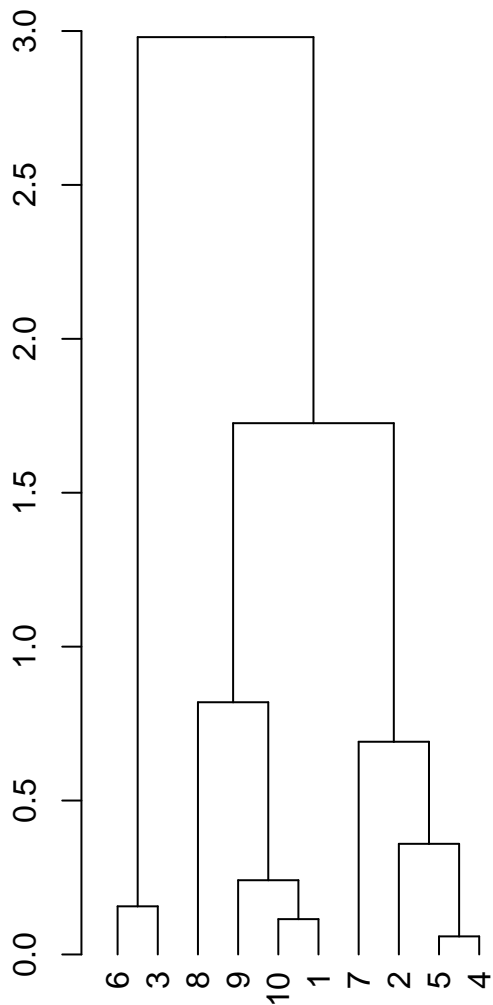


random dendrogram 'dd'

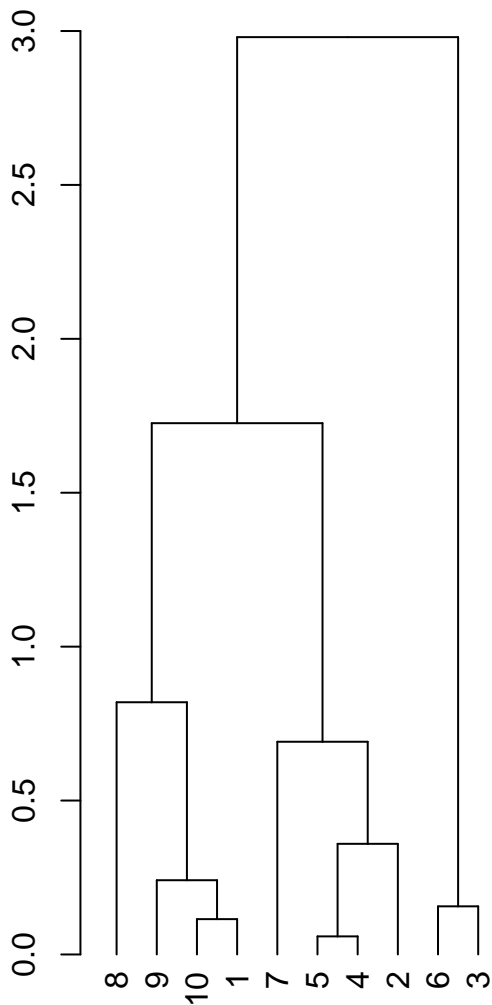


help("reorder.dendrogram")

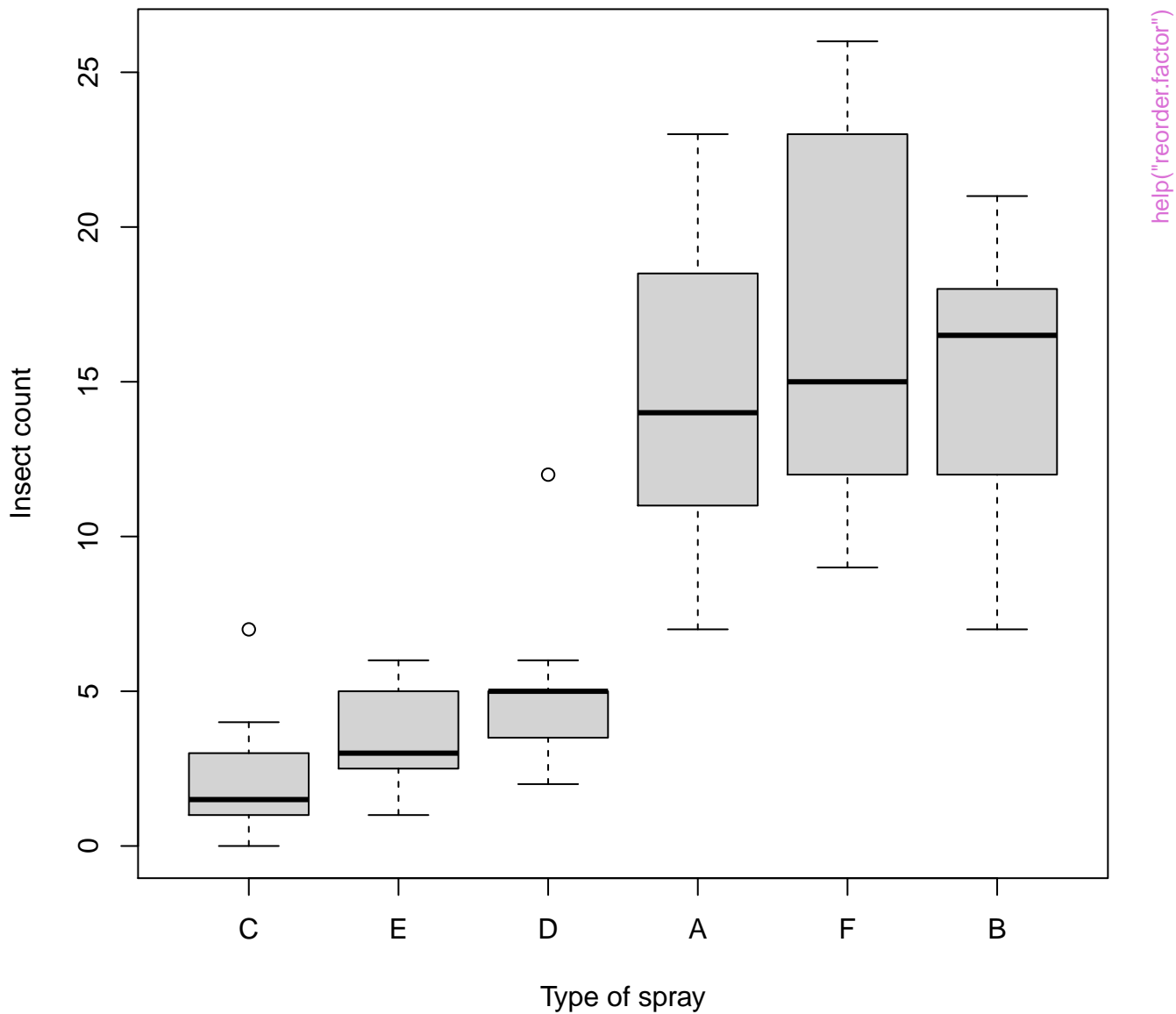
reorder(dd, 10:1)



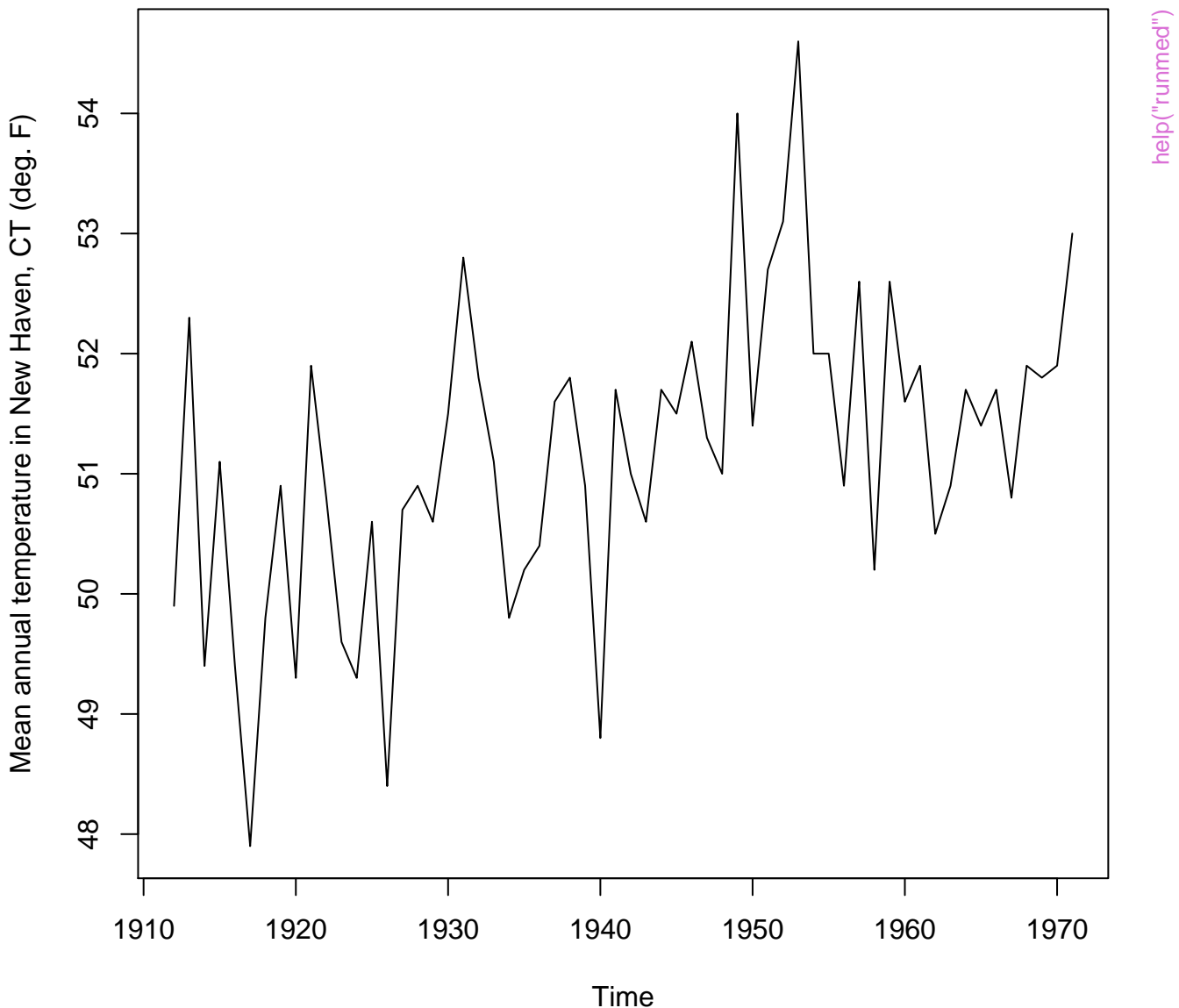
reorder(dd, 10:1, mean)



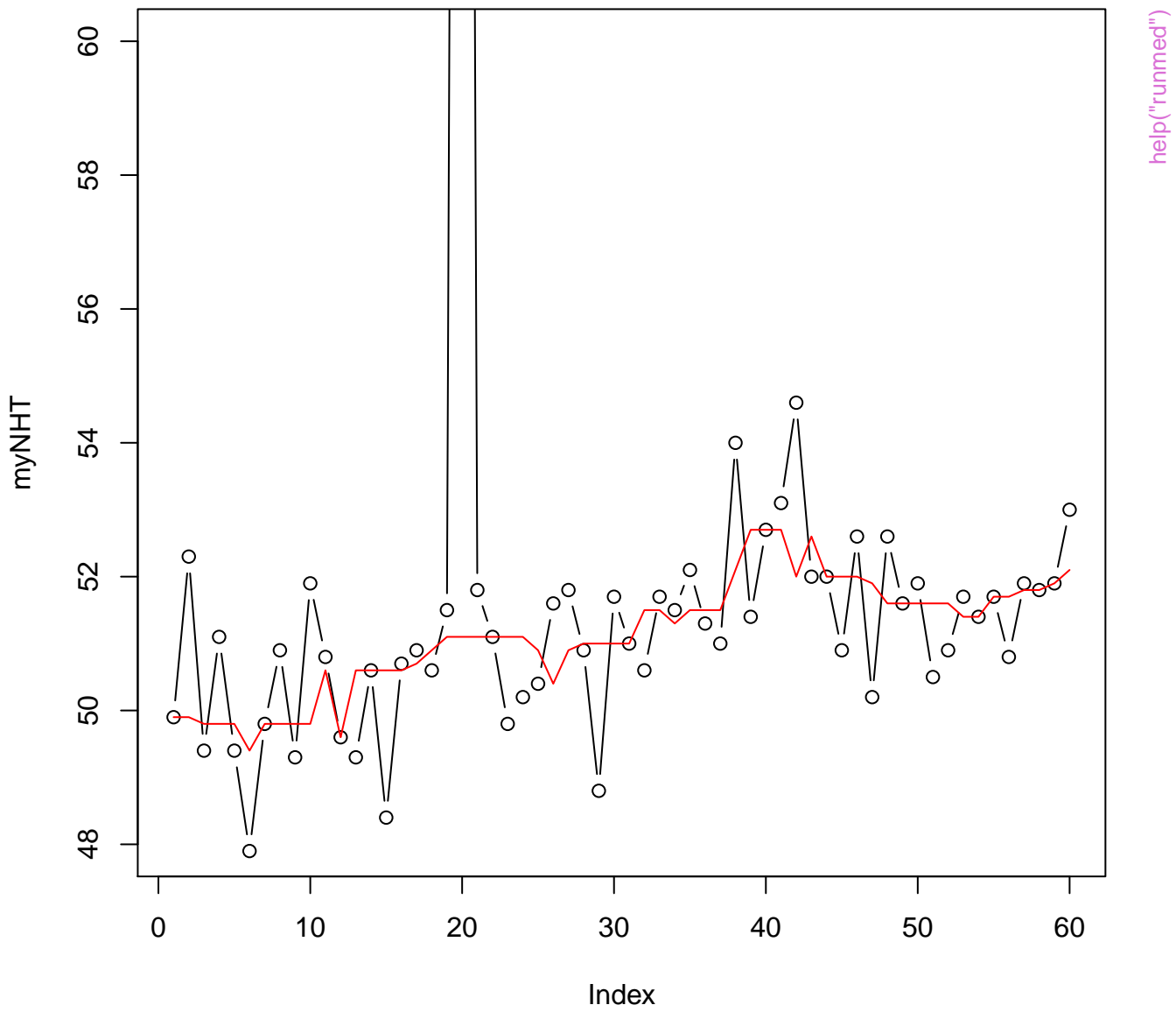
InsectSprays data



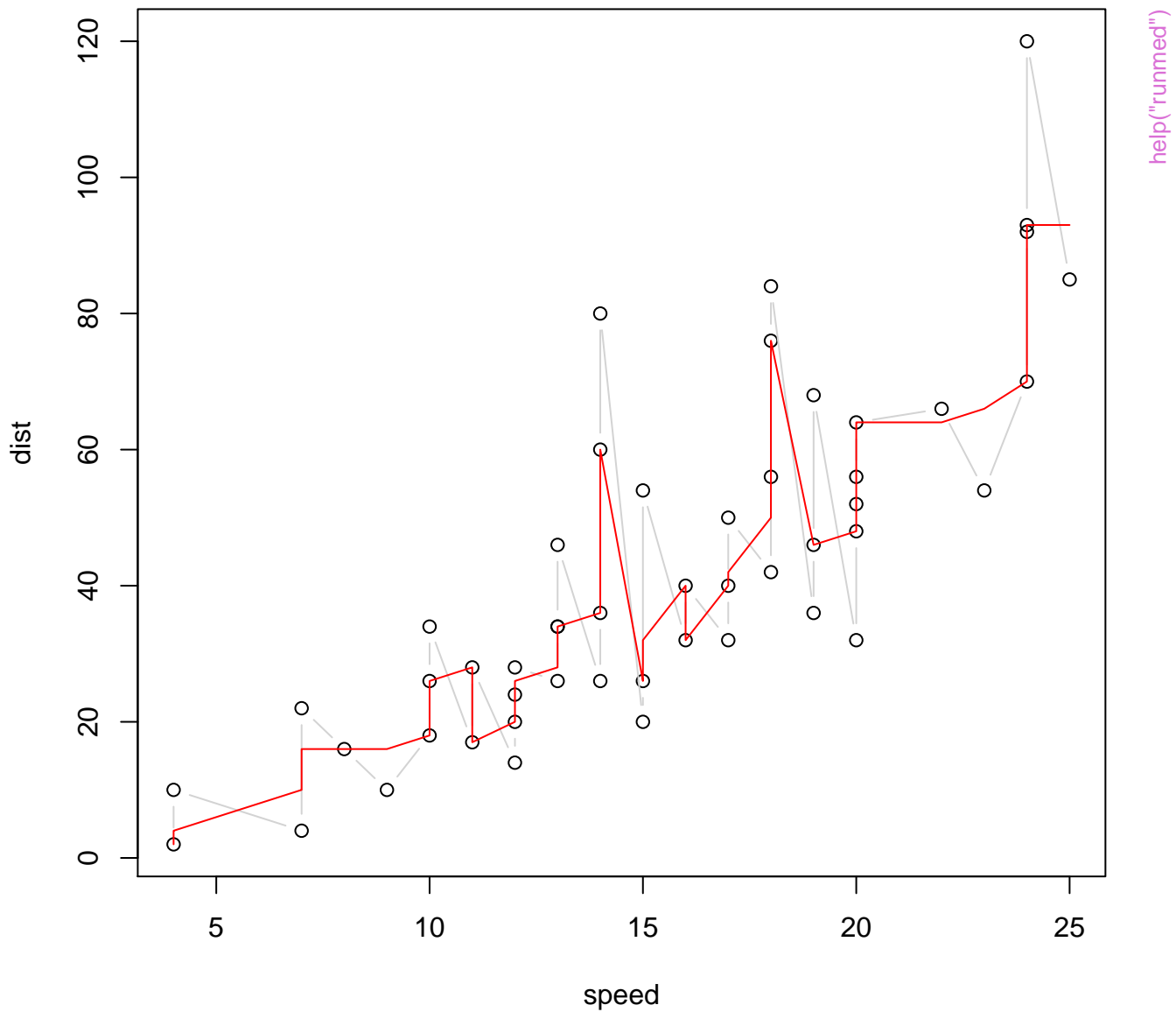
nhtemp data

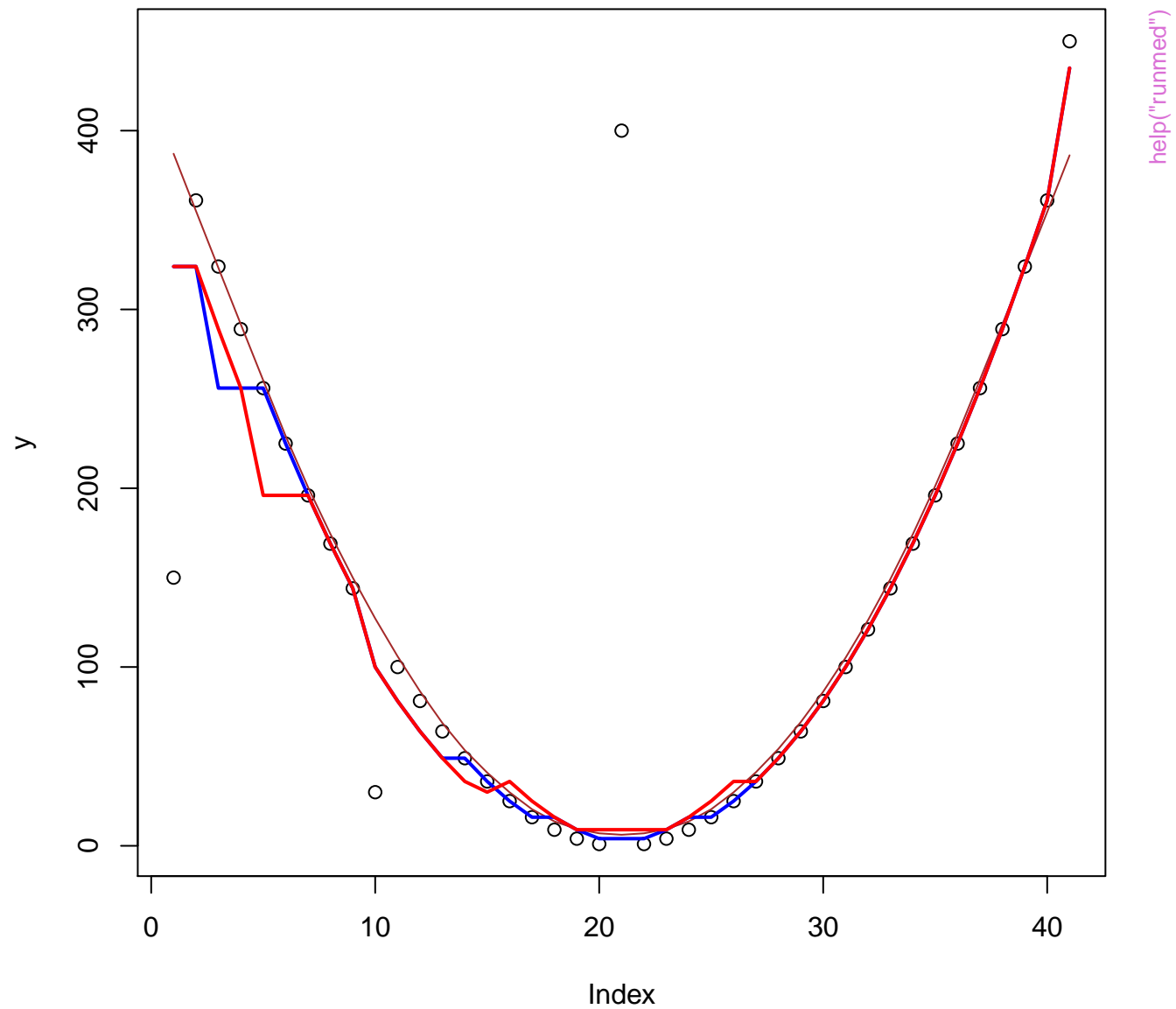


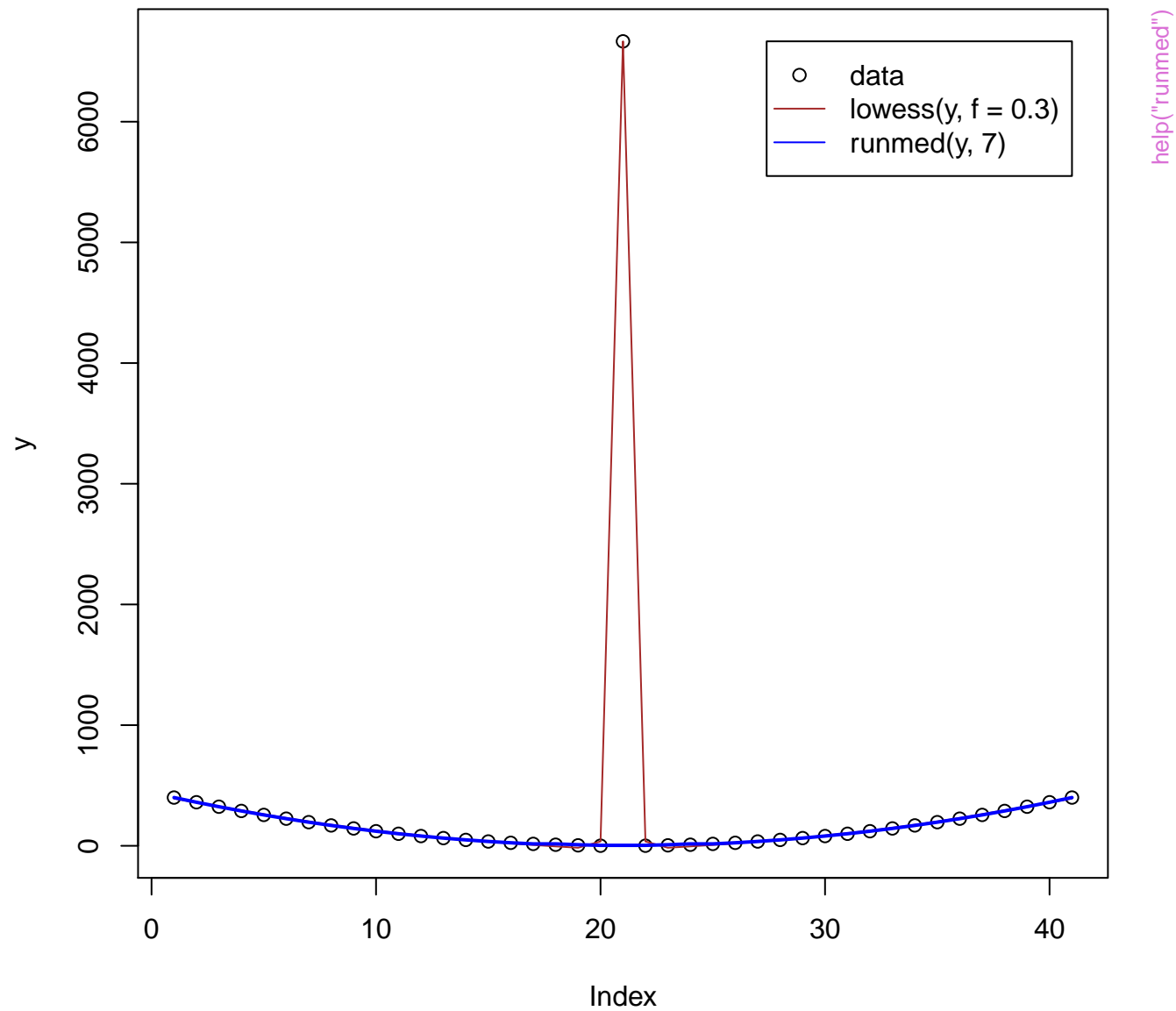
Running Medians Example

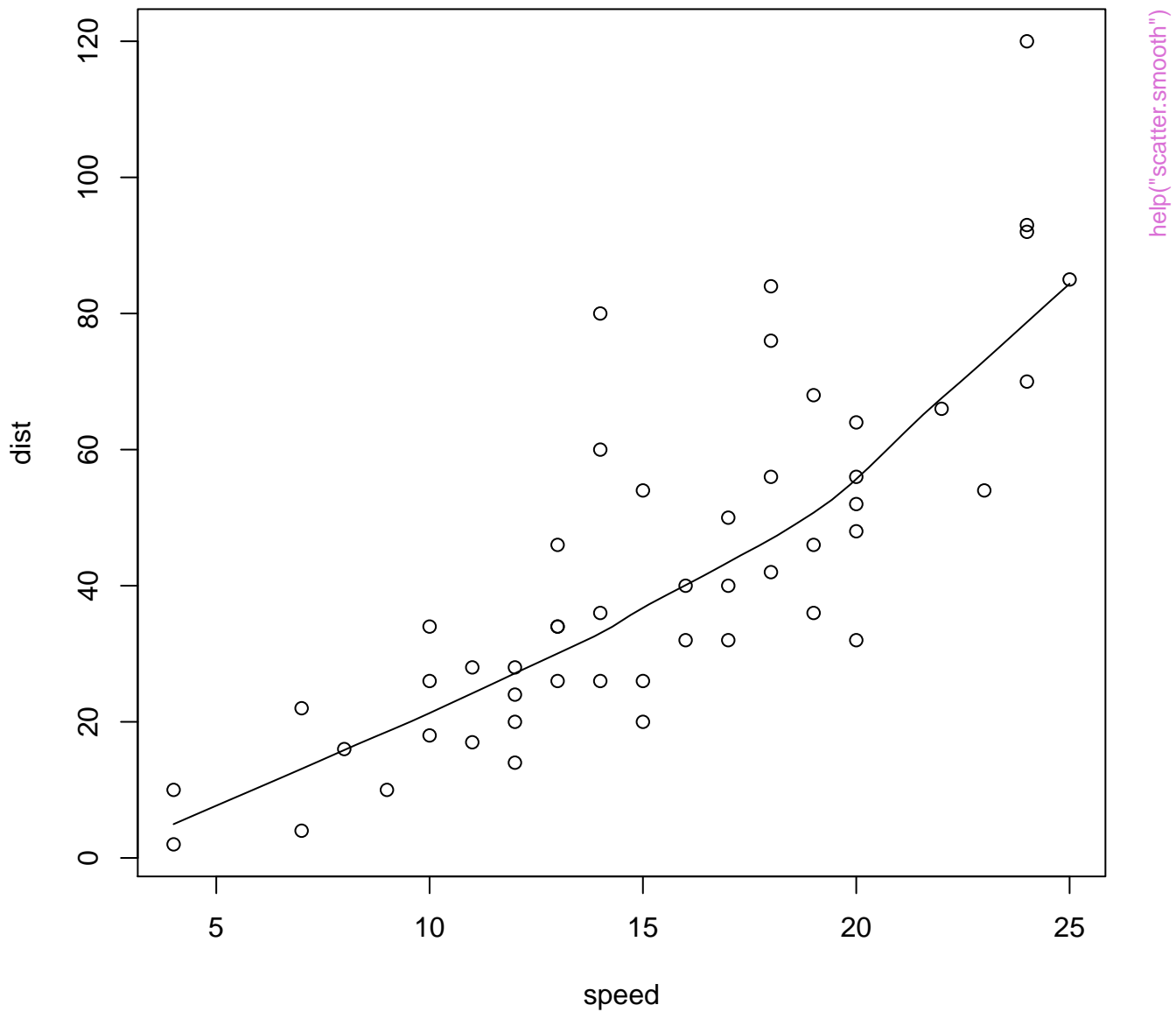


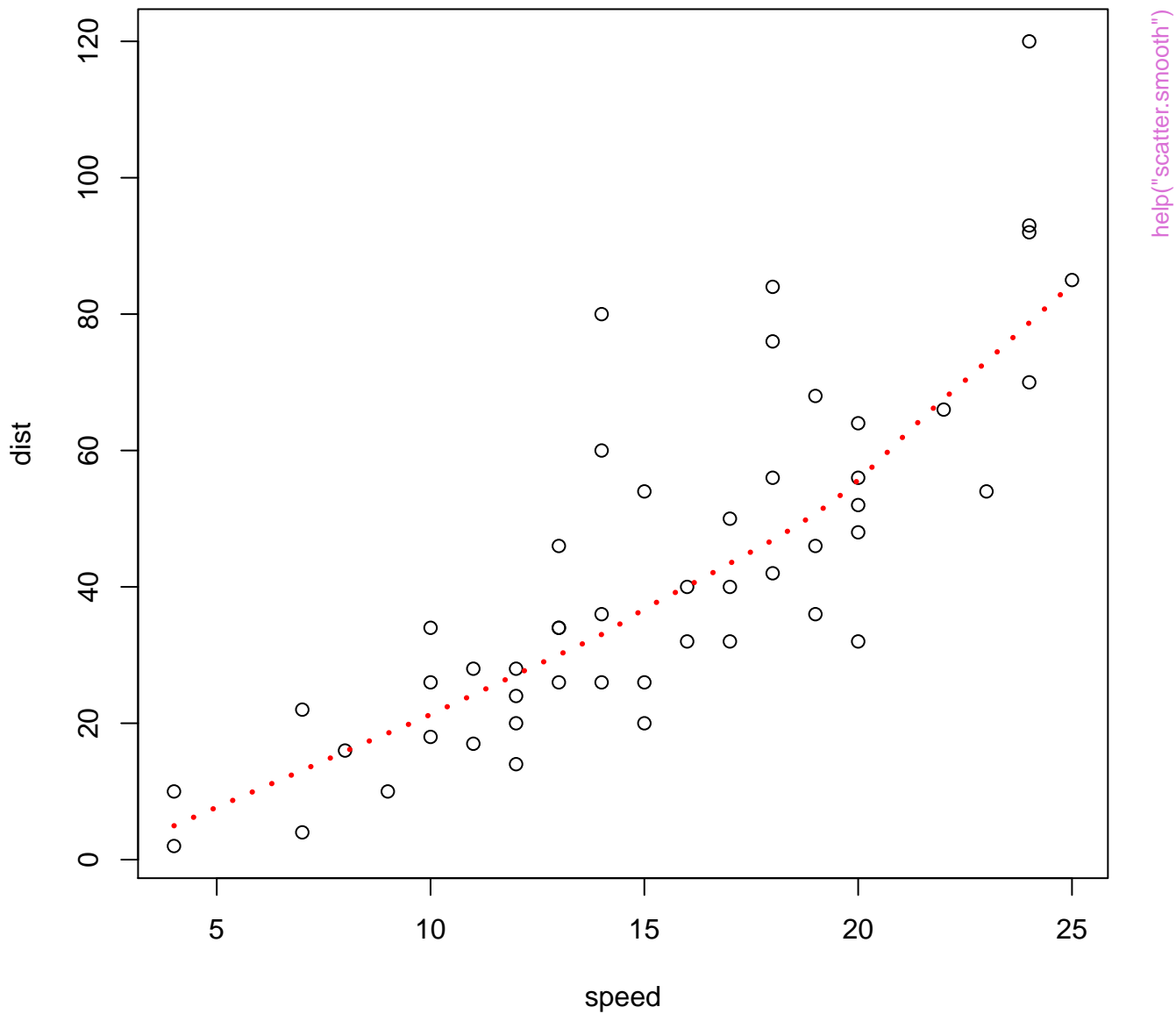
'cars' data and runmed(dist, 3)



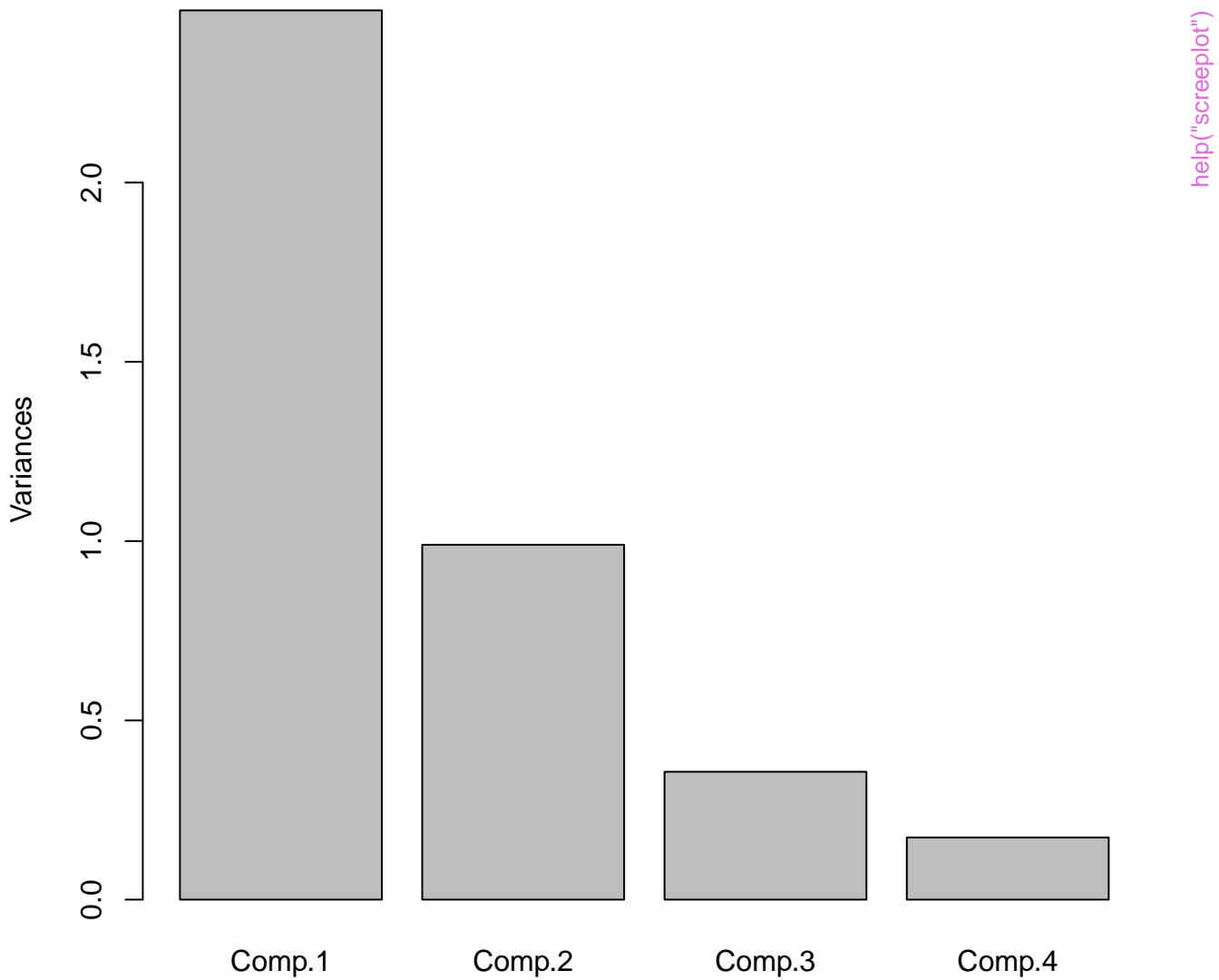








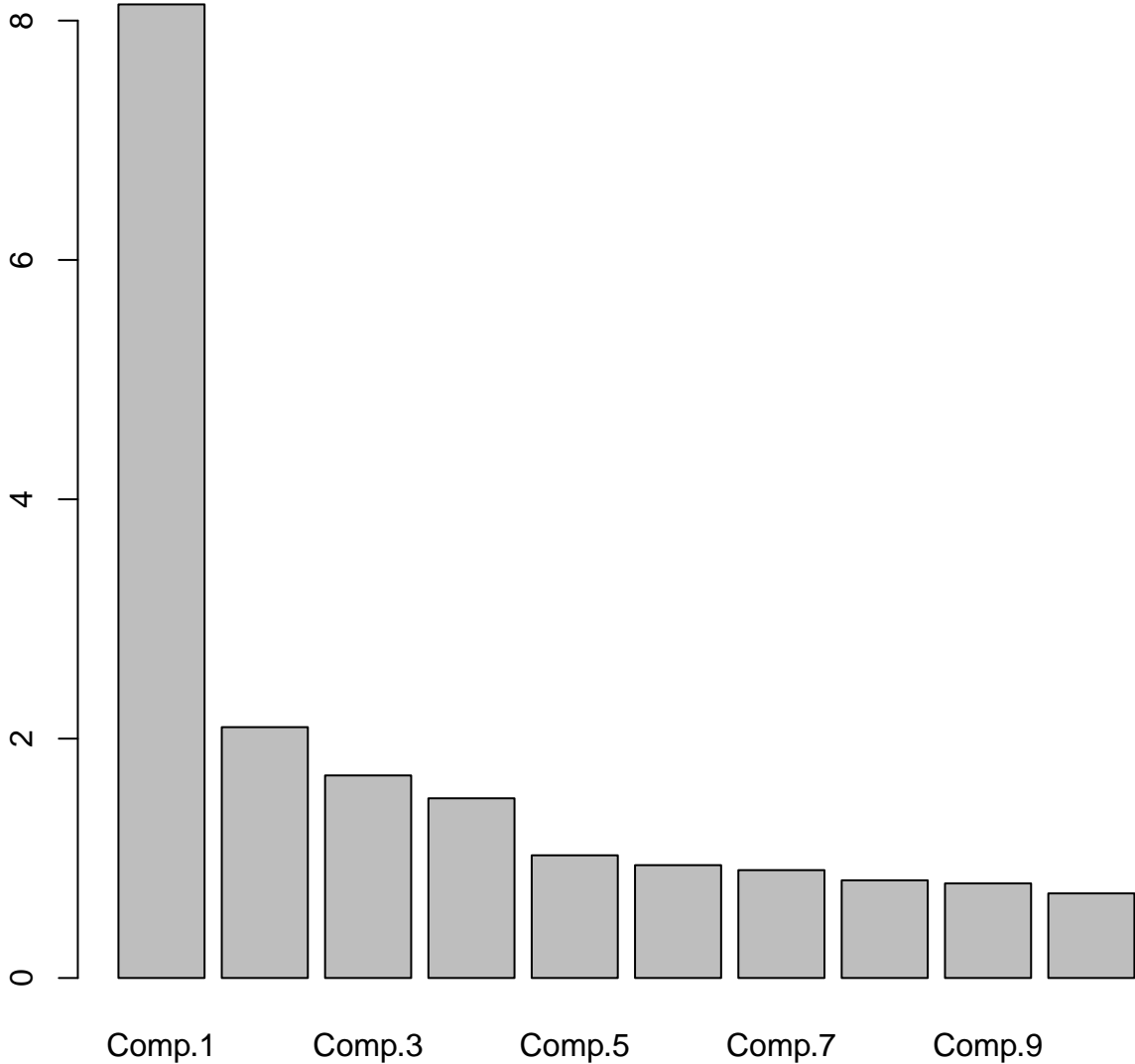
pc.cr



help("screepplot")

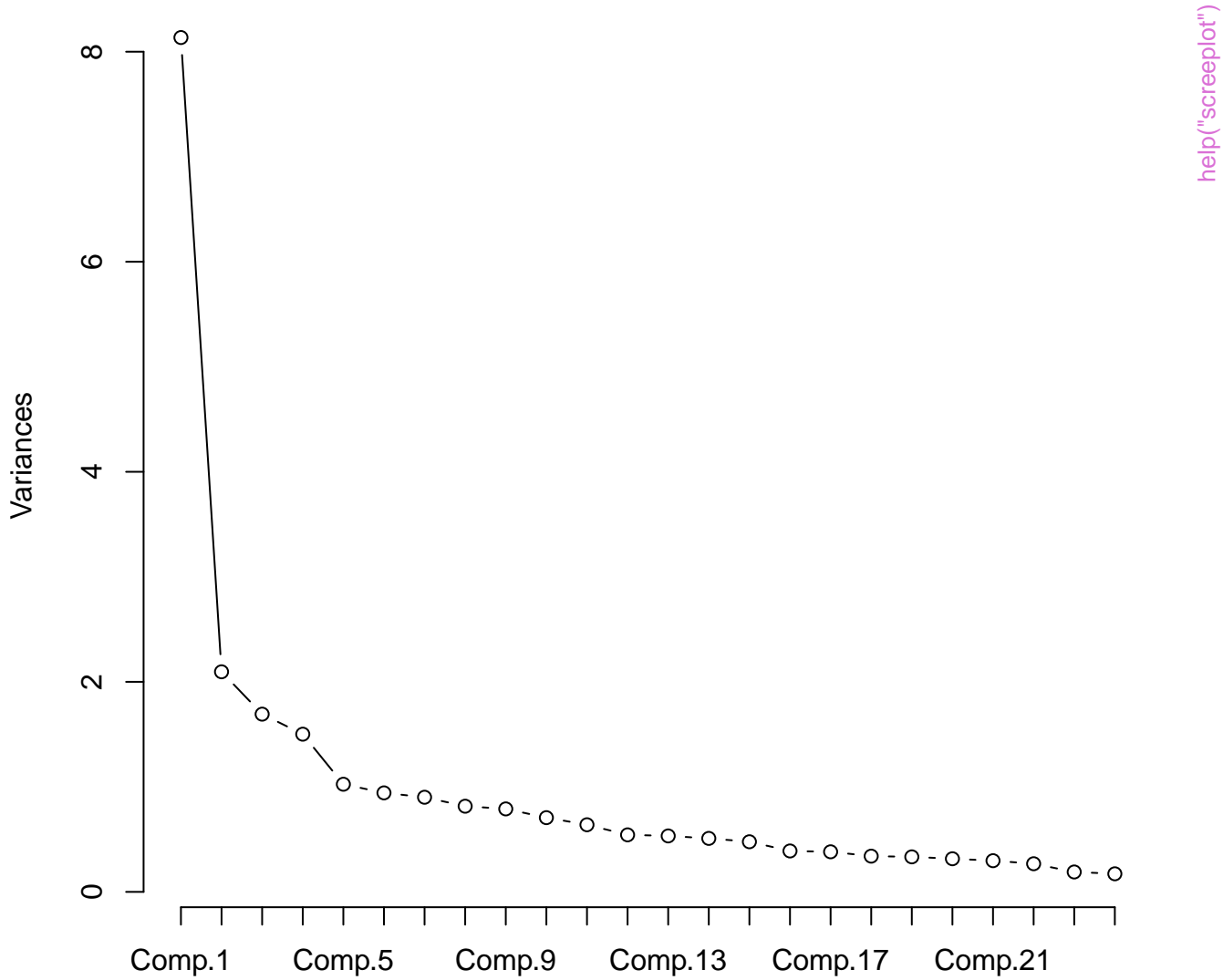
fit

Variances



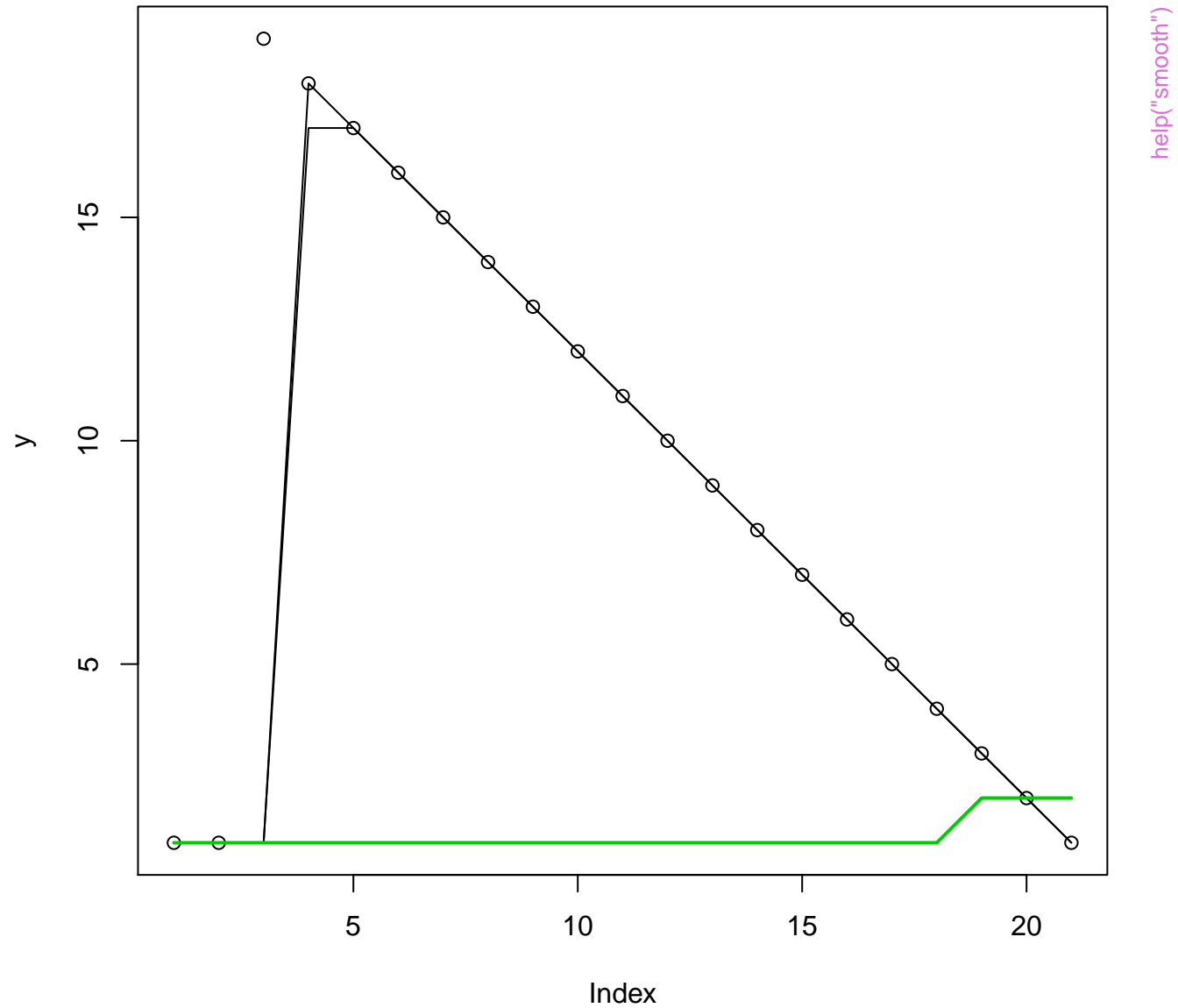
help("screepplot")

fit

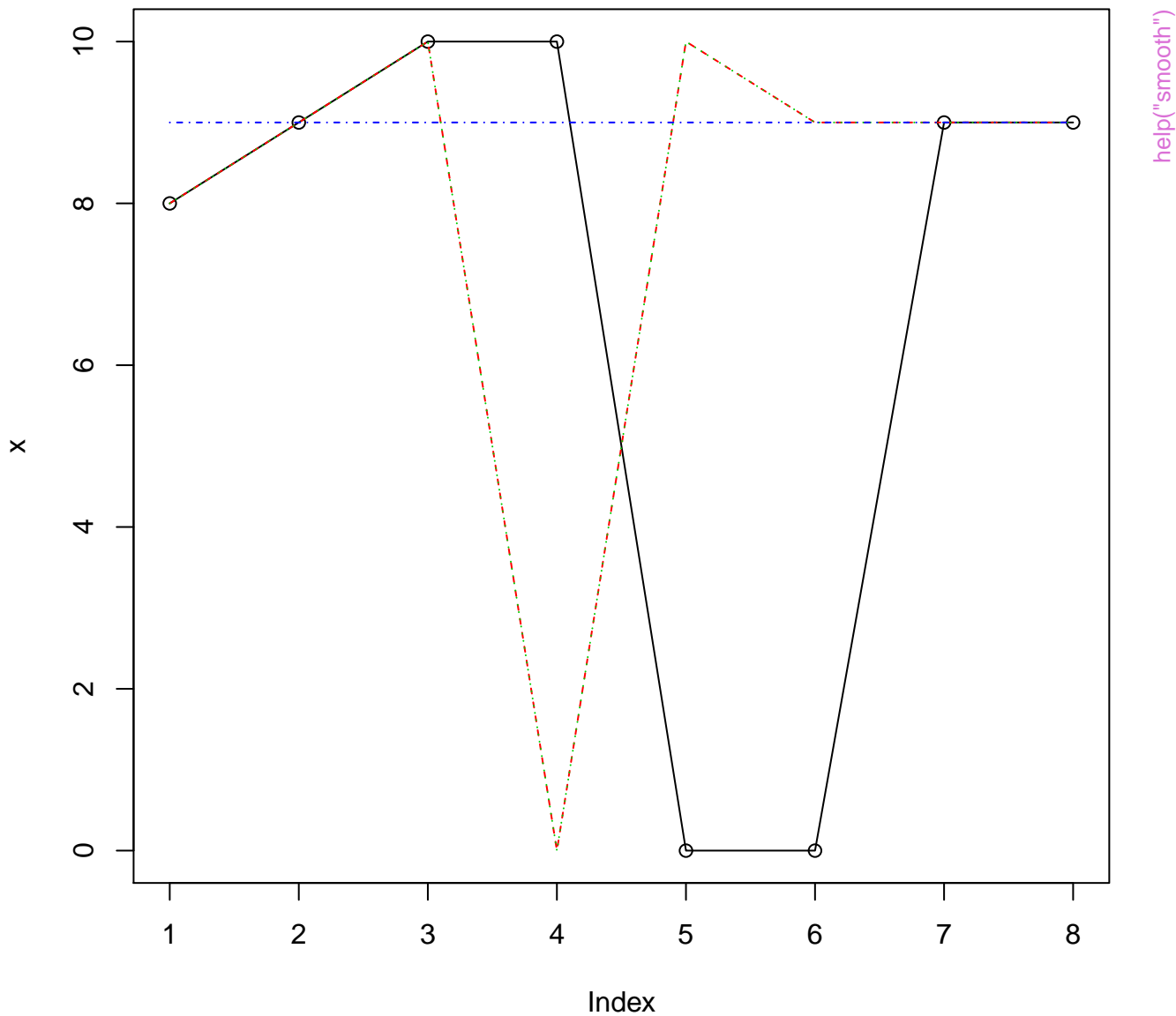


help("screepplot")

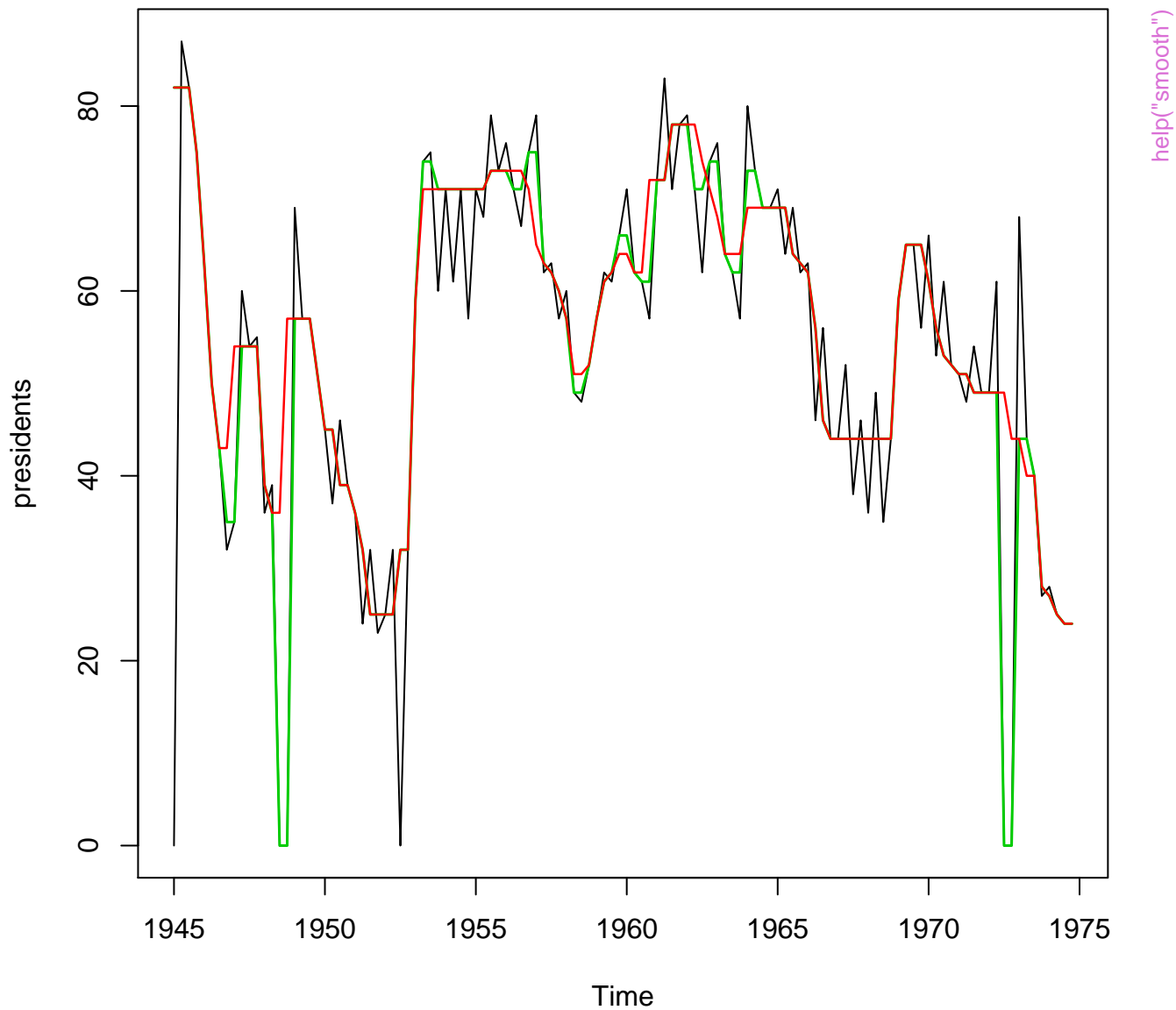
misbehaviour of "3RSR"



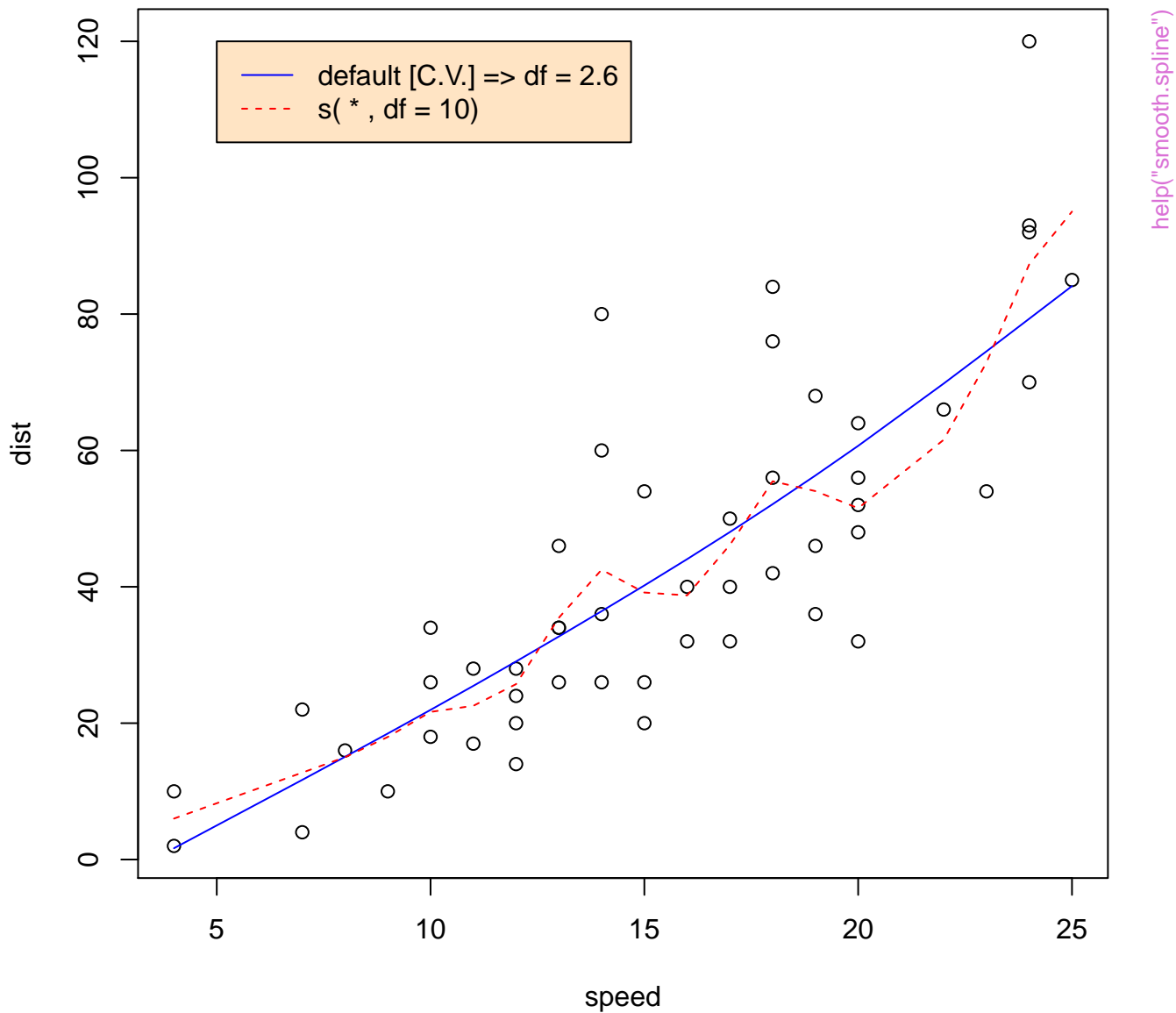
breakdown of 3R and S and hence 3RSS

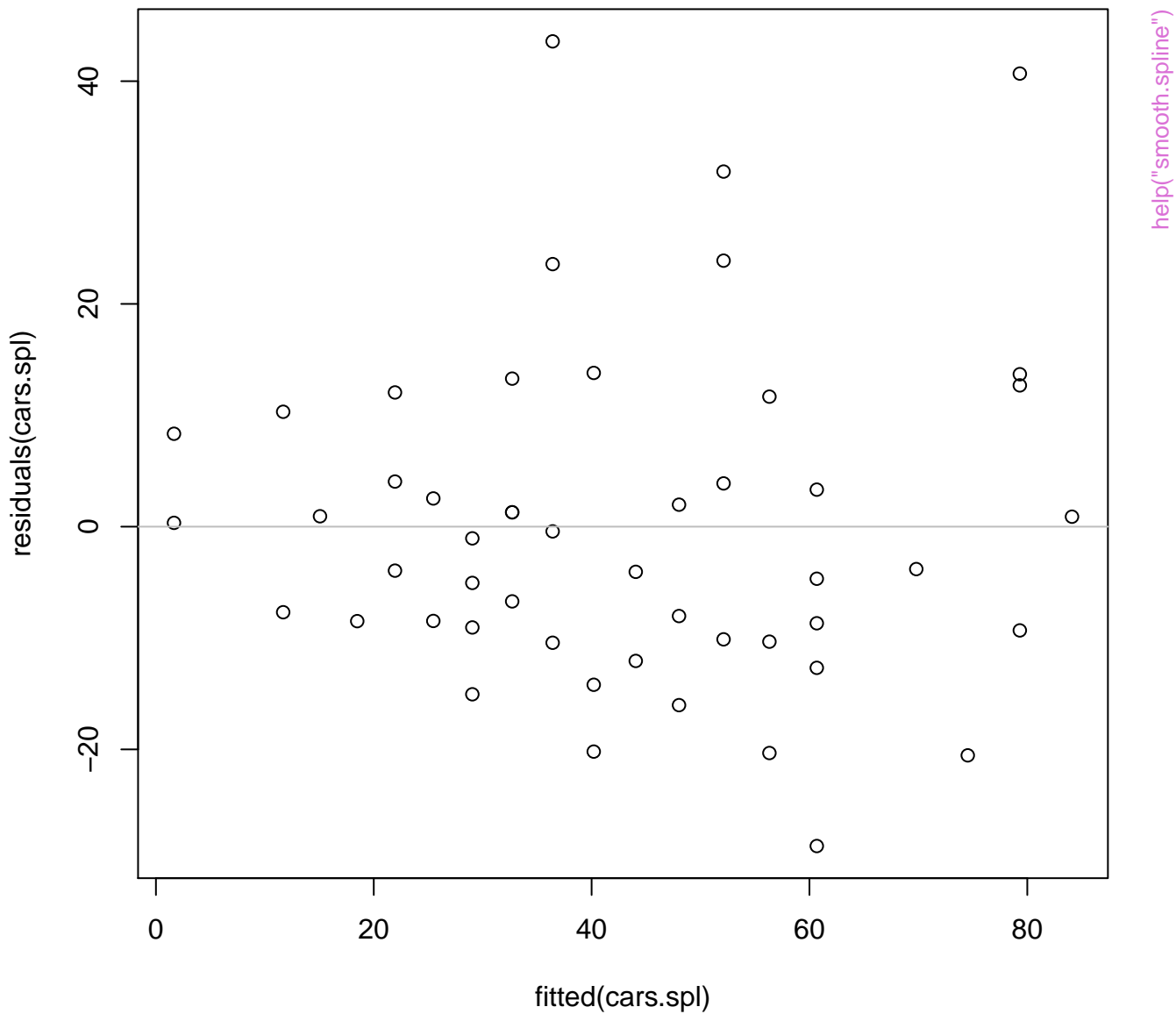


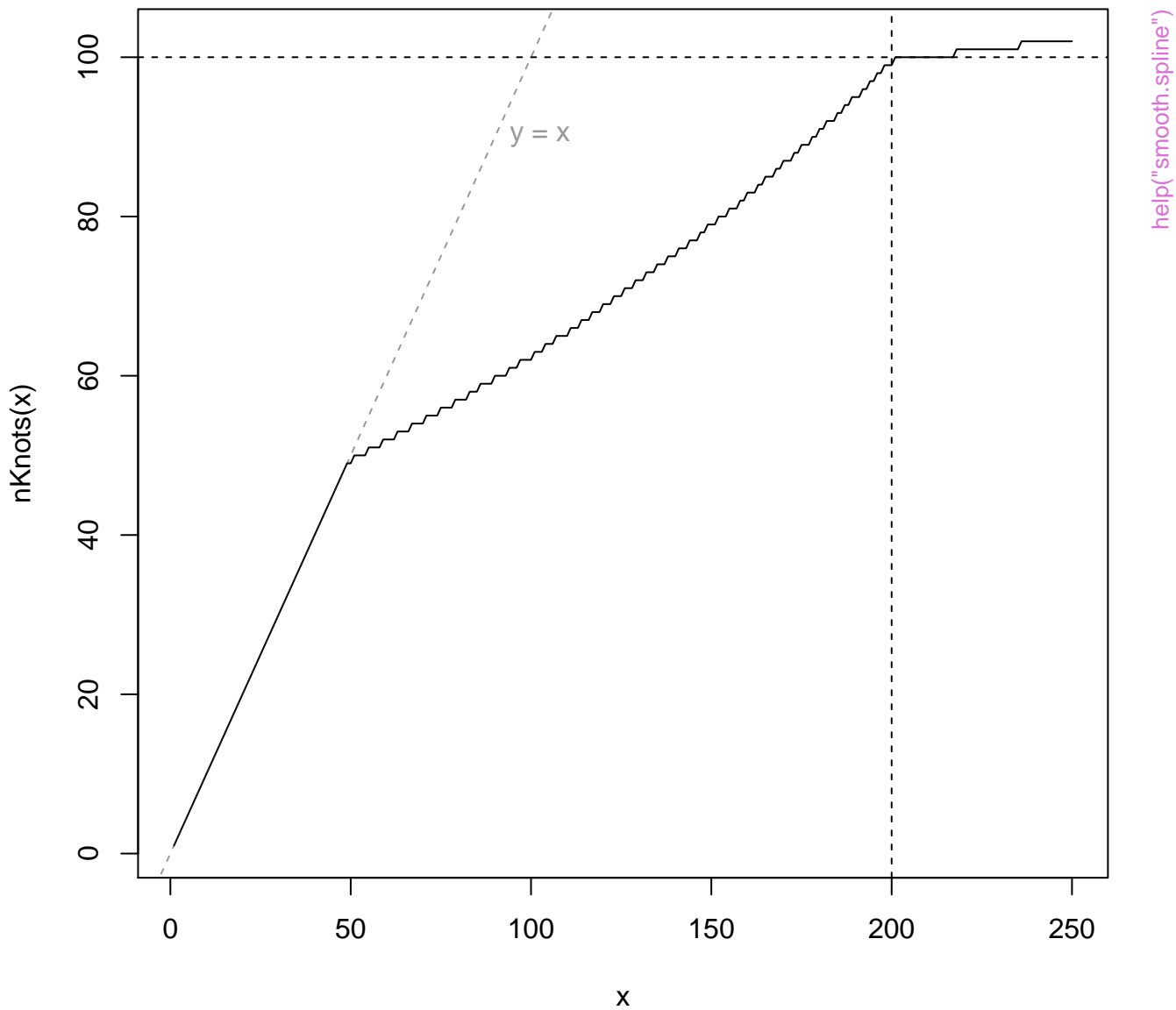
smooth(presidents0, *) : 3R and default 3RS3R



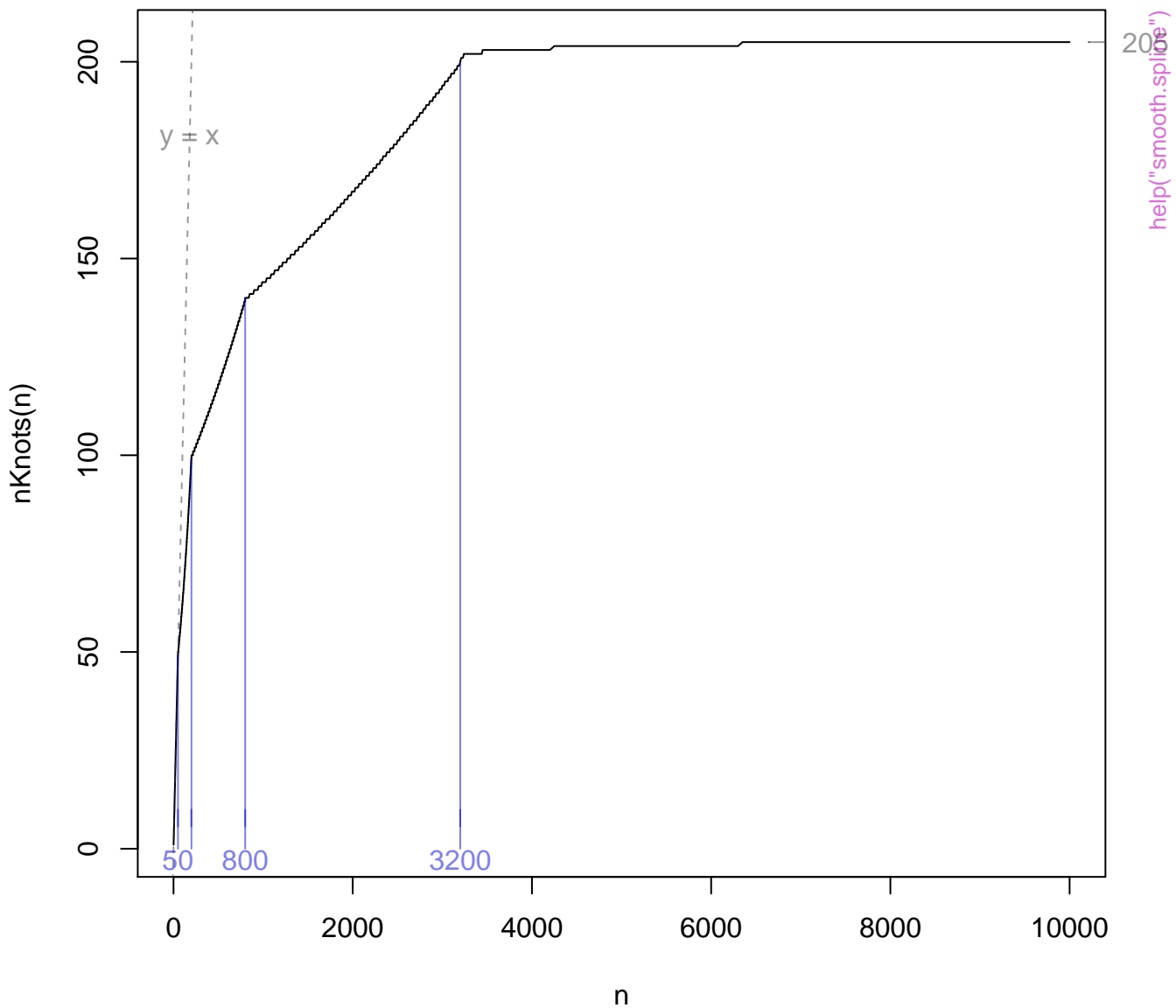
data(cars) & smoothing splines

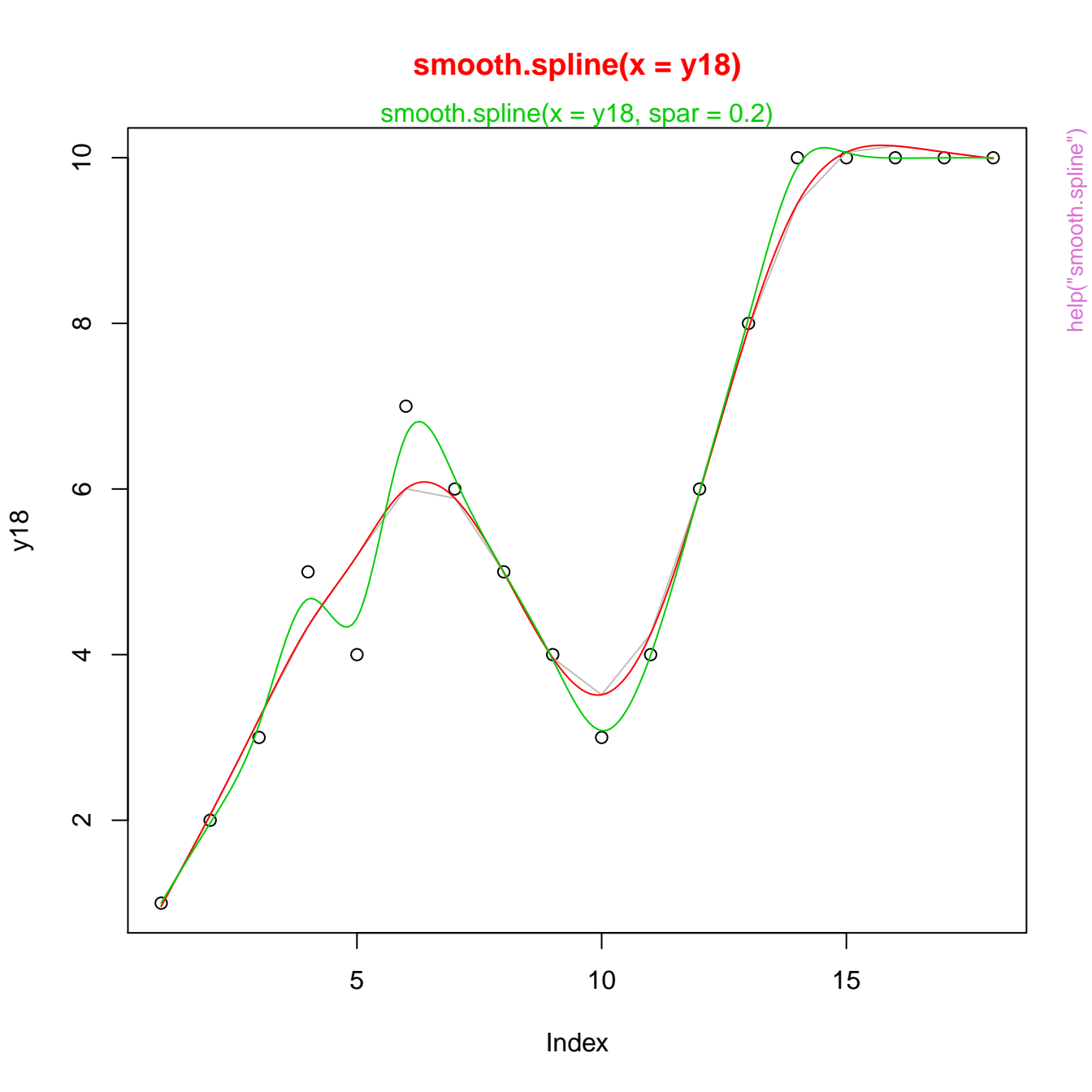




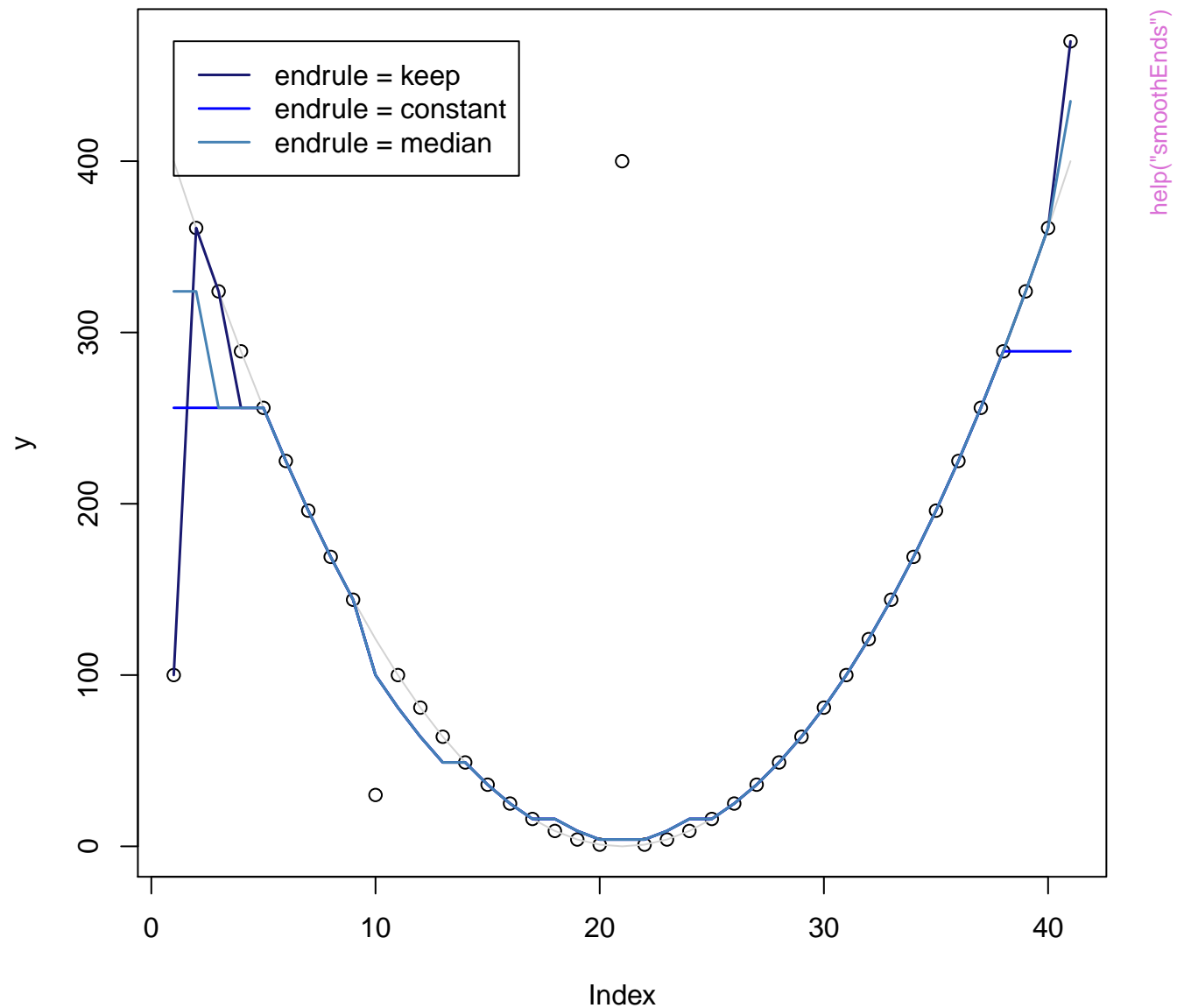


Vectorize(.nknots.smspl) (n)

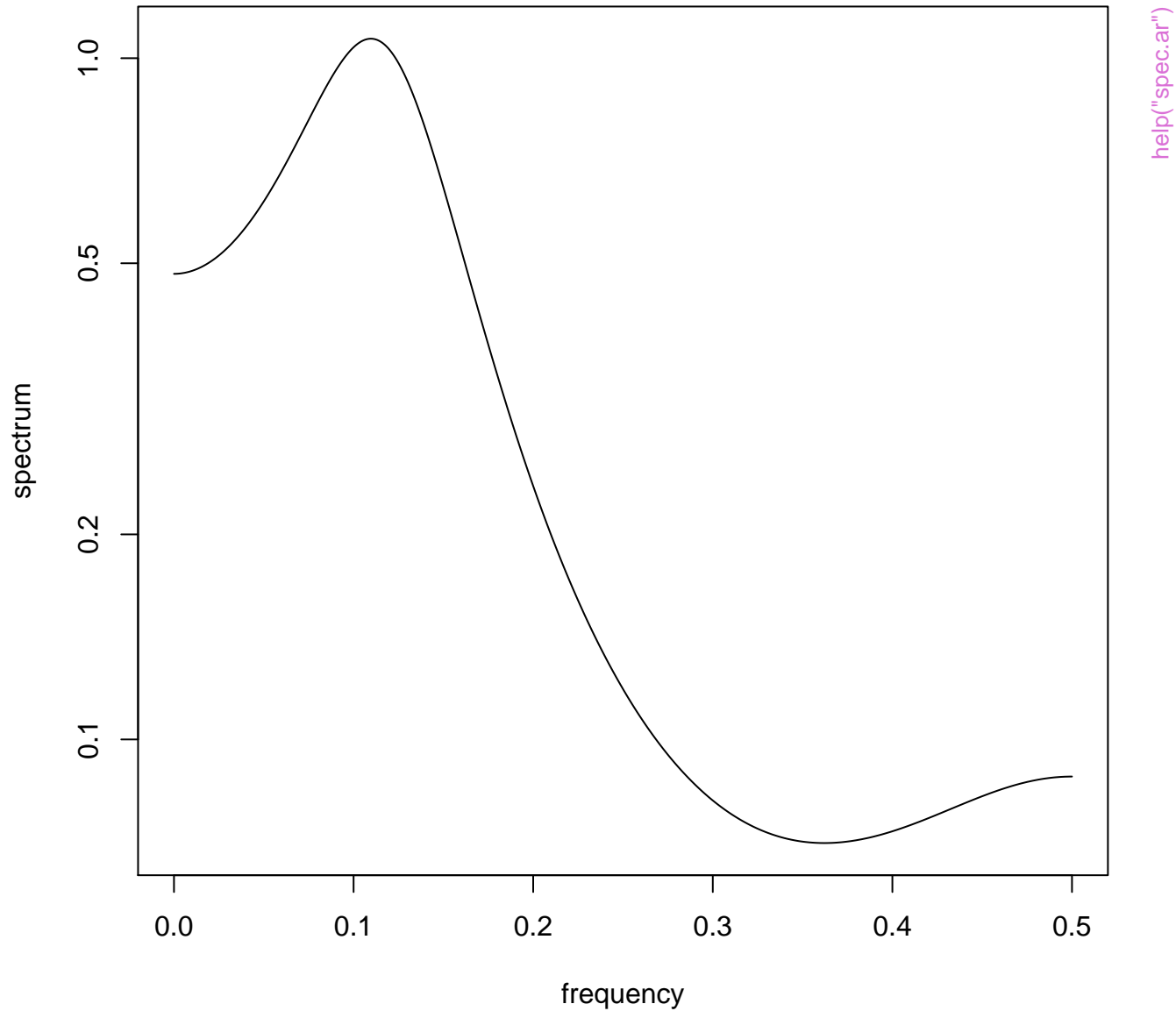




Running Medians -- runmed(*, k=7, end.rule = X)

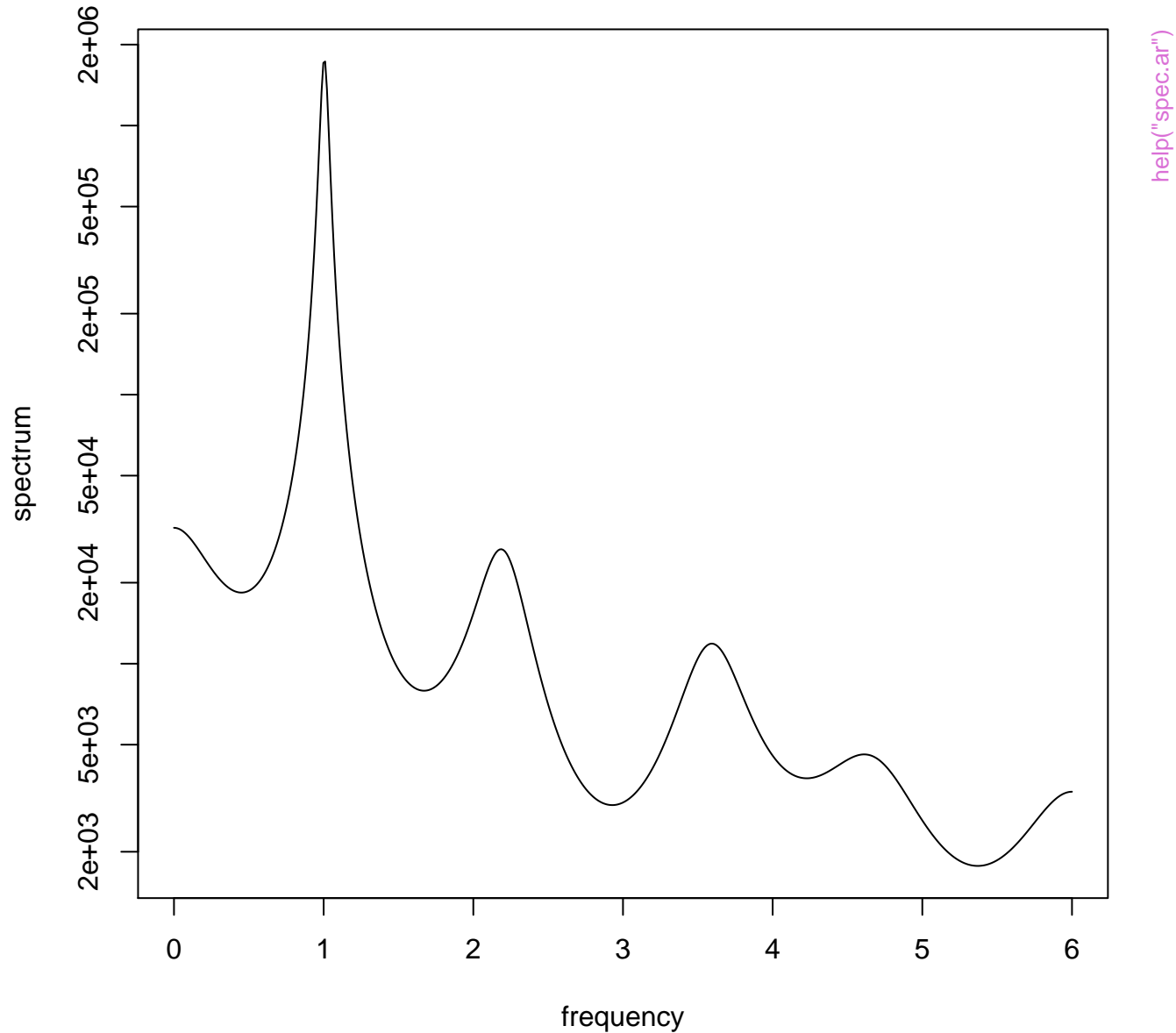


Series: lh
AR (3) spectrum

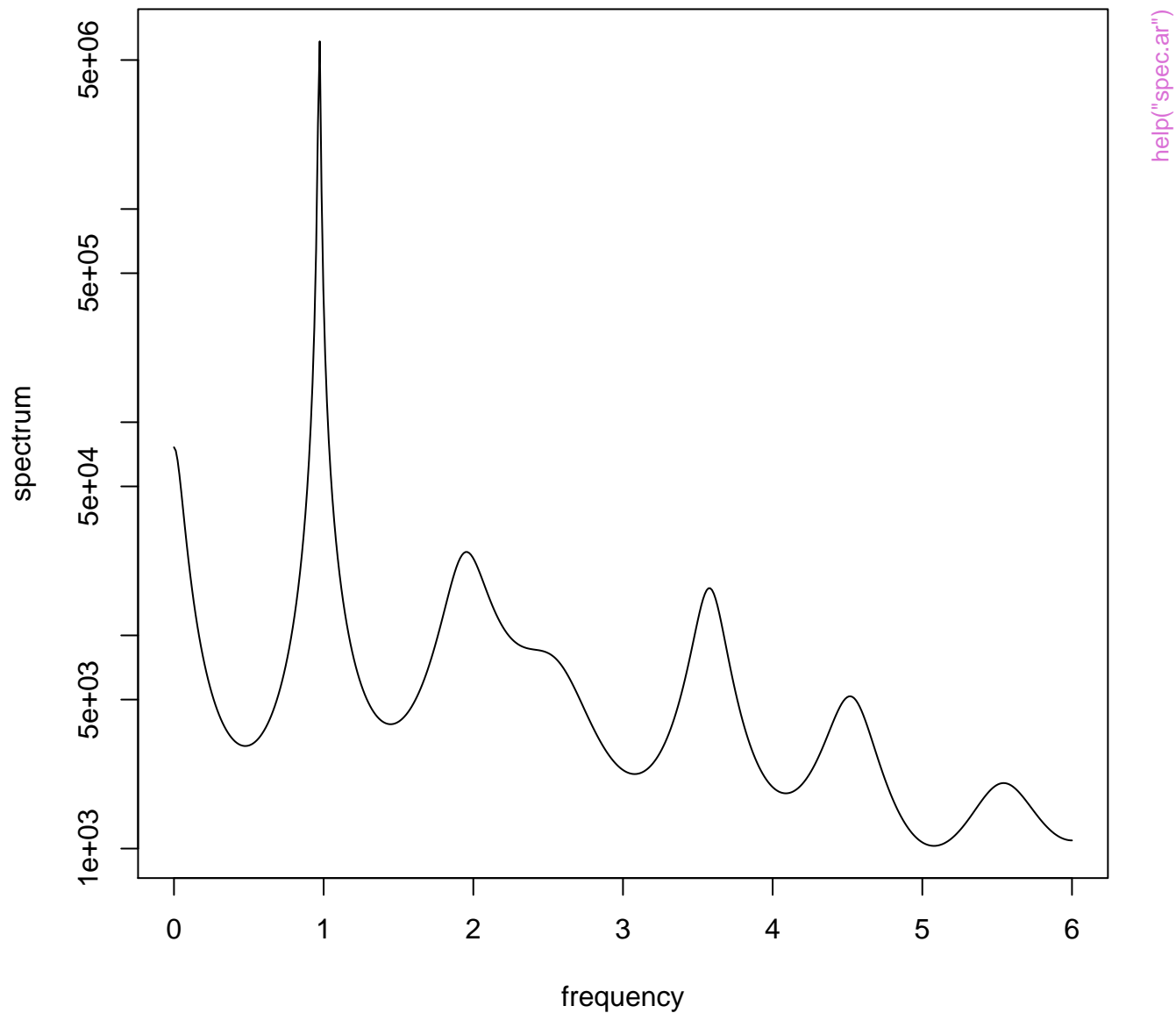


help("spec.ar")

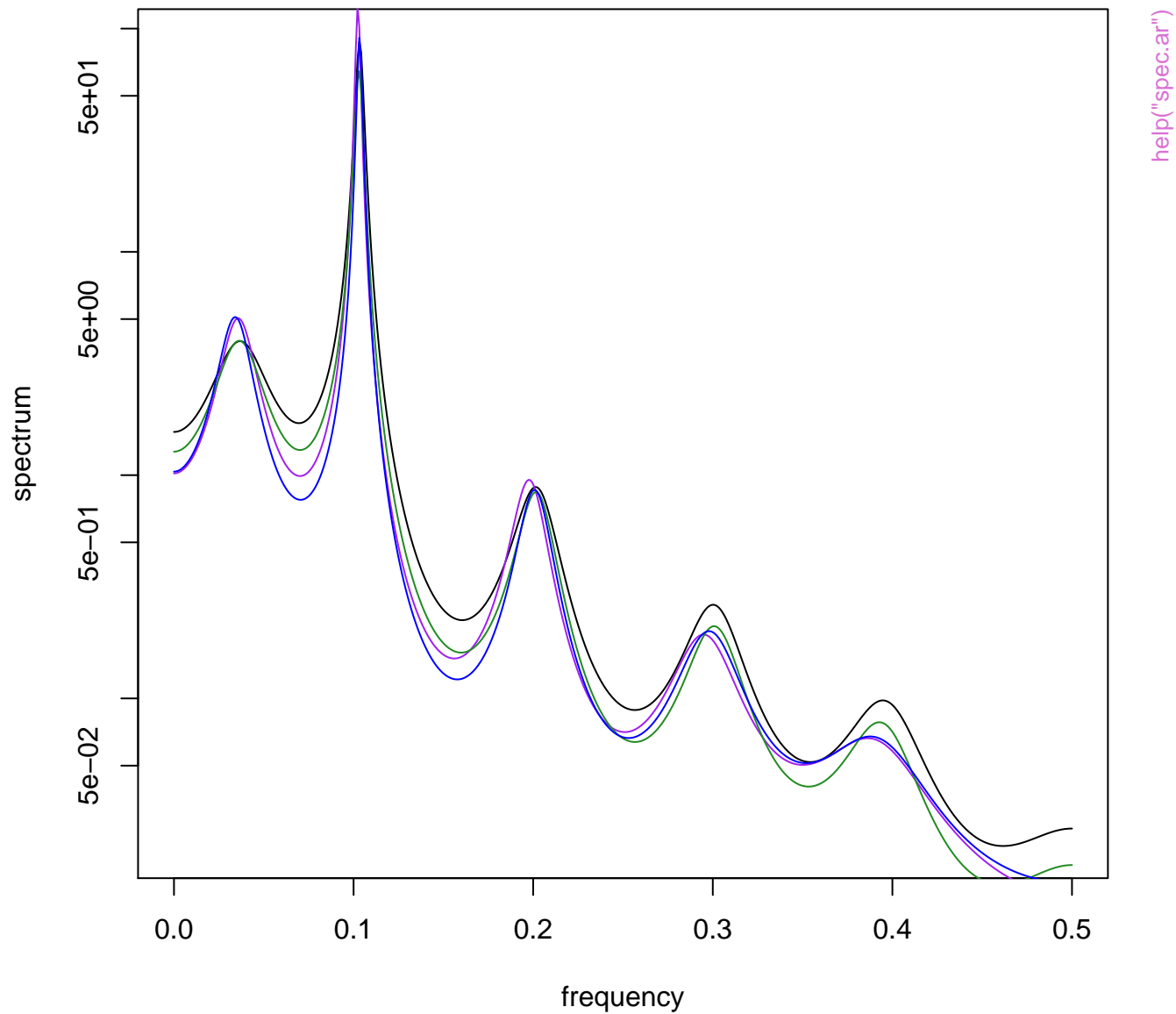
Series: Ideaths
AR (10) spectrum



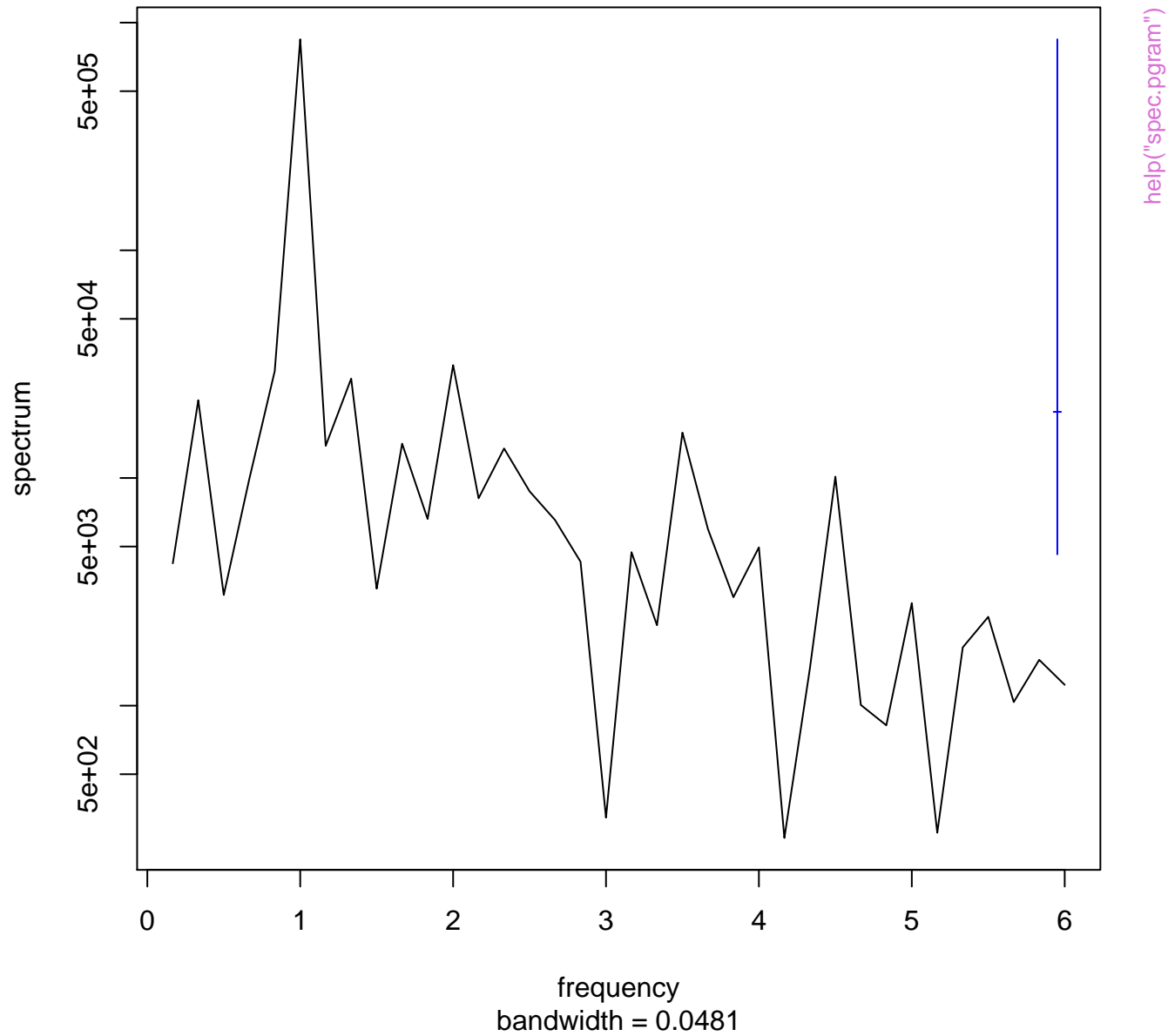
Series: Ideaths
AR (13) spectrum



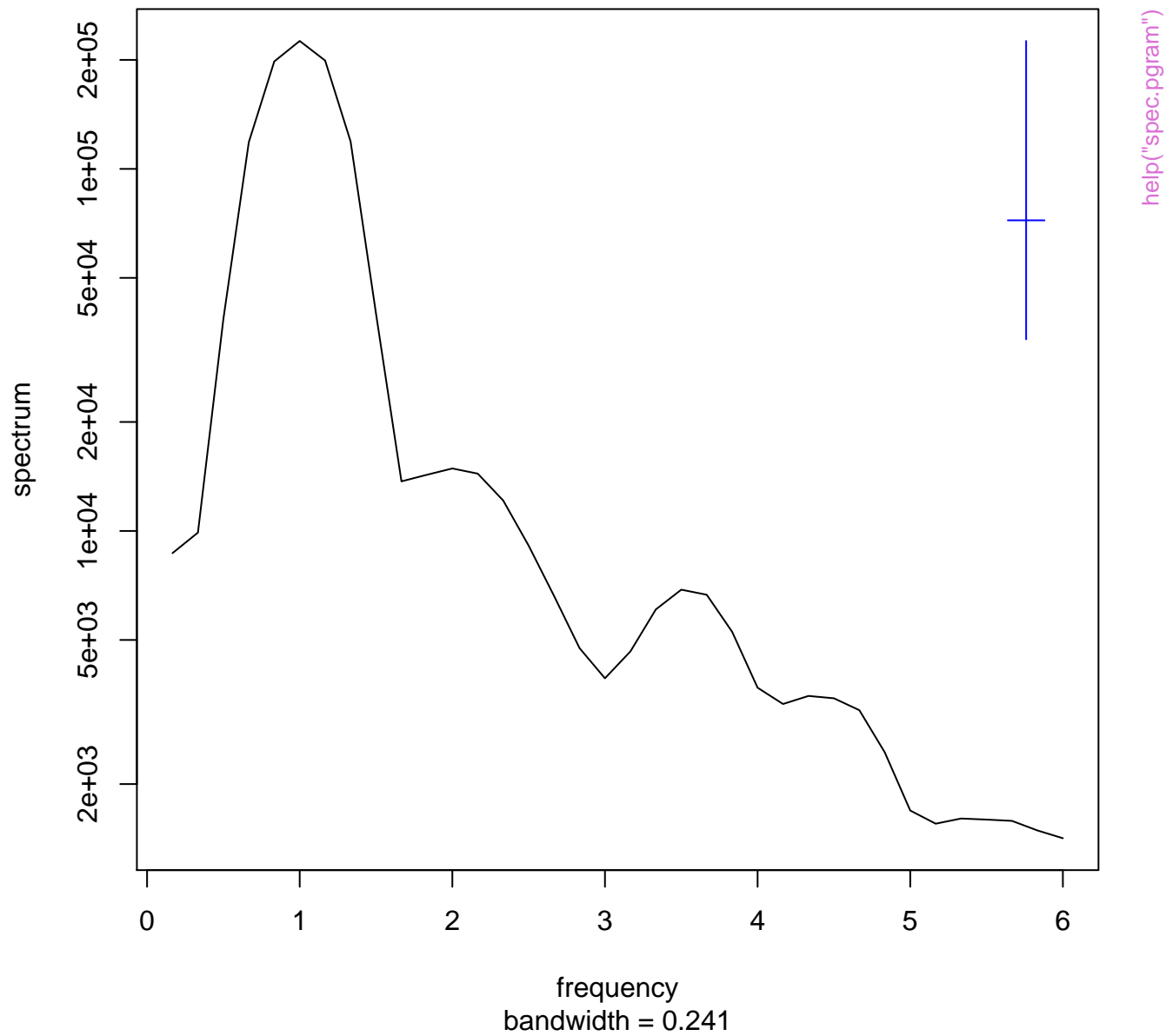
Series: log(lynx)
AR (11) spectrum



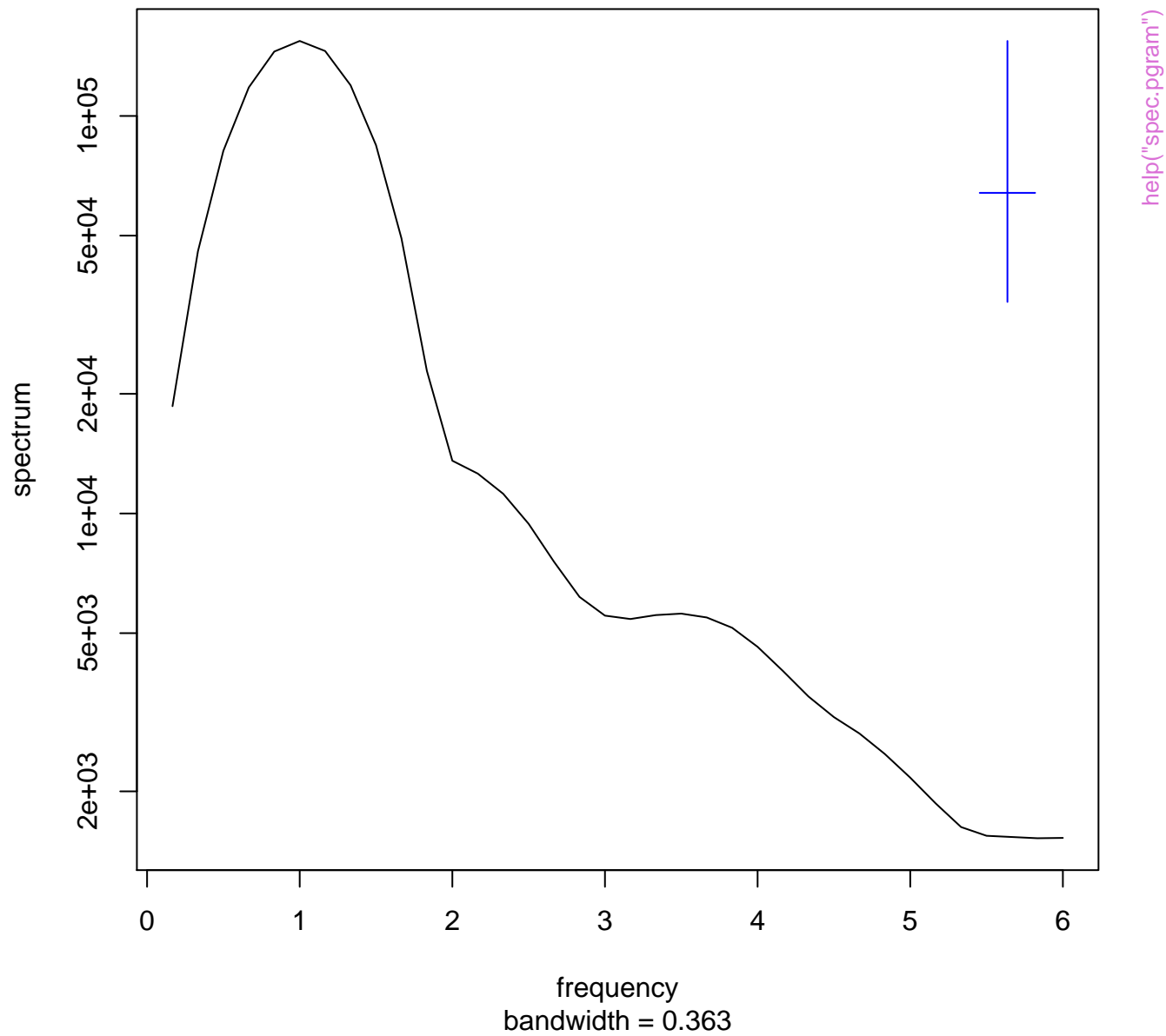
Series: x
Raw Periodogram



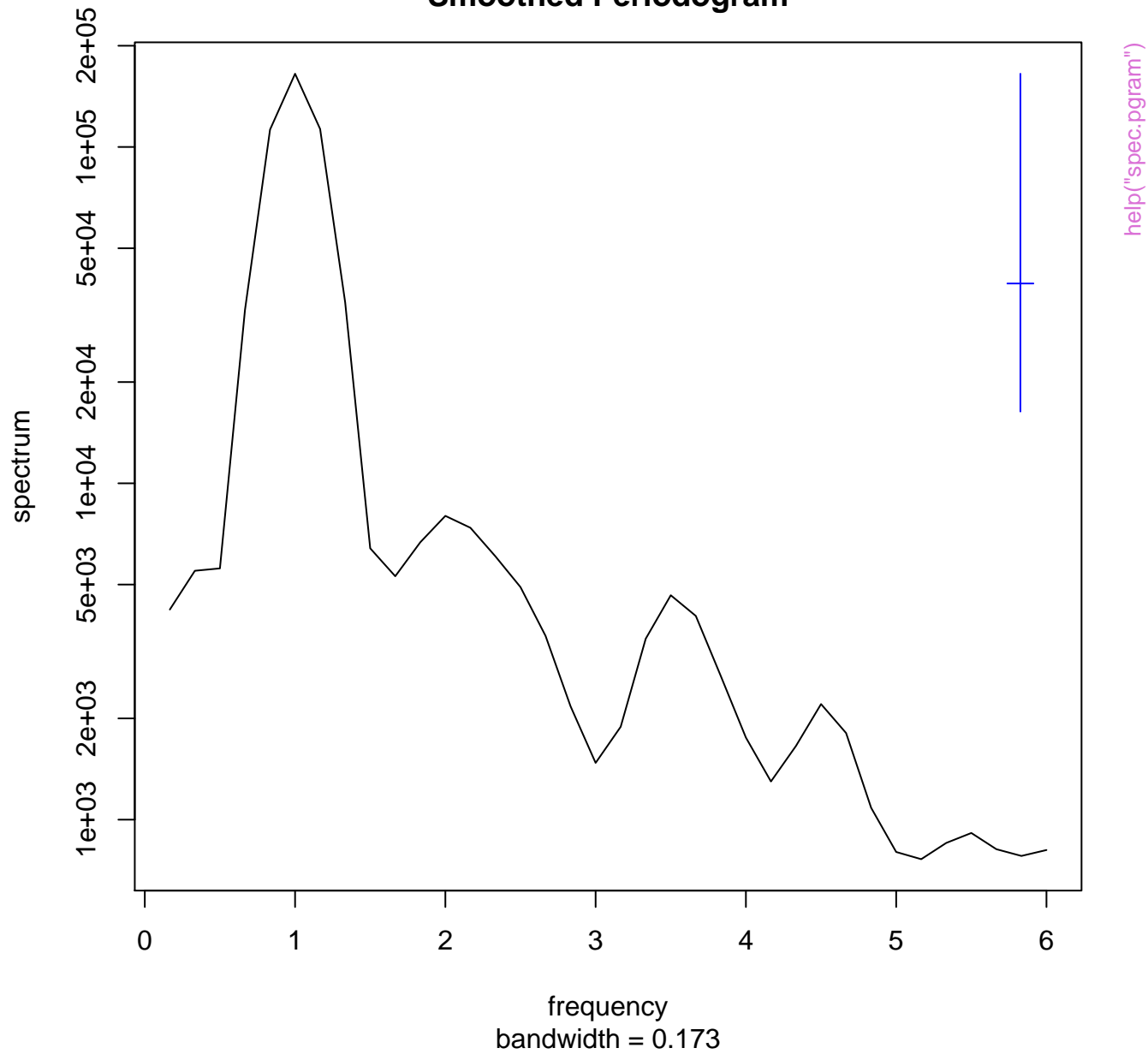
Series: x
Smoothed Periodogram



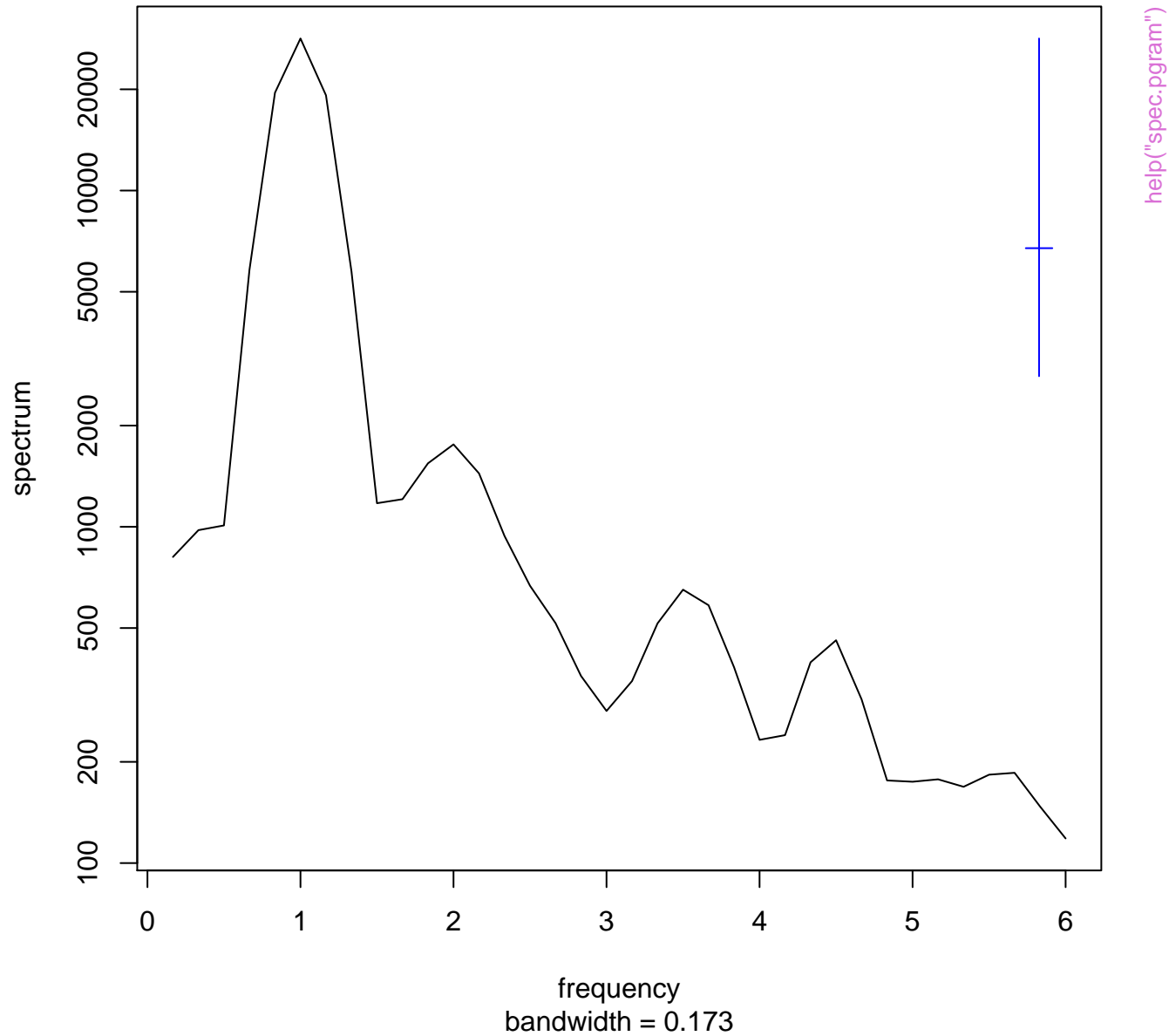
Series: x
Smoothed Periodogram



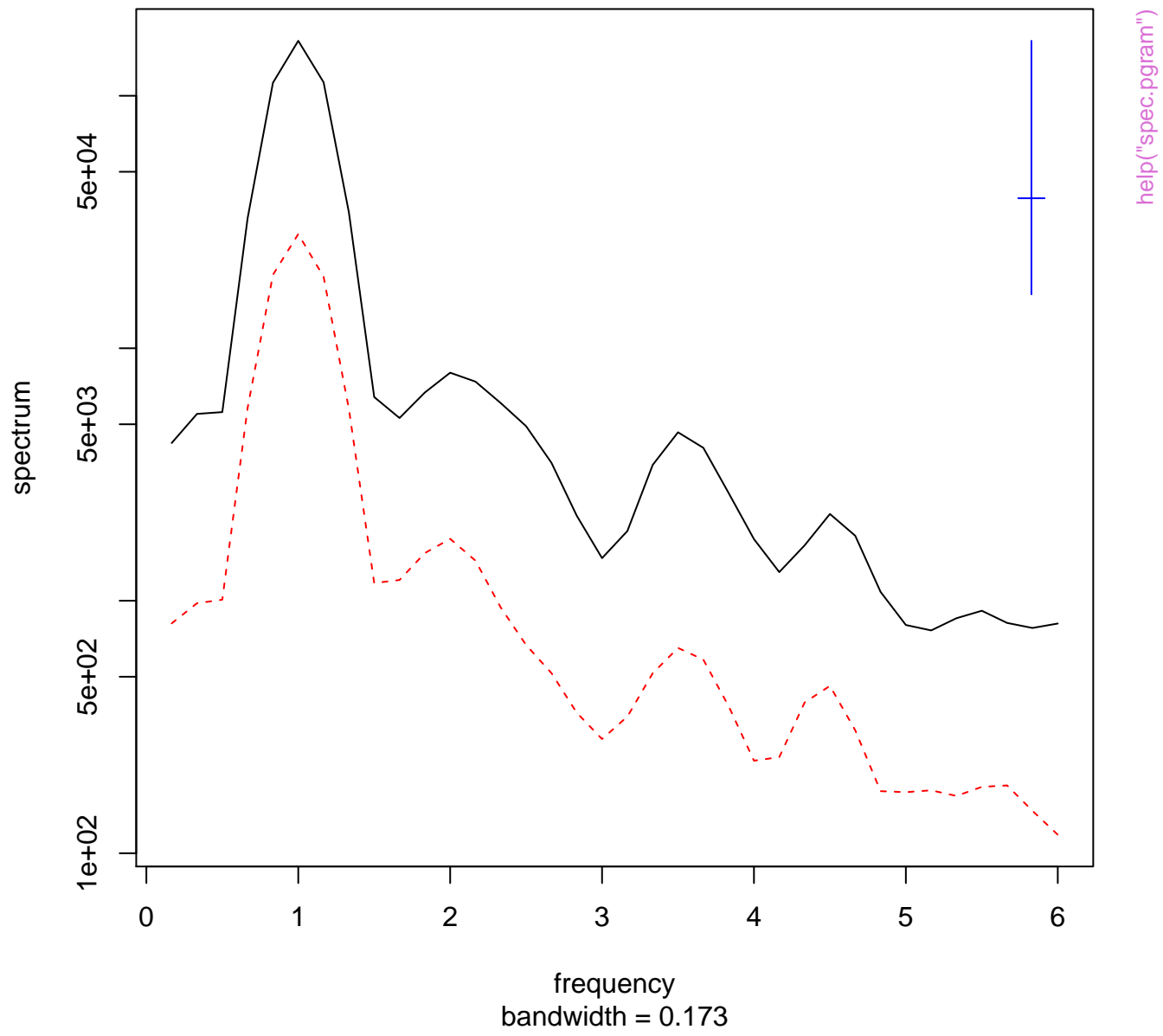
Series: x
Smoothed Periodogram



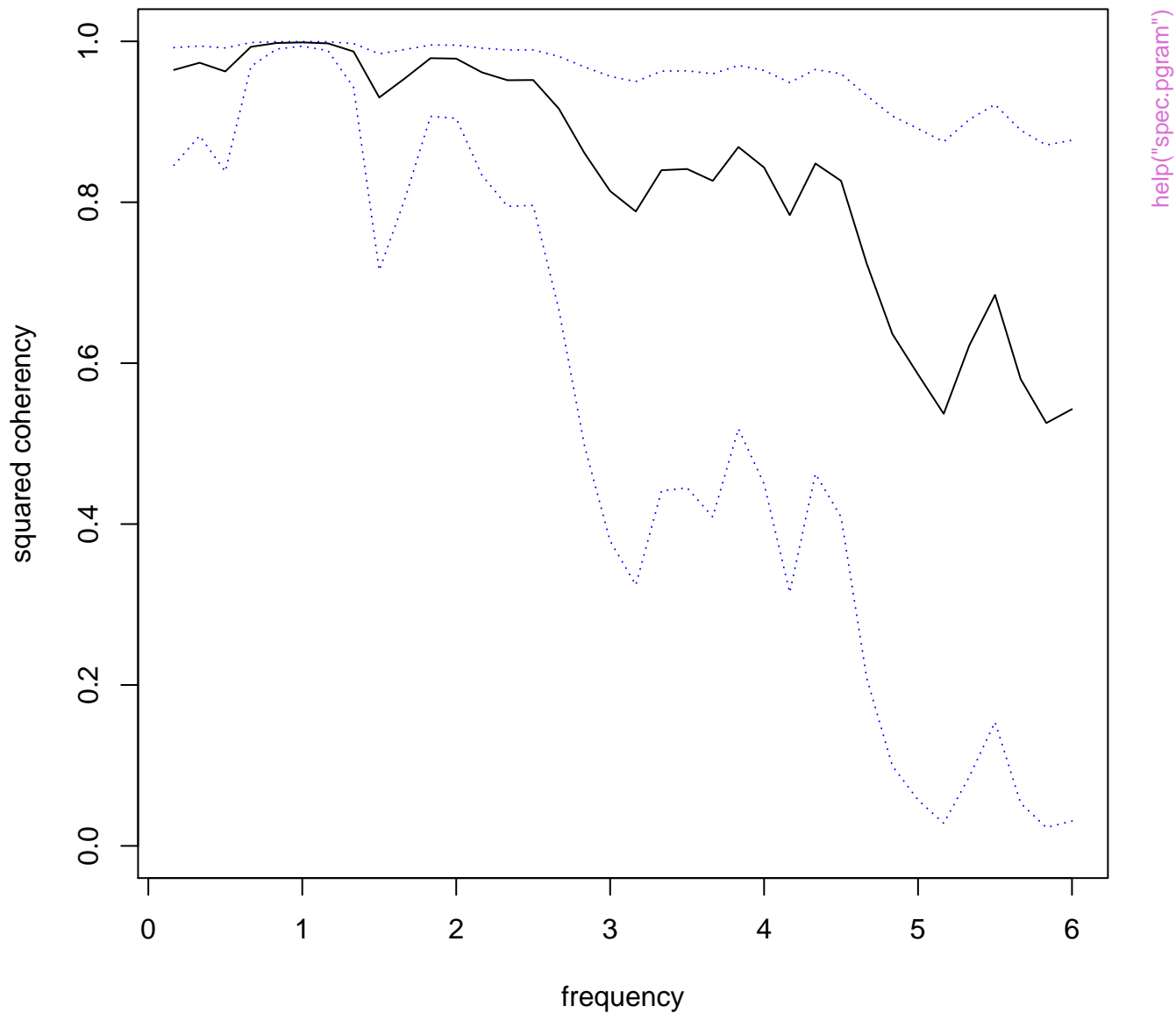
Series: x
Smoothed Periodogram



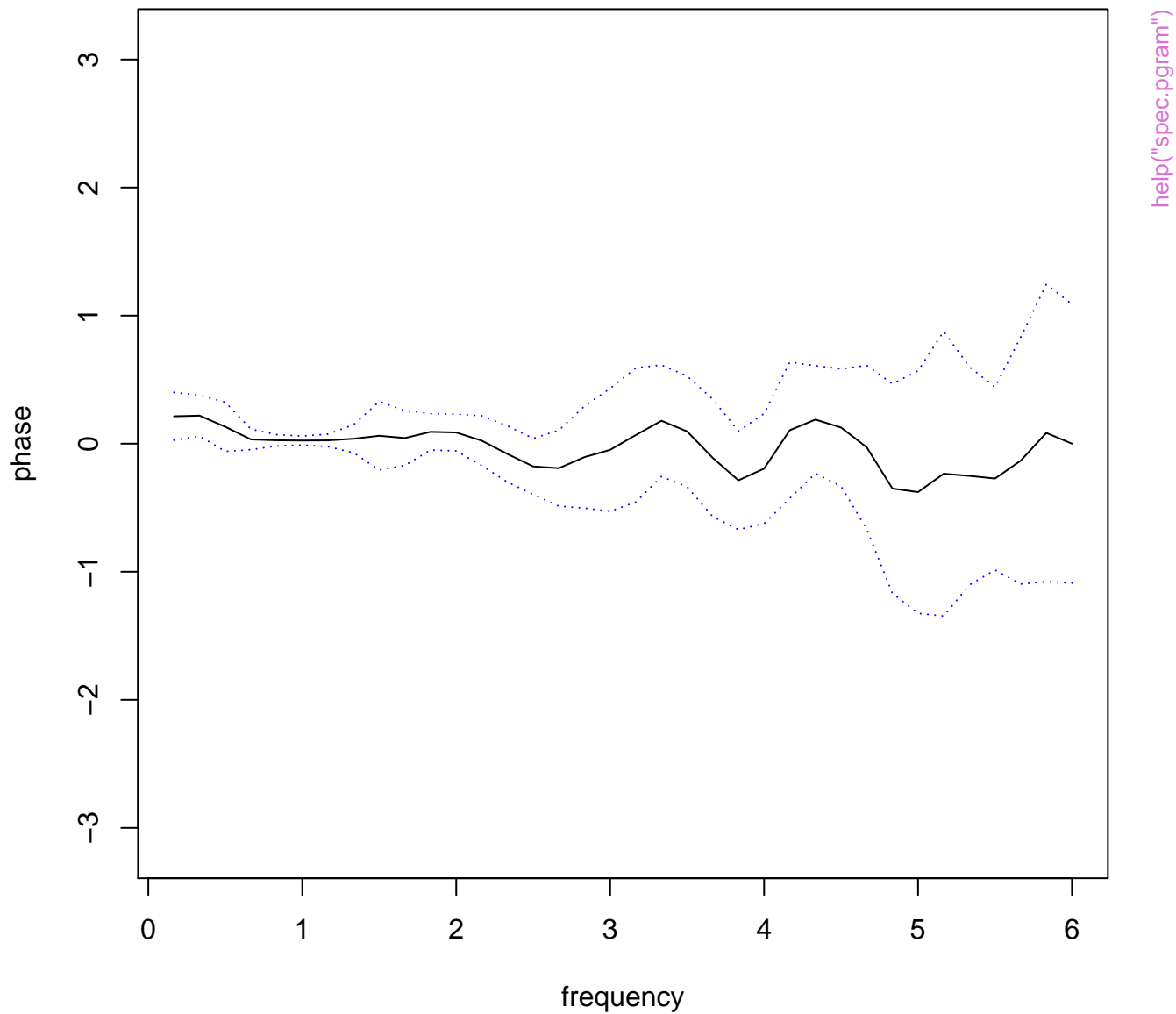
Series: ts.union(mdeaths, fdeaths)
Smoothed Periodogram



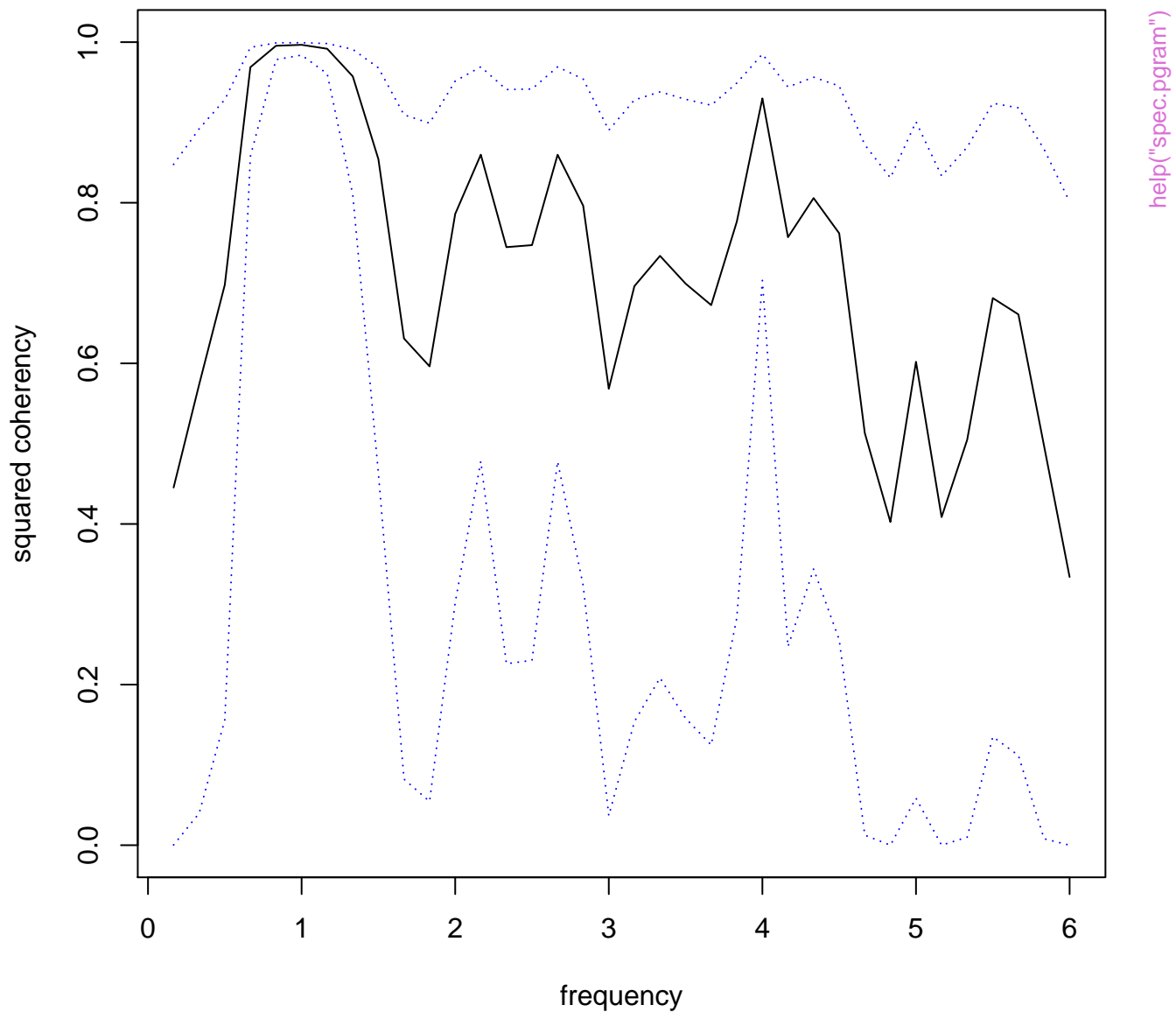
Series: ts.union(mdeaths, fdeaths) -- Squared Coherency



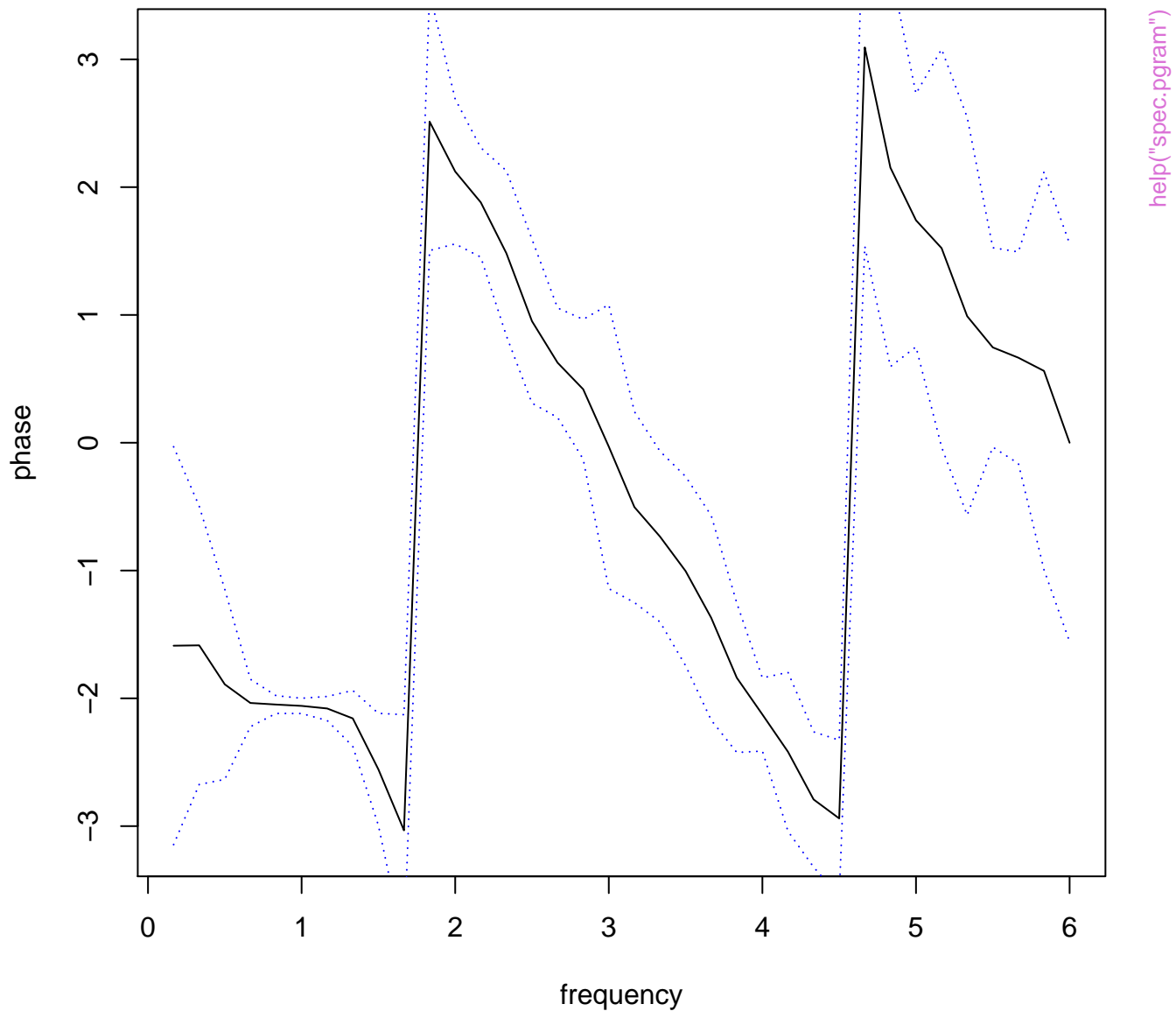
Series: ts.union(mdeaths, fdeaths) -- Phase spectrum



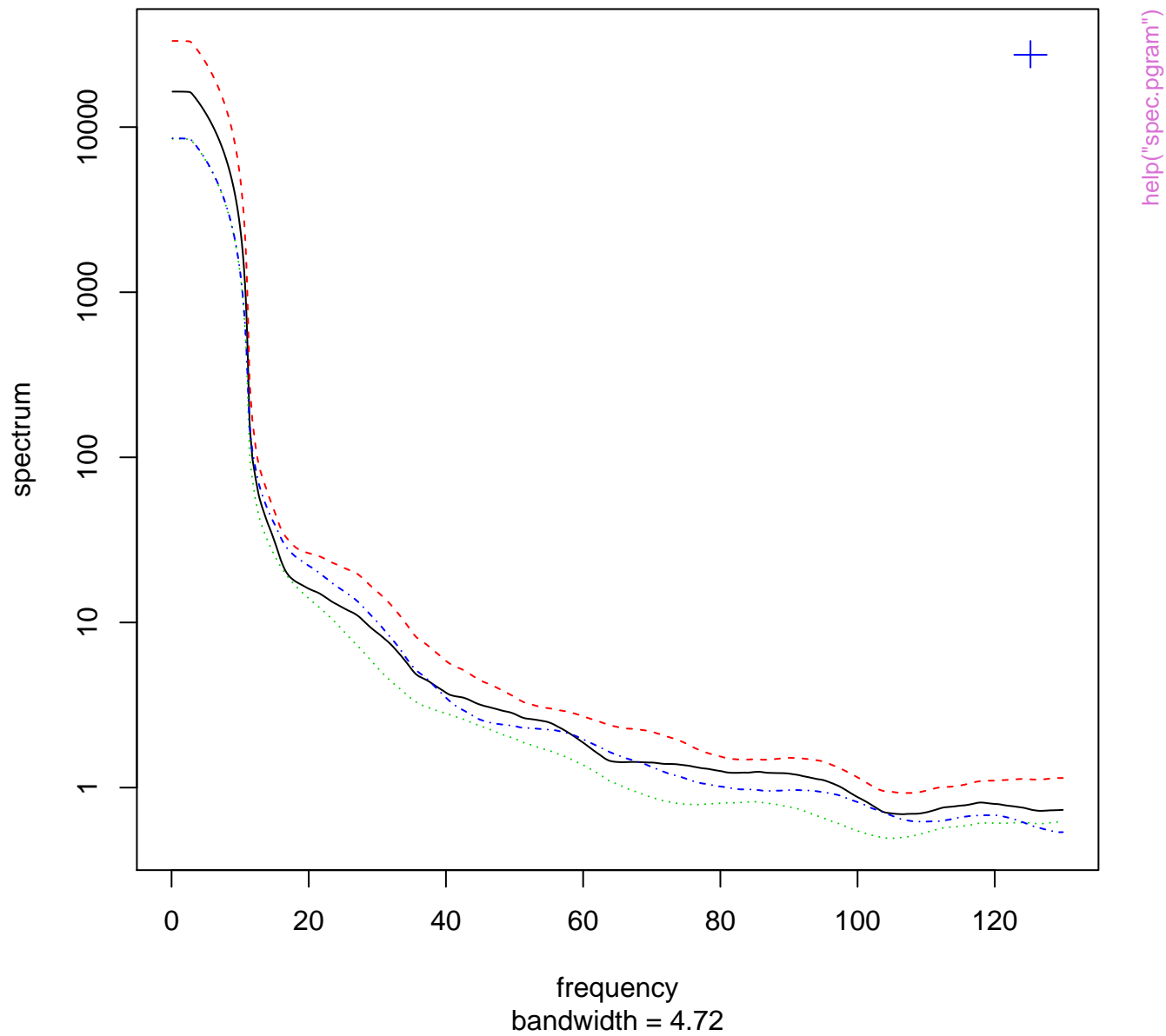
Series: ts.intersect(mdeaths, lag(fdeaths, 4)) -- Squared Coherency



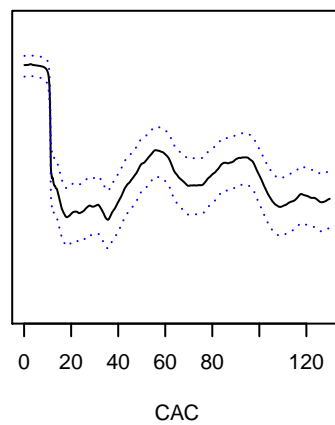
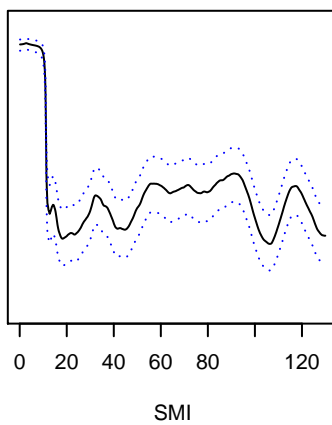
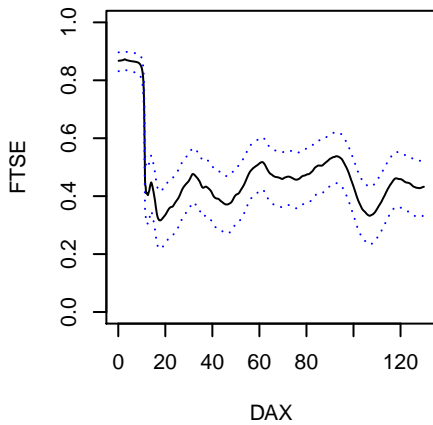
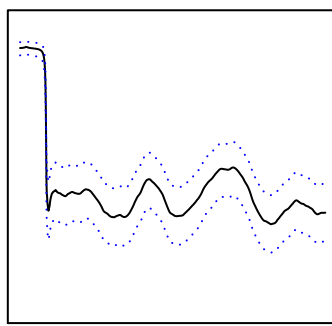
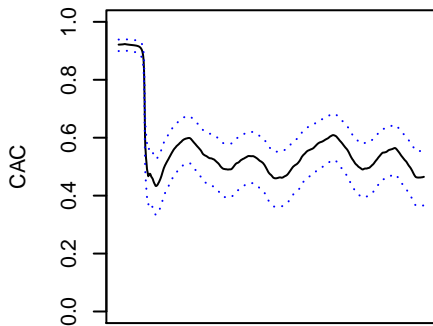
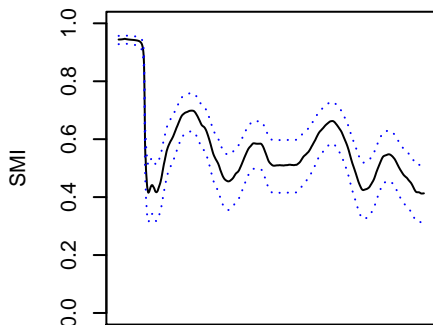
Series: `ts.intersect(mdeaths, lag(fdeaths, 4))` -- Phase spectrum



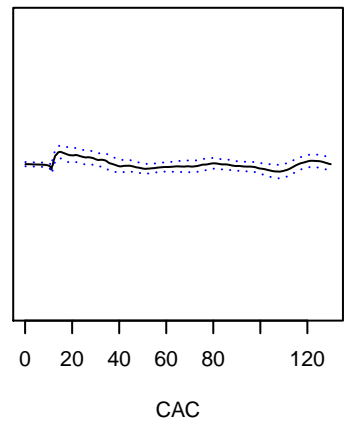
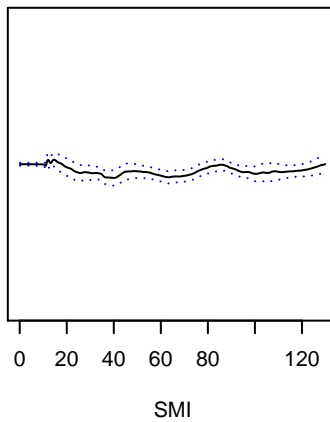
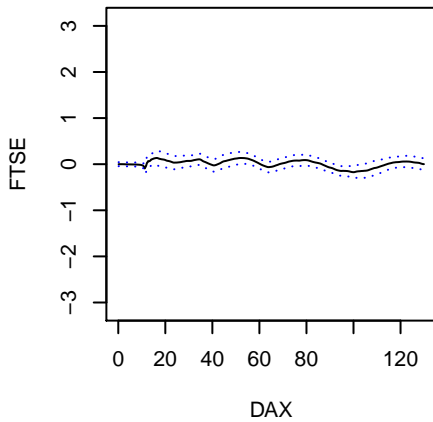
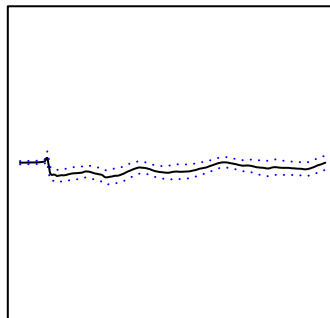
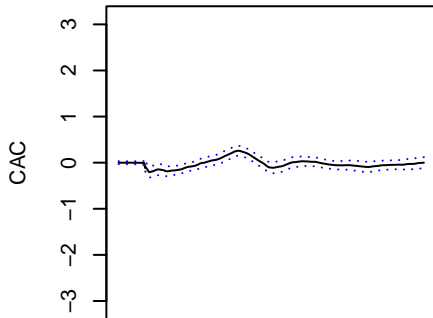
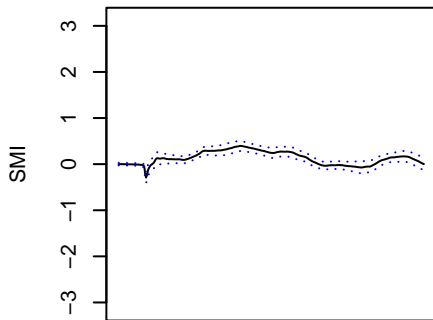
Series: x
Smoothed Periodogram



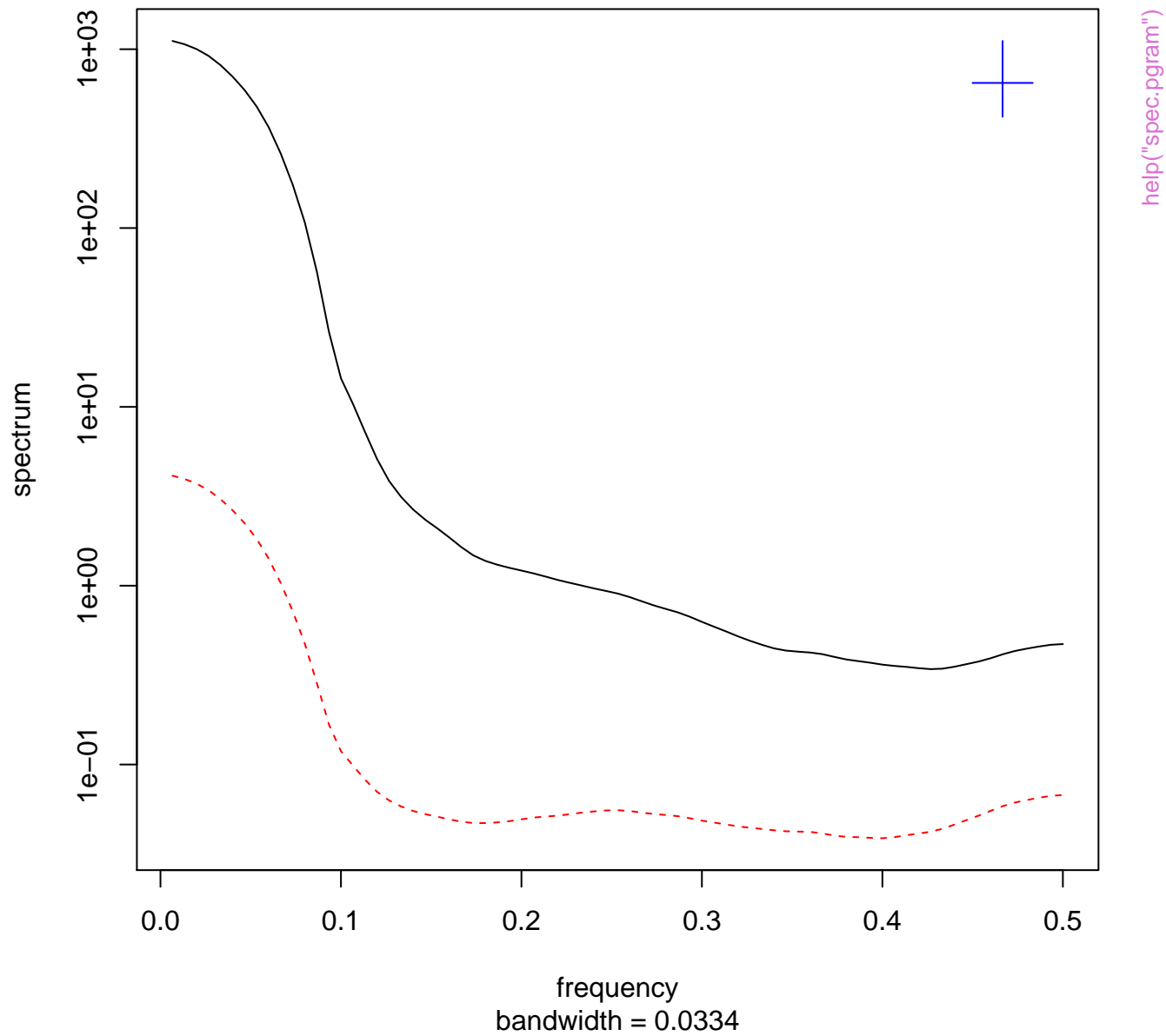
Series: x -- Squared Coherency



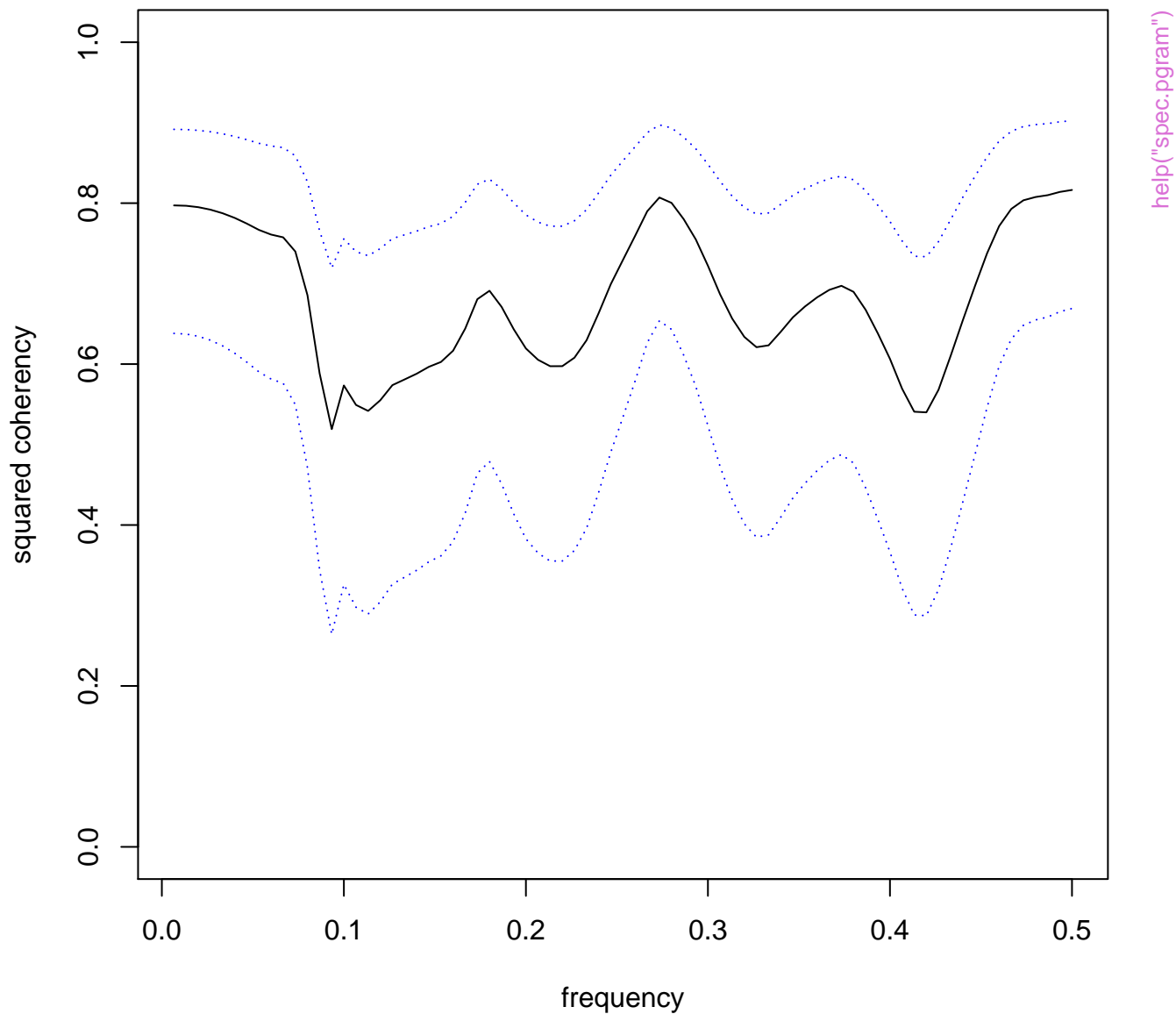
Series: x -- Phase spectrum



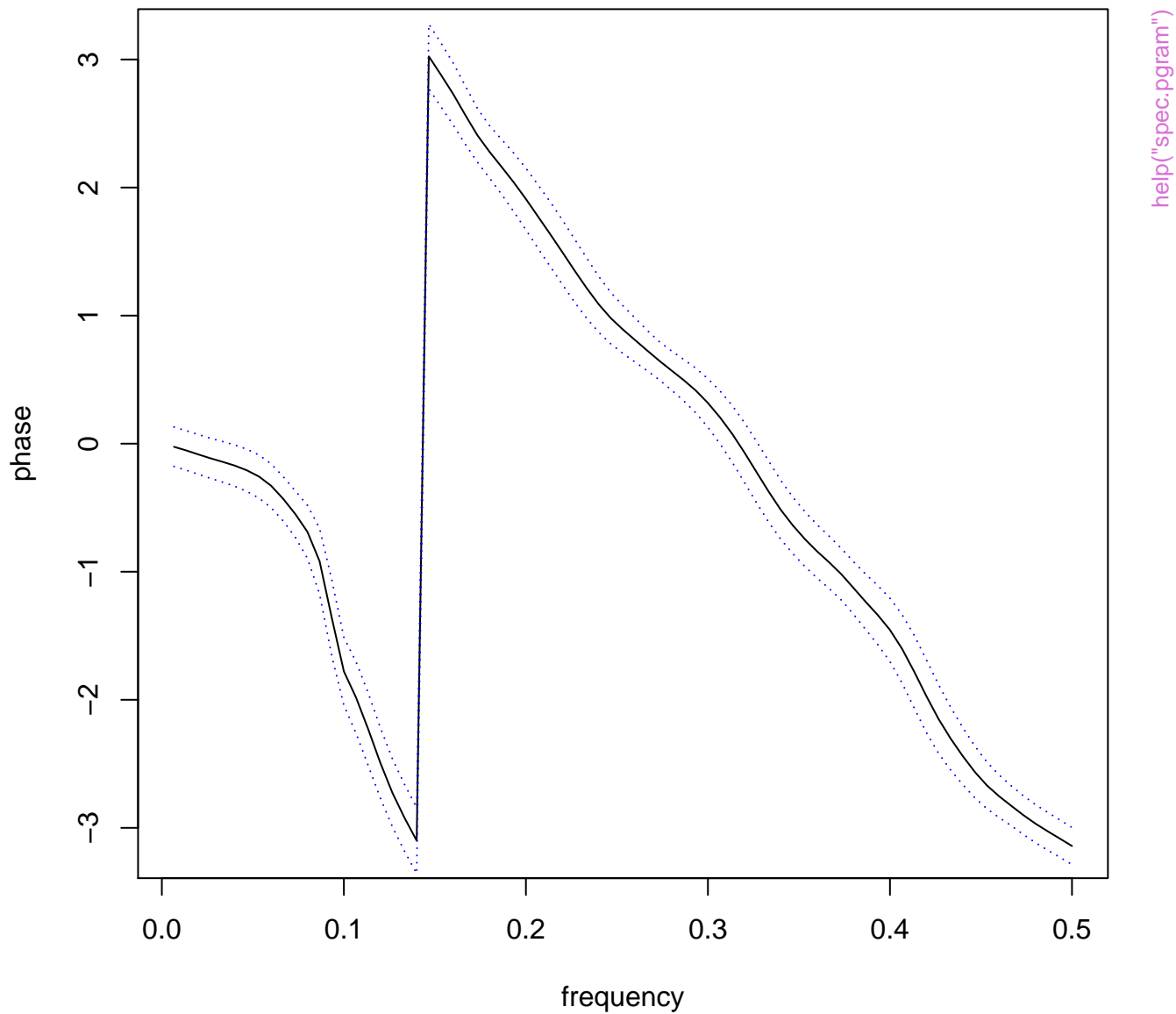
Series: x
Smoothed Periodogram



Series: x -- Squared Coherency

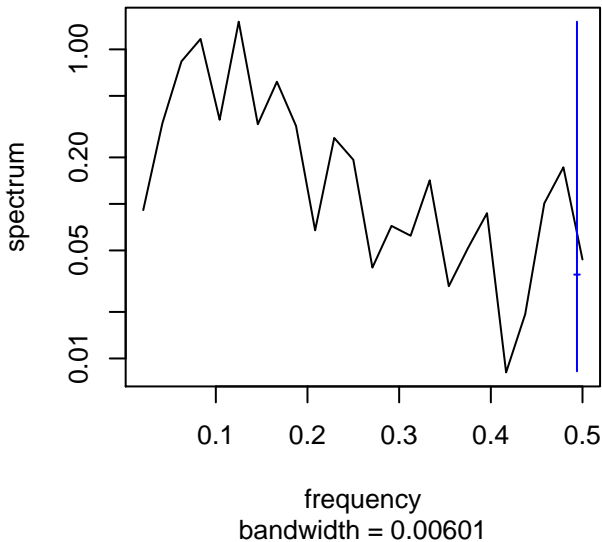


Series: x -- Phase spectrum

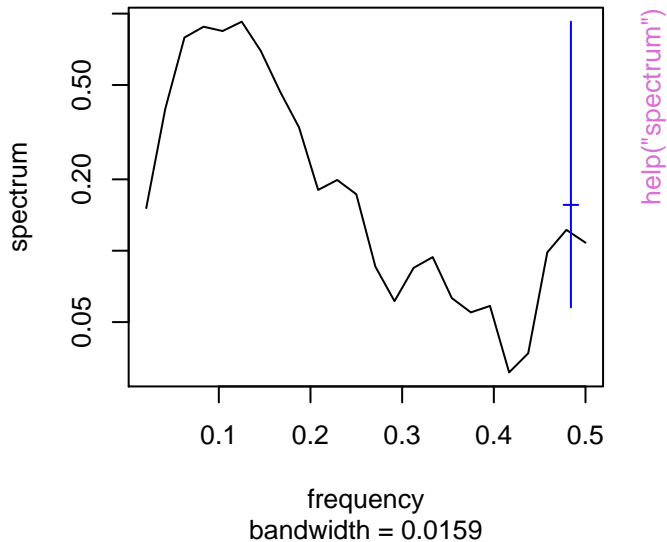


help("spec.pgram")

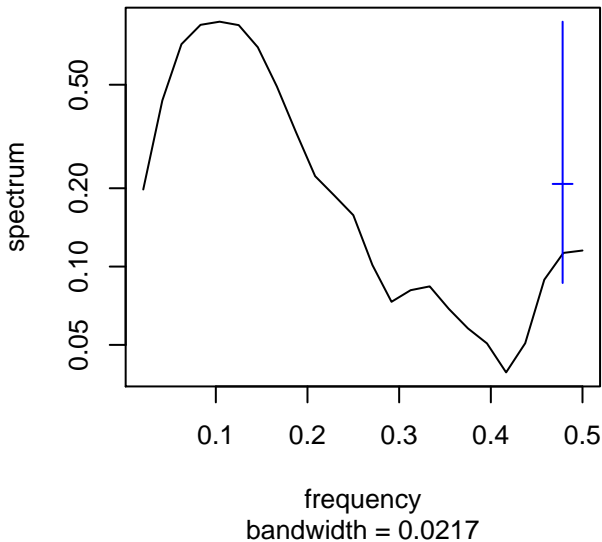
Series: x
Raw Periodogram



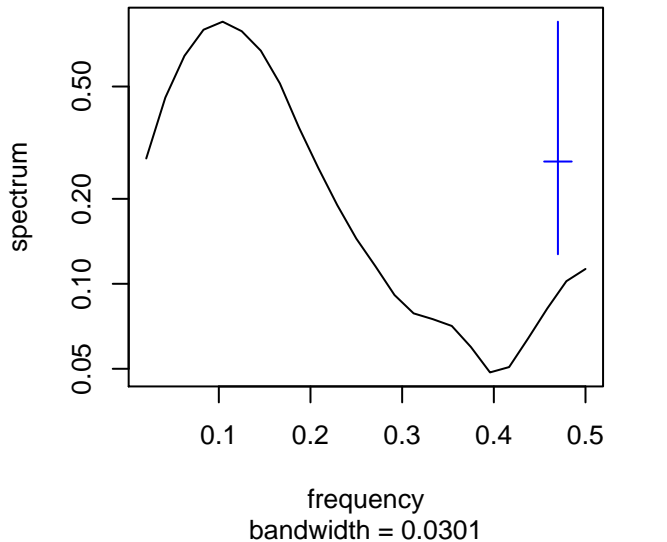
Series: x
Smoothed Periodogram



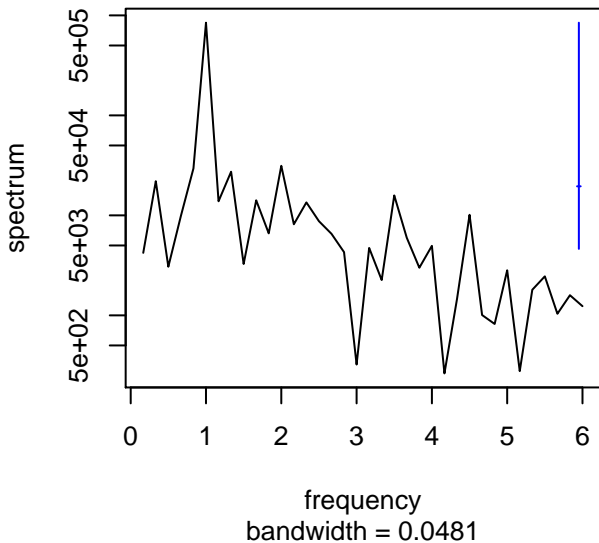
Series: x
Smoothed Periodogram



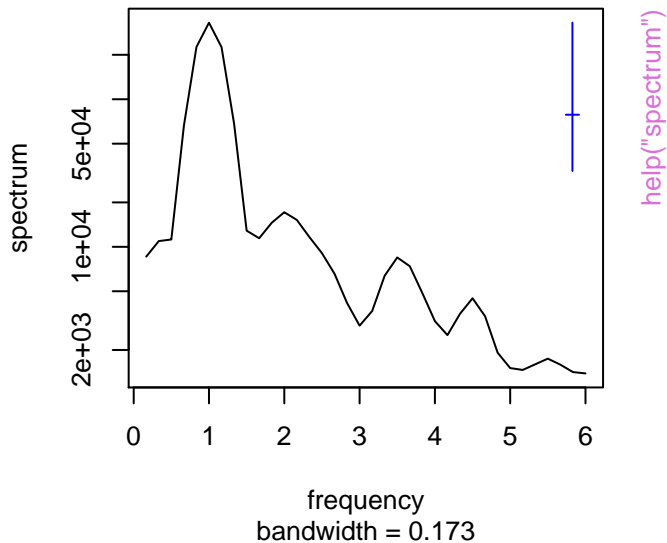
Series: x
Smoothed Periodogram



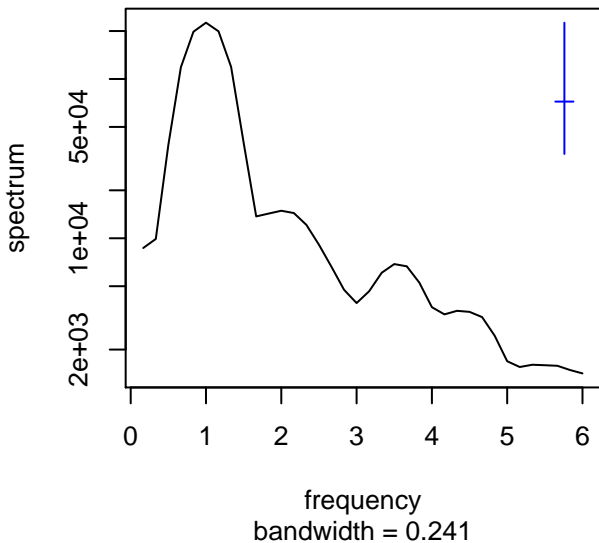
Series: x
Raw Periodogram



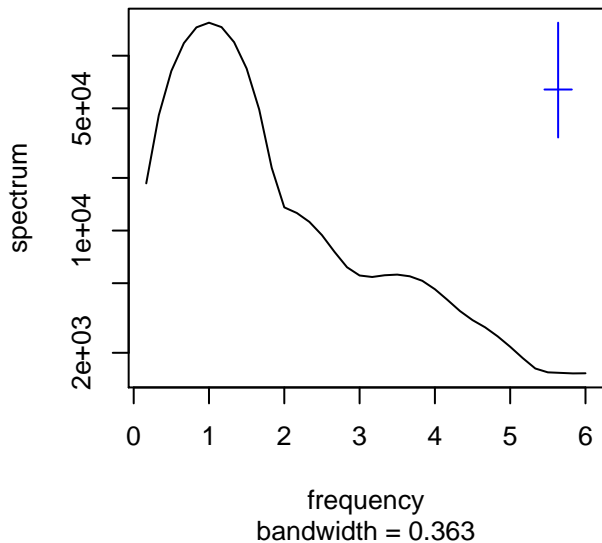
Series: x
Smoothed Periodogram



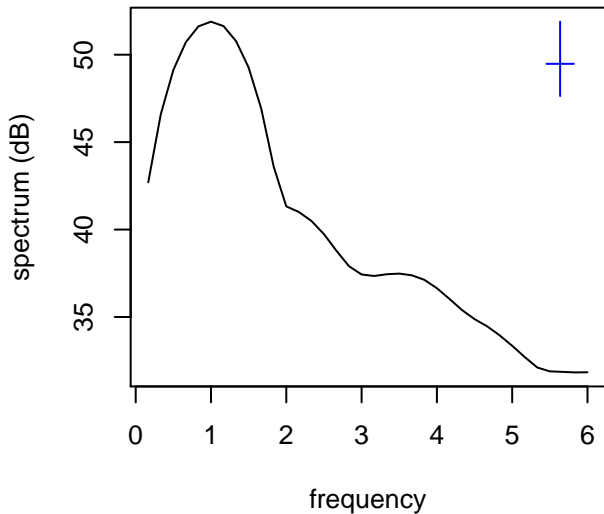
Series: x
Smoothed Periodogram



Series: x
Smoothed Periodogram

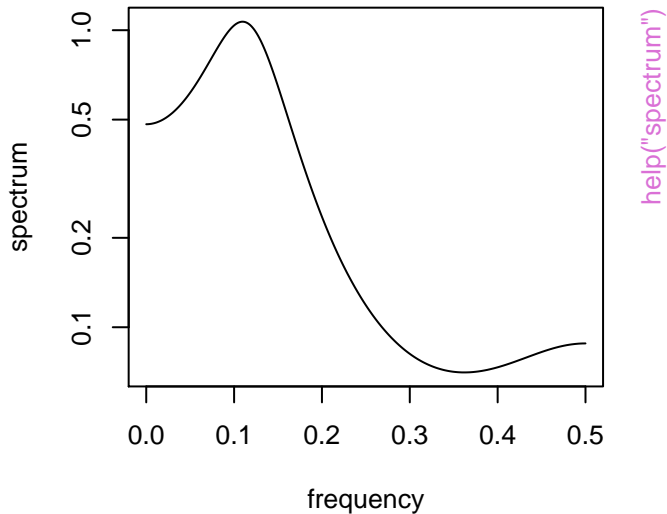


Series: x
Smoothed Periodogram

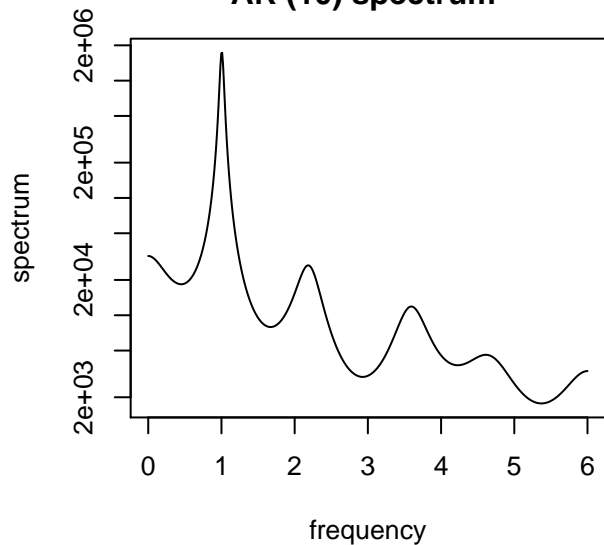


bandwidth = 0.363, 80% C.I. is (-1.84, 2.41)dB

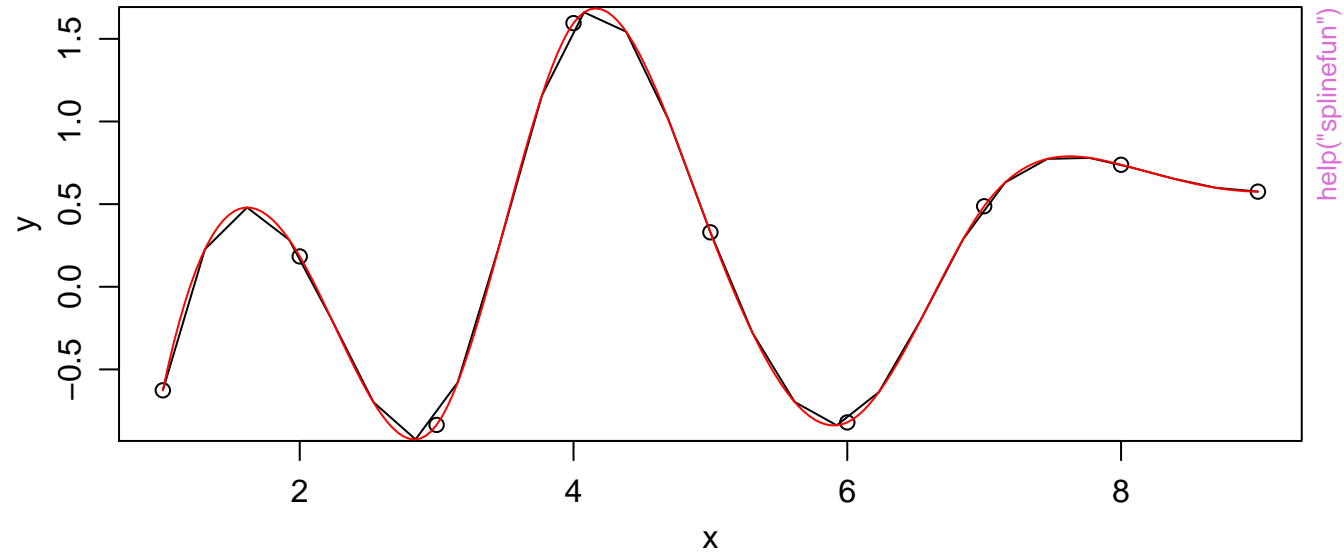
Series: x
AR (3) spectrum



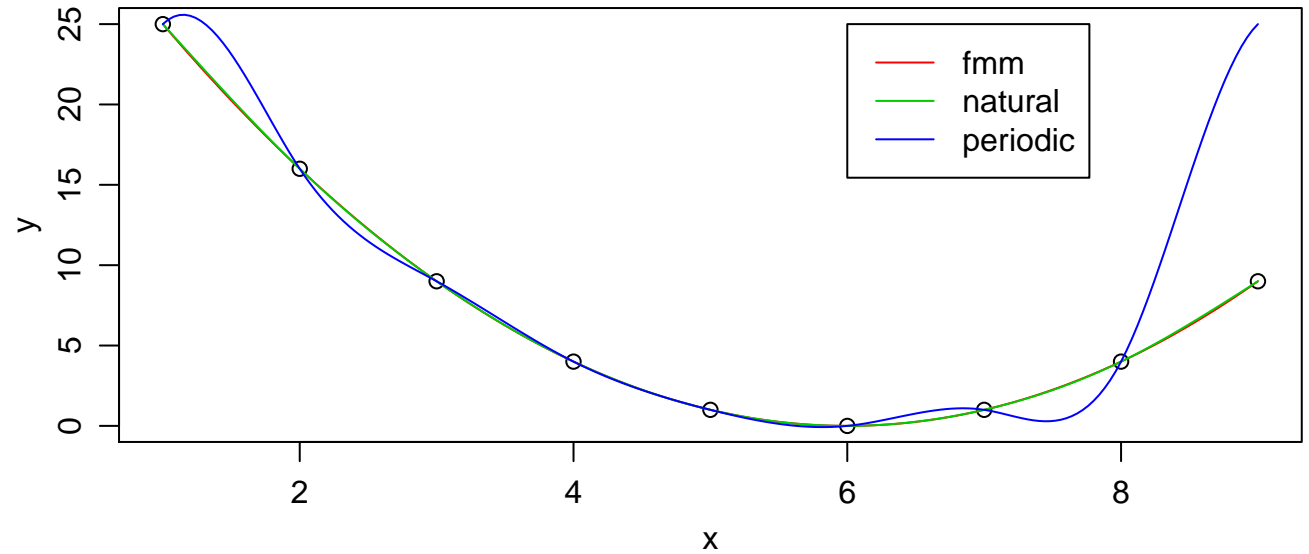
Series: x
AR (10) spectrum

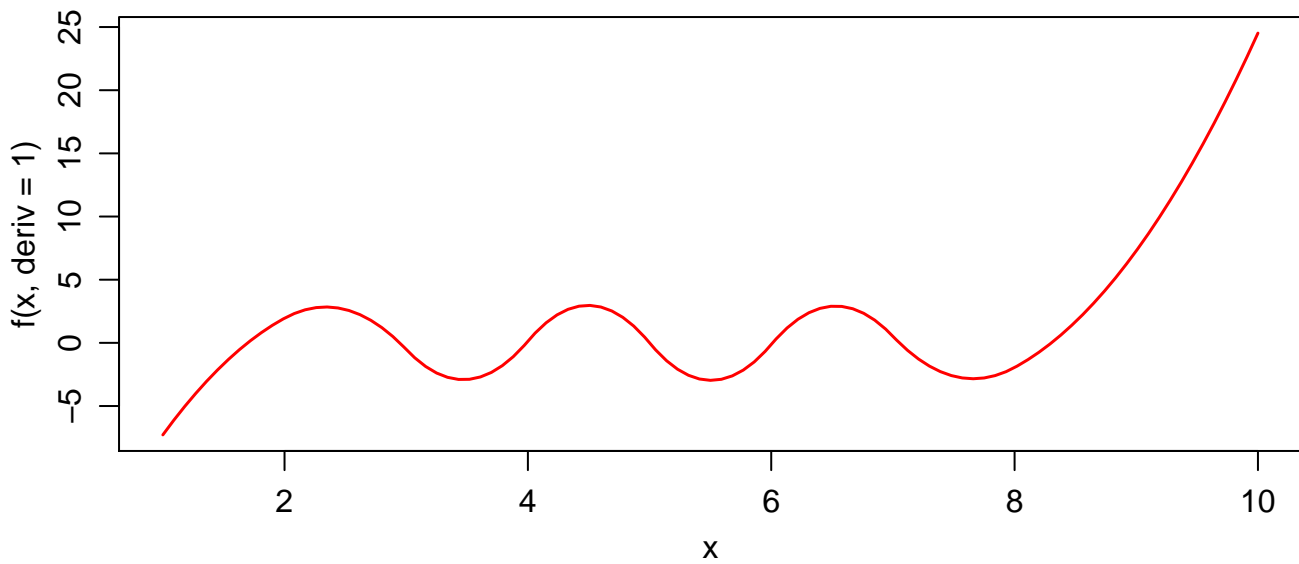
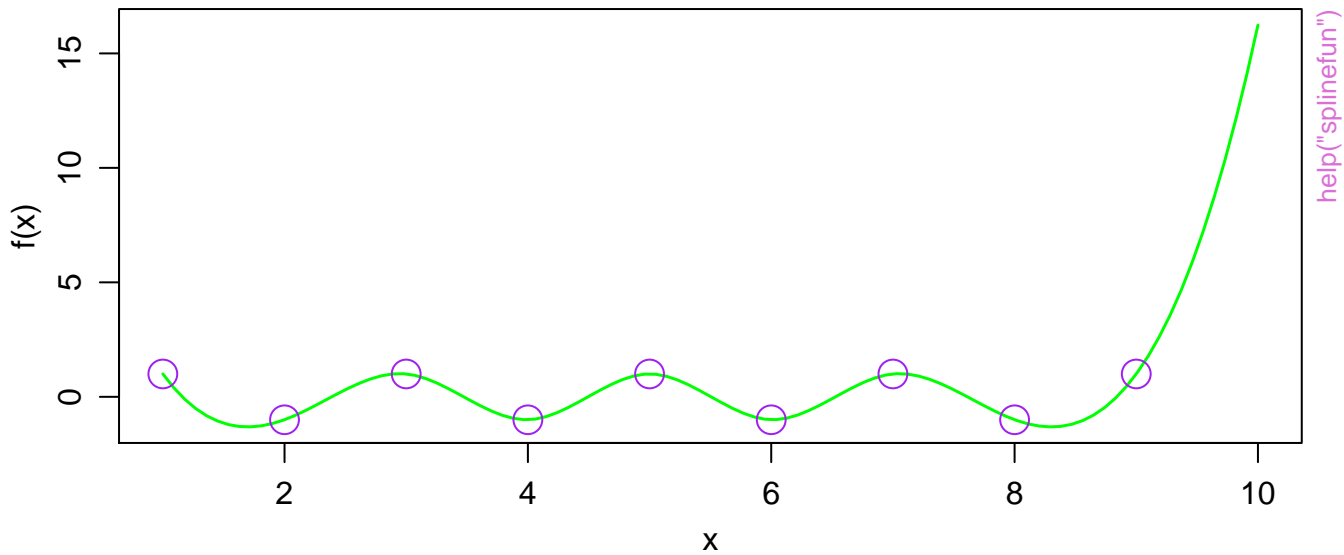


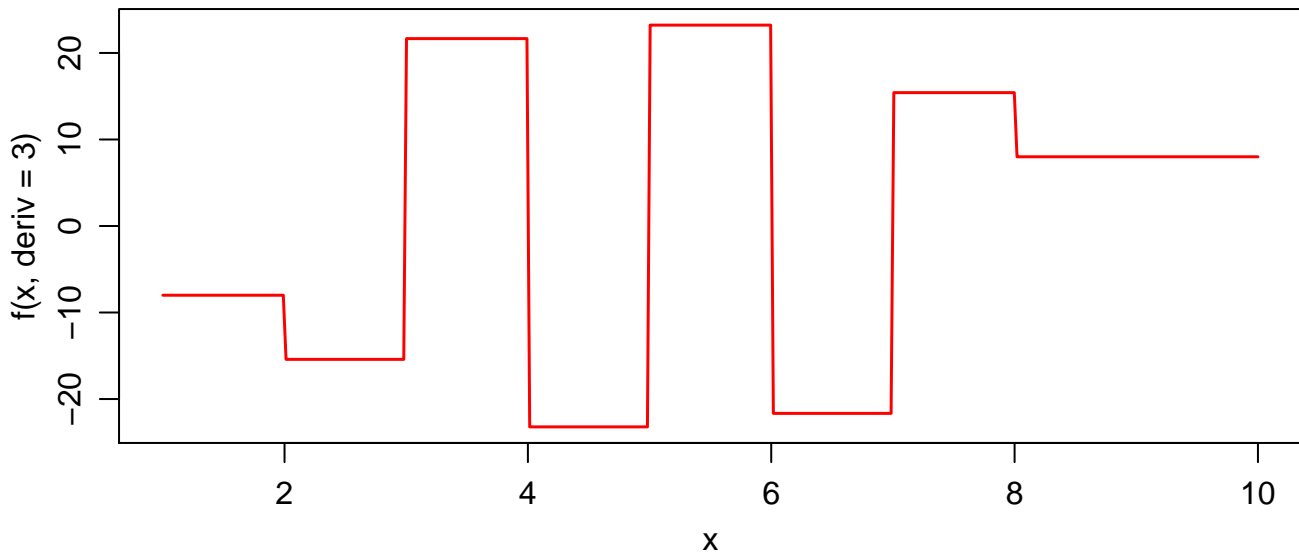
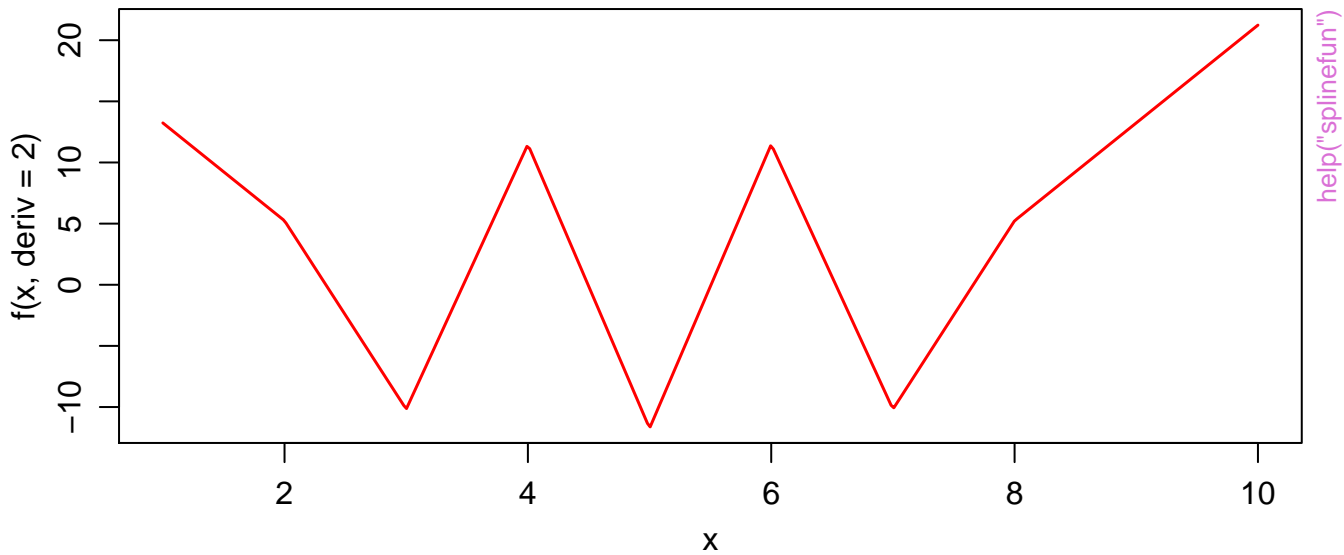
spline[fun](.) through 9 points



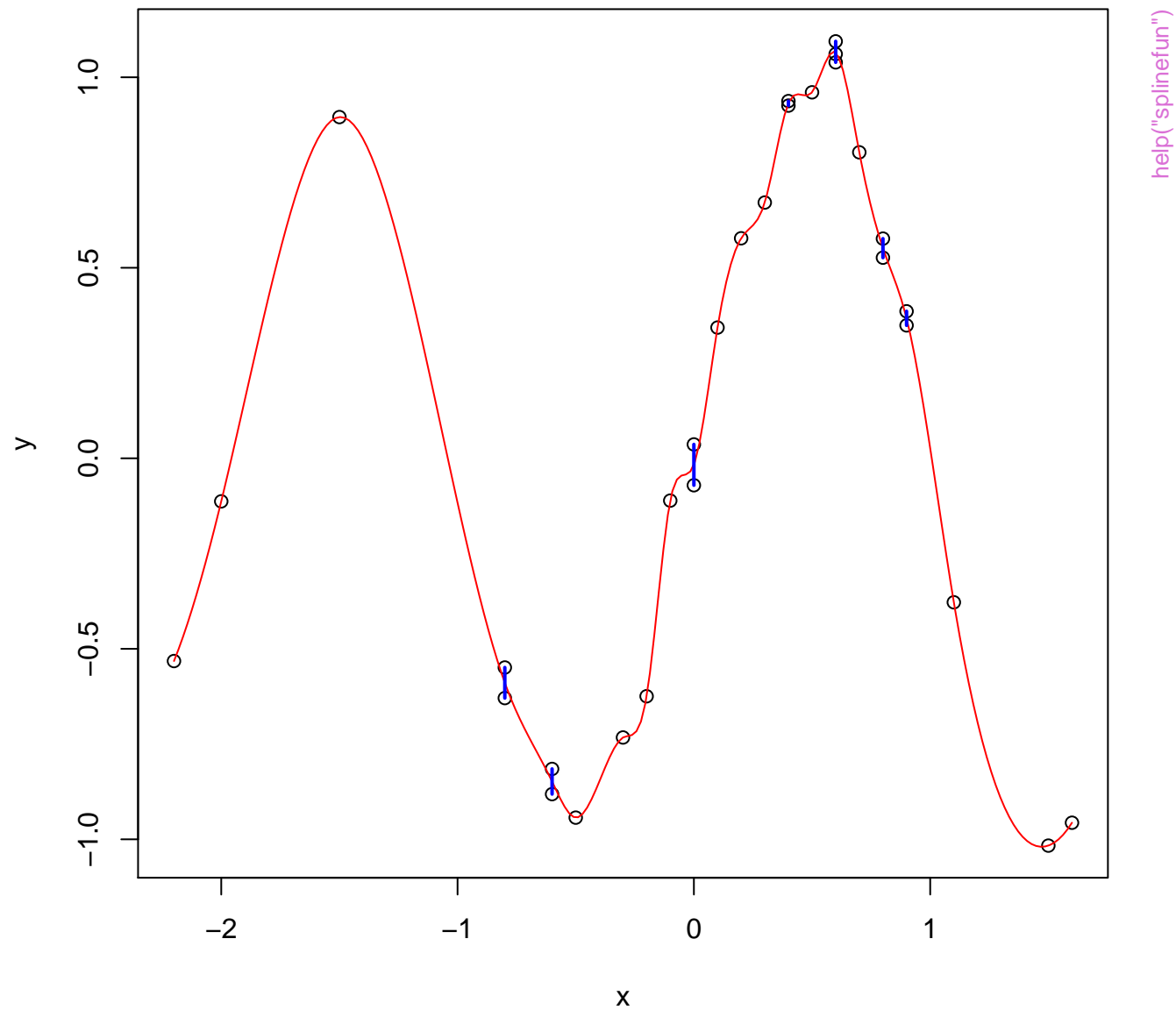
spline(.) -- 3 methods

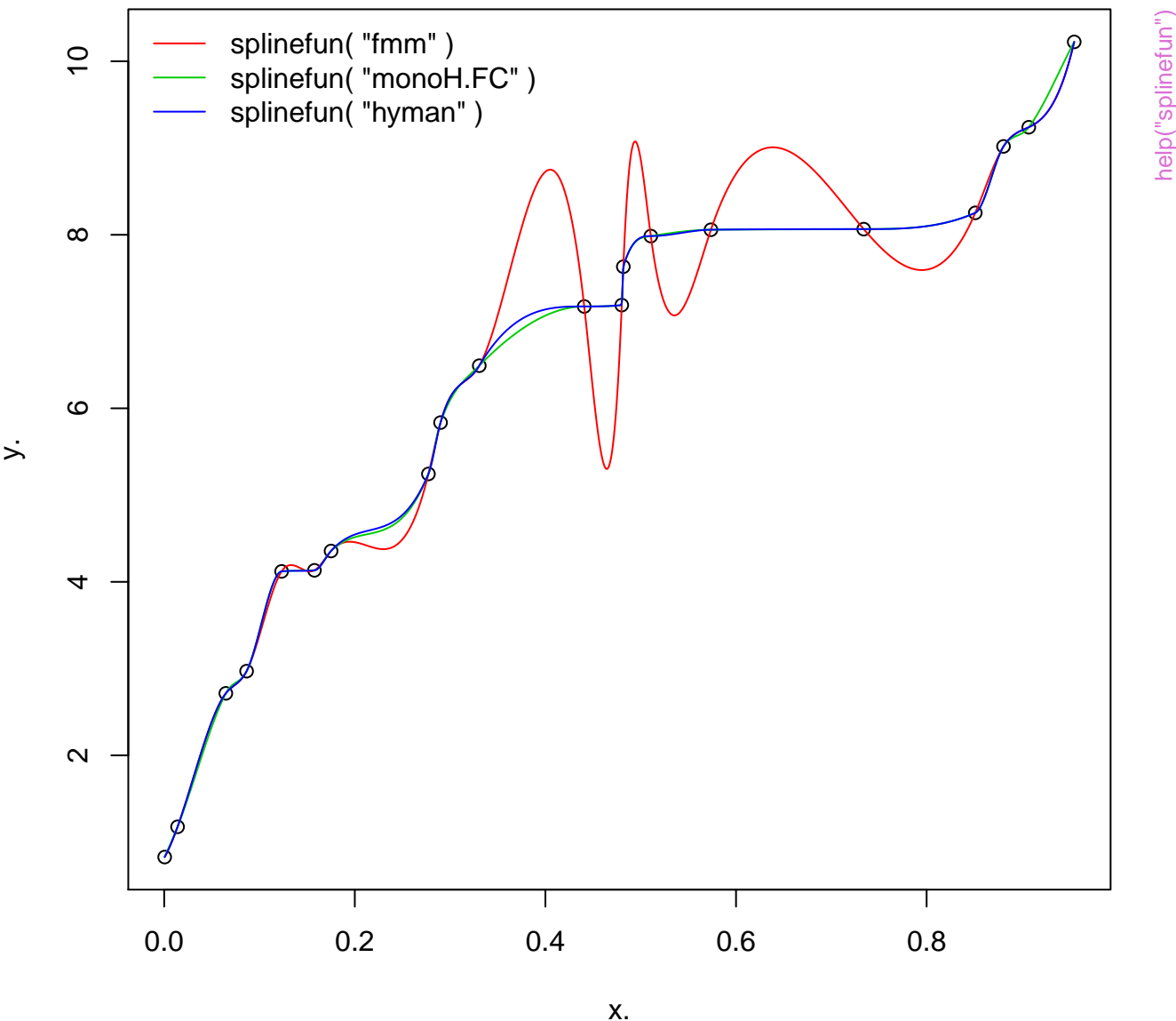


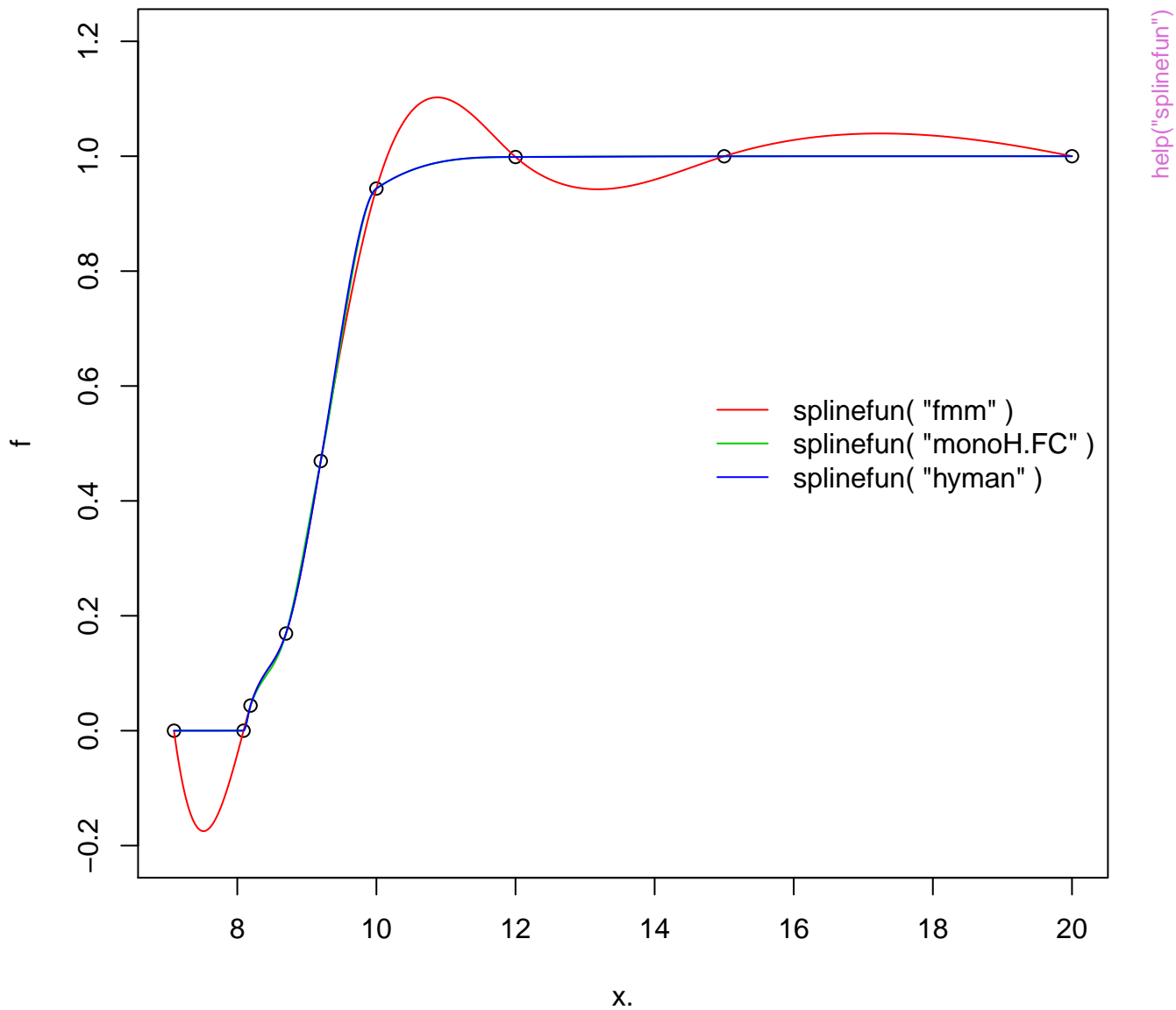




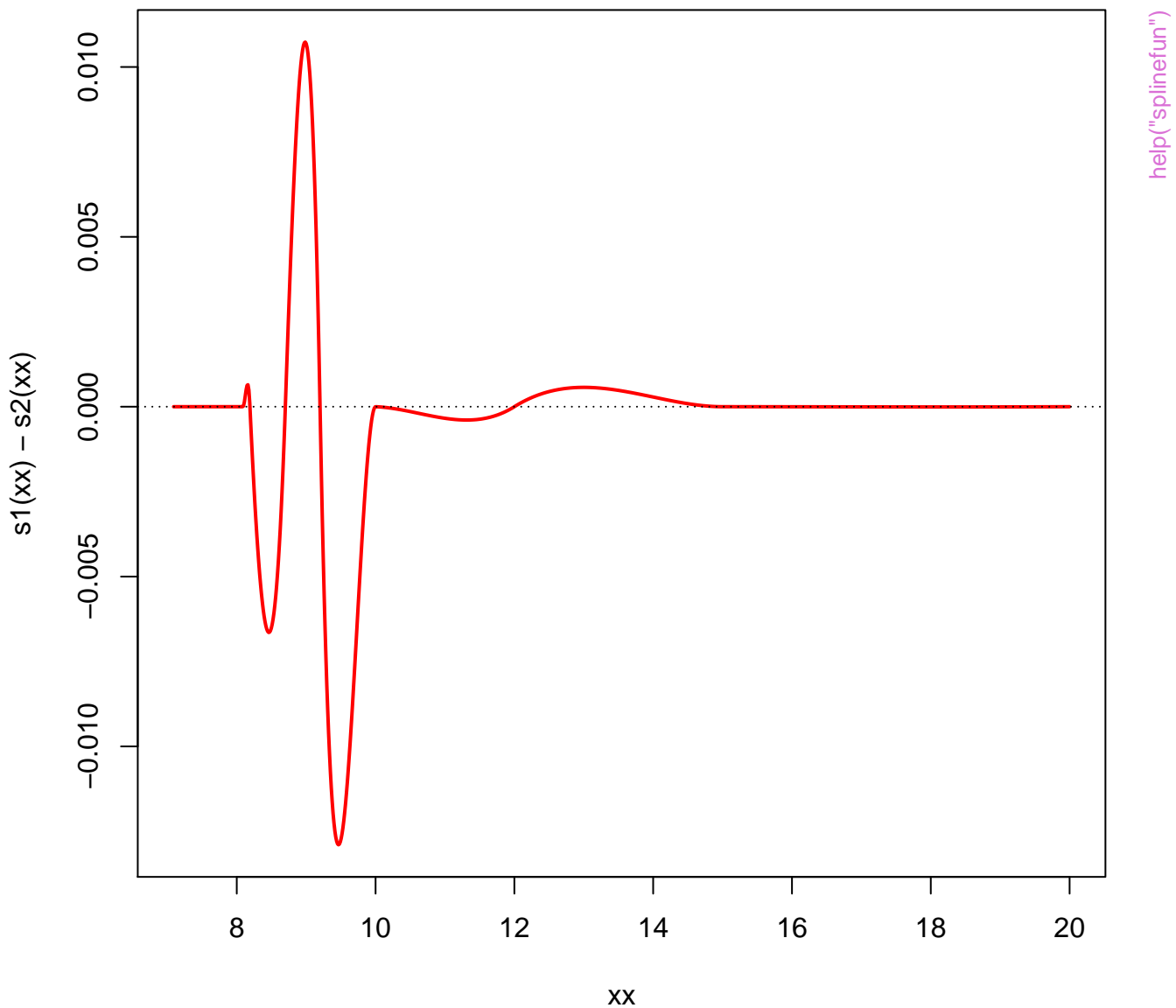
spline(x,y) when x has ties



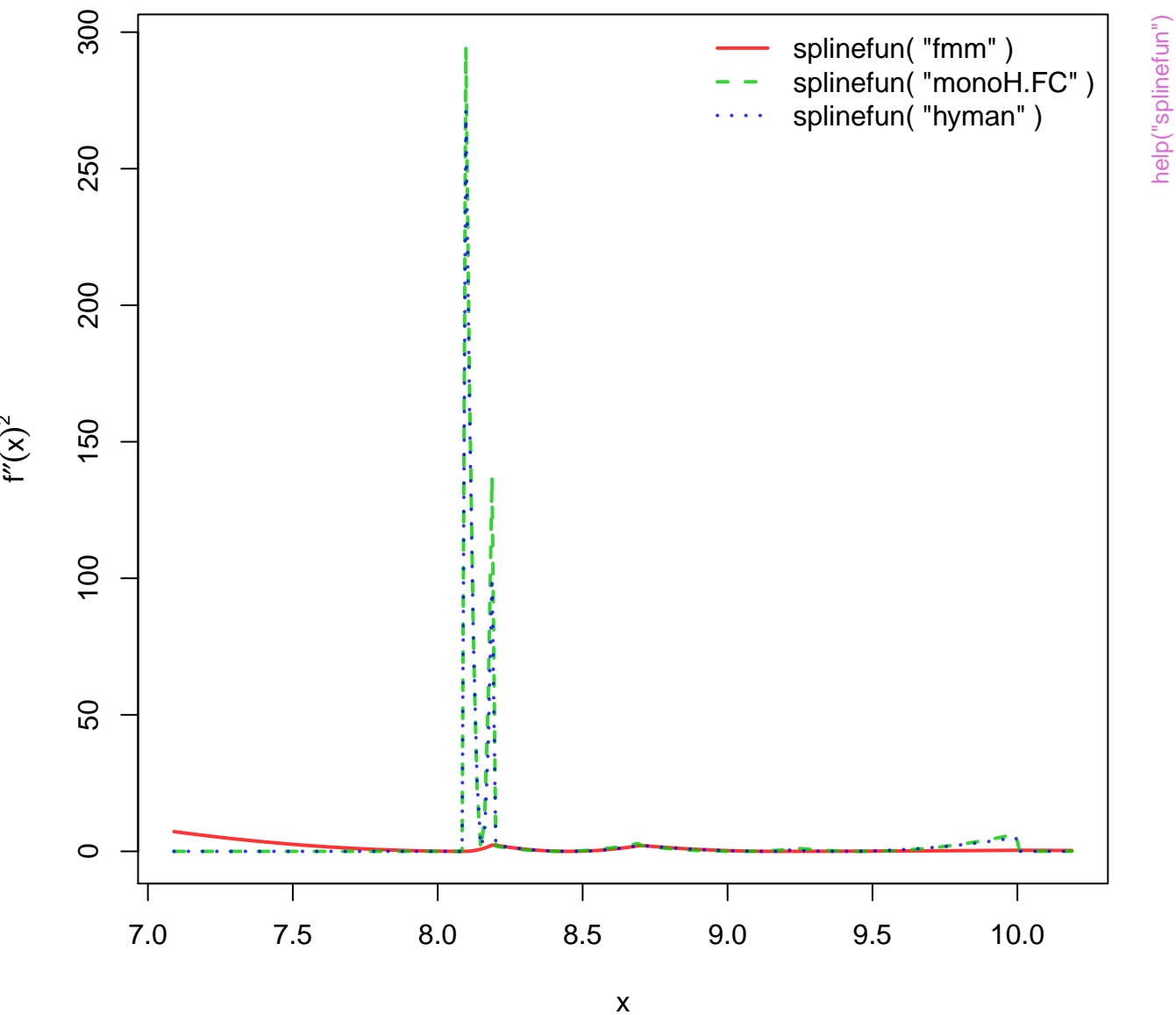


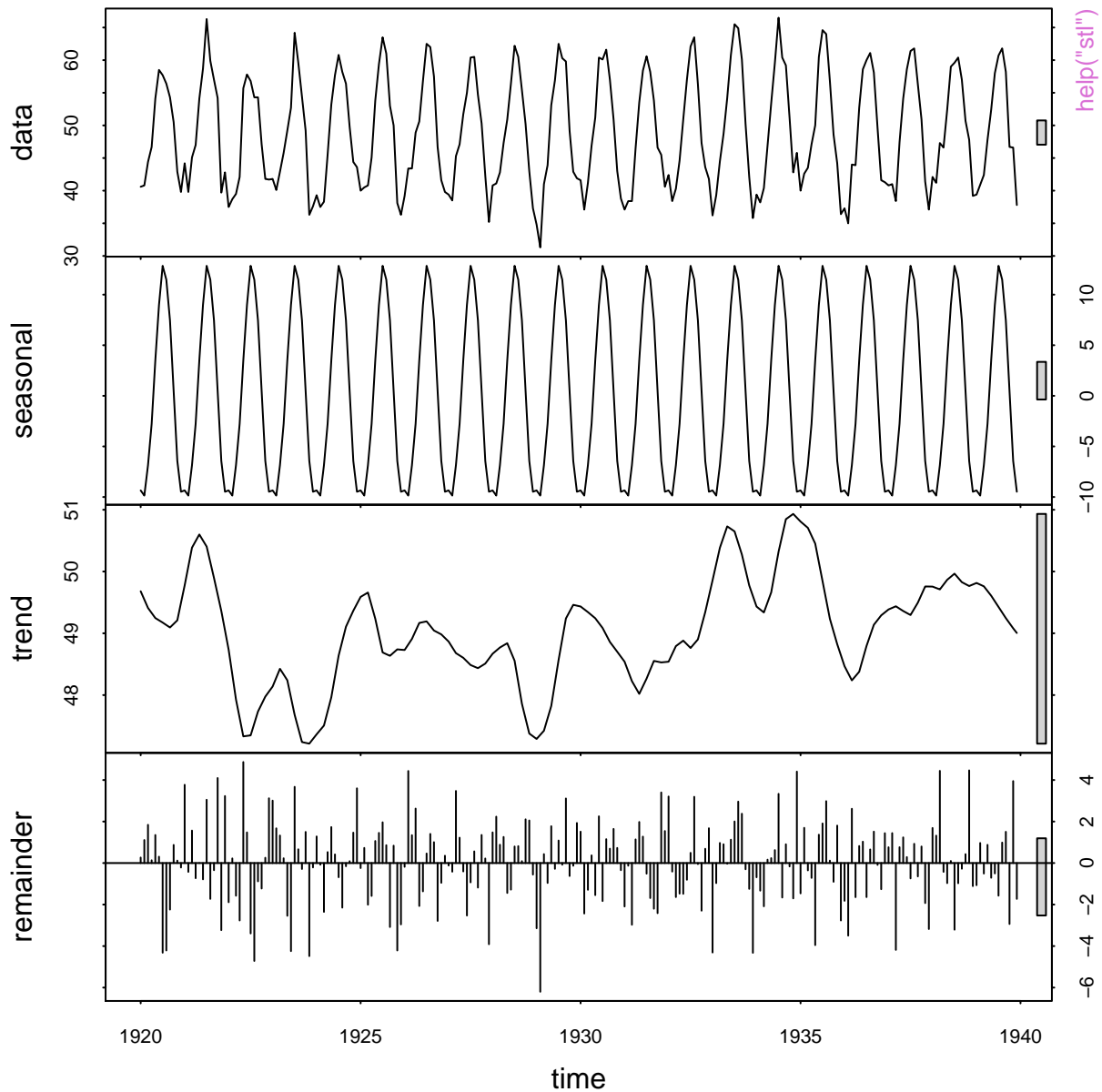


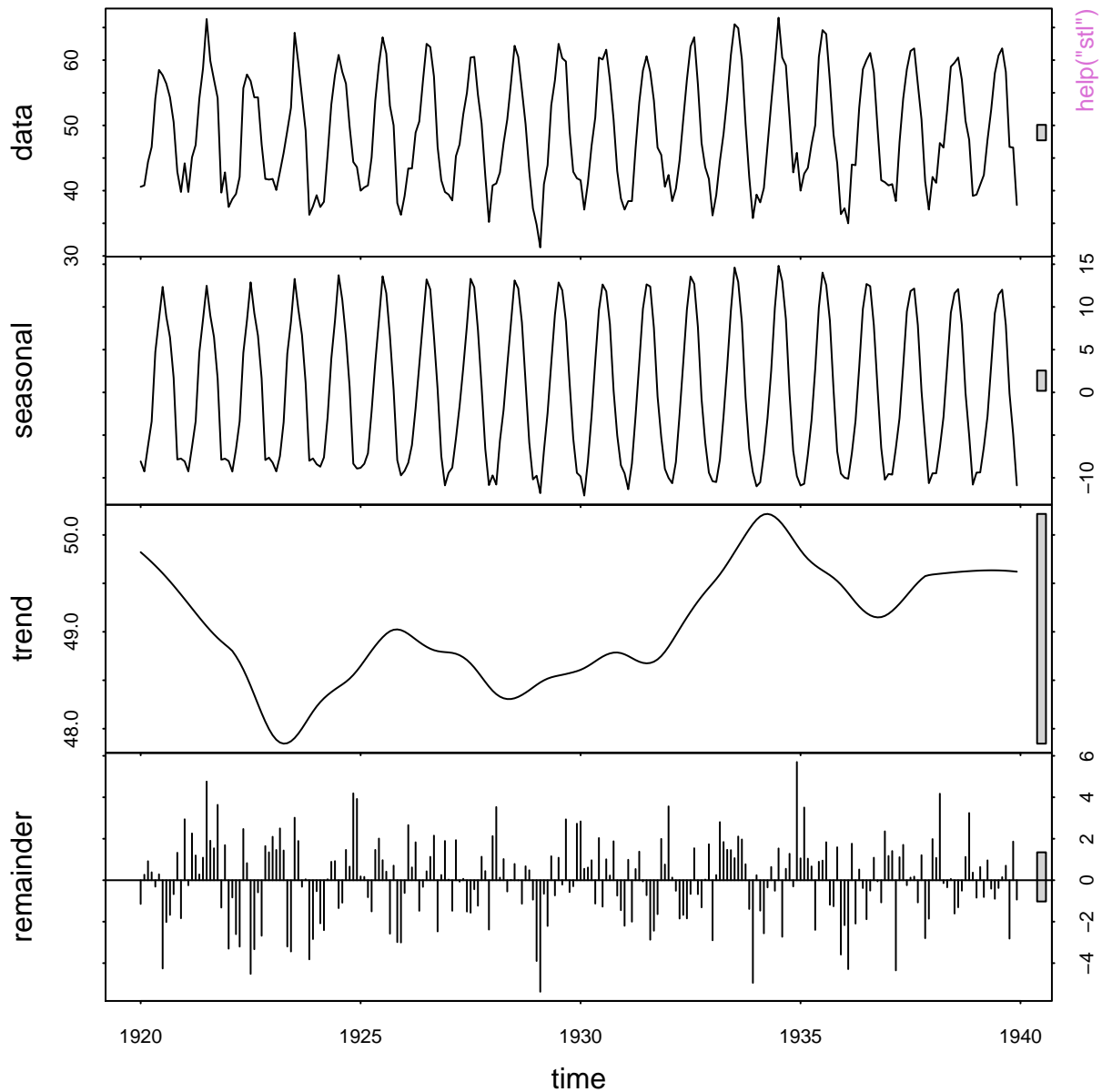
Difference monoH.FC – hyman

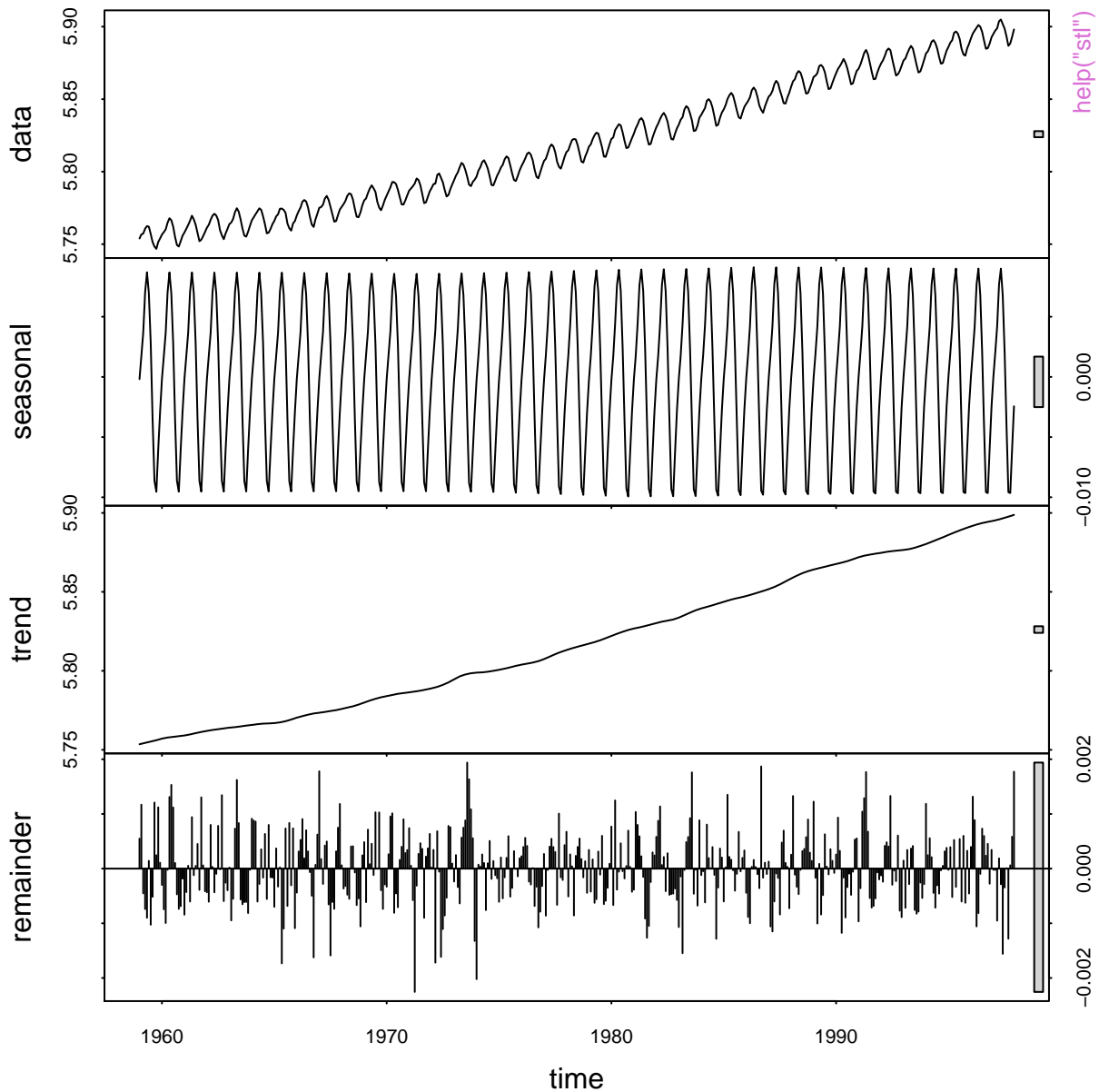


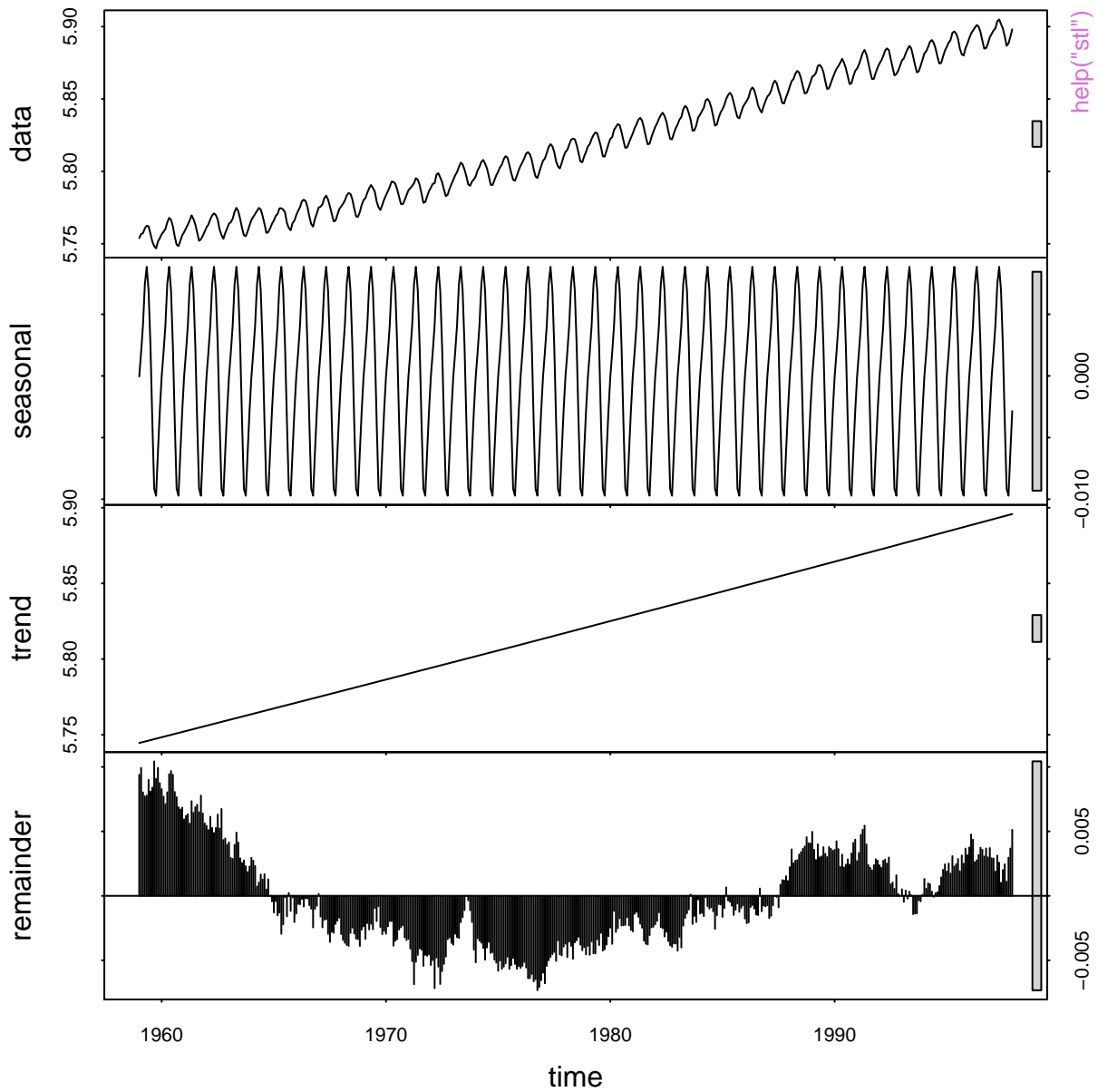
$f''(x)^2$ for the three 'splines'



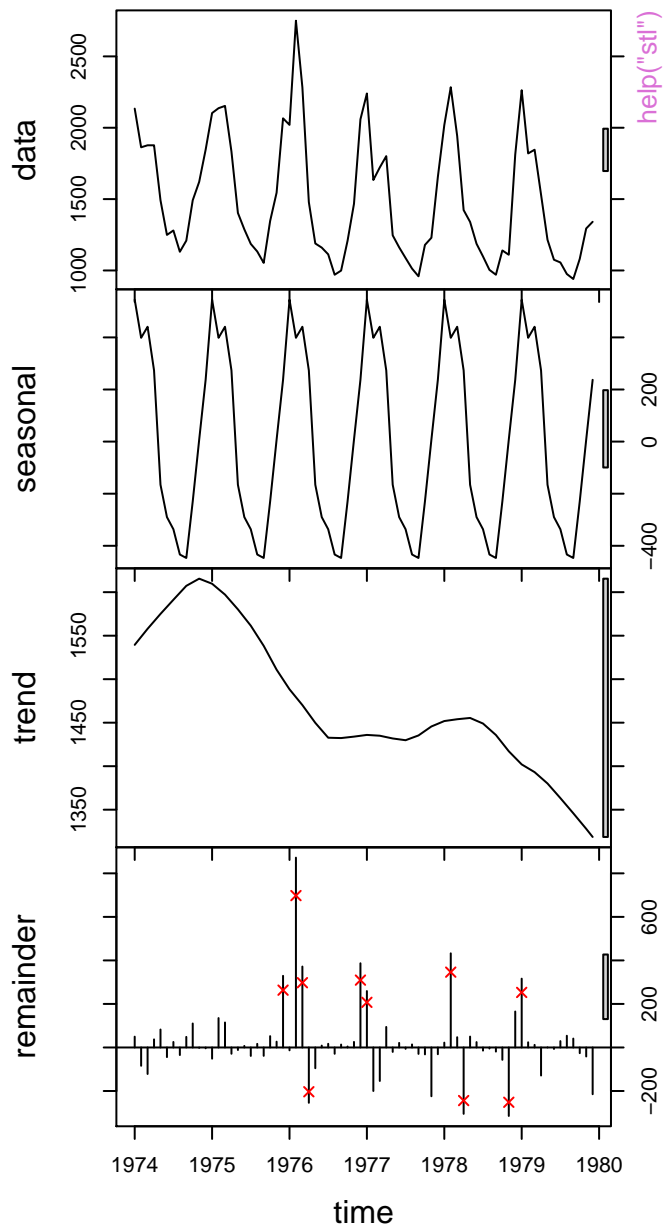
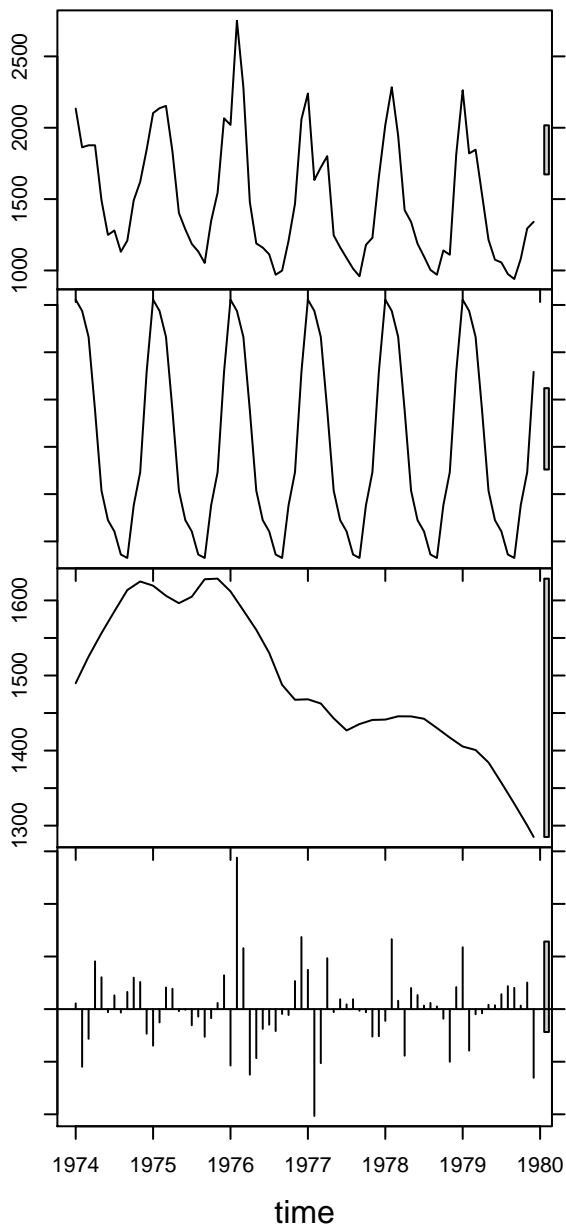




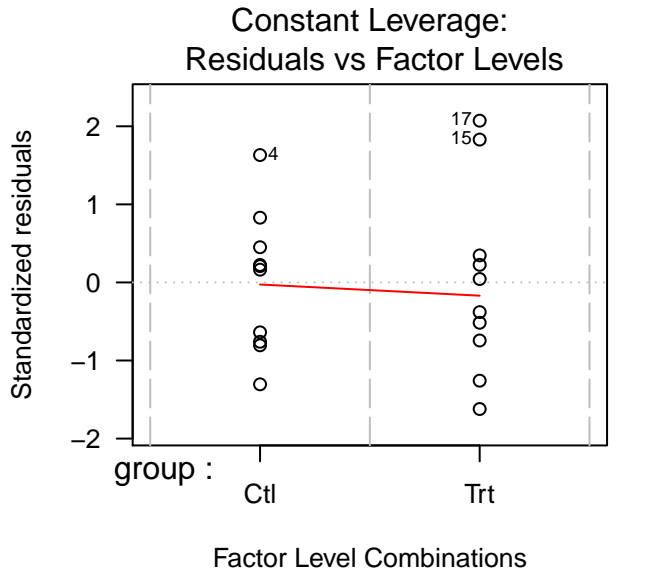
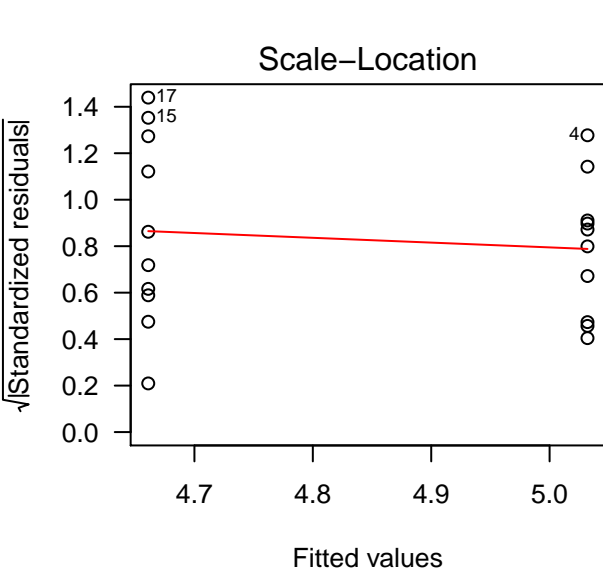
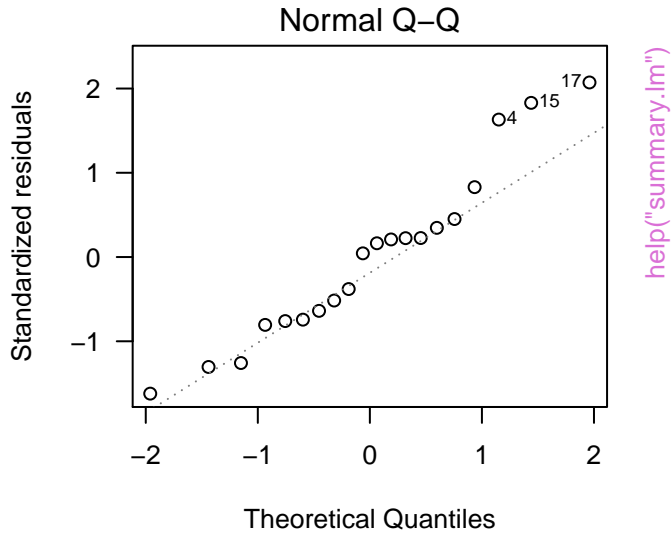
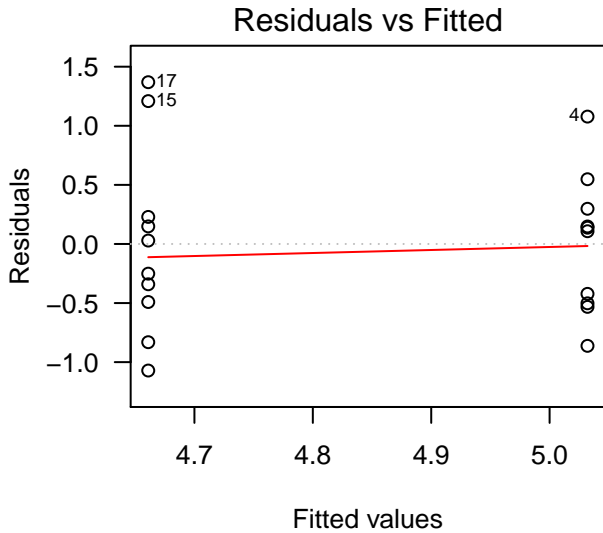




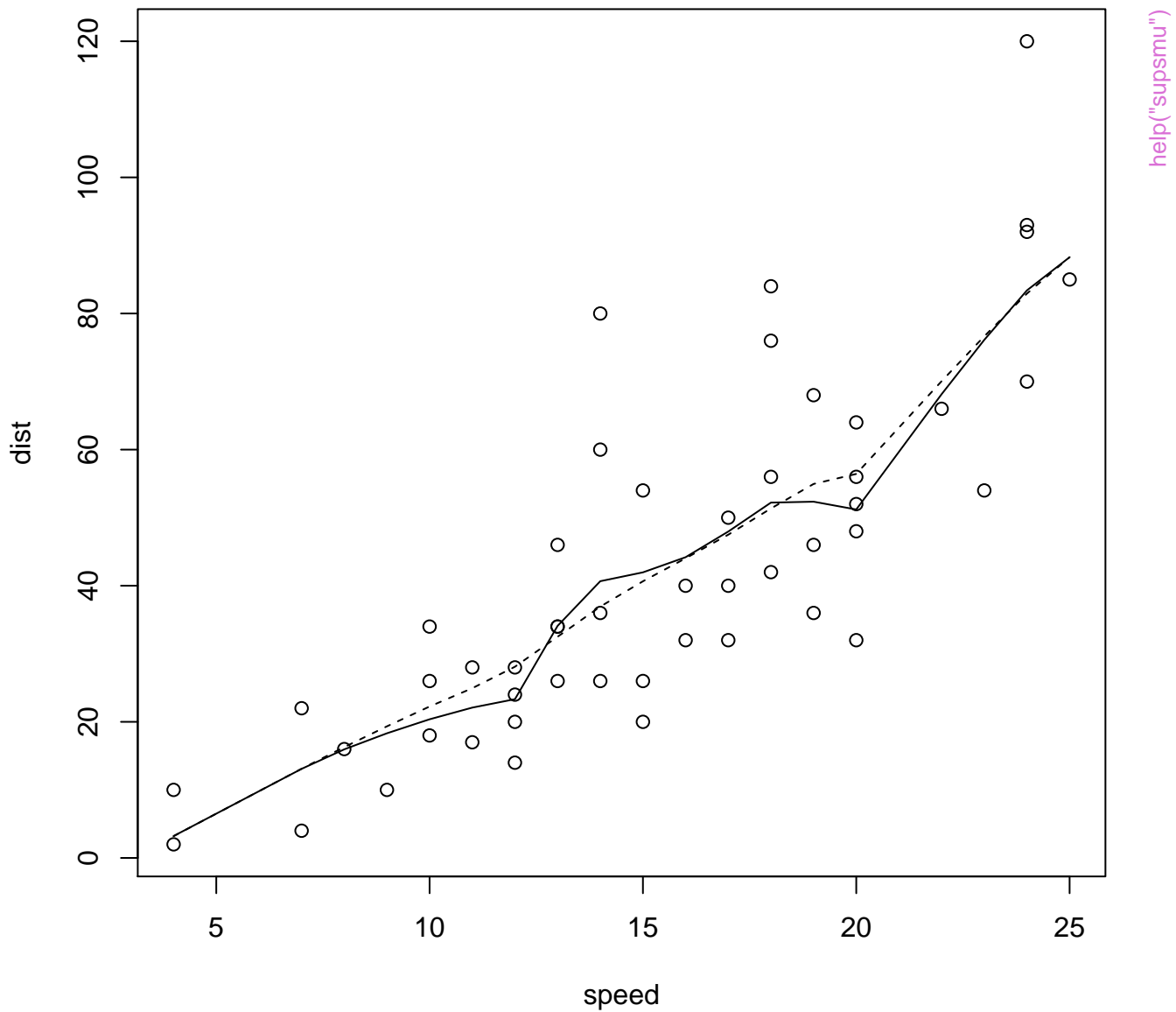
stl(mdeaths, s.w = "per", robust = FALSE / TRUE)

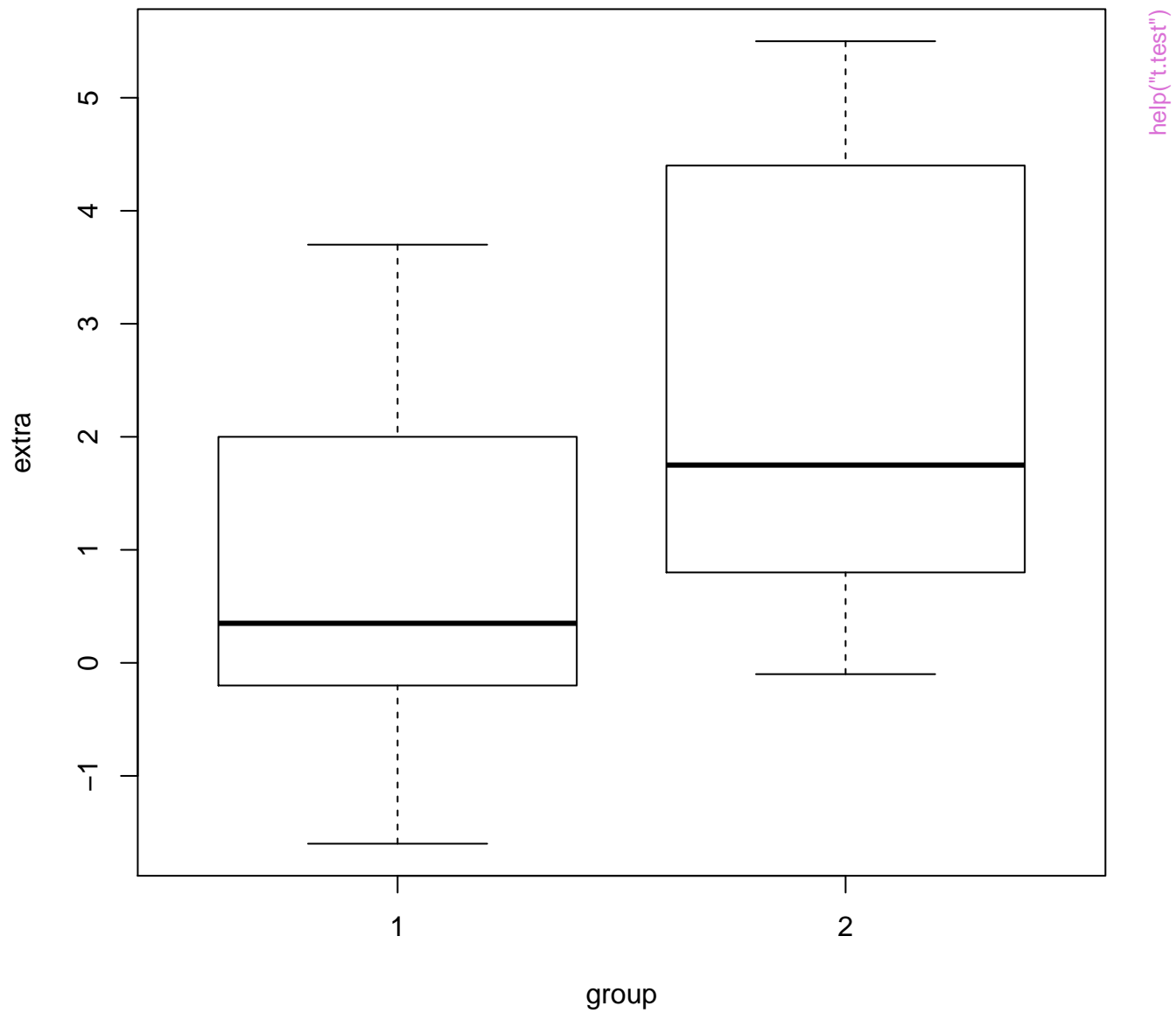


lm(weight ~ group)

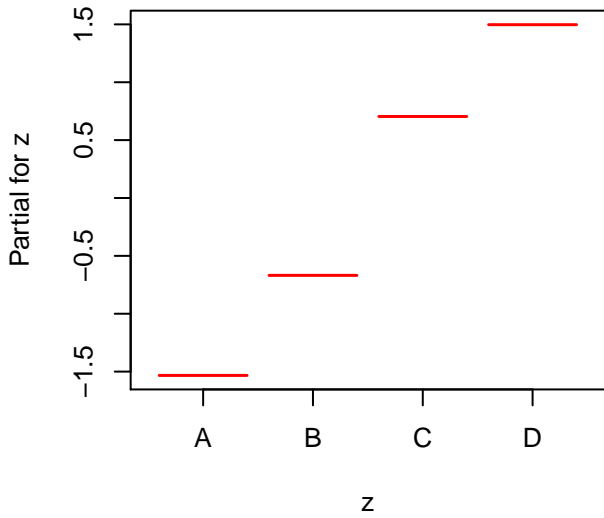
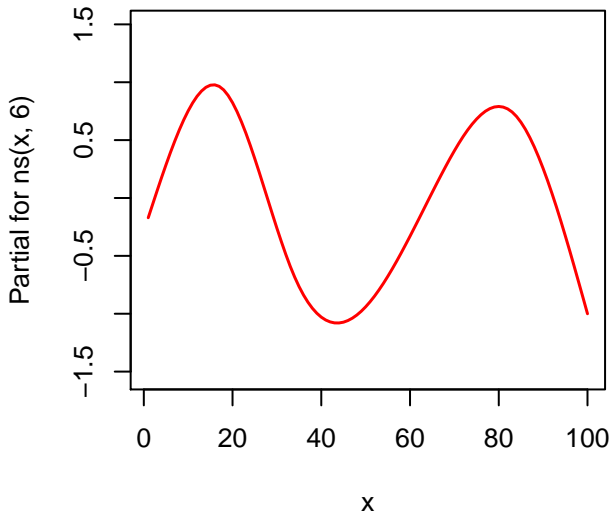


help("summary.lm")

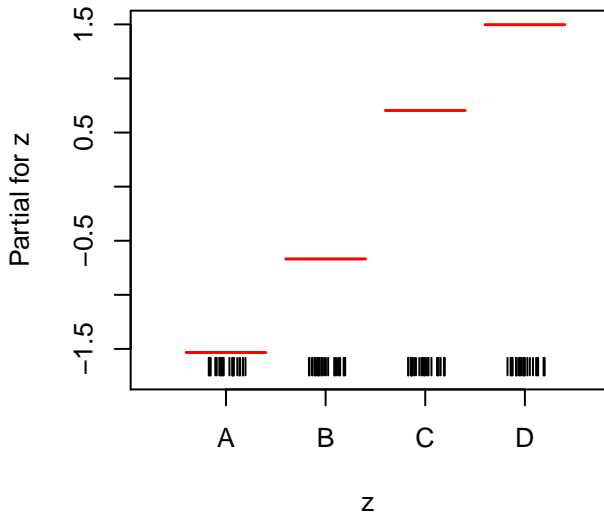
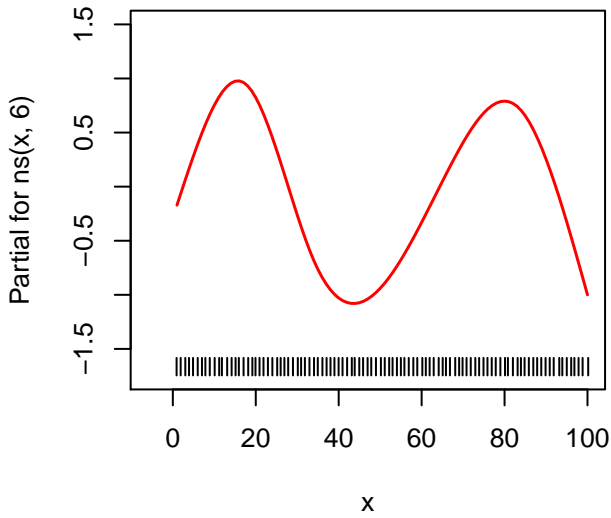




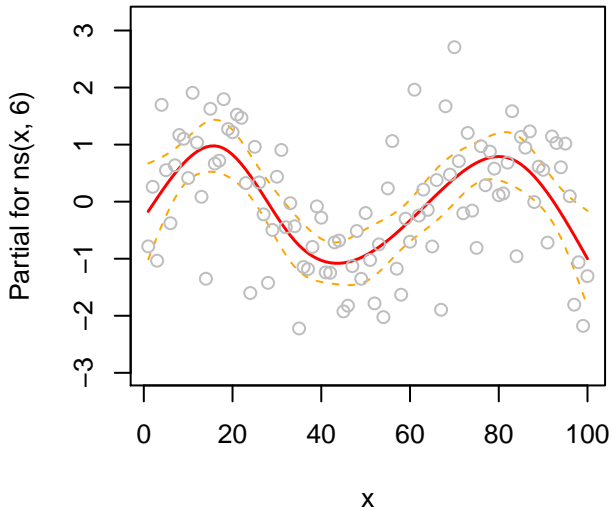
`termplot(glm(formula = y ~ ns(x, 6) + z) . termplot(glm(formula = y ~ ns(x, 6) + z) .`



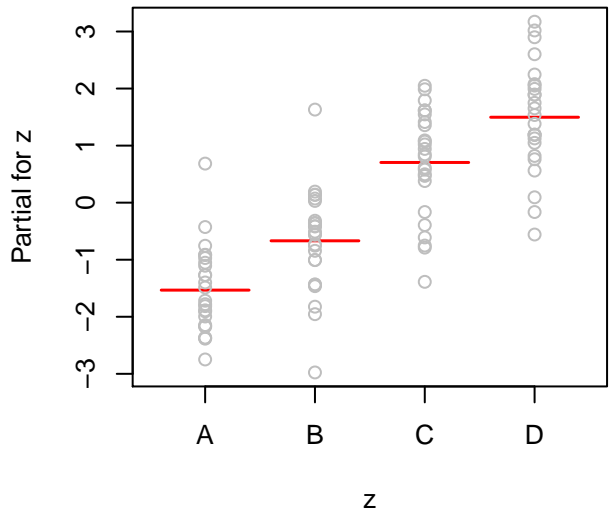
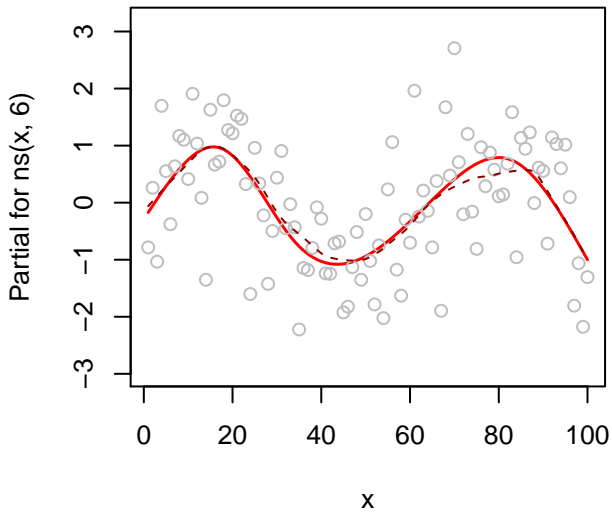
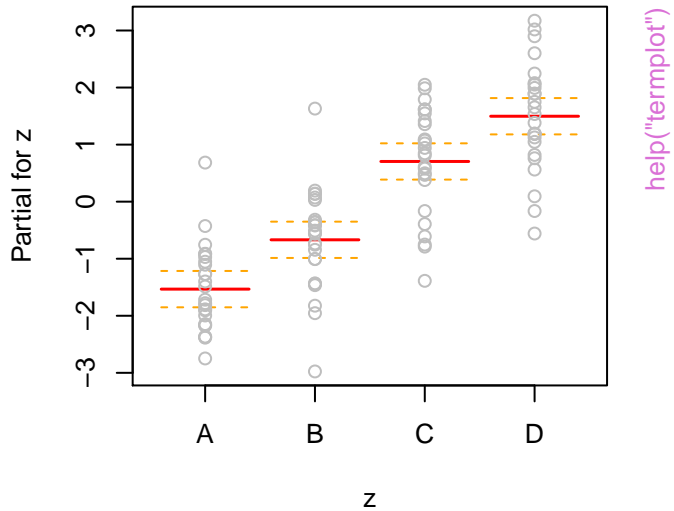
`help("termplot")`

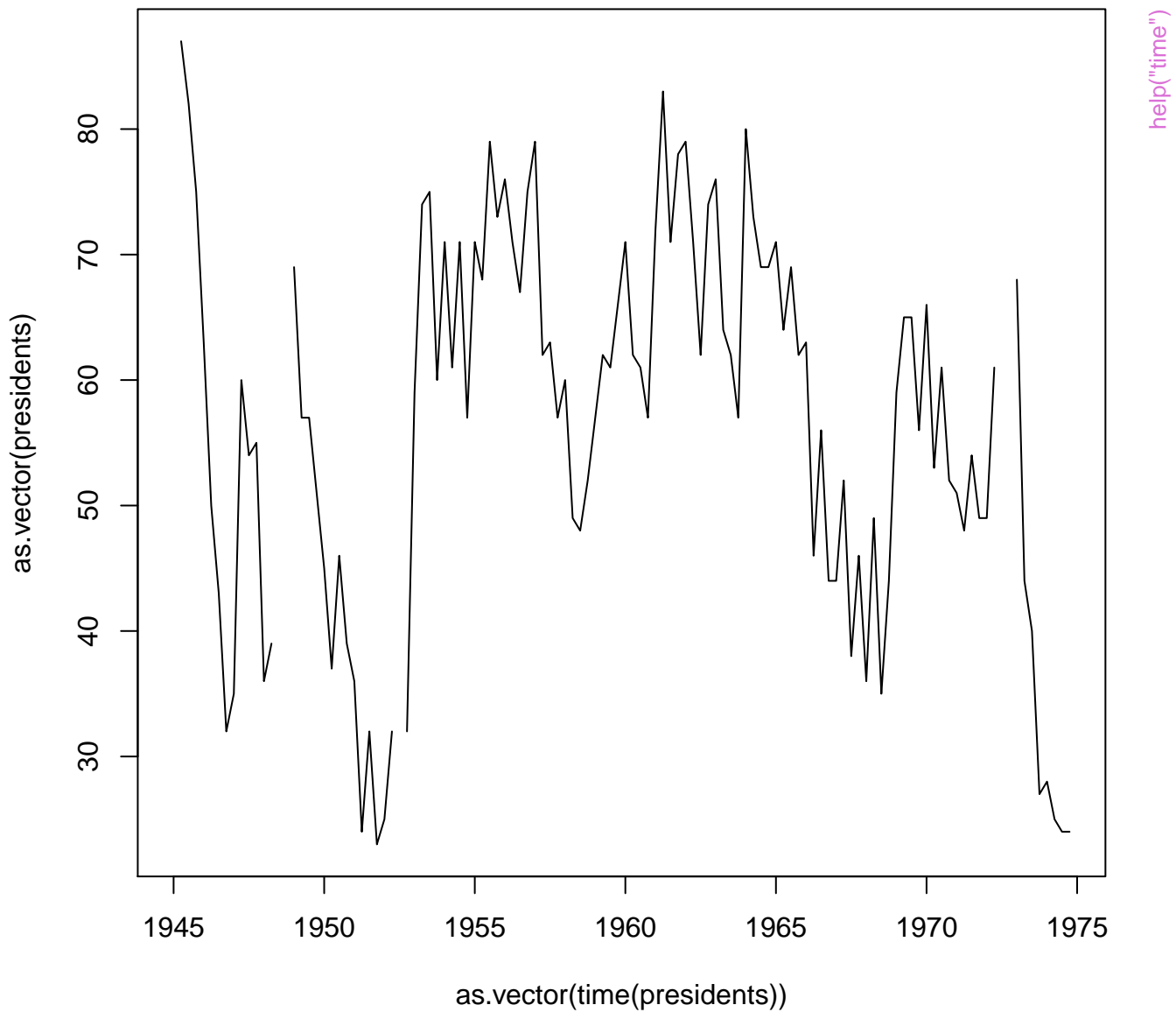


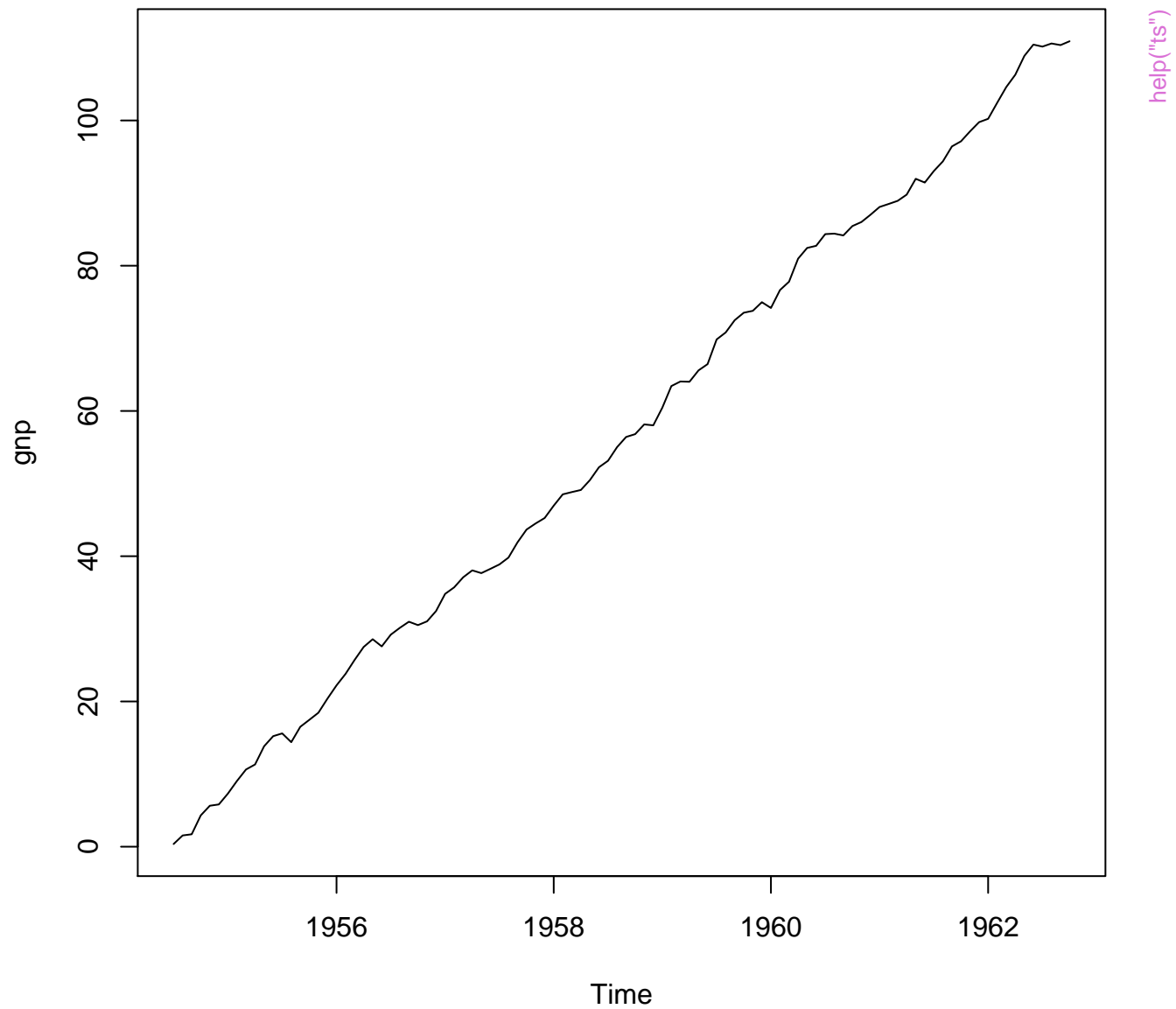
glm(formula = y ~ ns(x, 6) + z)



glm(formula = y ~ ns(x, 6) + z)







z

Series 1

2
1
0
-1
-2

Series 2

2
1
0
-1
-2
-3

Series 3

2
1
0
-1
-2

1962

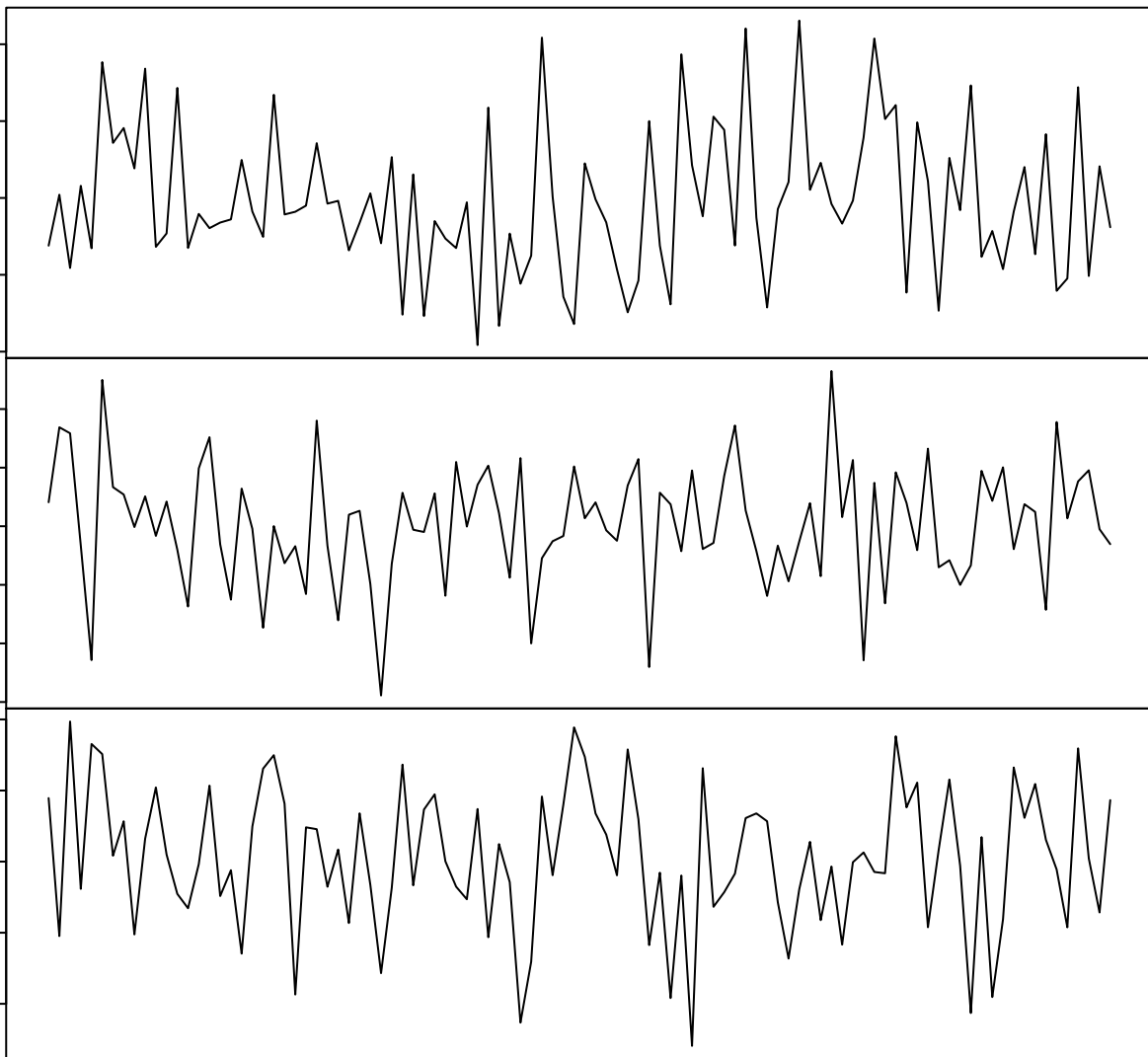
1964

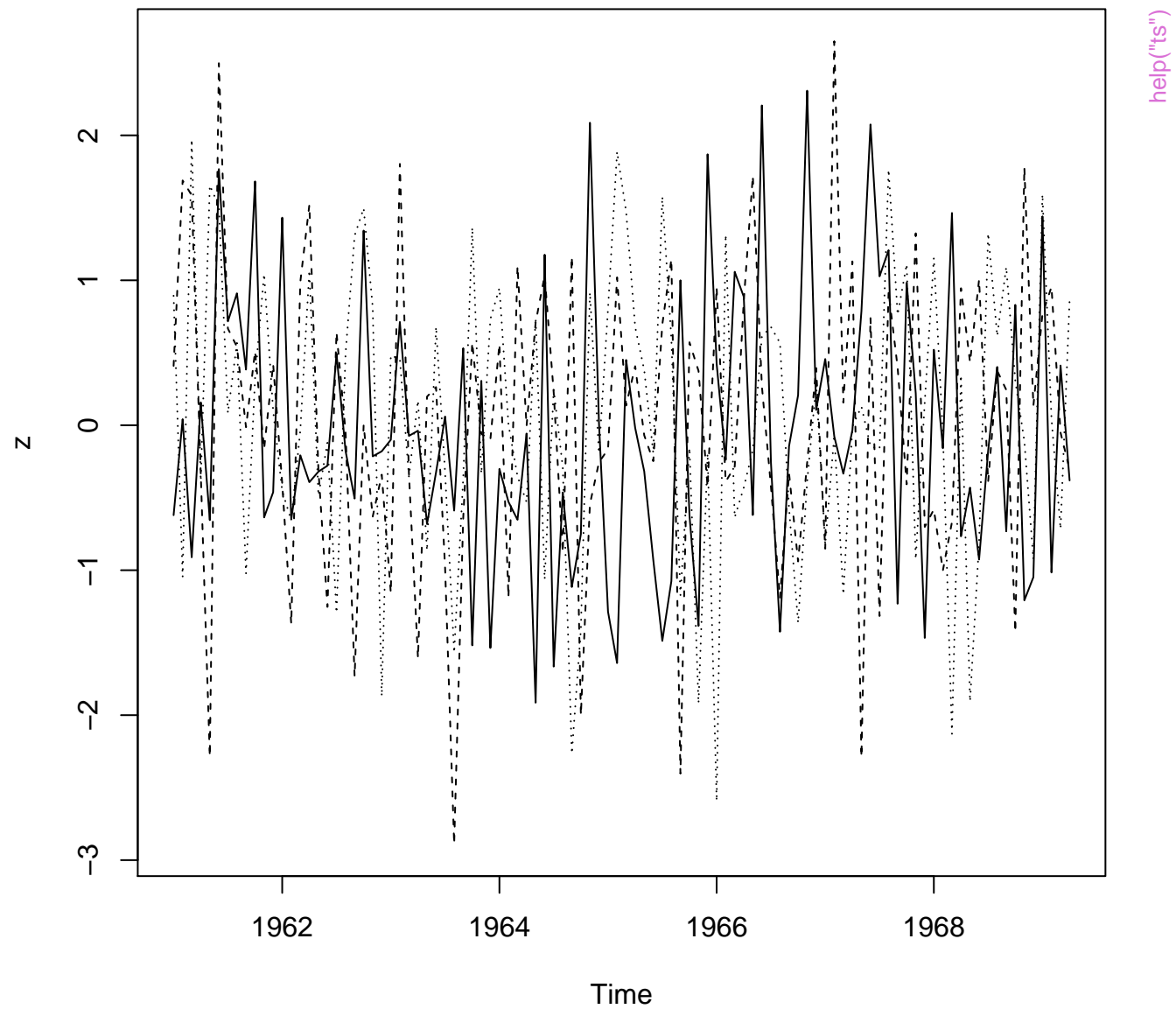
1966

1968

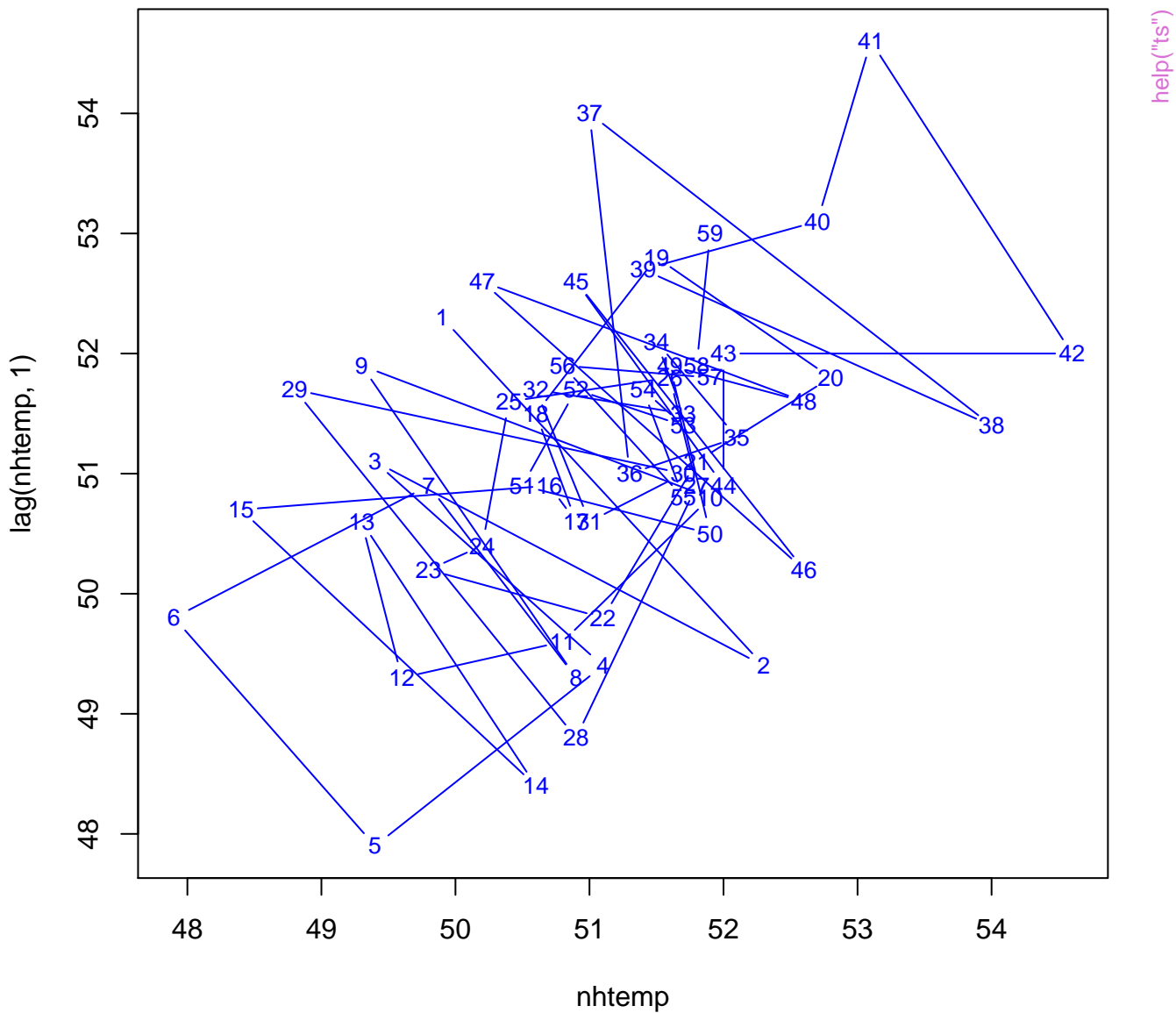
Time

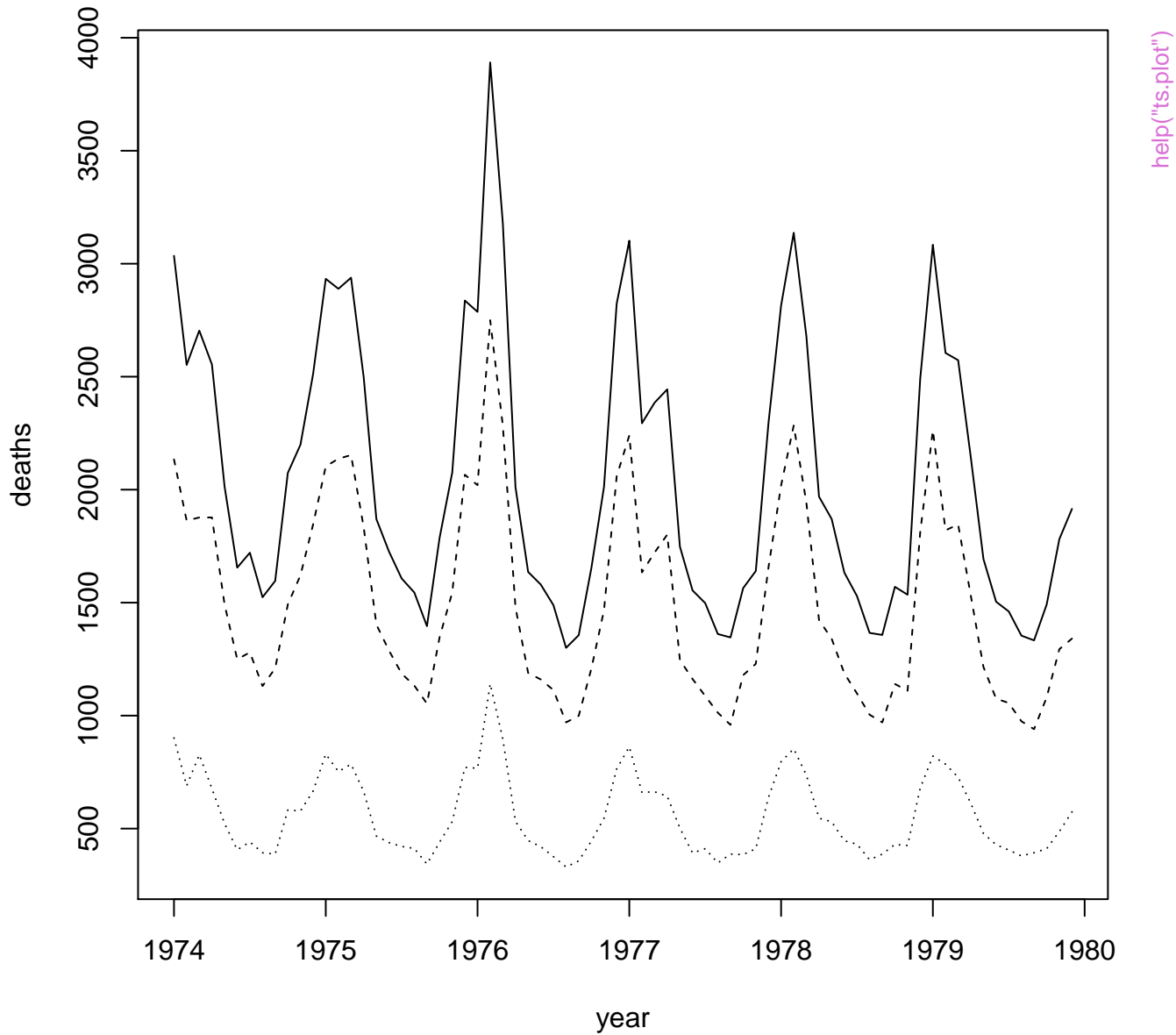
help("ts")

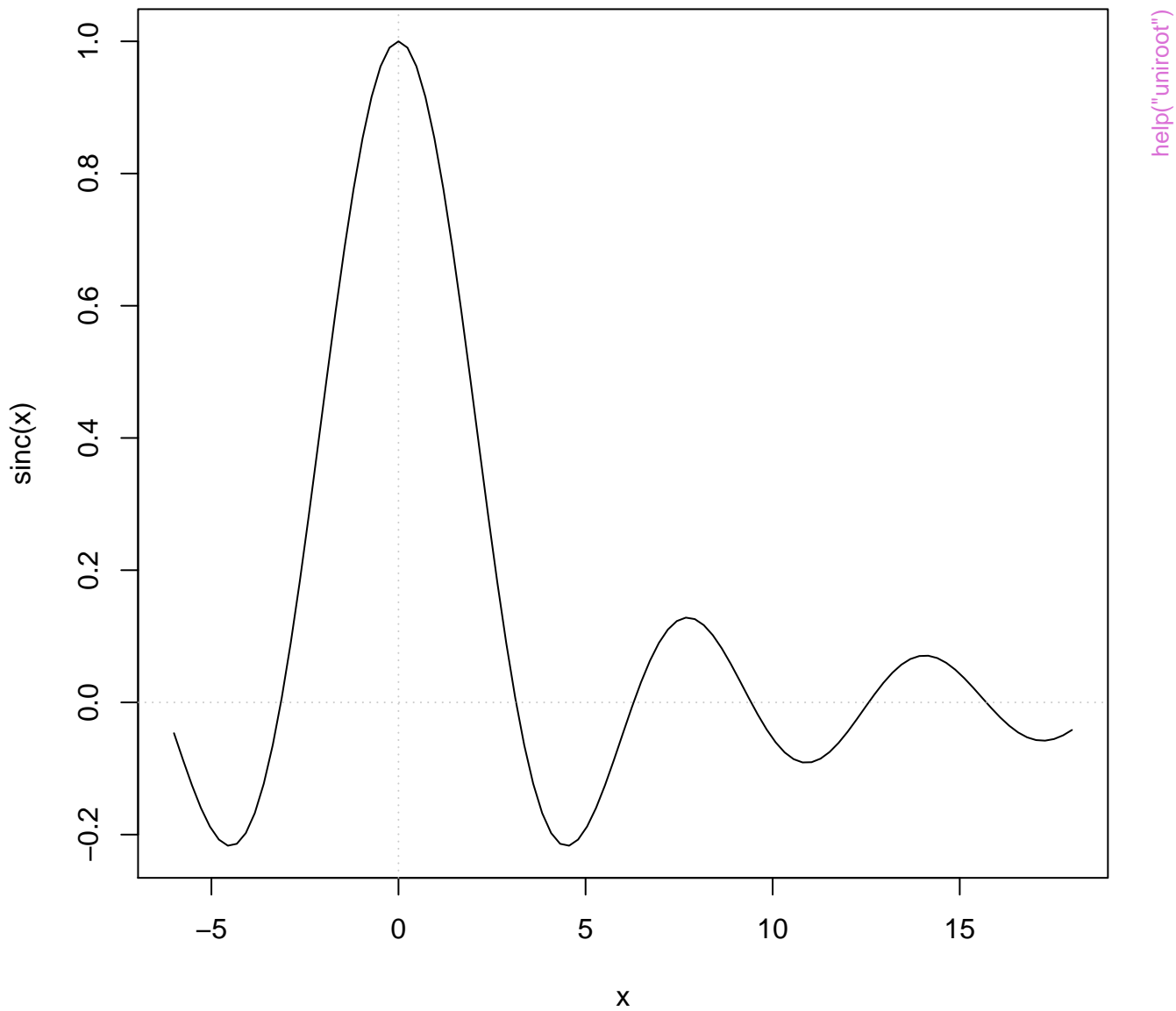




Lag plot of New Haven temperatures







lm(weight ~ group)

