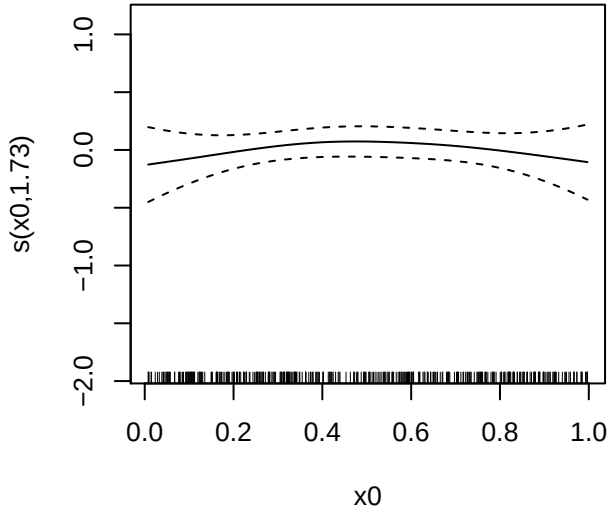
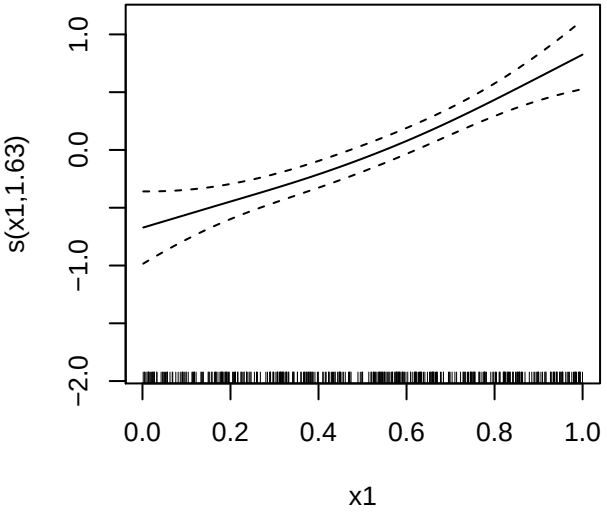
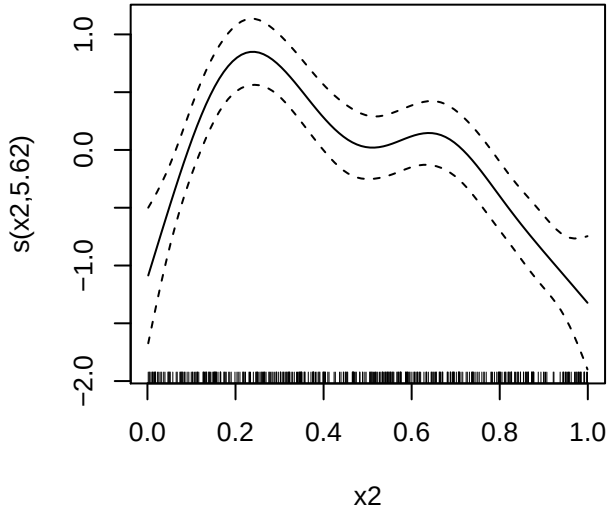
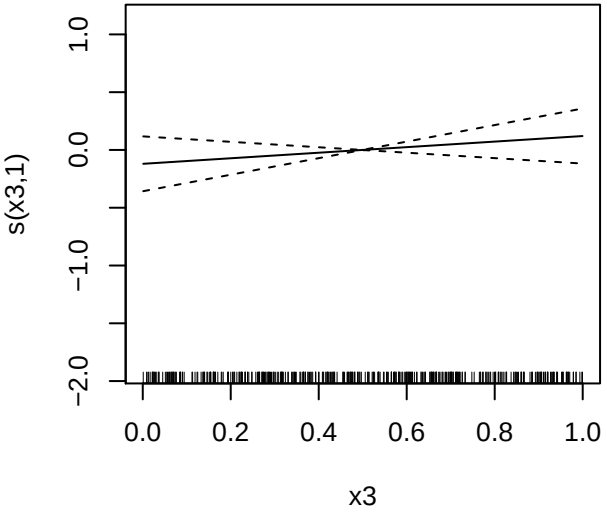
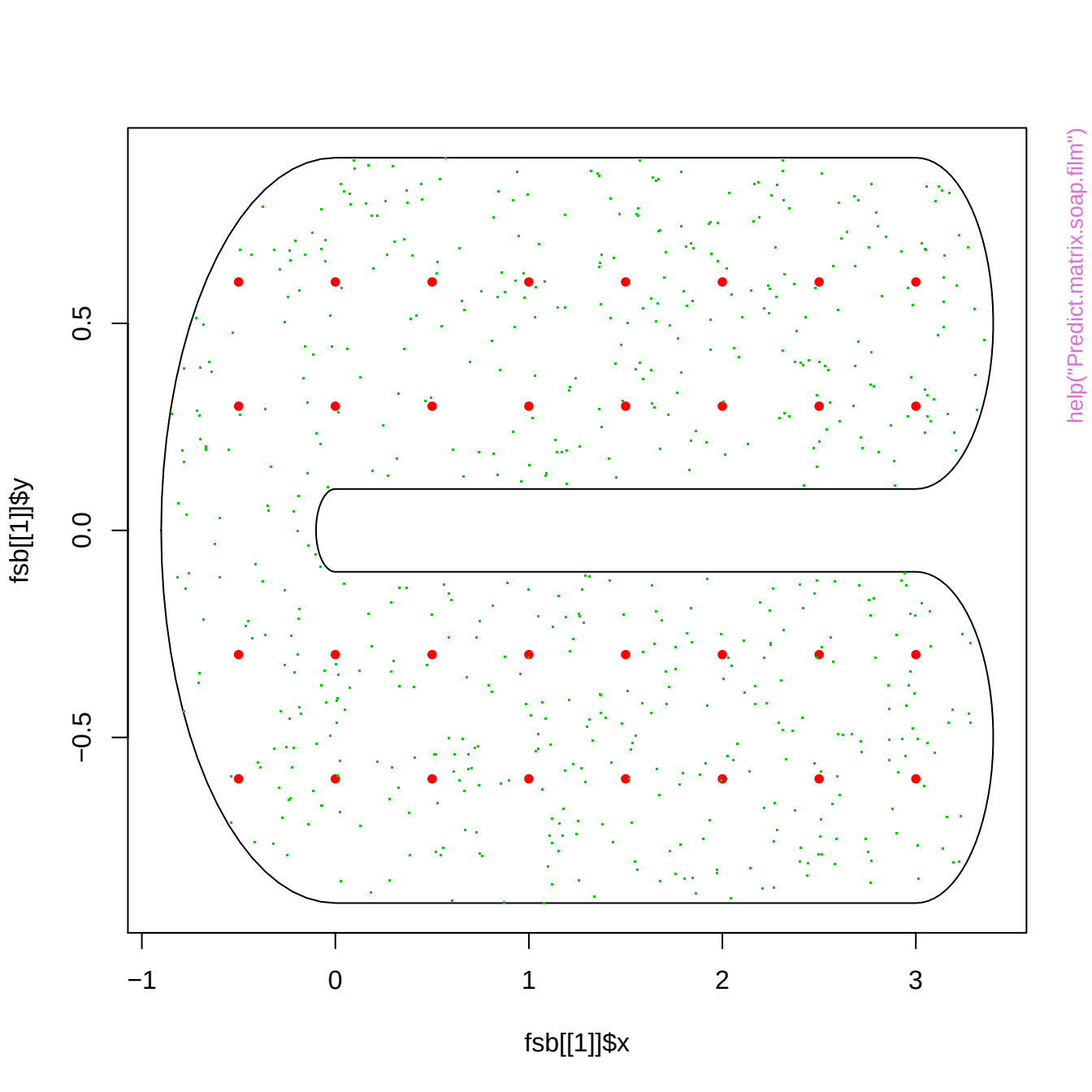

s(x0,1.73)
1.0
0.0
−1.0
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
x0

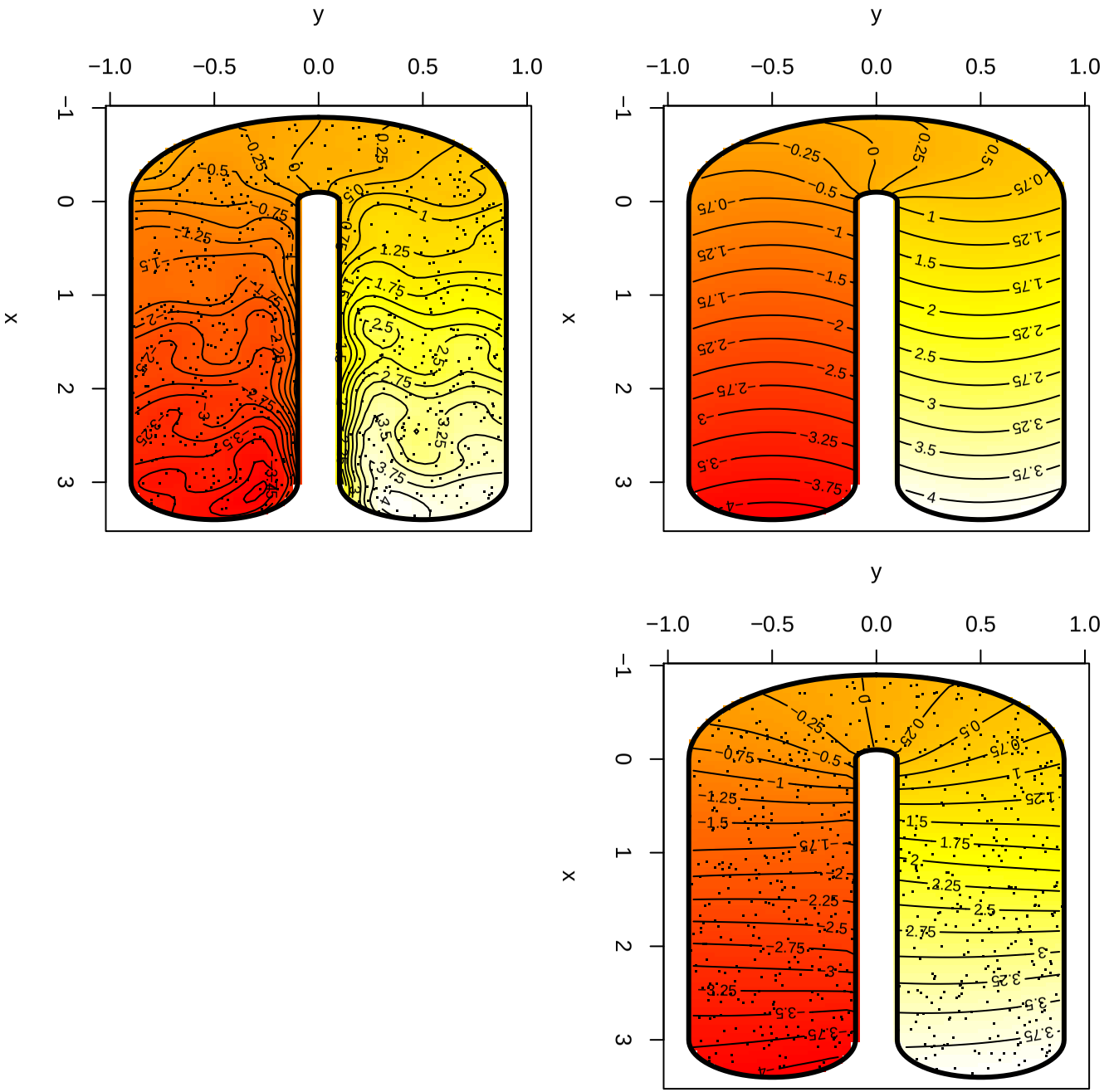

s(x1,1.63)
1.0
0.0
−1.0
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
x1

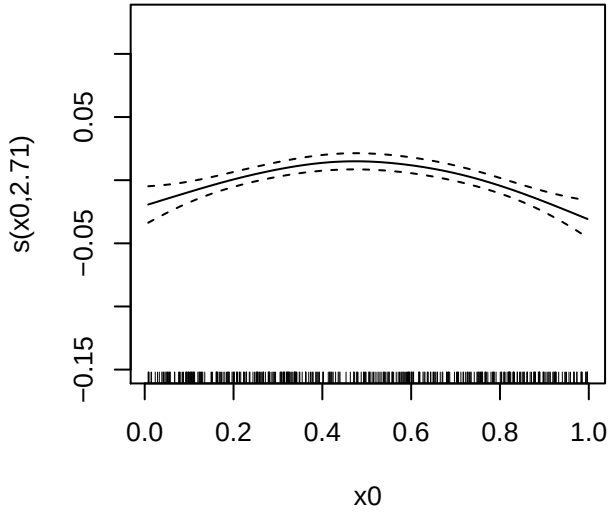
help("Beta")

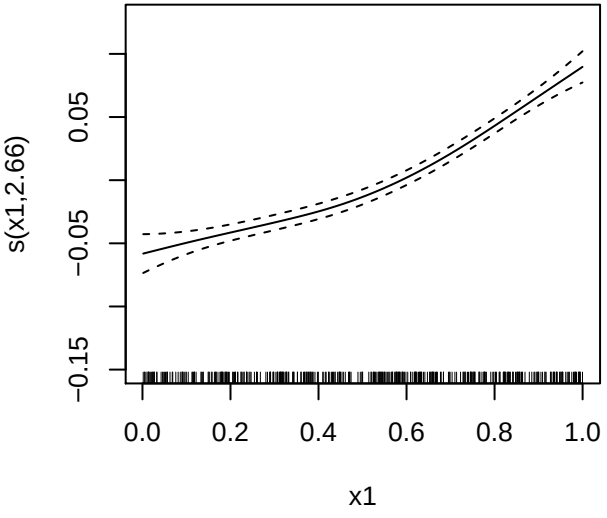

s(x2,5.62)
1.0
0.0
−1.0
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
x2


s(x3,1)
1.0
0.0
−1.0
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
x3

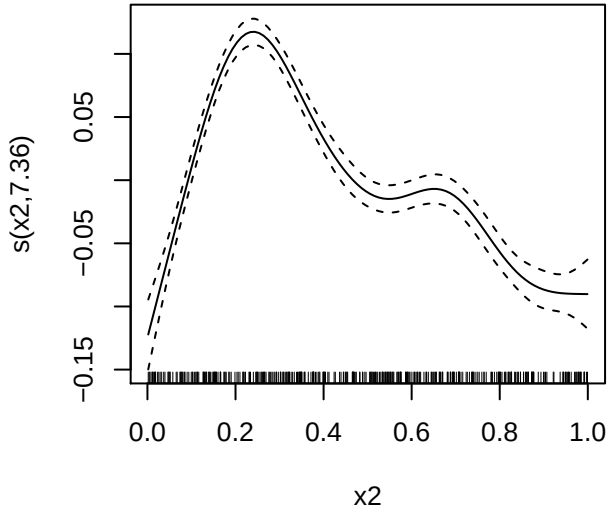

fsb[[1]]$y
0.5
0.0
−0.5
−1
0
1
2
3
fsb[[1]]$x
help("Predict.matrix.soap.film")

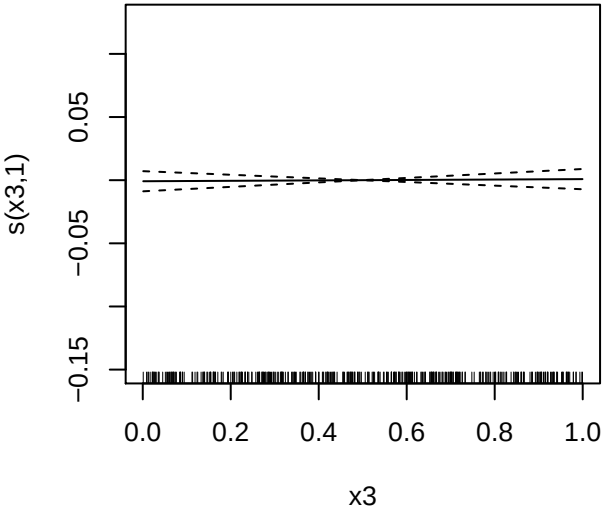

y
−1.0
−0.5
0.0
0.5
1.0
x
−1
0
1
2
3
help("Predict.matrix.soap.film")

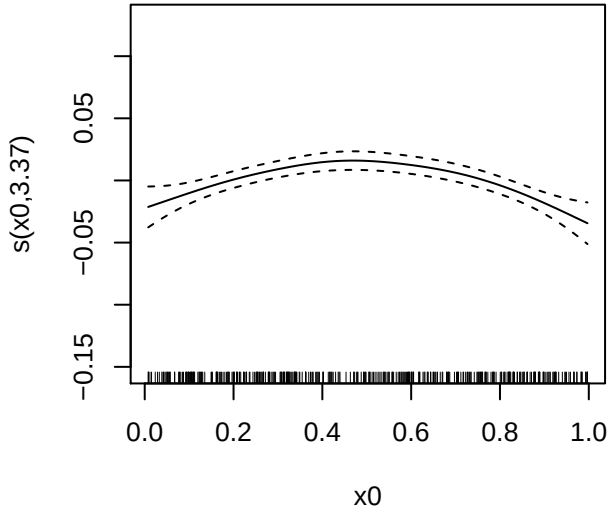


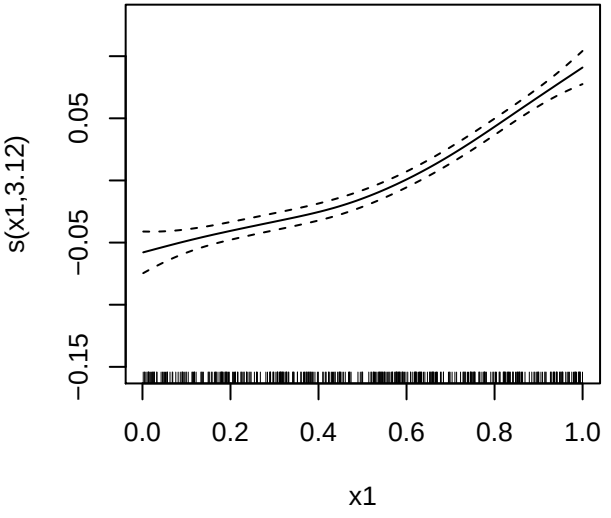


help("Tweedie")

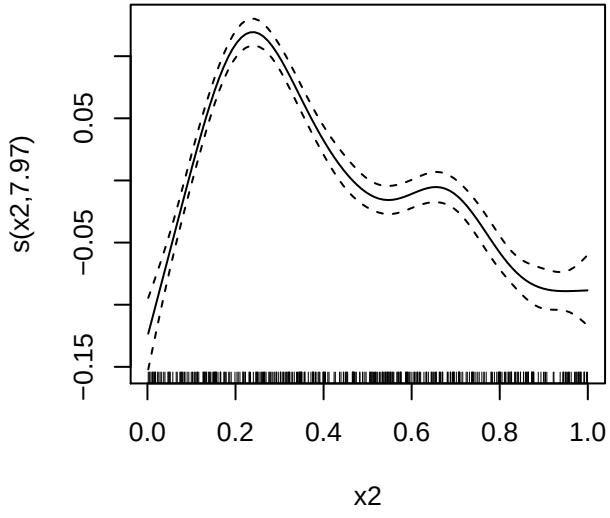


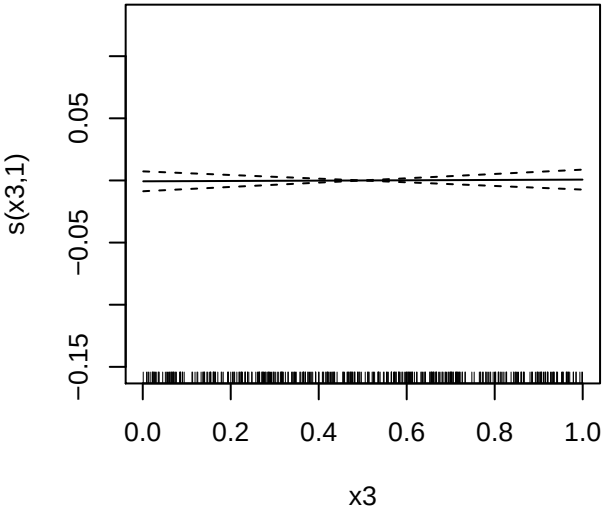


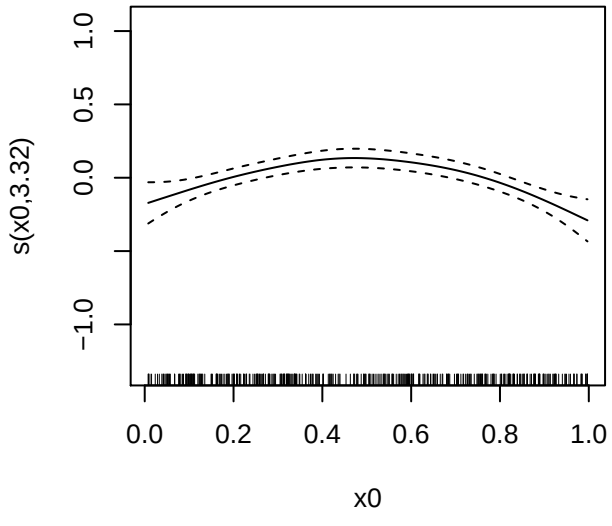


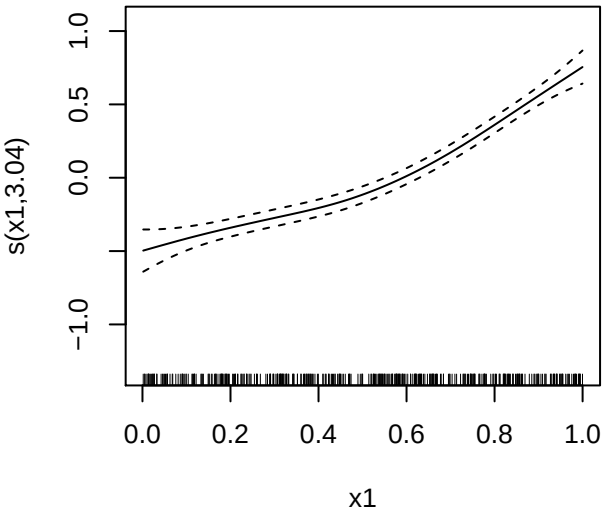


help("Tweedie")

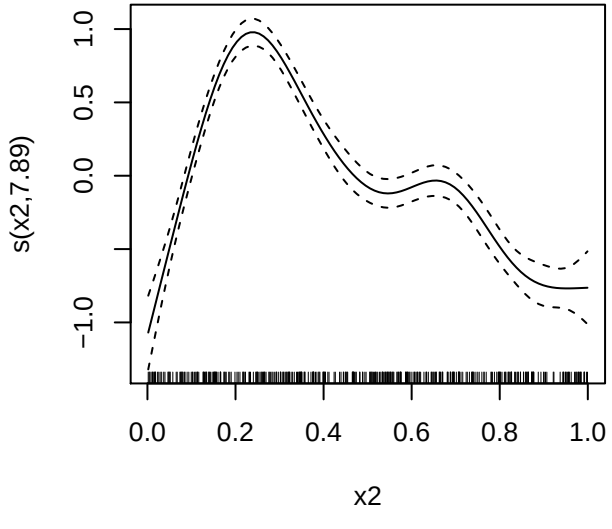


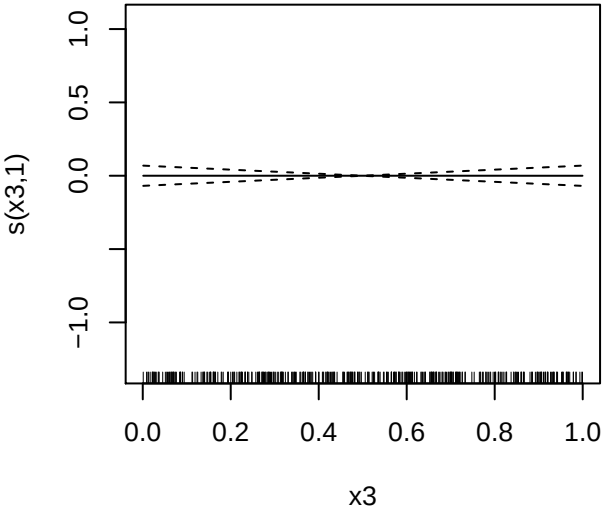


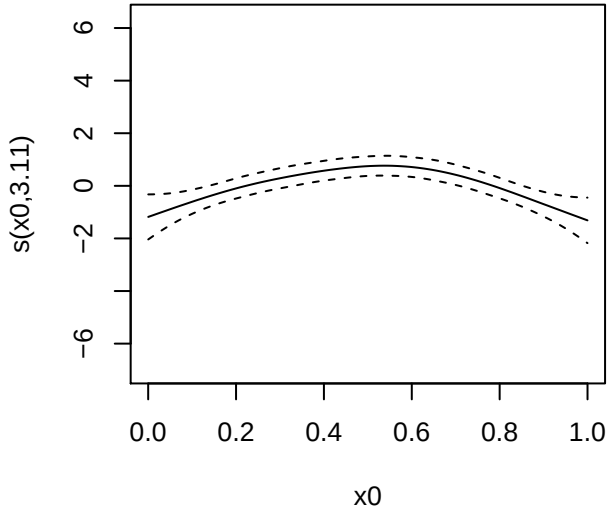


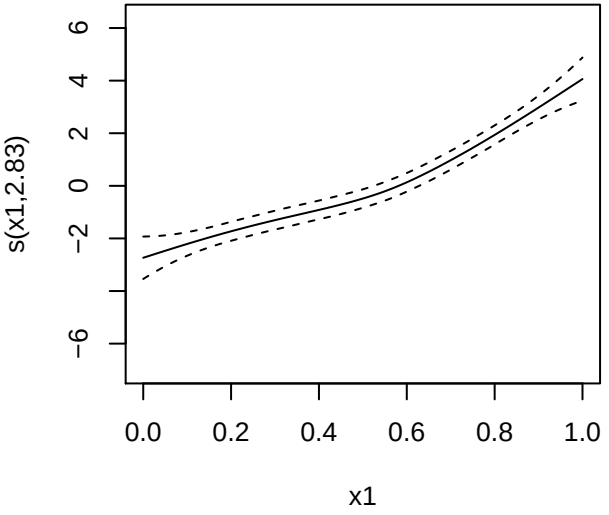


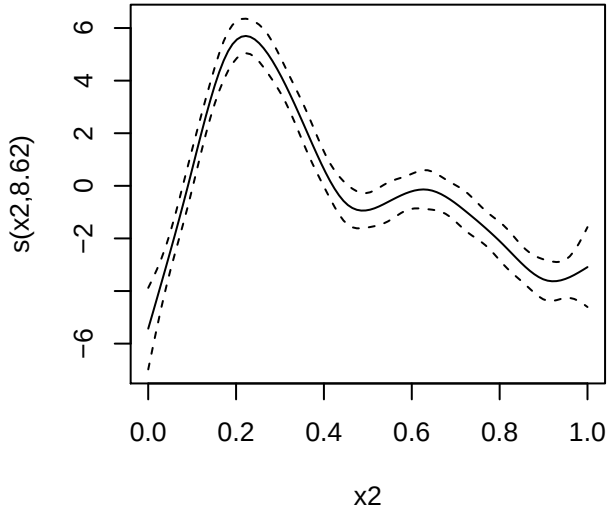
help("Tweedie")

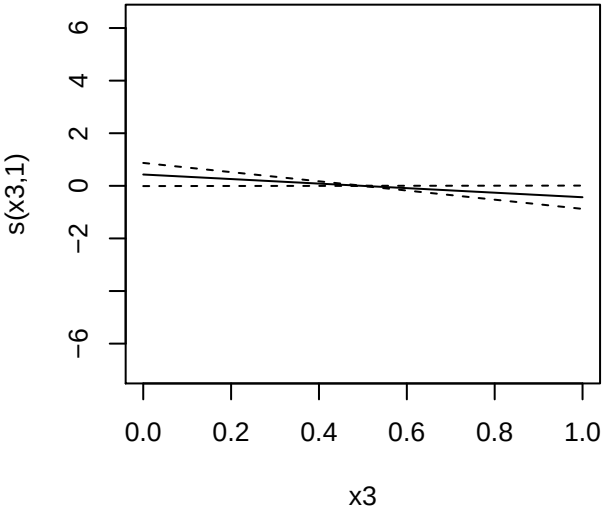




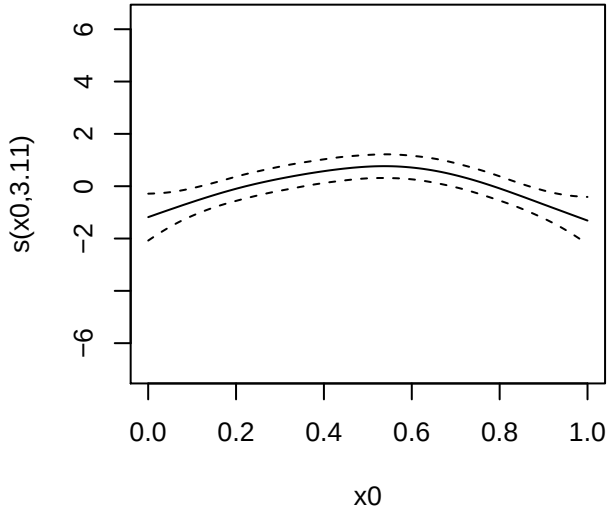

s(x0,3.11)
6
4
2
0
−2
−6
0.0
0.2
0.4
0.6
0.8
1.0
x0

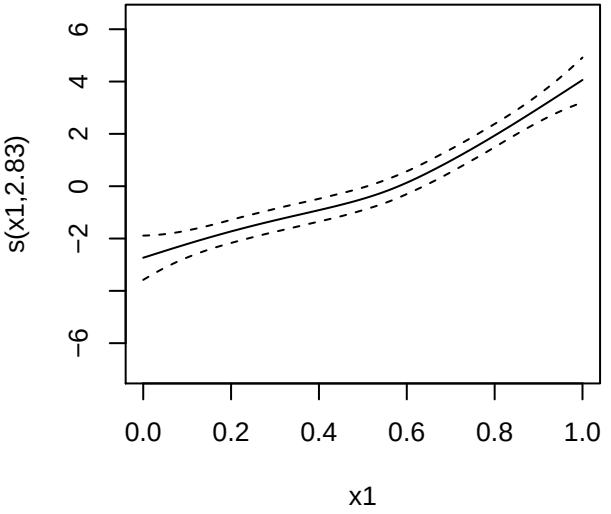

s(x1,2.83)
6
4
2
0
−2
−6
0.0
0.2
0.4
0.6
0.8
1.0
x1

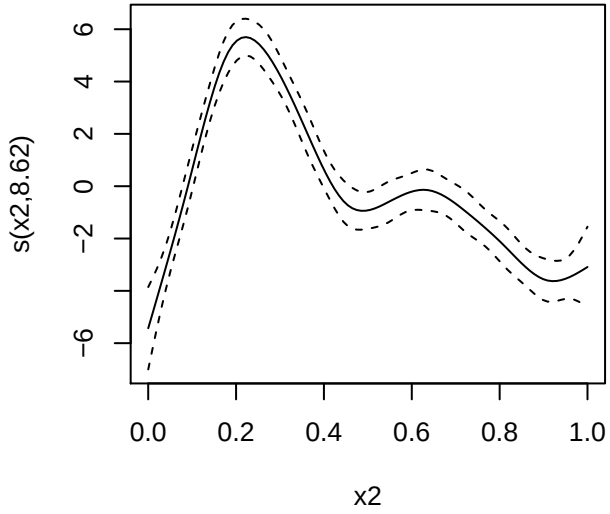

s(x2,8.62)
6
4
2
0
−2
−6
0.0
0.2
0.4
0.6
0.8
1.0
x2

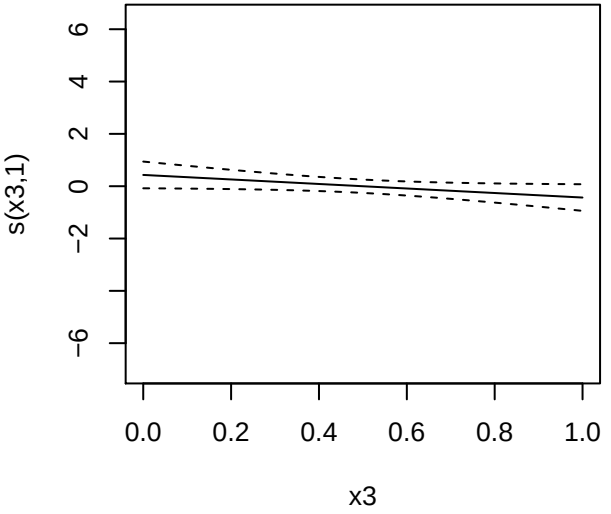

s(x3,1)
6
4
2
0
−2
−6
0.0
0.2
0.4
0.6
0.8
1.0
x3

help("bam")

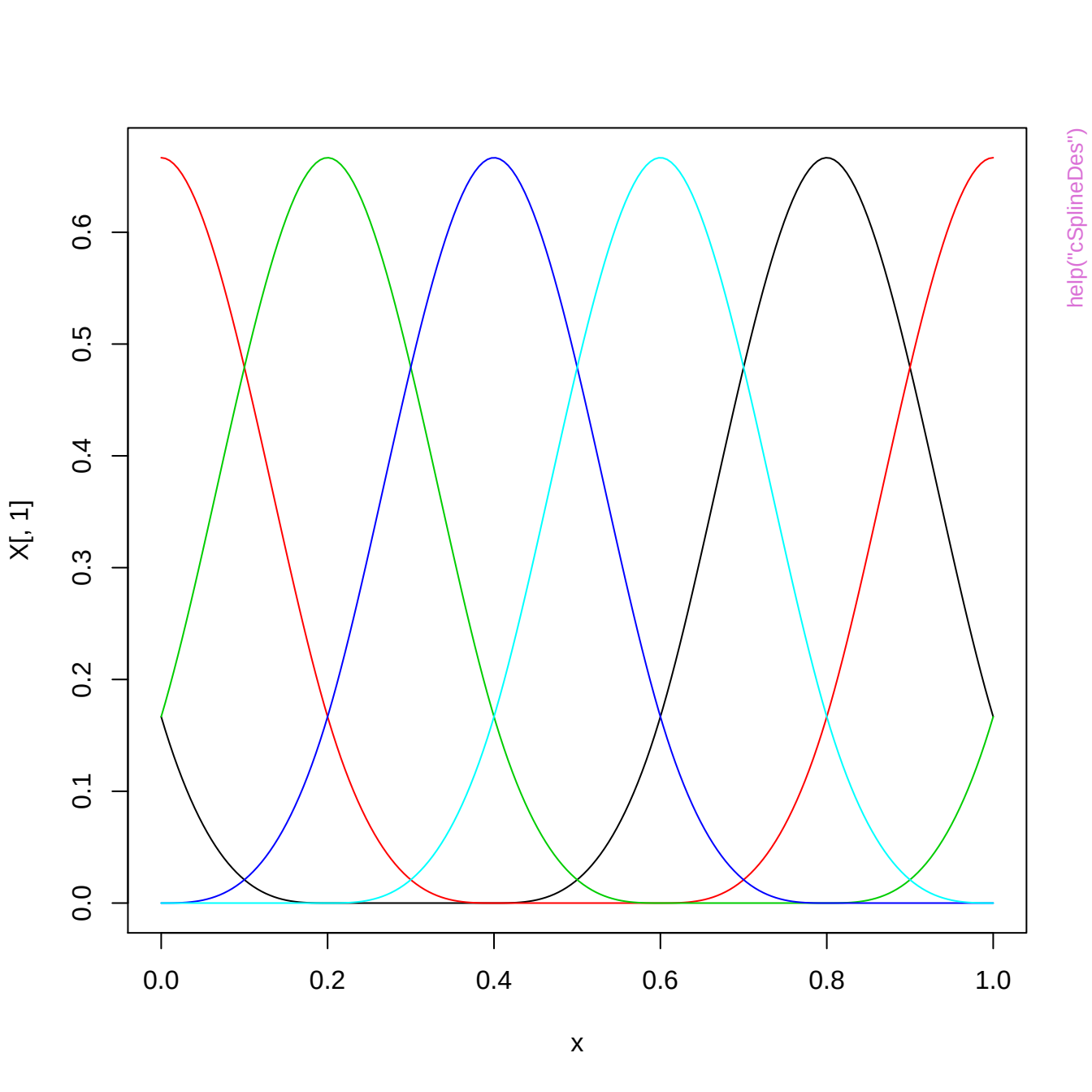

s(x0,3.11)
6
4
2
0
−2
−6
0.0
0.2
0.4
0.6
0.8
1.0
x0

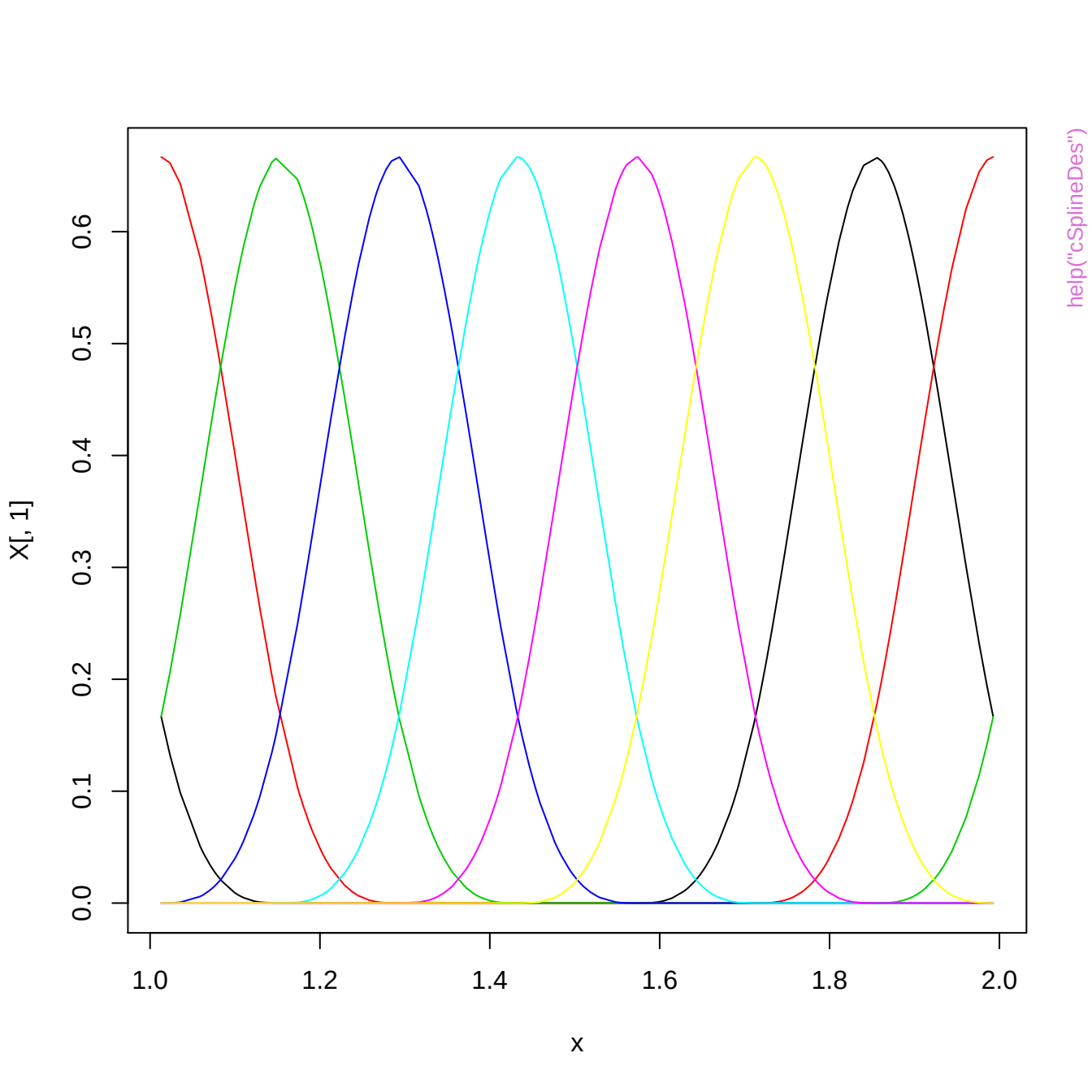

s(x1,2.83)
6
4
2
0
−2
−6
0.0
0.2
0.4
0.6
0.8
1.0
x1

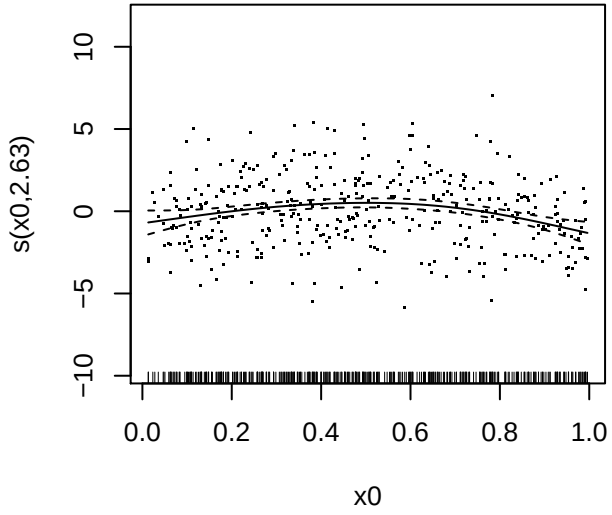

s(x2,8.62)
6
4
2
0
−2
−6
0.0
0.2
0.4
0.6
0.8
1.0
x2

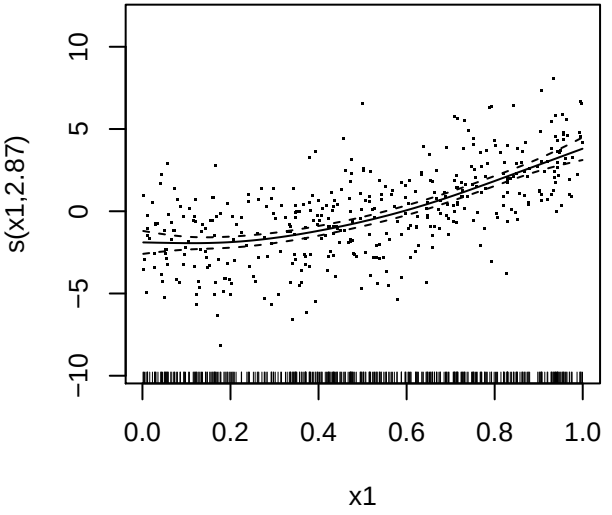

s(x3,1)
6
4
2
0
−2
−6
0.0
0.2
0.4
0.6
0.8
1.0
x3

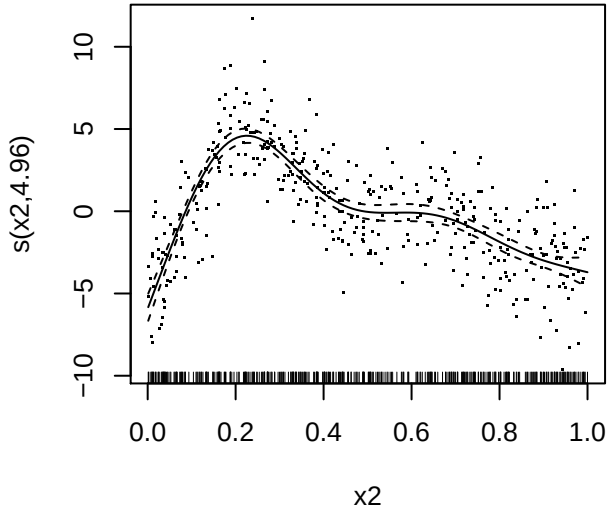
help("bam")

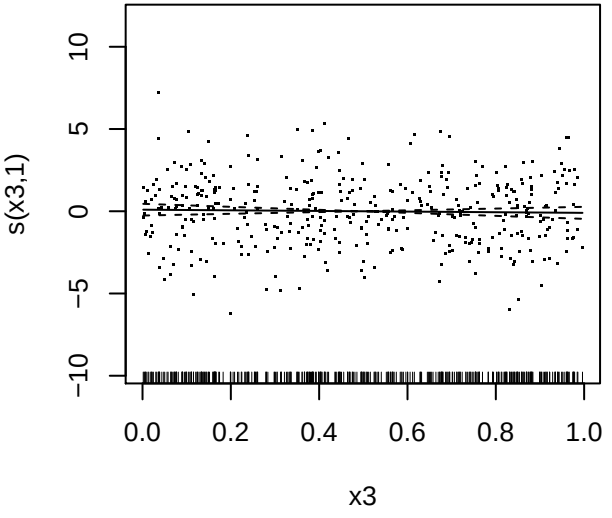

help("cSplineDes")
X[, 1]
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.0
0.2
0.4
0.6
0.8
1.0
x


help("cSplineDes")
X[, 1]
0.0
0.1
0.2
0.3
0.4
0.5
0.6
1.0
1.2
1.4
1.6
1.8
2.0
x

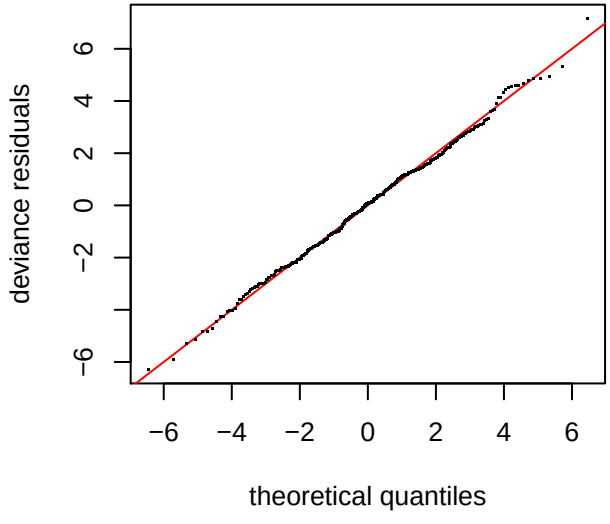


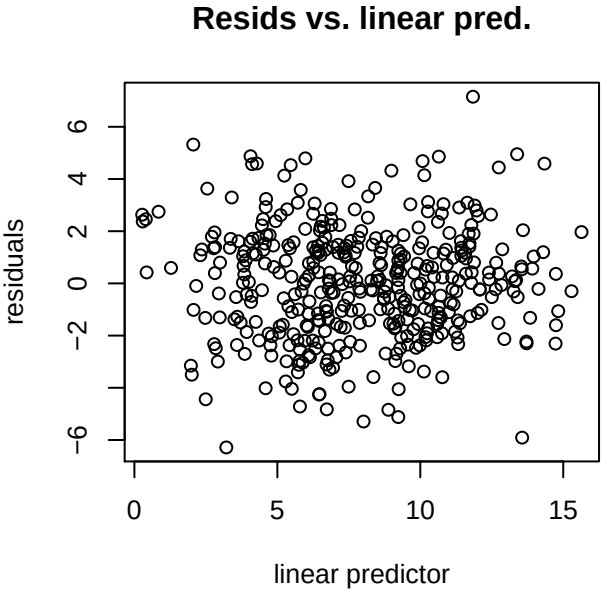




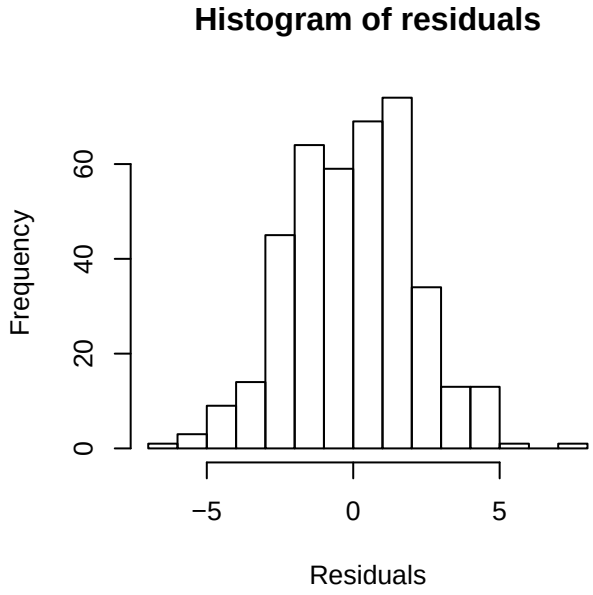


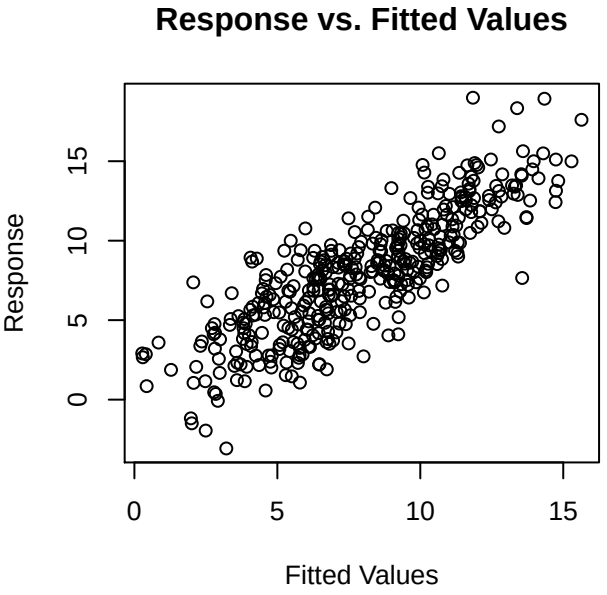
help("choose.k")

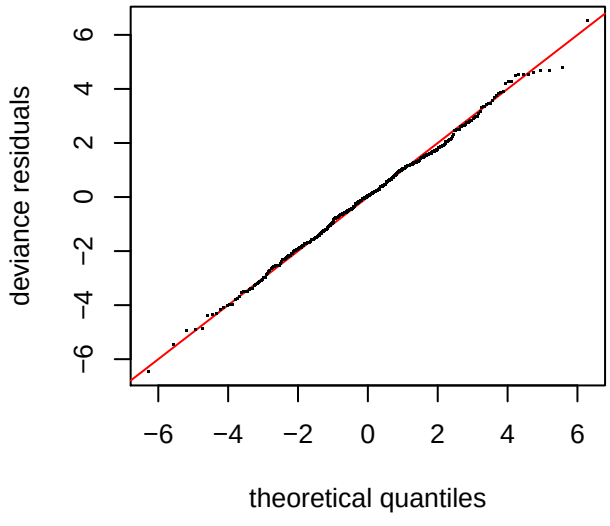


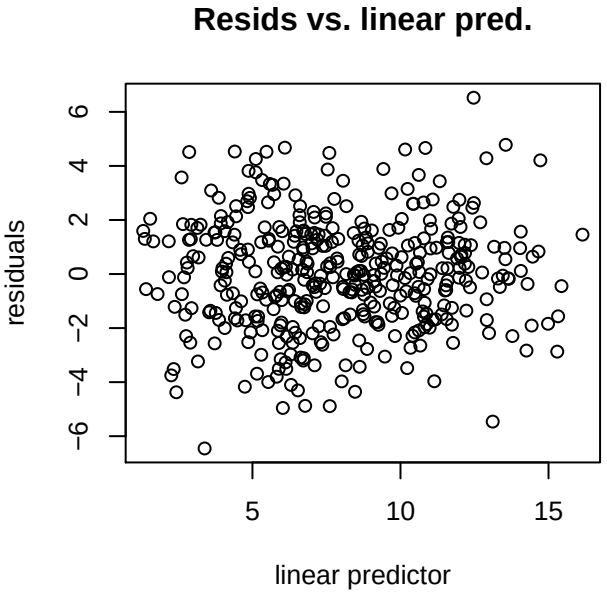


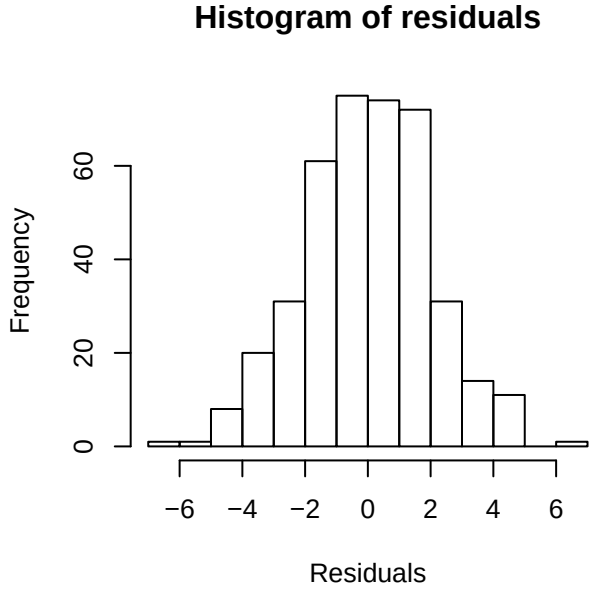
help("choose.k")

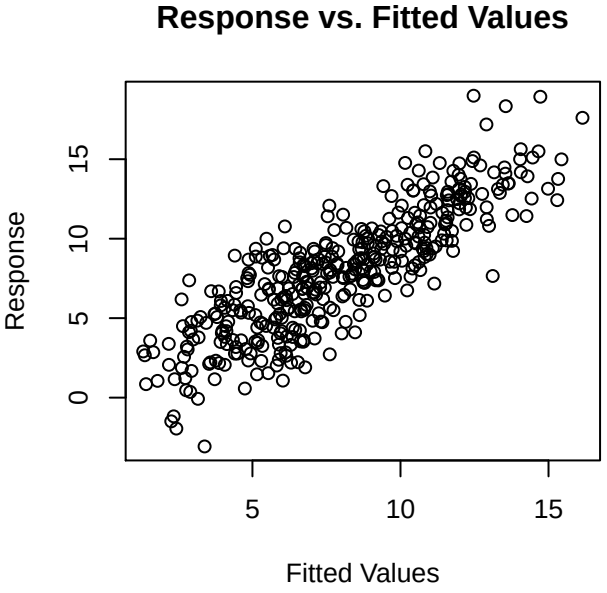


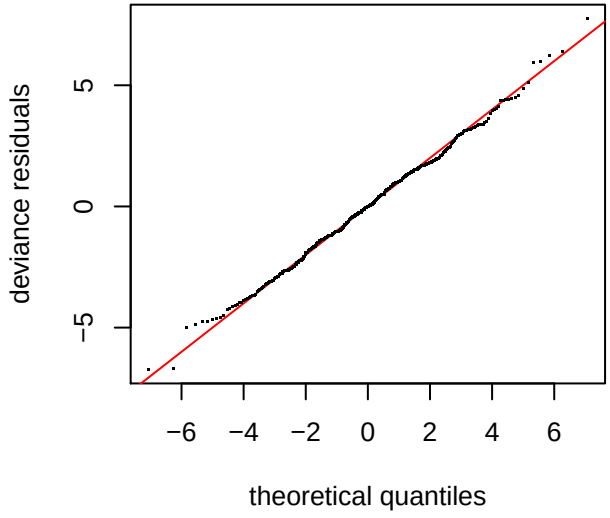


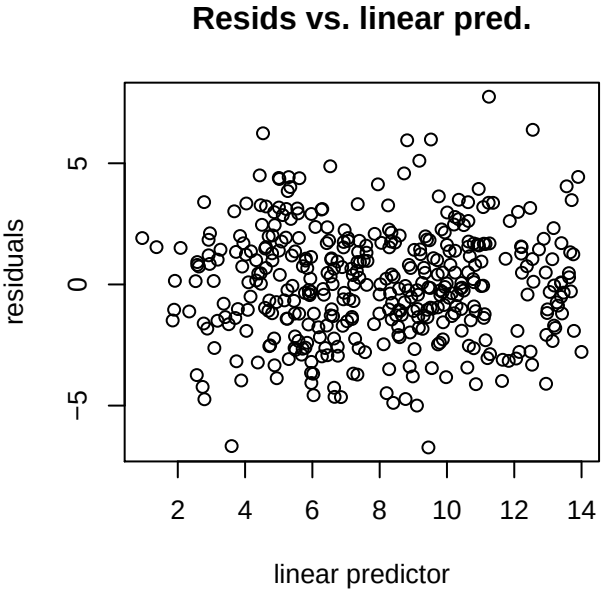

deviance residuals
theoretical quantiles
−6
−4
−2
0
2
4
6


Resids vs. linear pred.
residuals
linear predictor
5
10
15
help("choose.k")

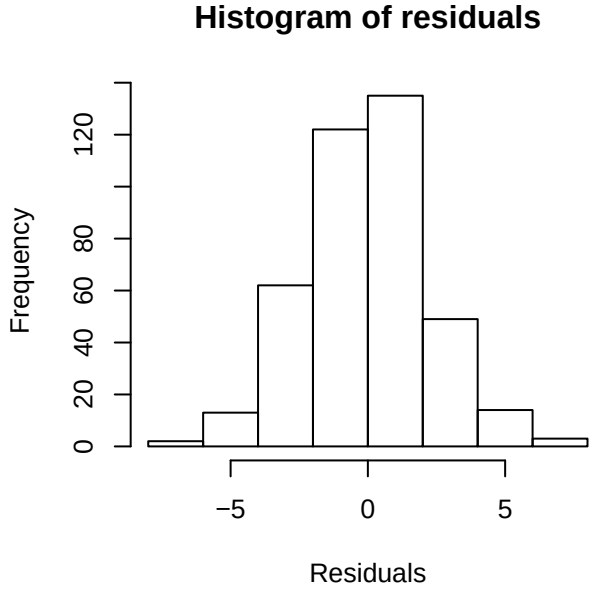

Histogram of residuals
Frequency
Residuals
0
20
40
60

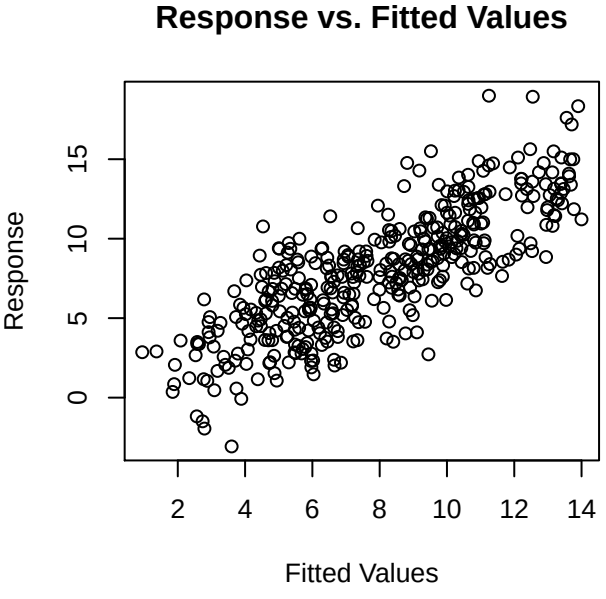

Response vs. Fitted Values
Response
Fitted Values
0
5
10
15

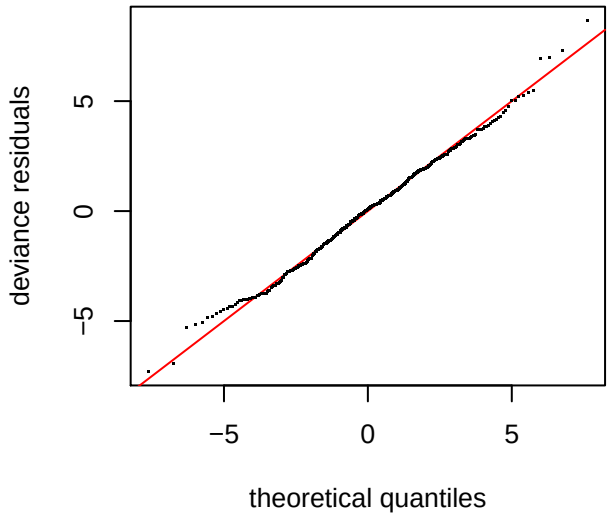


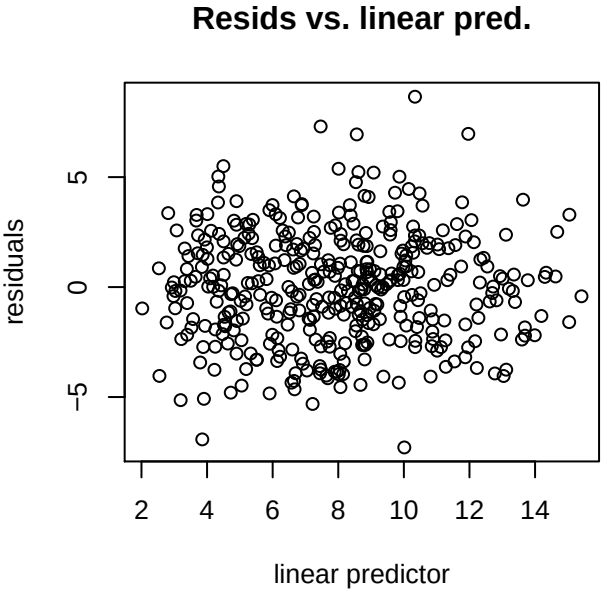


help("choose.k")

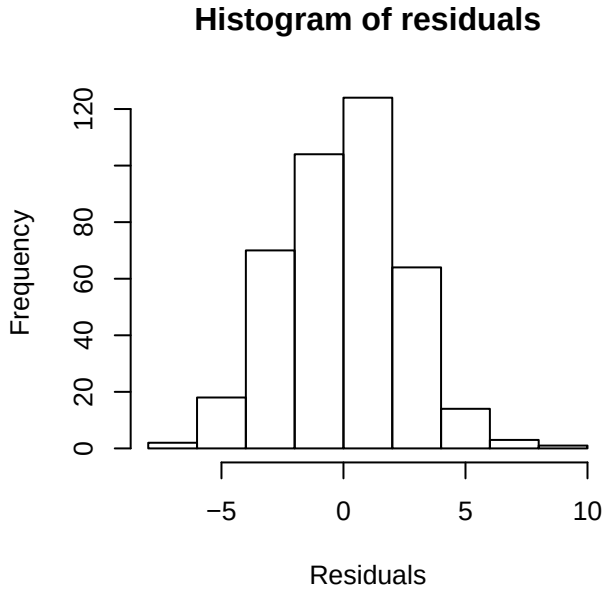


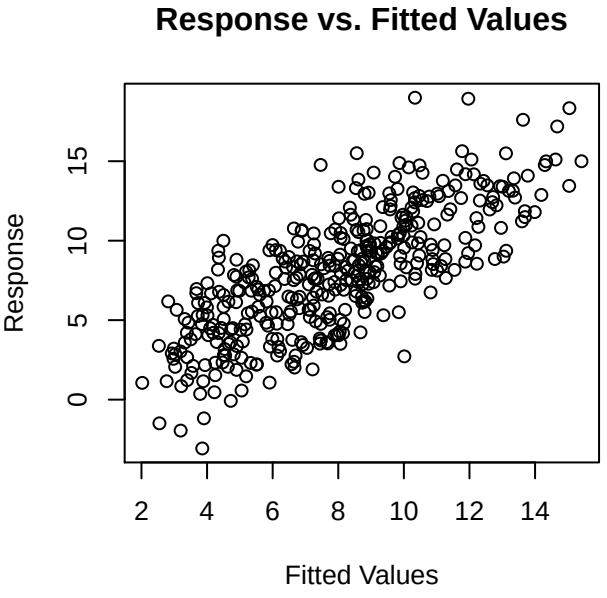


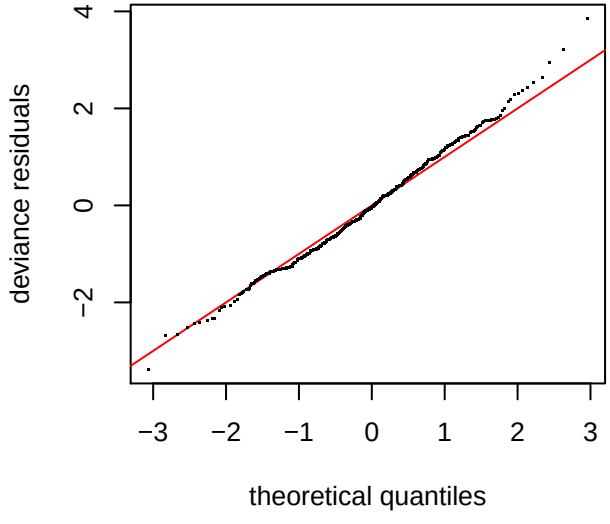


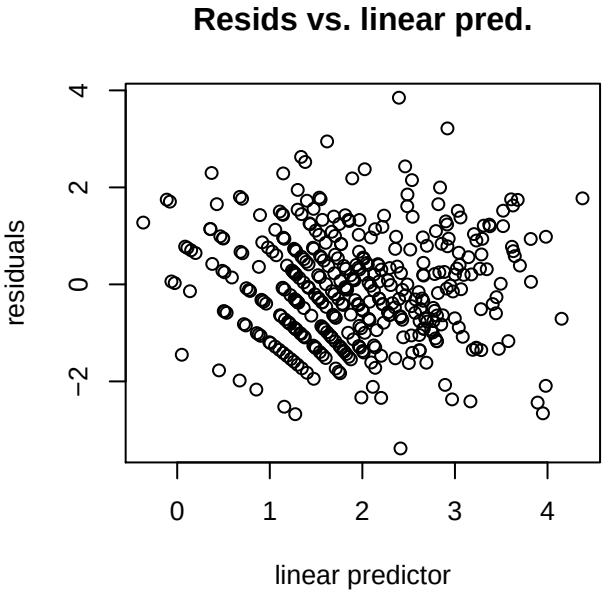


help("choose.k")

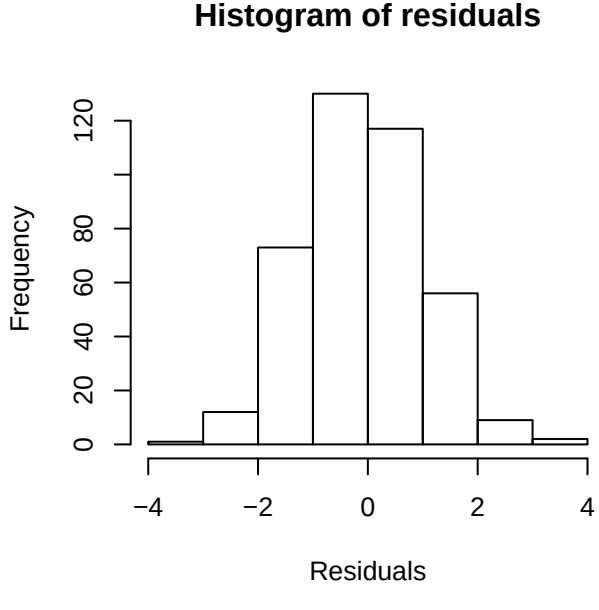


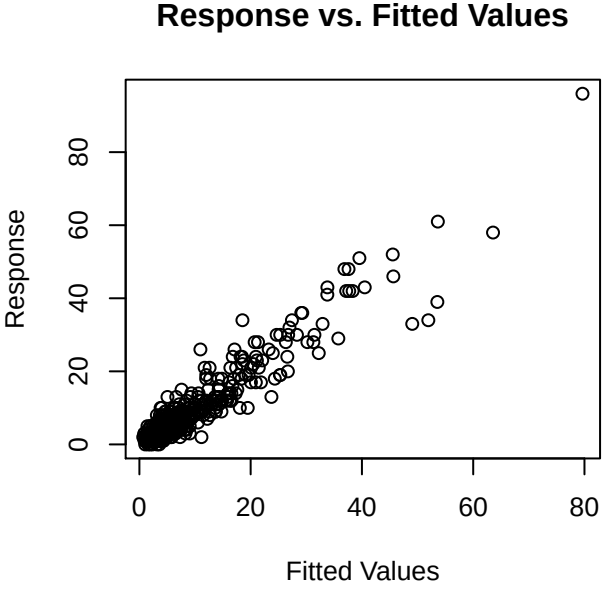


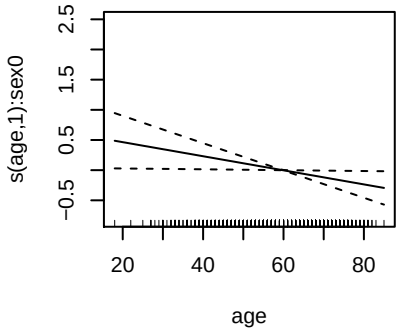


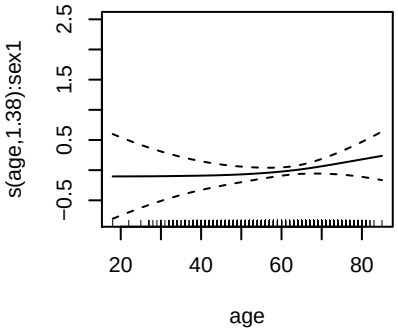


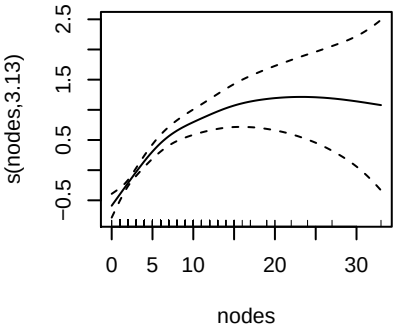
help("choose.k")



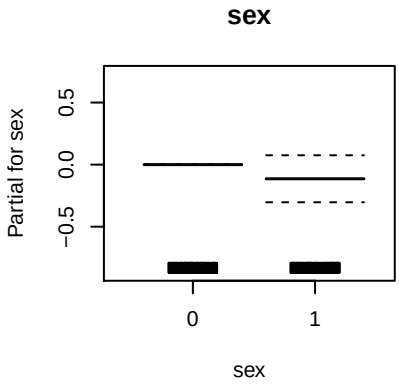


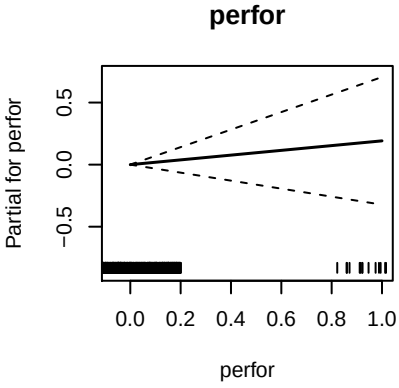

s(age,1):sex0
2.5
1.5
0.5
−0.5
20
40
60
80
age

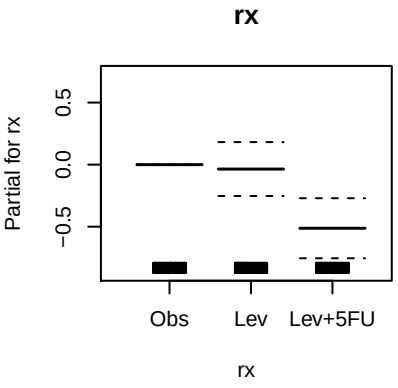

s(age,1.38):sex1
2.5
1.5
0.5
−0.5
20
40
60
80
age

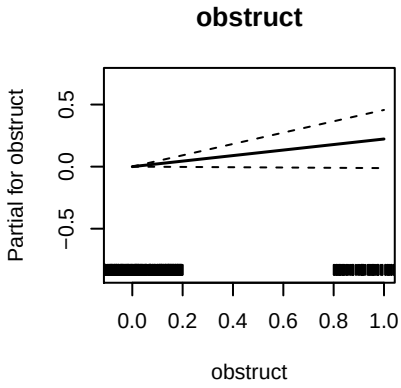

s(nodes,3.13)
2.5
1.5
0.5
−0.5
0
5
10
20
30
nodes

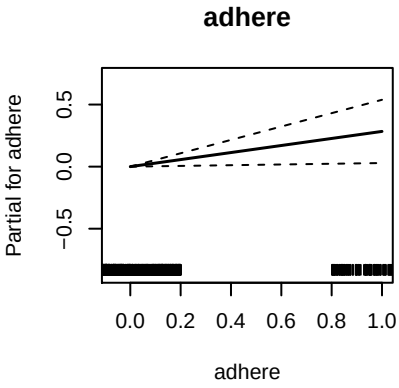
help("coxph")

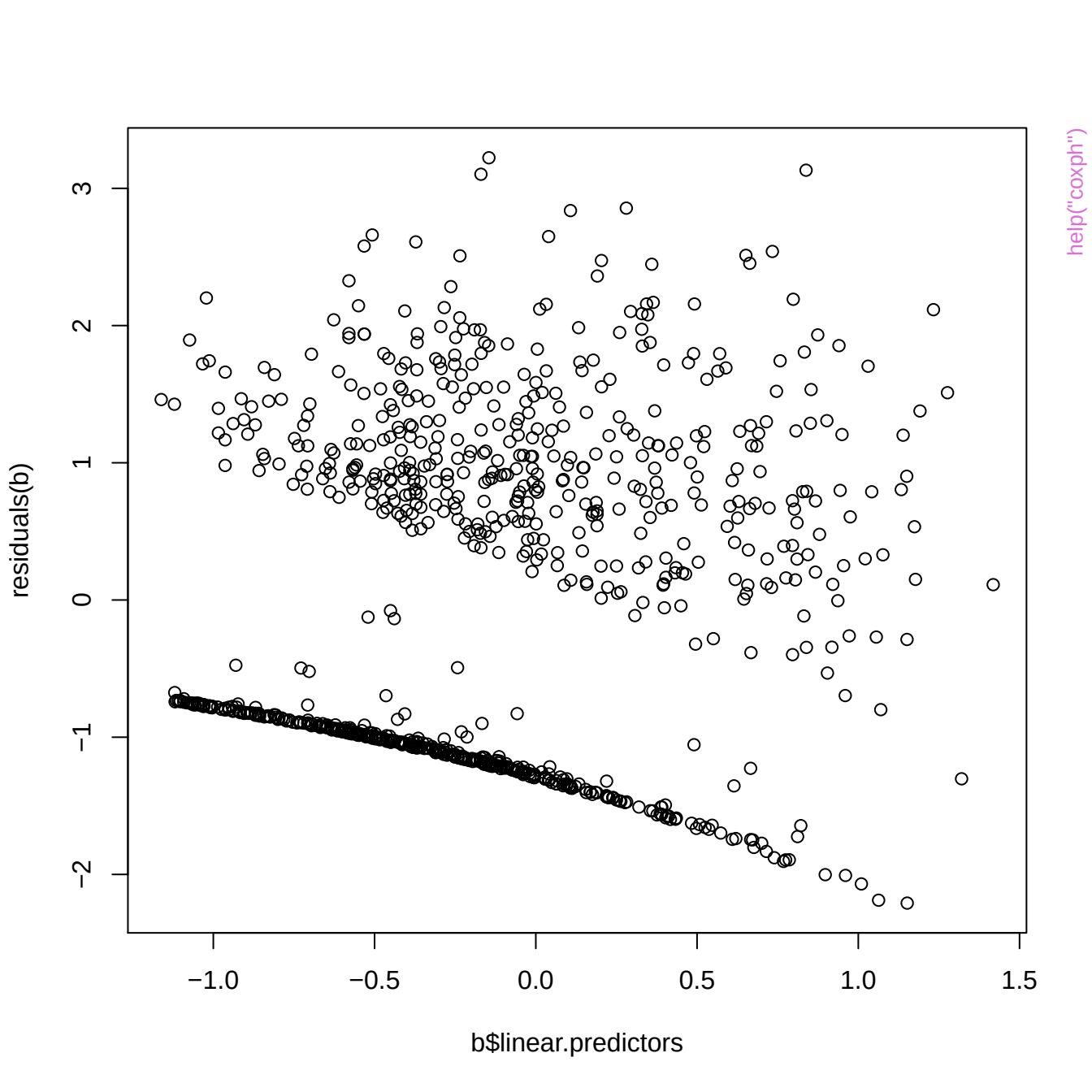

sex
Partial for sex
0.5
0.0
−0.5
0
1
sex

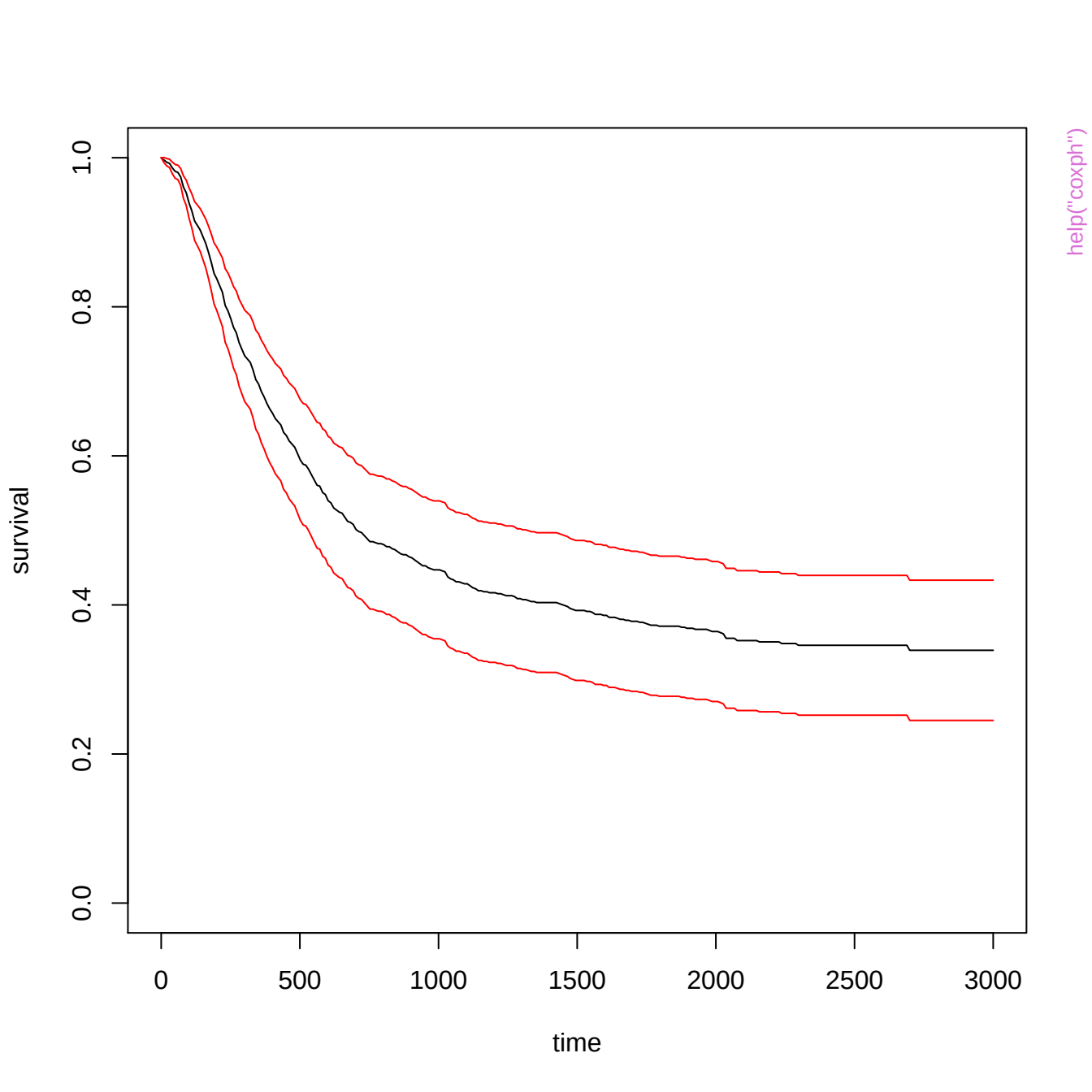

perfor
Partial for perfor
0.5
0.0
−0.5
0.0
0.2
0.4
0.6
0.8
1.0
perfor

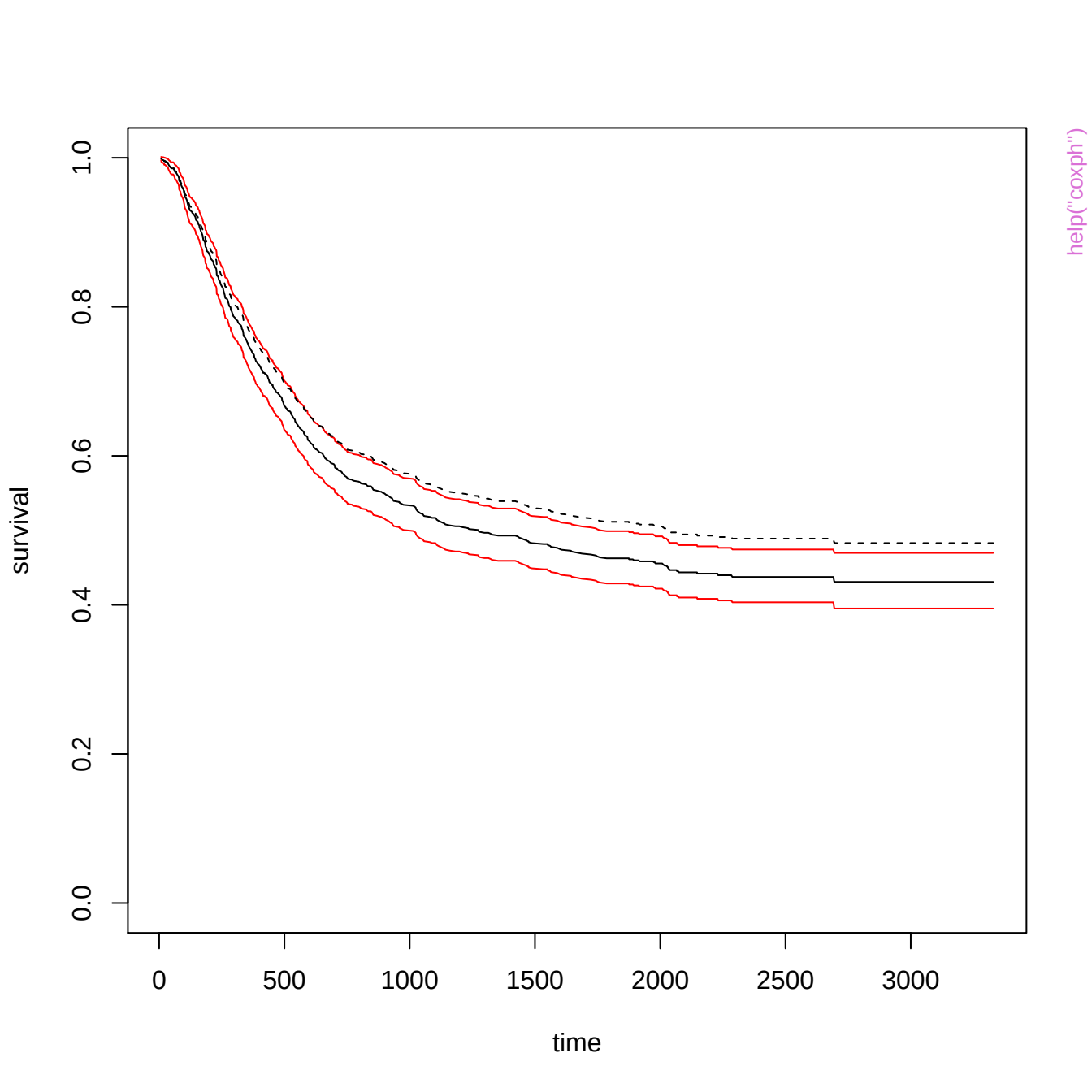

rx
Partial for rx
0.5
0.0
−0.5
Obs
Lev
Lev+5FU
rx

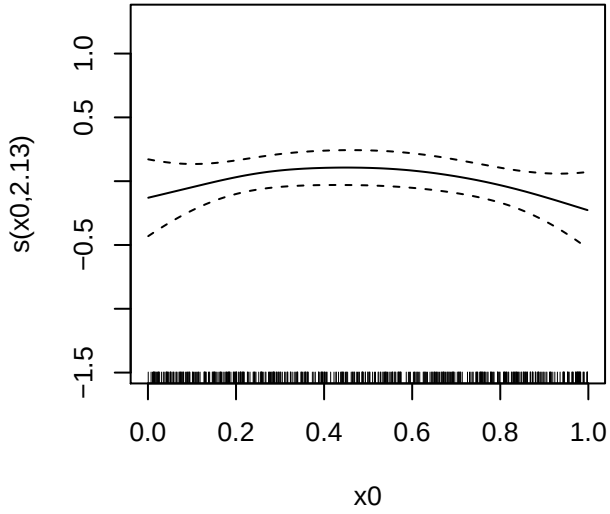

obstruct
Partial for obstruct
0.5
0.0
−0.5
0.0
0.2
0.4
0.6
0.8
1.0
obstruct

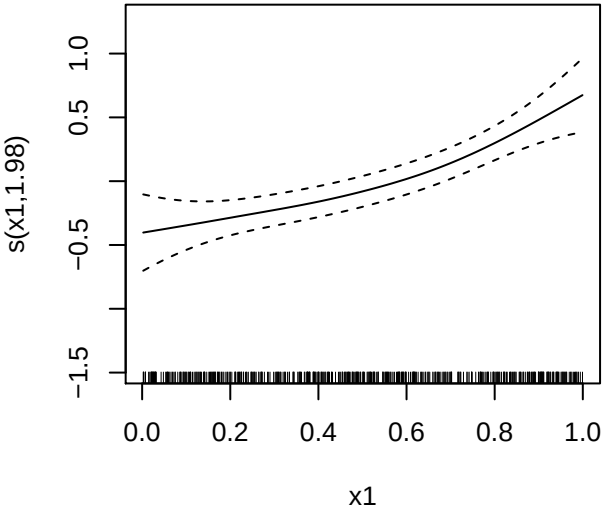

adhere
Partial for adhere
0.5
0.0
−0.5
0.0
0.2
0.4
0.6
0.8
1.0
adhere

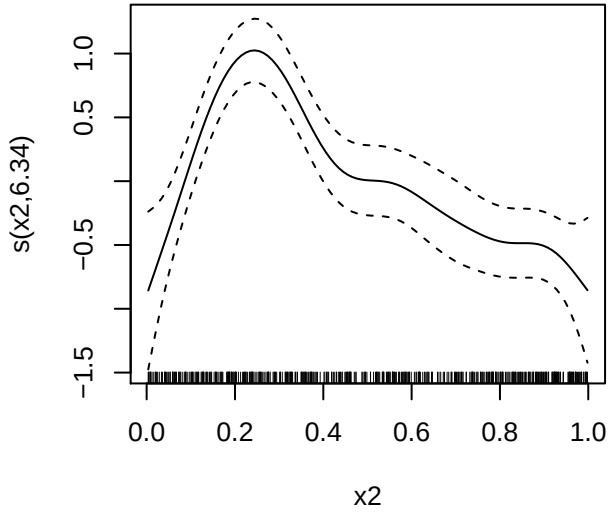

residuals(b)
b$linear.predictors
help("coxph")
3
2
1
0
−1
−2
−1.0
−0.5
0.0
0.5
1.0
1.5

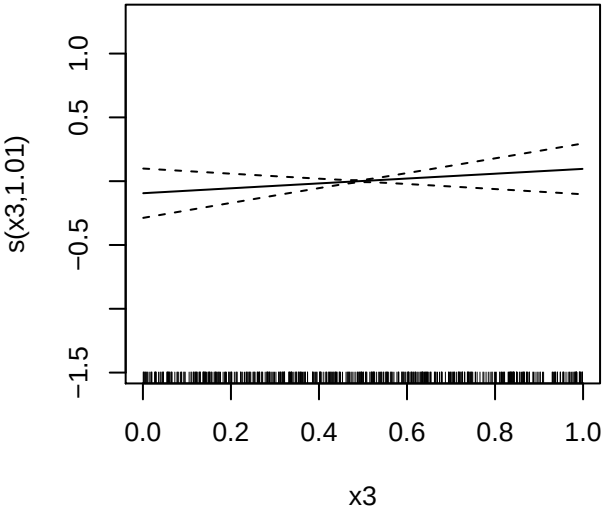

survival
1.0
0.8
0.6
0.4
0.2
0.0
0
500
1000
1500
2000
2500
3000
time
help("coxph")


survival
1.0
0.8
0.6
0.4
0.2
0.0
0
500
1000
1500
2000
2500
3000
time
help("coxph")

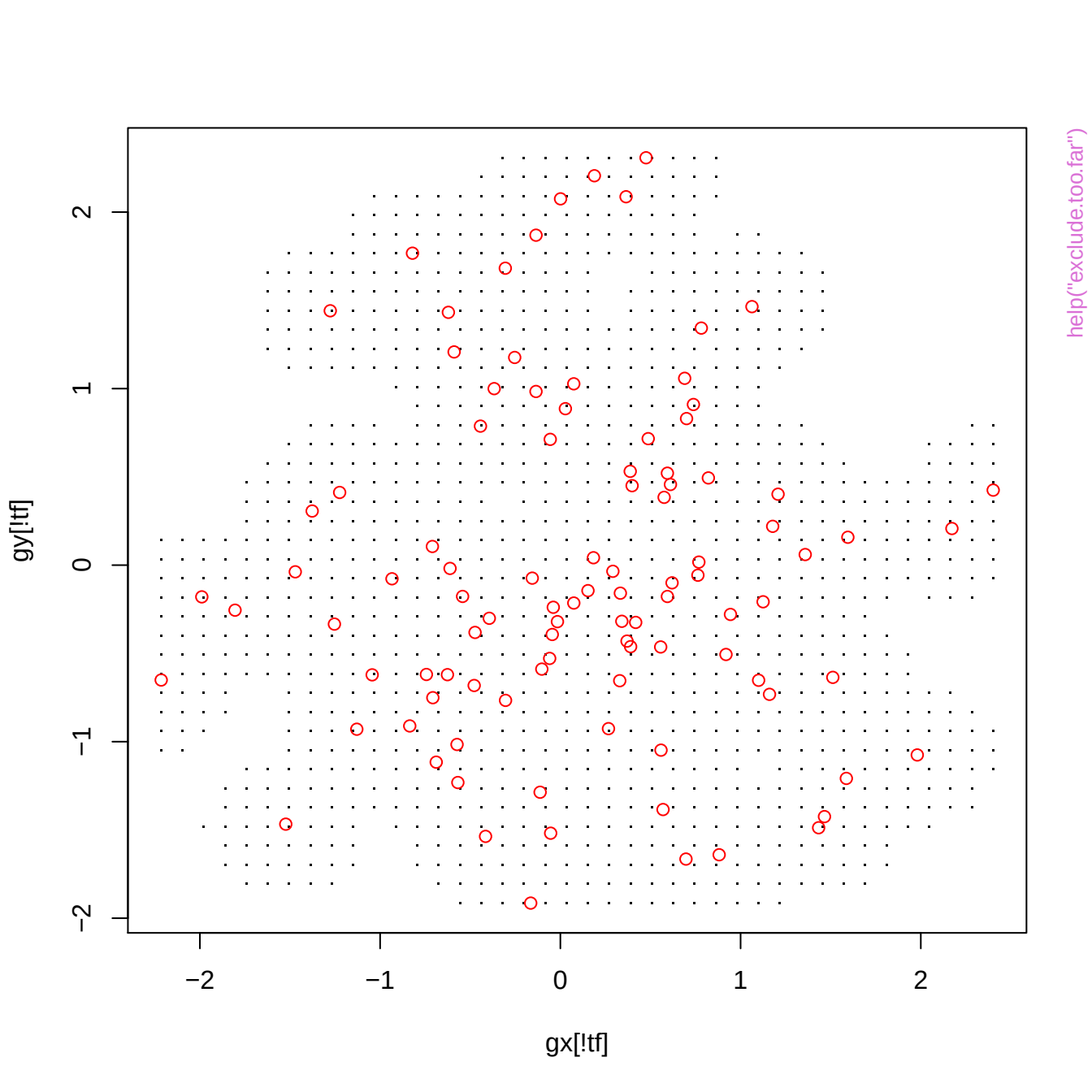

s(x0,2.13)
1.0
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x0

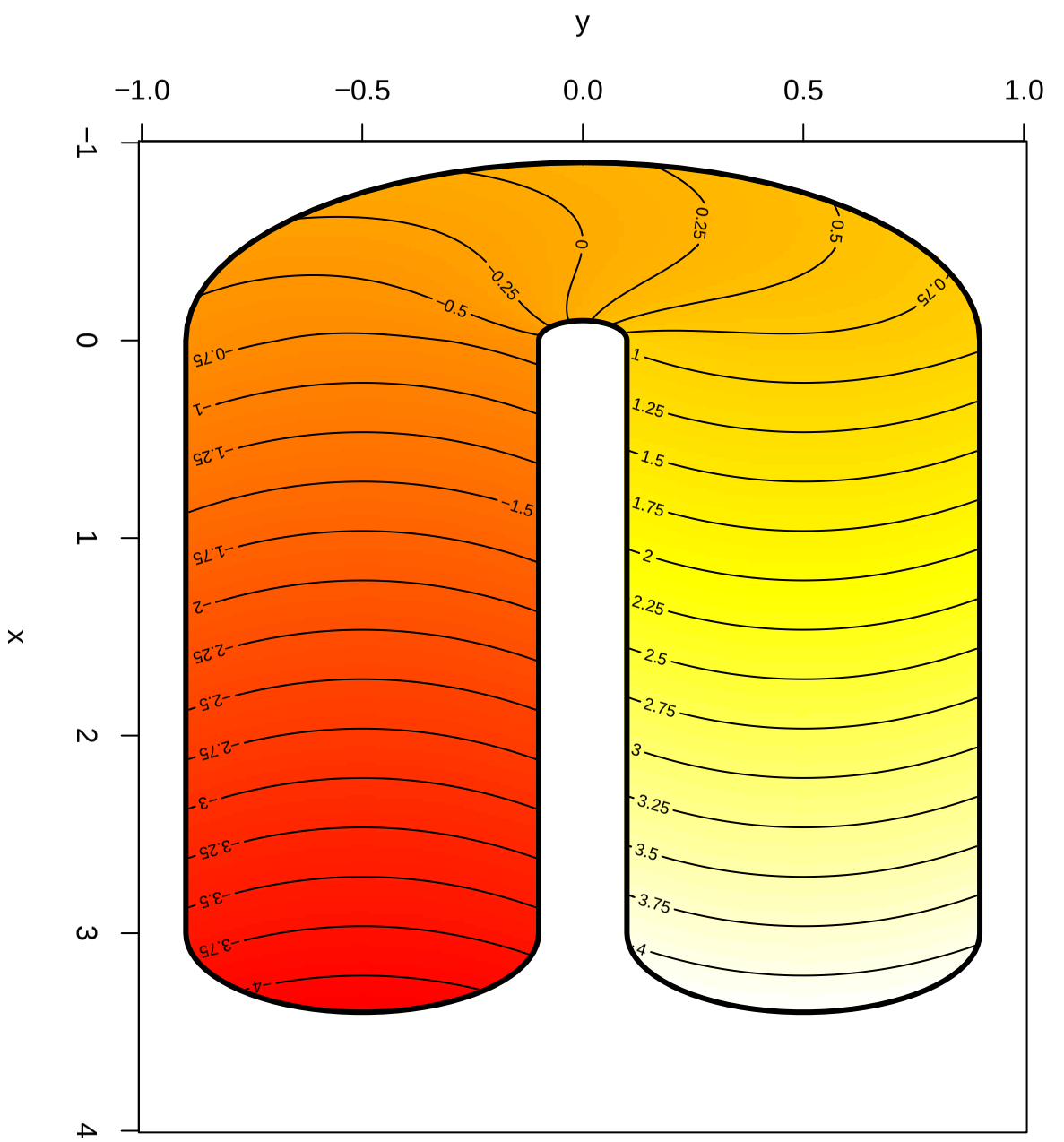

s(x1,1.98)
1.0
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x1


s(x2,6.34)
1.0
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x2

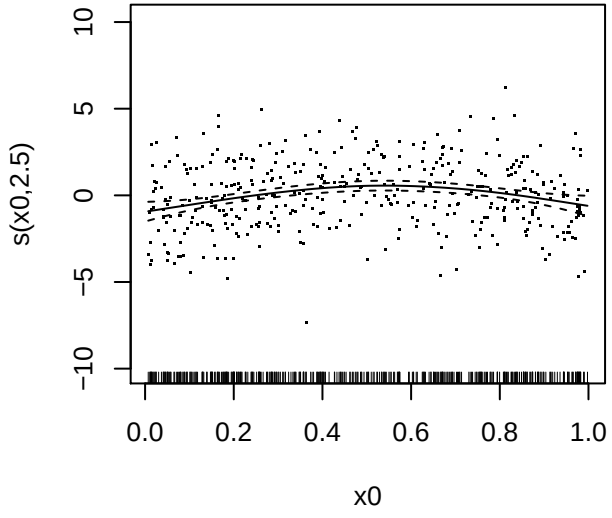

s(x3,1.01)
1.0
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x3

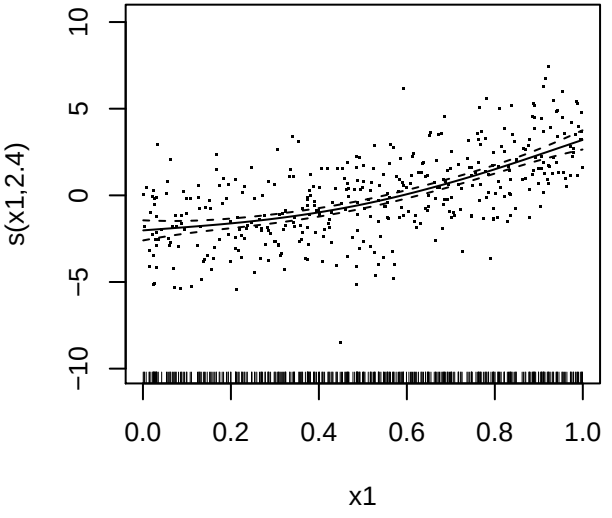
help("coxph")

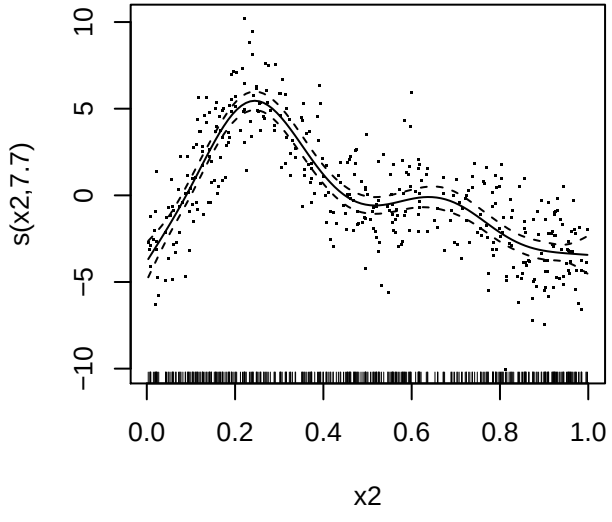

gy[!tf]
gx[!tf]
−2
−1
0
1
2
help("exclude.too.far")

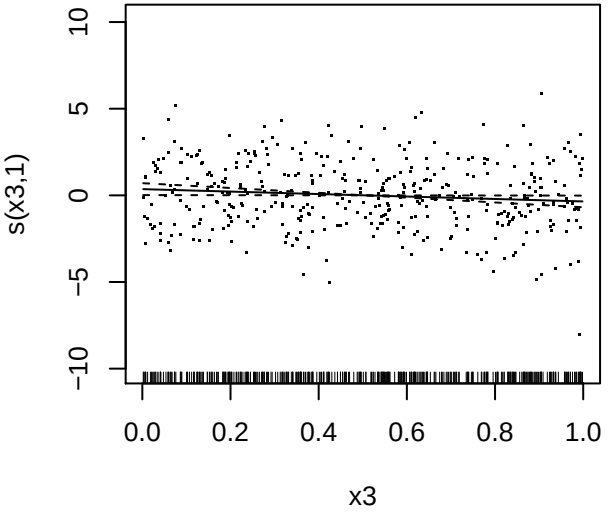

y
−1.0
−0.5
0.0
0.5
1.0
x
−1
0
1
2
3
4
0
0.25
0.5
0.75
1
1.25
1.5
1.75
2
2.25
2.5
2.75
3
3.25
3.5
3.75
4
−0.25
−0.5
−0.75
−1
−1.25
−1.5
−1.75
−2
−2.25
−2.5
−2.75
−3
−3.25
−3.5
−3.75
−4

help("fs.test")

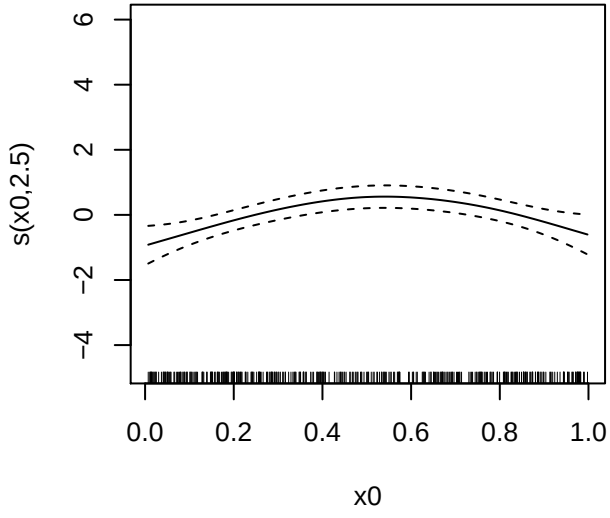

s(x0,2.5)
10
5
0
−5
−10
0.0
0.2
0.4
0.6
0.8
1.0
x0

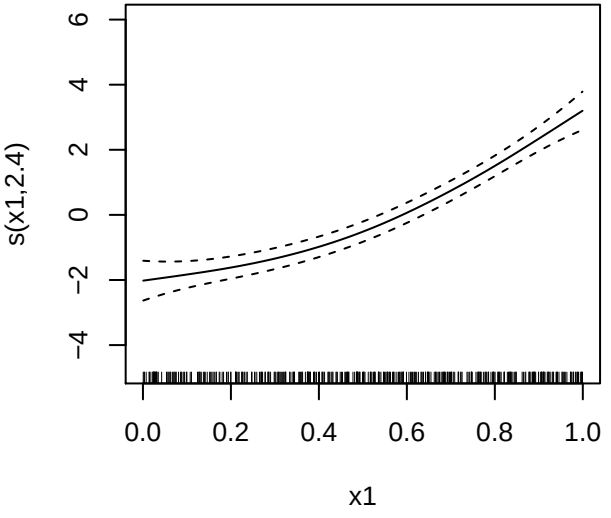

s(x1,2.4)
10
5
0
−5
−10
0.0
0.2
0.4
0.6
0.8
1.0
x1

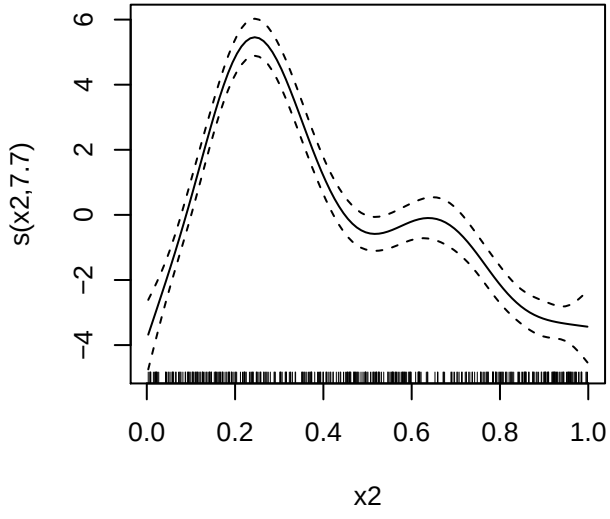

s(x2,7.7)
10
5
0
−5
−10
0.0
0.2
0.4
0.6
0.8
1.0
x2

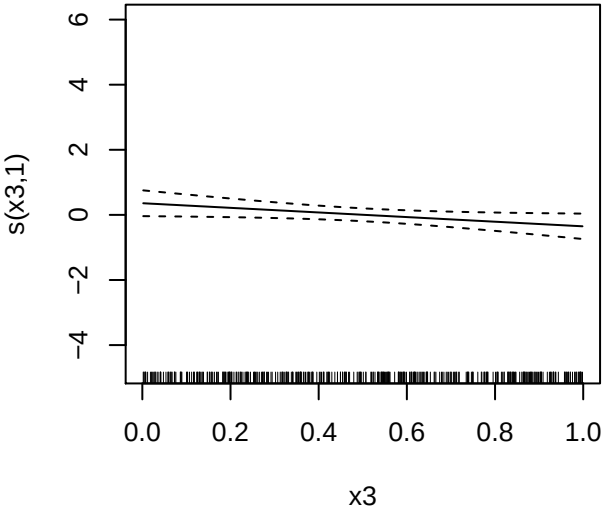

s(x3,1)
10
5
0
−5
−10
0.0
0.2
0.4
0.6
0.8
1.0
x3

help("gam")

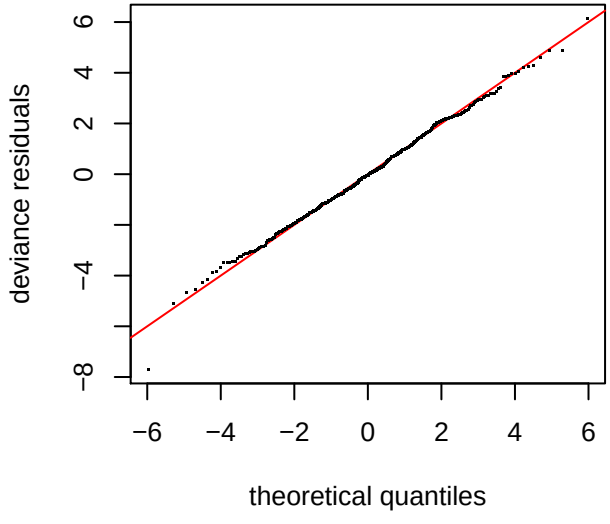

s(x0,2.5)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x0

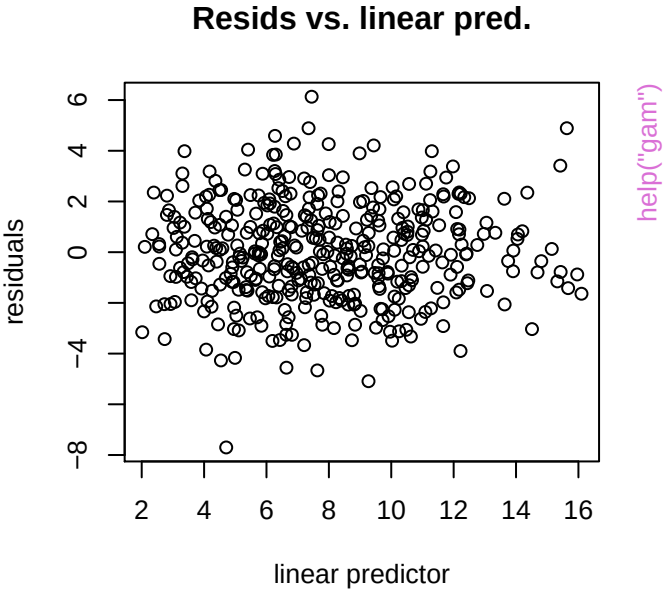

s(x1,2.4)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x1

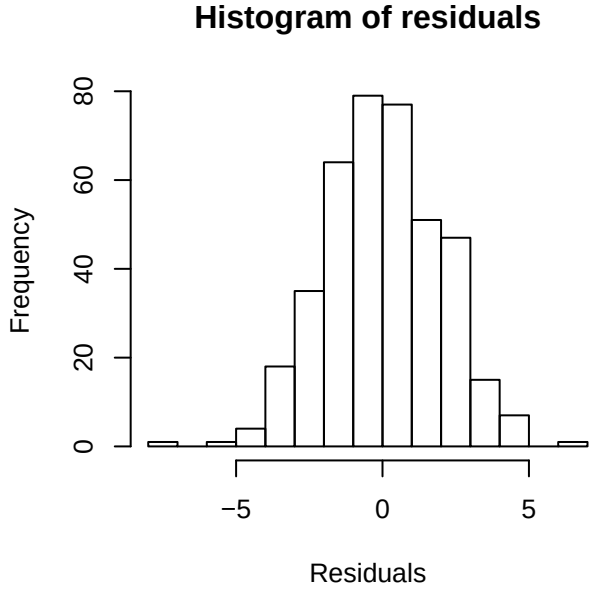

s(x2,7.7)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x2

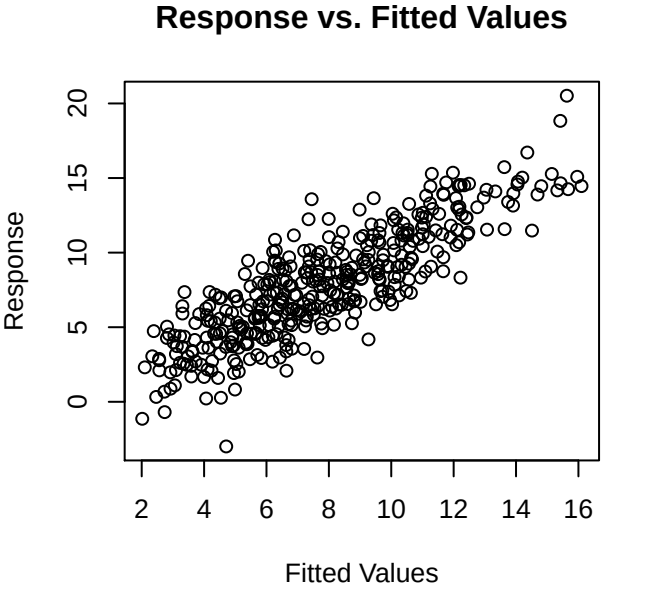

s(x3,1)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x3

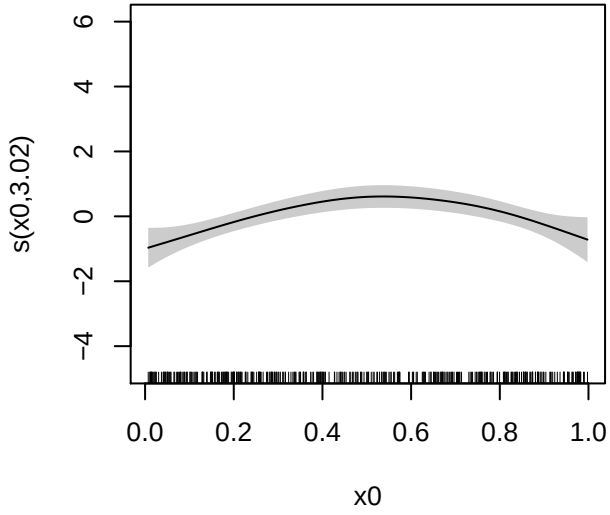
help("gam")

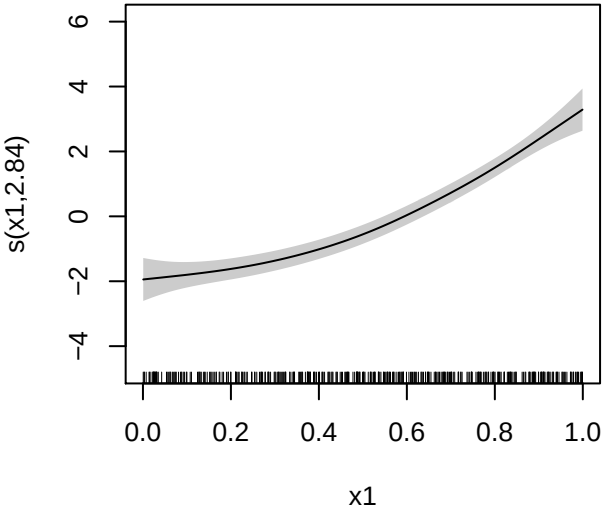

deviance residuals
theoretical quantiles


Resids vs. linear pred.
residuals
linear predictor
help("gam")

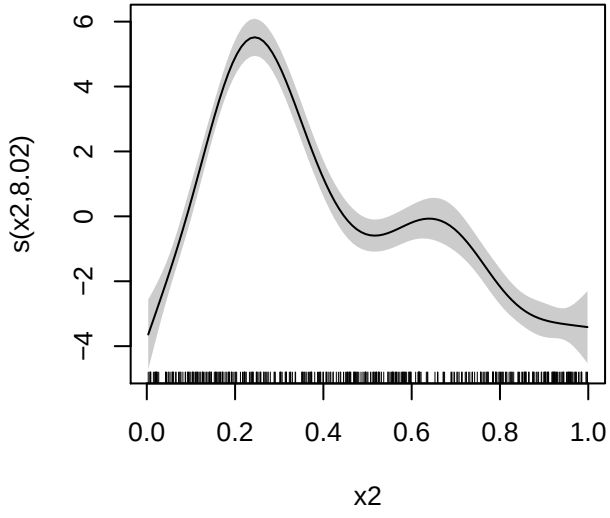

Histogram of residuals
Frequency
Residuals

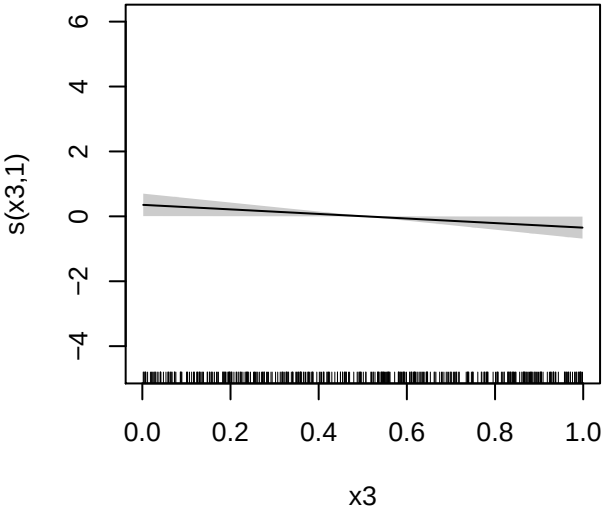

Response vs. Fitted Values
Response
Fitted Values

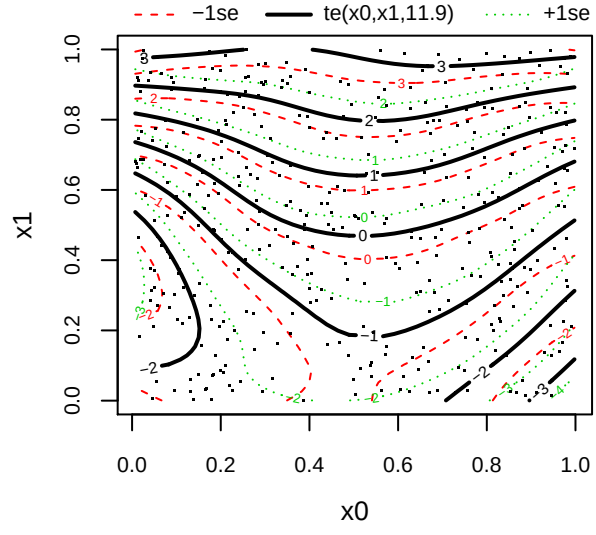

s(x0,3.02)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x0

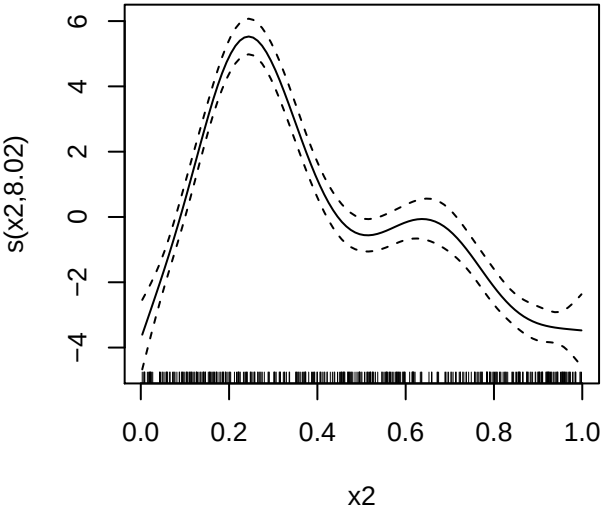

s(x1,2.84)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x1

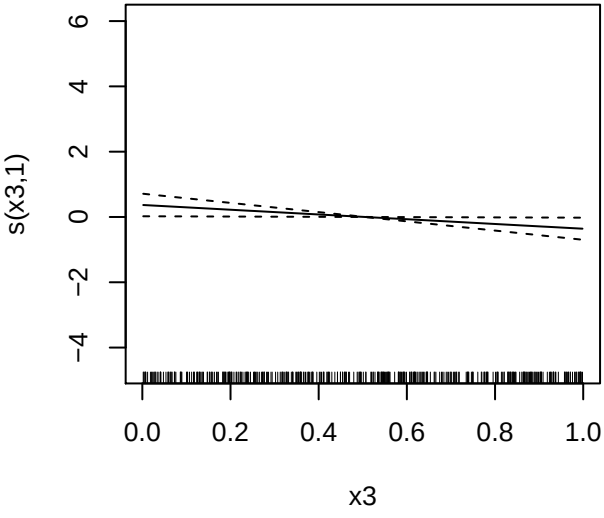
help("gam")


s(x2,8.02)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x2

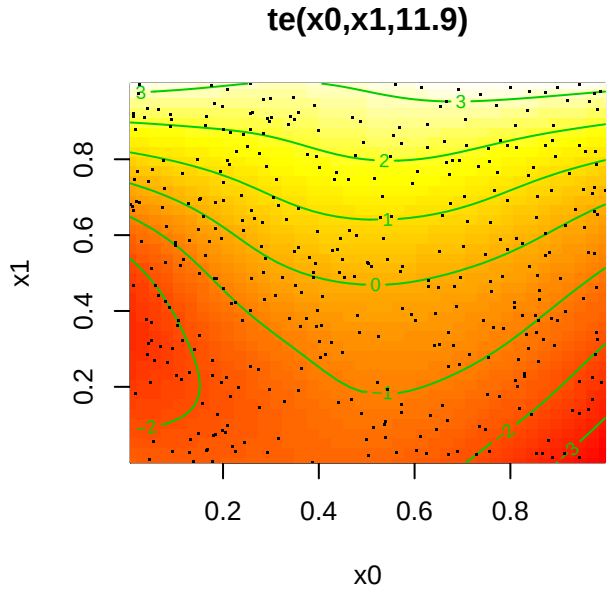

s(x3,1)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x3

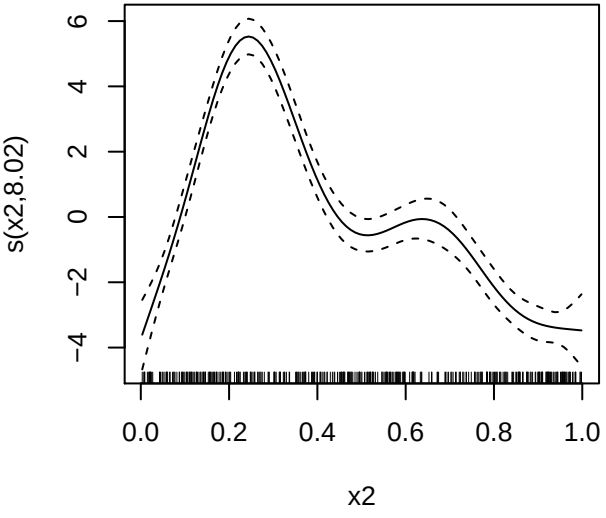

−1se
te(x0,x1,11.9)
+1se
x1
x0
0.0
0.2
0.4
0.6
0.8
1.0

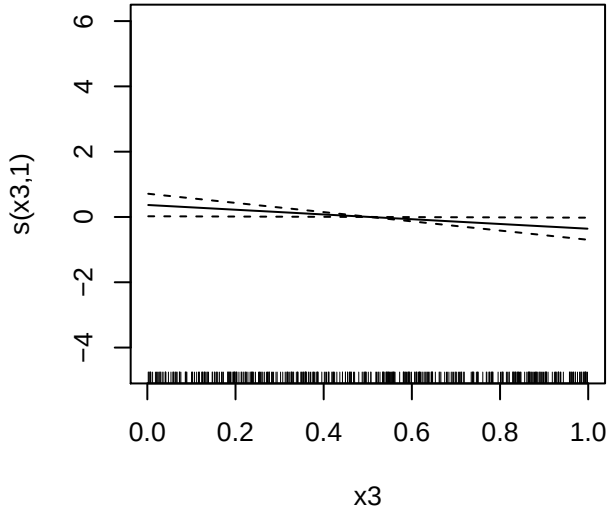

s(x2,8.02)
x2
−4
−2
0
2
4
6
0.0
0.2
0.4
0.6
0.8
1.0

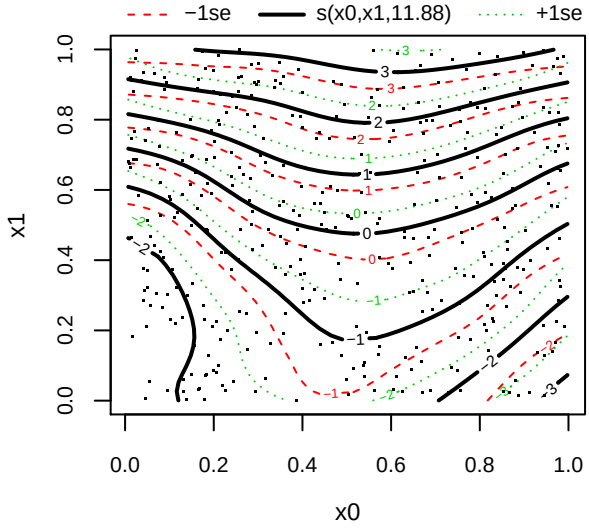

s(x3,1)
x3
−4
−2
0
2
4
6
0.0
0.2
0.4
0.6
0.8
1.0

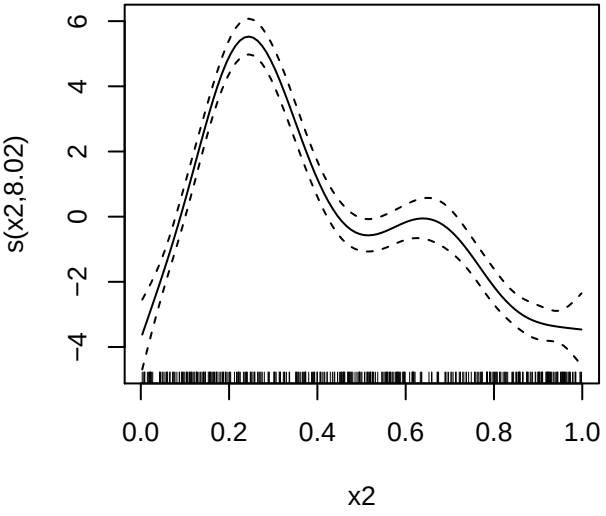
help("gam")


te(x0,x1,11.9)
x1
x0
0.2
0.4
0.6
0.8
3
2
1
0
-1
-2

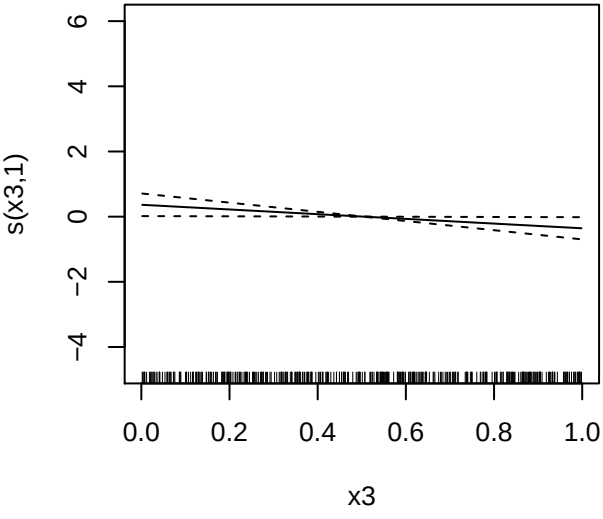

s(x2,8.02)
x2
help("gam")
−4
−2
0
2
4
6
0.0
0.2
0.4
0.6
0.8
1.0

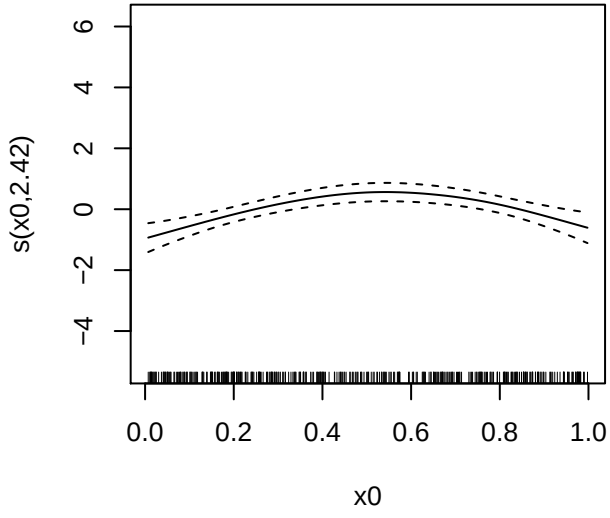

s(x3,1)
x3
−4
−2
0
2
4
6
0.0
0.2
0.4
0.6
0.8
1.0

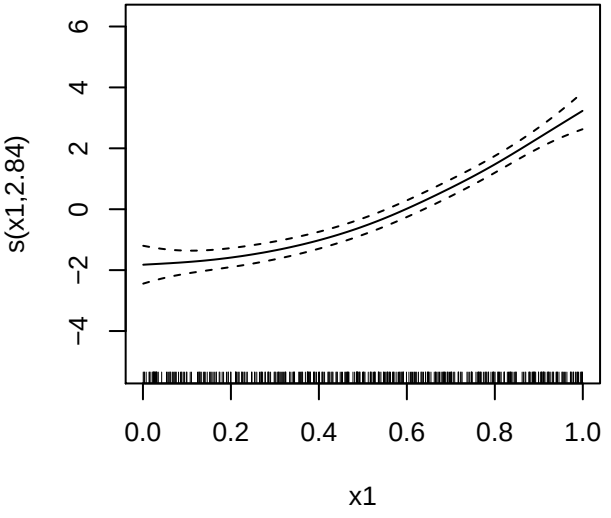

−1se
s(x0,x1,11.88)
+1se
x1
x0
0.0
0.2
0.4
0.6
0.8
1.0


s(x2,8.02)
x2
−4
−2
0
2
4
6
0.0
0.2
0.4
0.6
0.8
1.0

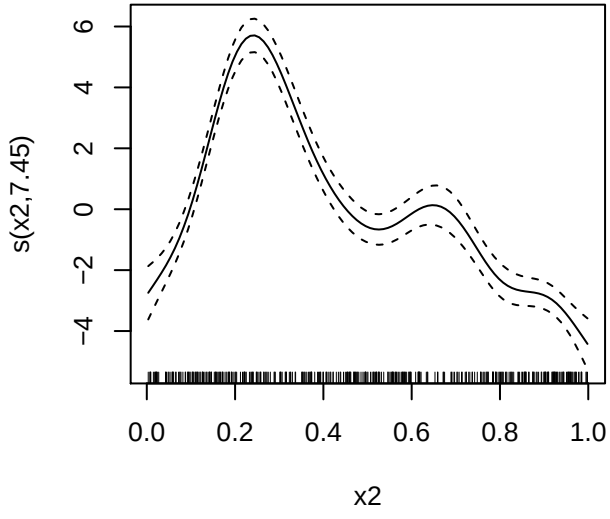
help("gam")

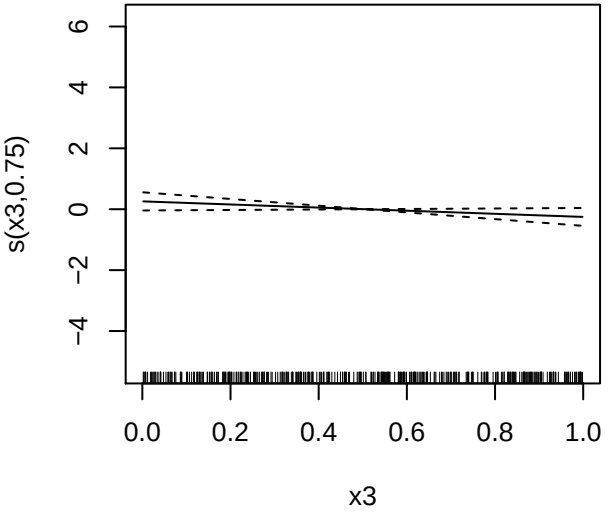

s(x3,1)
x3
−4
−2
0
2
4
6
0.0
0.2
0.4
0.6
0.8
1.0

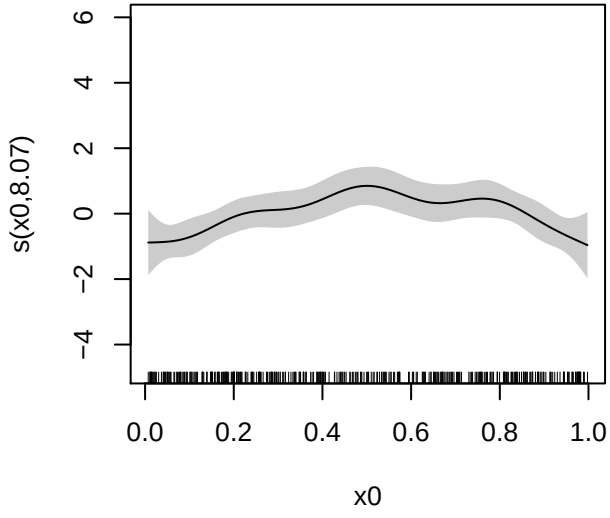

s(x0,2.42)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x0

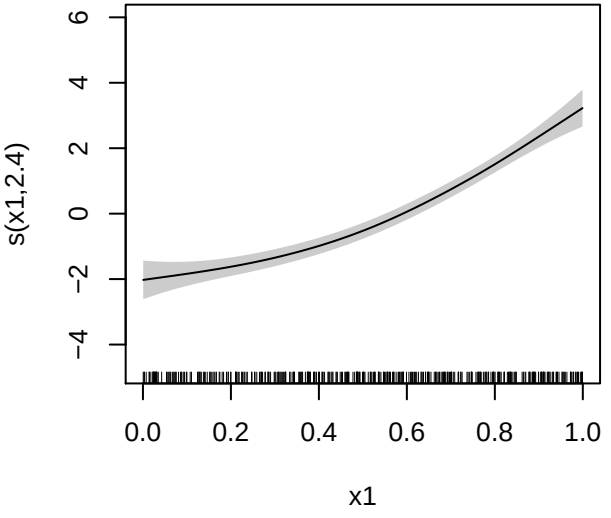

s(x1,2.84)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x1

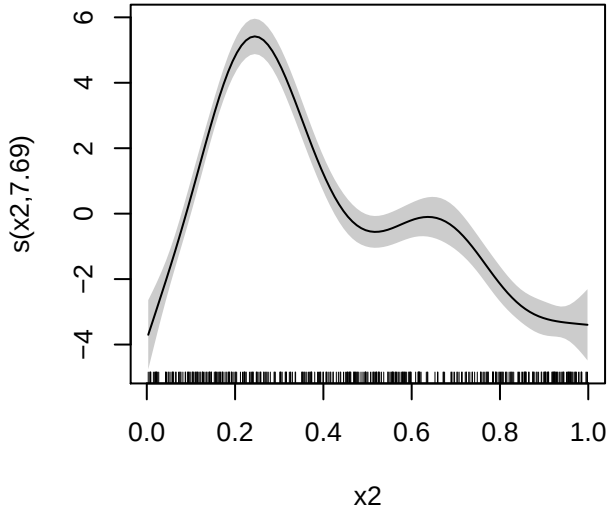
help("gam")

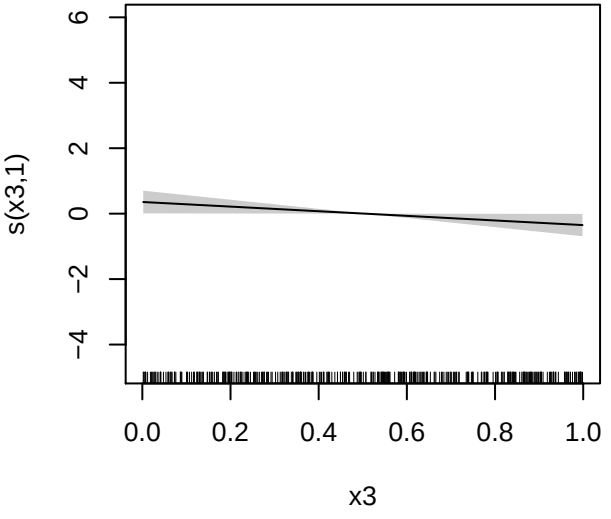

s(x2,7.45)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x2


s(x3,0.75)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x3

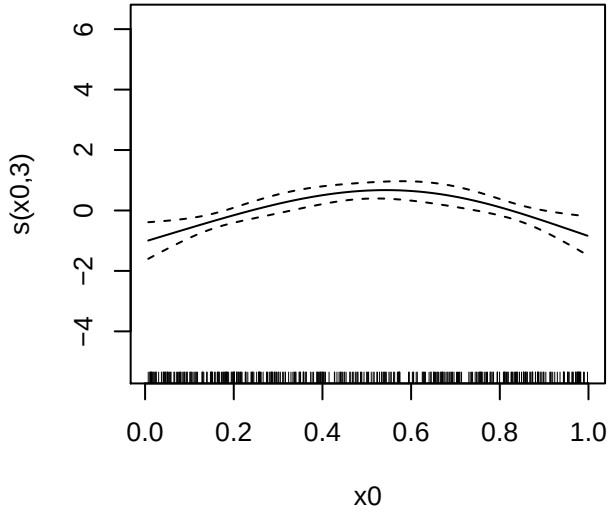

s(x0,8.07)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x0

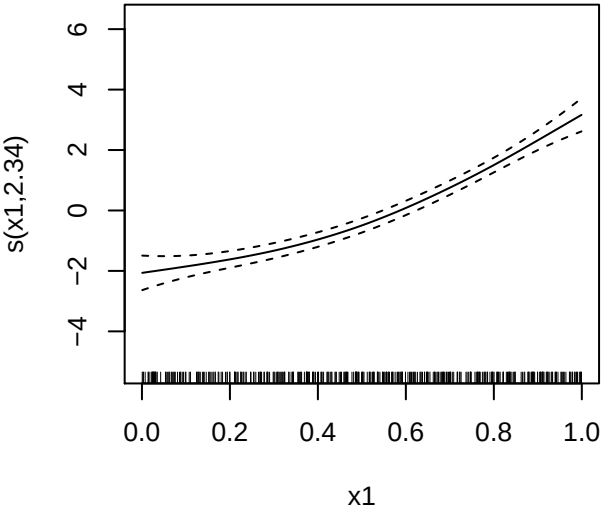

s(x1,2.4)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x1

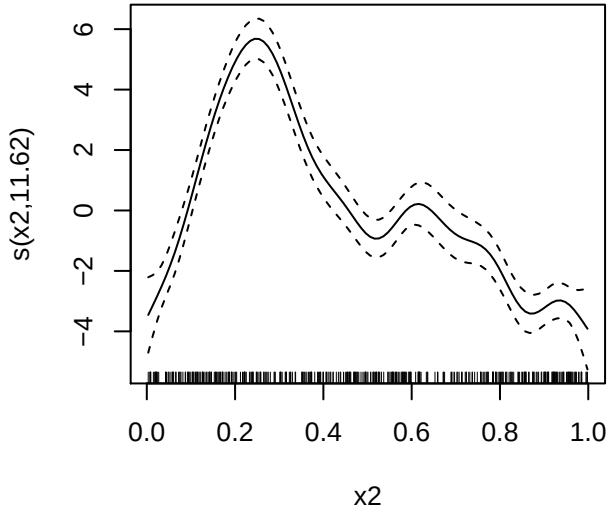

s(x2,7.69)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x2


s(x3,1)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x3

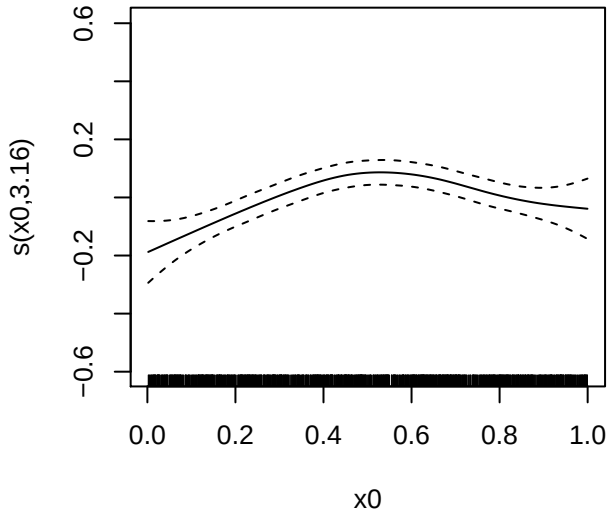
help("gam")

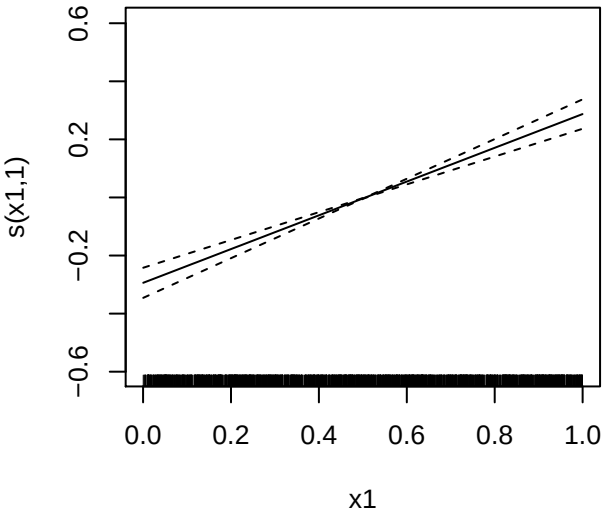

s(x0,3)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x0

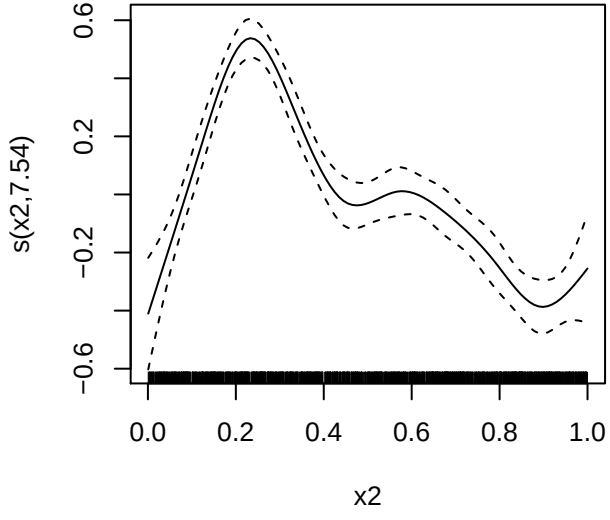

s(x1,2.34)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x1

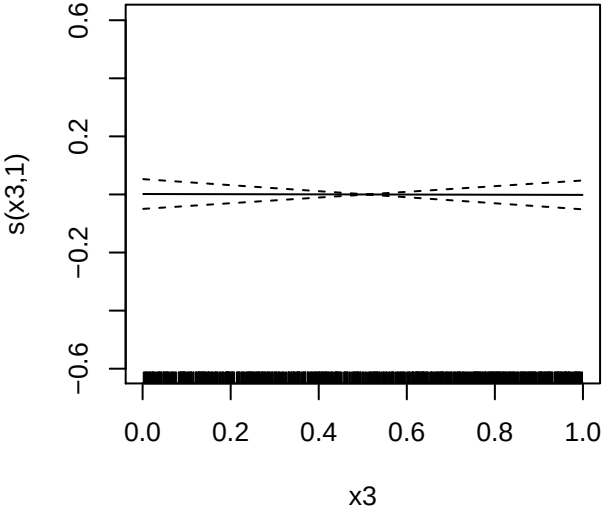

s(x2,11.62)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x2

help("gam")

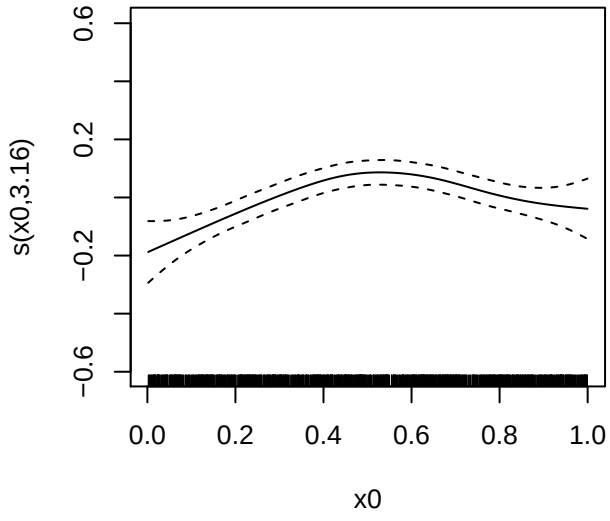

s(x0,3.16)
0.6
0.2
−0.2
−0.6
0.0
0.2
0.4
0.6
0.8
1.0
x0

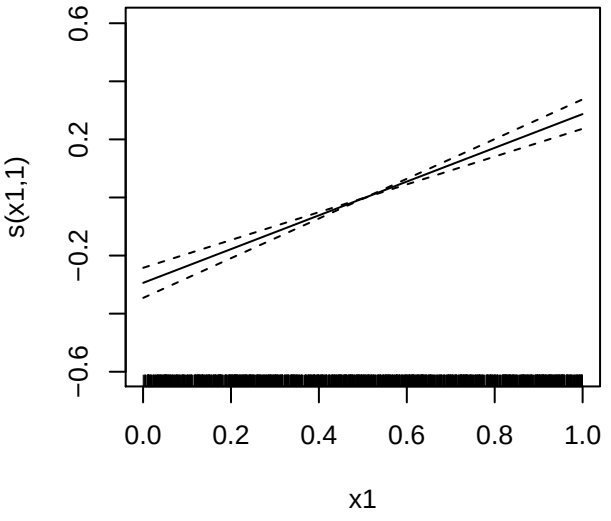

s(x1,1)
0.6
0.2
−0.2
−0.6
0.0
0.2
0.4
0.6
0.8
1.0
x1

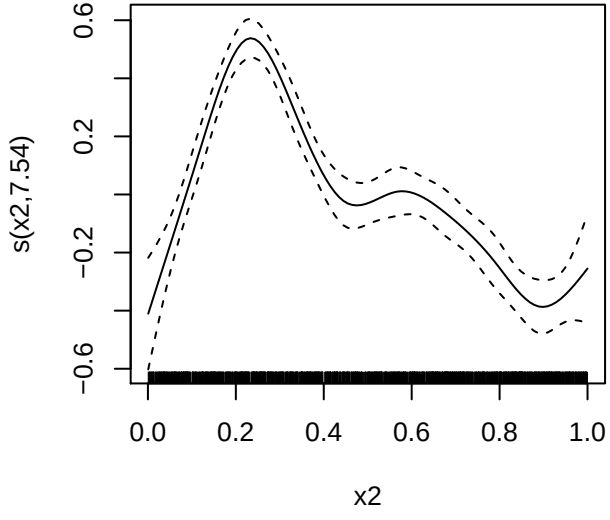

s(x2,7.54)
0.6
0.2
−0.2
−0.6
0.0
0.2
0.4
0.6
0.8
1.0
x2


s(x3,1)
0.6
0.2
−0.2
−0.6
0.0
0.2
0.4
0.6
0.8
1.0
x3

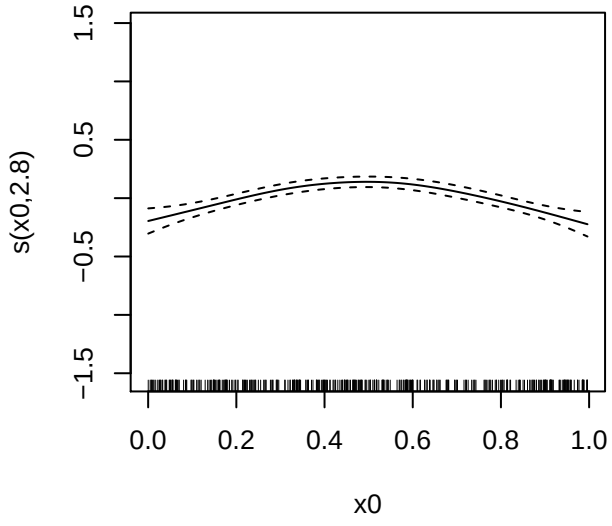
help("gam")

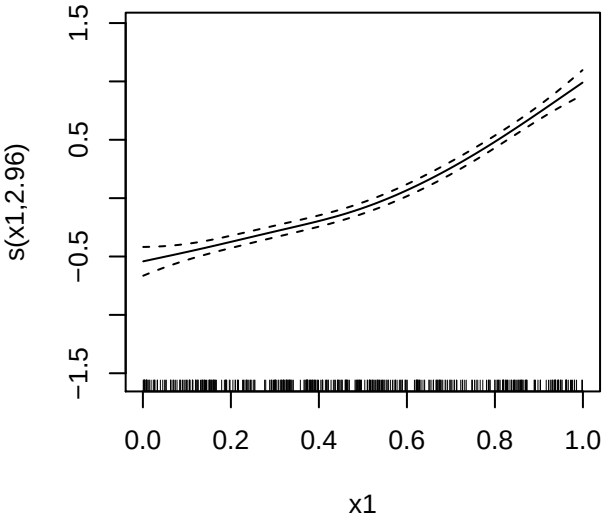

s(x0,3.16)
0.6
0.2
−0.2
−0.6
0.0
0.2
0.4
0.6
0.8
1.0
x0

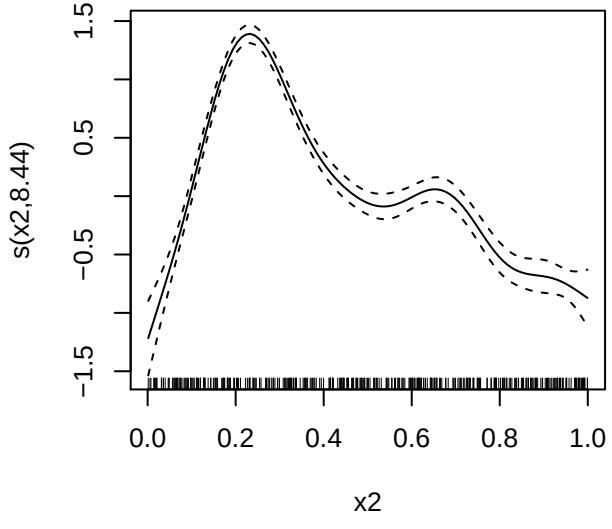

s(x1,1)
0.6
0.2
−0.2
−0.6
0.0
0.2
0.4
0.6
0.8
1.0
x1

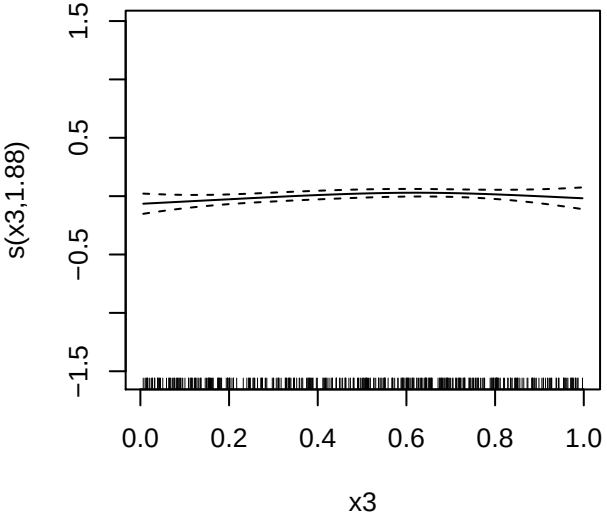

s(x2,7.54)
0.6
0.2
−0.2
−0.6
0.0
0.2
0.4
0.6
0.8
1.0
x2

help("gam")

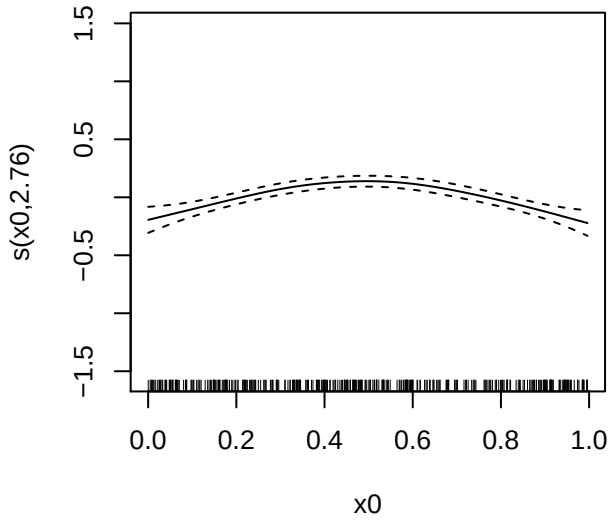

s(x0,2.8)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x0

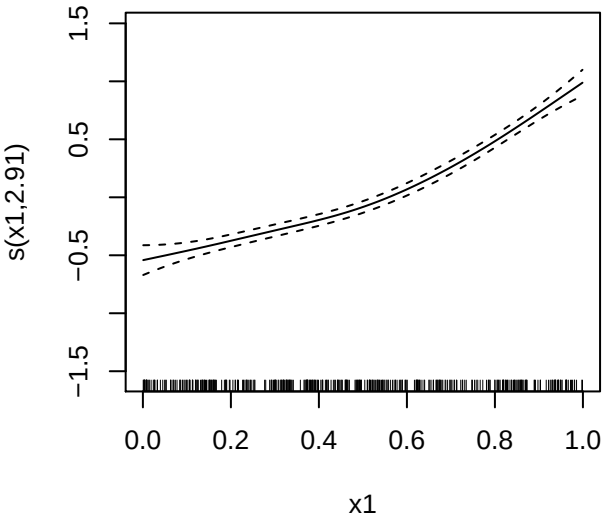

s(x1,2.96)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x1

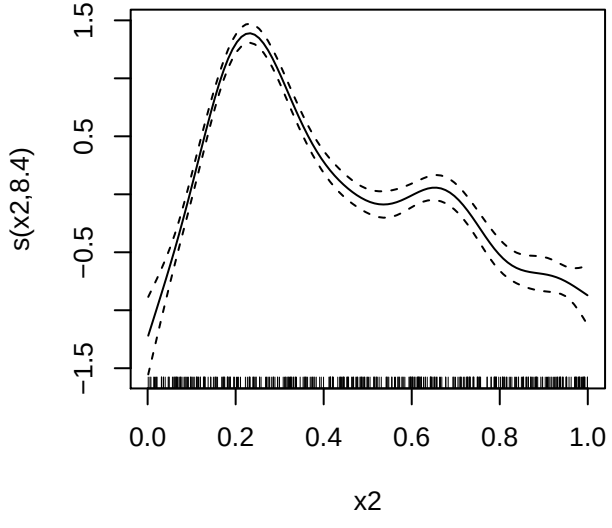

s(x2,8.44)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x2

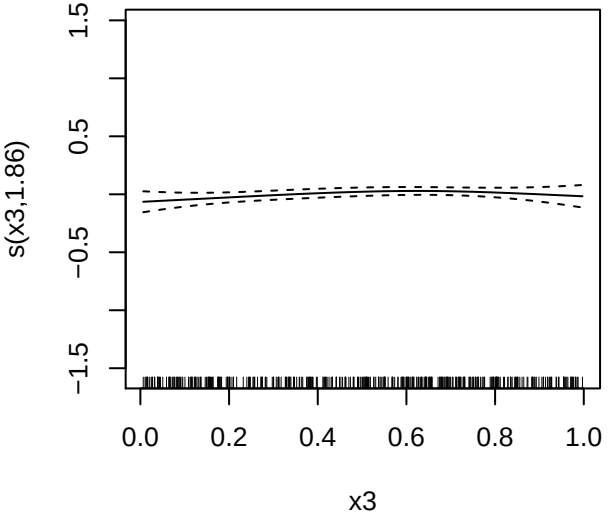

s(x3,1.88)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x3

help("gam")

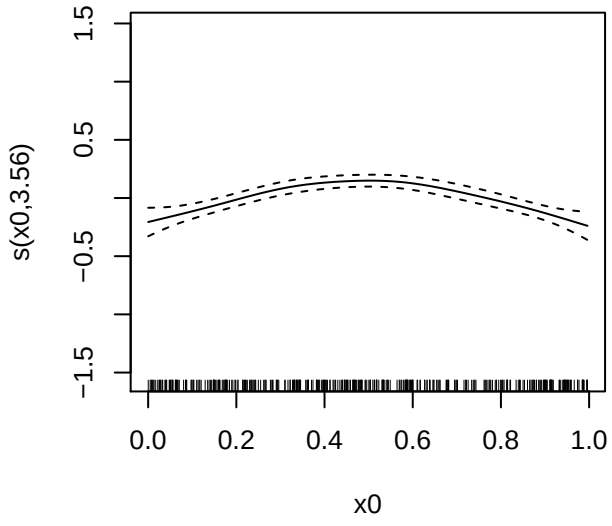

s(x0,2.76)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x0

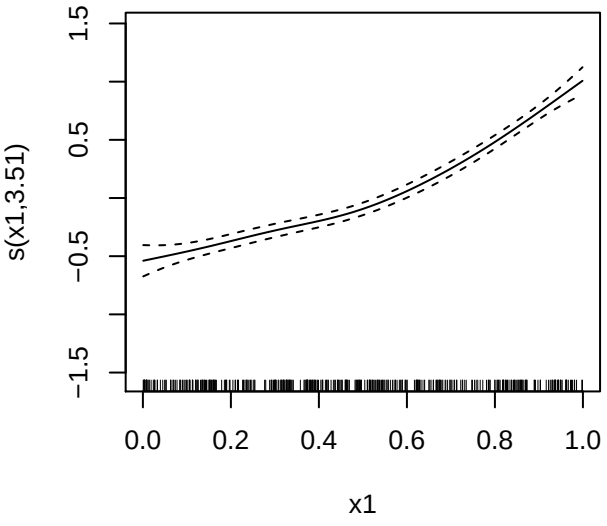

s(x1,2.91)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x1


s(x2,8.4)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x2

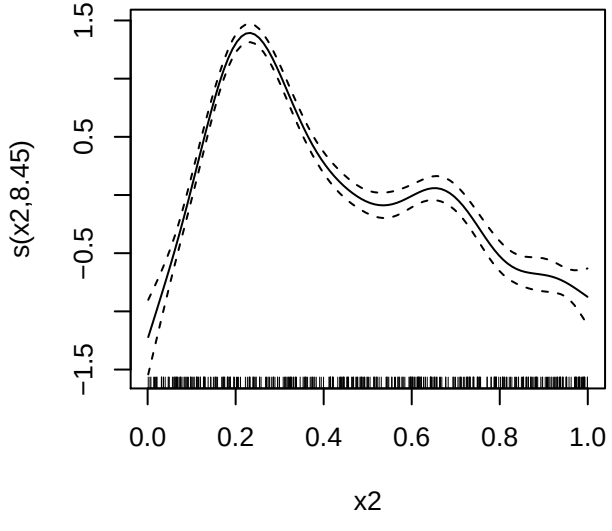

s(x3,1.86)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x3

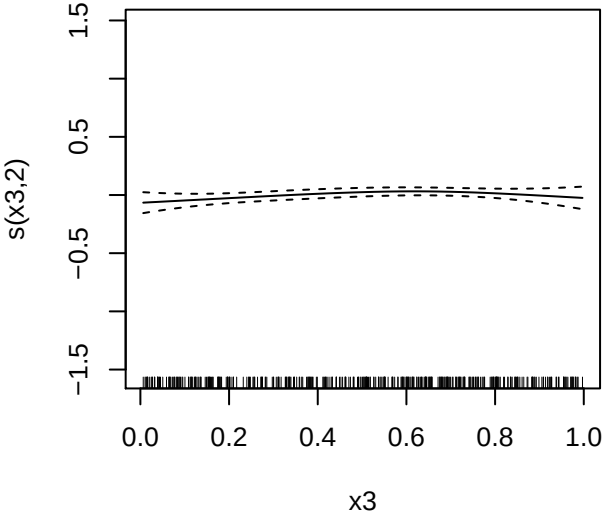
help("gam")

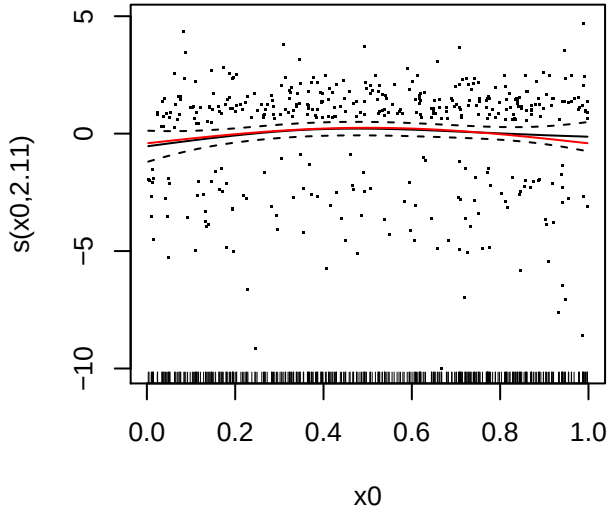

s(x0,3.56)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x0

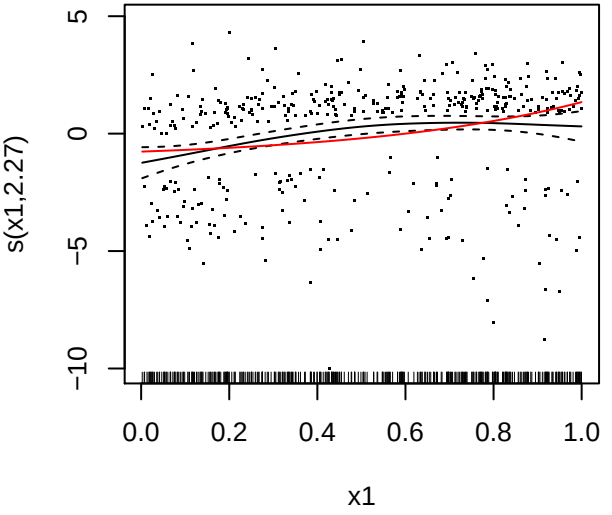

s(x1,3.51)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x1

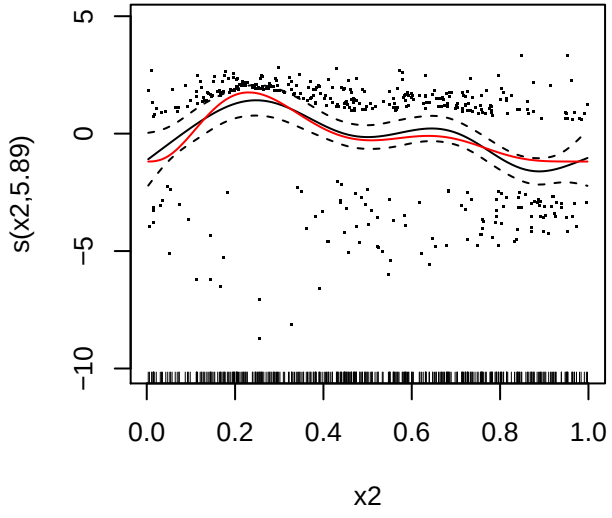
help("gam")

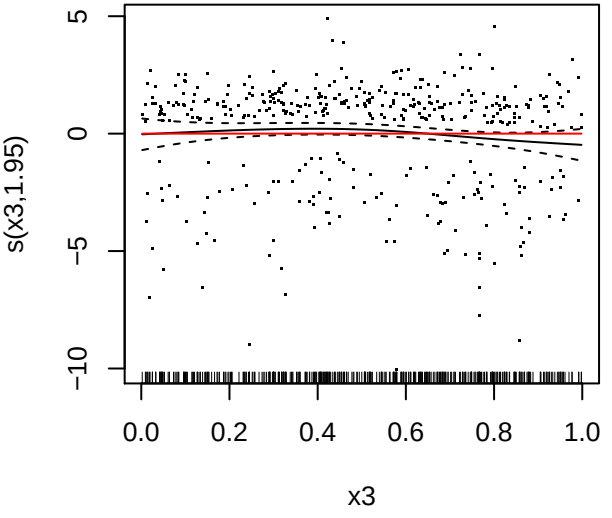

s(x2,8.45)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x2


s(x3,2)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x3

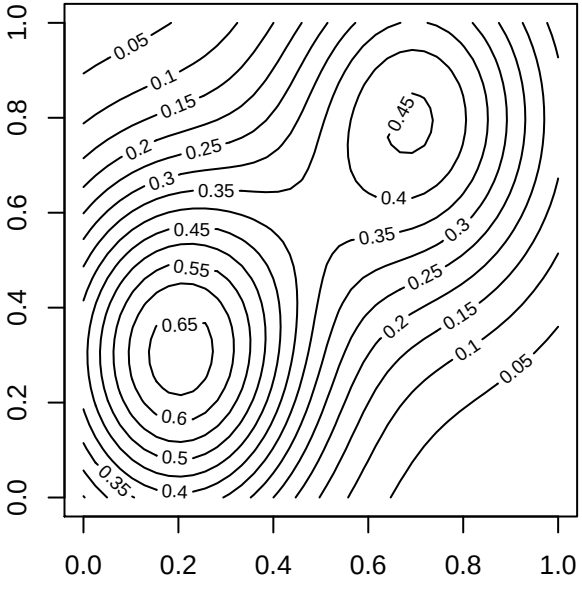

s(x0,2.11)
5
0
−5
−10
0.0
0.2
0.4
0.6
0.8
1.0
x0


s(x1,2.27)
5
0
−5
−10
0.0
0.2
0.4
0.6
0.8
1.0
x1


s(x2,5.89)
5
0
−5
−10
0.0
0.2
0.4
0.6
0.8
1.0
x2


s(x3,1.95)
5
0
−5
−10
0.0
0.2
0.4
0.6
0.8
1.0
x3

help("gam")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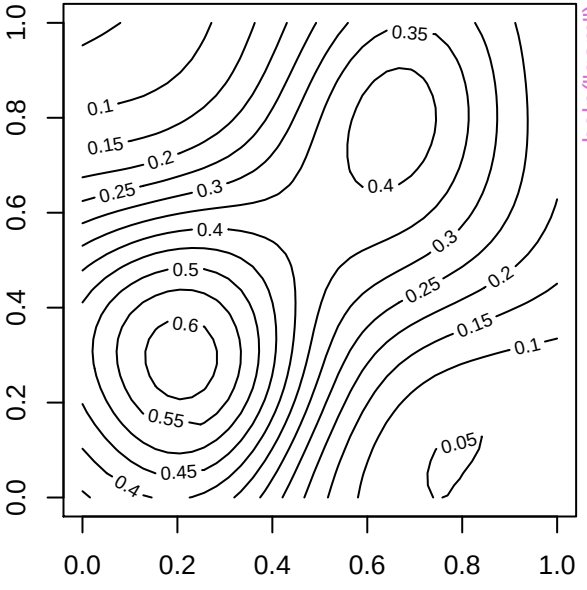
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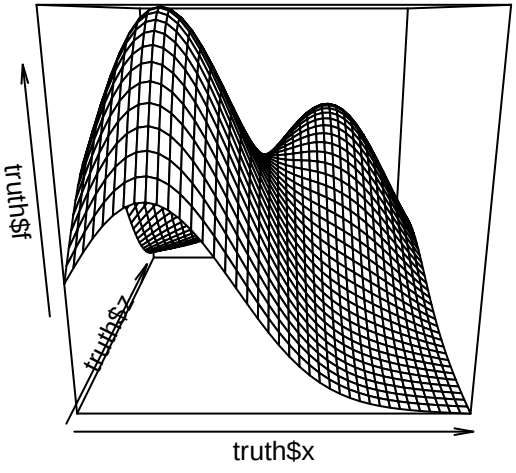
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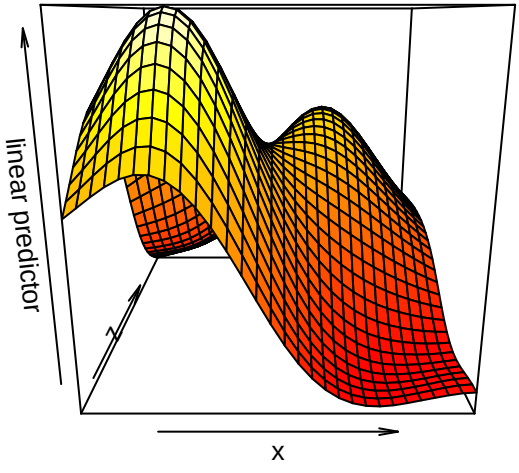
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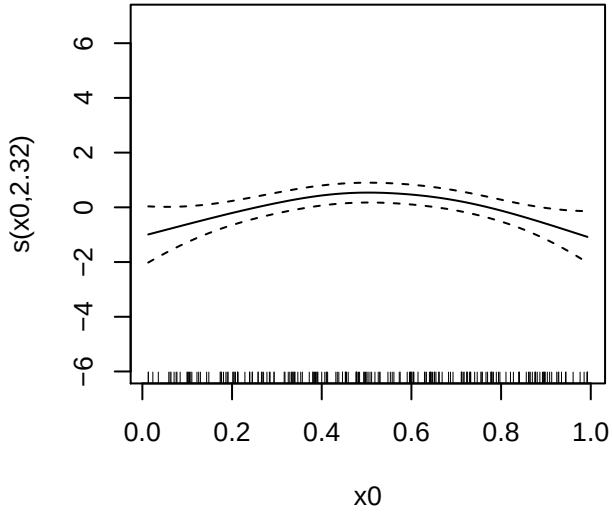

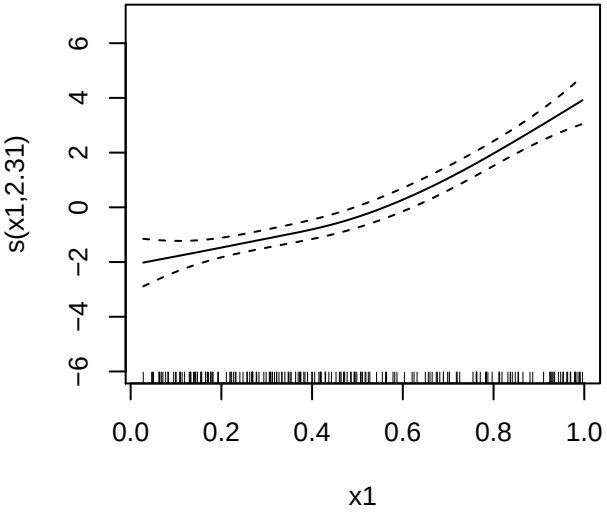

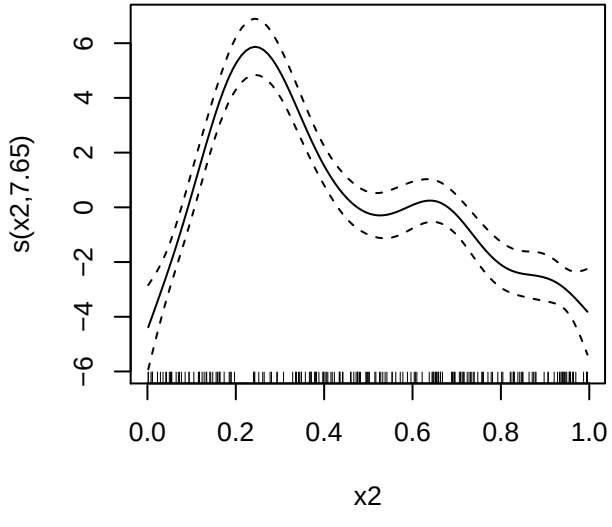

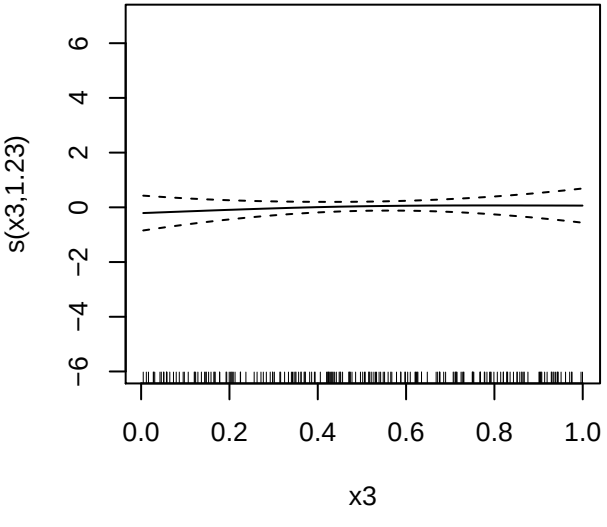

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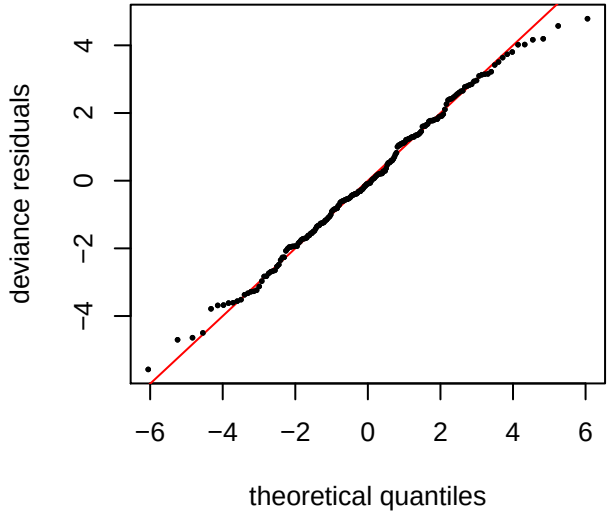

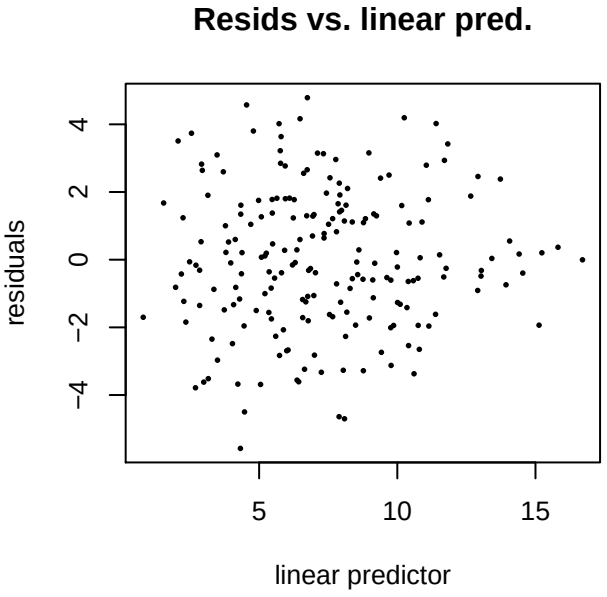

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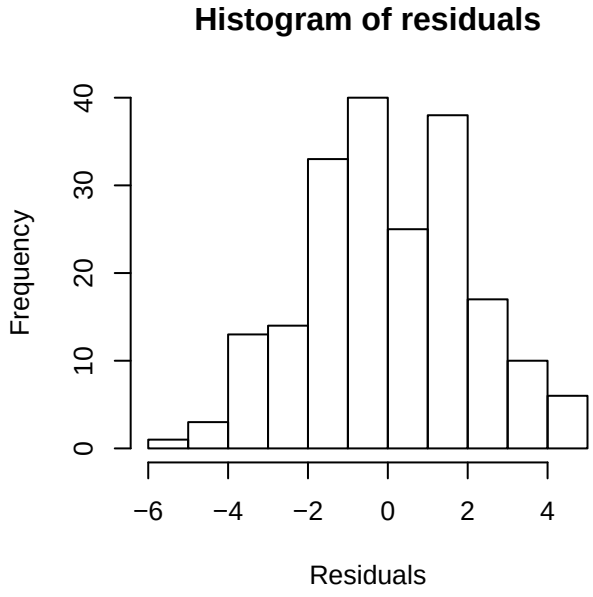

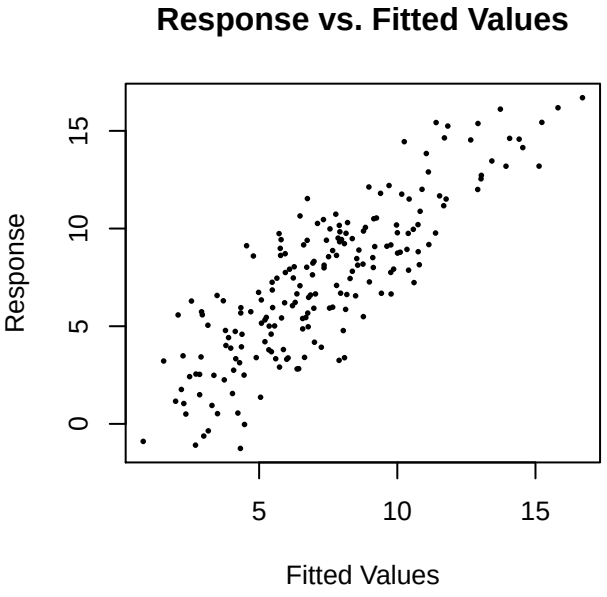

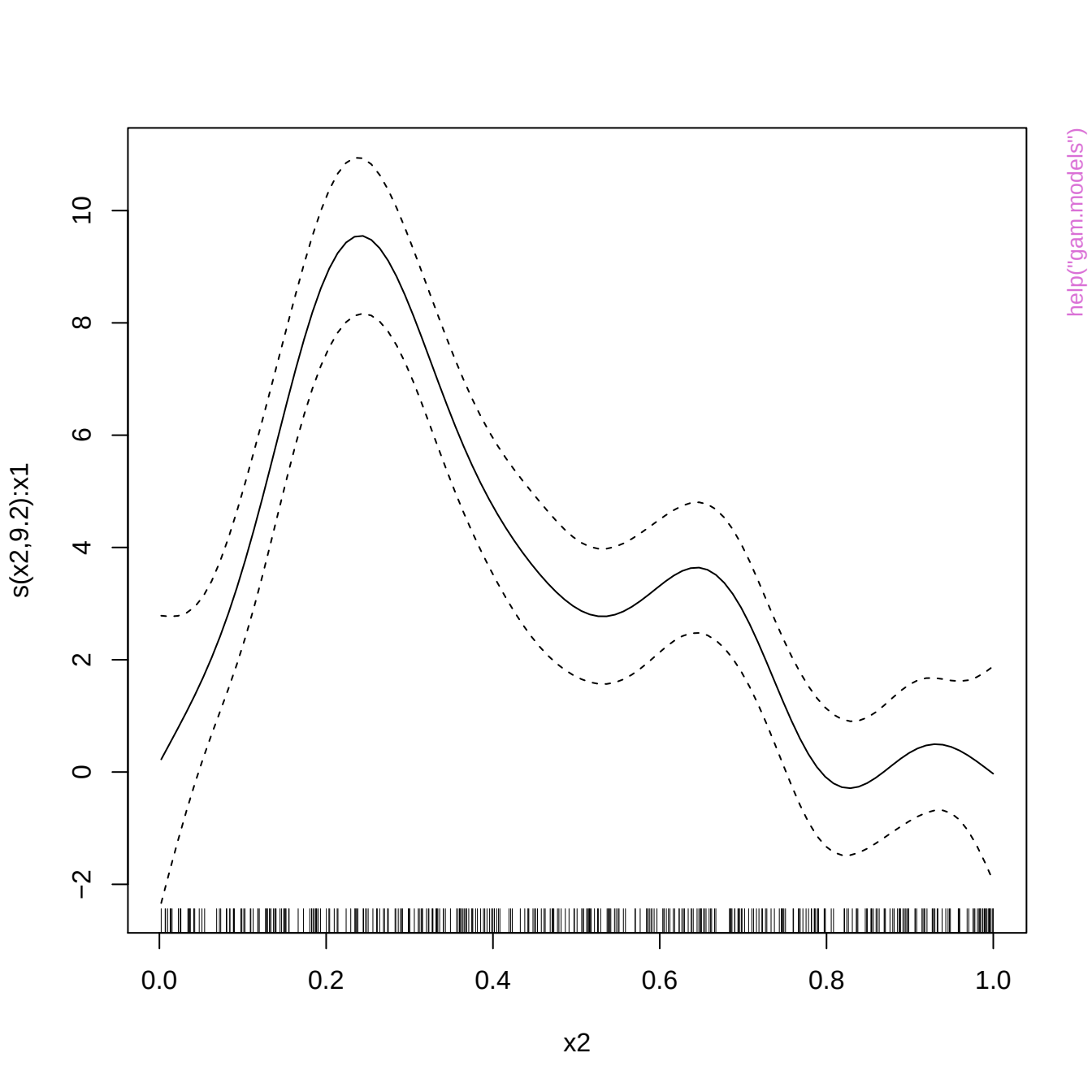
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0.8
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x2
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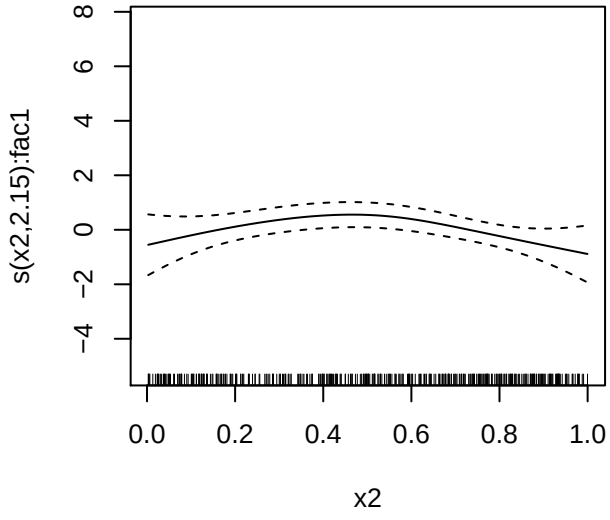

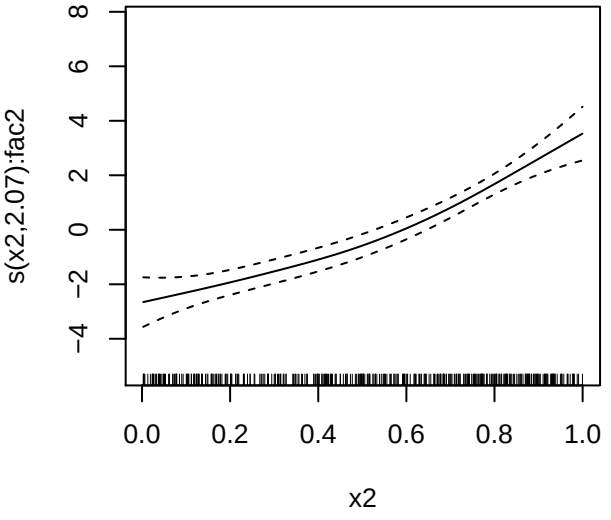

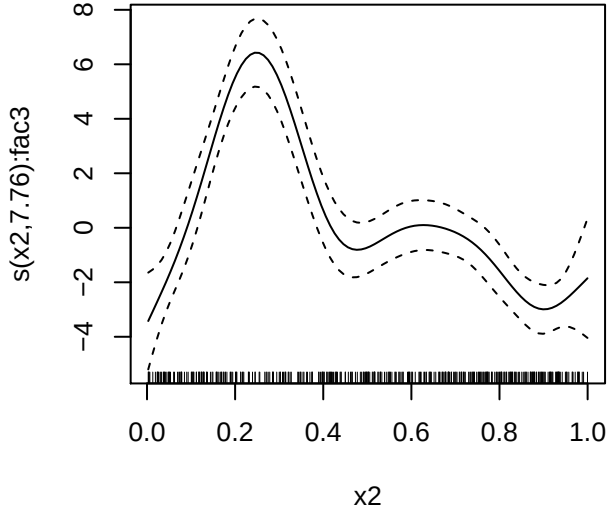

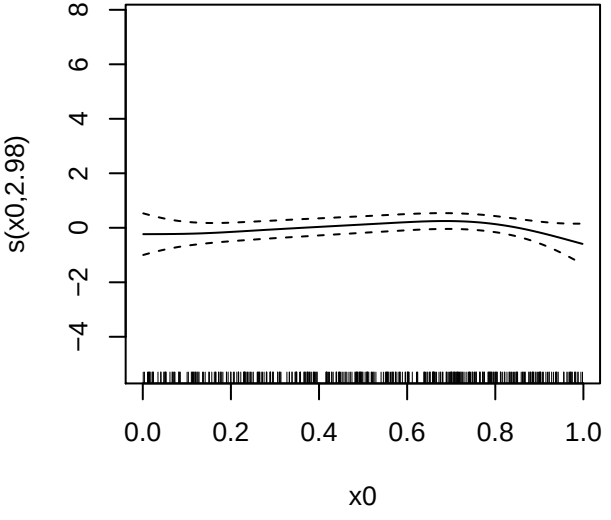

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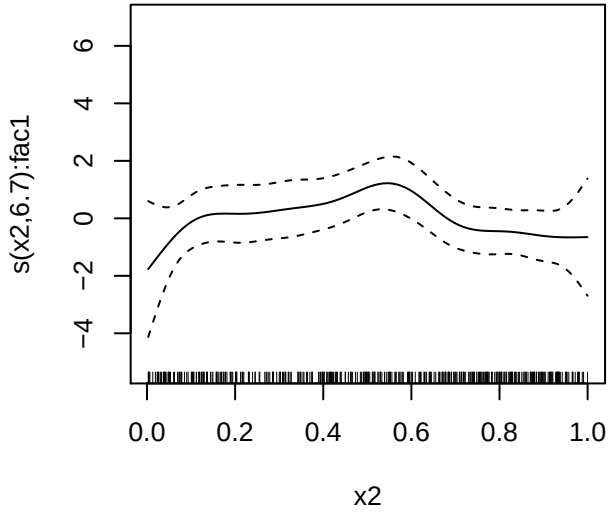

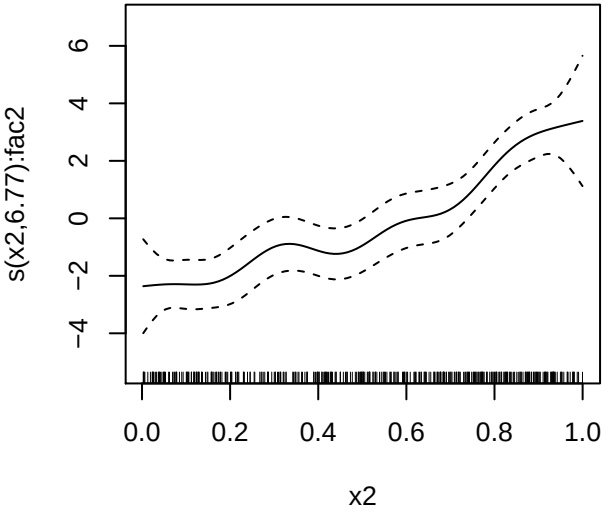

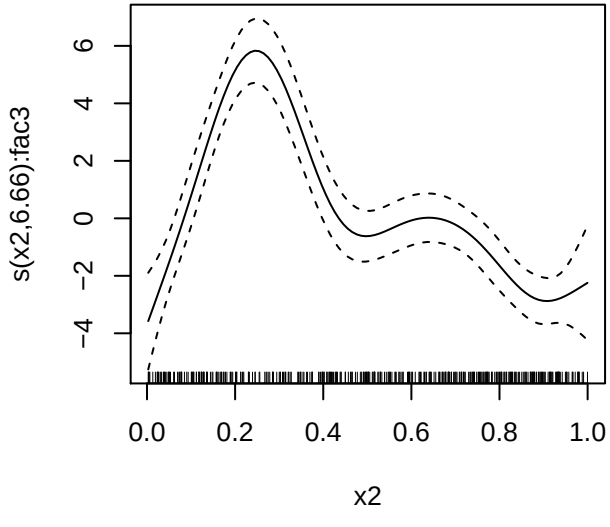

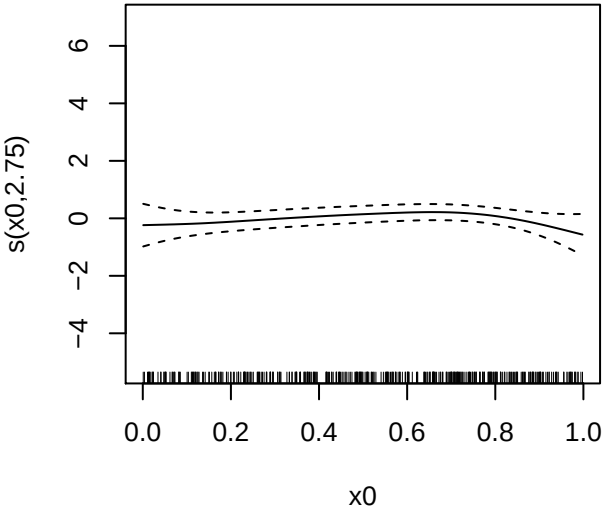

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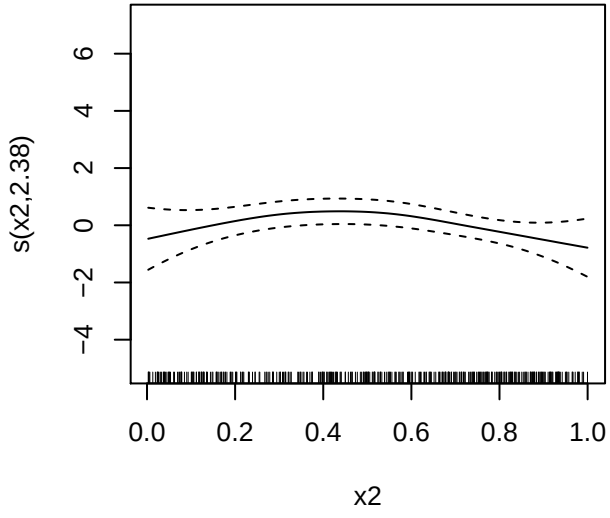

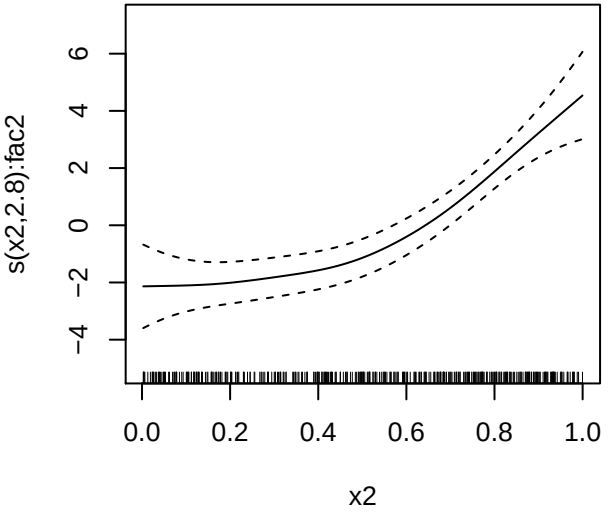

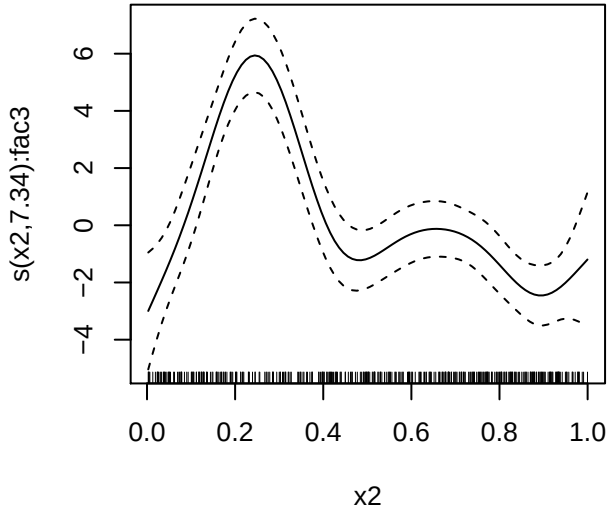

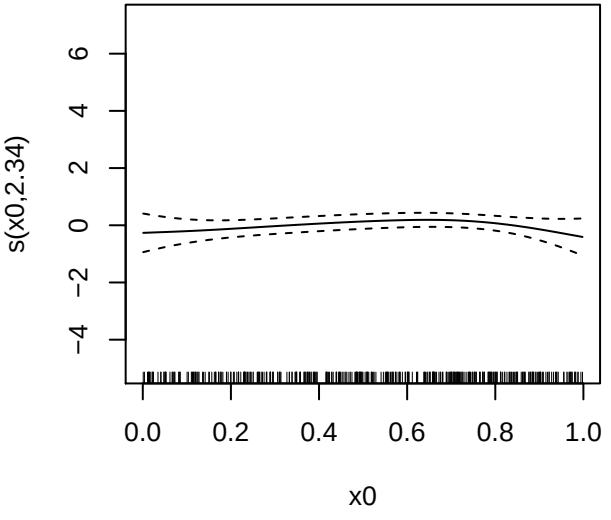

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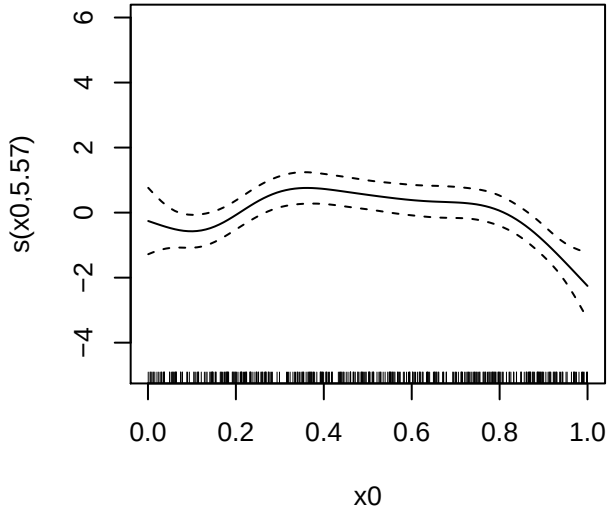

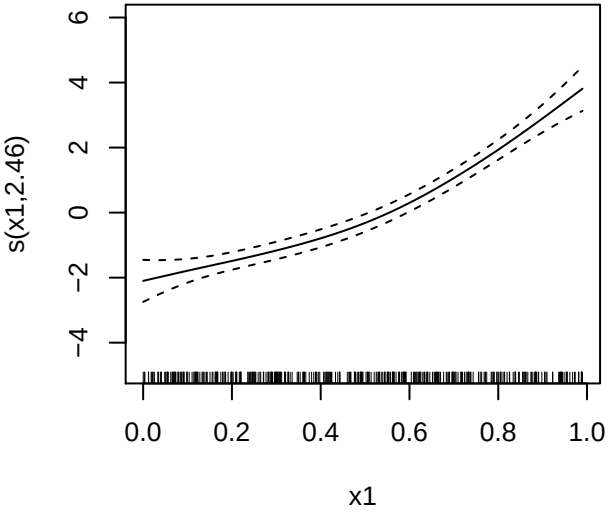

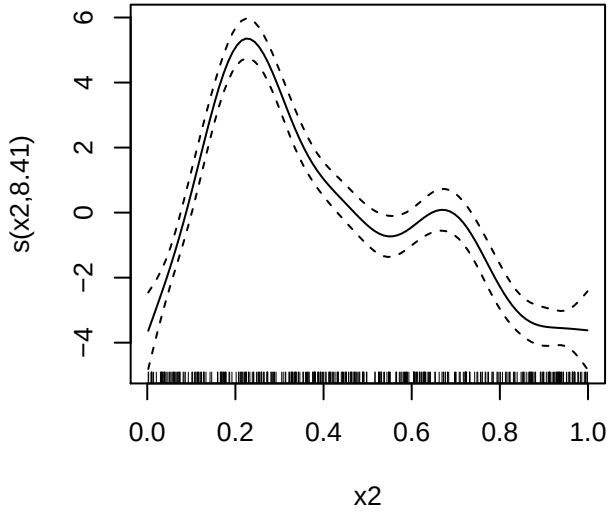

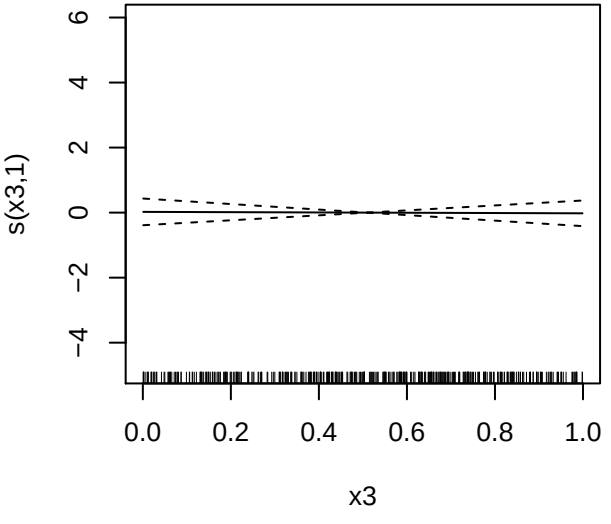

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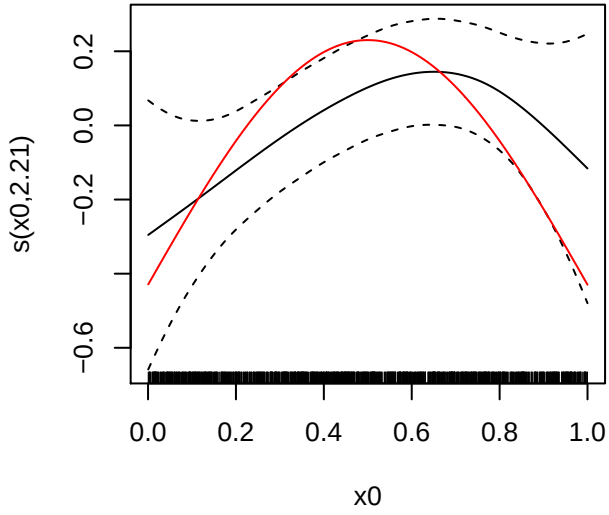

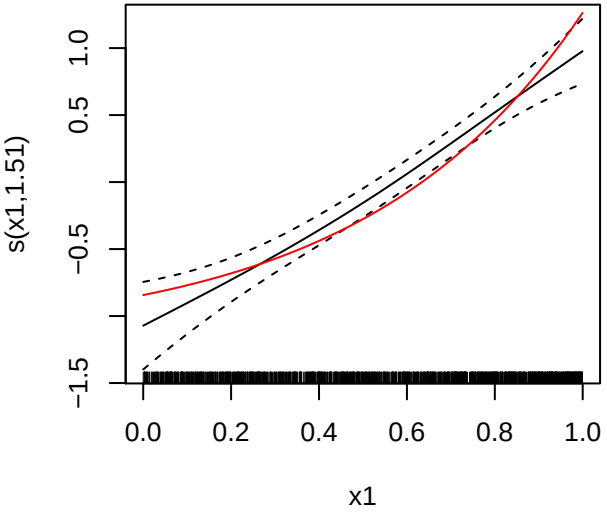

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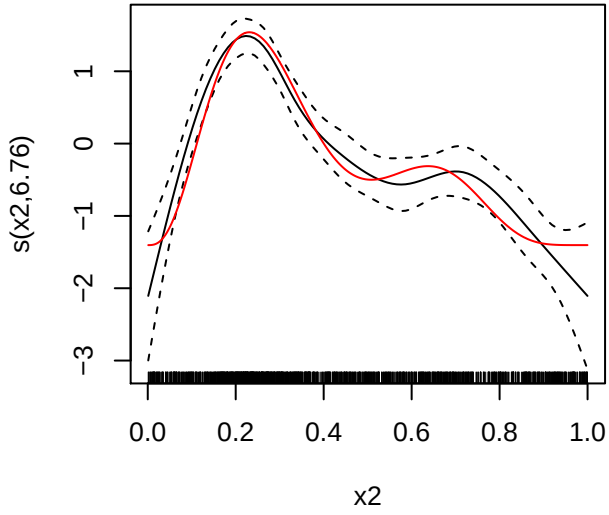

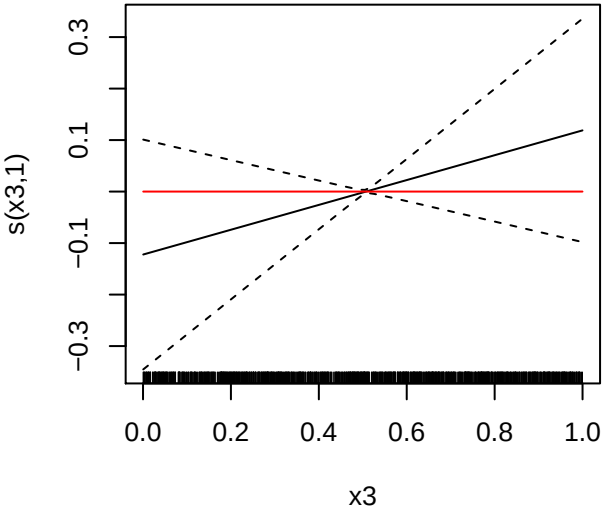

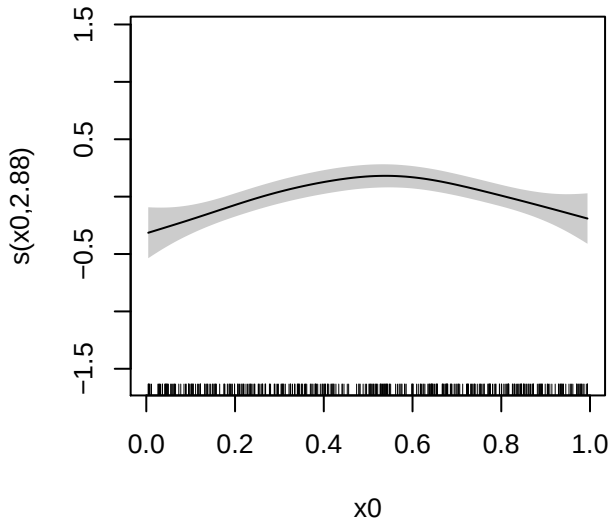

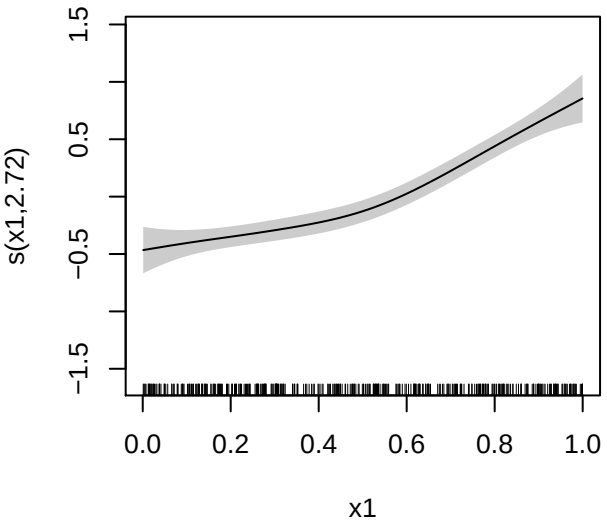

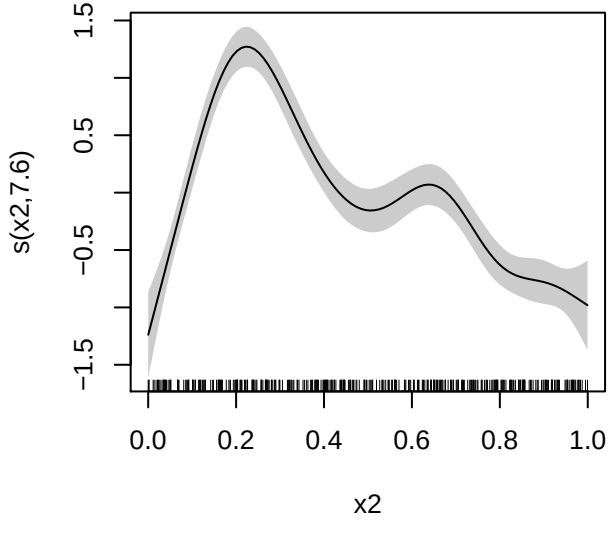

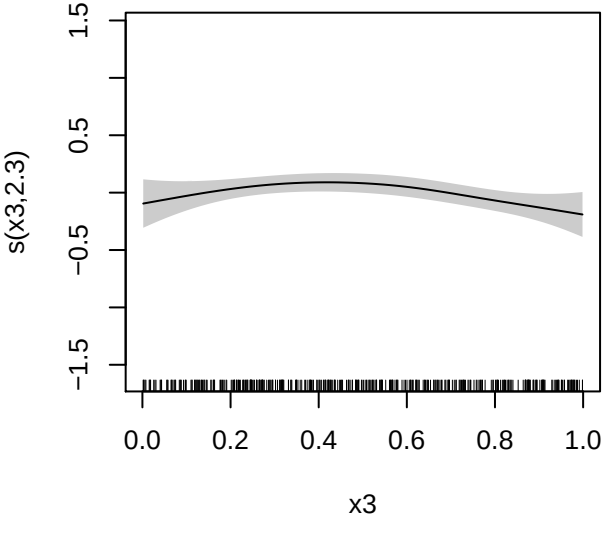

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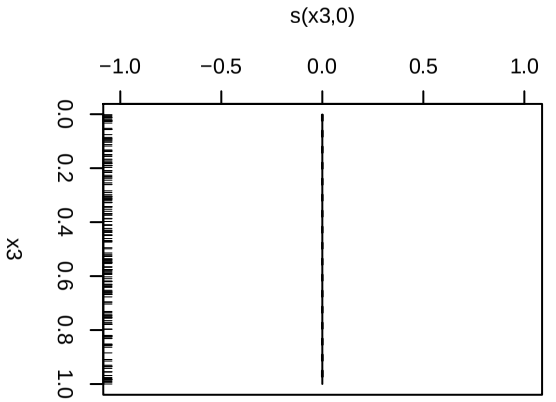

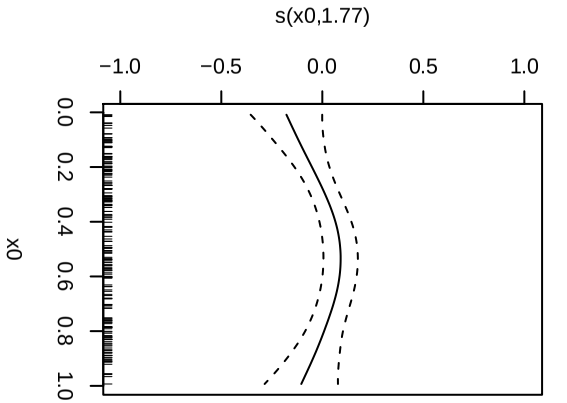

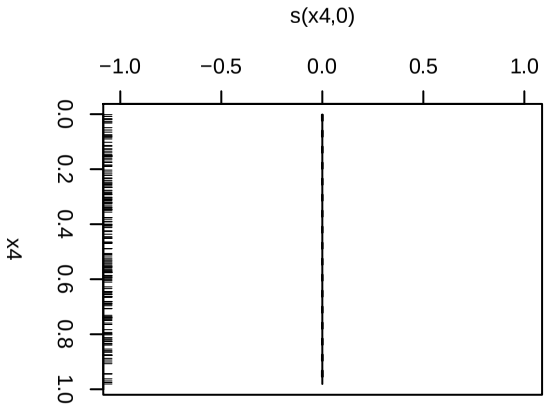

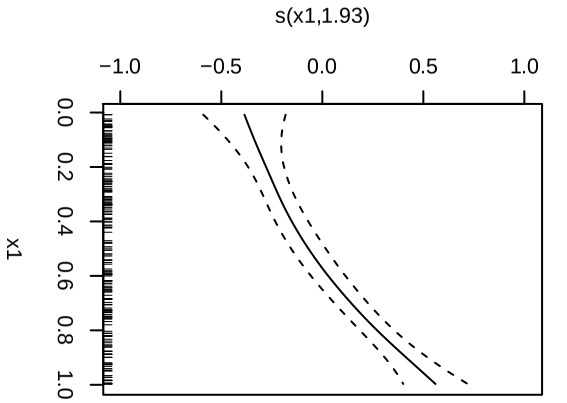

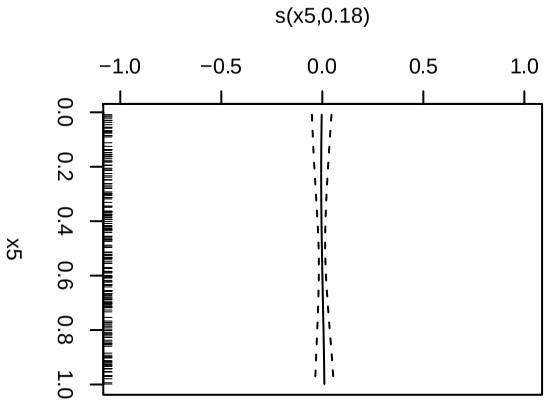

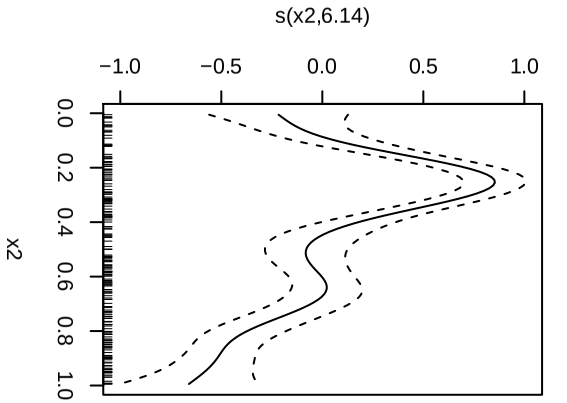

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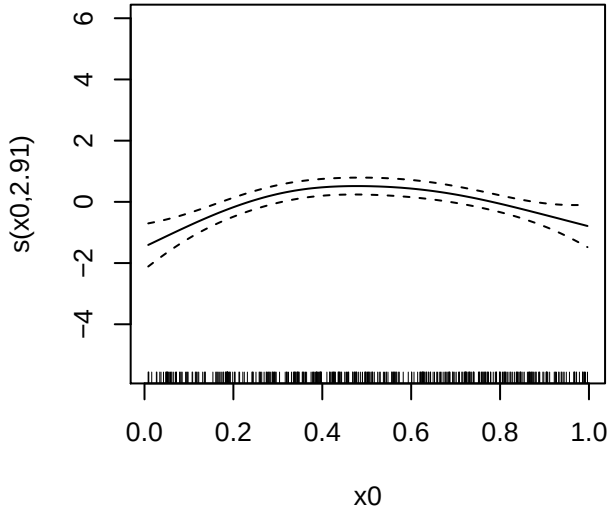

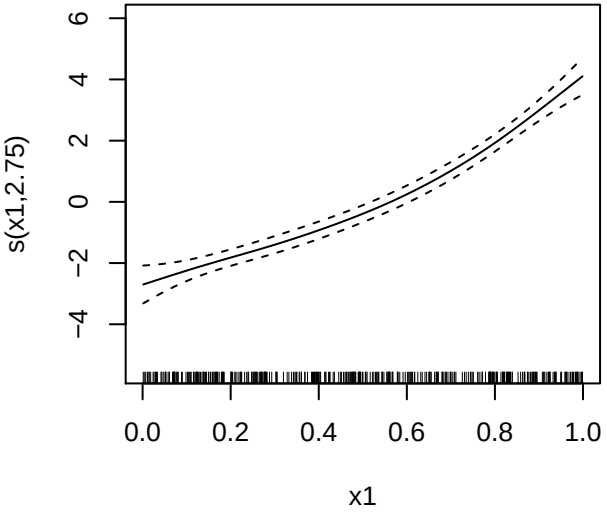

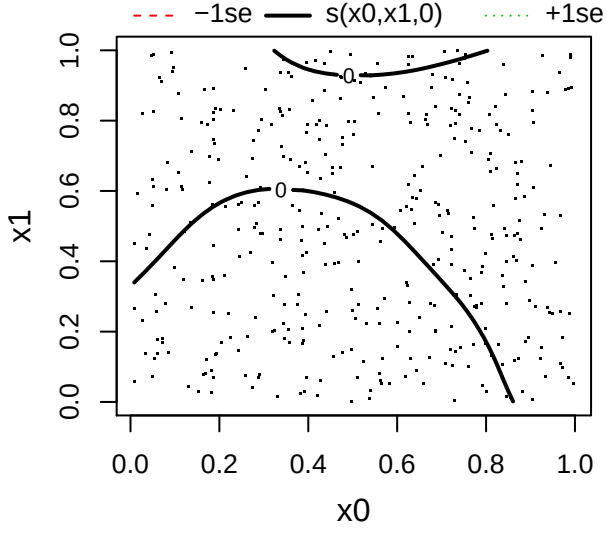

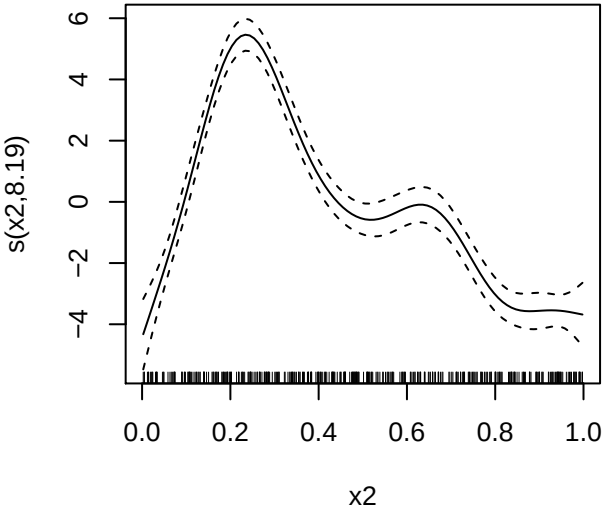

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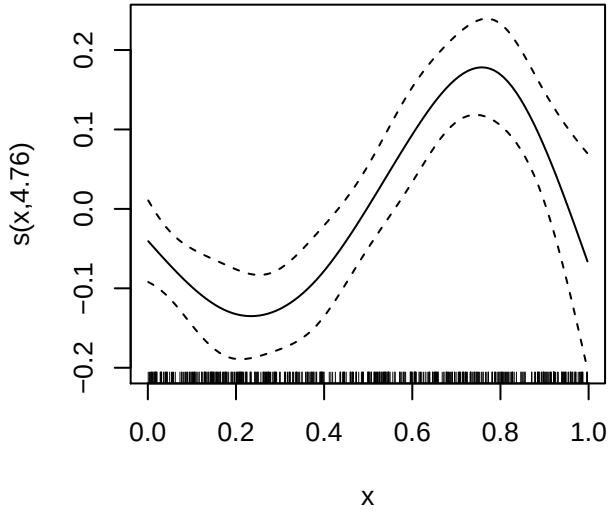

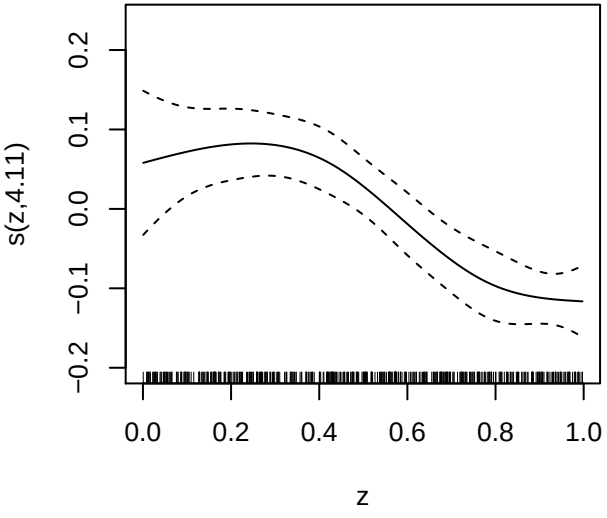

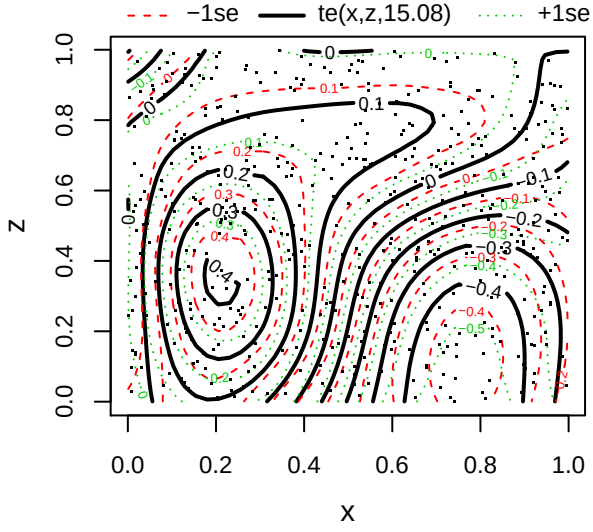

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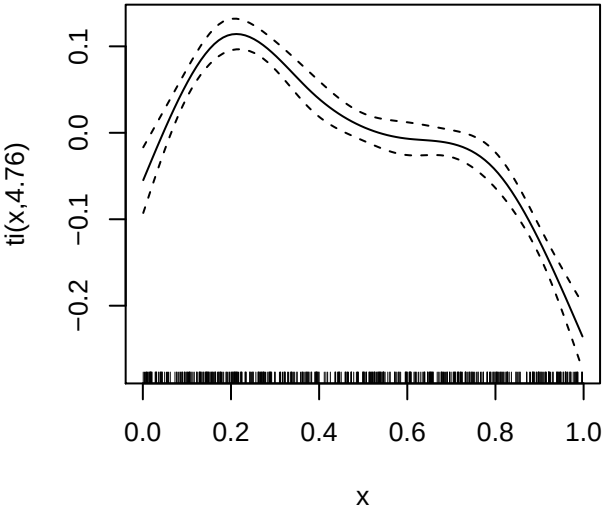

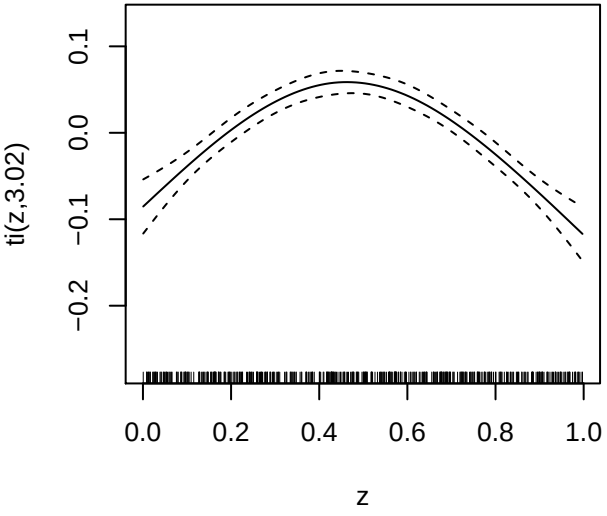

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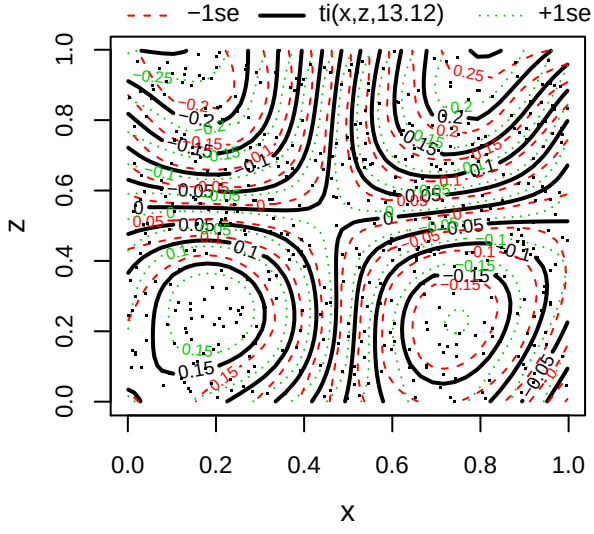

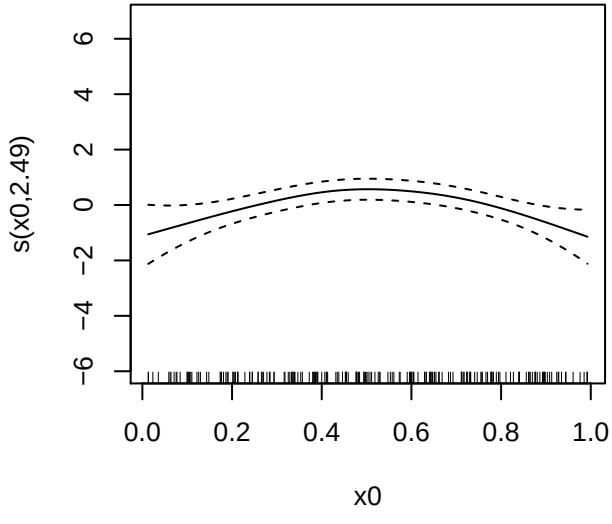
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0.4
0.6
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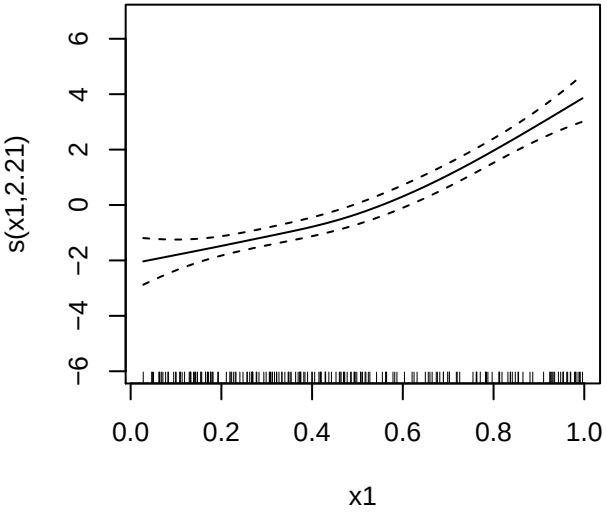
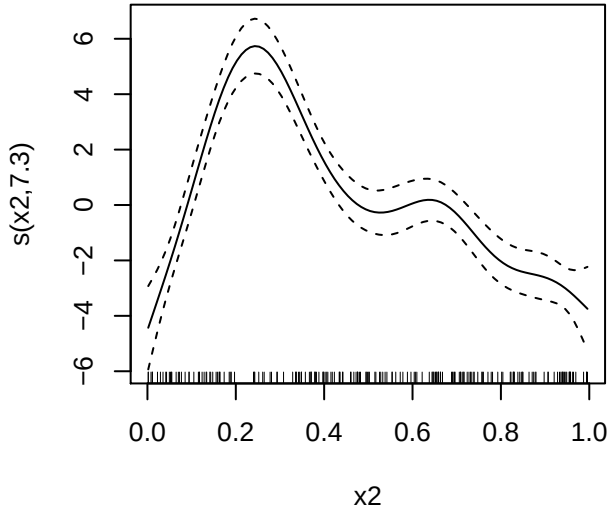
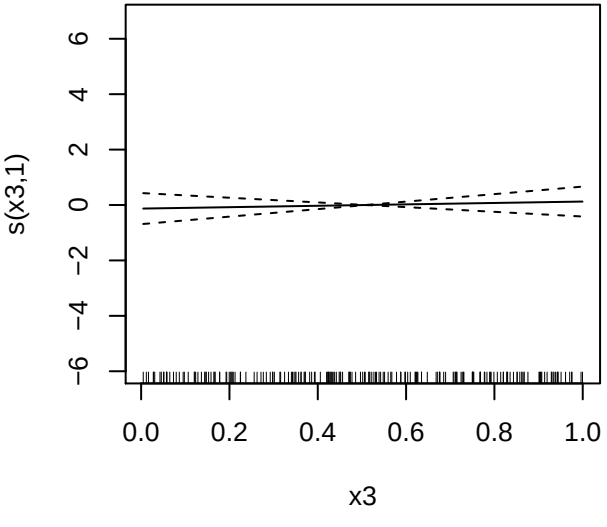
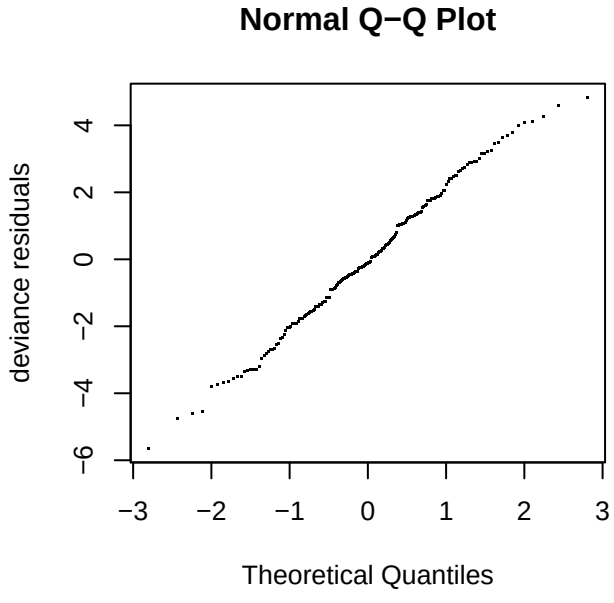
1.0
x0

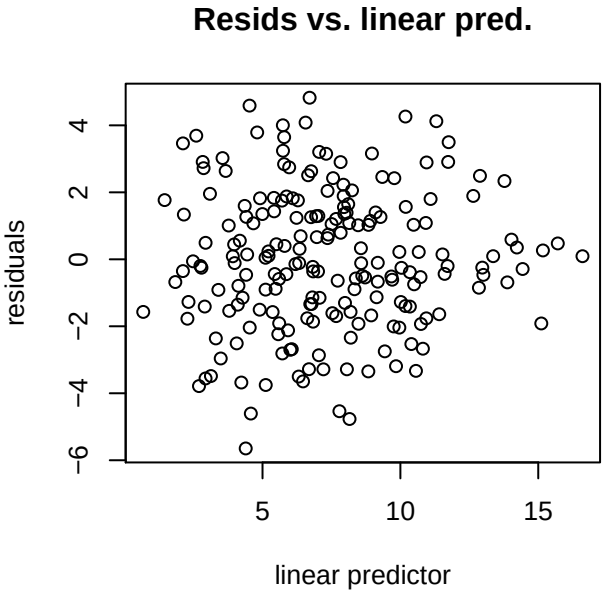

s(x1,2.21)
6
4
2
0
−2
−4
−6
0.0
0.2
0.4
0.6
0.8
1.0
x1


s(x2,7.3)
6
4
2
0
−2
−4
−6
0.0
0.2
0.4
0.6
0.8
1.0
x2

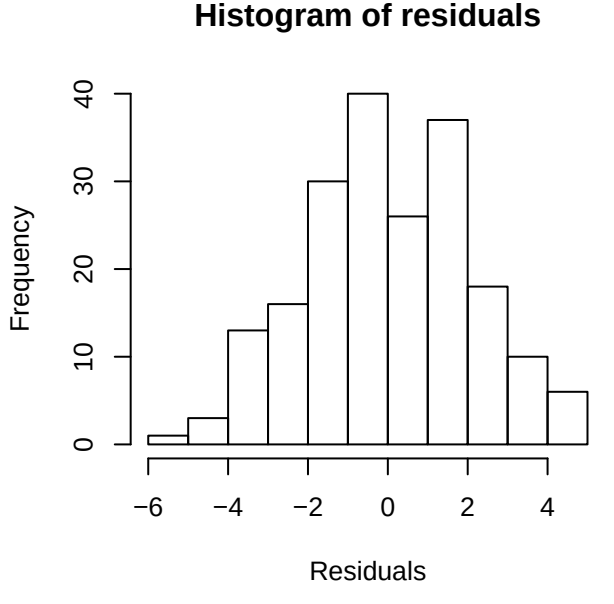

s(x3,1)
6
4
2
0
−2
−4
−6
0.0
0.2
0.4
0.6
0.8
1.0
x3

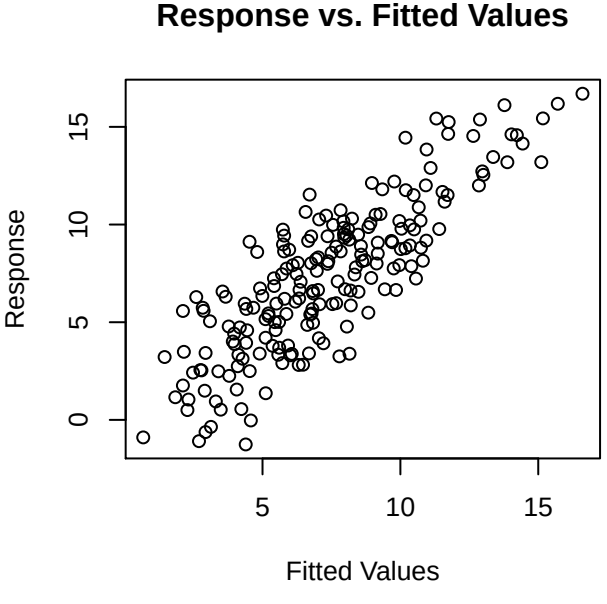
help("gamm")

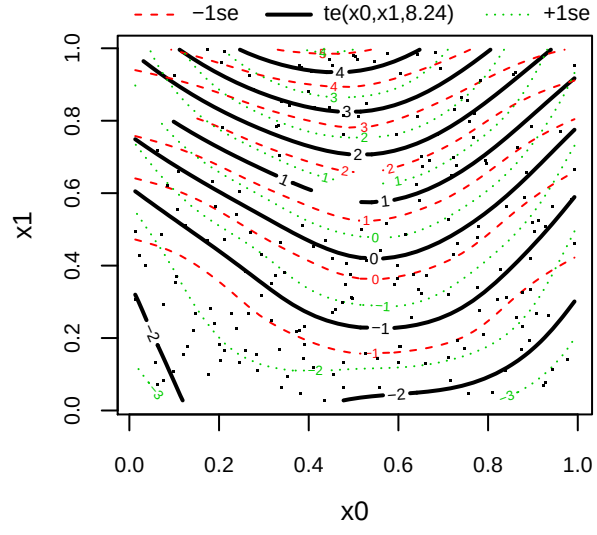

Normal Q−Q Plot
deviance residuals
Theoretical Quantiles
−6
−4
−2
0
2
4
−3
−2
−1
0
1
2
3

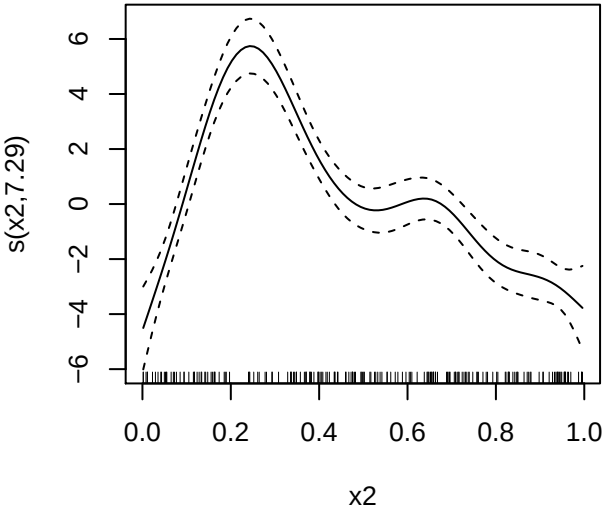

Resids vs. linear pred.
residuals
linear predictor
−6
−4
−2
0
2
4
5
10
15

help("gamm")

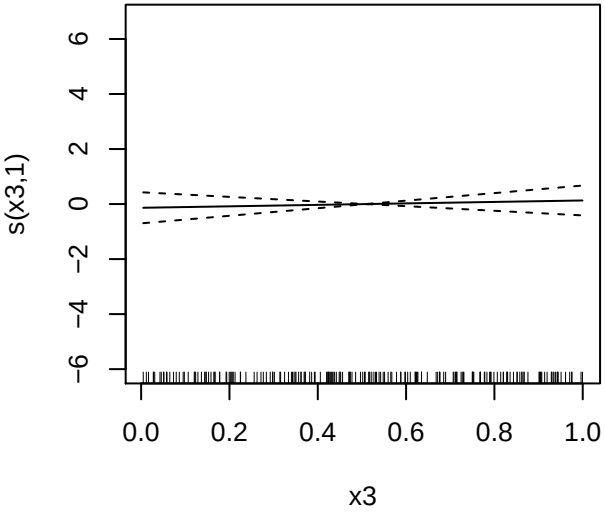

Histogram of residuals
Frequency
Residuals
0
10
20
30
40
−6
−4
−2
0
2
4

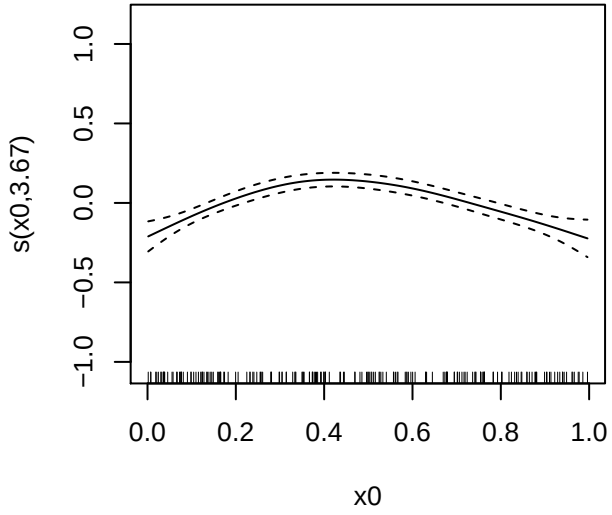

Response vs. Fitted Values
Response
Fitted Values
0
5
10
15
5
10
15

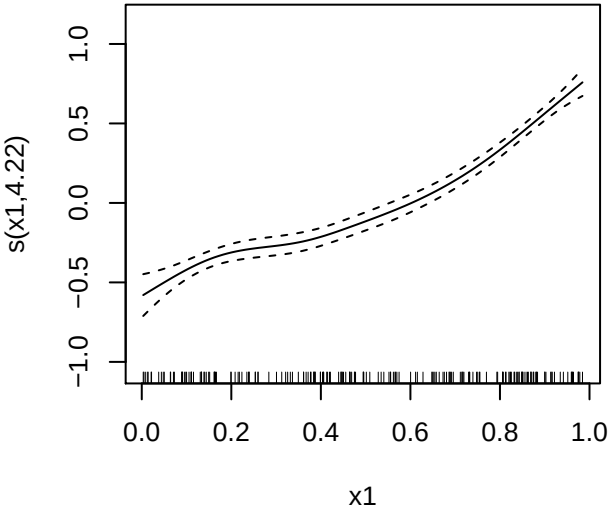

−1se
te(x0,x1,8.24)
+1se
x1
x0
0.0
0.2
0.4
0.6
0.8
1.0

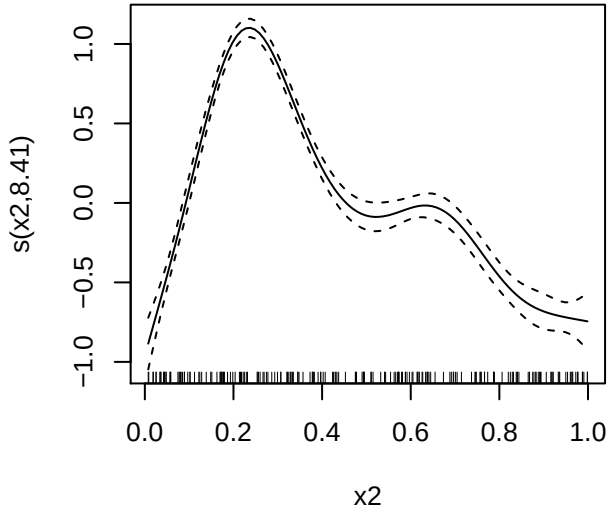

s(x2,7.29)
x2
−6
−4
−2
0
2
4
6
0.0
0.2
0.4
0.6
0.8
1.0

help("gamm")


s(x3,1)
x3
−6
−4
−2
0
2
4
6
0.0
0.2
0.4
0.6
0.8
1.0

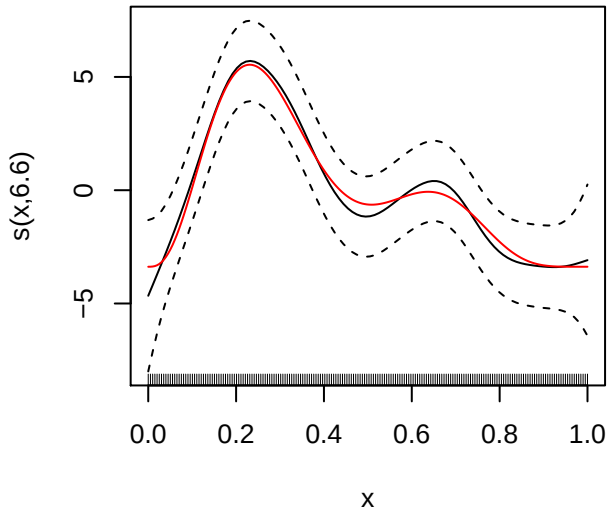

s(x0,3.67)
1.0
0.5
0.0
−0.5
−1.0
0.0
0.2
0.4
0.6
0.8
1.0
x0

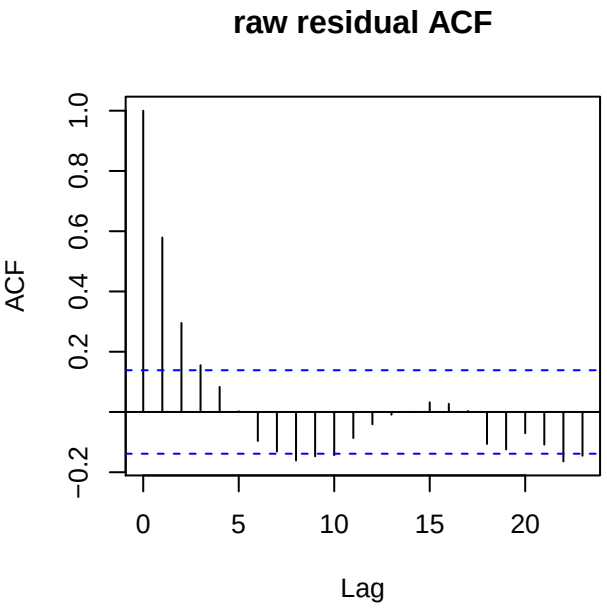

s(x1,4.22)
1.0
0.5
0.0
−0.5
−1.0
0.0
0.2
0.4
0.6
0.8
1.0
x1


s(x2,8.41)
1.0
0.5
0.0
−0.5
−1.0
0.0
0.2
0.4
0.6
0.8
1.0
x2

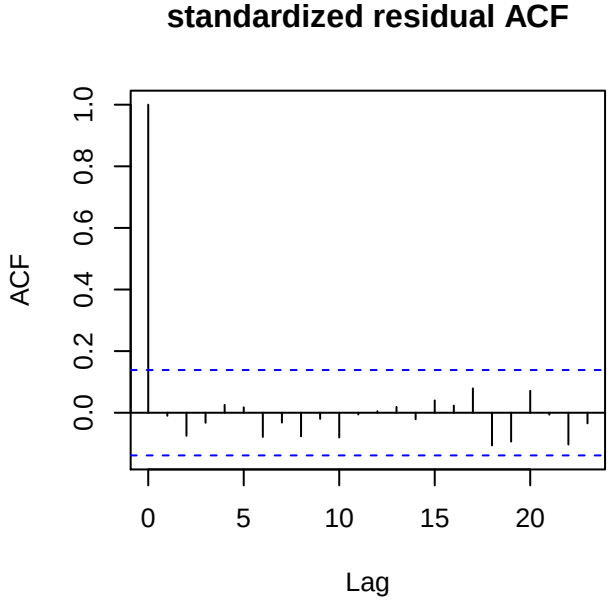
help("gamm")

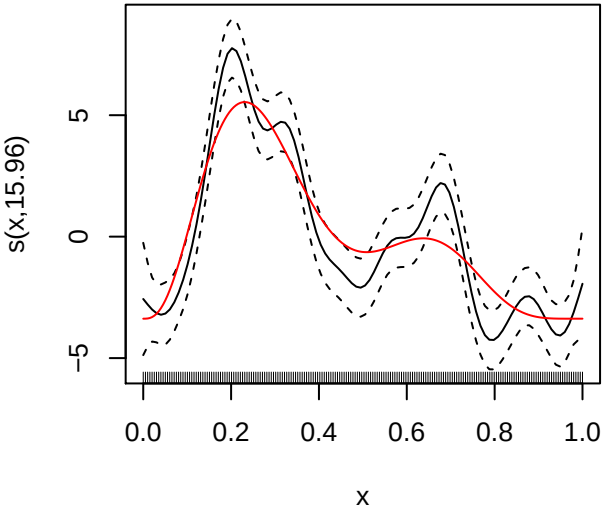
help("gamm")

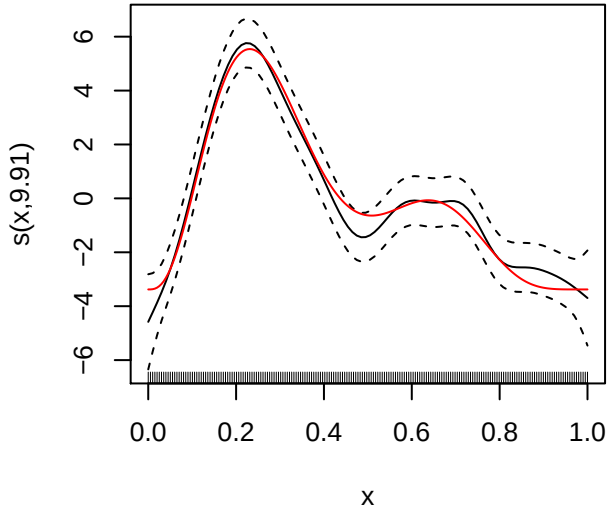

s(x,6.6)
5
0
−5
0.0
0.2
0.4
0.6
0.8
1.0
x

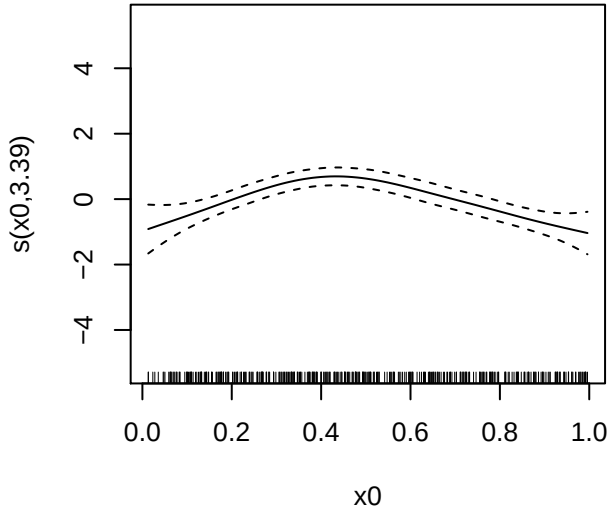

raw residual ACF
ACF
1.0
0.8
0.6
0.4
0.2
−0.2
0
5
10
15
20
Lag

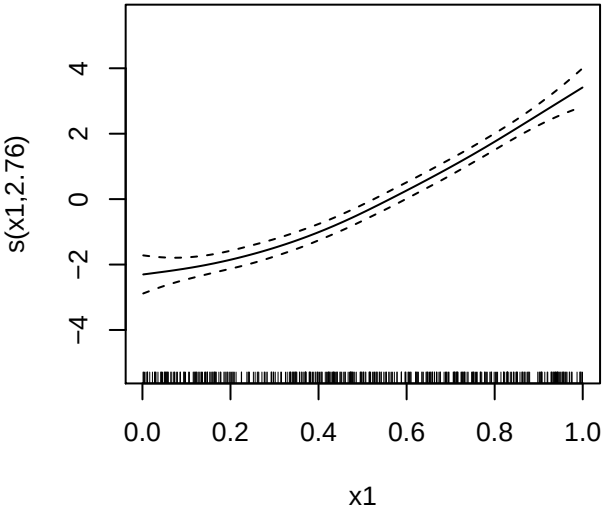
help("gamm")


standardized residual ACF
ACF
1.0
0.8
0.6
0.4
0.2
0.0
0
5
10
15
20
Lag

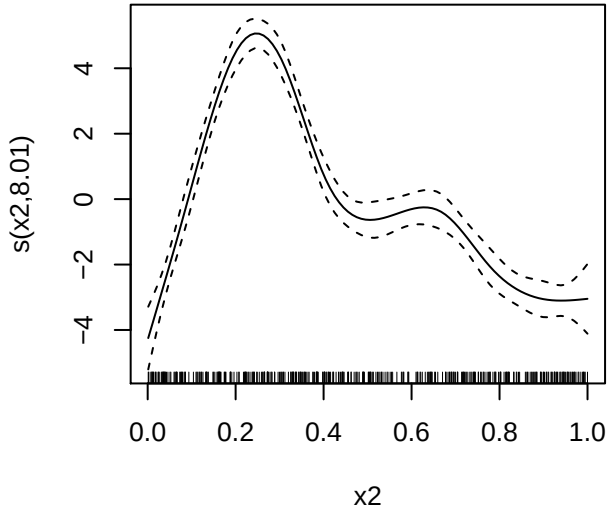

s(x,15.96)
5
0
−5
0.0
0.2
0.4
0.6
0.8
1.0
x

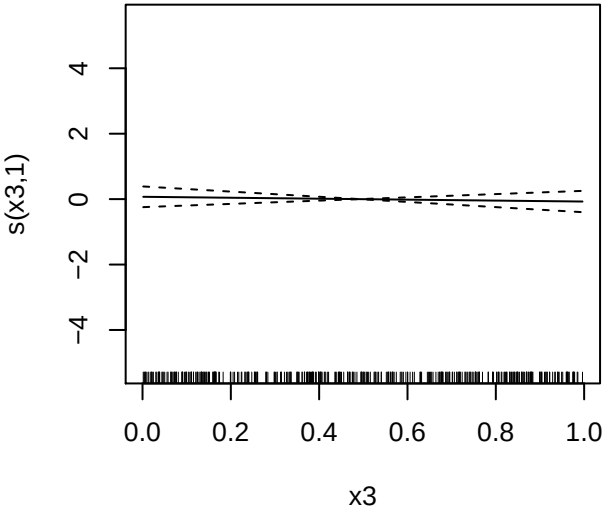

s(x,9.91)
6
4
2
0
−2
−4
−6
0.0
0.2
0.4
0.6
0.8
1.0
x


s(x0,3.39)
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x0

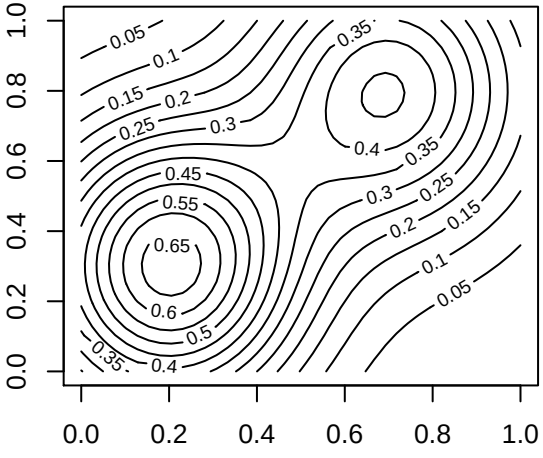

s(x1,2.76)
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x1

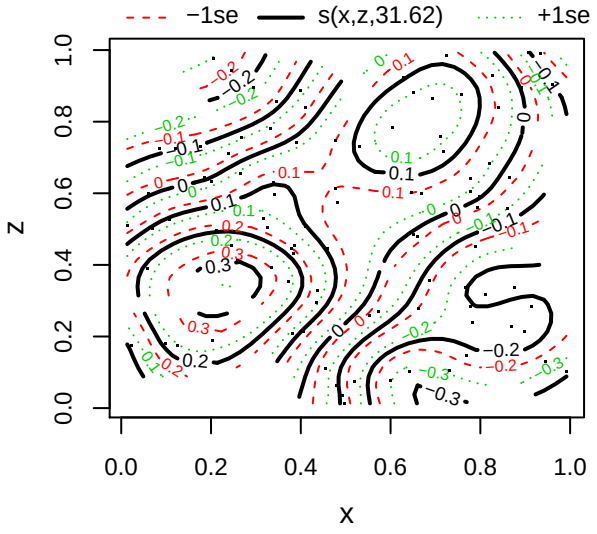
help("gamm")

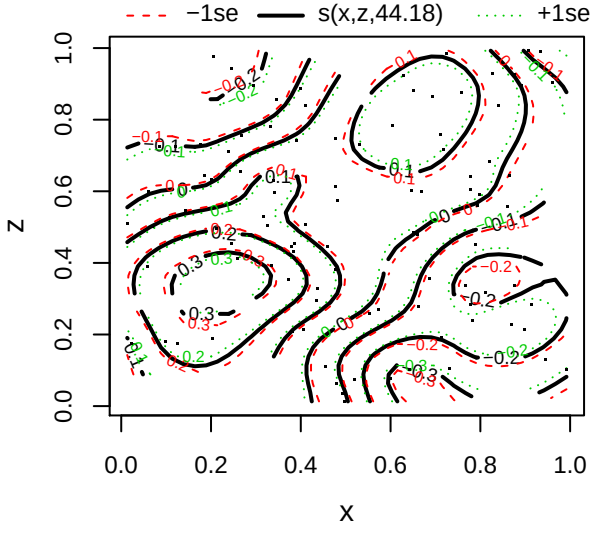

s(x2,8.01)
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x2

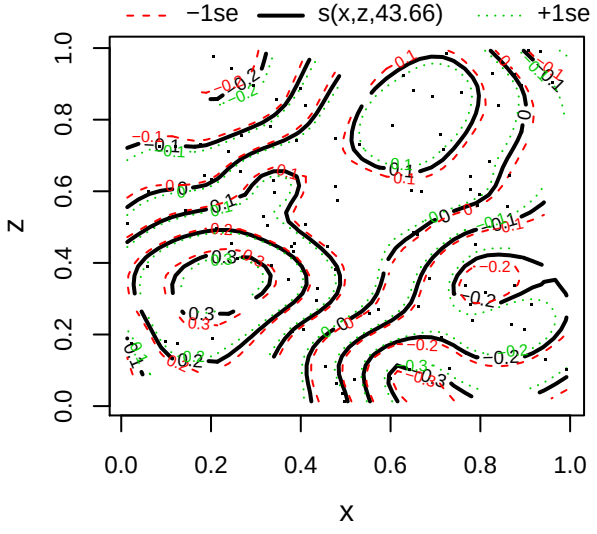

s(x3,1)
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x3

help("gamm")

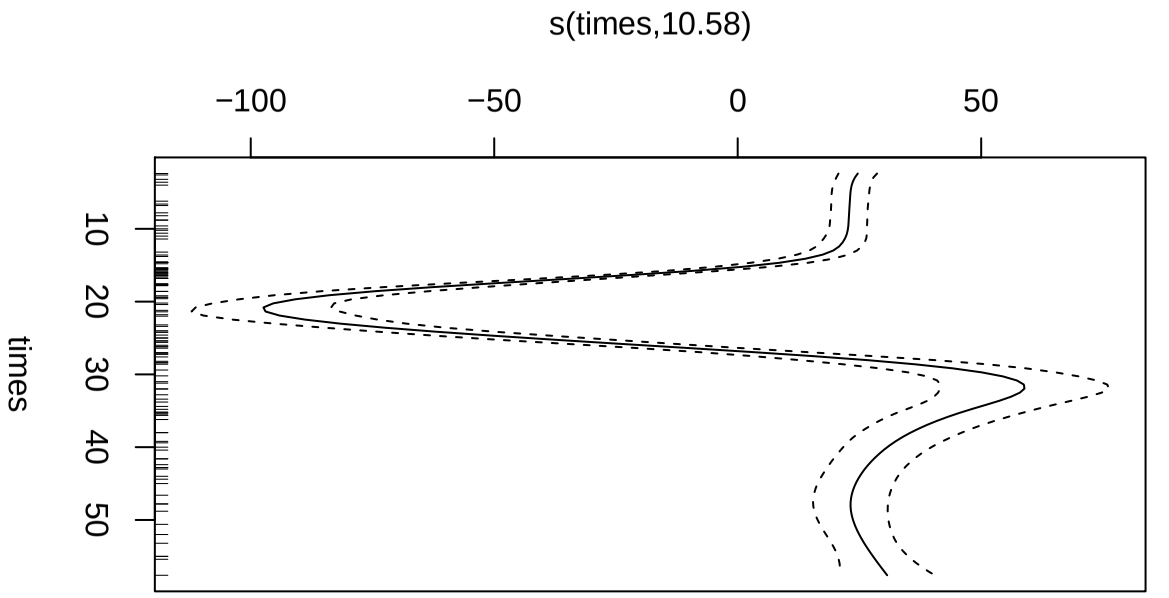

0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.55
0.65
0.6
0.5
0.0
0.2
0.4
0.6
0.8
1.0

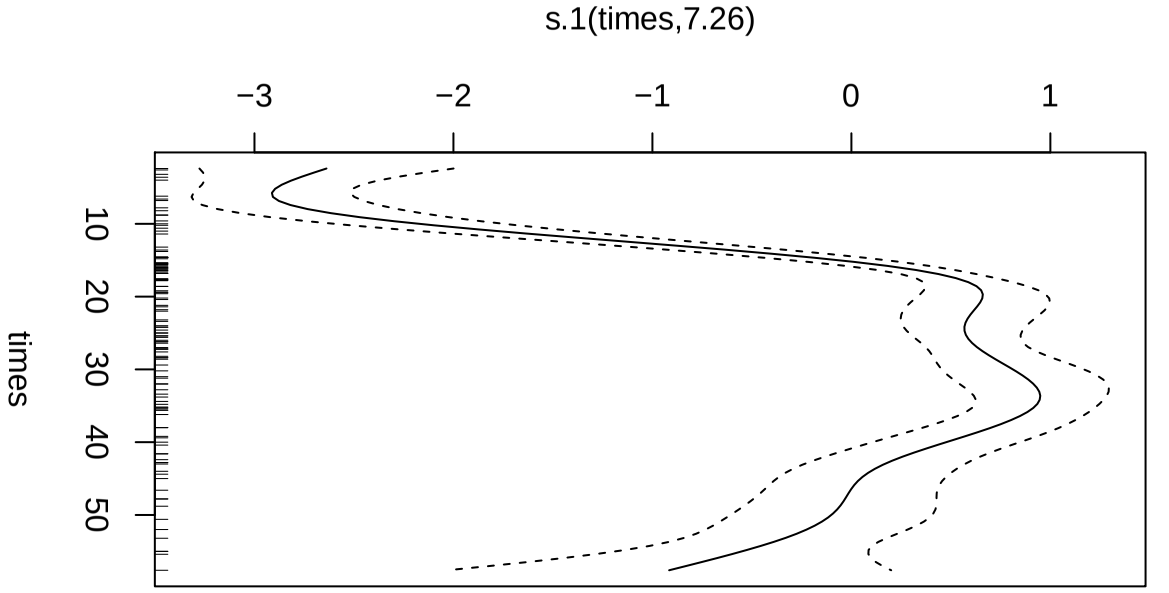

−1se
s(x,z,31.62)
+1se
z
x
0.0
0.2
0.4
0.6
0.8
1.0


−1se
s(x,z,44.18)
+1se
z
x
0.0
0.2
0.4
0.6
0.8
1.0

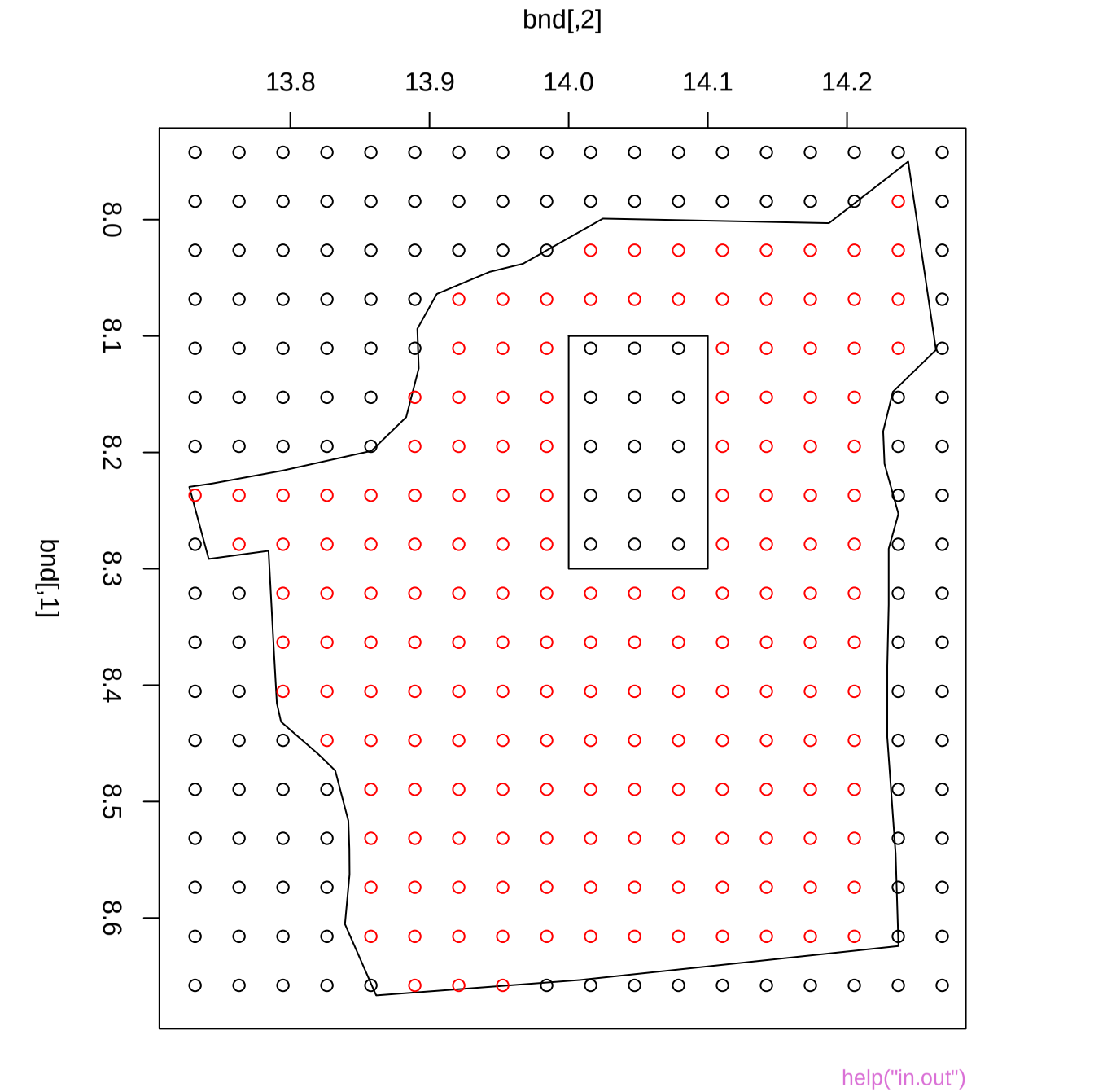

−1se
s(x,z,43.66)
+1se
z
x
0.0
0.2
0.4
0.6
0.8
1.0

help("gamm")

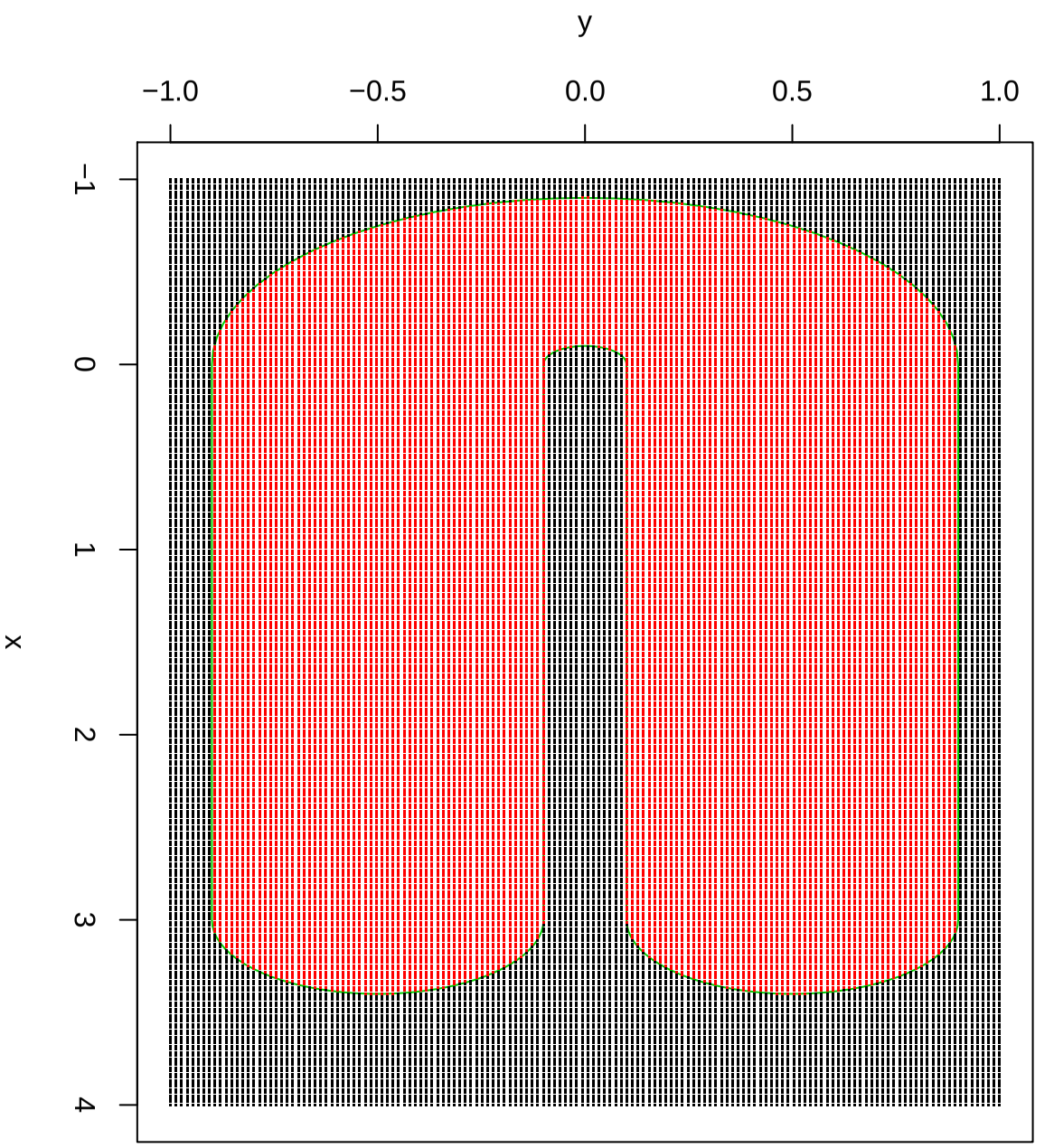

s(times,10.58)
−100
−50
0
50
10
20
30
40
50
times


s.1(times,7.26)
−3
−2
−1
0
1
10
20
30
40
50
times

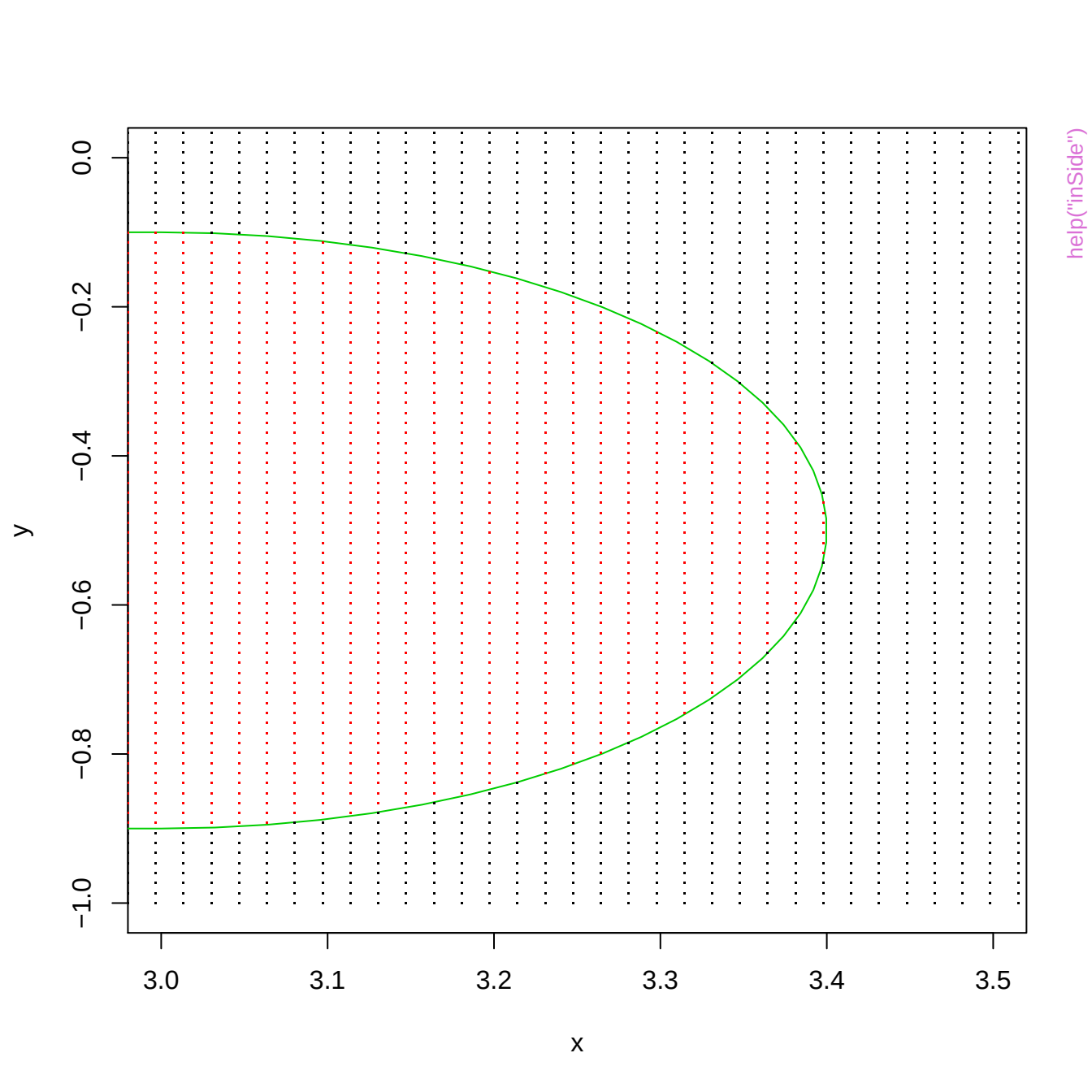
help("gaulss")

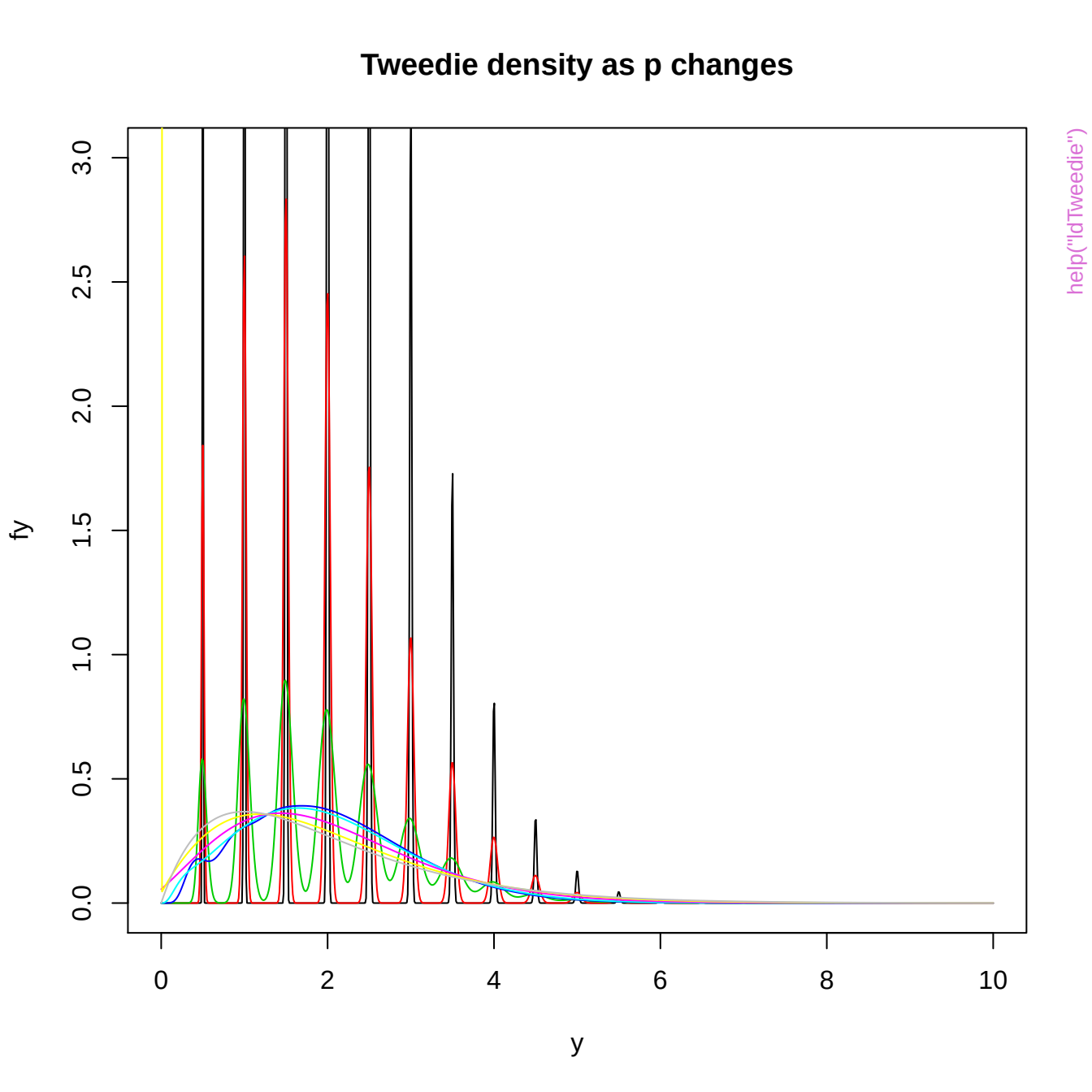


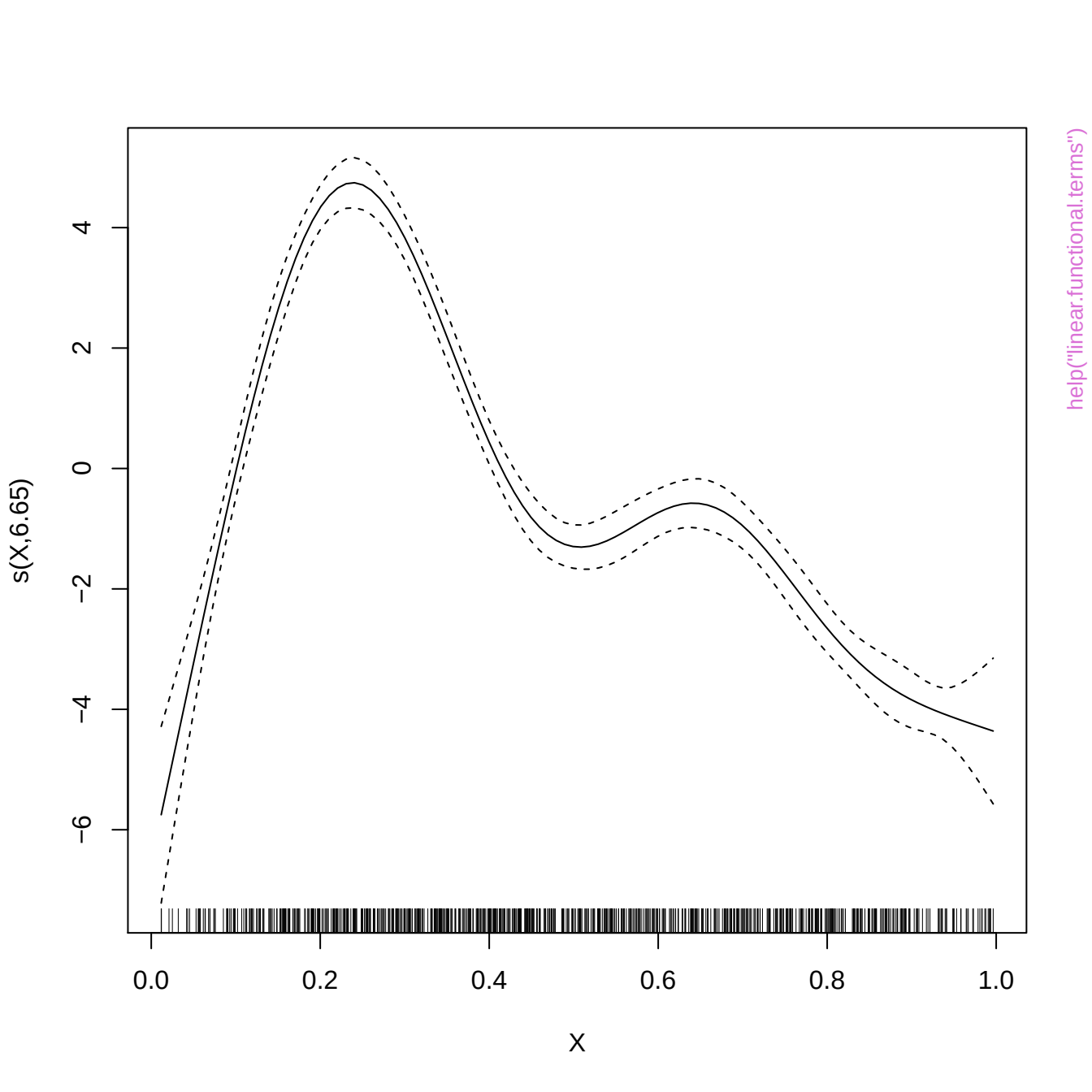
help("in.out")



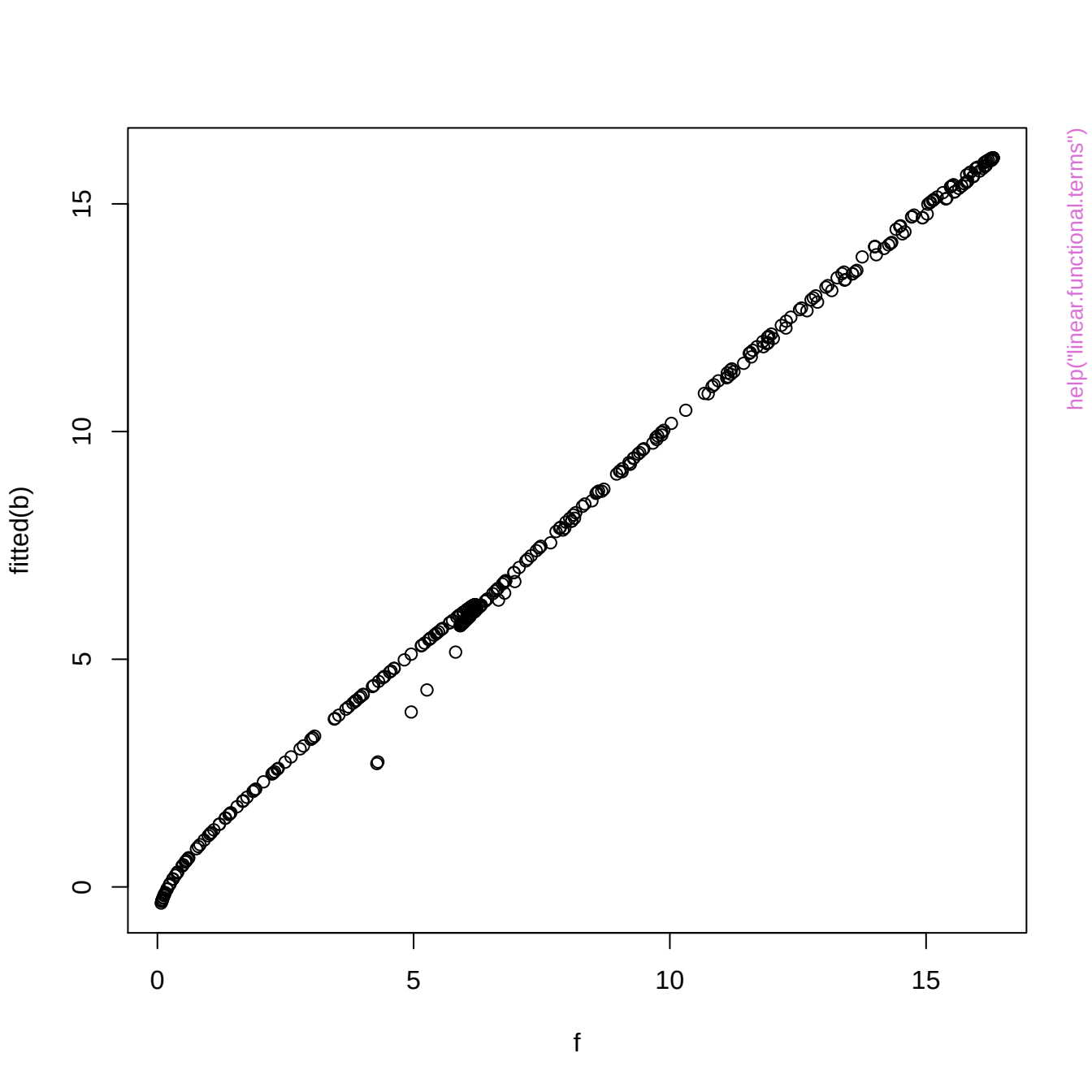
help("inSide")


help("inSide")
0.0
−0.2
−0.4
−0.6
−0.8
−1.0
y
3.0
3.1
3.2
3.3
3.4
3.5
x

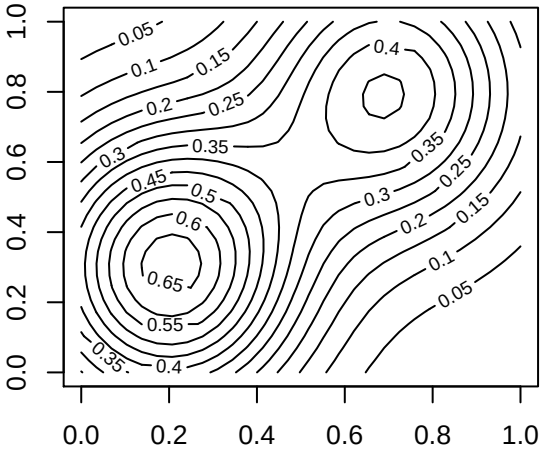

Tweedie density as p changes
fy
y
0.0
0.5
1.0
1.5
2.0
2.5
3.0
0
2
4
6
8
10
help("ldTweedie")

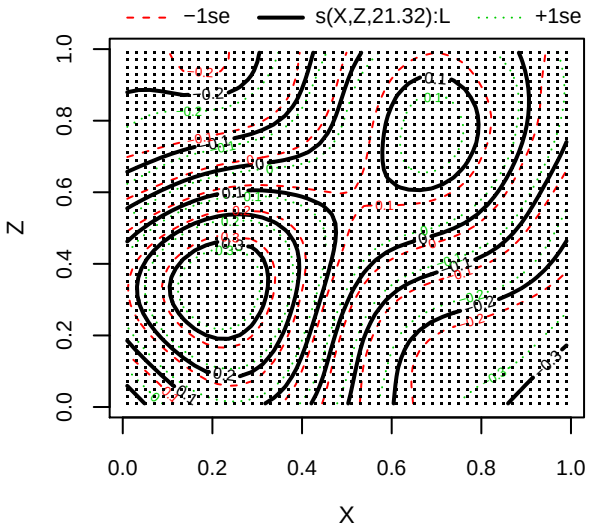


help("linear.functional.terms")

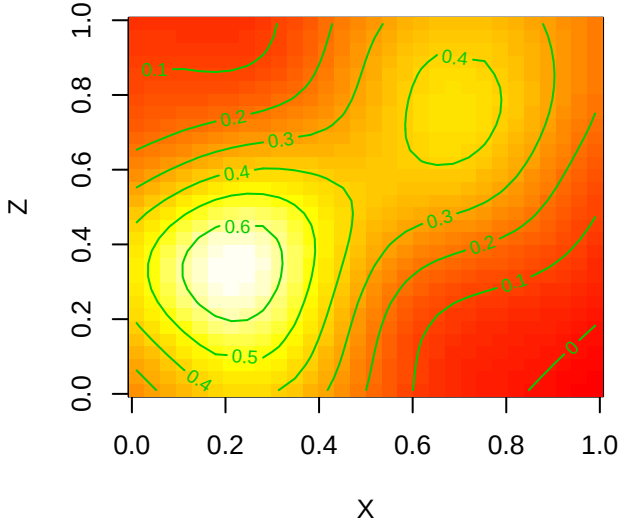


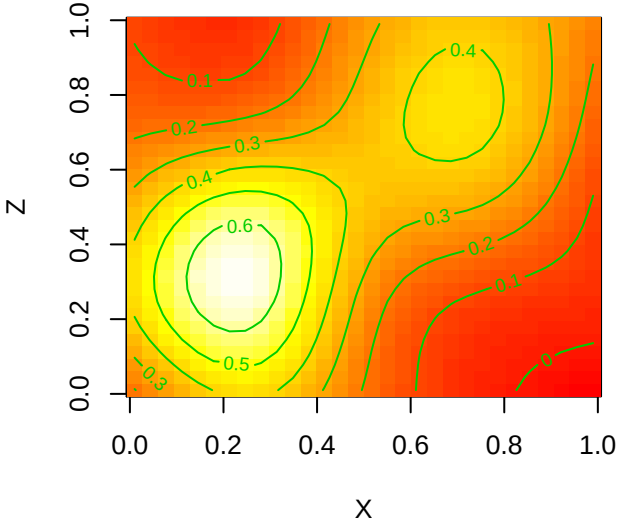
help("linear.functional.terms")

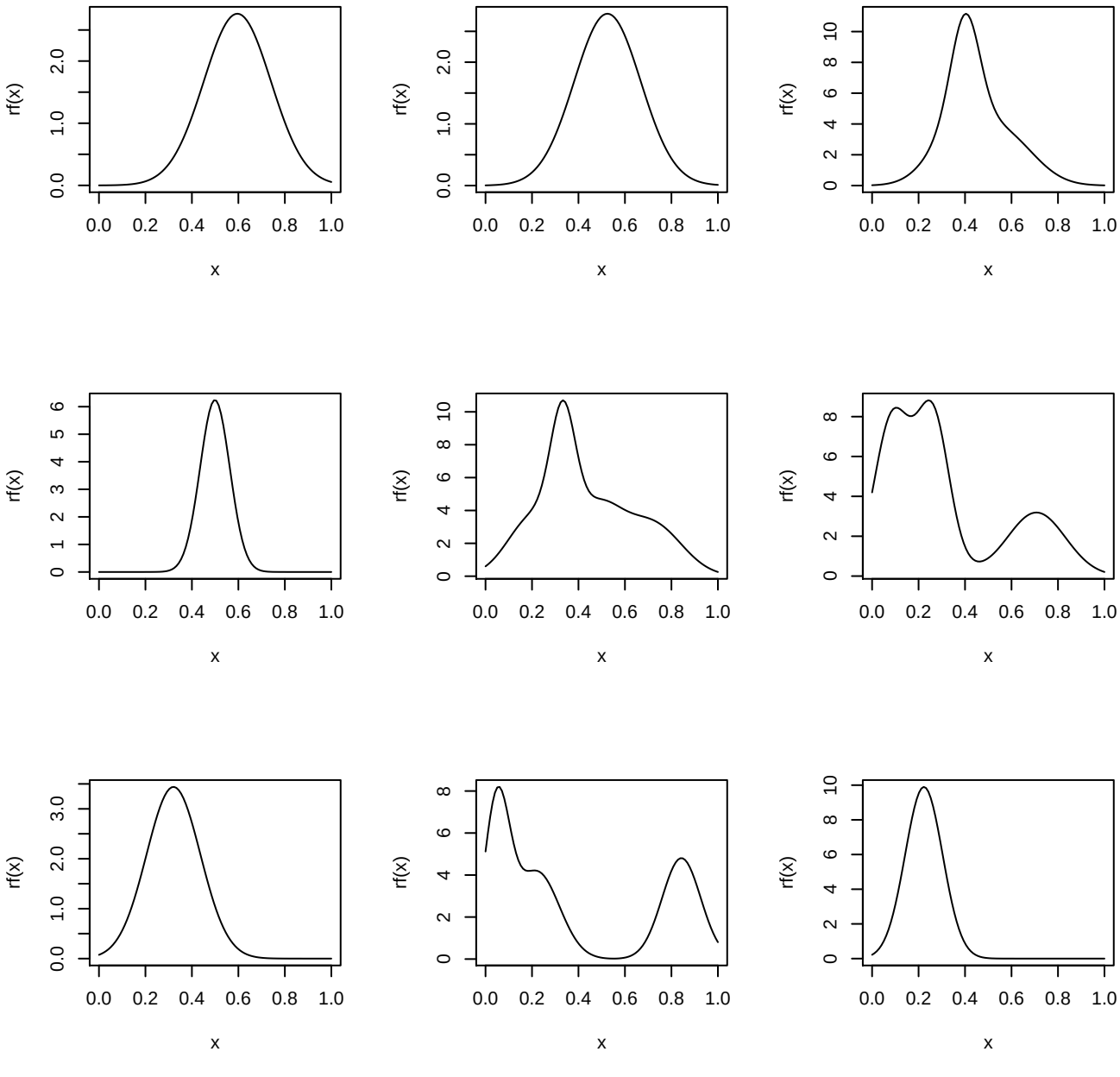




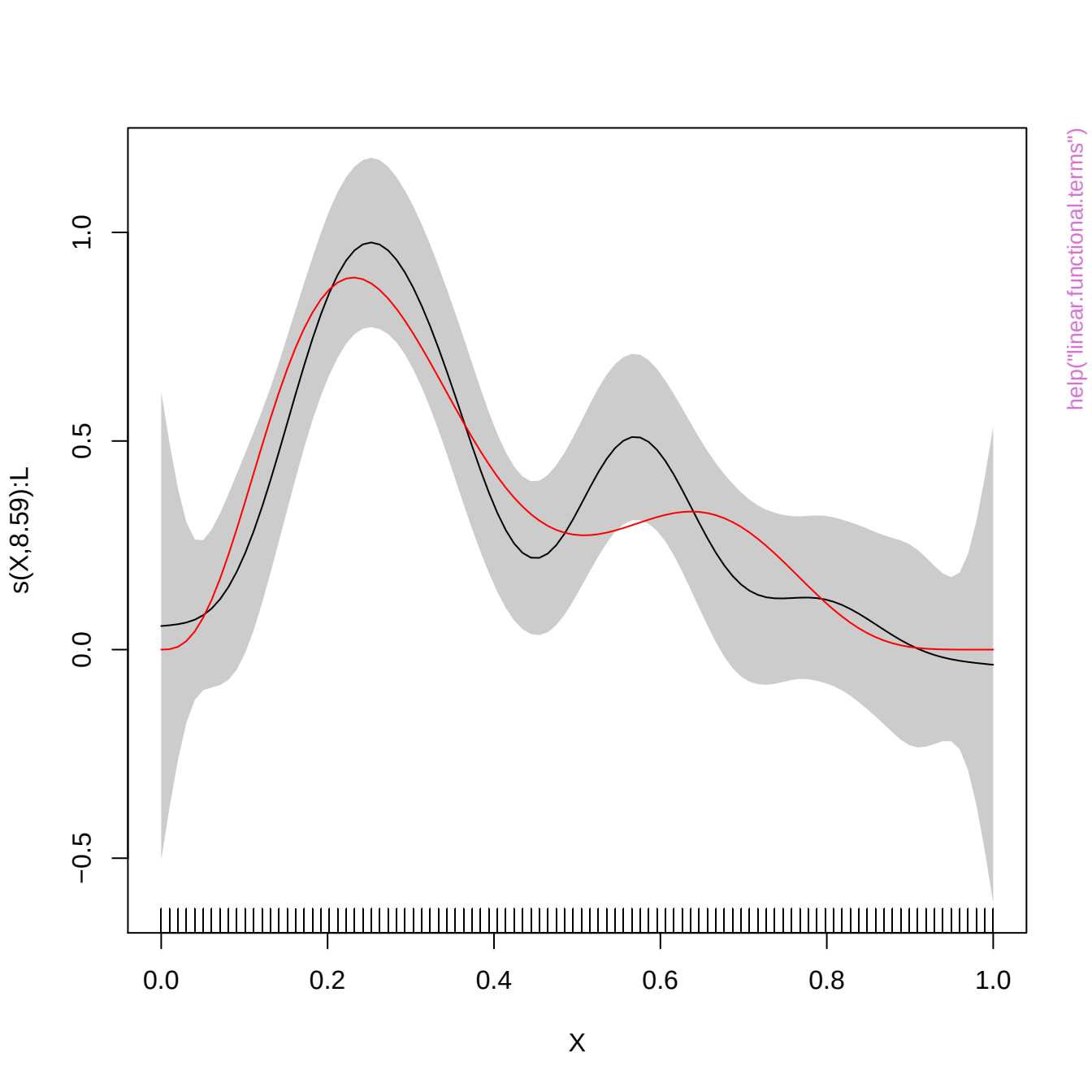
help("linear.functional.terms")

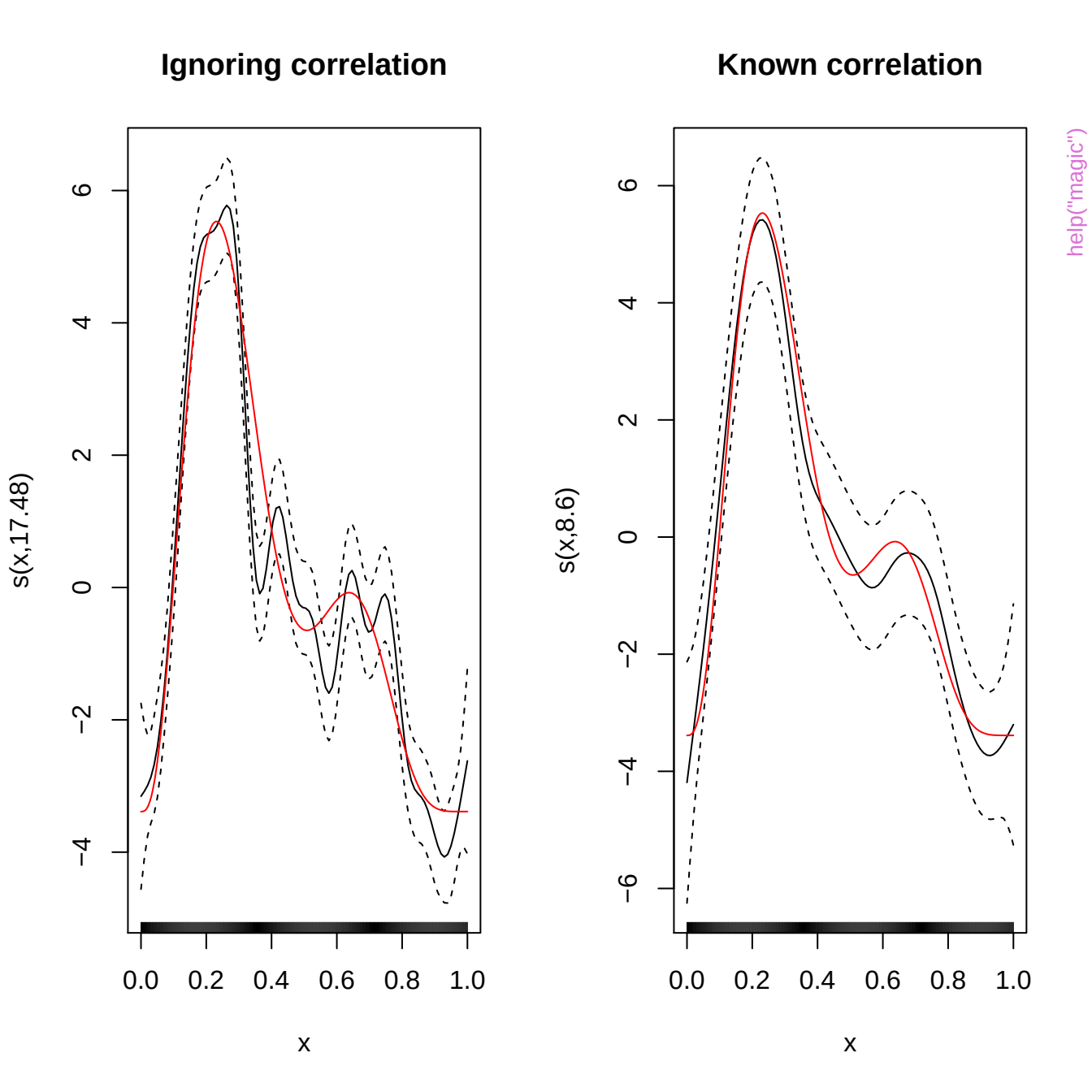


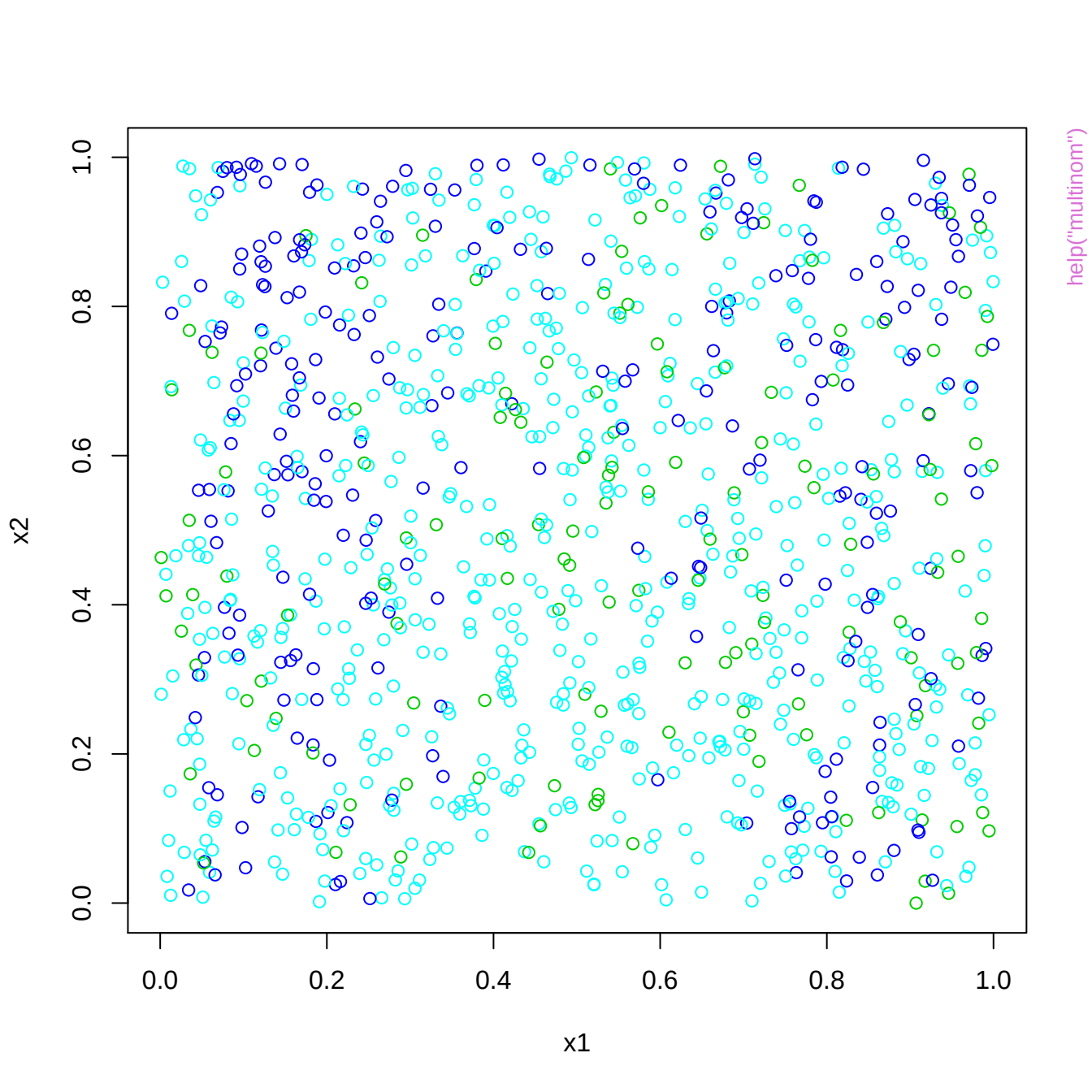


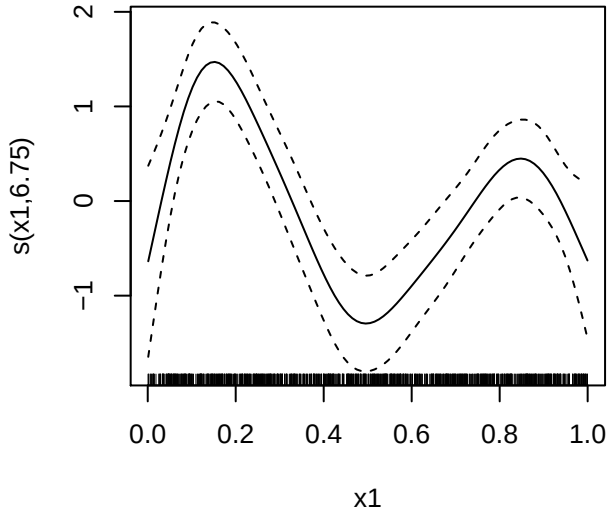


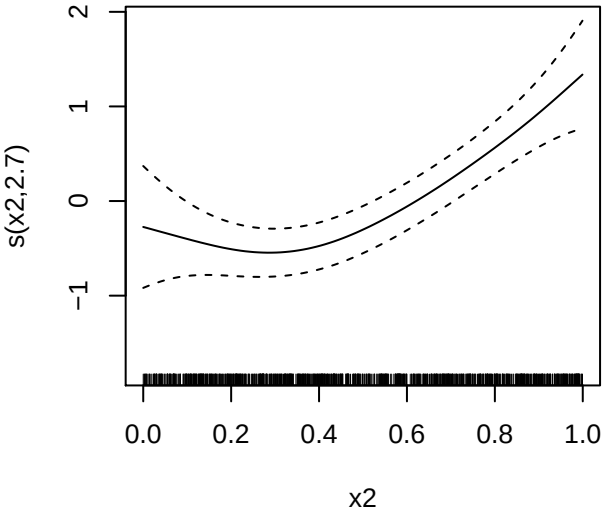
help("linear.functional.terms")

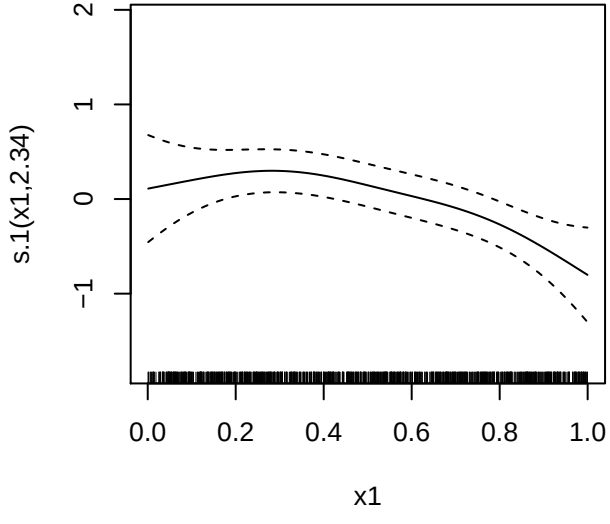

s(X,8.59):L
1.0
0.5
0.0
−0.5
0.0
0.2
0.4
0.6
0.8
1.0
X
help("linear.functional.terms")

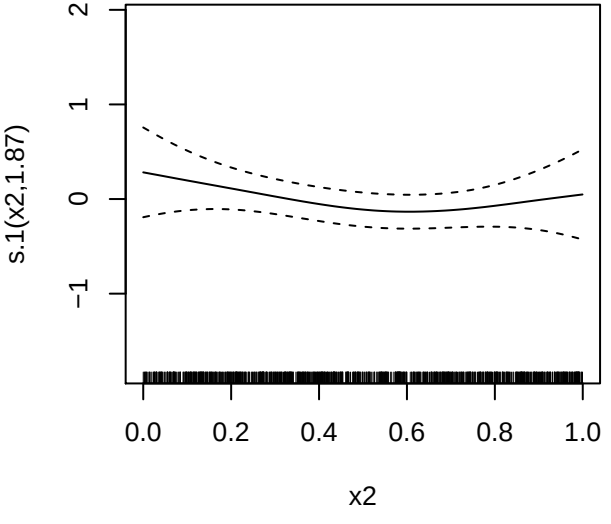

Ignoring correlation
Known correlation
s(x,17.48)
s(x,8.6)
x
x
help("magic")


help("multinom")
x2
x1
0.0
0.2
0.4
0.6
0.8
1.0

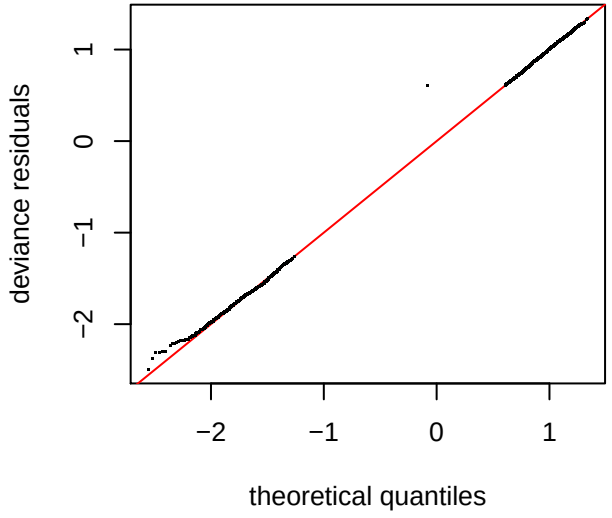


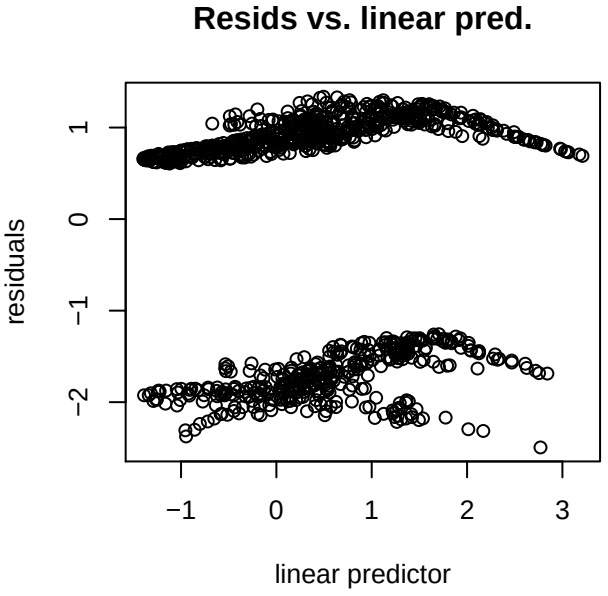


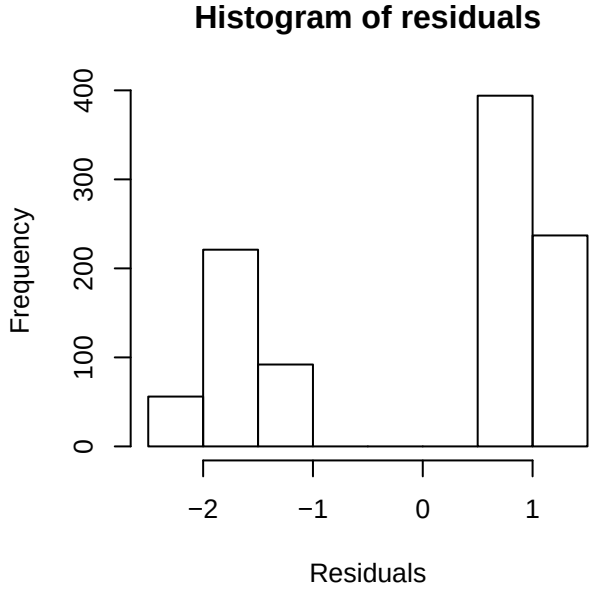


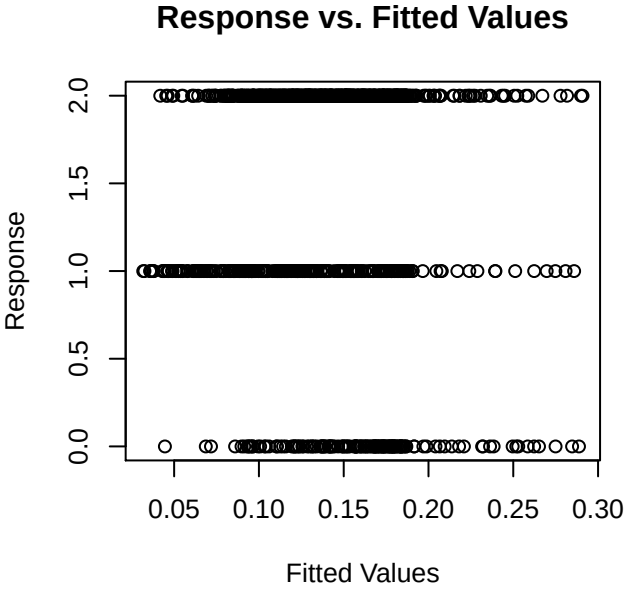


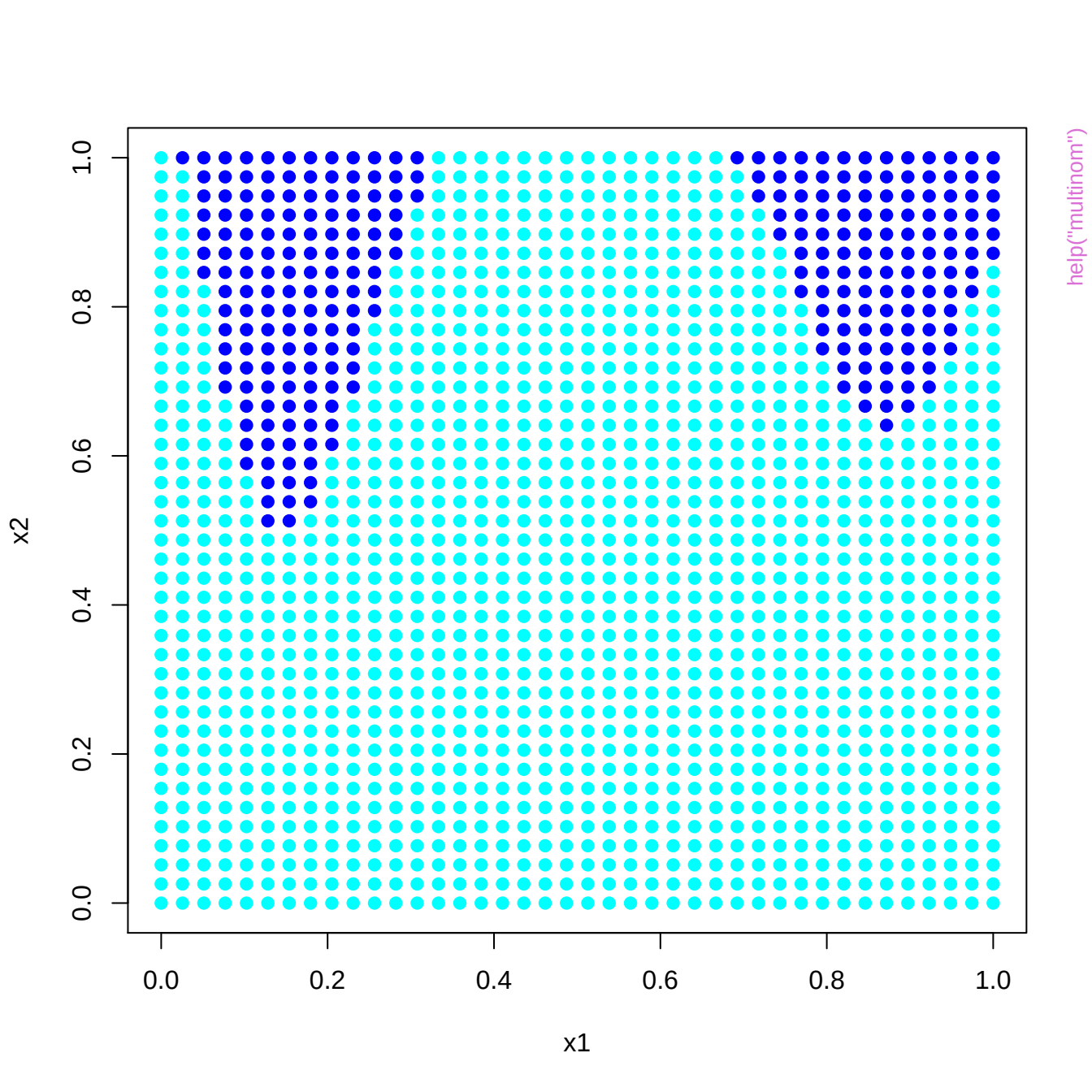
help("multinom")

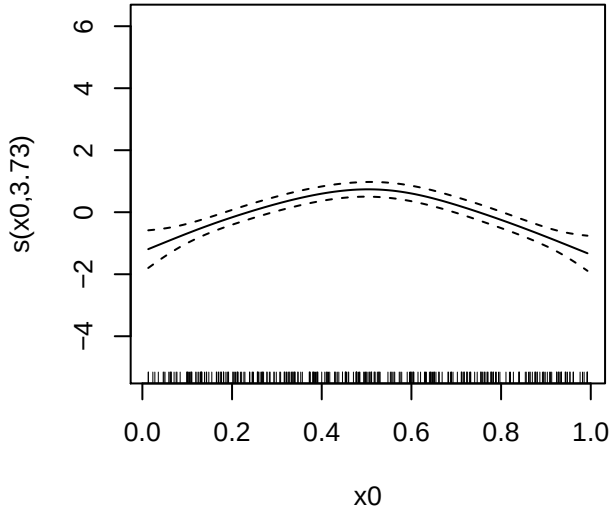

deviance residuals
theoretical quantiles

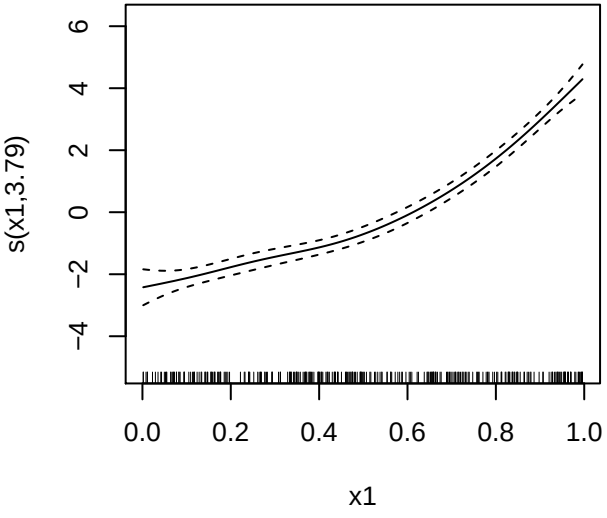

Resids vs. linear pred.
residuals
linear predictor
help("multinom")


Histogram of residuals
Frequency
Residuals

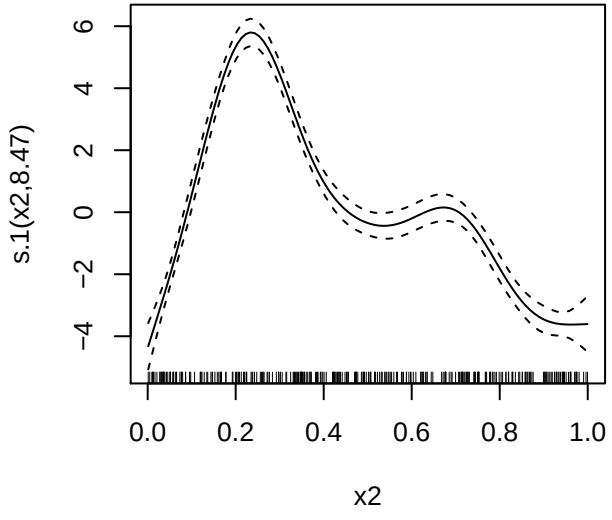

Response vs. Fitted Values
Response
Fitted Values

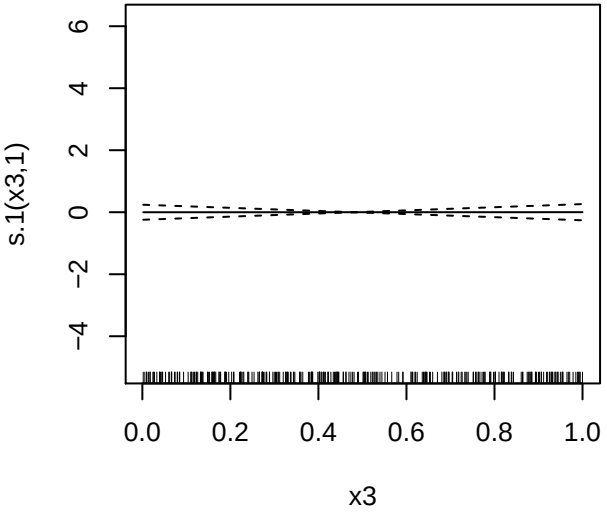

x2
0.0
0.2
0.4
0.6
0.8
1.0
x1
0.0
0.2
0.4
0.6
0.8
1.0
help("multinom")

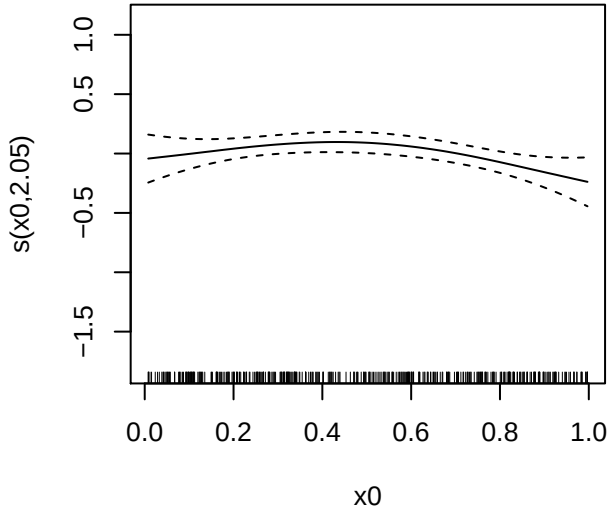

s(x0,3.73)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x0

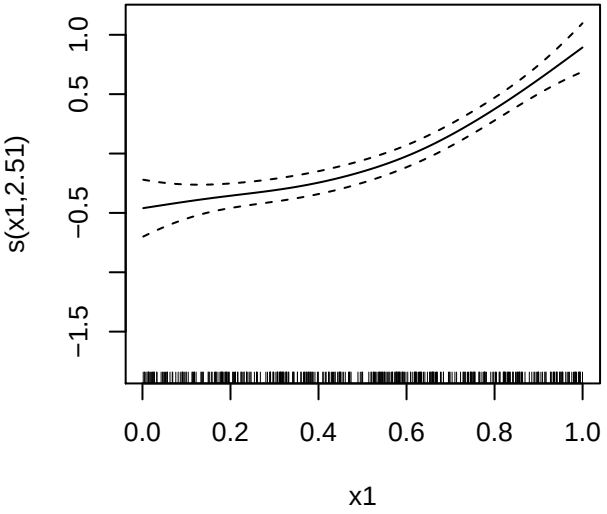

s(x1,3.79)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x1

help("mvn")

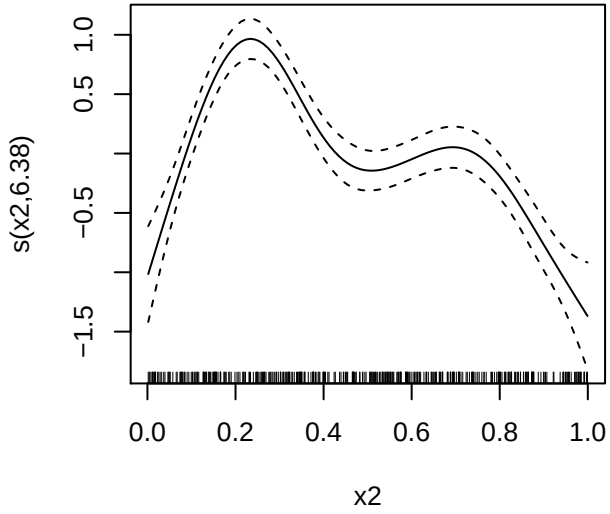

s.1(x2,8.47)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x2

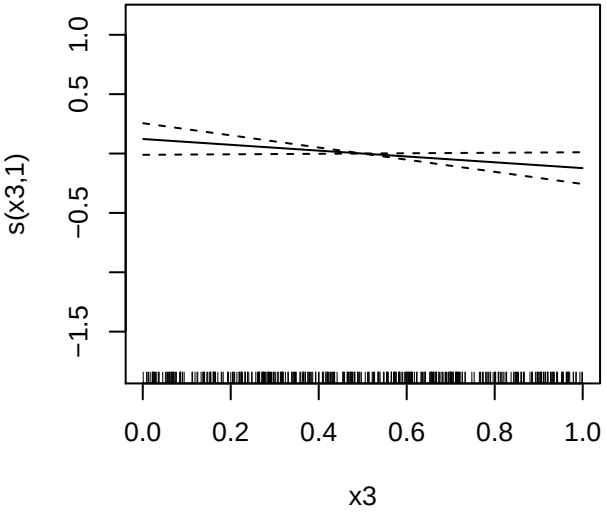

s.1(x3,1)
6
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x3

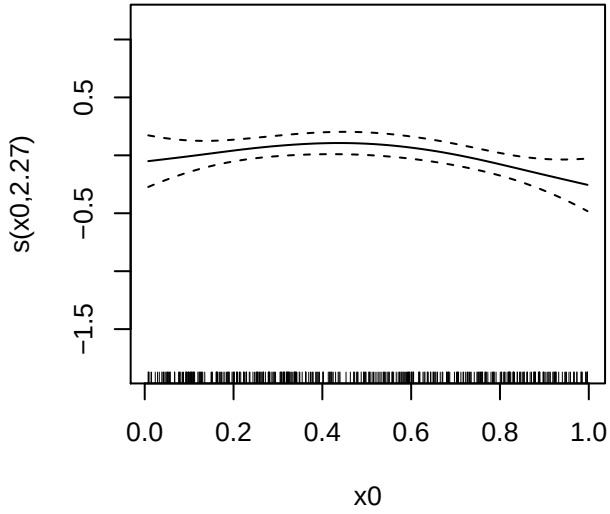

s(x0,2.05)
1.0
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x0

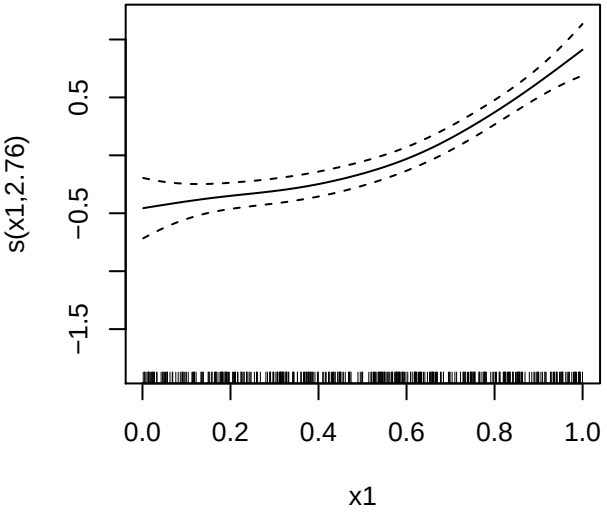

s(x1,2.51)
1.0
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x1

help("negbin")

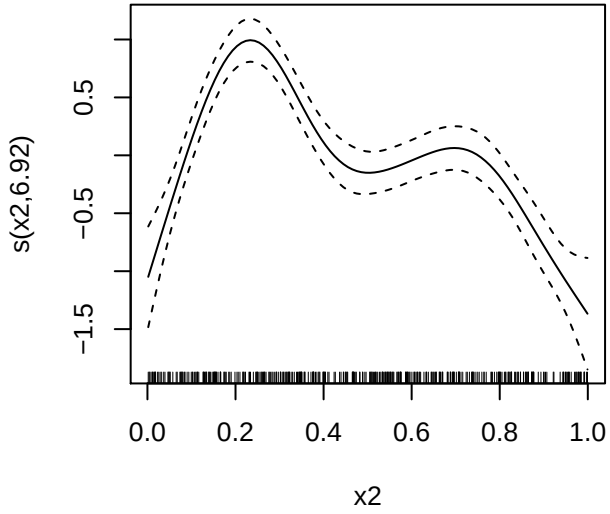

s(x2,6.38)
1.0
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x2

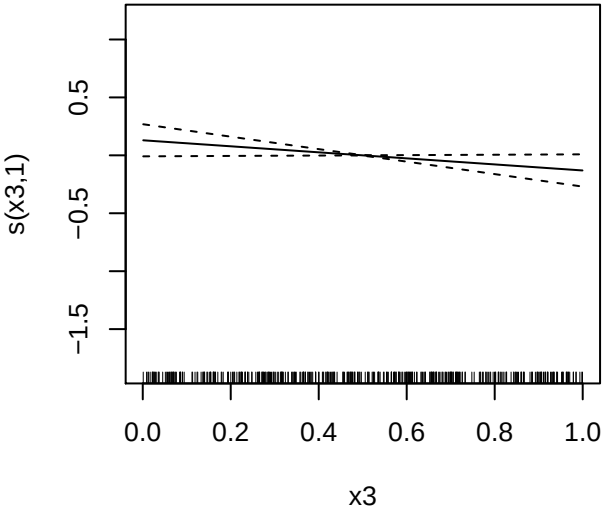

s(x3,1)
1.0
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x3

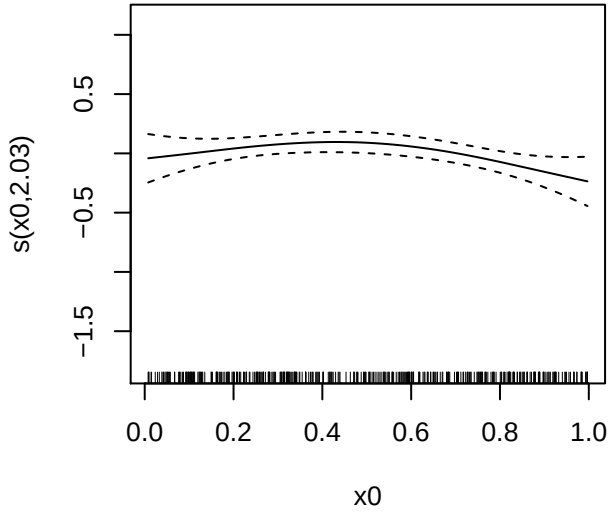

s(x0,2.27)
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x0

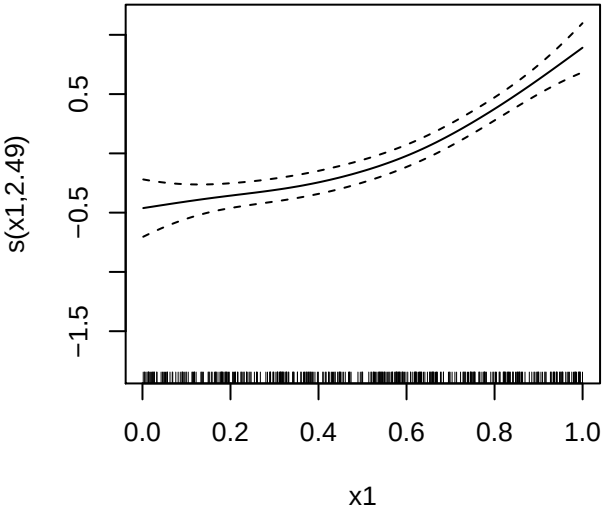

s(x1,2.76)
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x1

help("negbin")

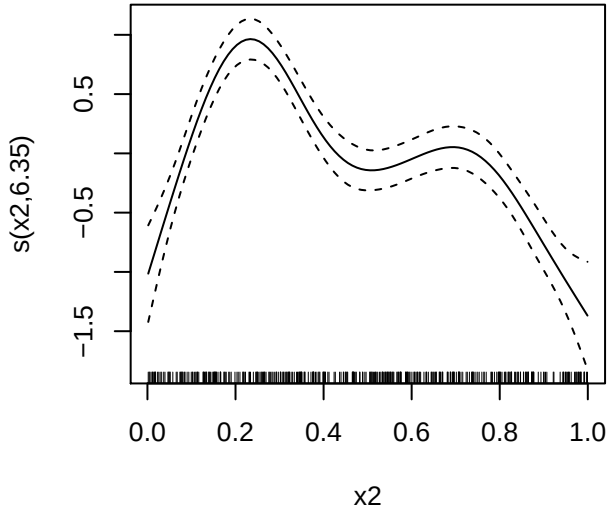

s(x2,6.92)
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x2

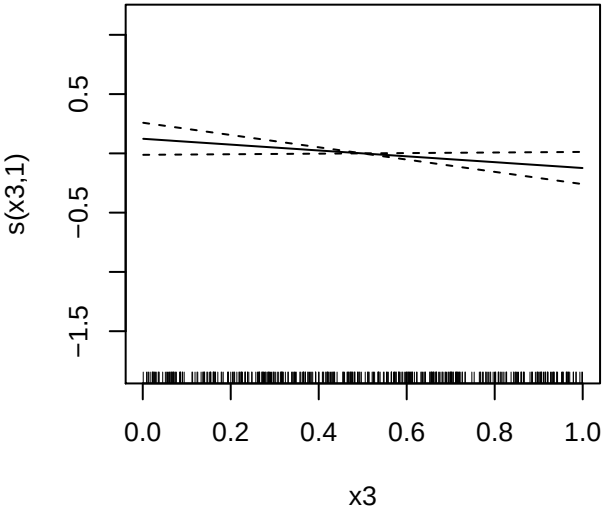

s(x3,1)
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x3

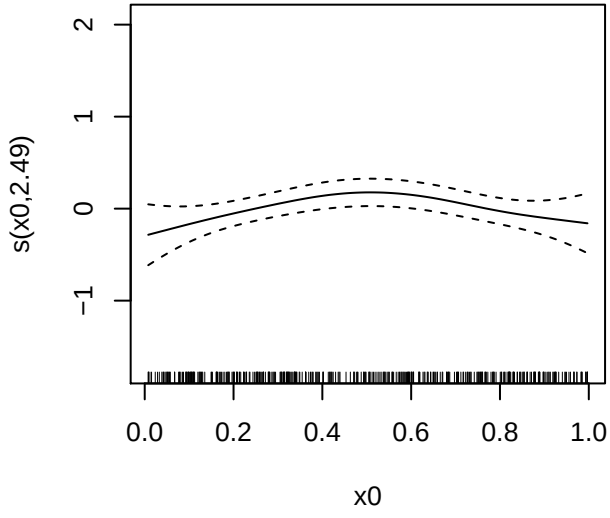

s(x0,2.03)
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x0

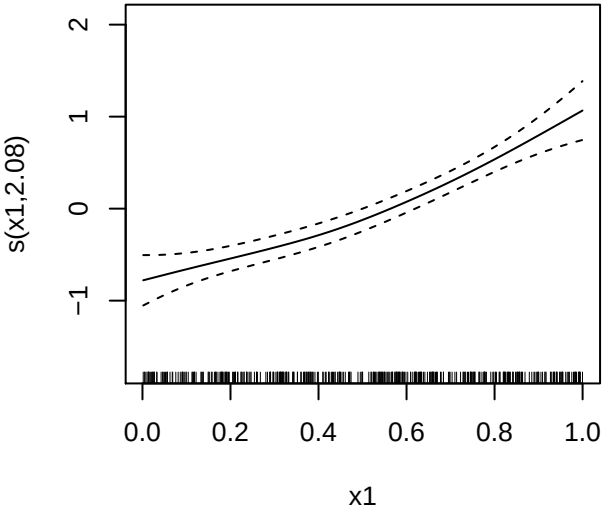

s(x1,2.49)
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x1

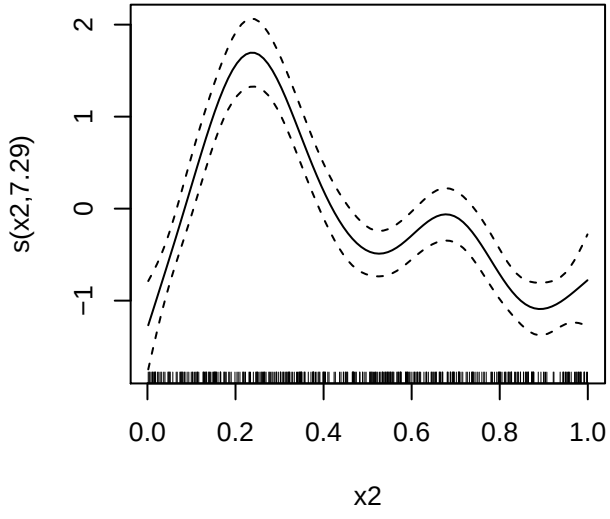
help("negbin")

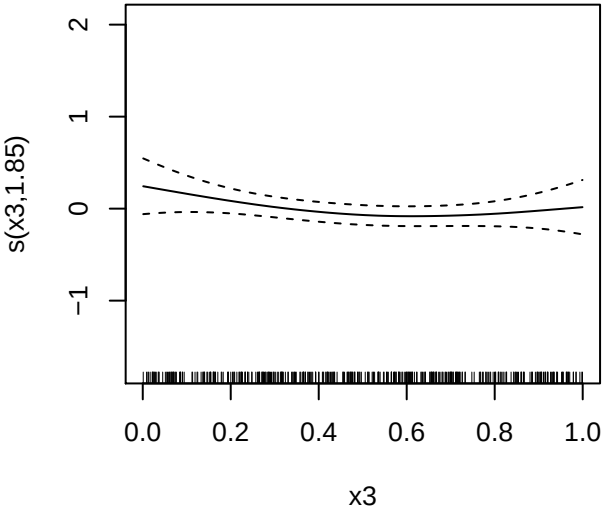

s(x2,6.35)
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x2


s(x3,1)
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x3

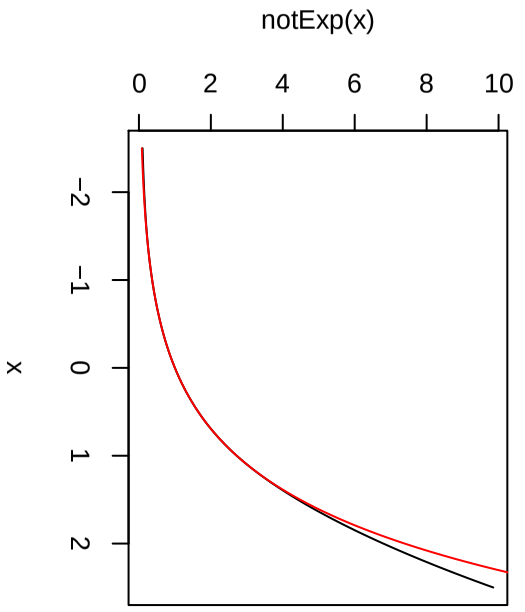

s(x0,2.49)
2
1
0
−1
0.0
0.2
0.4
0.6
0.8
1.0
x0

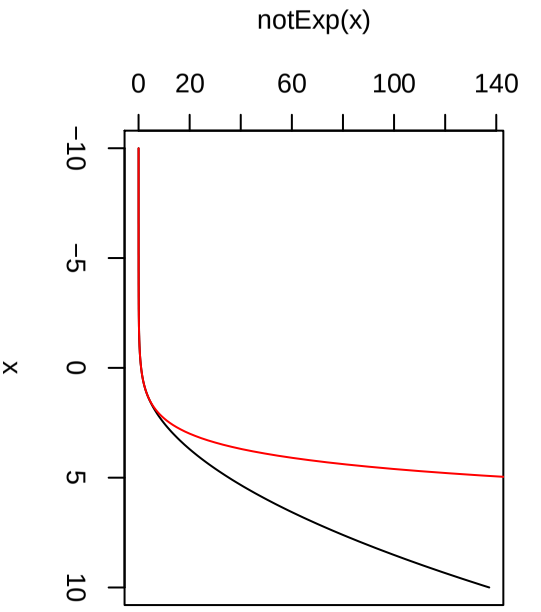

s(x1,2.08)
2
1
0
−1
0.0
0.2
0.4
0.6
0.8
1.0
x1

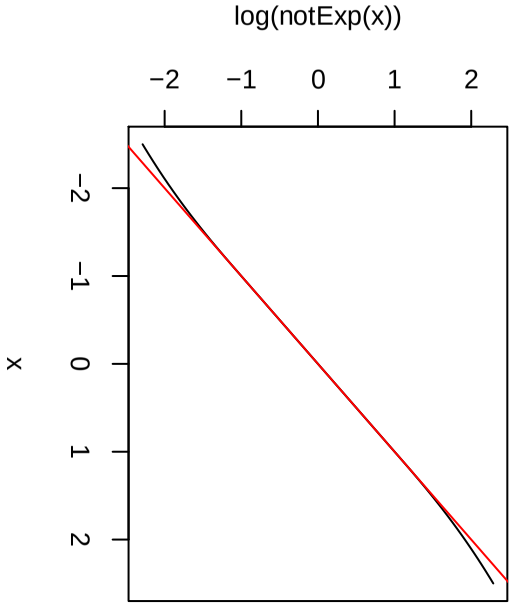

s(x2,7.29)
2
1
0
−1
0.0
0.2
0.4
0.6
0.8
1.0
x2

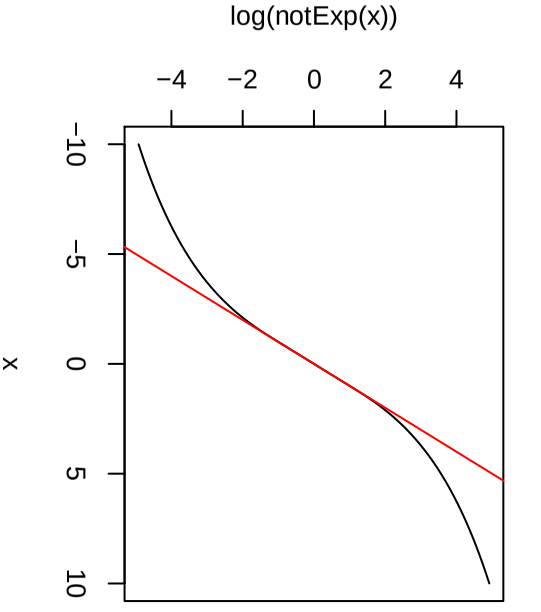

s(x3,1.85)
2
1
0
−1
0.0
0.2
0.4
0.6
0.8
1.0
x3

help("negbin")

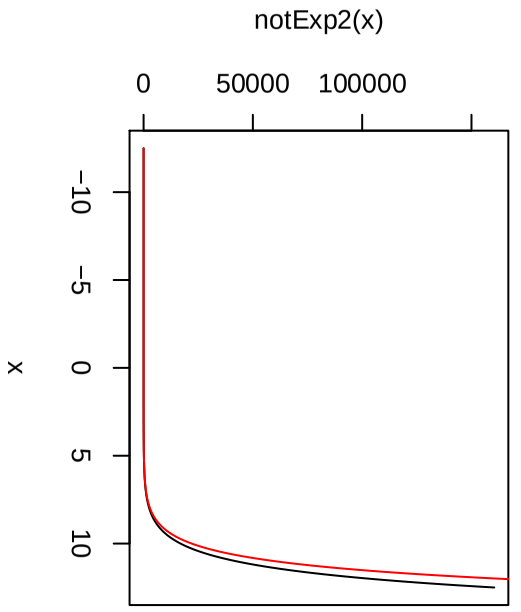

notExp(x)
0
2
4
6
8
10
−2
−1
0
1
2
x

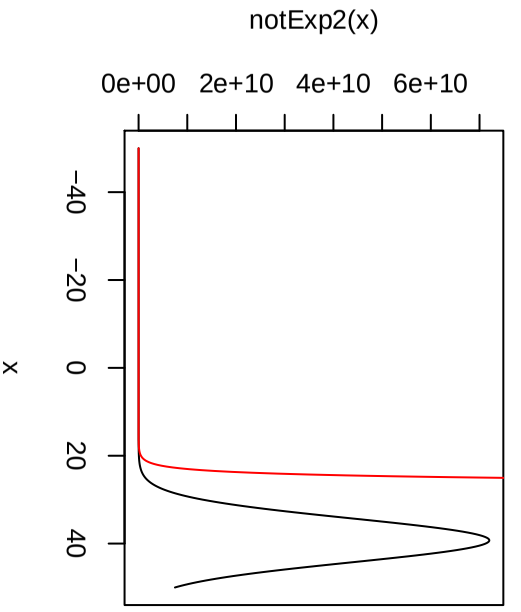

notExp(x)
0
20
60
100
140
−10
−5
0
5
10
x

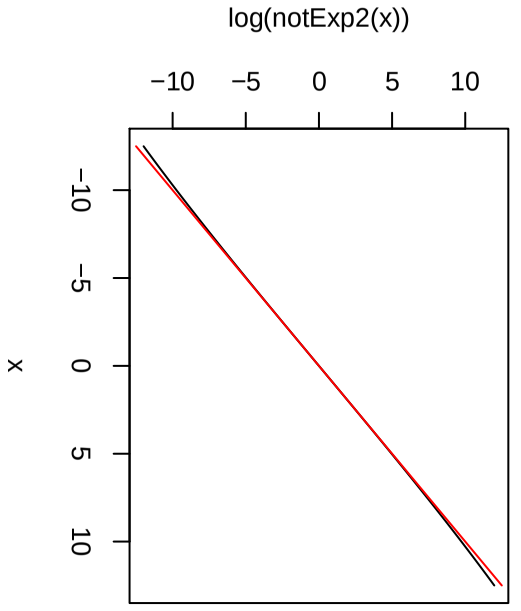

log(notExp(x))
−2
−1
0
1
2
−2
−1
0
1
2
x

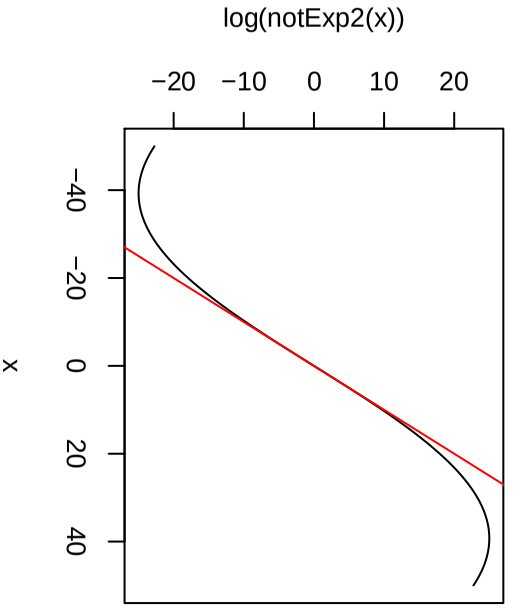

log(notExp(x))
−4
−2
0
2
4
−10
−5
0
5
10
x

help("notExp")

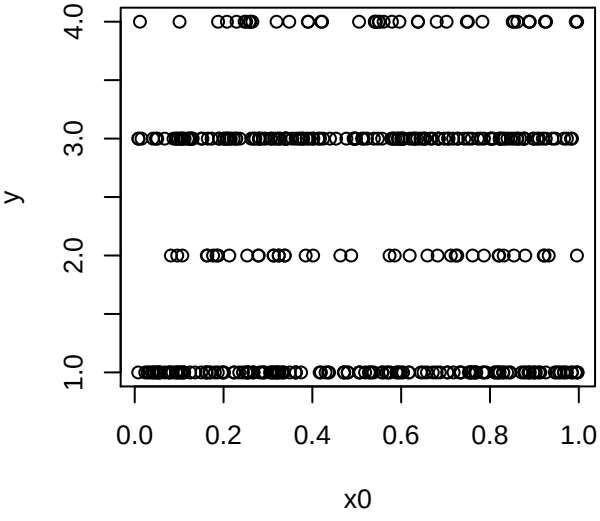


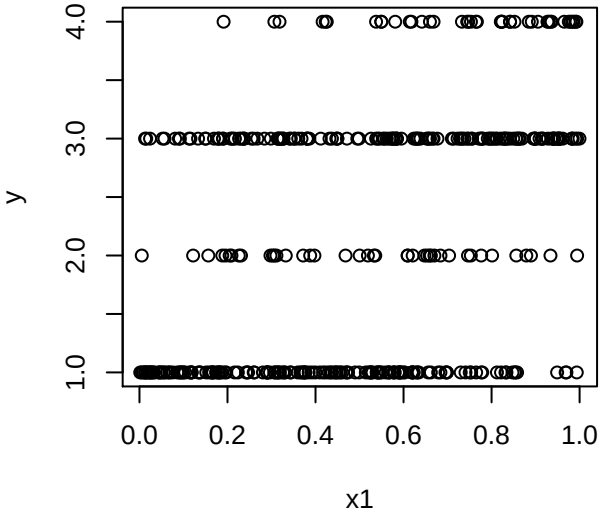




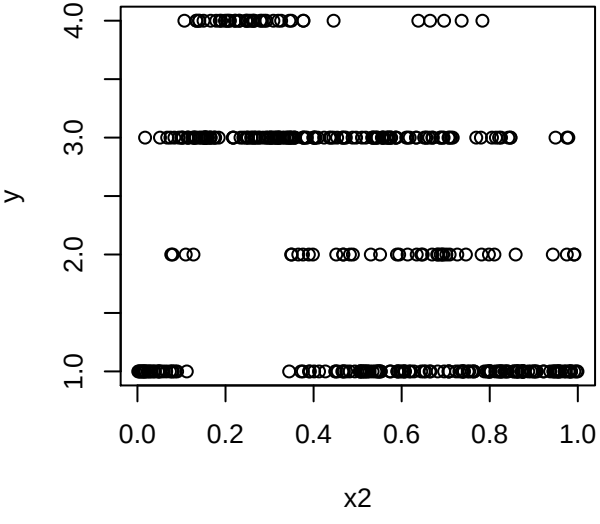


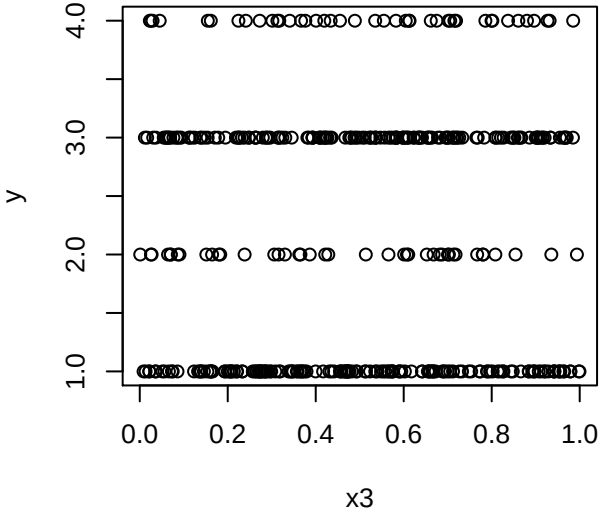
help("notExp2")

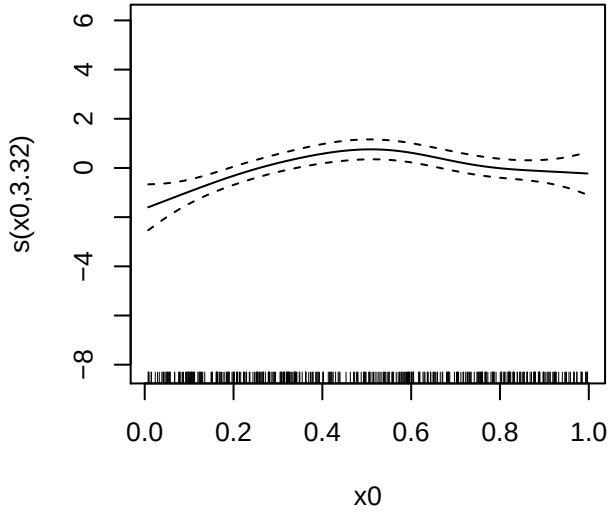

y
4.0
3.0
2.0
1.0
0.0
0.2
0.4
0.6
0.8
1.0
x0

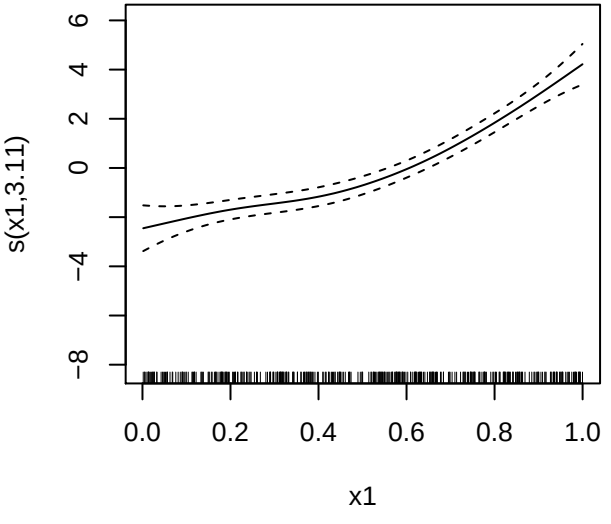

y
4.0
3.0
2.0
1.0
0.0
0.2
0.4
0.6
0.8
1.0
x1

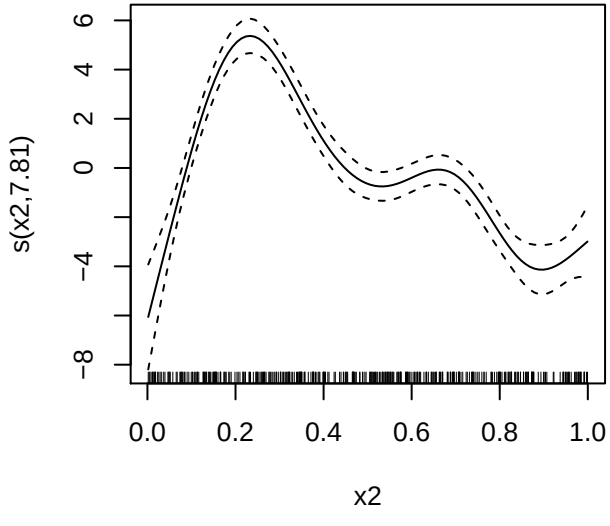
help("ocat")

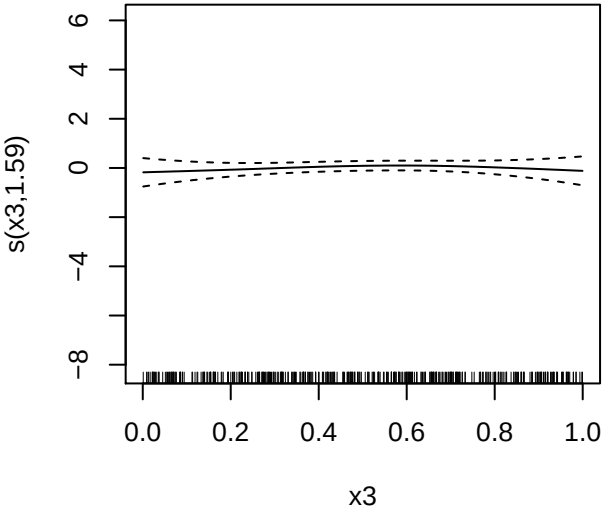

y
4.0
3.0
2.0
1.0
0.0
0.2
0.4
0.6
0.8
1.0
x2


y
4.0
3.0
2.0
1.0
0.0
0.2
0.4
0.6
0.8
1.0
x3

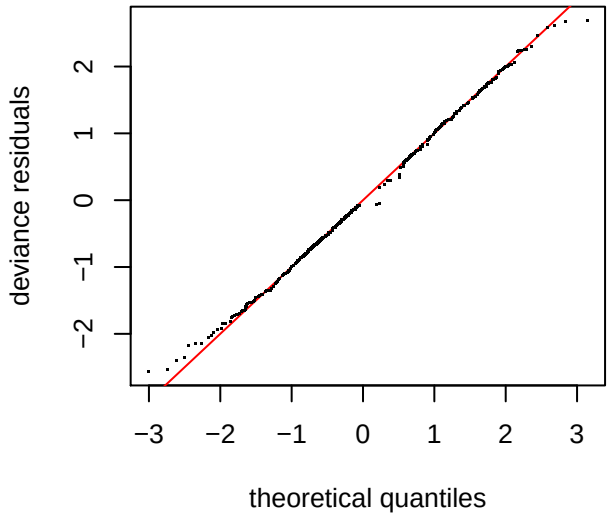

s(x0,3.32)
6
4
2
0
−4
−8
0.0
0.2
0.4
0.6
0.8
1.0
x0

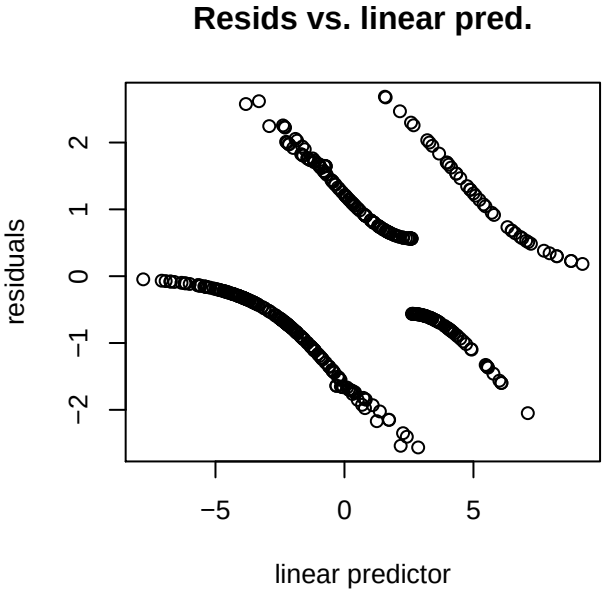

s(x1,3.11)
6
4
2
0
−4
−8
0.0
0.2
0.4
0.6
0.8
1.0
x1


s(x2,7.81)
6
4
2
0
−4
−8
0.0
0.2
0.4
0.6
0.8
1.0
x2

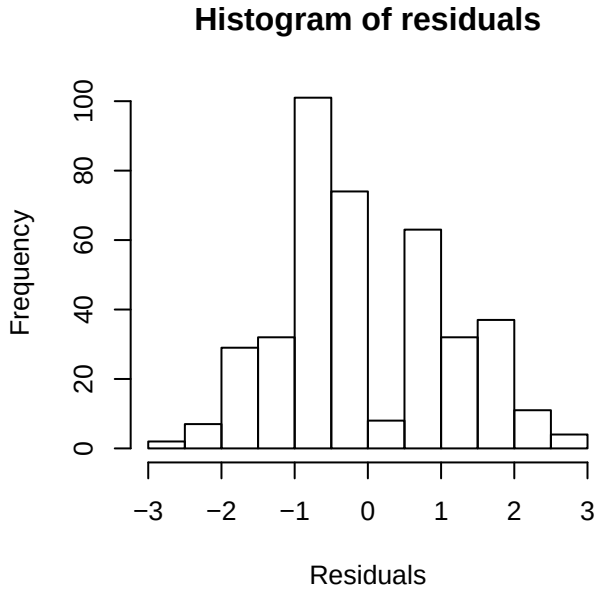

s(x3,1.59)
6
4
2
0
−4
−8
0.0
0.2
0.4
0.6
0.8
1.0
x3

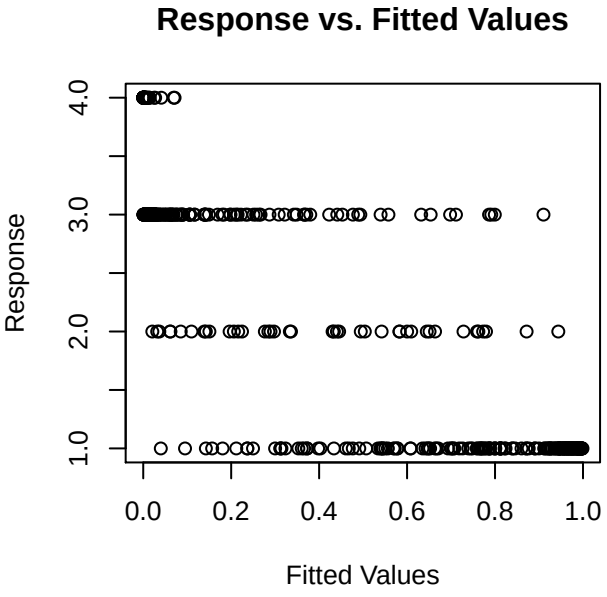
help("ocat")

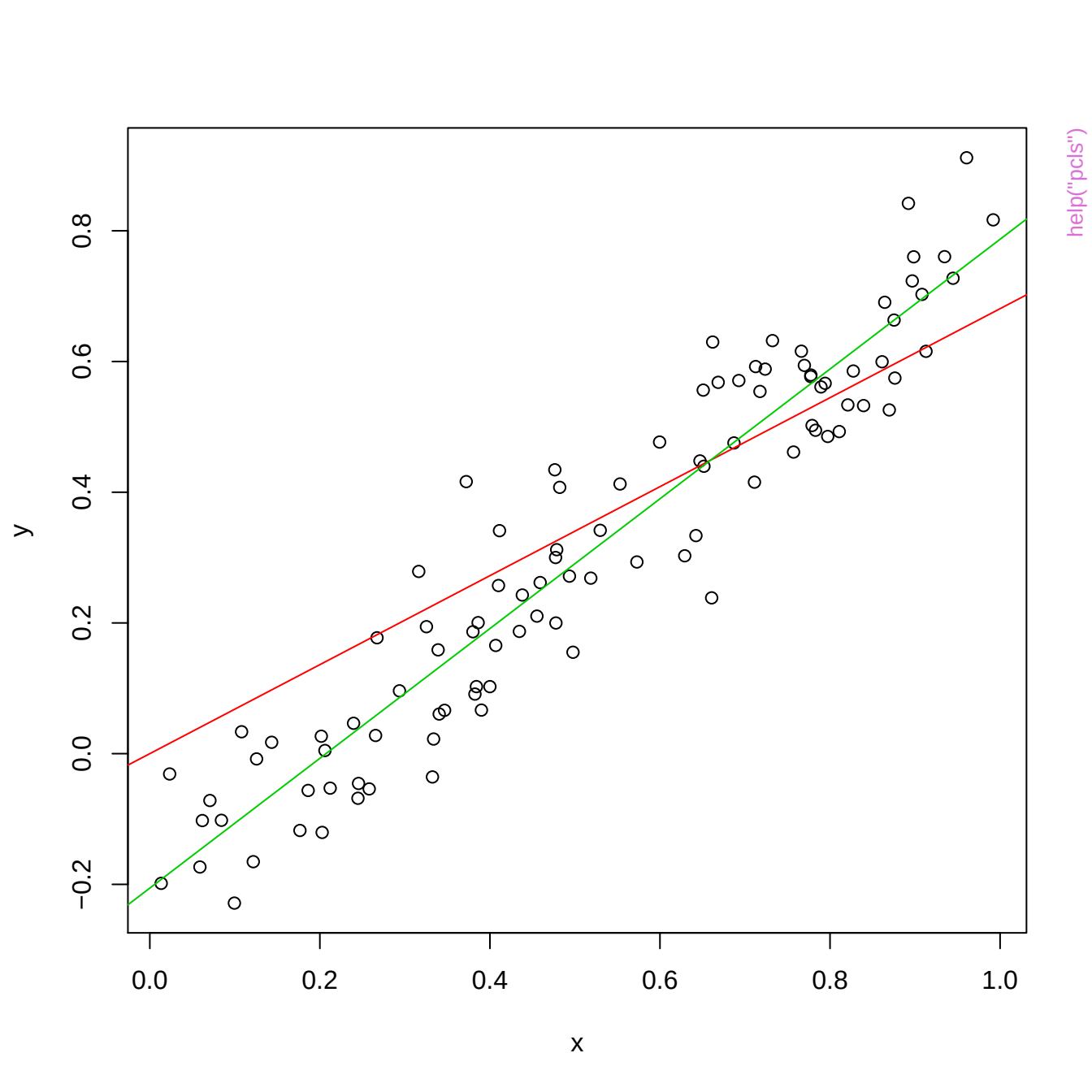

deviance residuals
theoretical quantiles

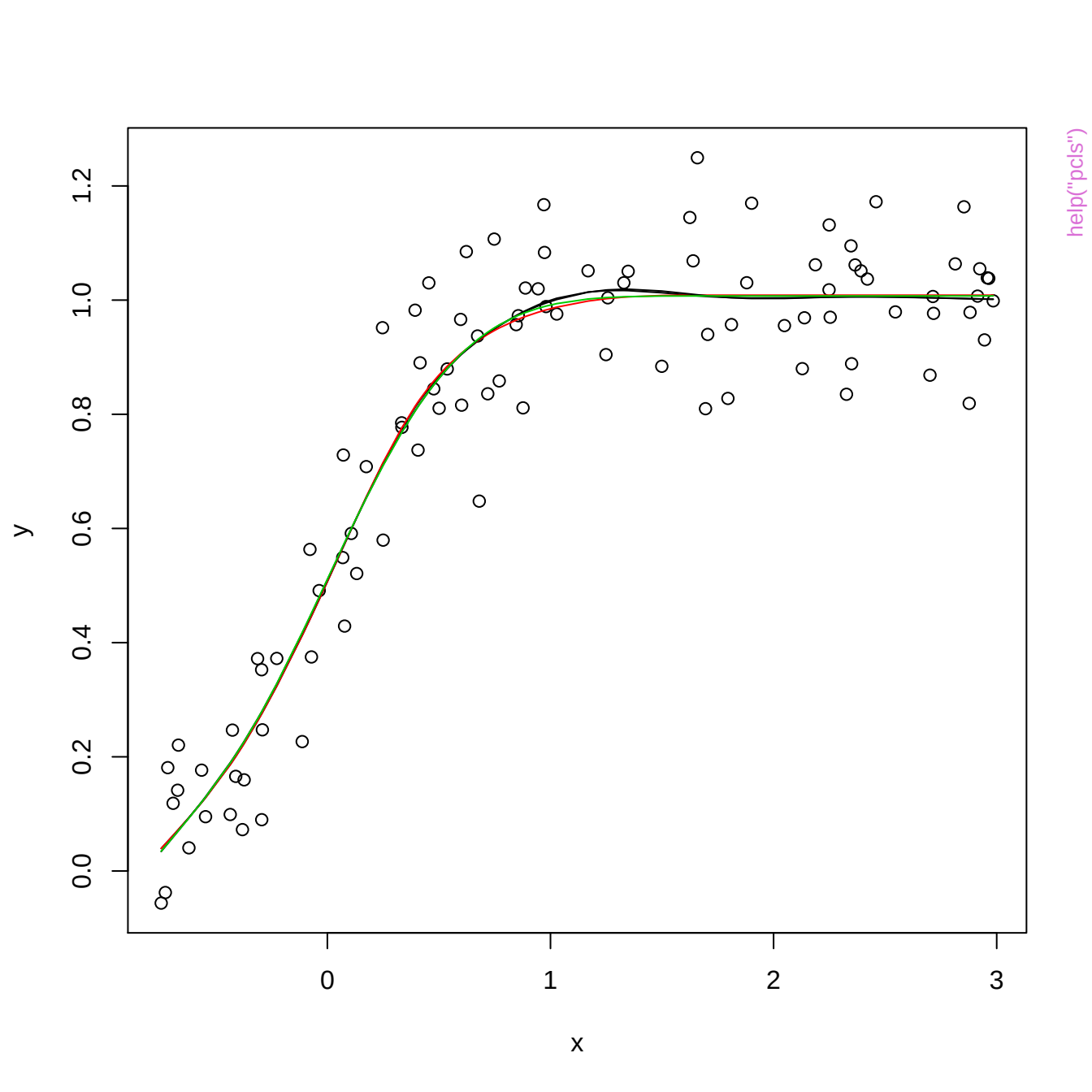

Resids vs. linear pred.
residuals
linear predictor

help("ocat")

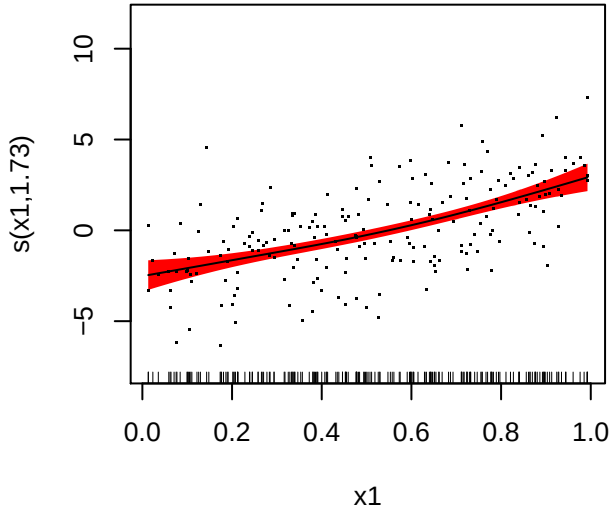

Histogram of residuals
Frequency
Residuals

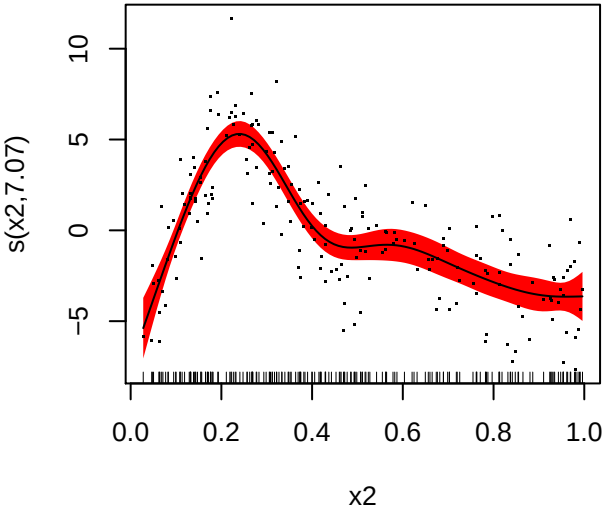

Response vs. Fitted Values
Response
Fitted Values


help("pcls")
y
x
0.8
0.6
0.4
0.2
0.0
−0.2
0.0
0.2
0.4
0.6
0.8
1.0

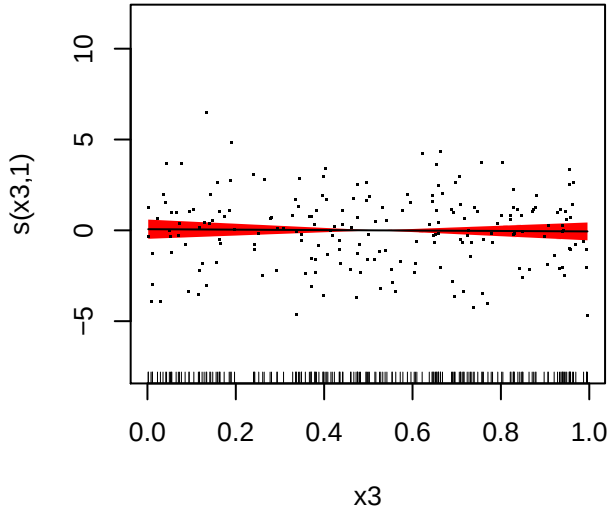

y
x
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0
1
2
3
help("pcls")

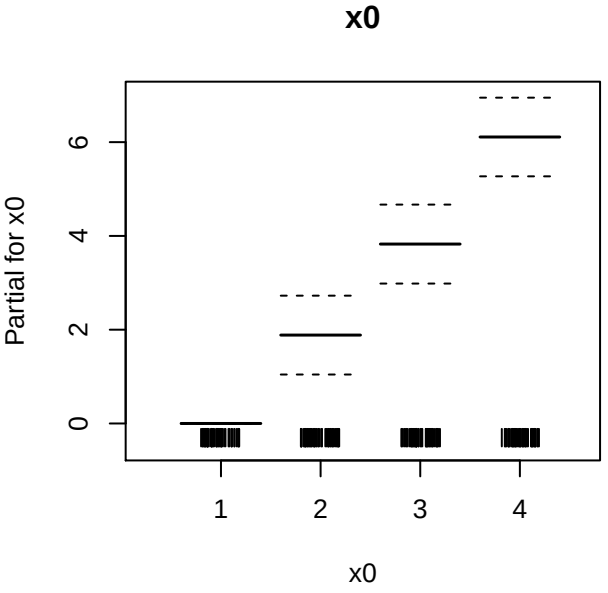
help("pcls")

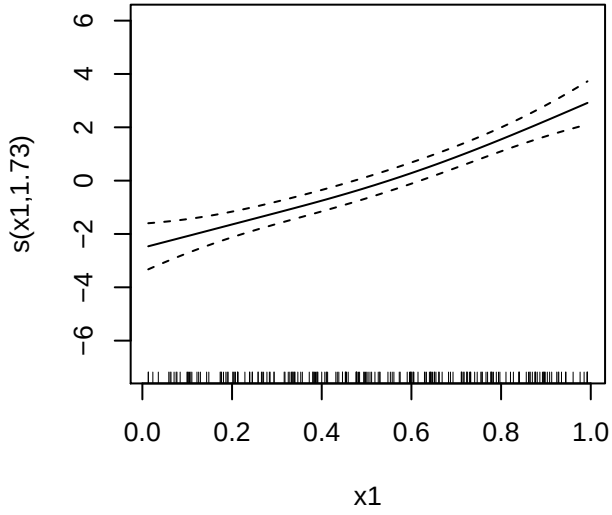


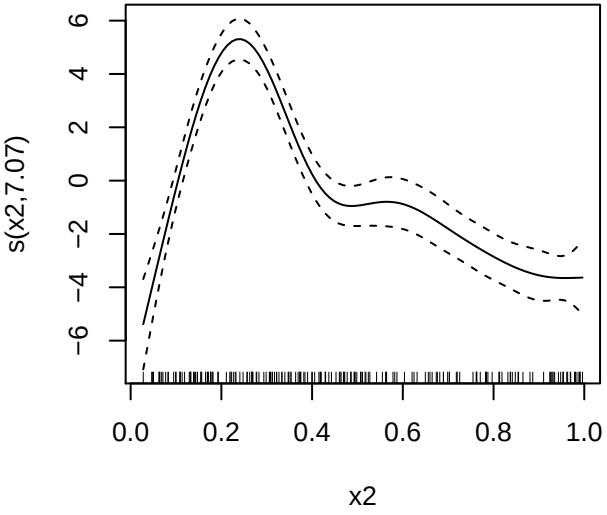


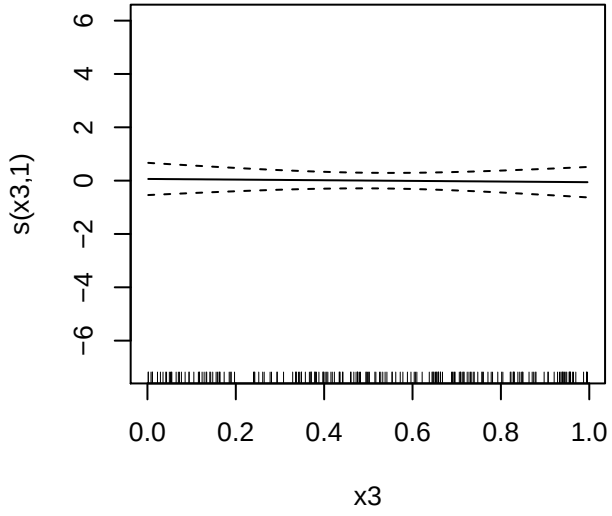
help("plot.gam")



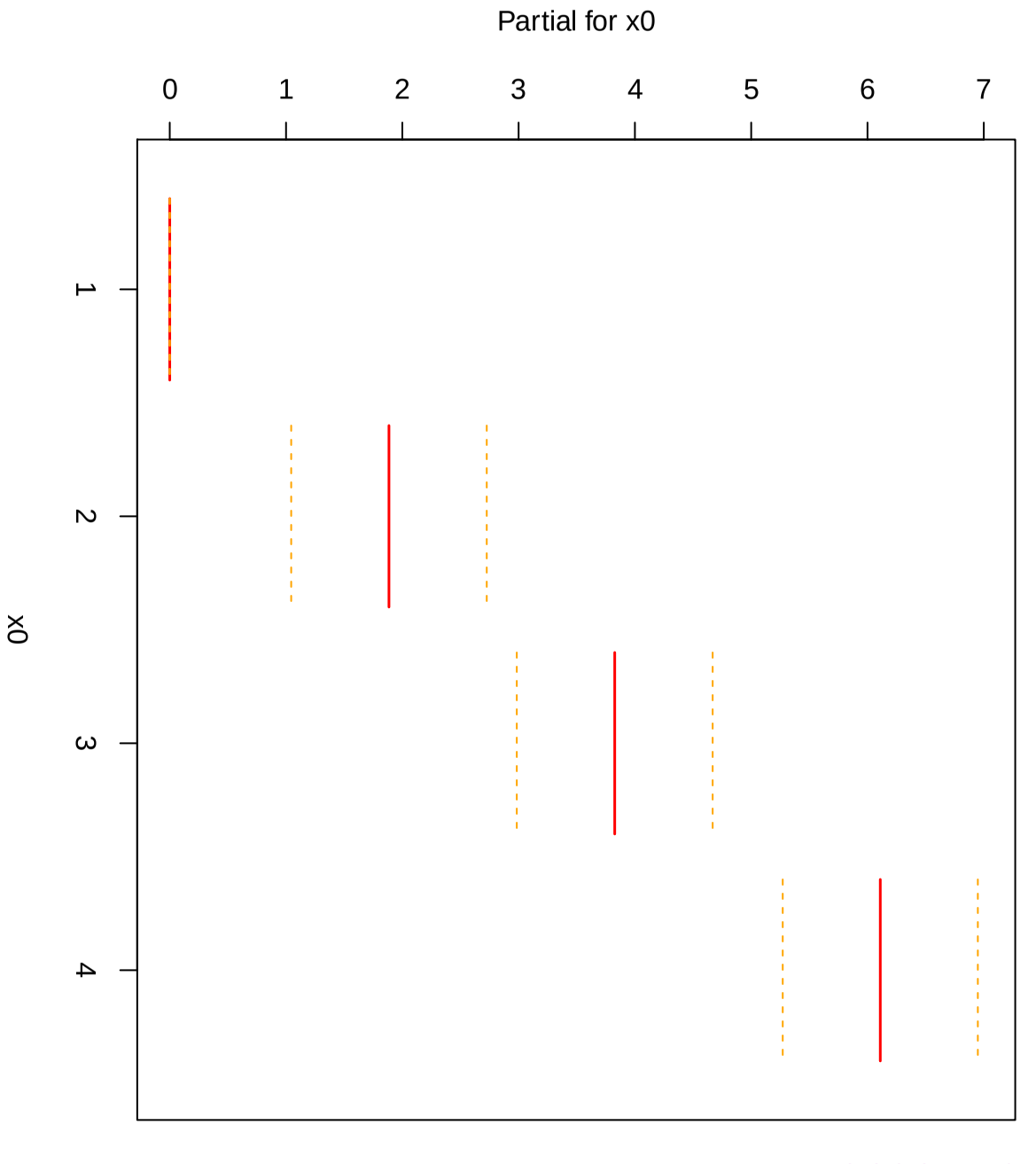


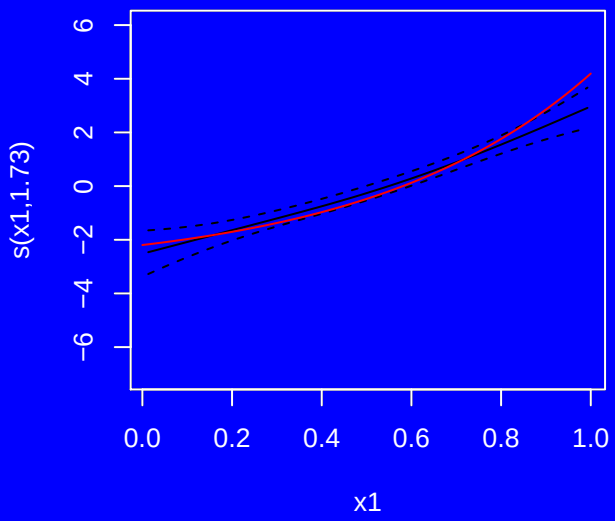


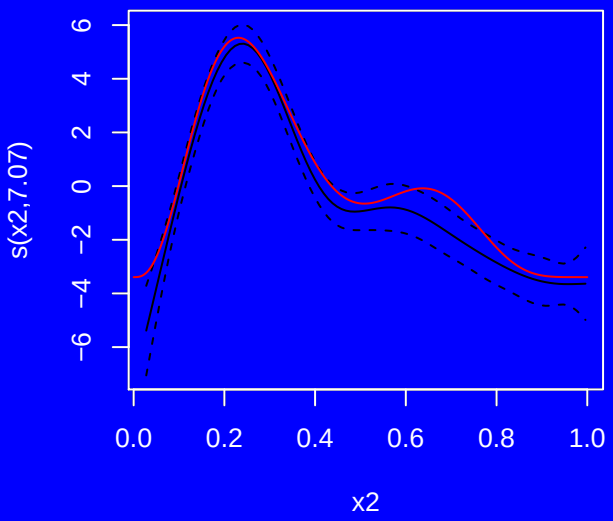


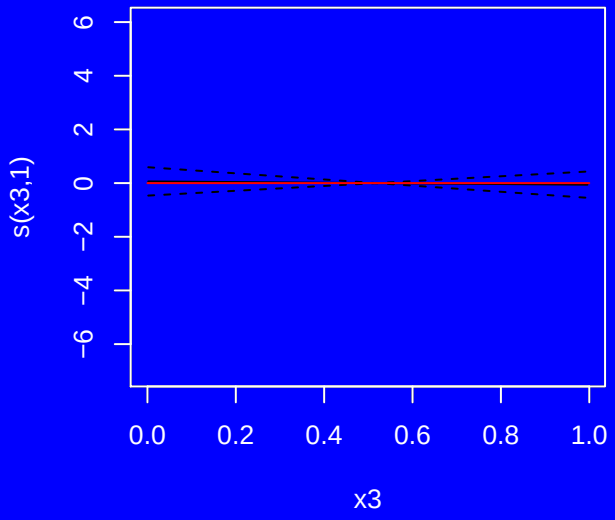


help("plot.gam")

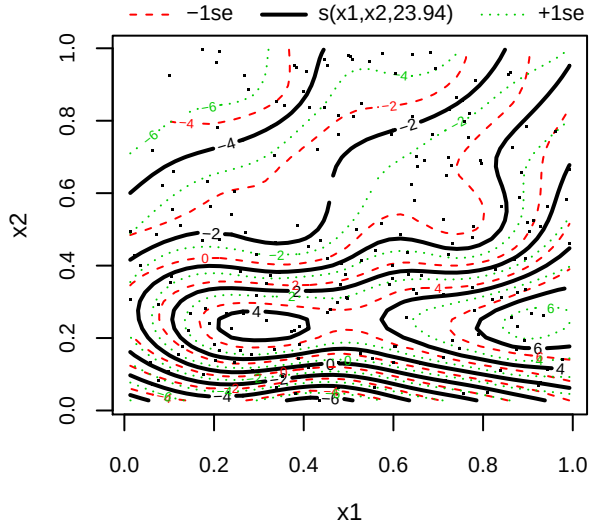

Partial for x0
0
1
2
3
4
5
6
7
x0
1
2
3
4
help("plot.gam")

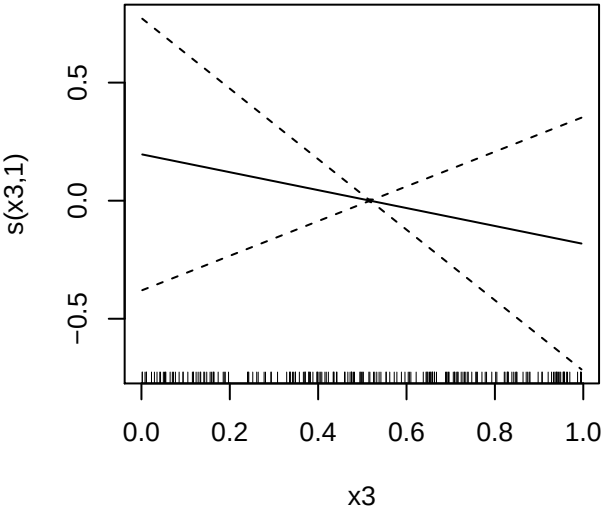




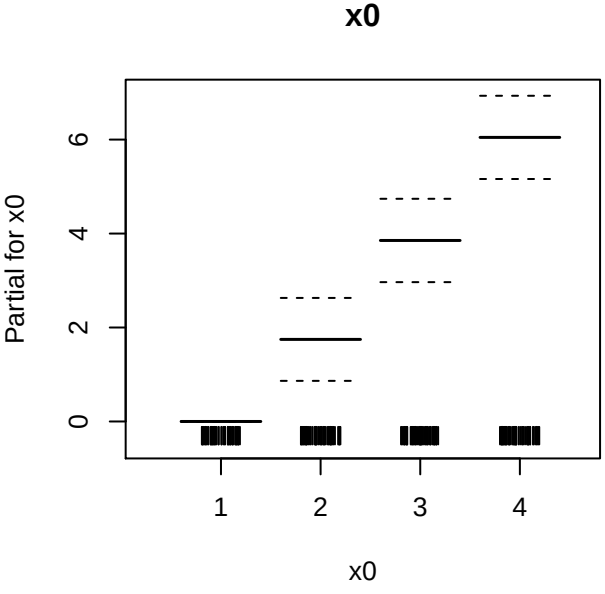


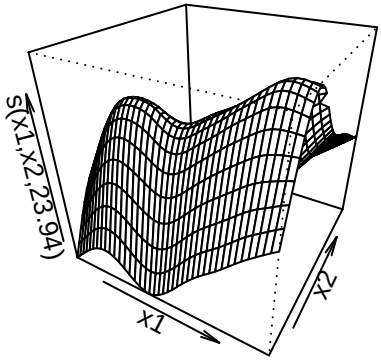
help("plot.gam")

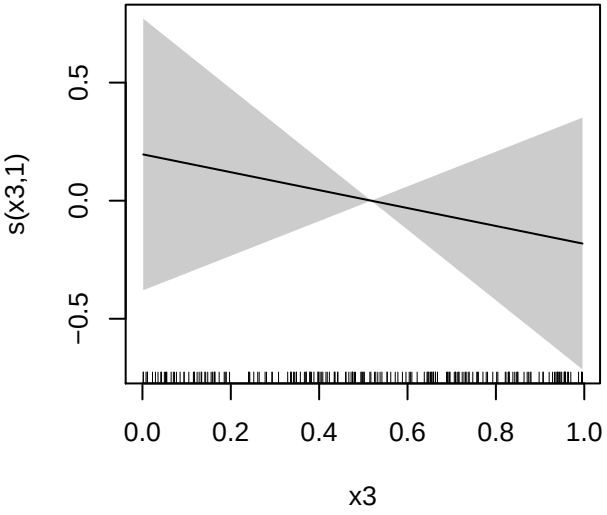




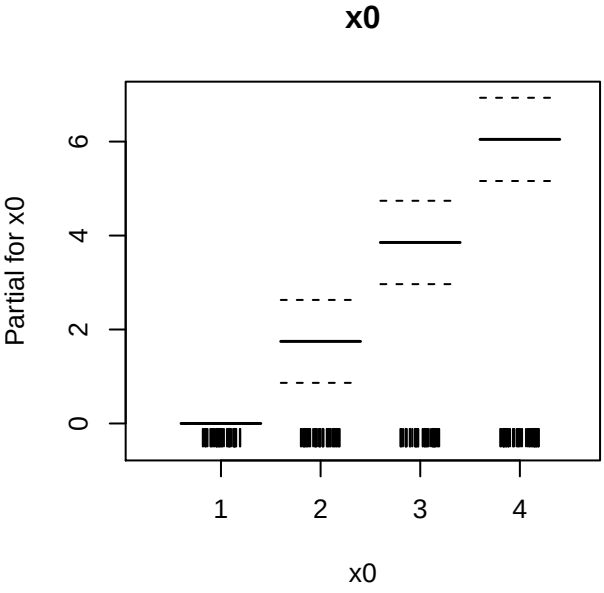
help("plot.gam")

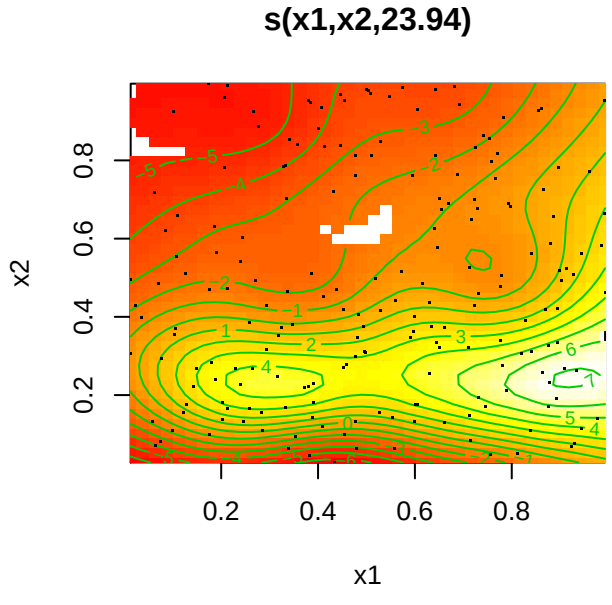


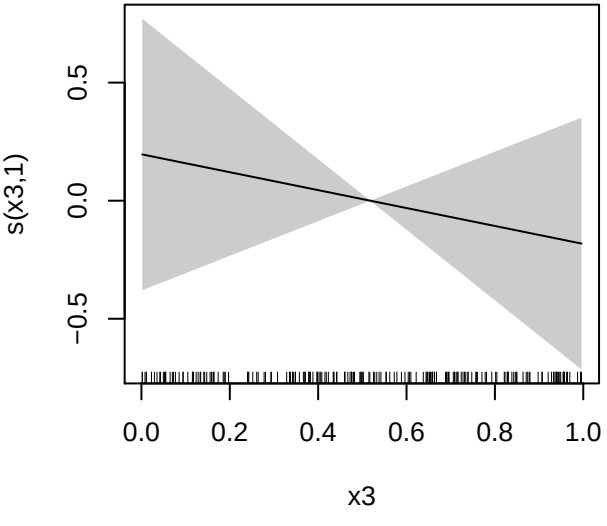




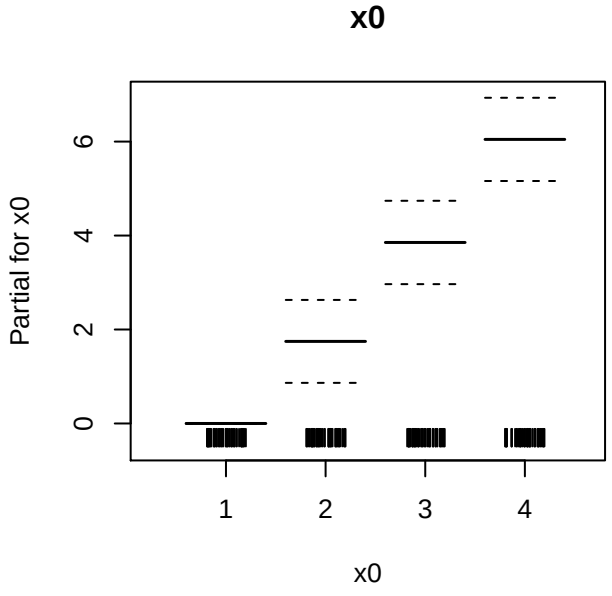
help("plot.gam")

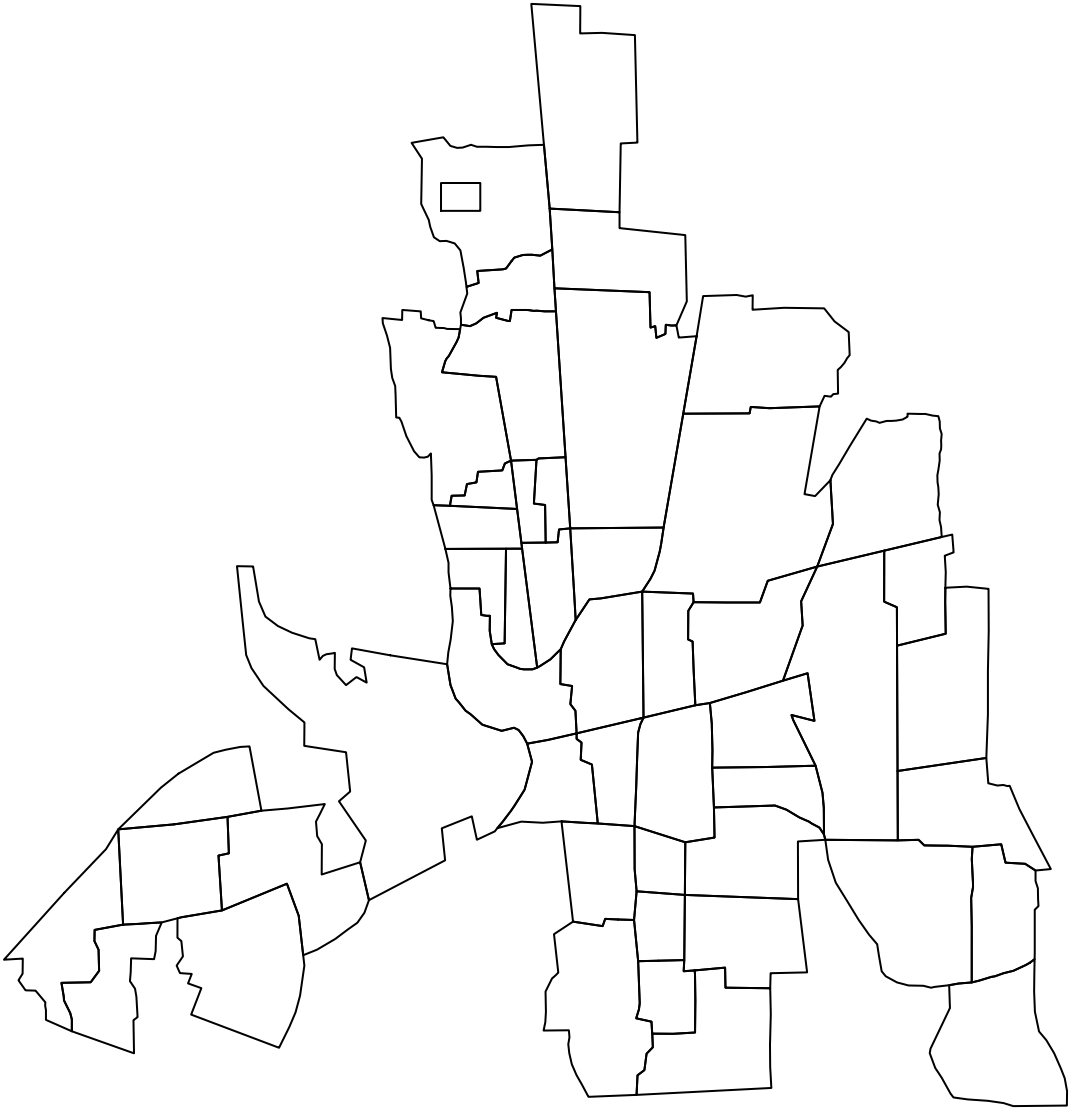




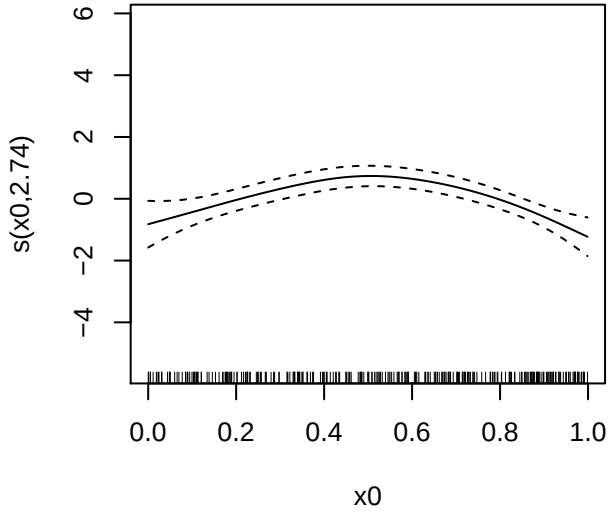


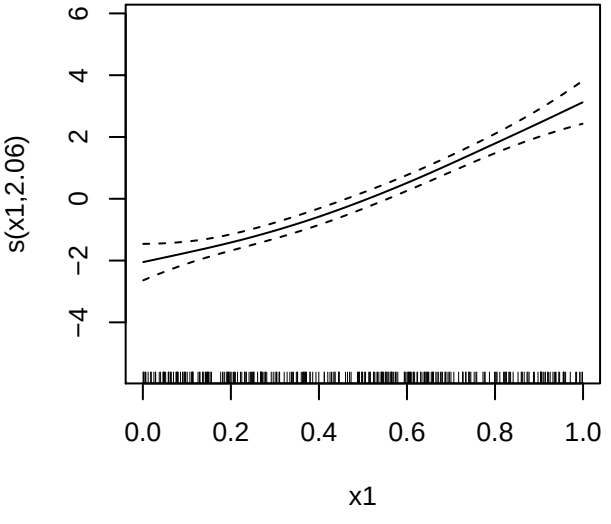
help("plot.gam")



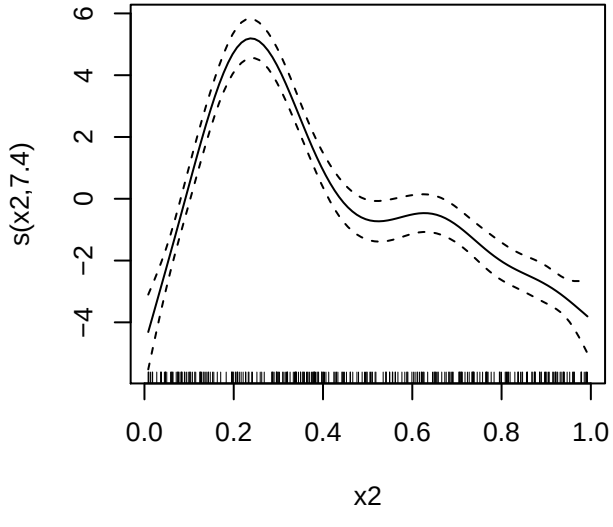


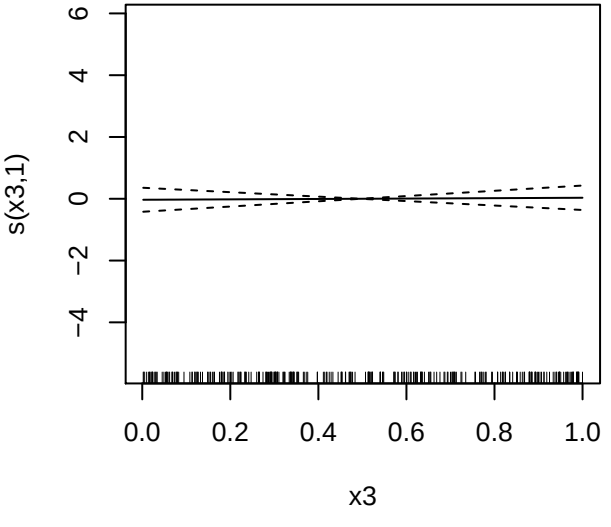
help("polys.plot")

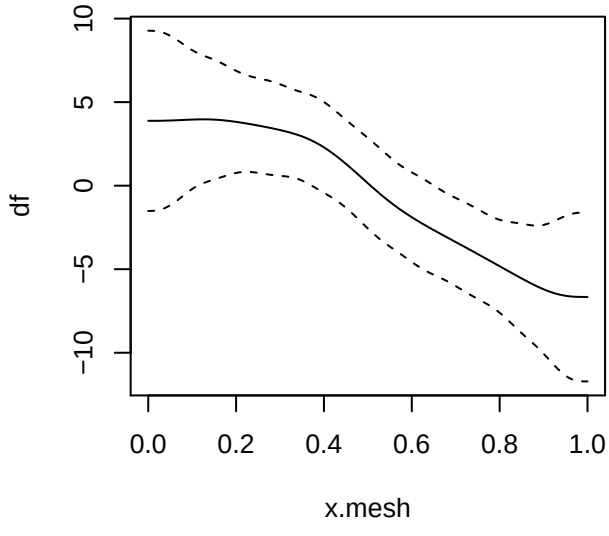


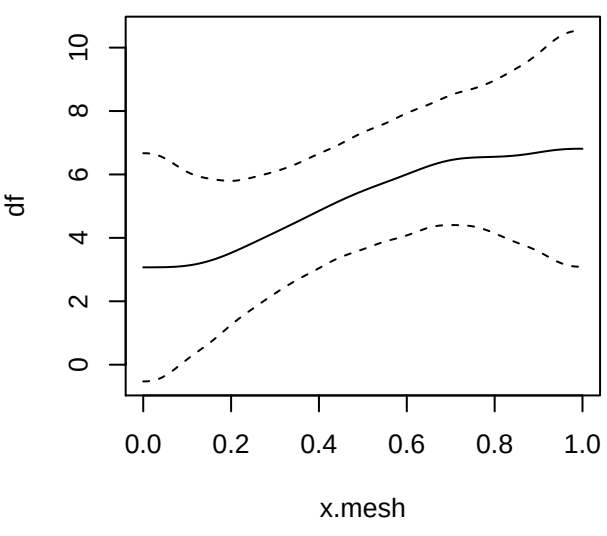


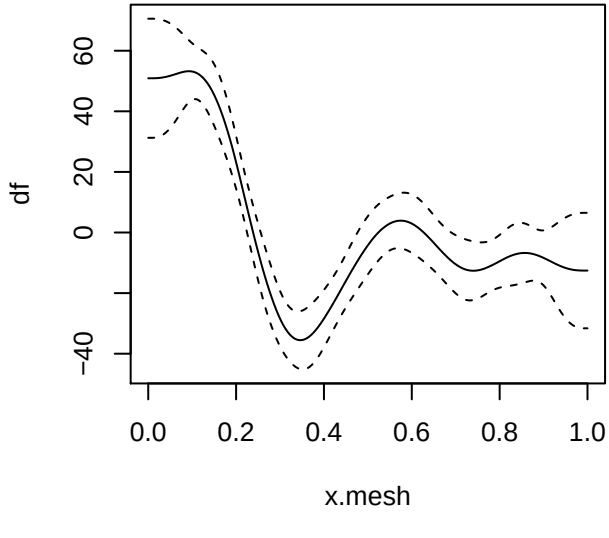
help("predict.gam")

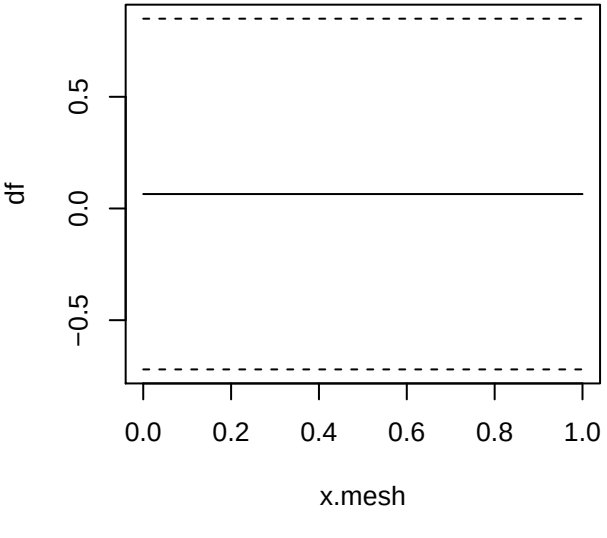




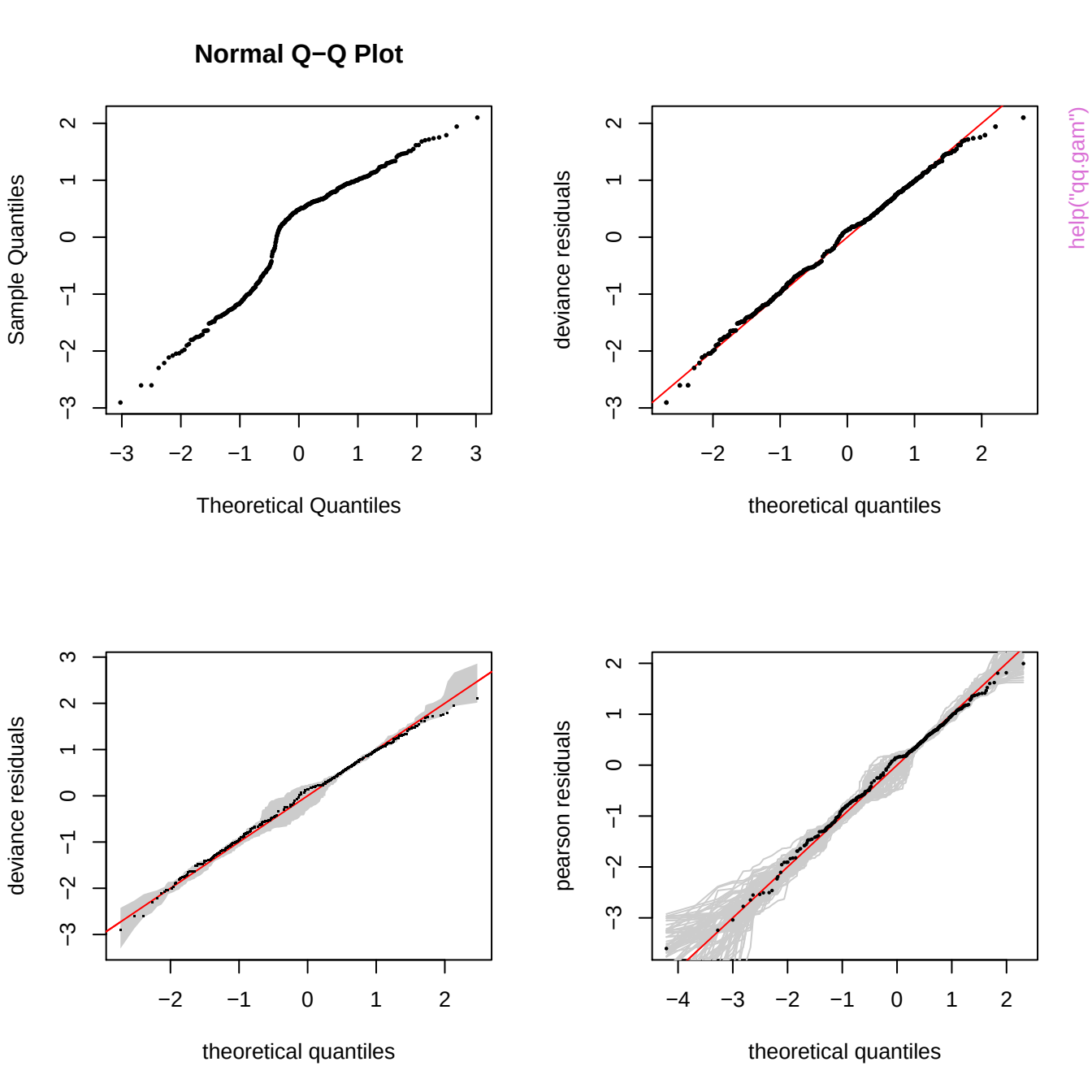


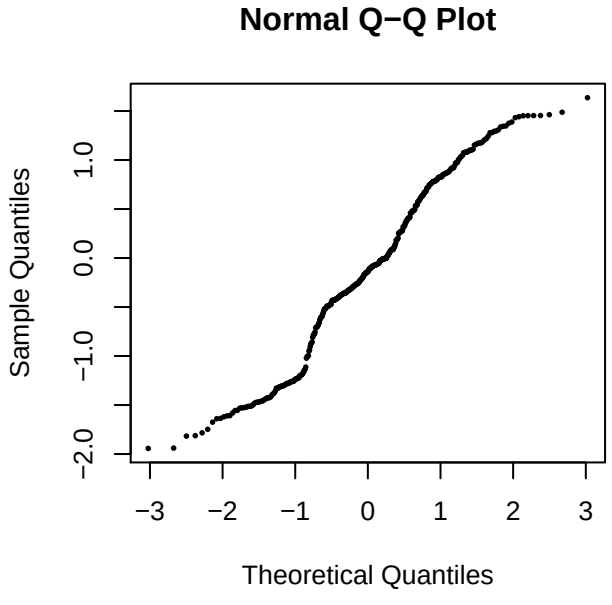


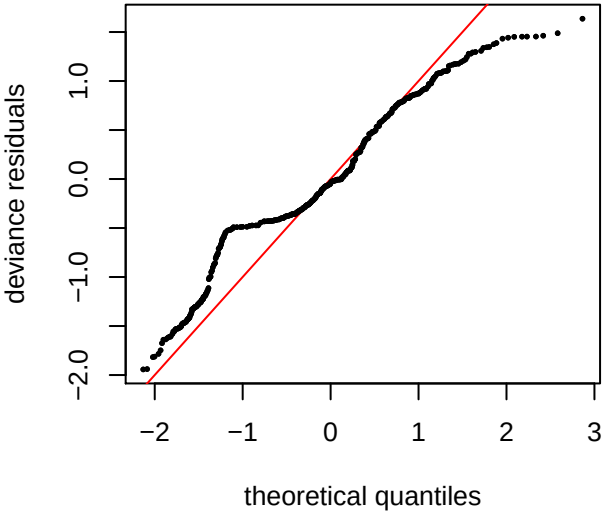




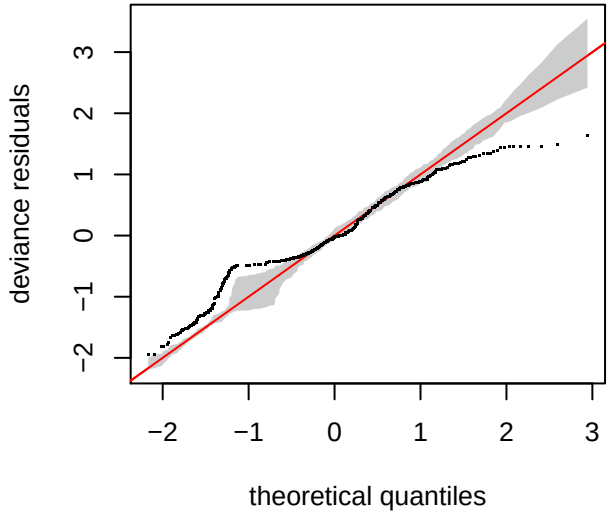
help("predict.gam")

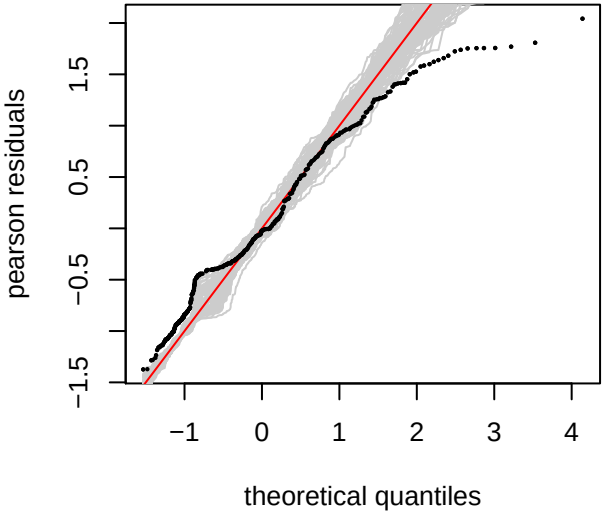

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
deviance residuals
theoretical quantiles
help("qq.gam")
deviance residuals
theoretical quantiles
pearson residuals
theoretical quantiles

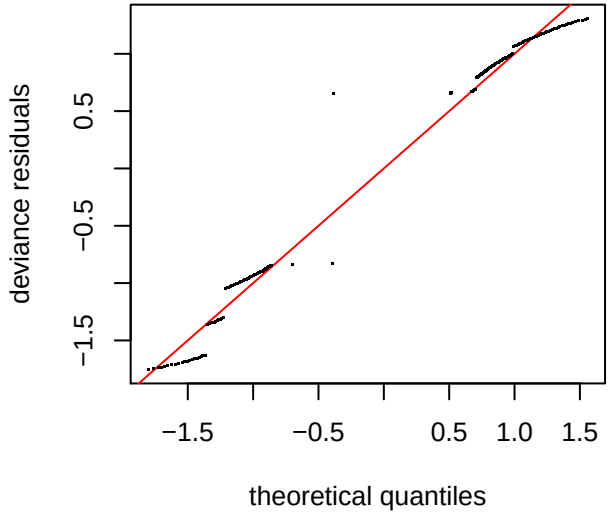

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
−3
−2
−1
0
1
2
3
−2.0
−1.0
0.0
1.0

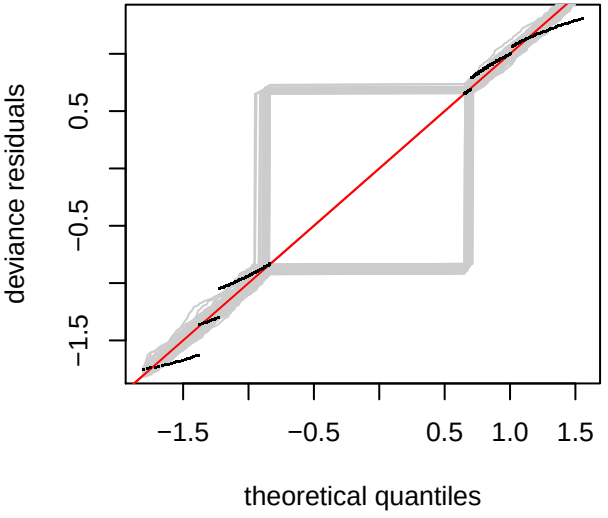

deviance residuals
theoretical quantiles
−2
−1
0
1
2
3
−2.0
−1.0
0.0
1.0

help("qq.gam")

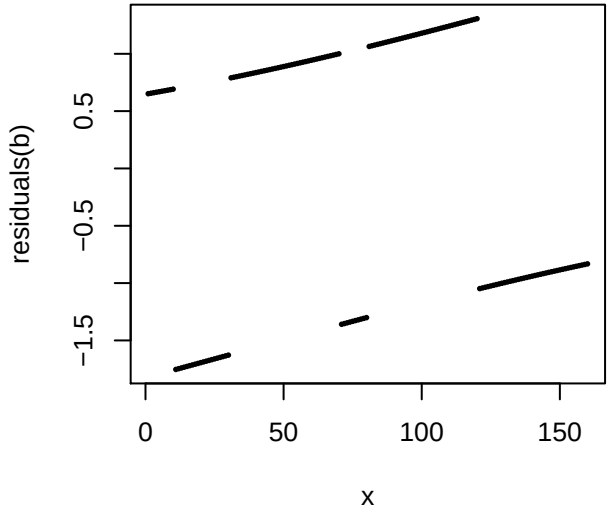

deviance residuals
theoretical quantiles
−2
−1
0
1
2
3

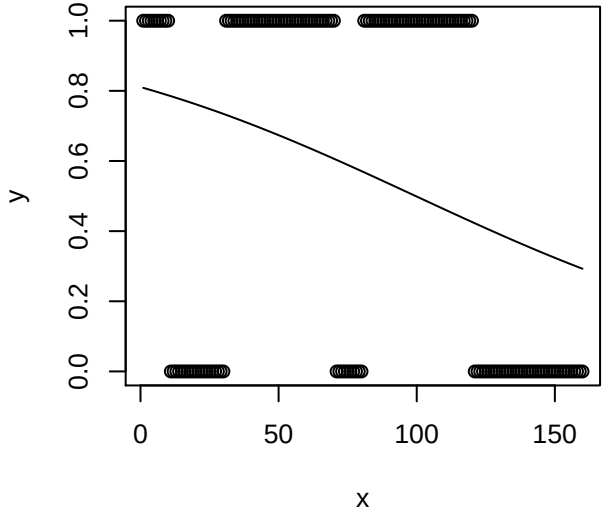

pearson residuals
theoretical quantiles
−1
0
1
2
3
4
−1.5
−0.5
0.5
1.5

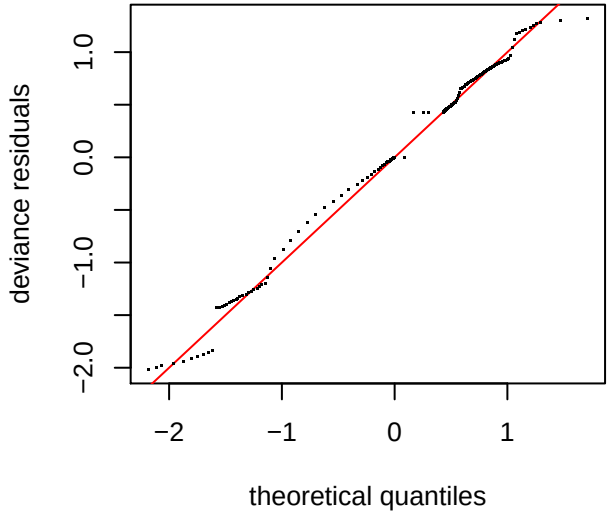

deviance residuals
0.5
−0.5
−1.5
−1.5
−0.5
0.5
1.0
1.5
theoretical quantiles

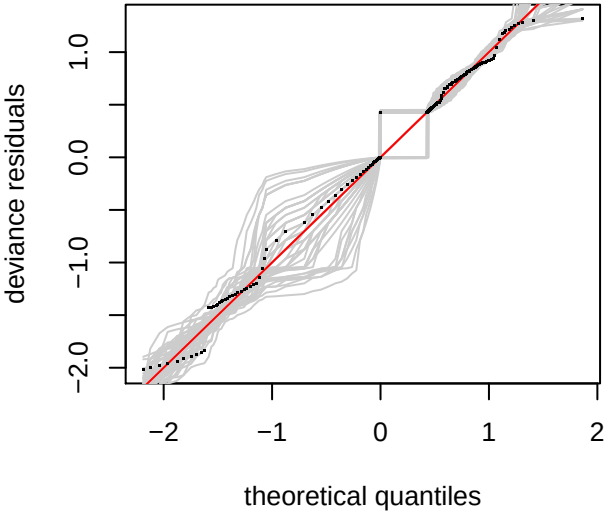

deviance residuals
0.5
−0.5
−1.5
−1.5
−0.5
0.5
1.0
1.5
theoretical quantiles

help("qq.gam")

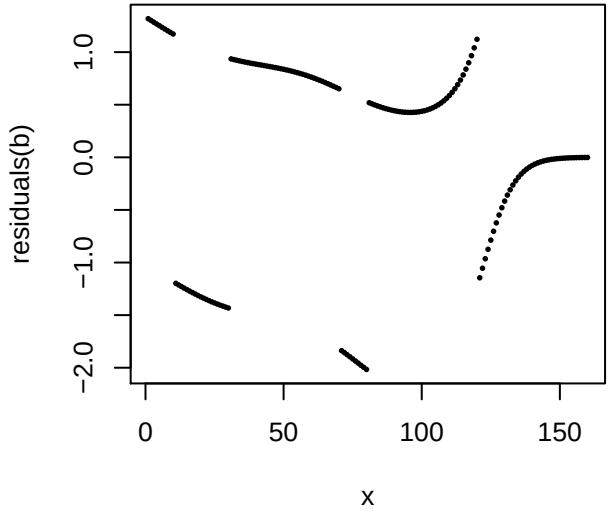

residuals(b)
0.5
−0.5
−1.5
0
50
100
150
x

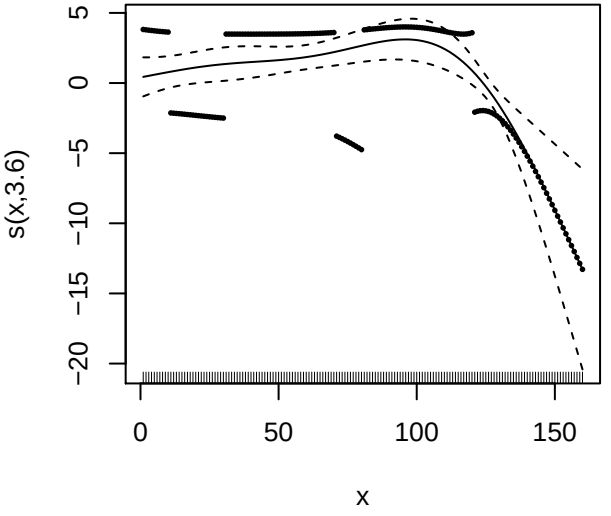

y
1.0
0.8
0.6
0.4
0.2
0.0
0
50
100
150
x


deviance residuals
1.0
0.0
−1.0
−2.0
−2
−1
0
1
theoretical quantiles

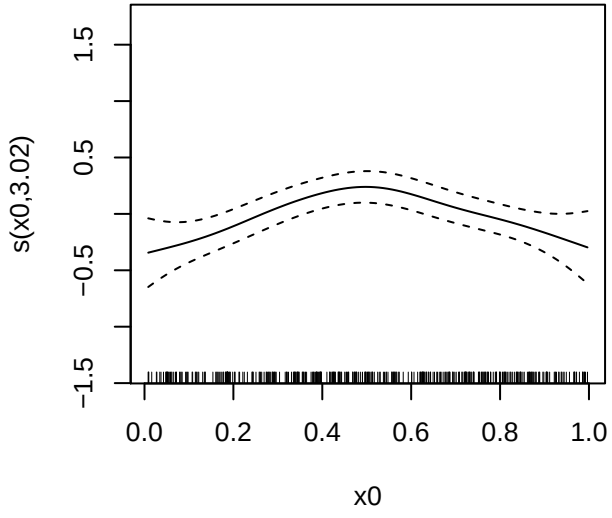

deviance residuals
1.0
0.0
−1.0
−2.0
−2
−1
0
1
2
theoretical quantiles

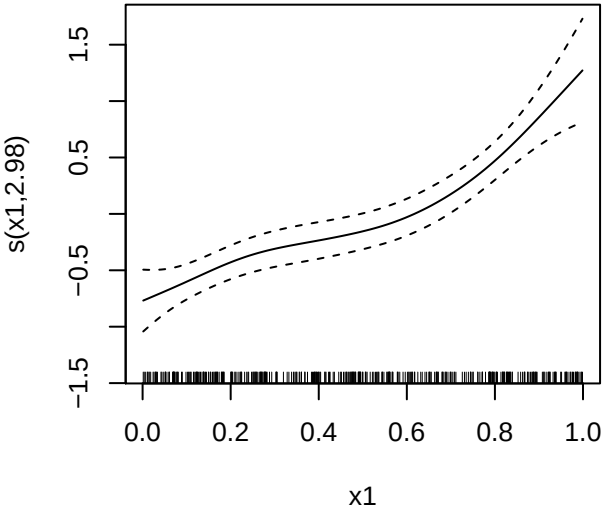
help("qq.gam")


residuals(b)
1.0
0.0
−1.0
−2.0
0
50
100
150
x

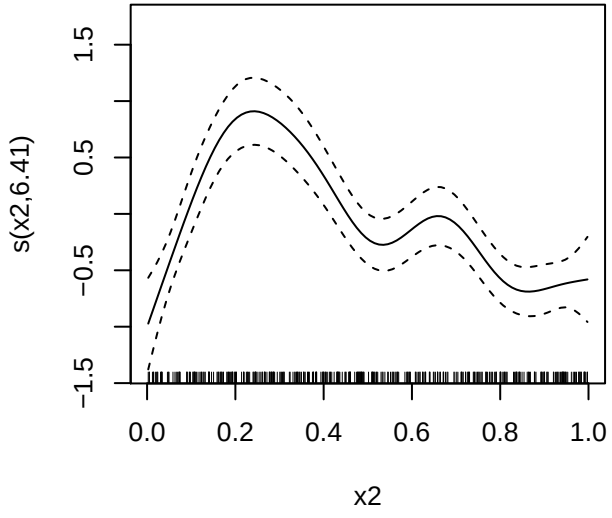

s(x,3.6)
5
0
−5
−10
−15
−20
0
50
100
150
x

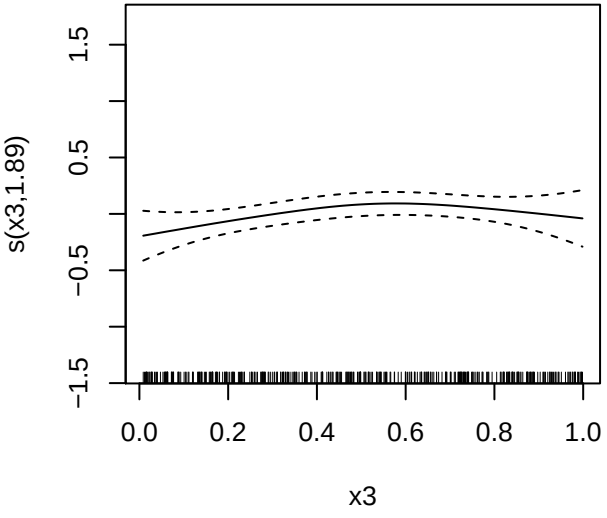
help("rTweedie")

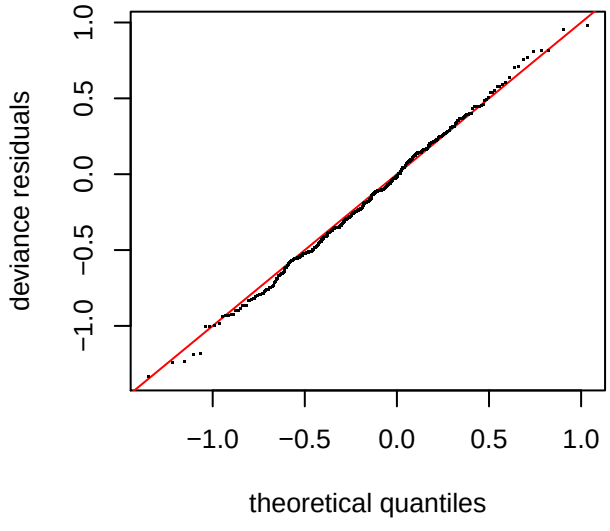

s(x0,3.02)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x0

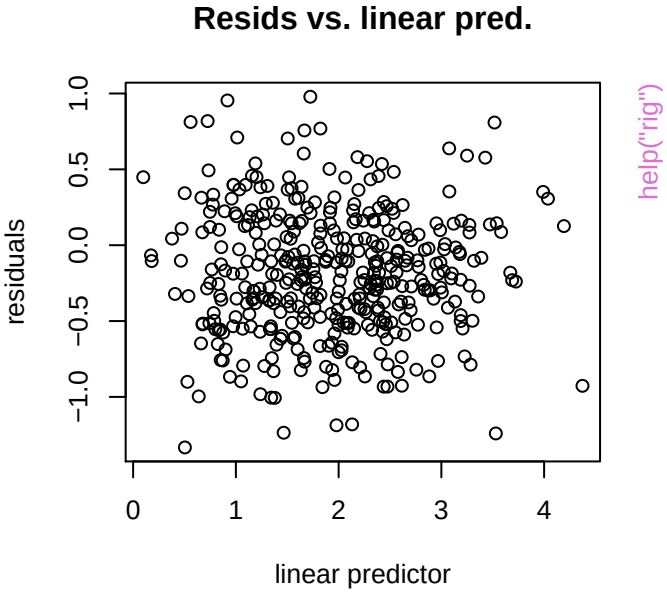

s(x1,2.98)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x1

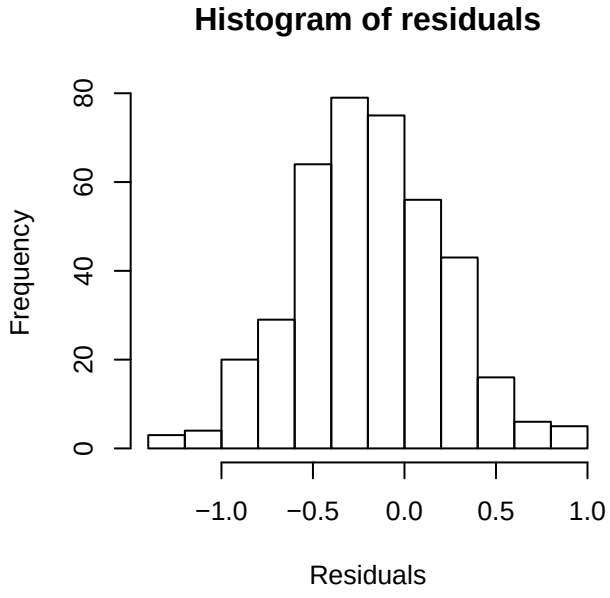
help("rig")

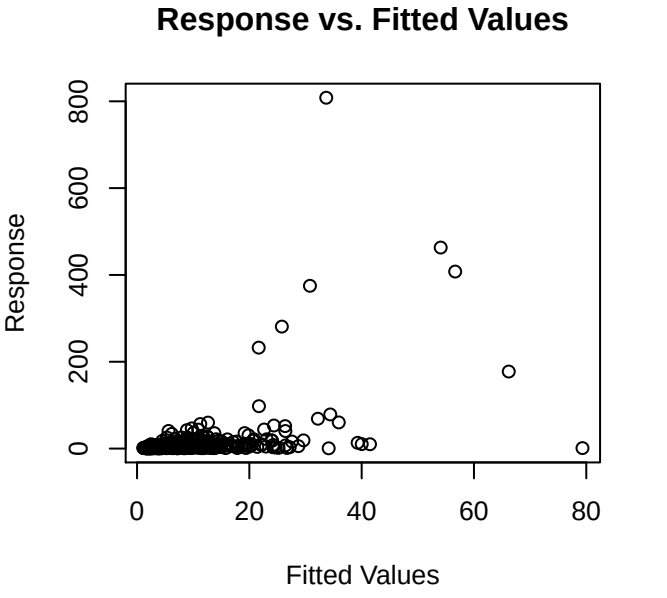

s(x2,6.41)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x2

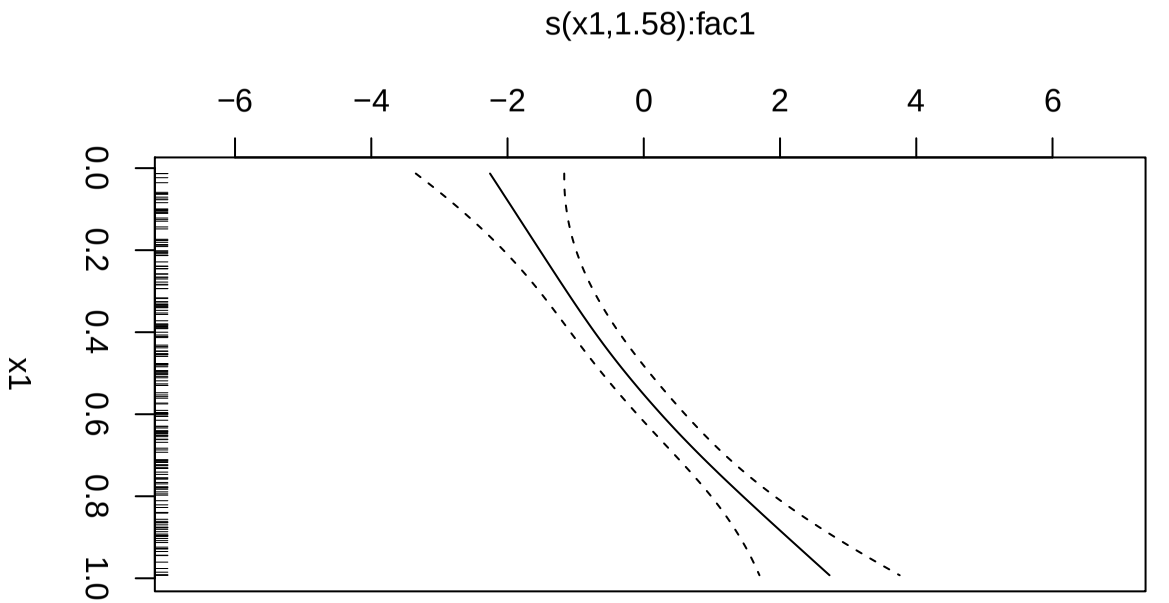

s(x3,1.89)
1.5
0.5
−0.5
−1.5
0.0
0.2
0.4
0.6
0.8
1.0
x3

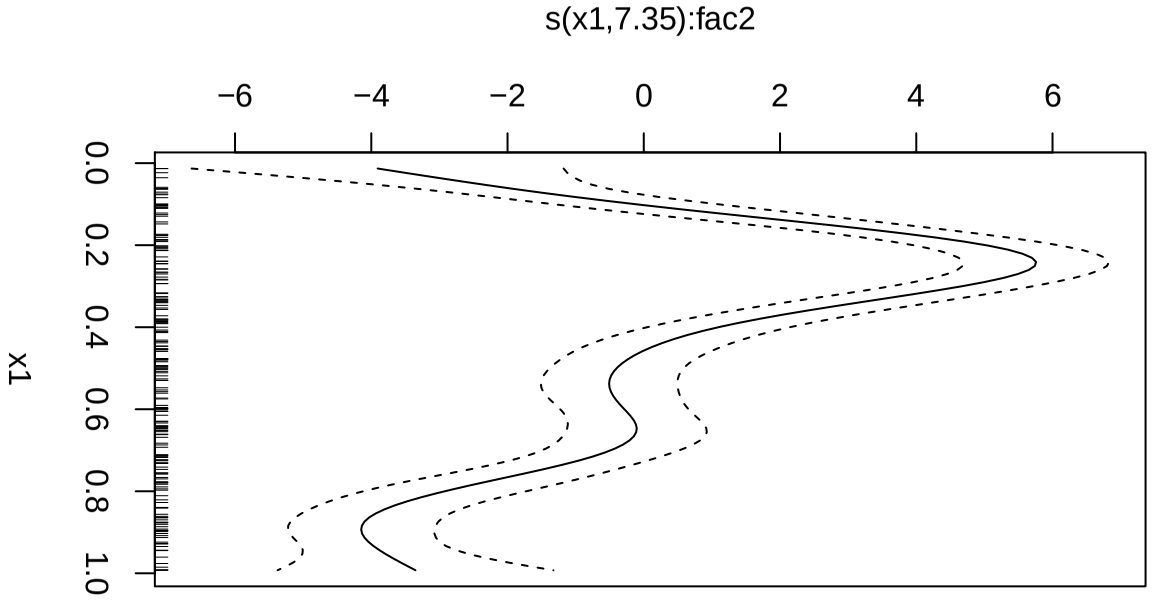

deviance residuals
1.0
0.5
0.0
−0.5
−1.0
−1.0
−0.5
0.0
0.5
1.0
theoretical quantiles


Resids vs. linear pred.
residuals
1.0
0.5
0.0
−0.5
−1.0
0
1
2
3
4
linear predictor
help("rig")

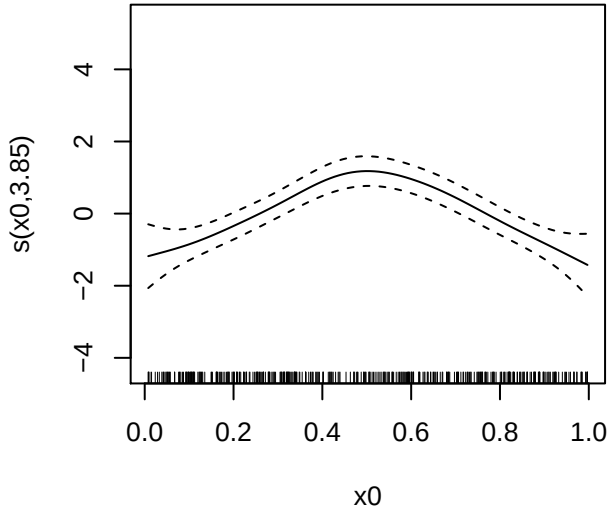

Histogram of residuals
Frequency
80
60
40
20
0
−1.0
−0.5
0.0
0.5
1.0
Residuals

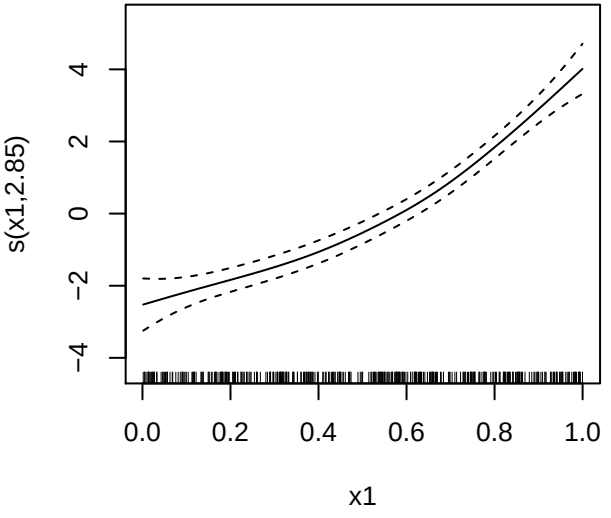

Response vs. Fitted Values
Response
800
600
400
200
0
0
20
40
60
80
Fitted Values

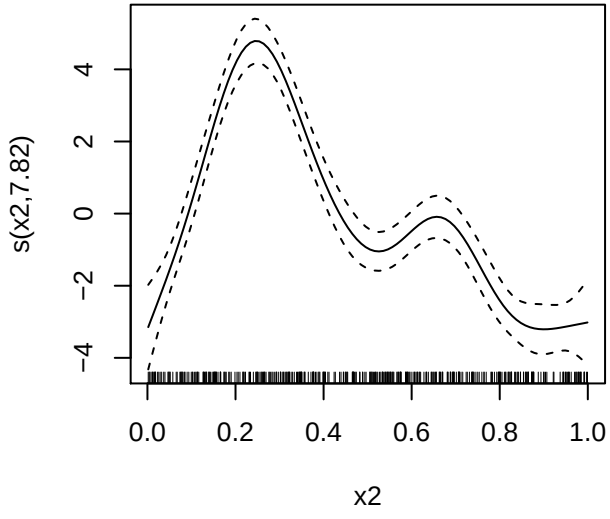

s(x1,1.58):fac1
−6
−4
−2
0
2
4
6
0.0
0.2
0.4
0.6
0.8
1.0
x1

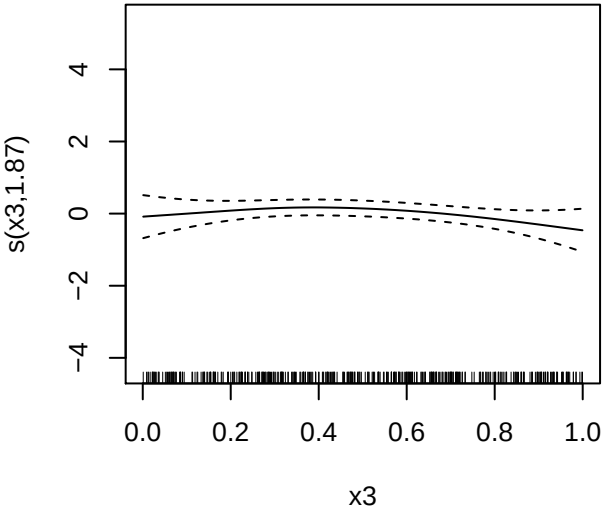

s(x1,7.35):fac2
−6
−4
−2
0
2
4
6
0.0
0.2
0.4
0.6
0.8
1.0
x1

help("s")

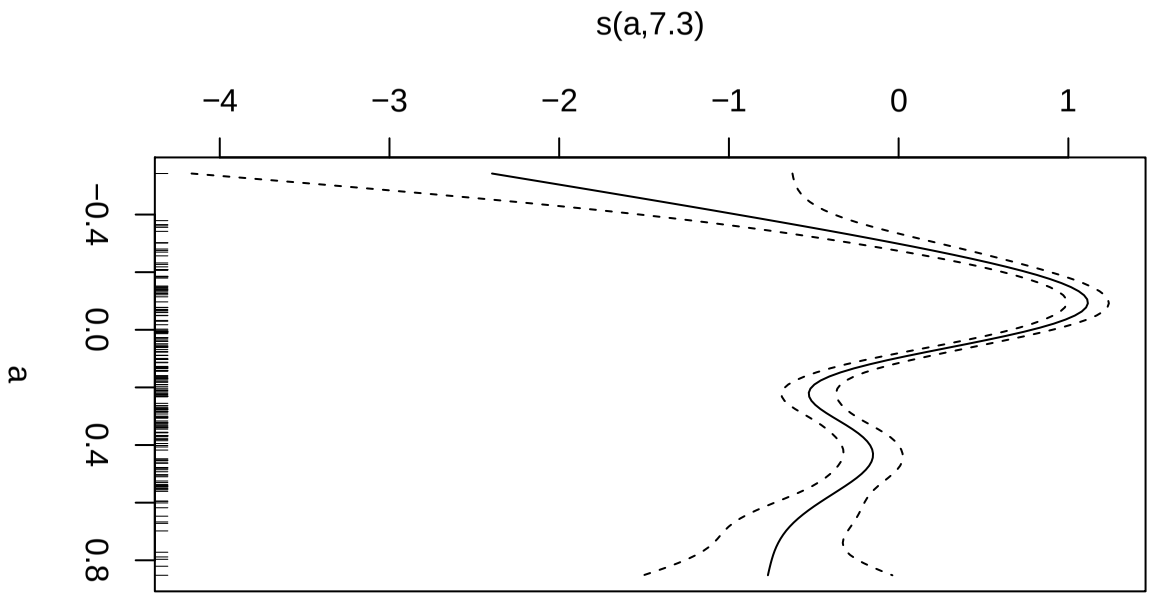

s(x0,3.85)
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x0

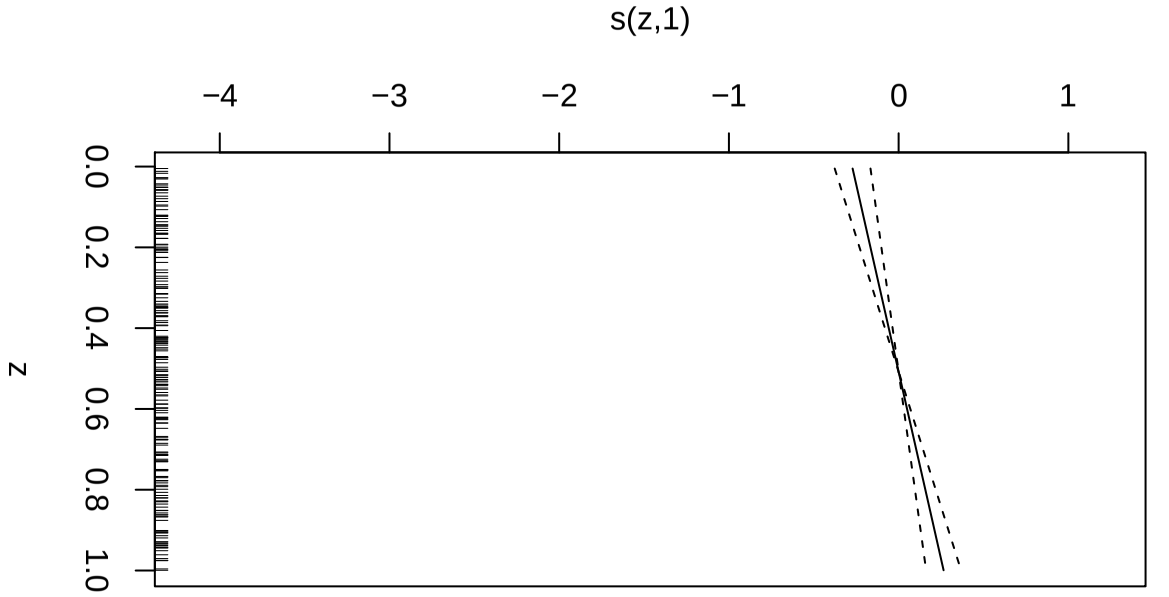

s(x1,2.85)
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x1

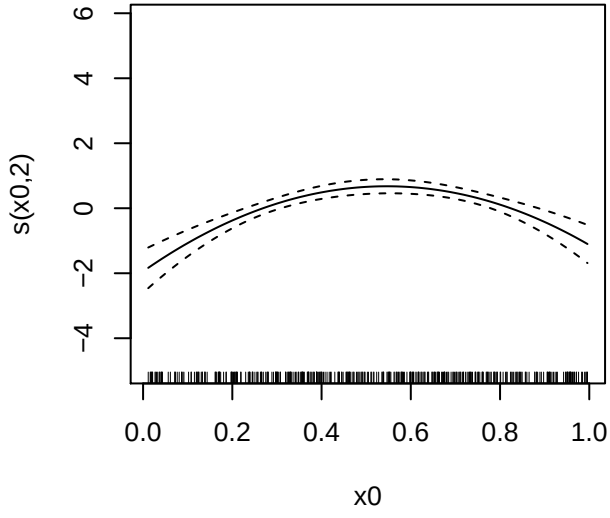

s(x2,7.82)
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x2

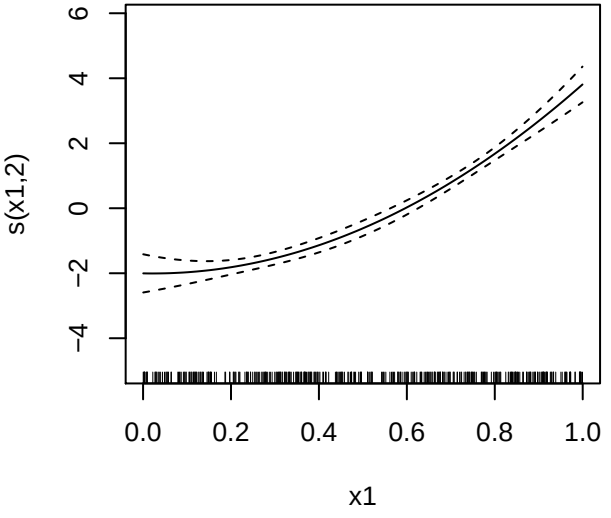

s(x3,1.87)
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x3

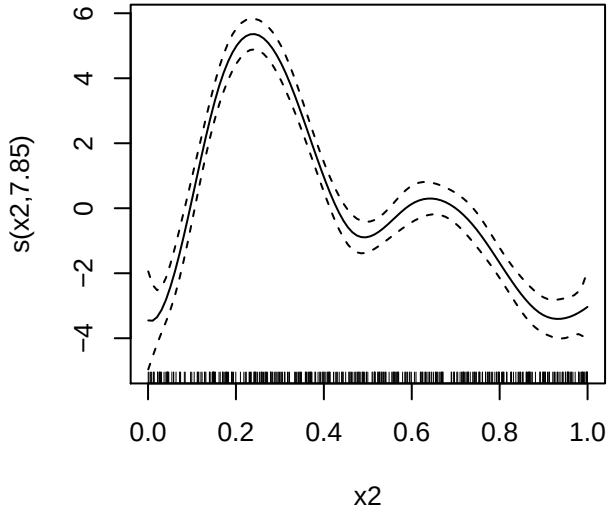
help("scat")

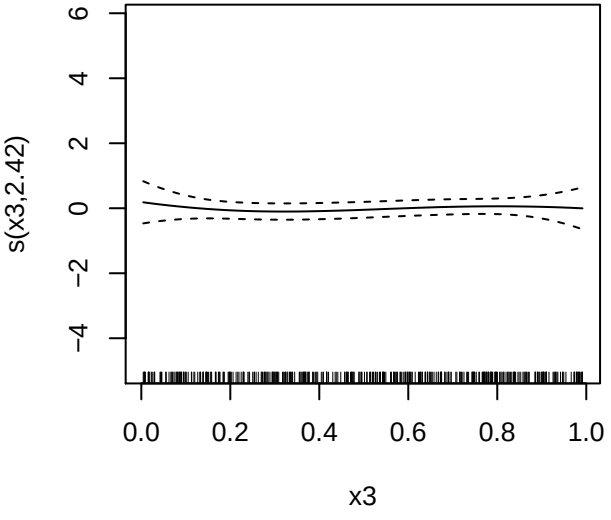

s(a,7.3)
−4
−3
−2
−1
0
1
−0.4
0.0
0.4
0.8
a


s(z,1)
−4
−3
−2
−1
0
1
0.0
0.2
0.4
0.6
0.8
1.0
z

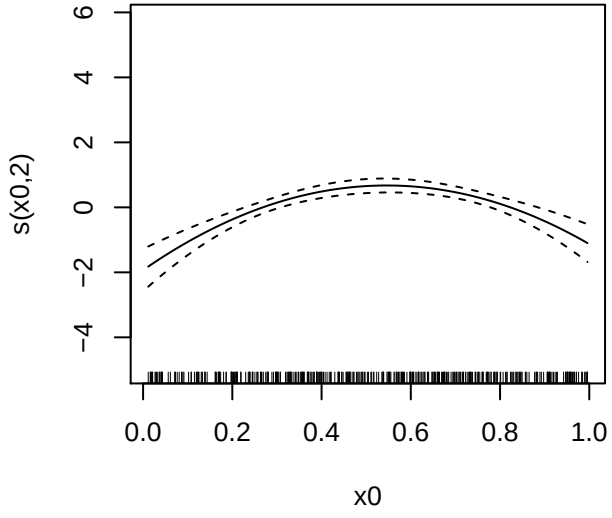


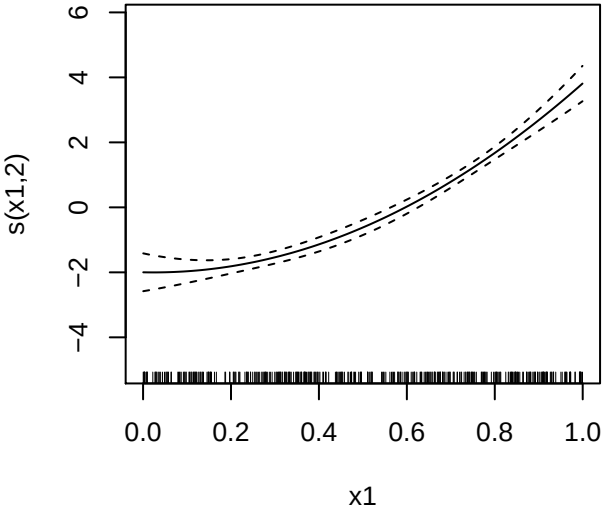


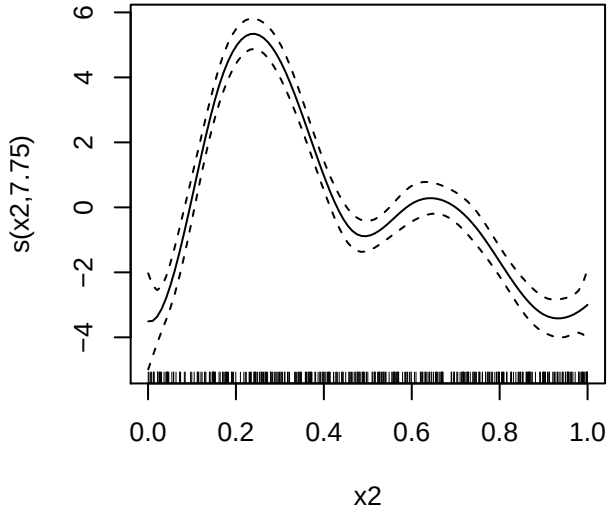


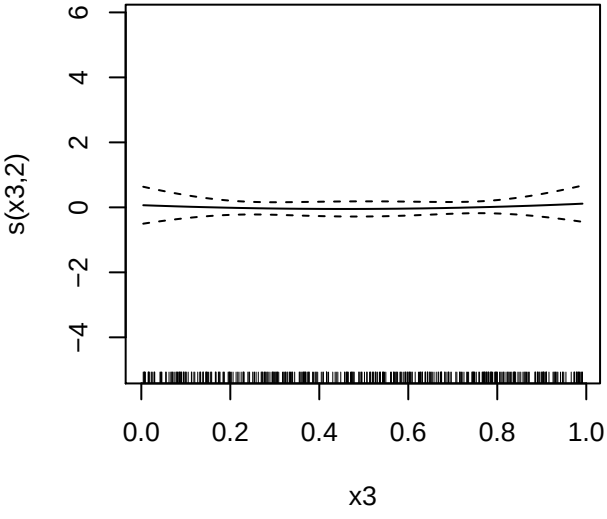


help("smooth.construct")



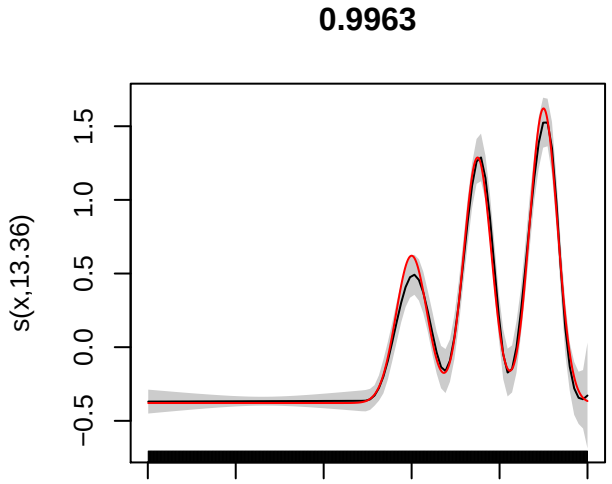


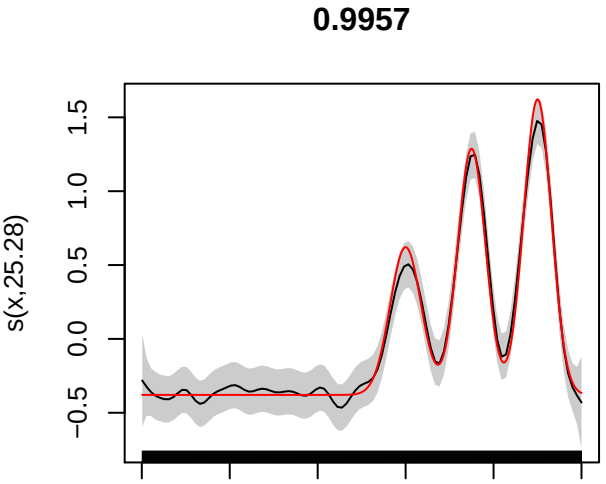


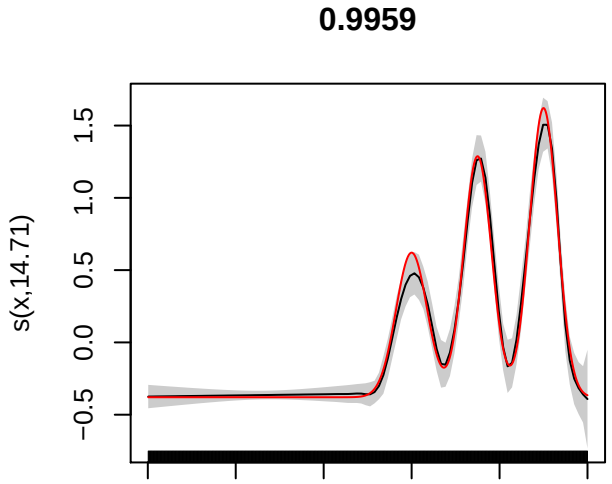


help("smooth.construct")

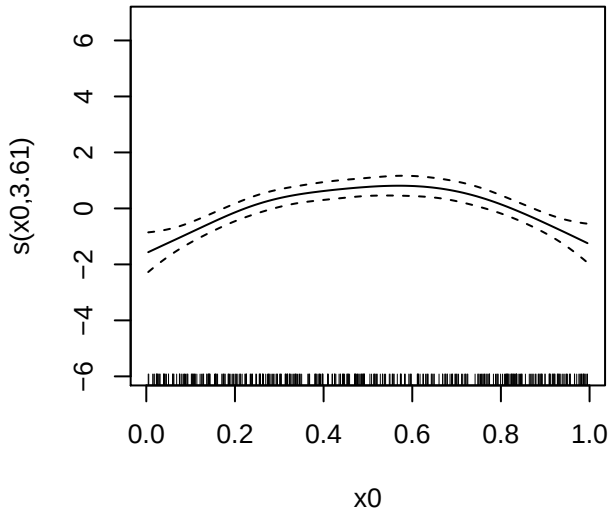
help("smooth.construct")

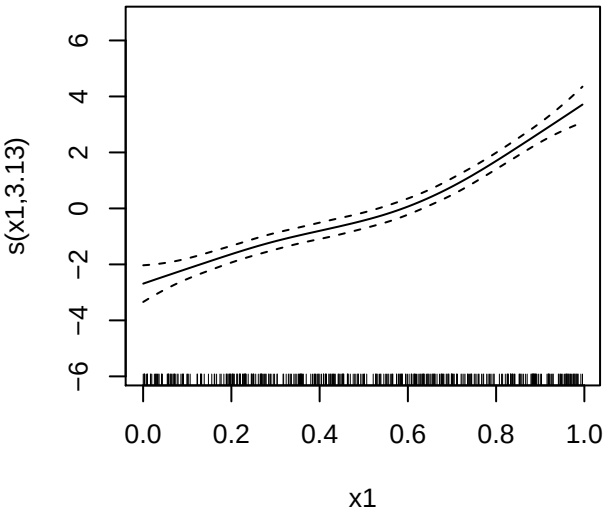


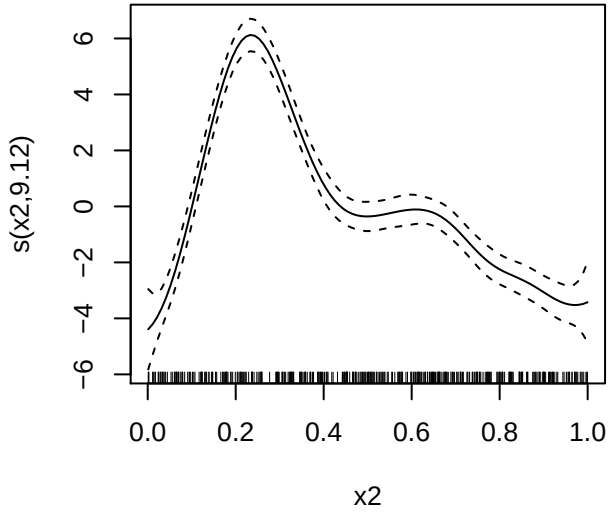


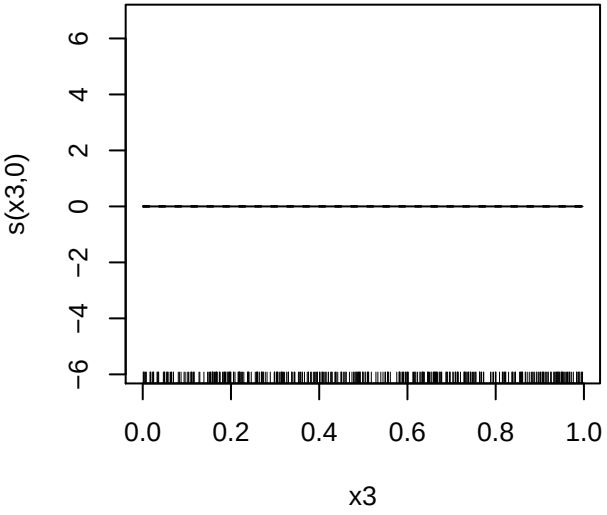


help("smooth.construct.ad.smooth.spec")

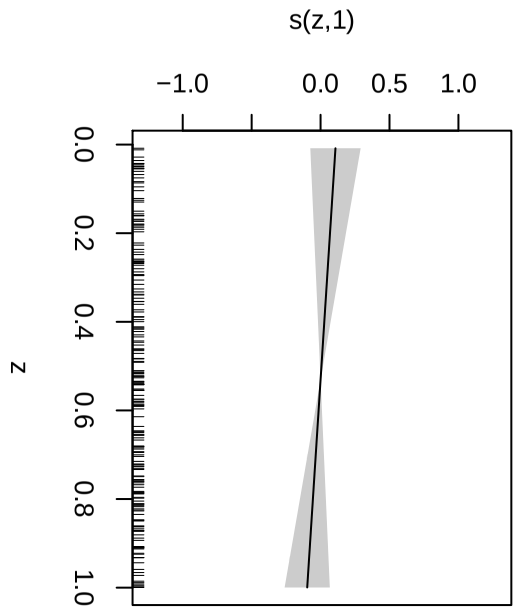


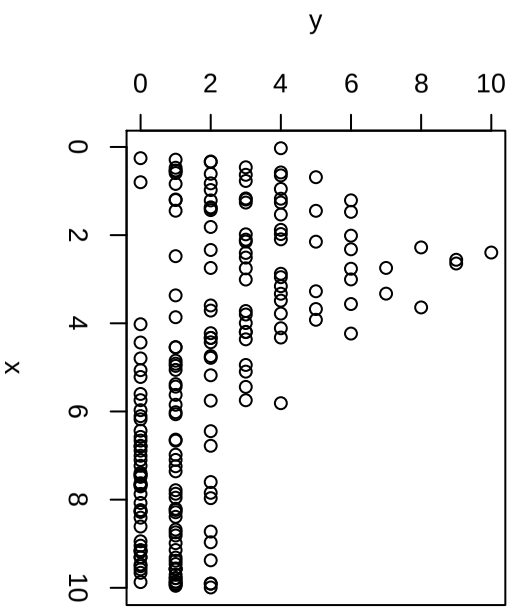


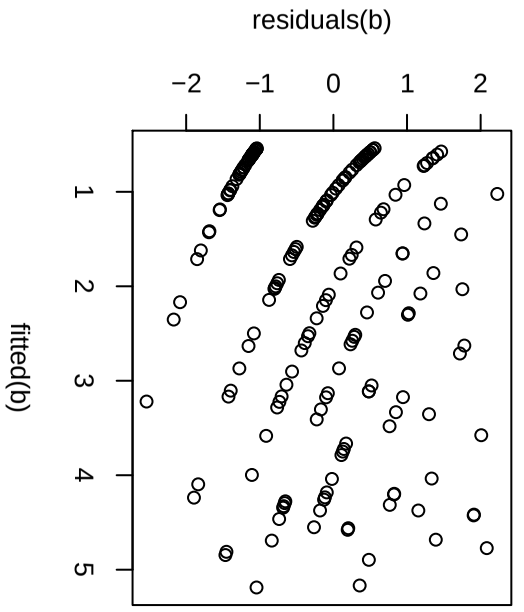


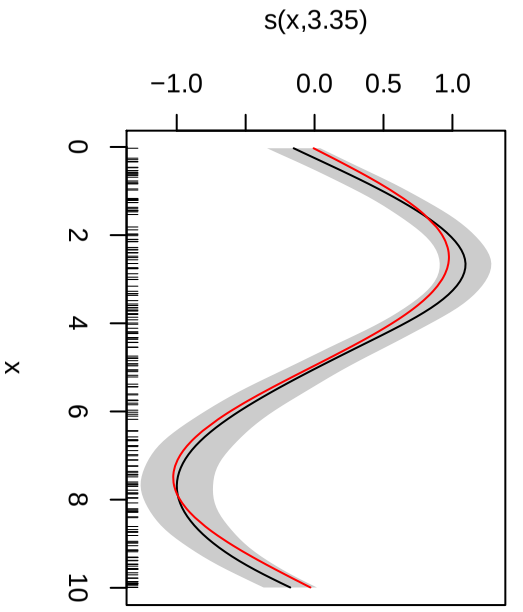


help("smooth.construct.bs.smooth.spec")

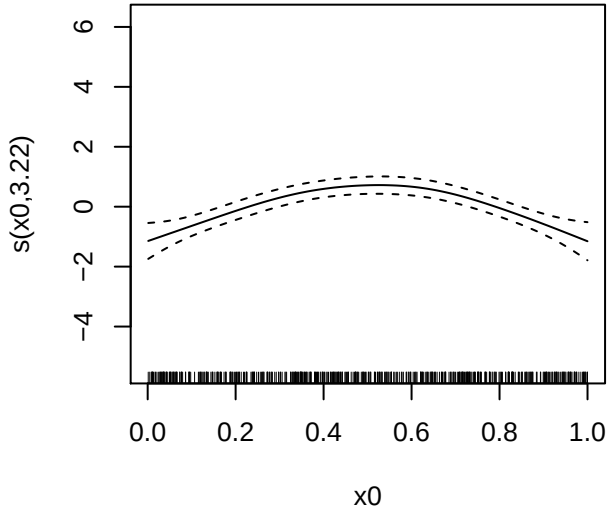

s(z,1)
−1.0
0.0
0.5
1.0
z
0.0
0.2
0.4
0.6
0.8
1.0

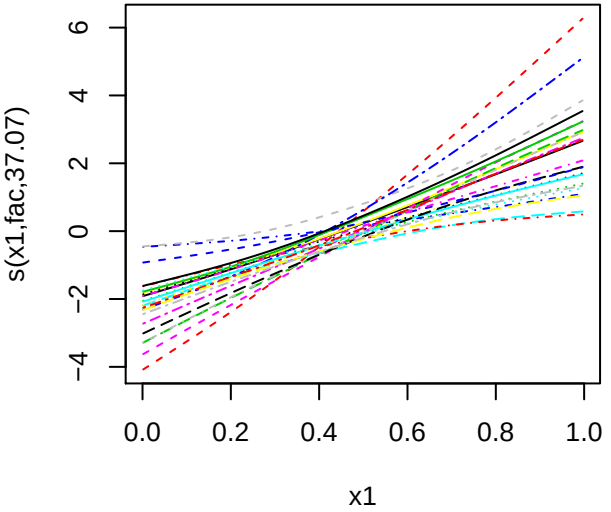

y
0
2
4
6
8
10
x
0
2
4
6
8
10

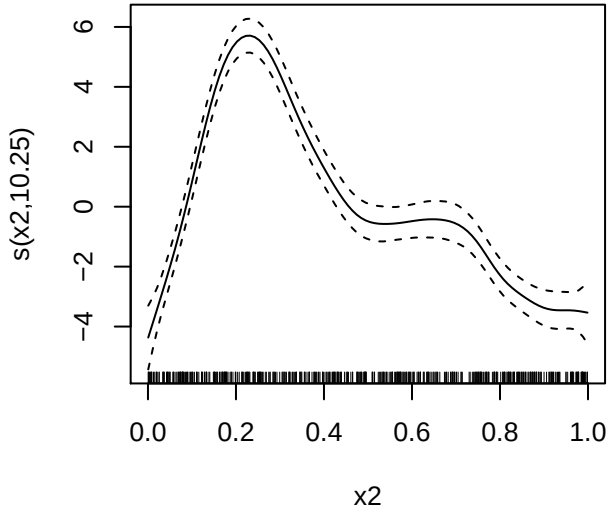

residuals(b)
−2
−1
0
1
2
fitted(b)
1
2
3
4
5


s(x,3.35)
−1.0
0.0
0.5
1.0
x
0
2
4
6
8
10

help("smooth.construct.ds.smooth.spec")

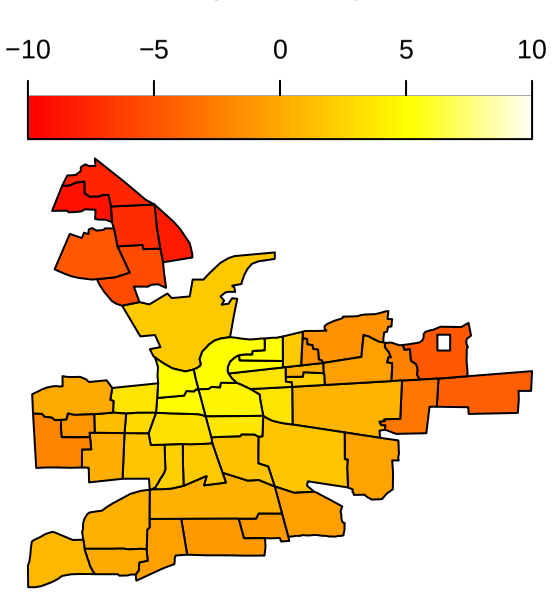


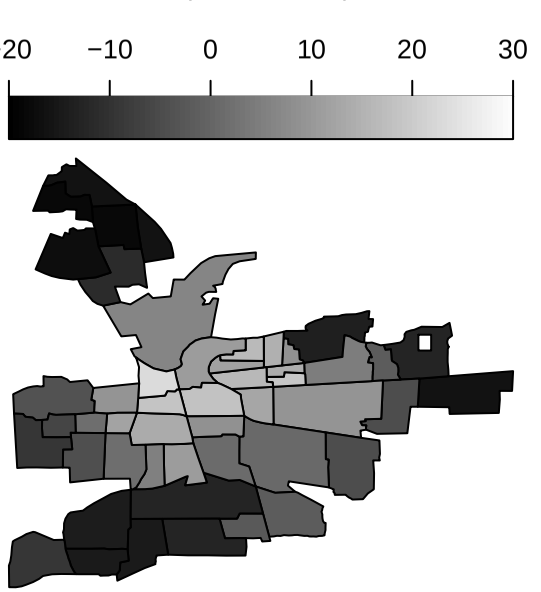


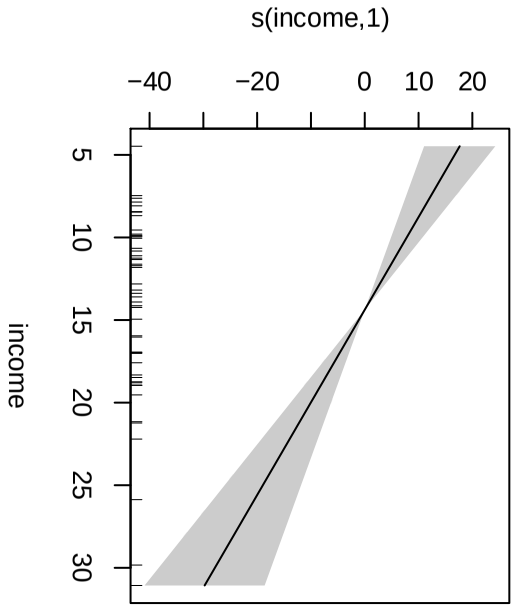


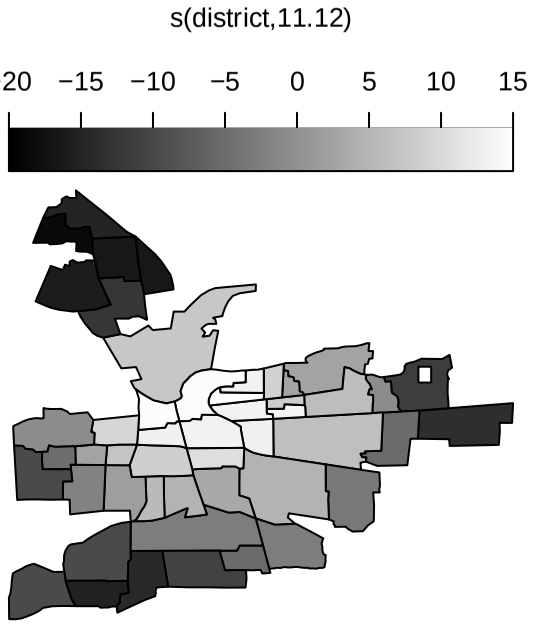
help("smooth.construct.fs.smooth.spec")

help("smooth.construct.gp.smooth.spec")

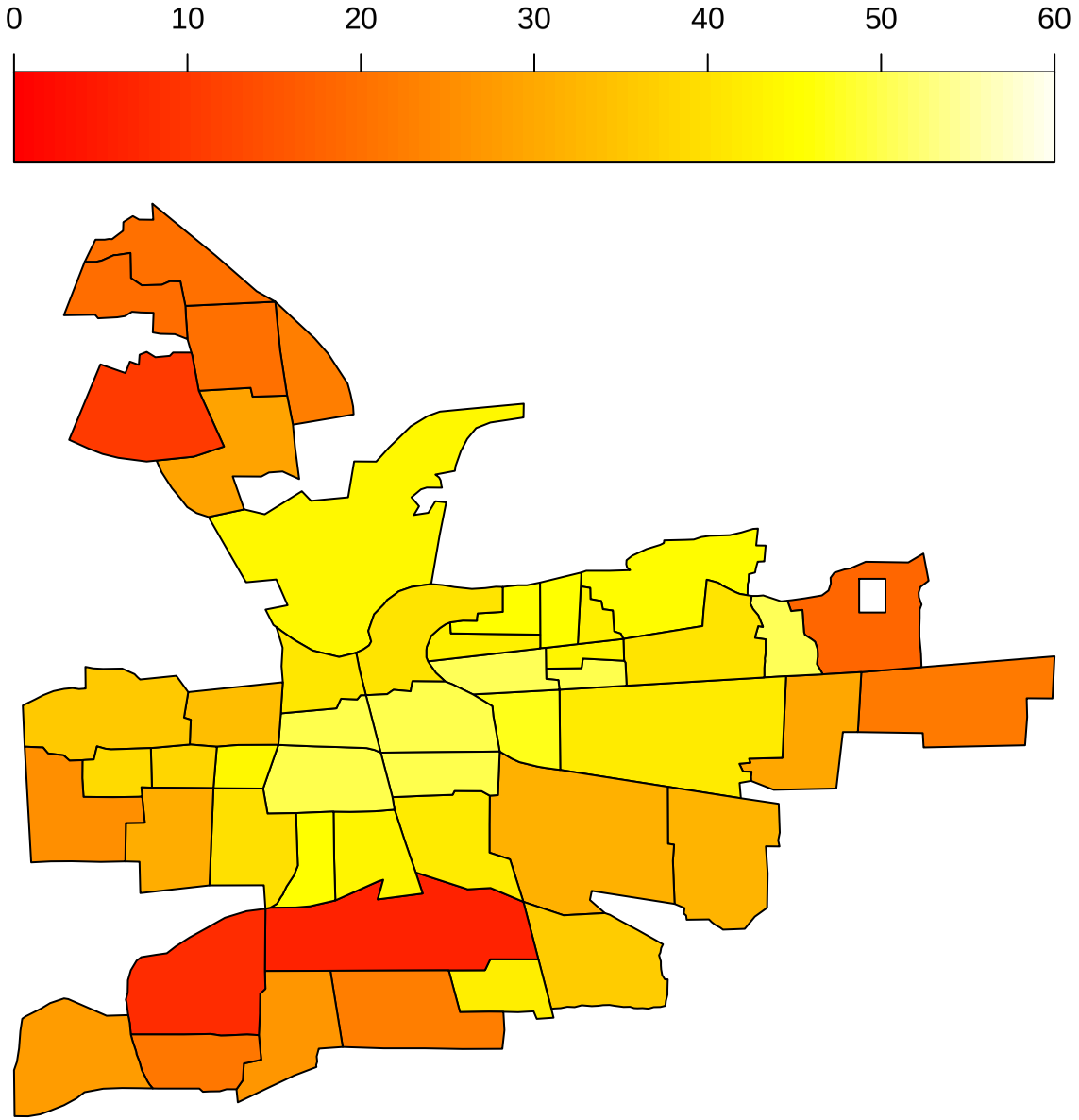




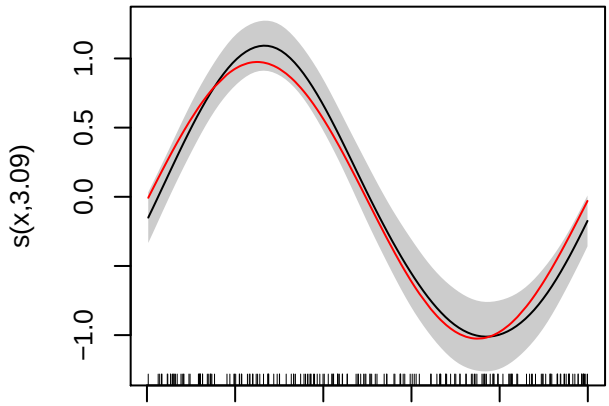


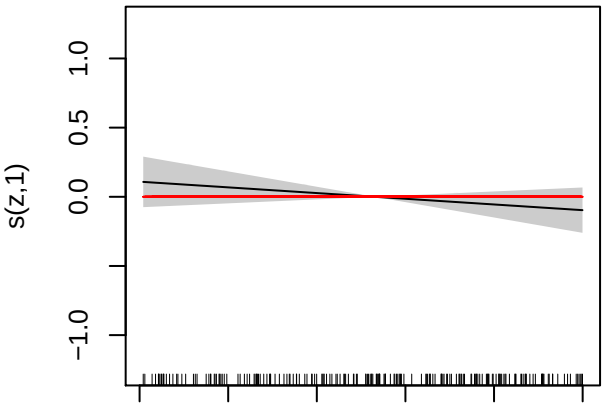


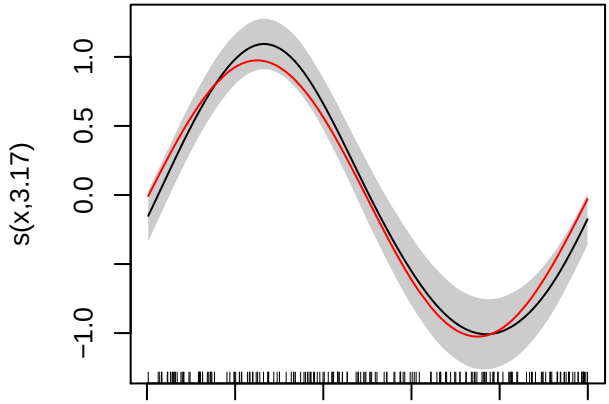
help("smooth.construct.mrf.smooth.spec")

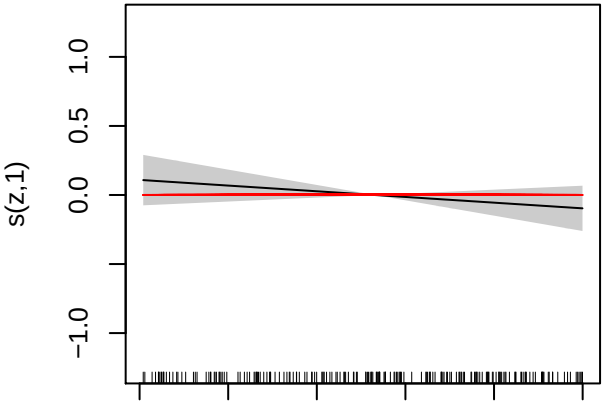


help("smooth.construct.mrf.smooth.spec")

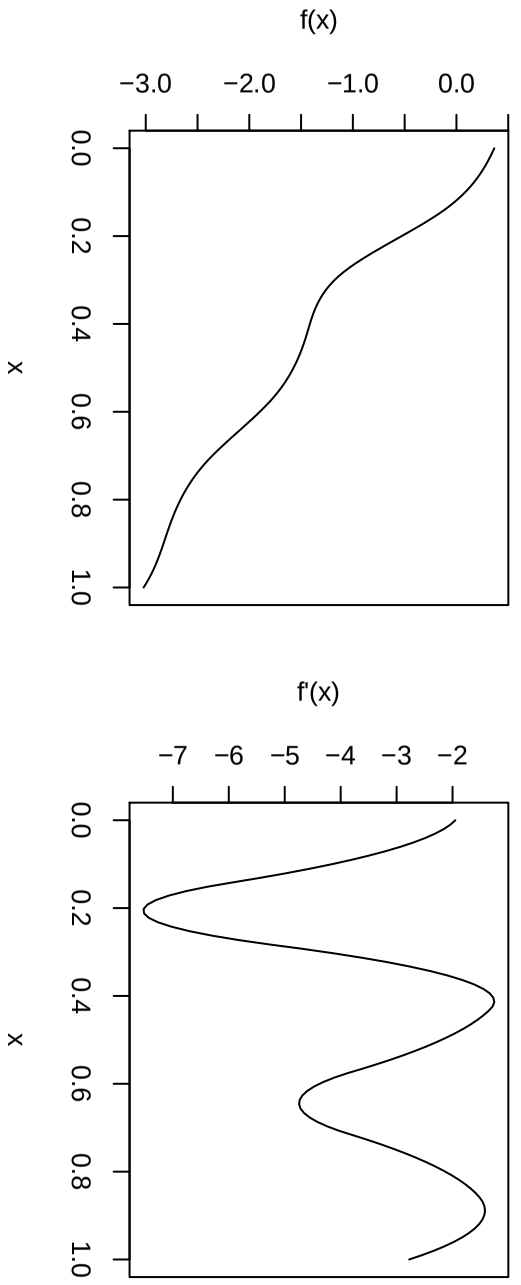


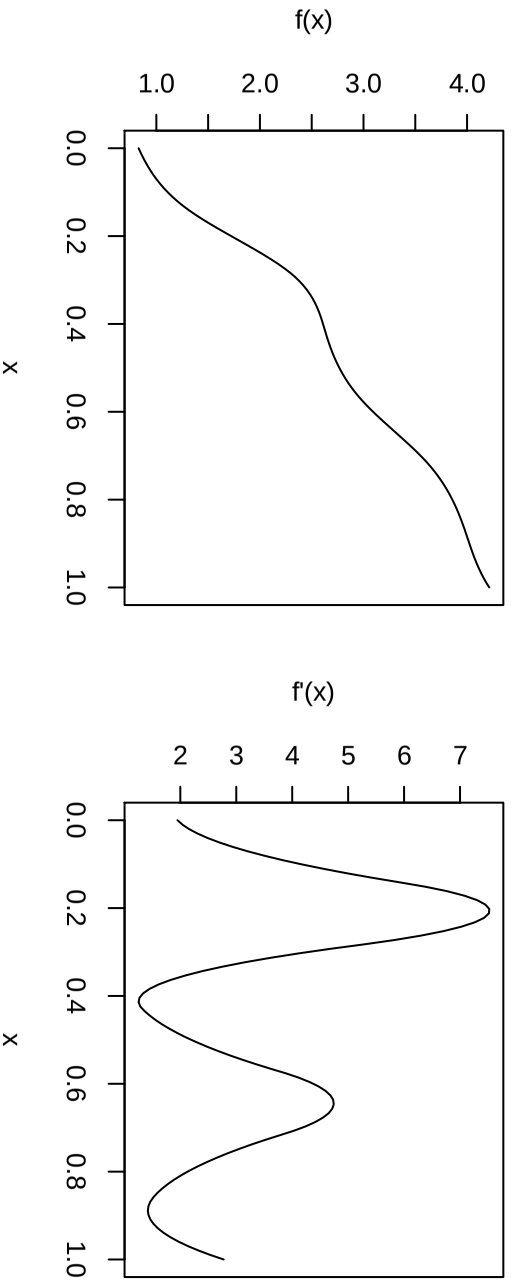




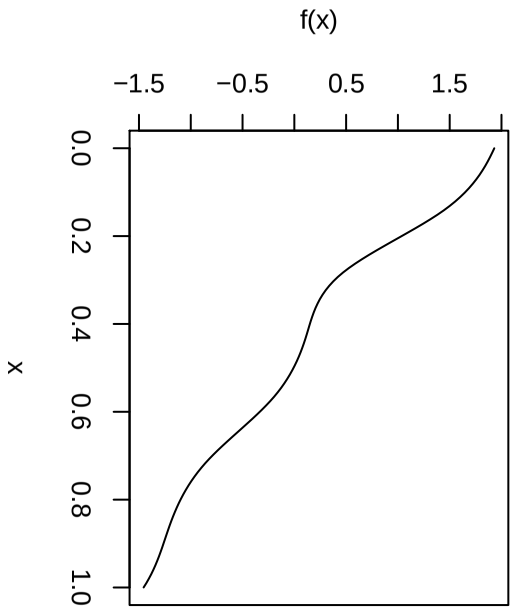


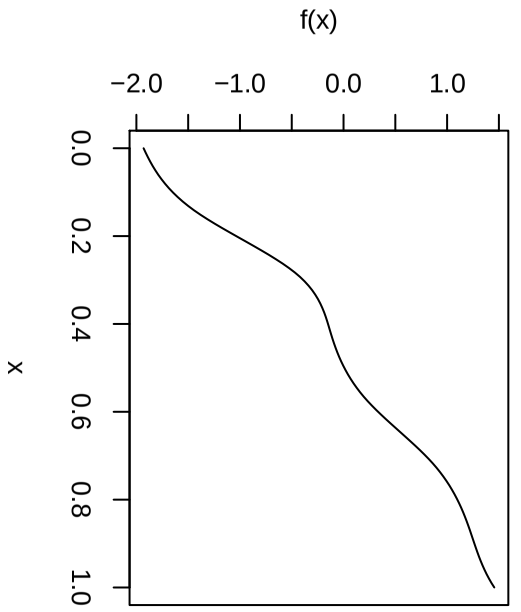
help("smooth.construct.ps.smooth.spec")

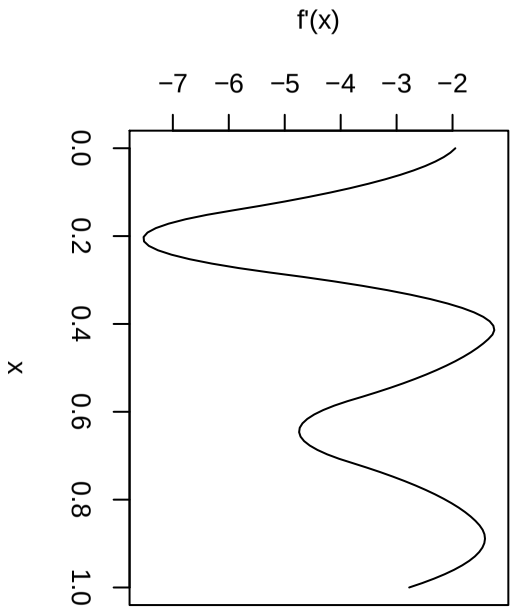


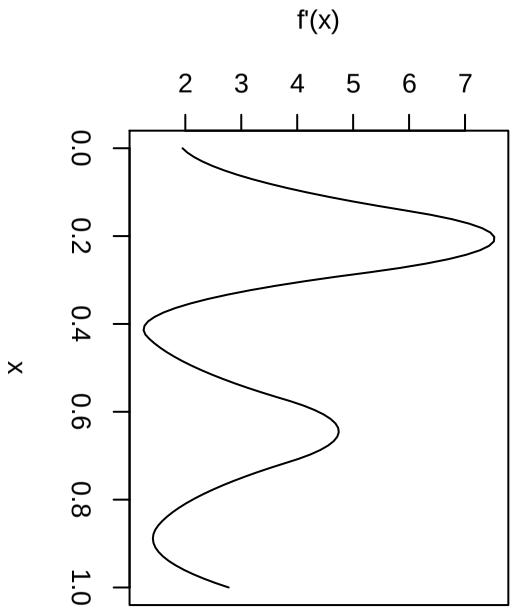


help("smooth.construct.ps.smooth.spec")

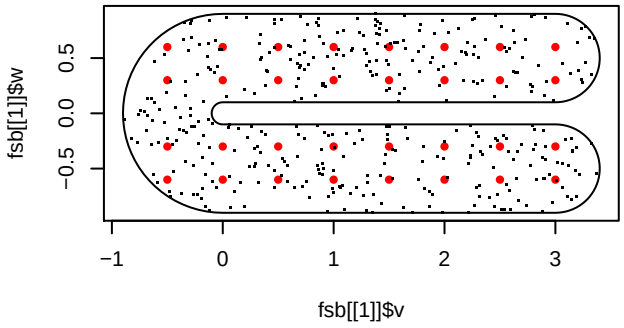


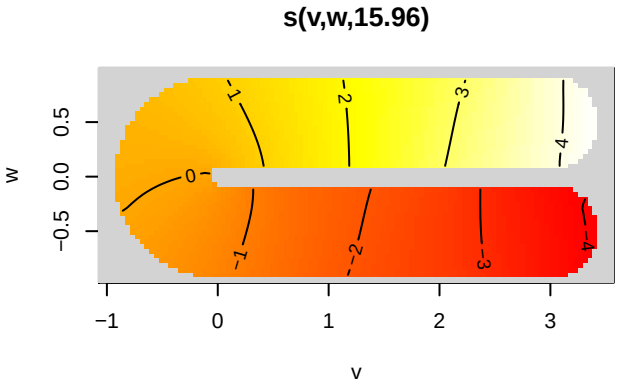


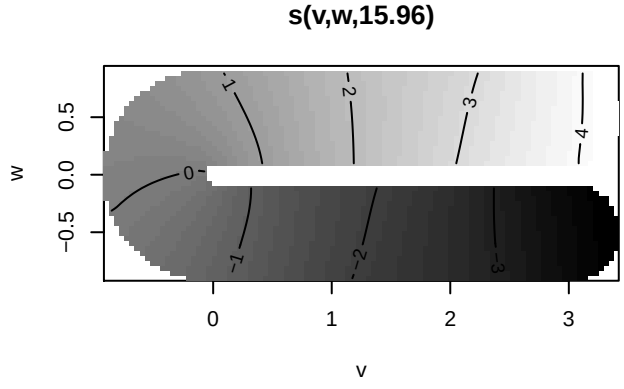


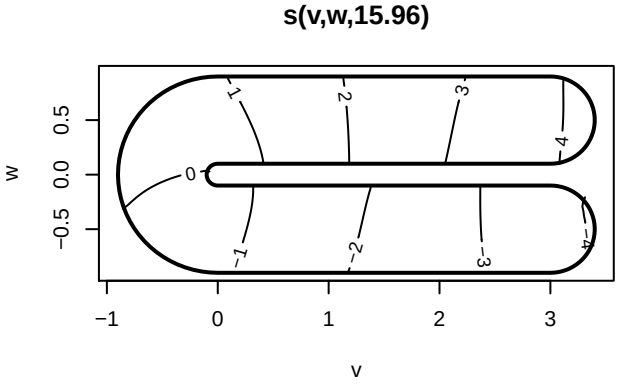


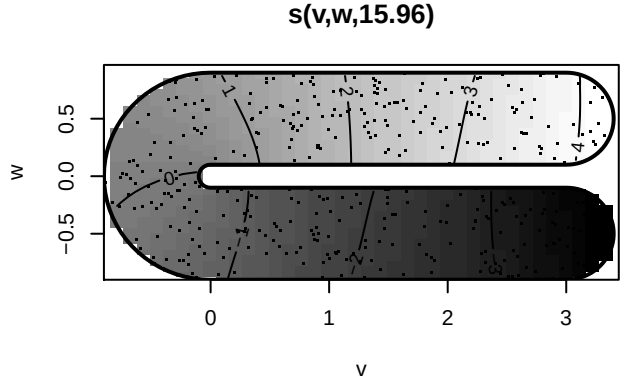
help("smooth.construct.ps.smooth.spec")

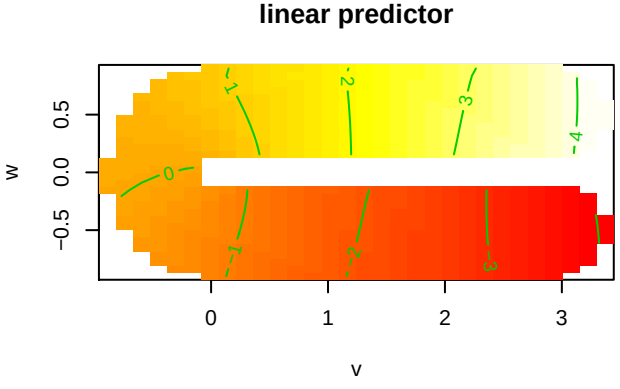




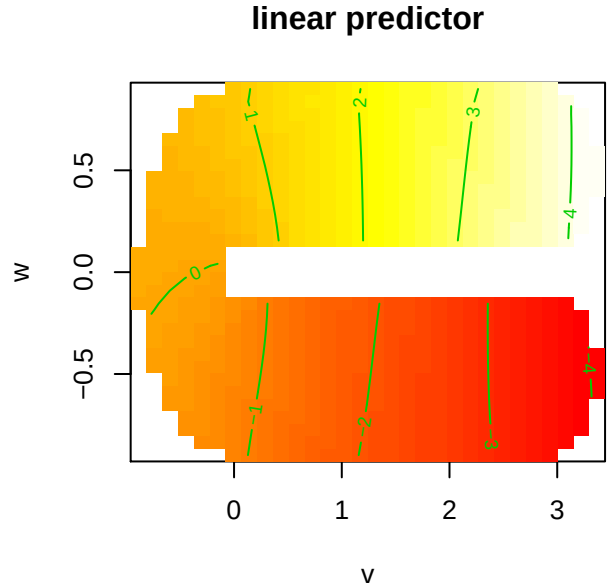


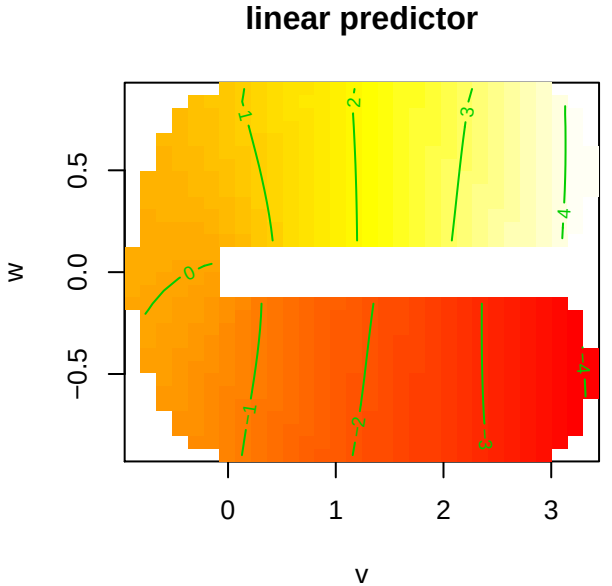


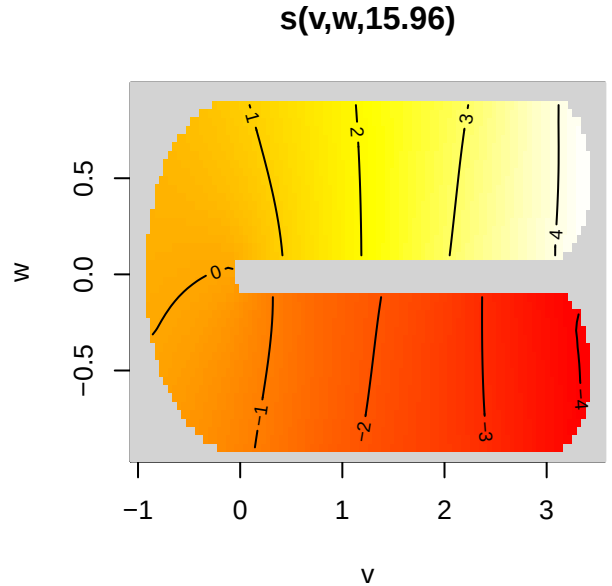


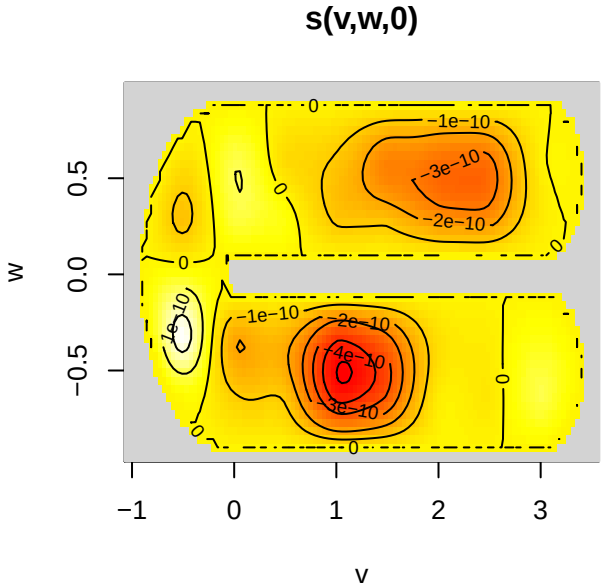


help("smooth.construct.so.smooth.spec")



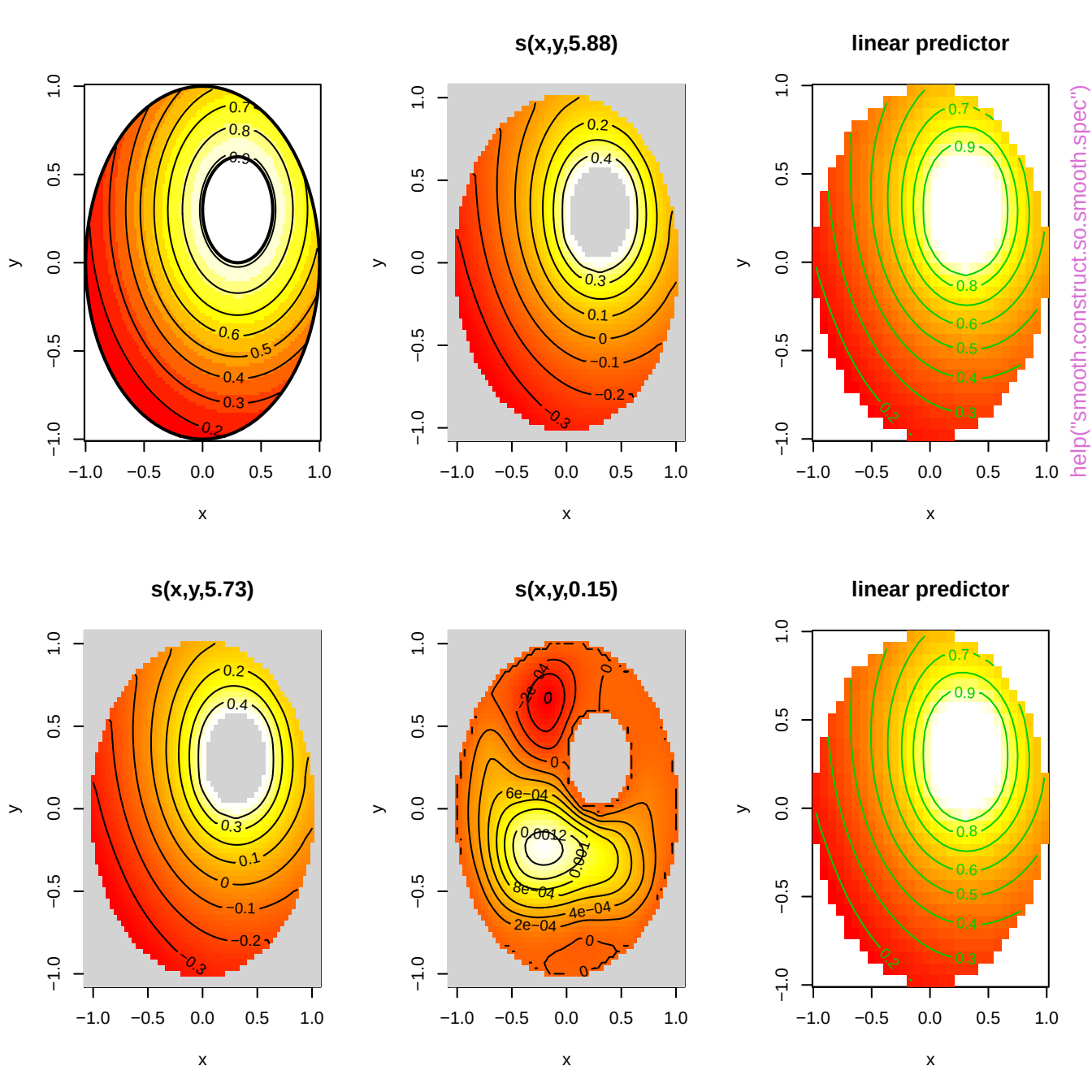


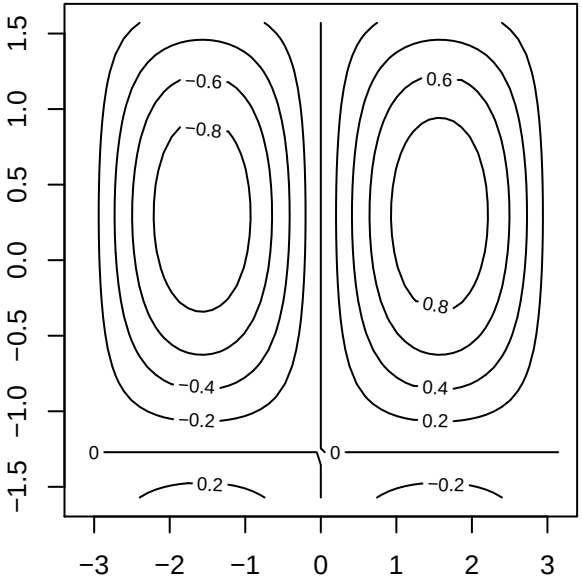


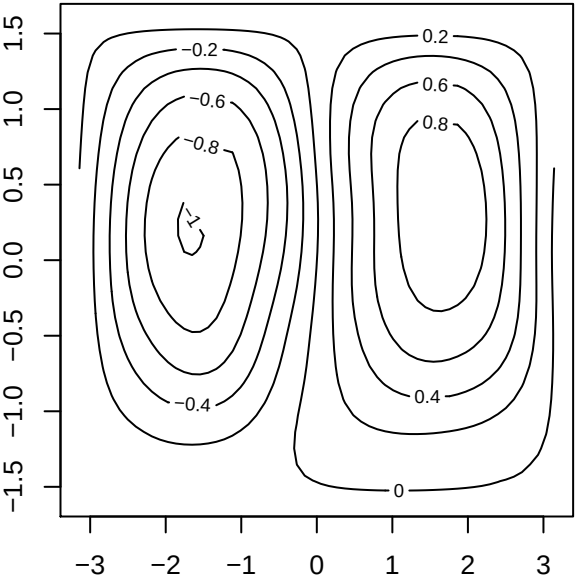


help("smooth.construct.so.smooth.spec")

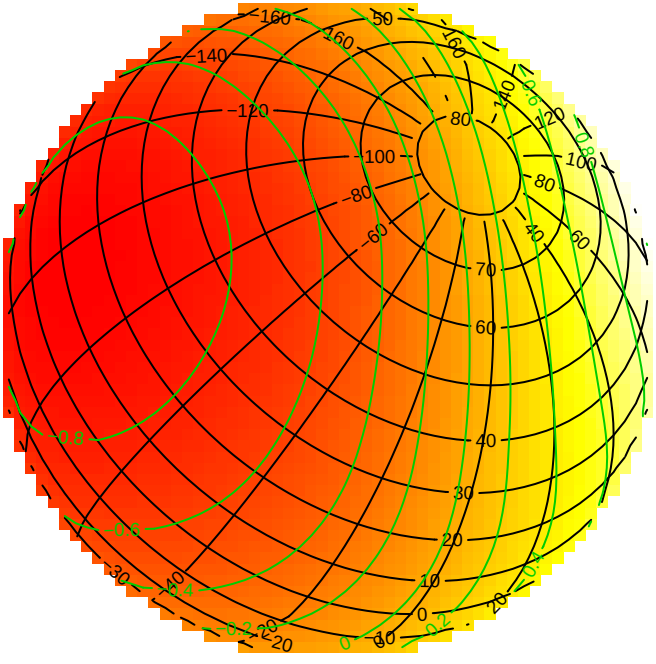
help("smooth.construct.so.smooth.spec")

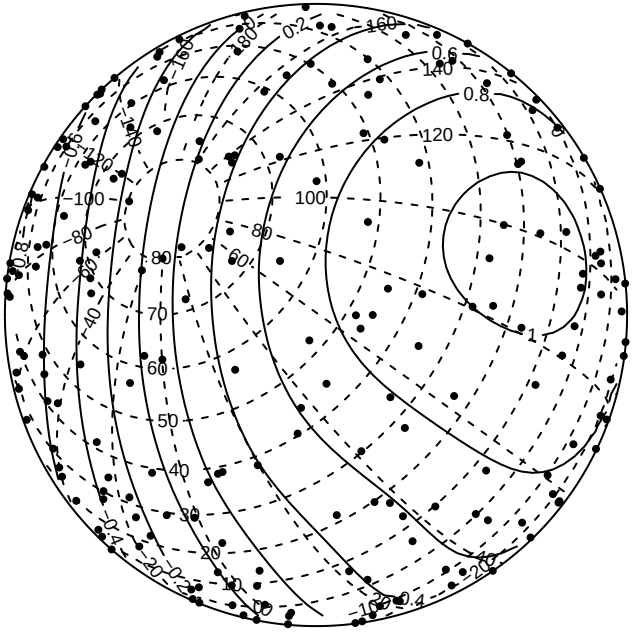

s(x,y,5.88)
linear predictor
s(x,y,5.73)
s(x,y,0.15)
linear predictor
x
y
help("smooth.construct.so.smooth.spec")

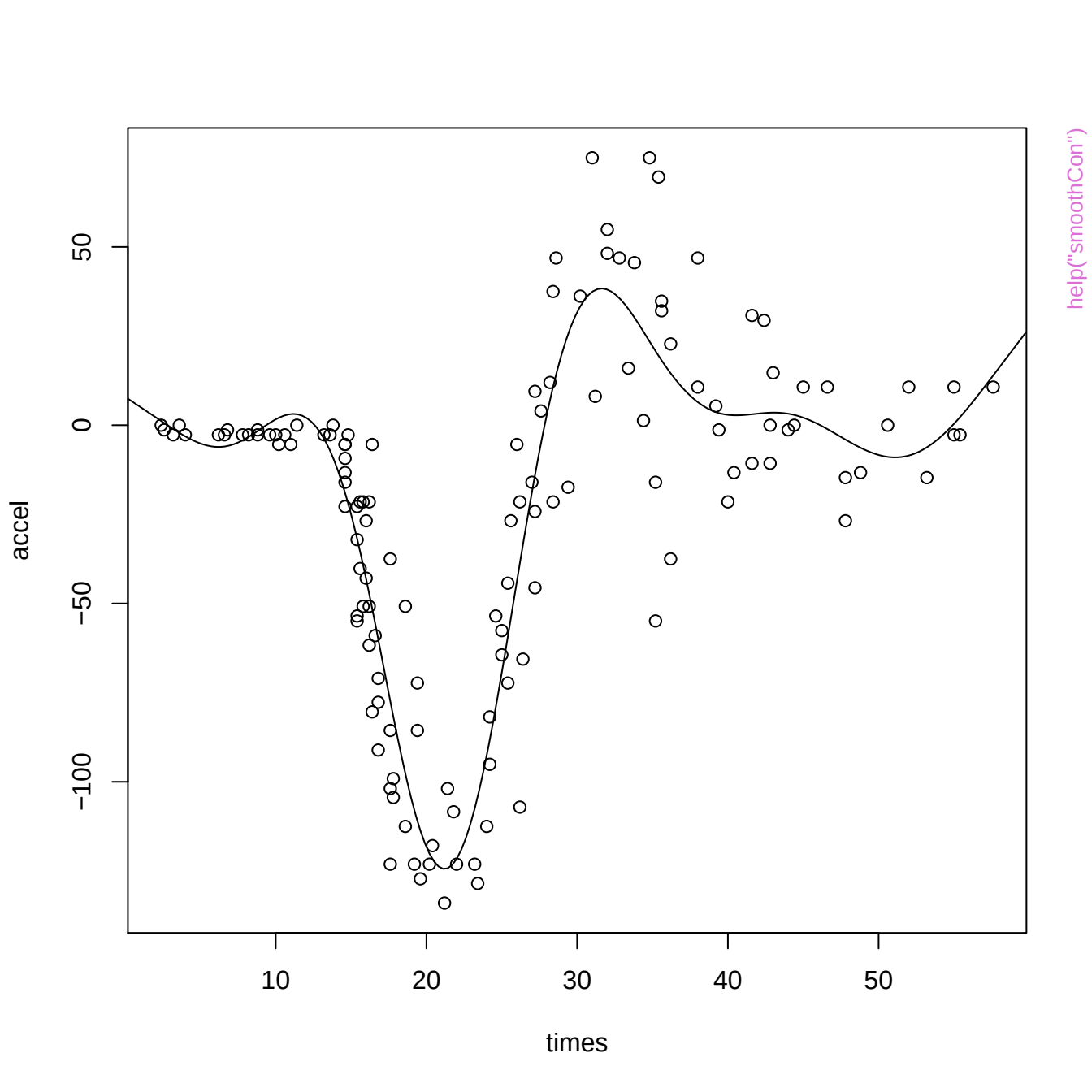


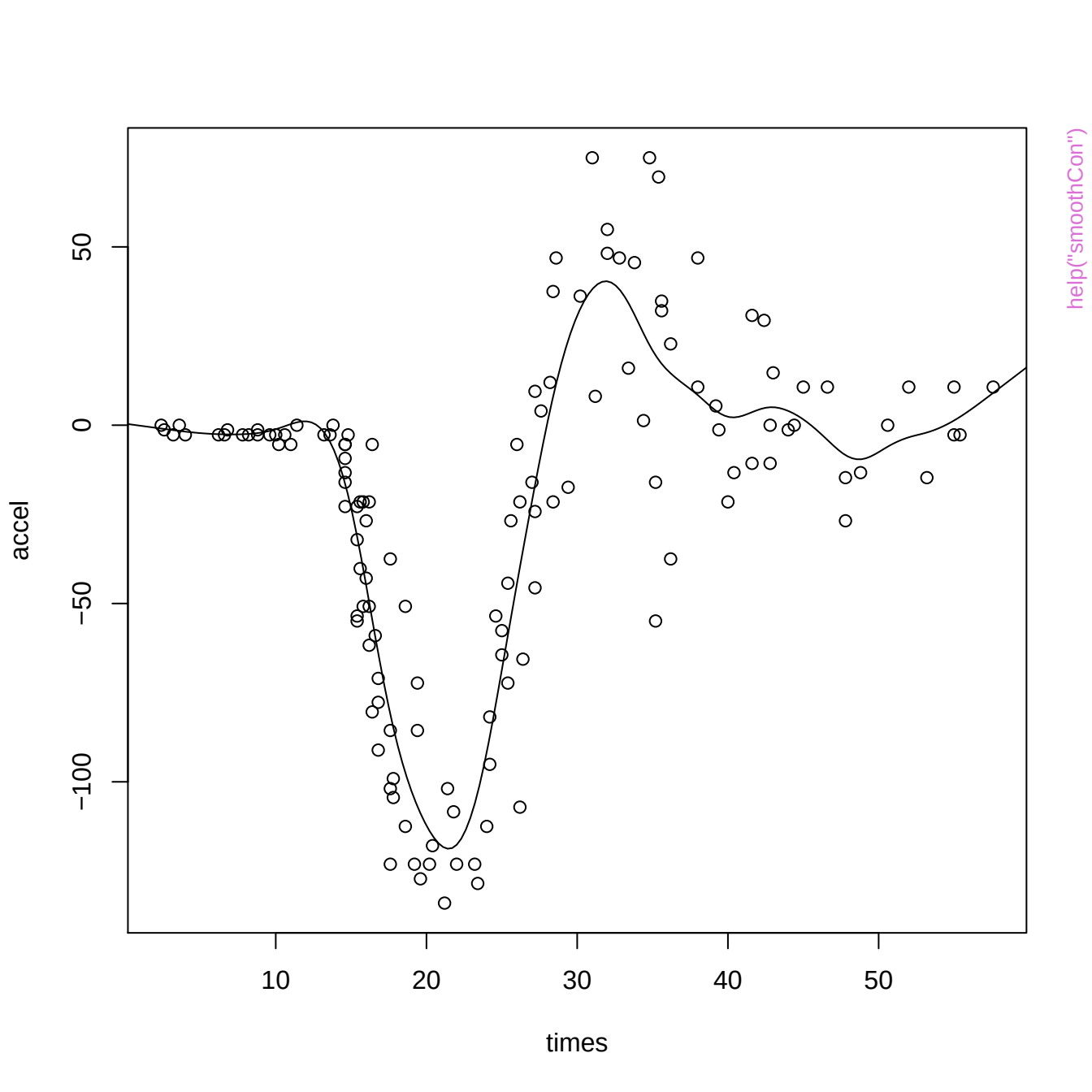


help("smooth.construct.sos.smooth.spec")

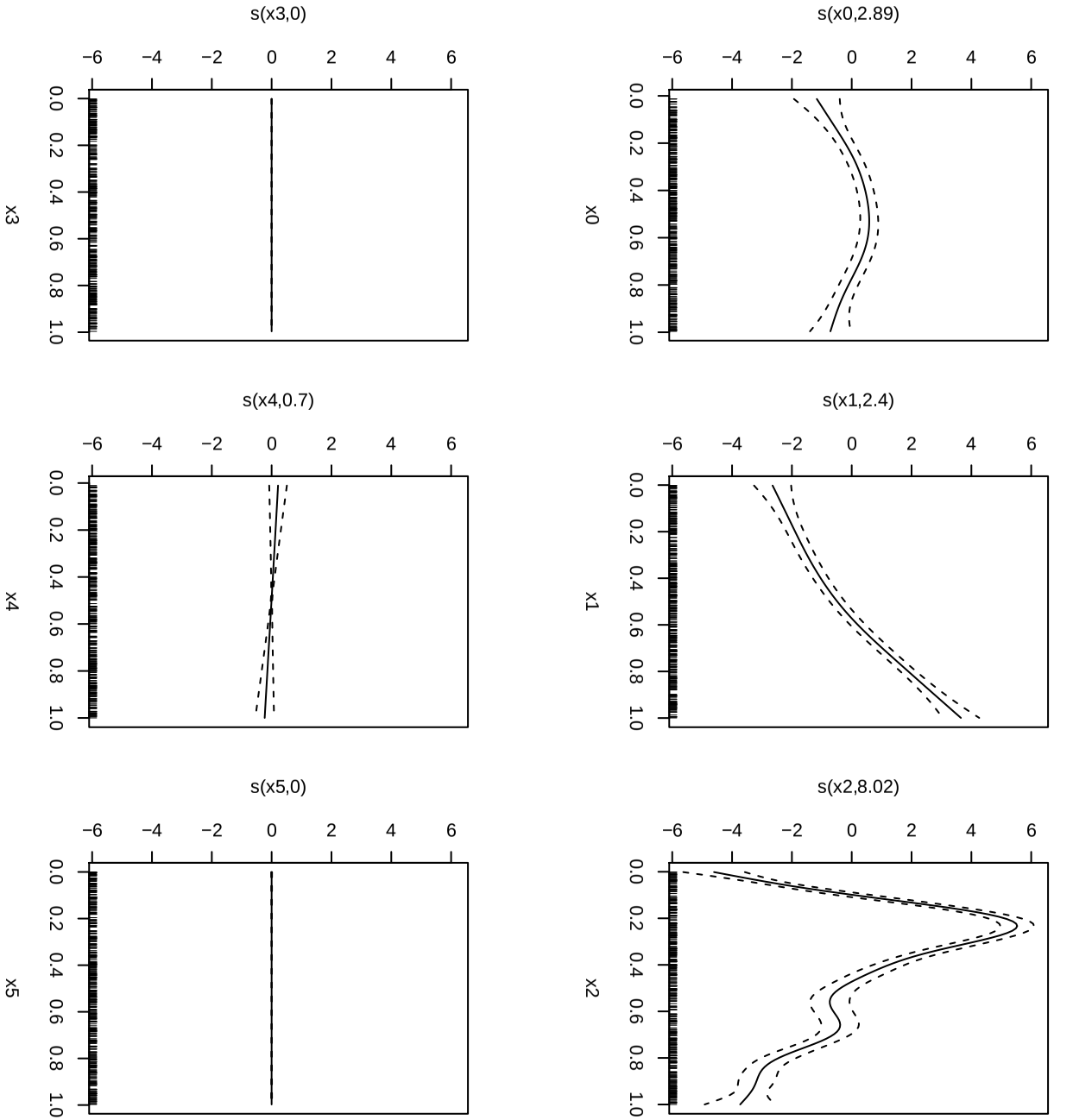




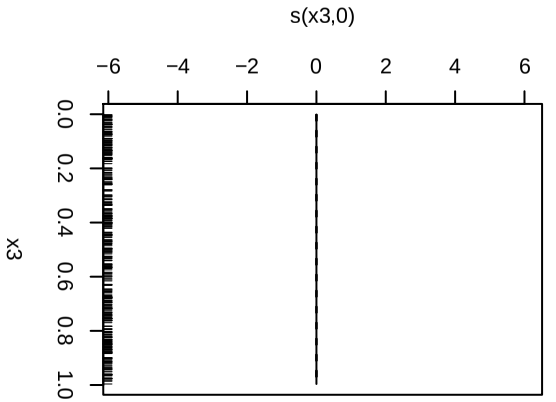

accel
50
0
−50
−100
10
20
30
40
50
times
help("smoothCon")

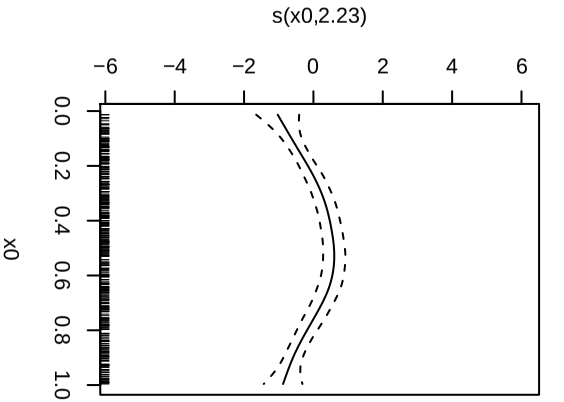

accel
50
0
−50
−100
10
20
30
40
50
times
help("smoothCon")

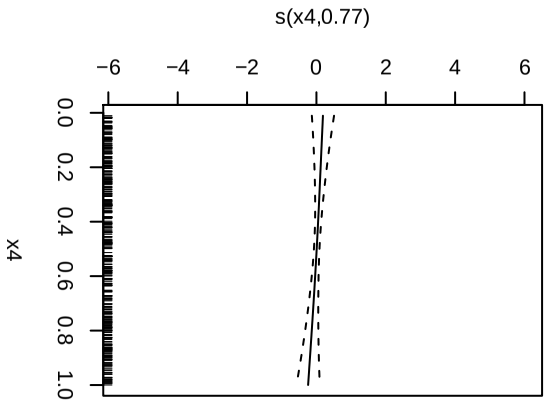
s(x0,2.64)
s(x1,2.15)
s(x2,7.38)
s(x3,0)
s(x4,0.56)
s(x5,0)
x0
x1
x2
x3
x4
x5
help("step.gam")

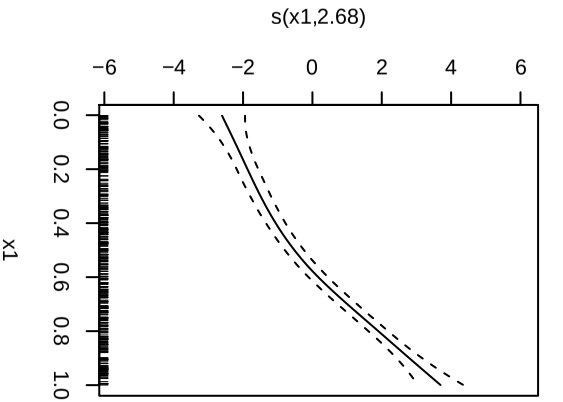


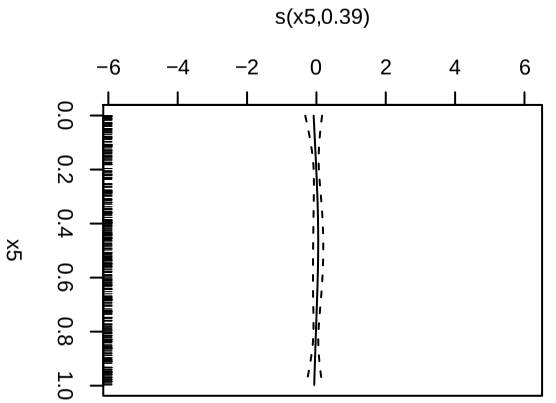
help("step.gam")

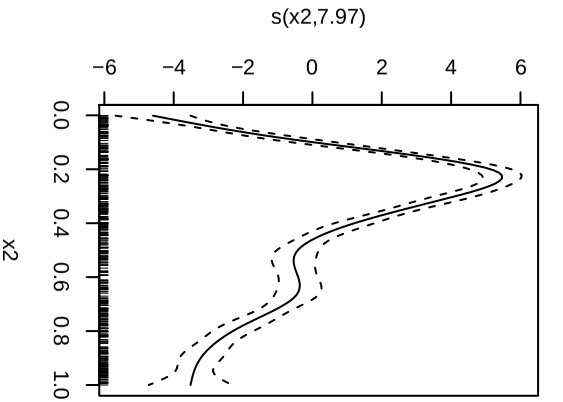




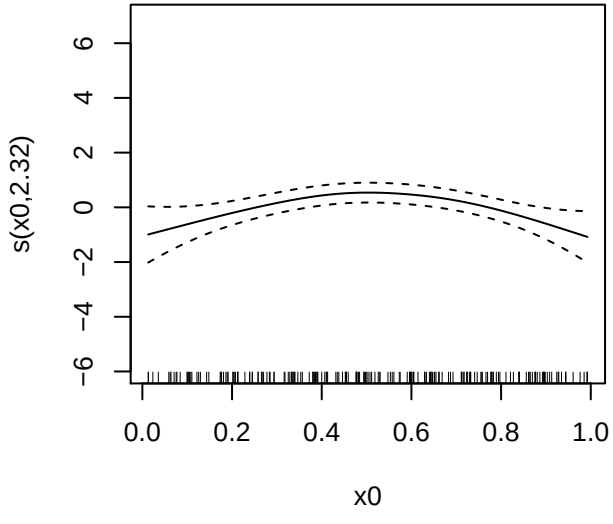


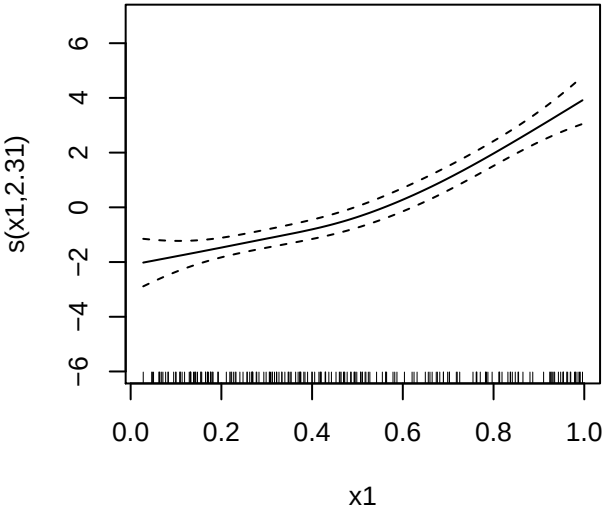


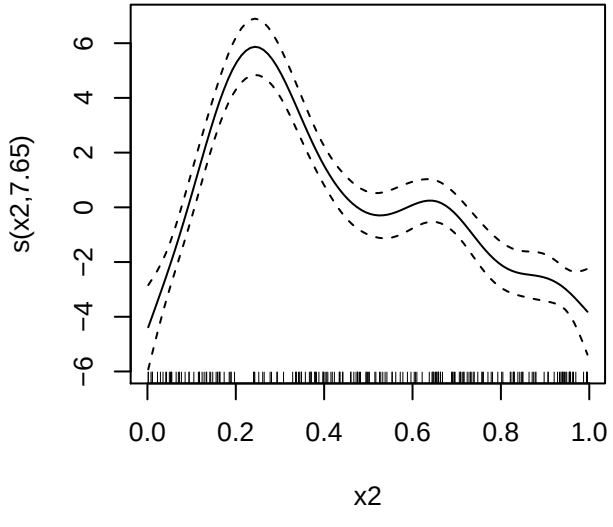


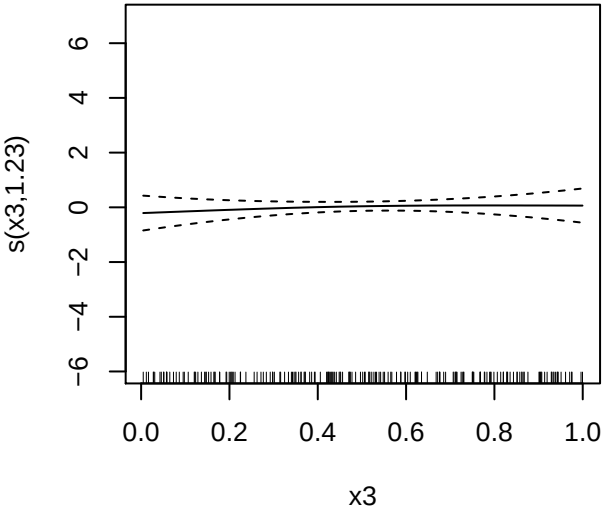


help("step.gam")

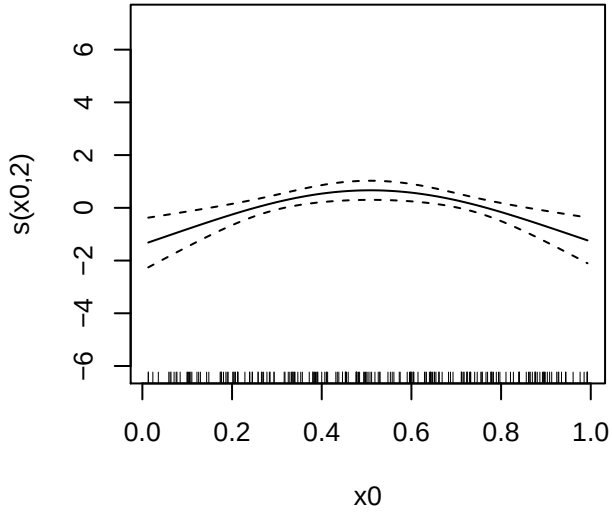


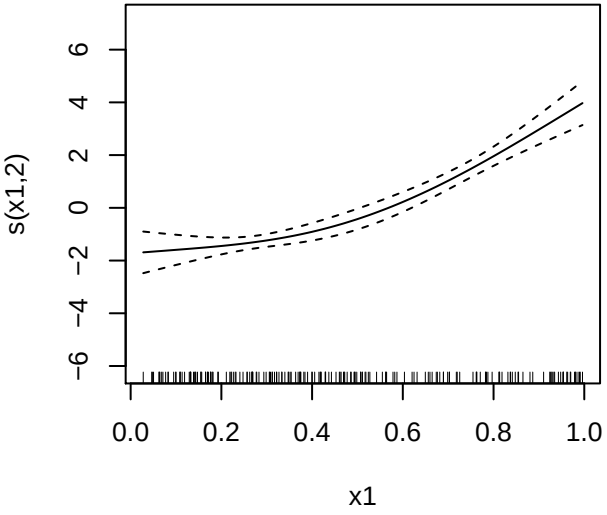


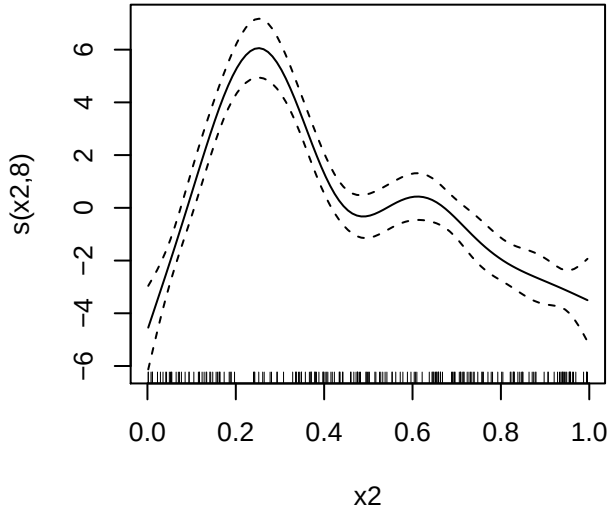


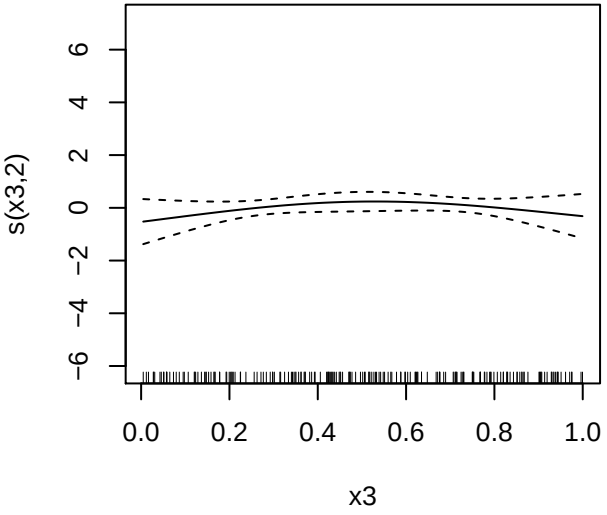


help("summary.gam")

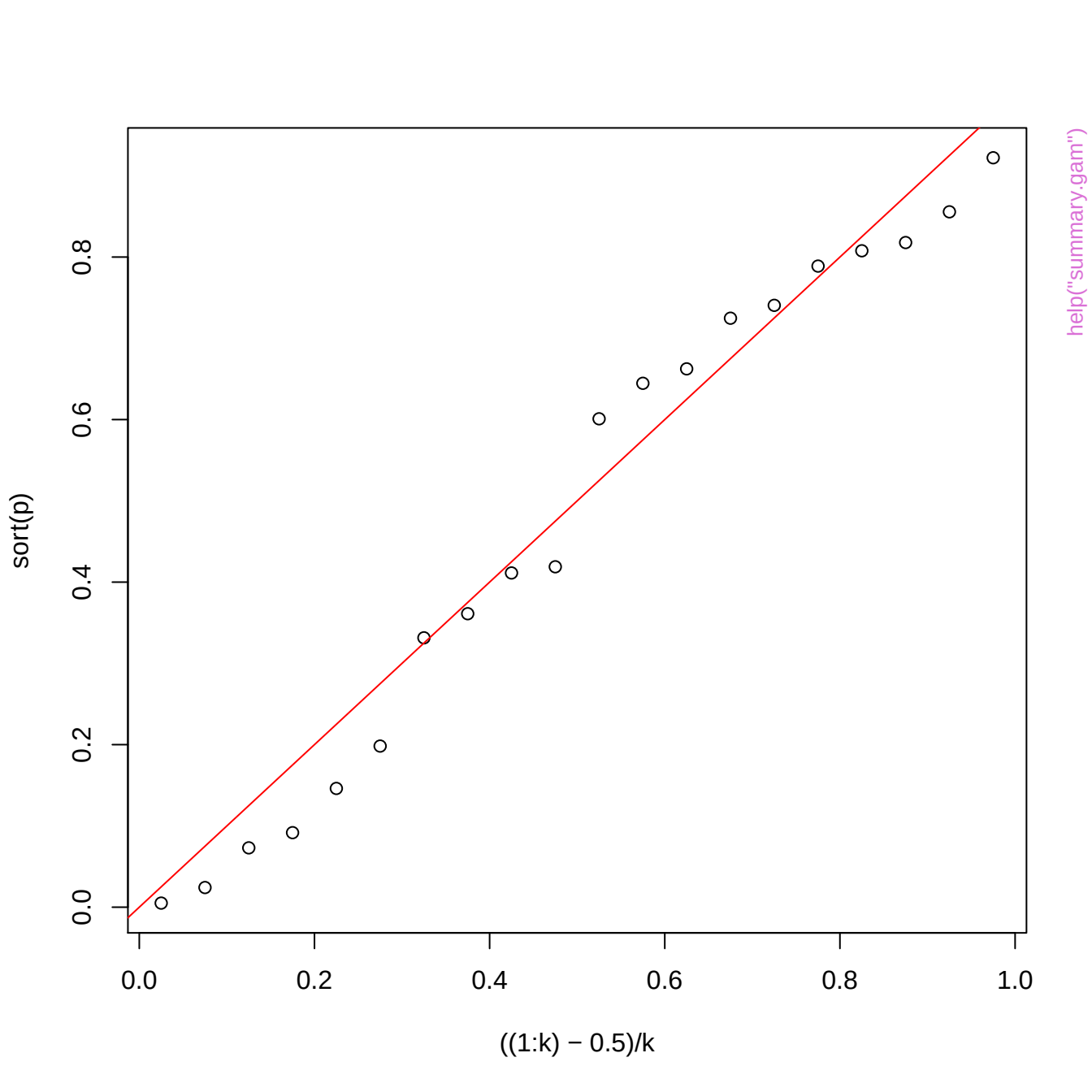








help("summary.gam")


sort(p)
0.0
0.2
0.4
0.6
0.8
0.0
0.2
0.4
0.6
0.8
1.0
((1:k) − 0.5)/k
help("summary.gam")

truth
truth
zs
xs

t.p.r.s
linear predictor
z
x

tensor product
linear predictor
z
x

tensor product
linear predictor
z
x

help("zt.")

help("t2","plot")

linear predictor
v

linear predictor
v

linear predictor
v

linear predictor
v

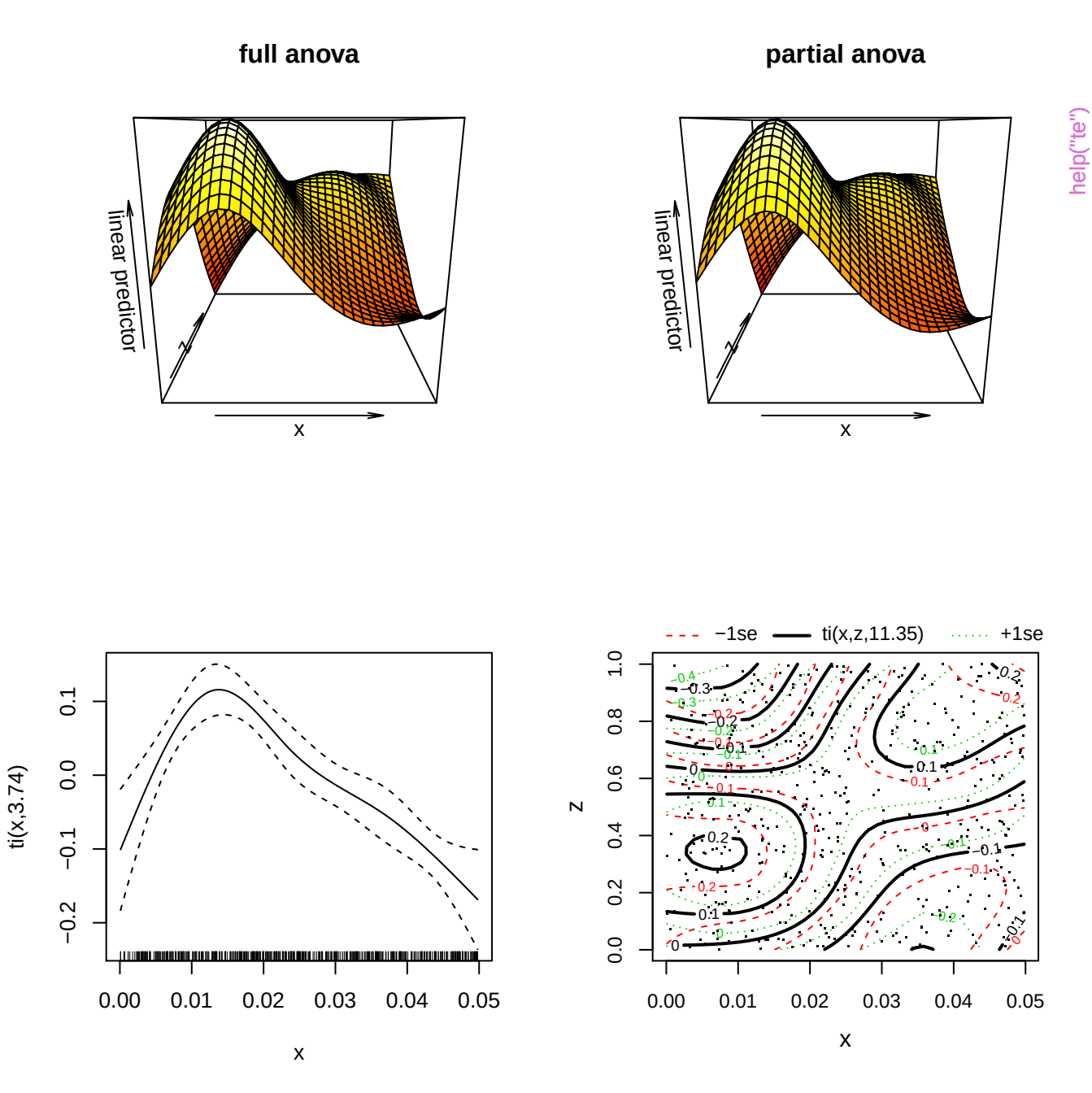
truth
truth
xs
xs

t.p.r.s
linear predictor
x
x

tensor product
linear predictor
x
x

tensor anova
linear predictor
x
x

help("te")


full anova
partial anova
linear predictor
x
linear predictor
x
help("te")
ti(x,3.74)
x
−1se
ti(x,z,11.35)
+1se
z
x

help("te")

linear predictor
v

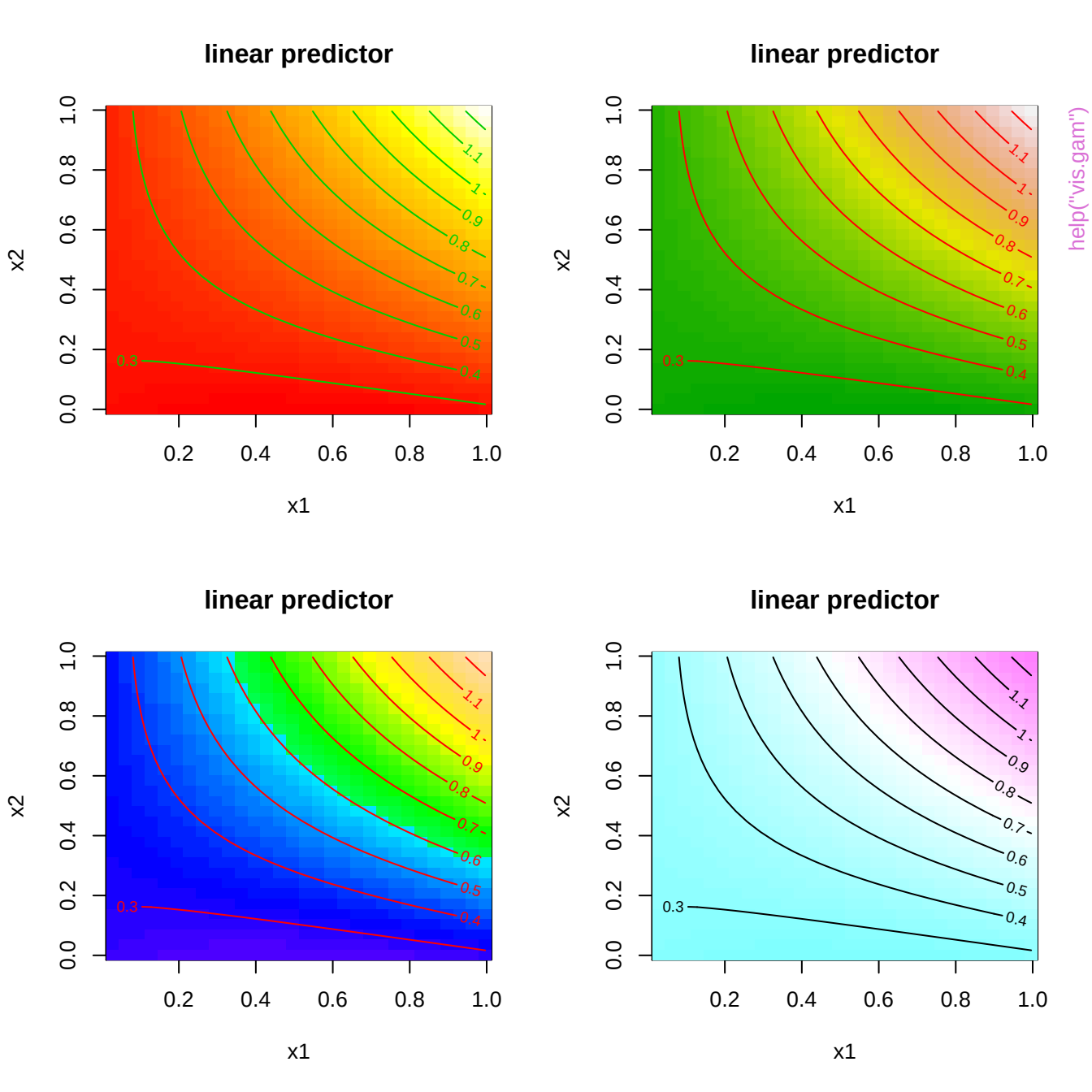
linear predictor
v

linear predictor
v

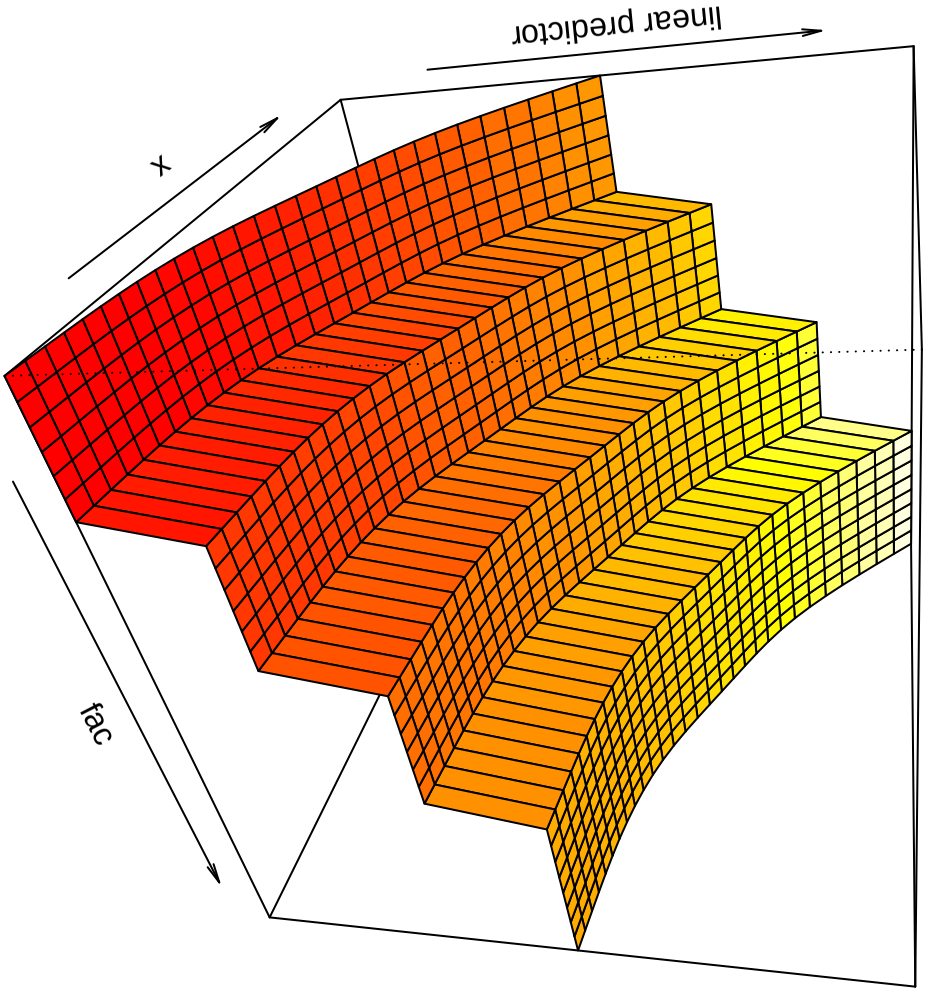
linear predictor
v

help("vis.gam")

red/green are +/− 2 s.e.

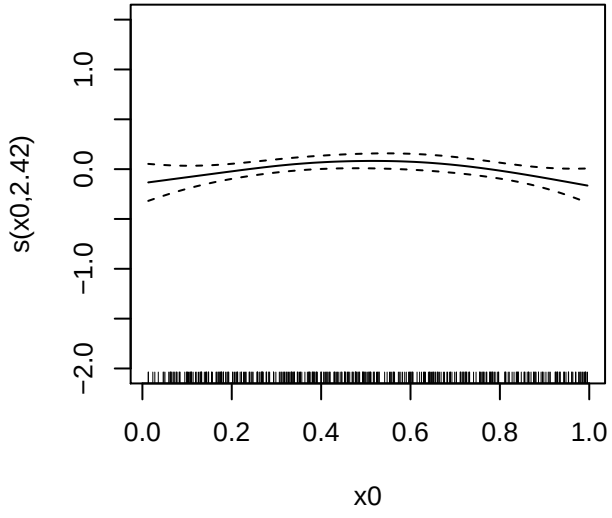

linear predictor
x2
x1
0.0
0.2
0.4
0.6
0.8
1.0
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
linear predictor
x2
x1
help("vis.gam")
linear predictor
x2
x1
linear predictor
x2
x1

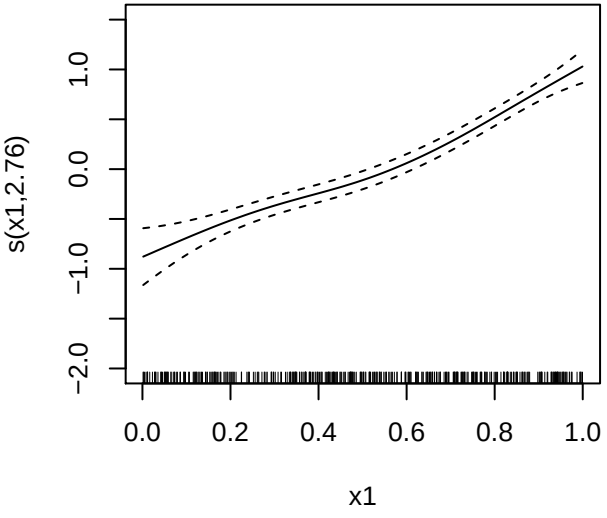
help("vis.gam")

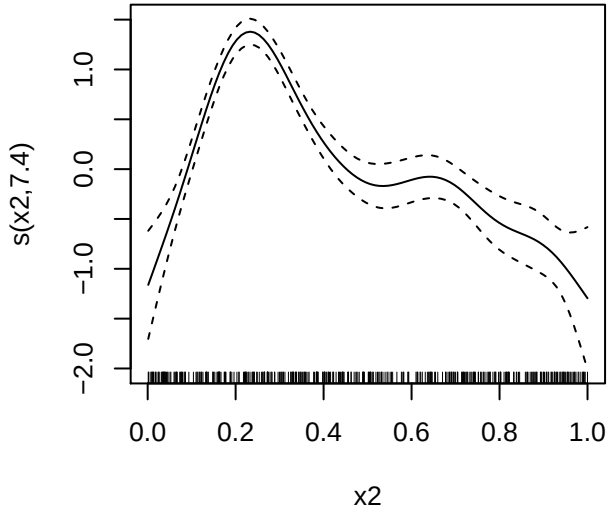


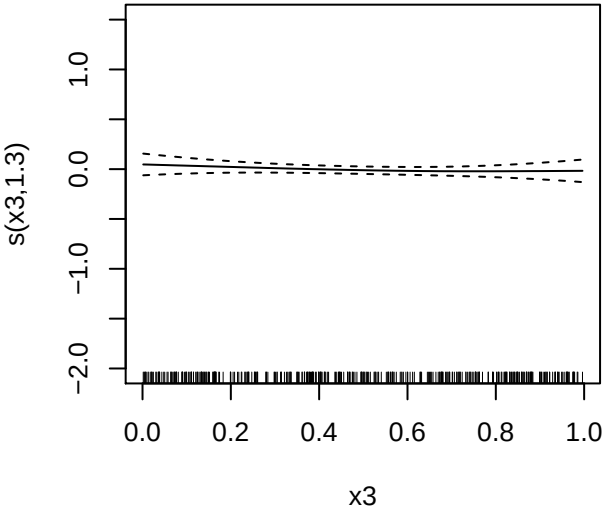
help("vis.gam")

help("vis.gam")

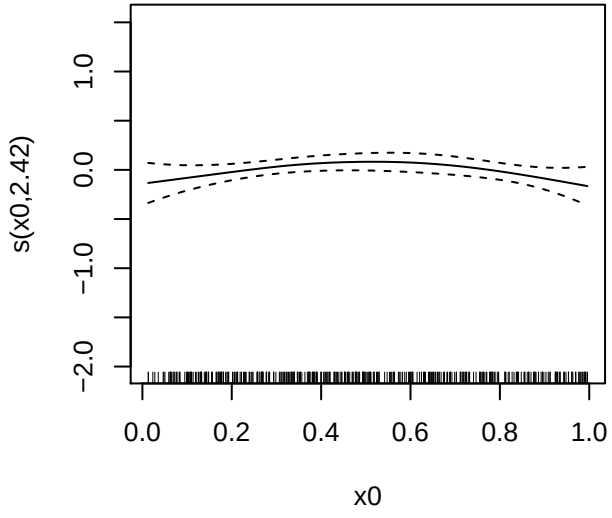

s(x0,2.42)
1.0
0.0
−1.0
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
x0

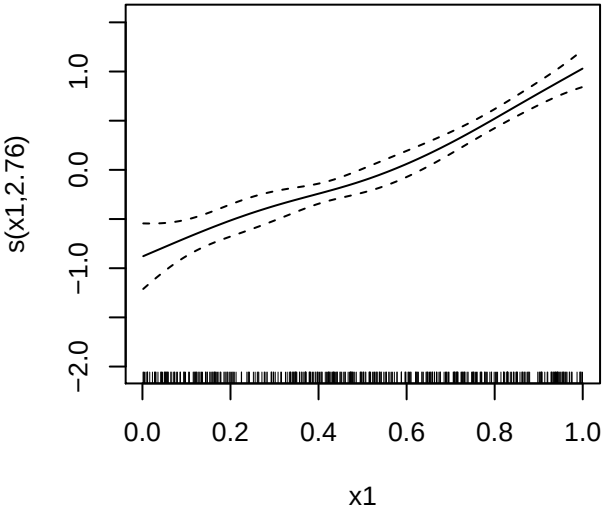

s(x1,2.76)
1.0
0.0
−1.0
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
x1


s(x2,7.4)
1.0
0.0
−1.0
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
x2

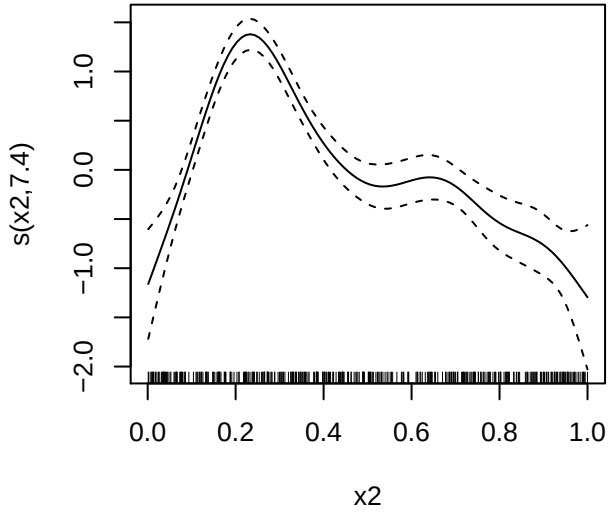

s(x3,1.3)
1.0
0.0
−1.0
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
x3

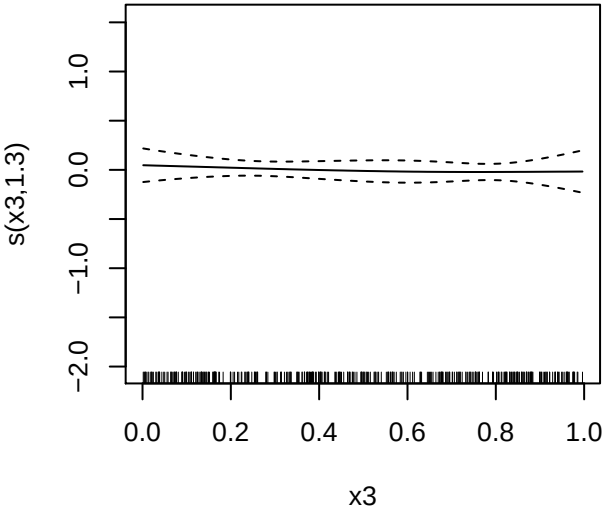
help("ziP")

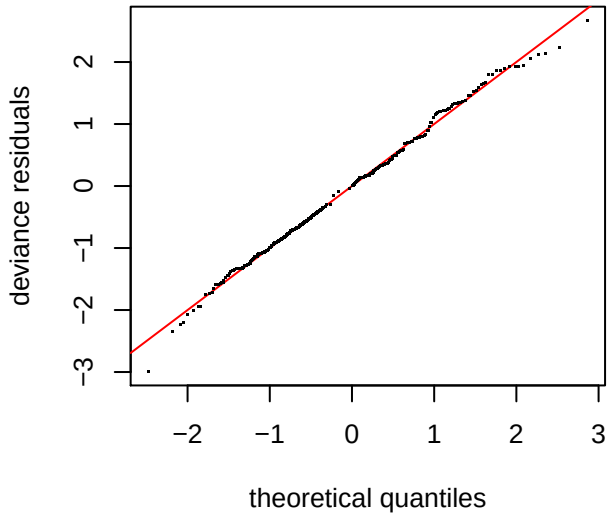

s(x0,2.42)
1.0
0.0
−1.0
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
x0

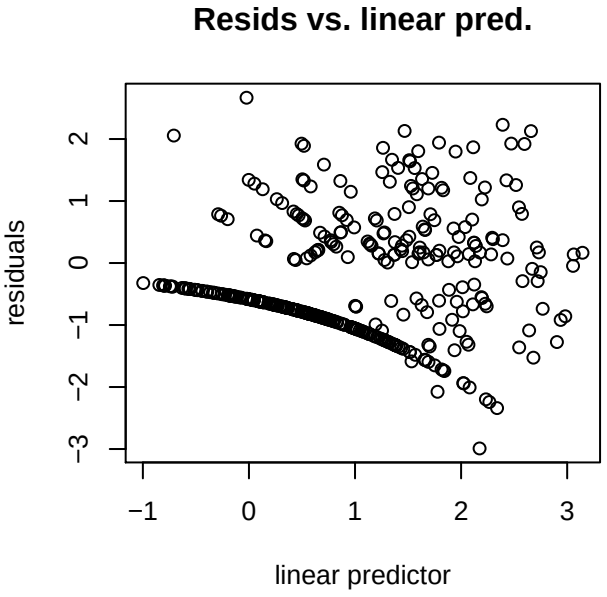

s(x1,2.76)
1.0
0.0
−1.0
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
x1

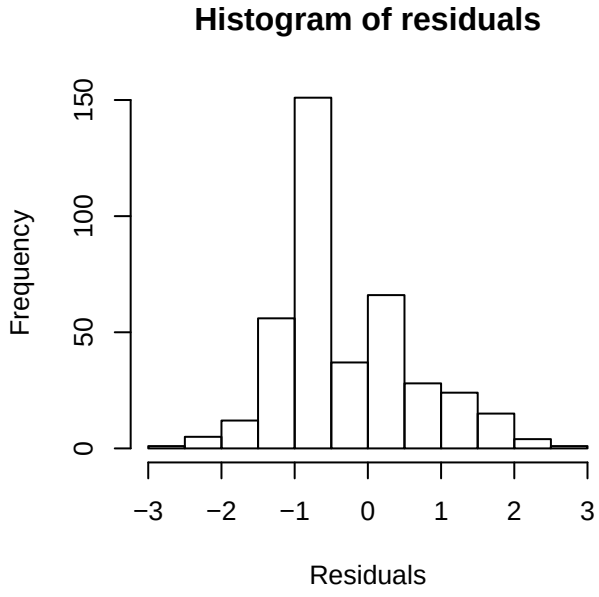
help("ziP")

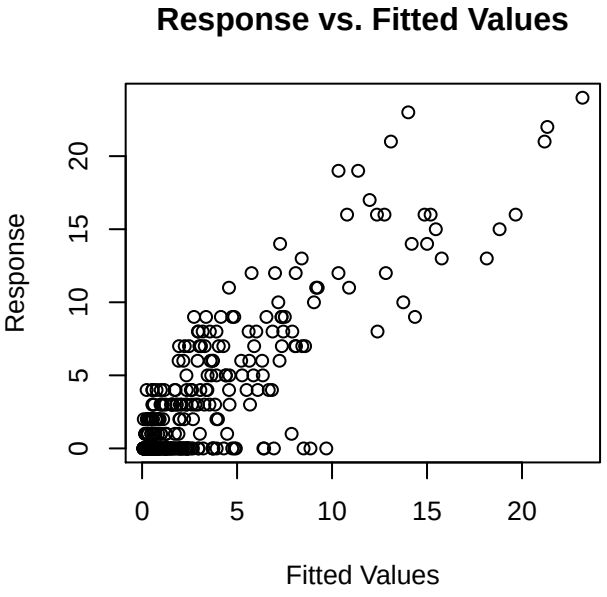

s(x2,7.4)
1.0
0.0
−1.0
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
x2

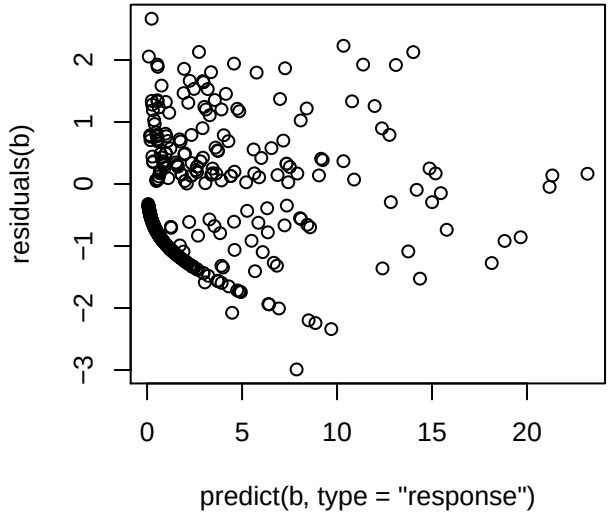

s(x3,1.3)
1.0
0.0
−1.0
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
x3

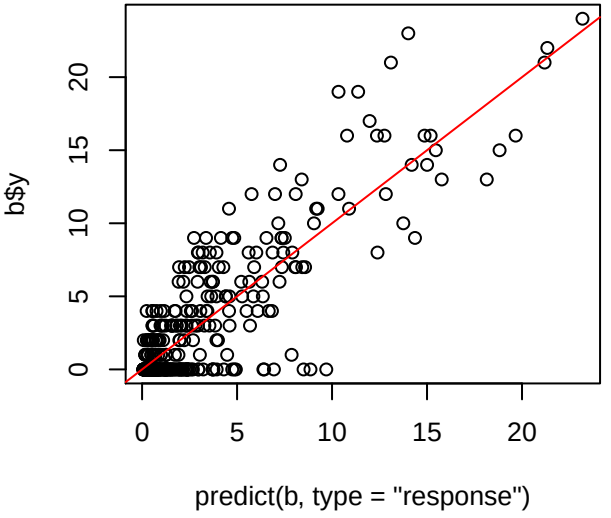

deviance residuals
theoretical quantiles
−3
−2
−1
0
1
2
3


Resids vs. linear pred.
residuals
linear predictor
help("ziP")

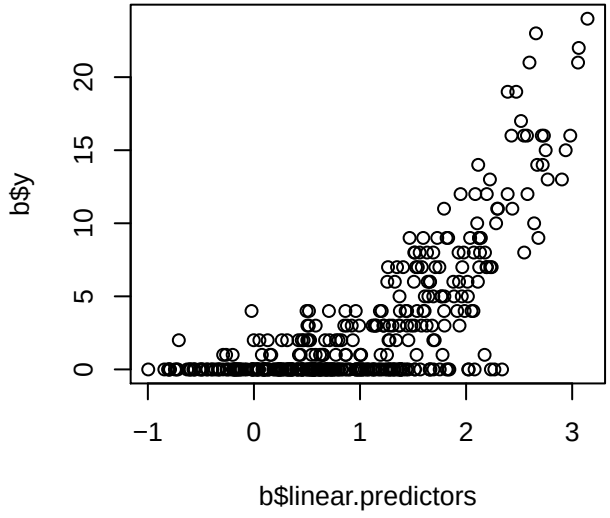

Histogram of residuals
Frequency
Residuals
0
50
100
150

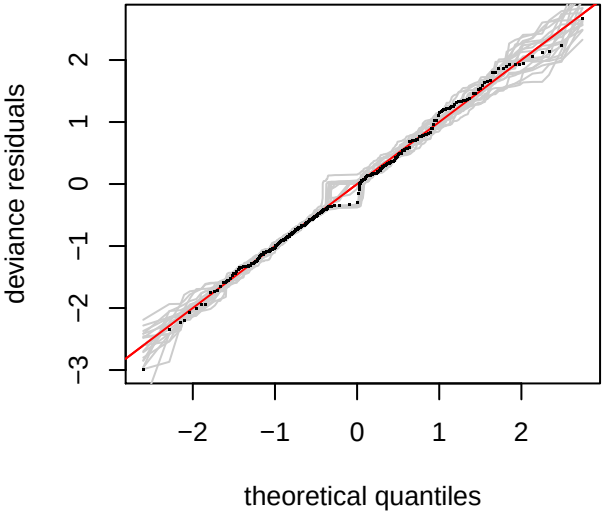

Response vs. Fitted Values
Response
Fitted Values
0
5
10
15
20

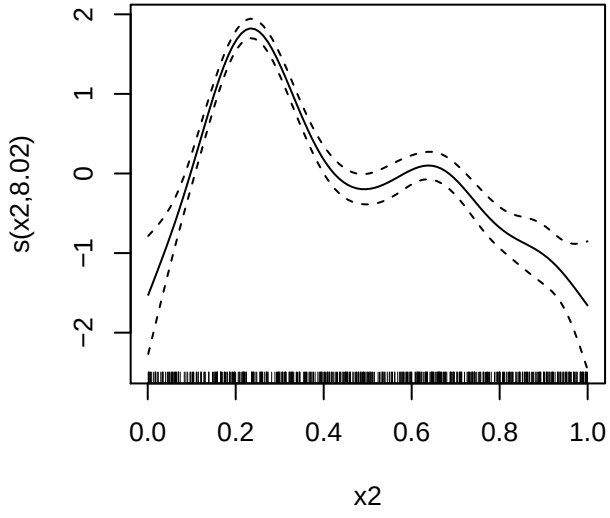

residuals(b)
predict(b, type = "response")

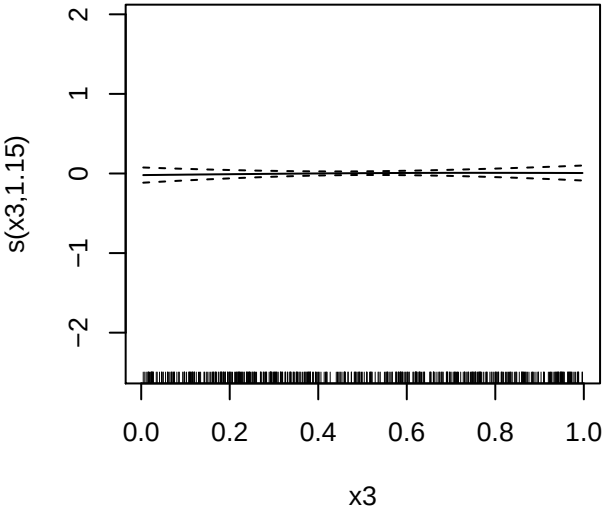

b$y
predict(b, type = "response")

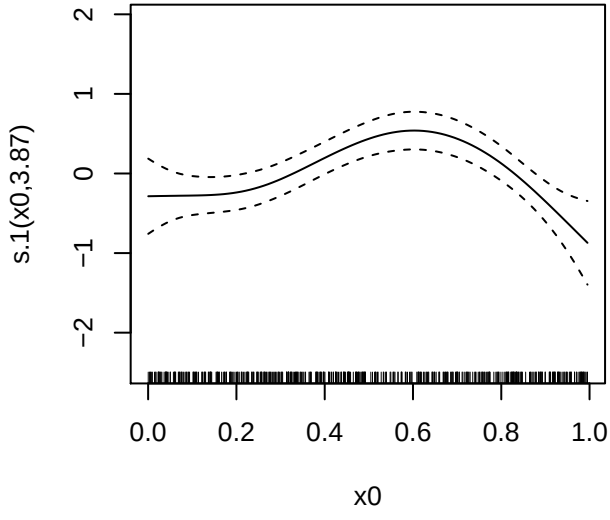
help("ziP")

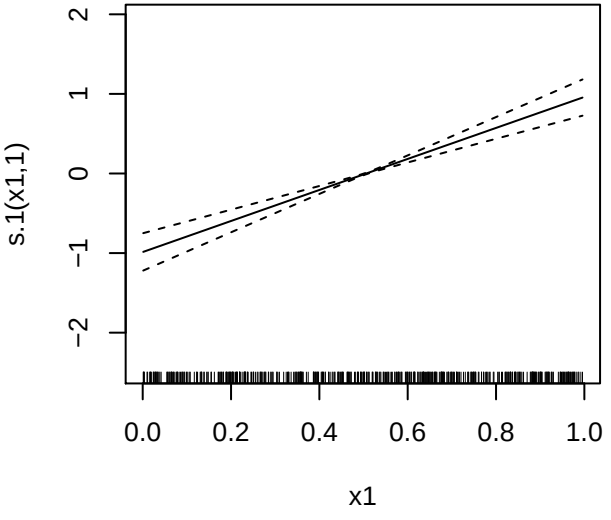

b$y
b$linear.predictors


deviance residuals
theoretical quantiles


s(x2,8.02)
2
1
0
−1
−2
0.0
0.2
0.4
0.6
0.8
1.0
x2


s(x3,1.15)
2
1
0
−1
−2
0.0
0.2
0.4
0.6
0.8
1.0
x3


s.1(x0,3.87)
2
1
0
−1
−2
0.0
0.2
0.4
0.6
0.8
1.0
x0


s.1(x1,1)
2
1
0
−1
−2
0.0
0.2
0.4
0.6
0.8
1.0
x1

help("ziplss")