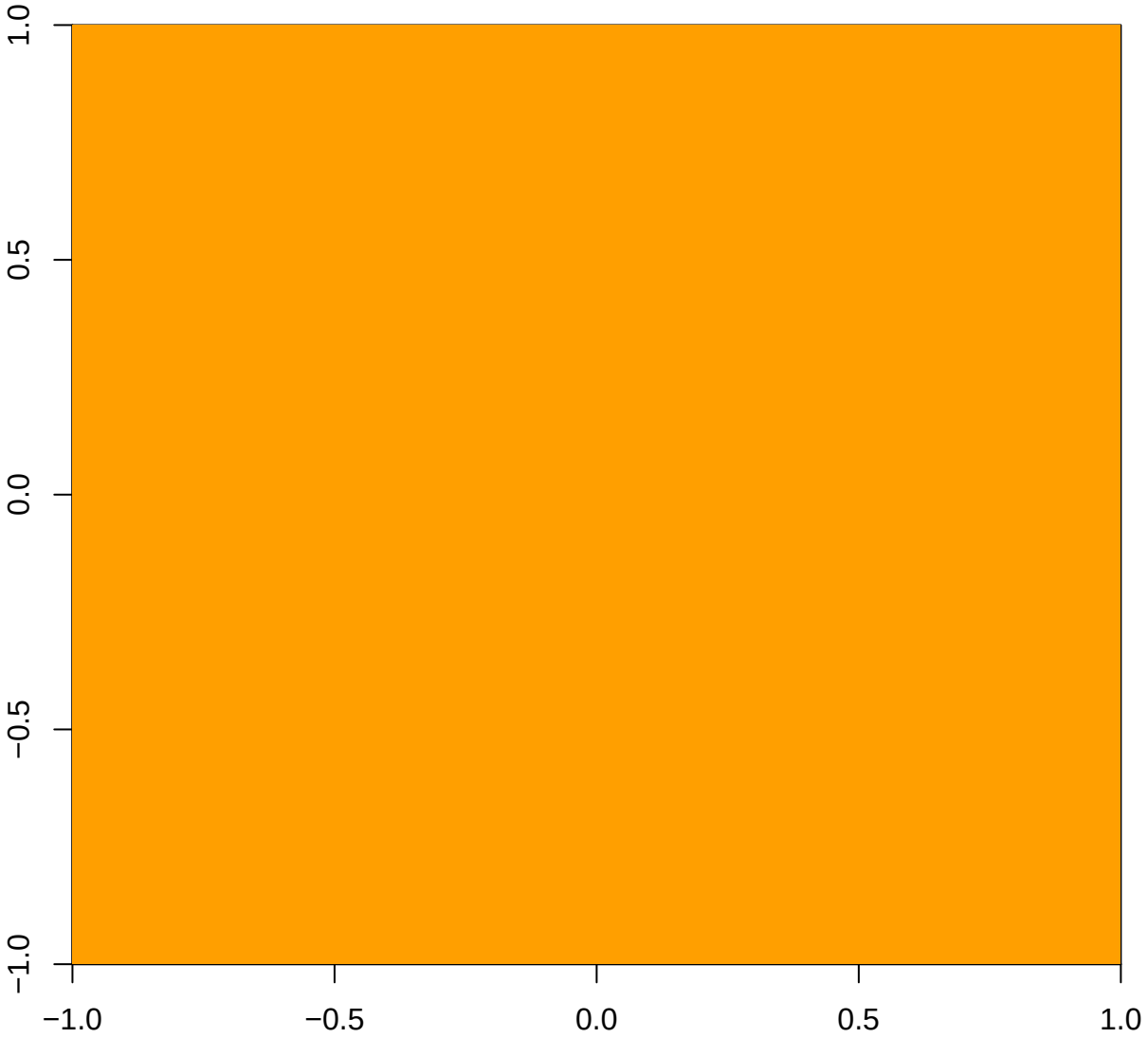
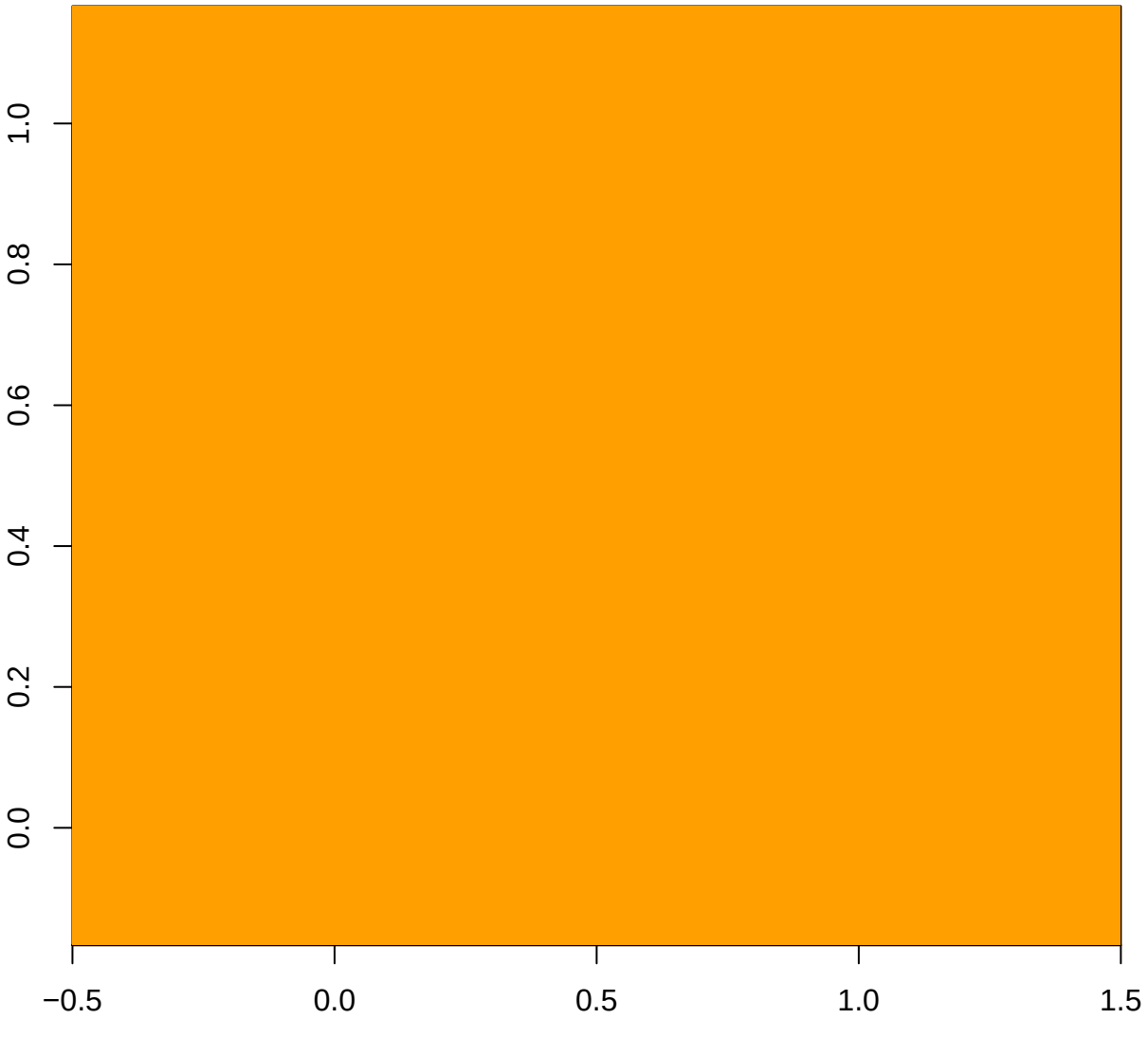
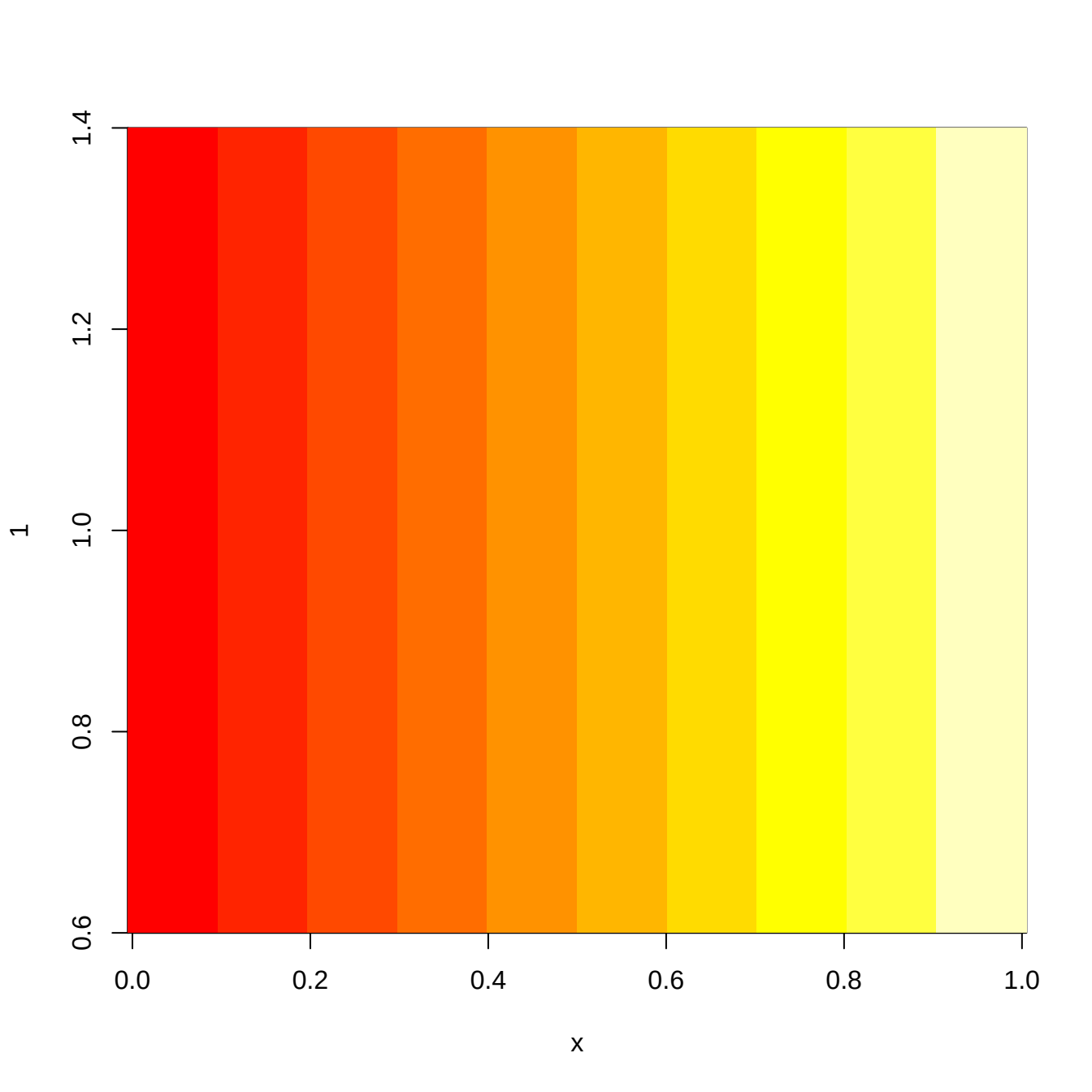
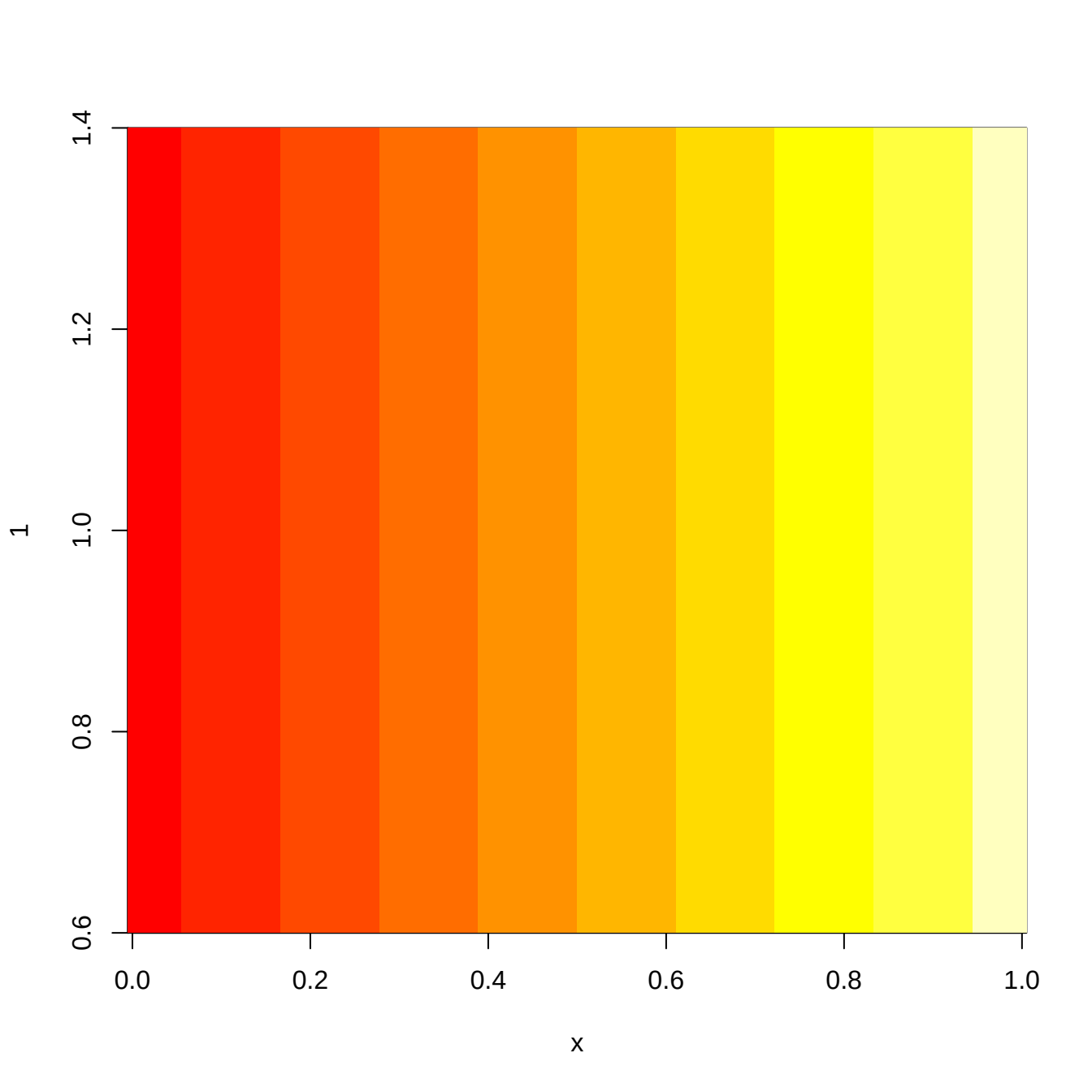
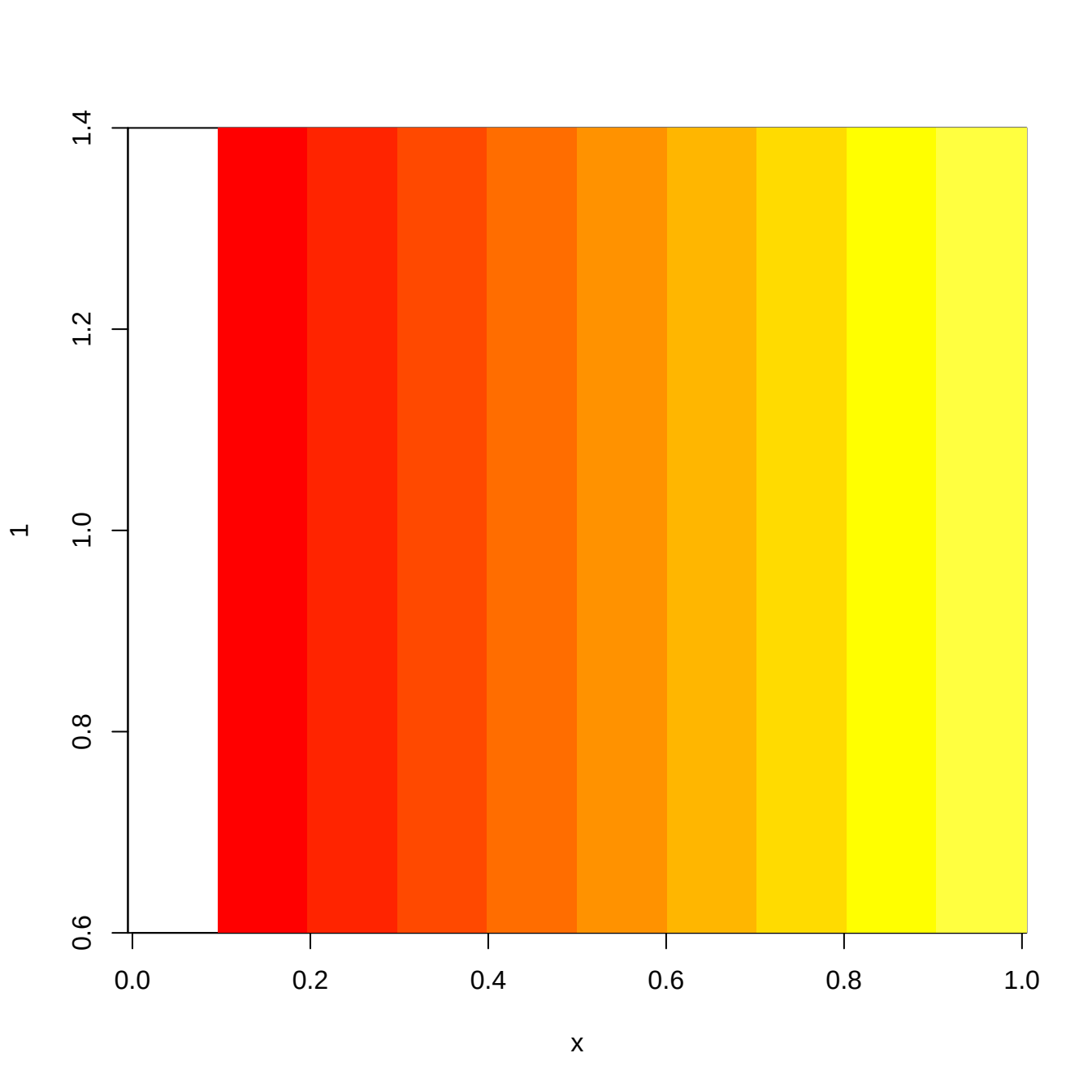
Y
0
5
10
15
0
1
2
3
4
5
1:4
C
A
D
B

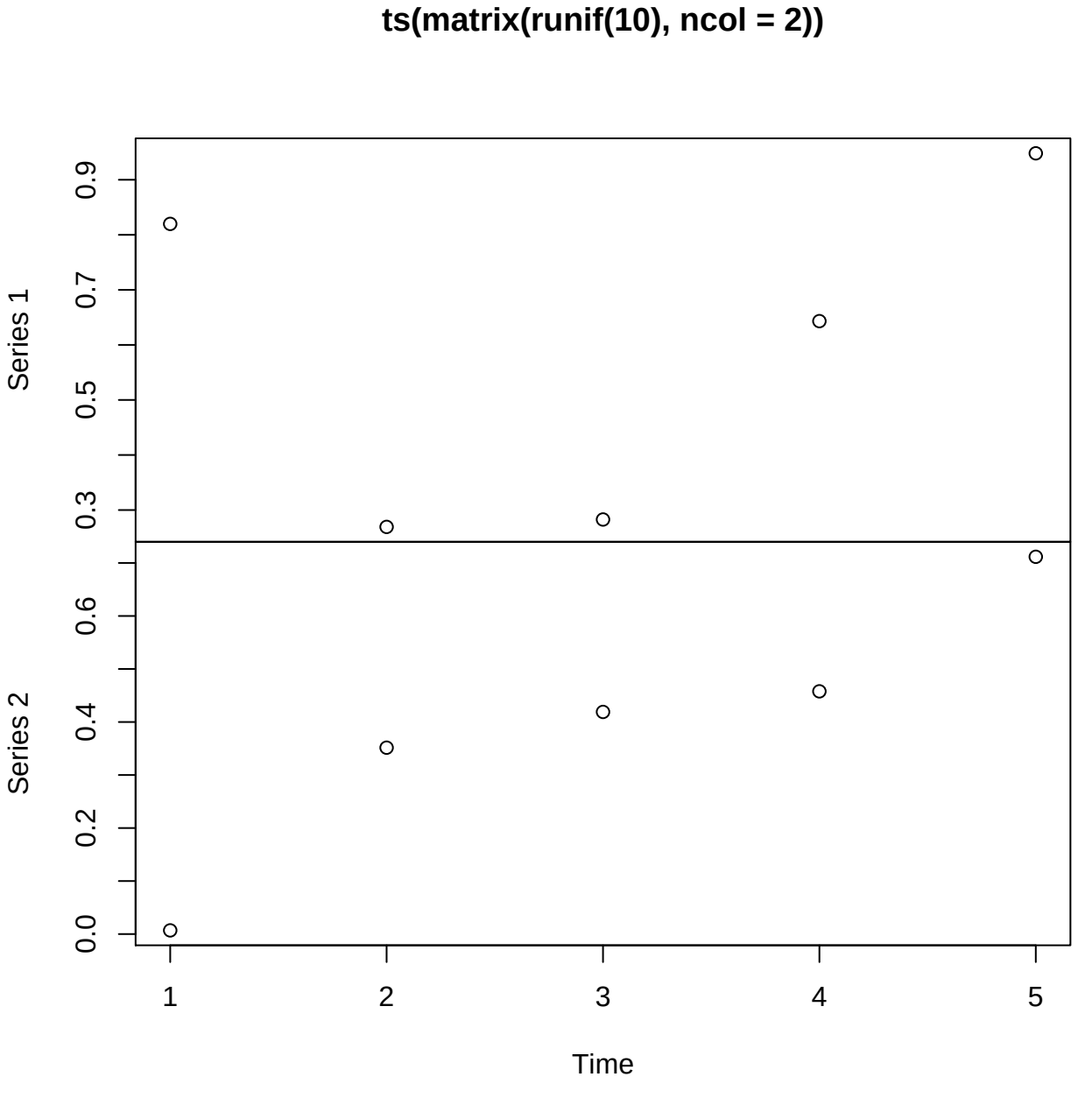

1.0
0.5
0.0
−0.5
−1.0
−1.0
−0.5
0.0
0.5
1.0

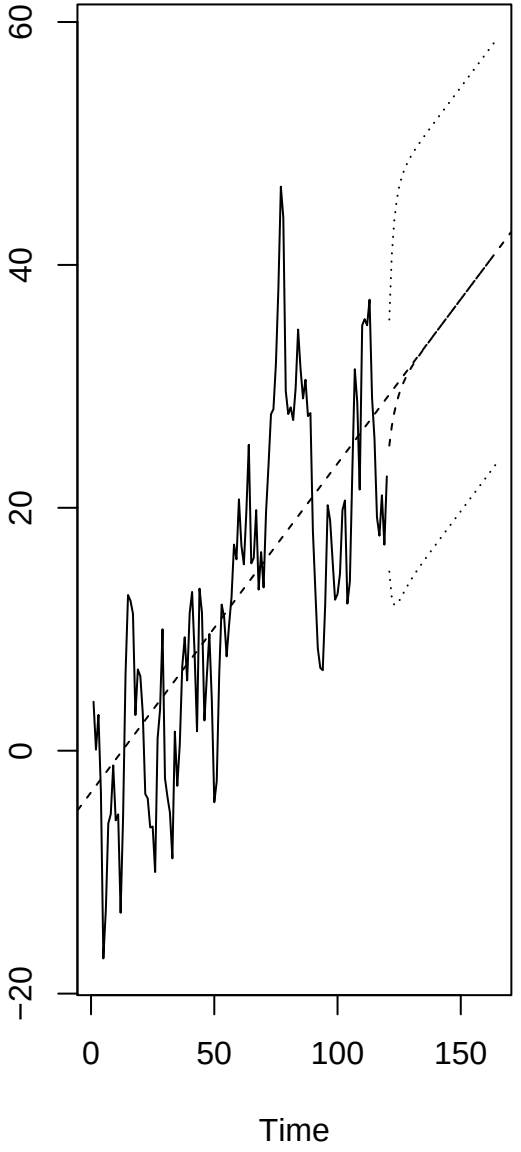

1.0
0.8
0.6
0.4
0.2
0.0
−0.5
0.0
0.5
1.0
1.5

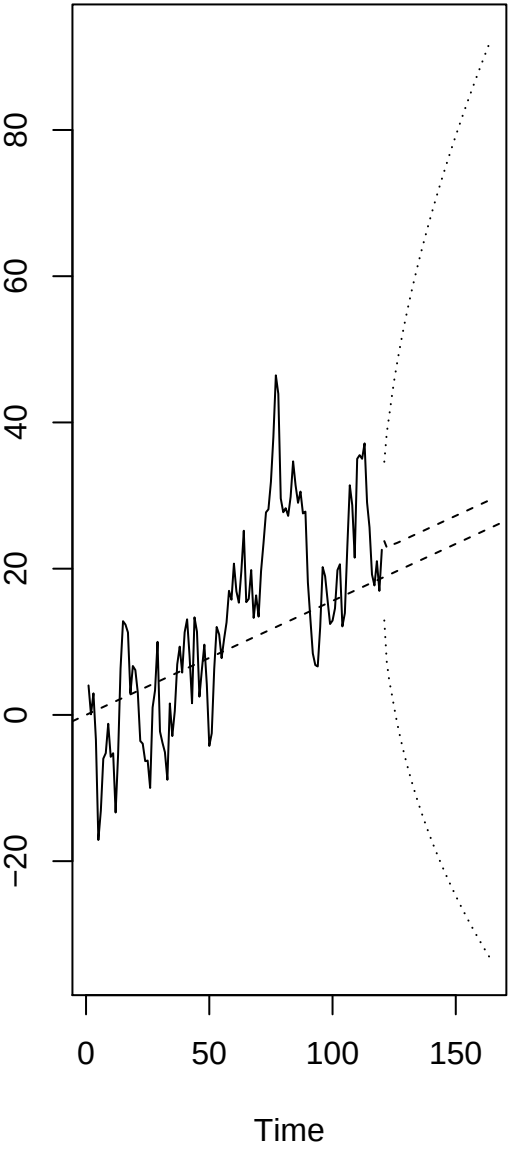

1.4
1.2
1.0
0.8
0.6
1
0.0
0.2
0.4
0.6
0.8
1.0
x


1.4
1.2
1.0
0.8
0.6
1
0.0
0.2
0.4
0.6
0.8
1.0
x


1.4
1.2
1.0
0.8
0.6
1
0.0
0.2
0.4
0.6
0.8
1.0
x

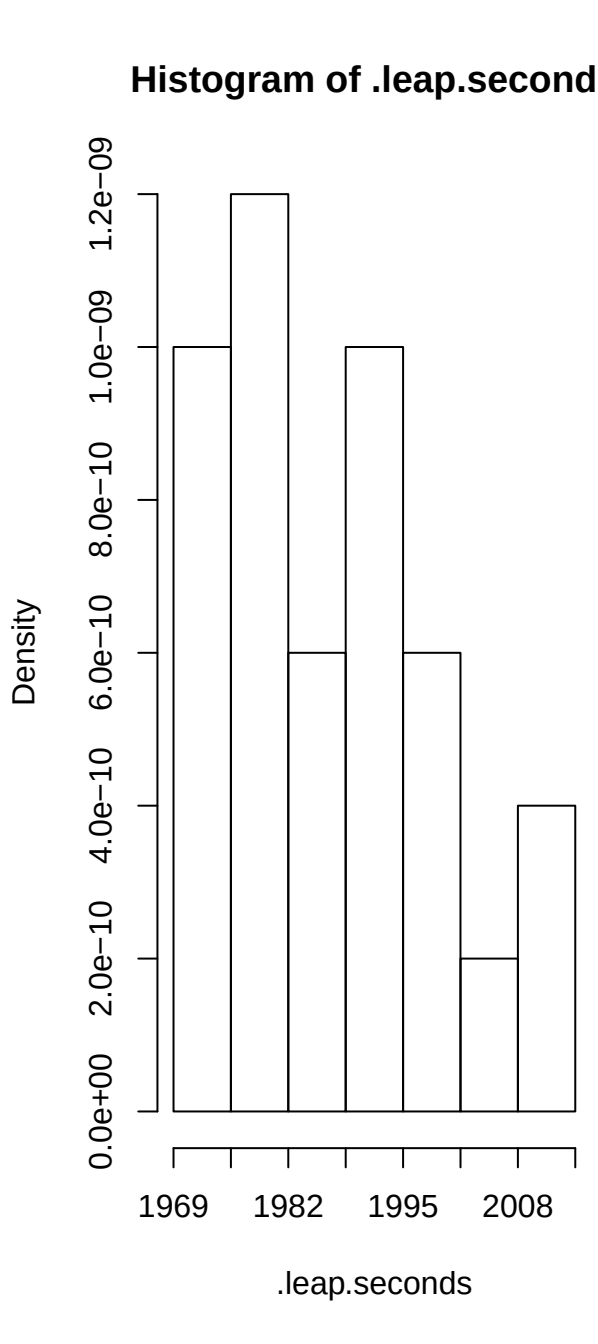

ts(matrix(runif(10), ncol = 2))
Series 1
Series 2
0.0
0.2
0.4
0.6
0.3
0.5
0.7
0.9
1
2
3
4
5
Time

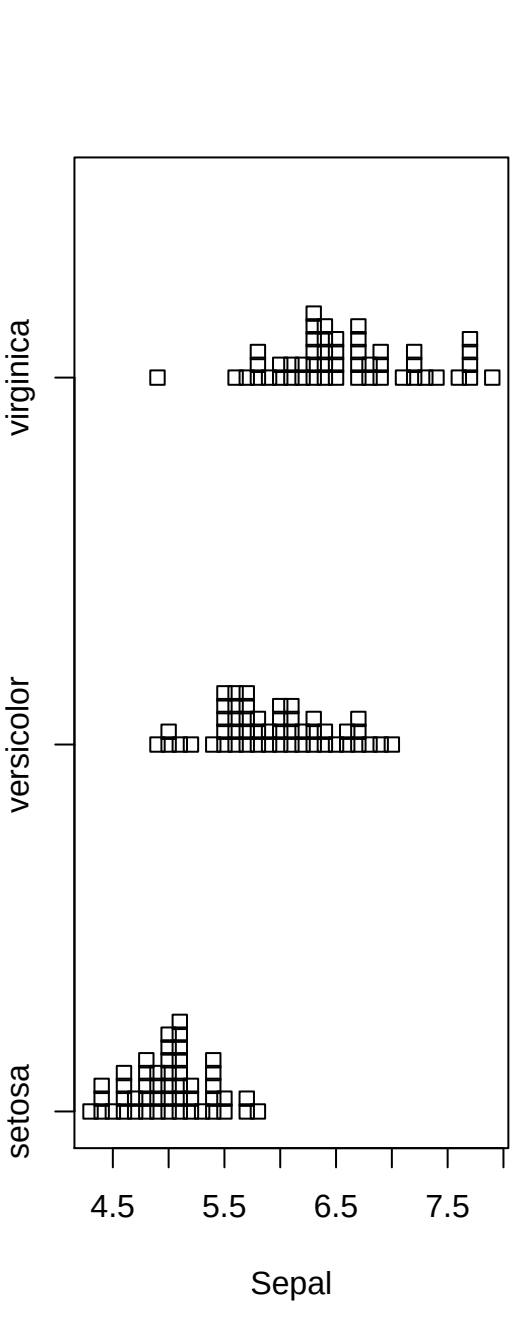

60
40
20
0
−20
0
50
100
150
Time

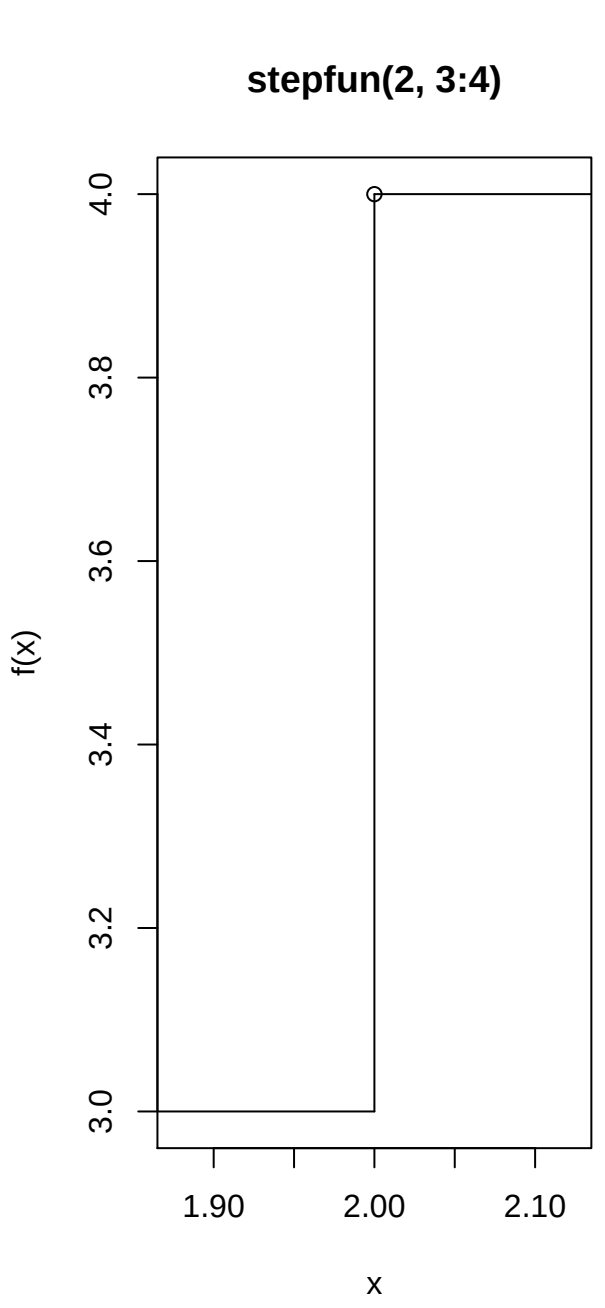

80
60
40
20
0
−20
0
50
100
150
Time

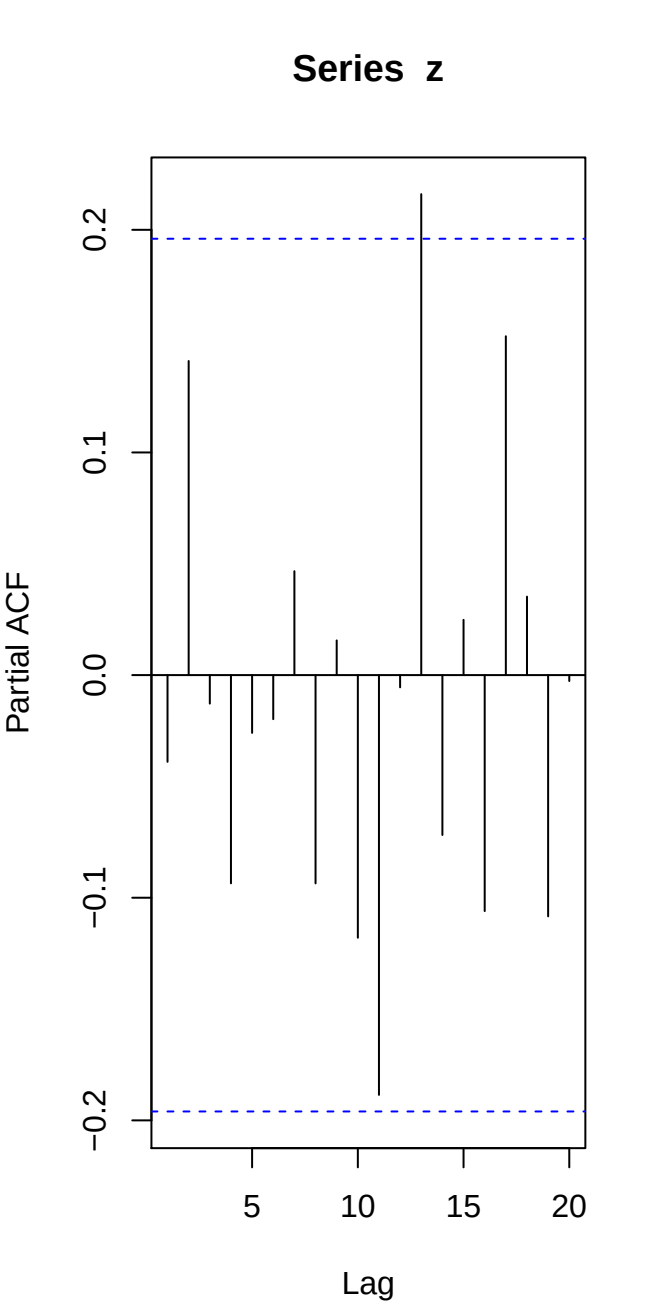
1
1.4
1.2
1.0
0.8
0.6
0.00
0.02
0.04
x2

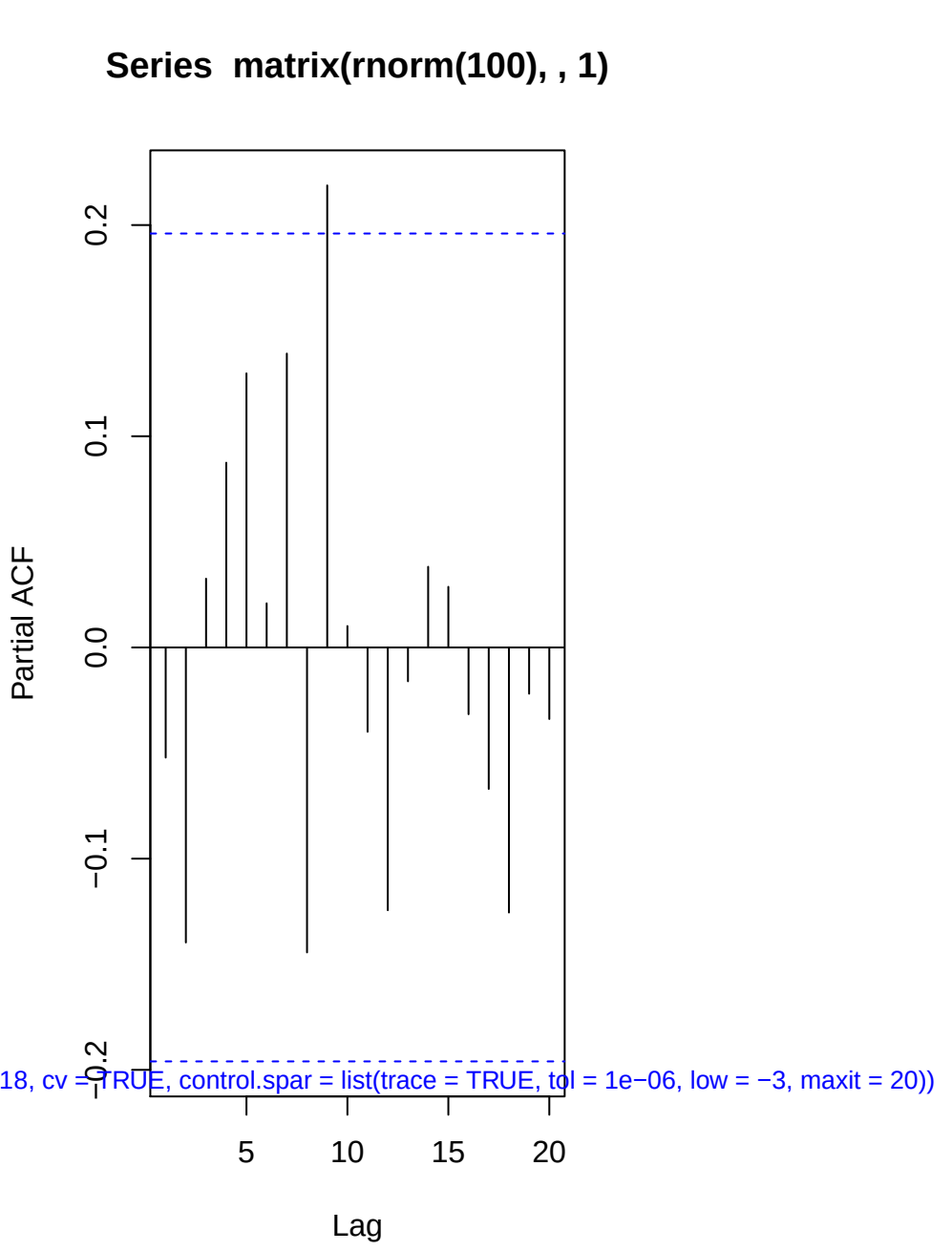
matrix(1:4, 2)
1

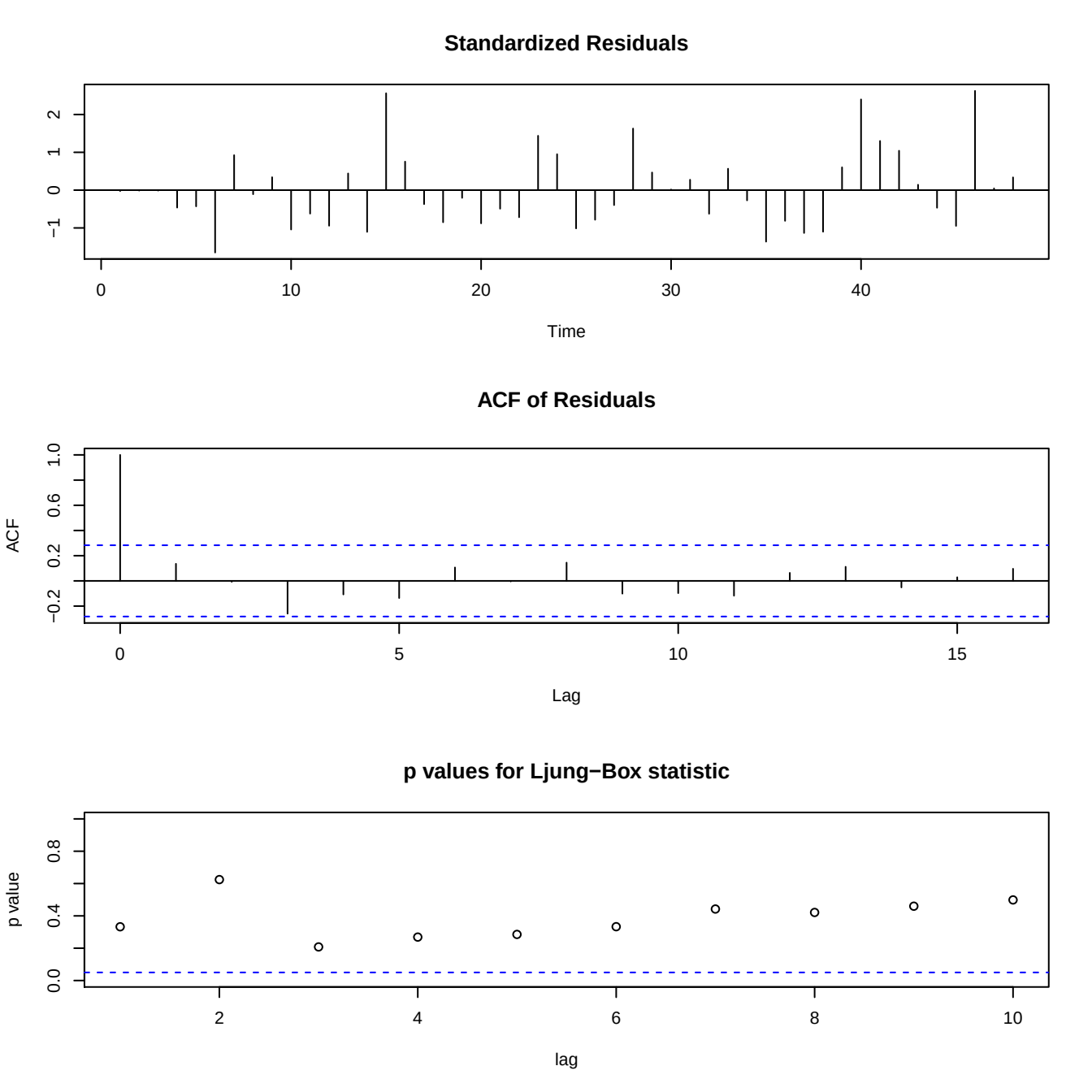

Histogram of .leap.seconds
Density
0.0e+00
2.0e−10
4.0e−10
6.0e−10
8.0e−10
1.0e−09
1.2e−09
1969
1982
1995
2008
.leap.seconds

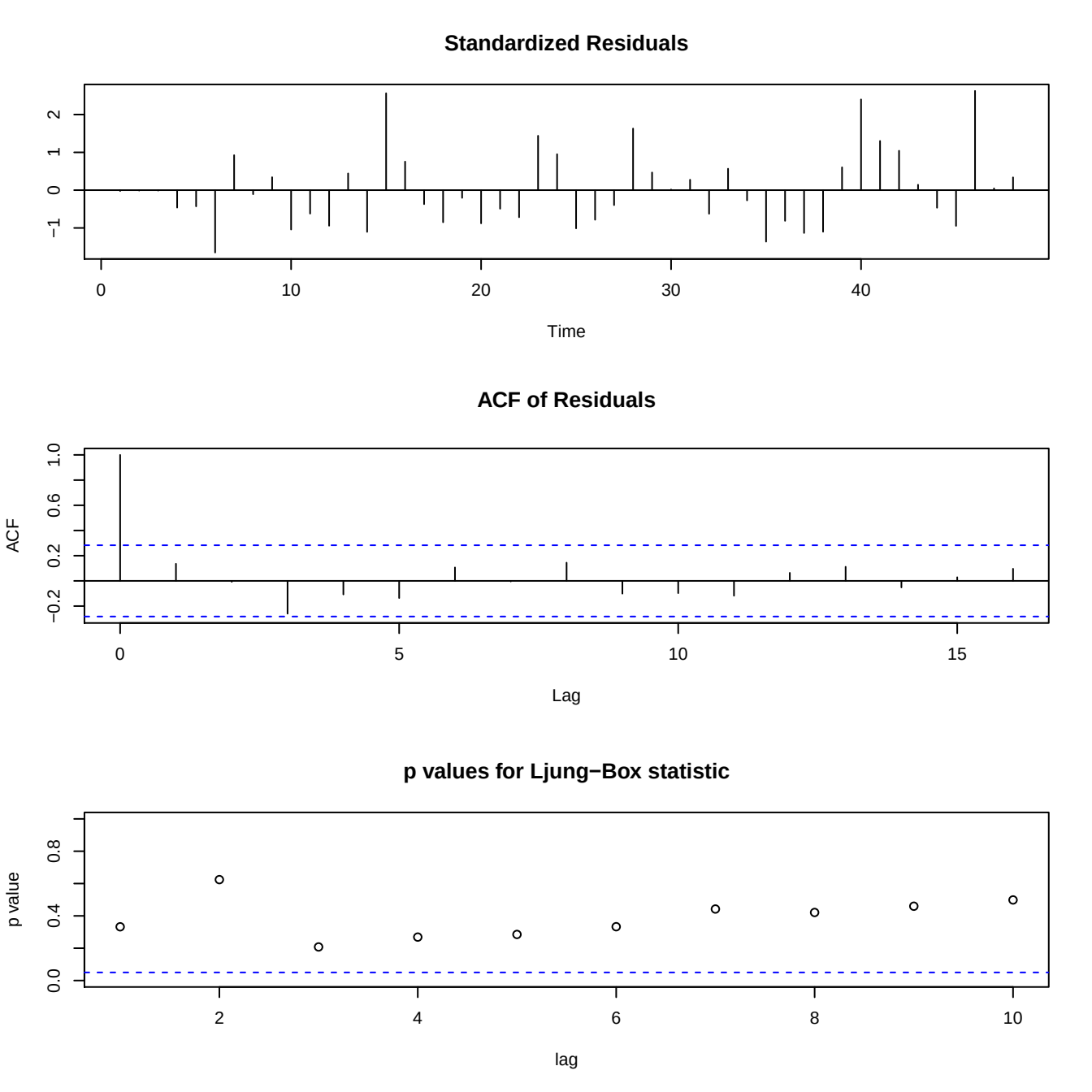

virginica
versicolor
setosa
4.5
5.5
6.5
7.5
Sepal

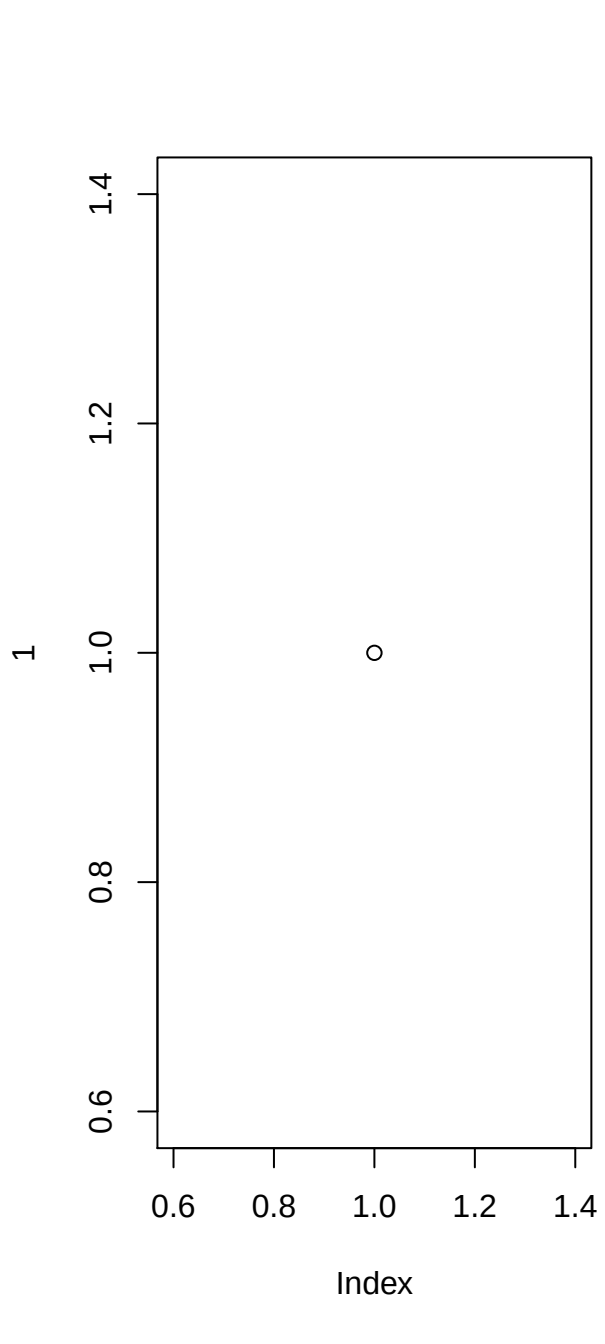

stepfun(2, 3:4)
f(x)
4.0
3.8
3.6
3.4
3.2
3.0
1.90
2.00
2.10
x

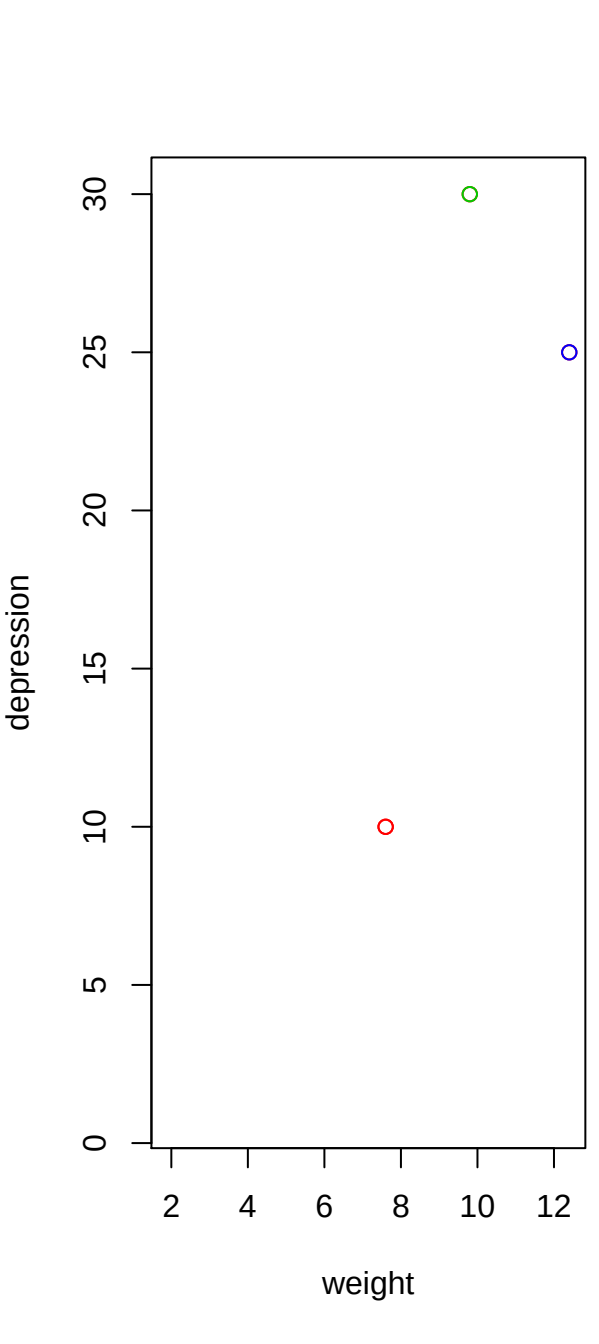

Series z
Partial ACF
0.2
0.1
0.0
−0.1
−0.2
5
10
15
20
Lag

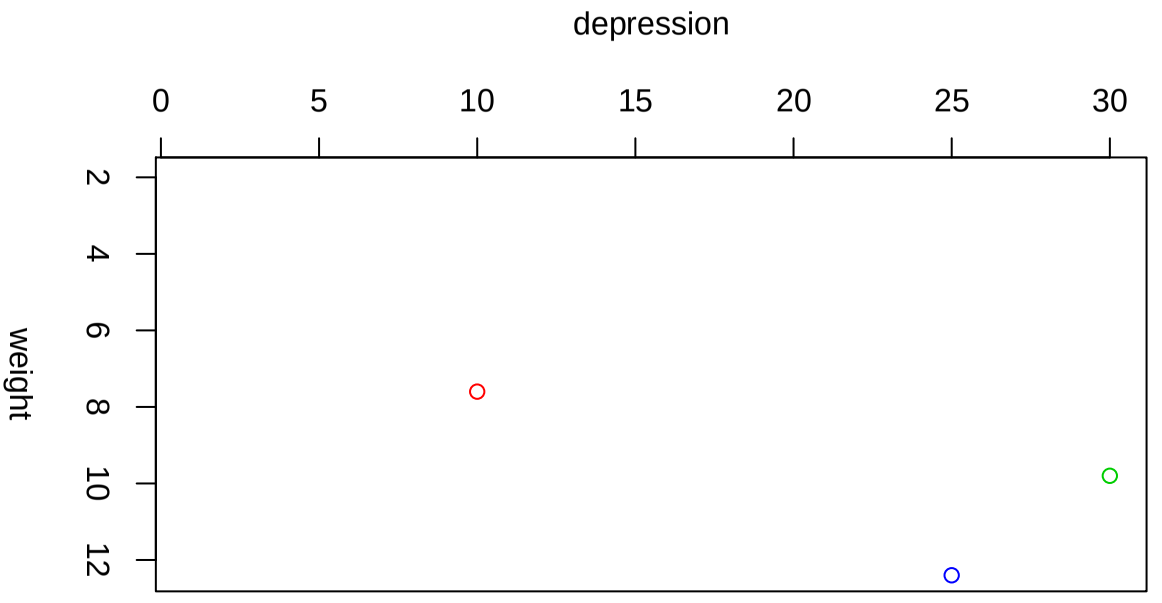

Series matrix(rnorm(100), , 1)
Partial ACF
0.2
0.1
0.0
−0.1
−0.2
5
10
15
20
Lag
18, cv = TRUE, control.spar = list(trace = TRUE, tol = 1e−06, low = −3, maxit = 20))

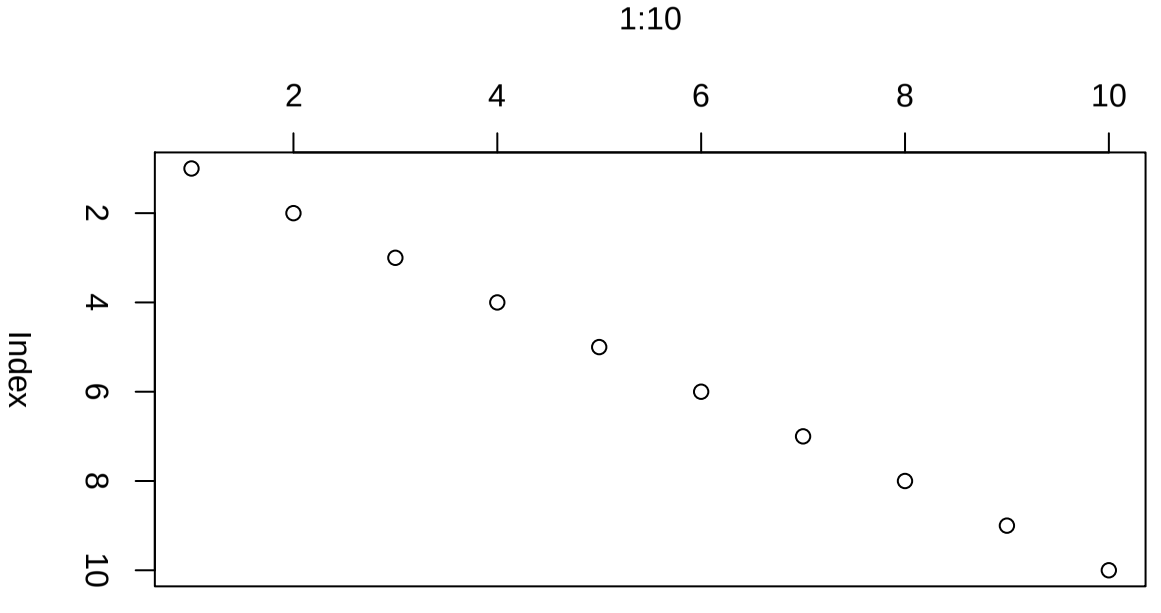

Standardized Residuals
−1
0
1
2
0
10
20
30
40
Time
ACF of Residuals
ACF
−0.2
0.2
0.6
1.0
0
5
10
15
Lag
p values for Ljung−Box statistic
p value
0.0
0.4
0.8
2
4
6
8
10
lag

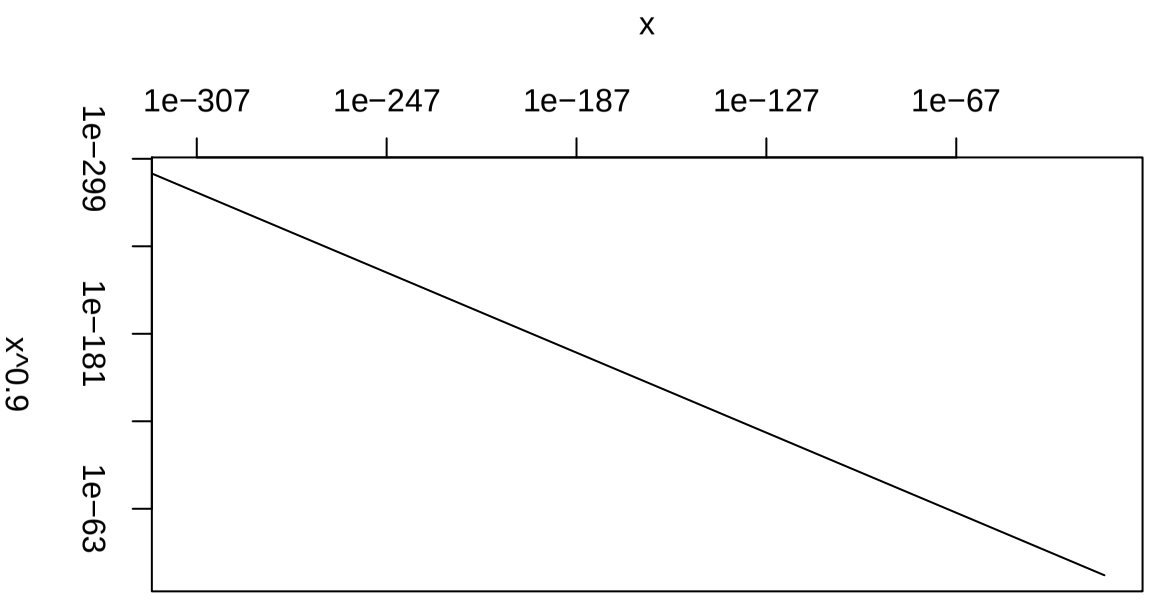

Standardized Residuals
−1
0
1
2
0
10
20
30
40
Time
ACF of Residuals
ACF
−0.2
0.2
0.6
1.0
0
5
10
15
Lag
p values for Ljung−Box statistic
p value
0.0
0.4
0.8
2
4
6
8
10
lag

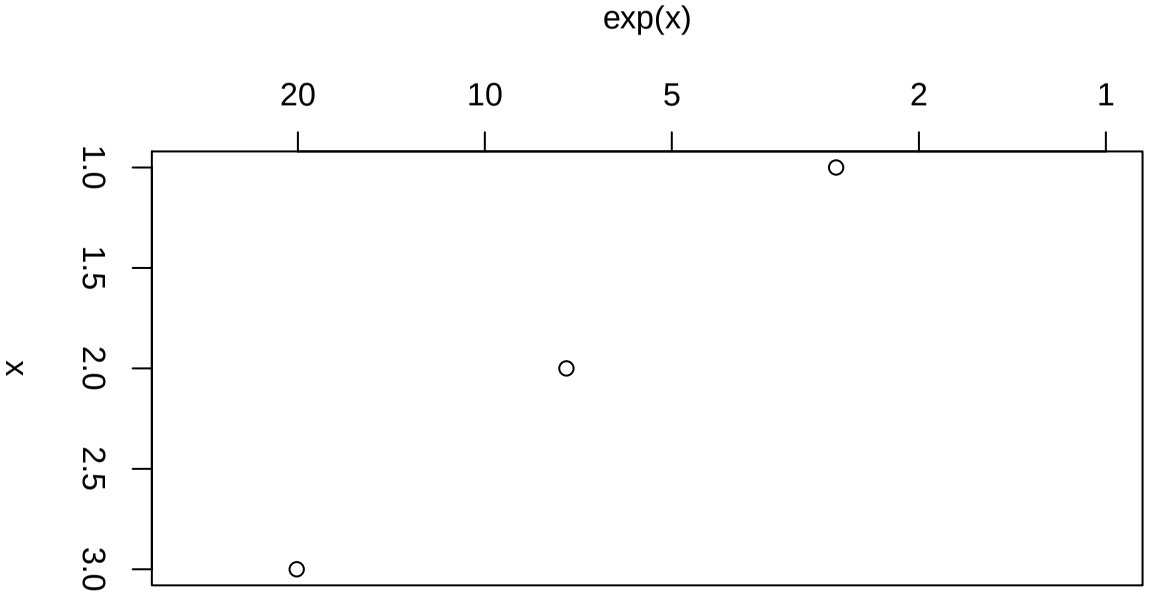

1
0.6
0.8
1.0
1.2
1.4
Index

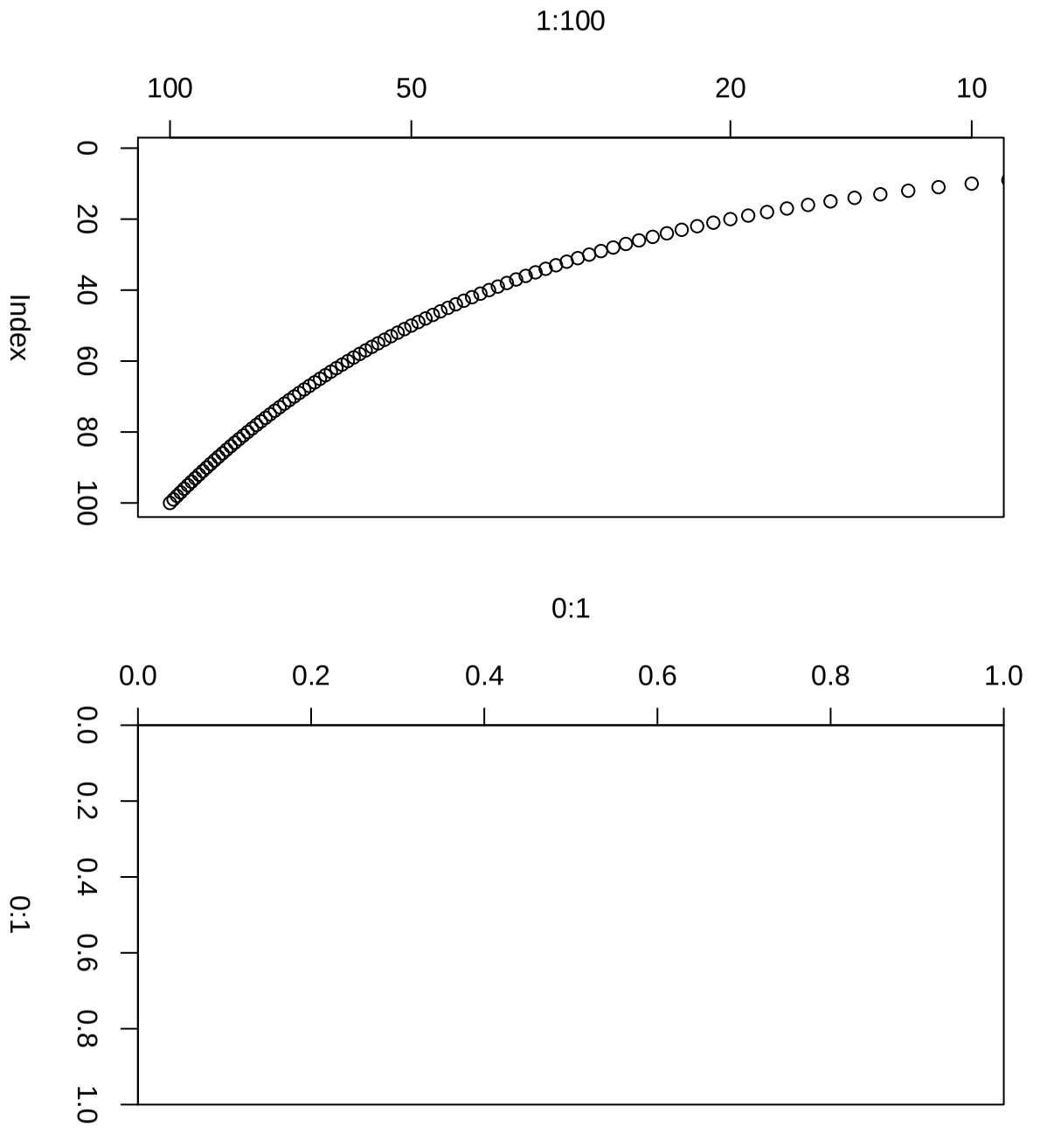

depression
0
5
10
15
20
25
30
2
4
6
8
10
12
weight

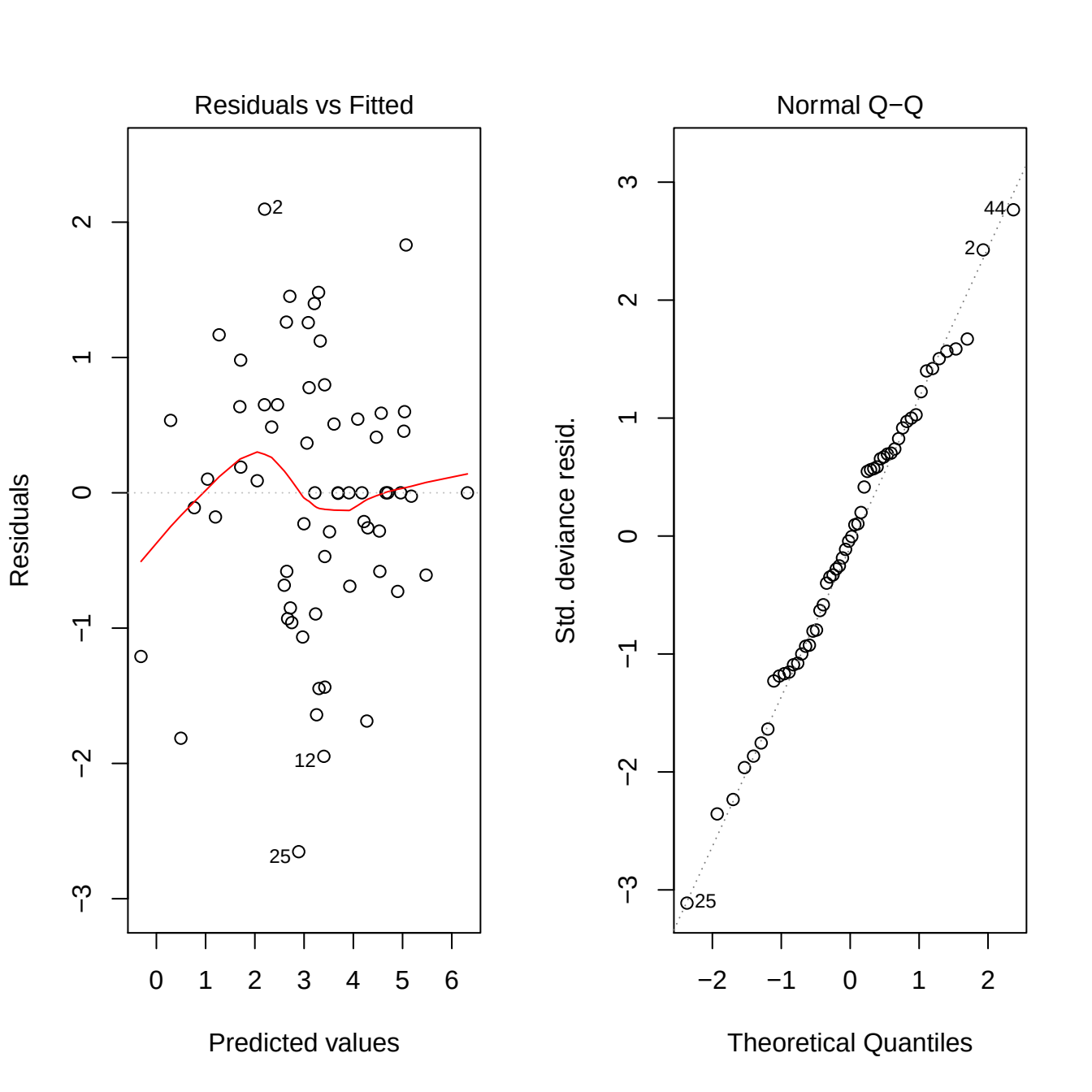

depression
0
5
10
15
20
25
30
weight
2
4
6
8
10
12

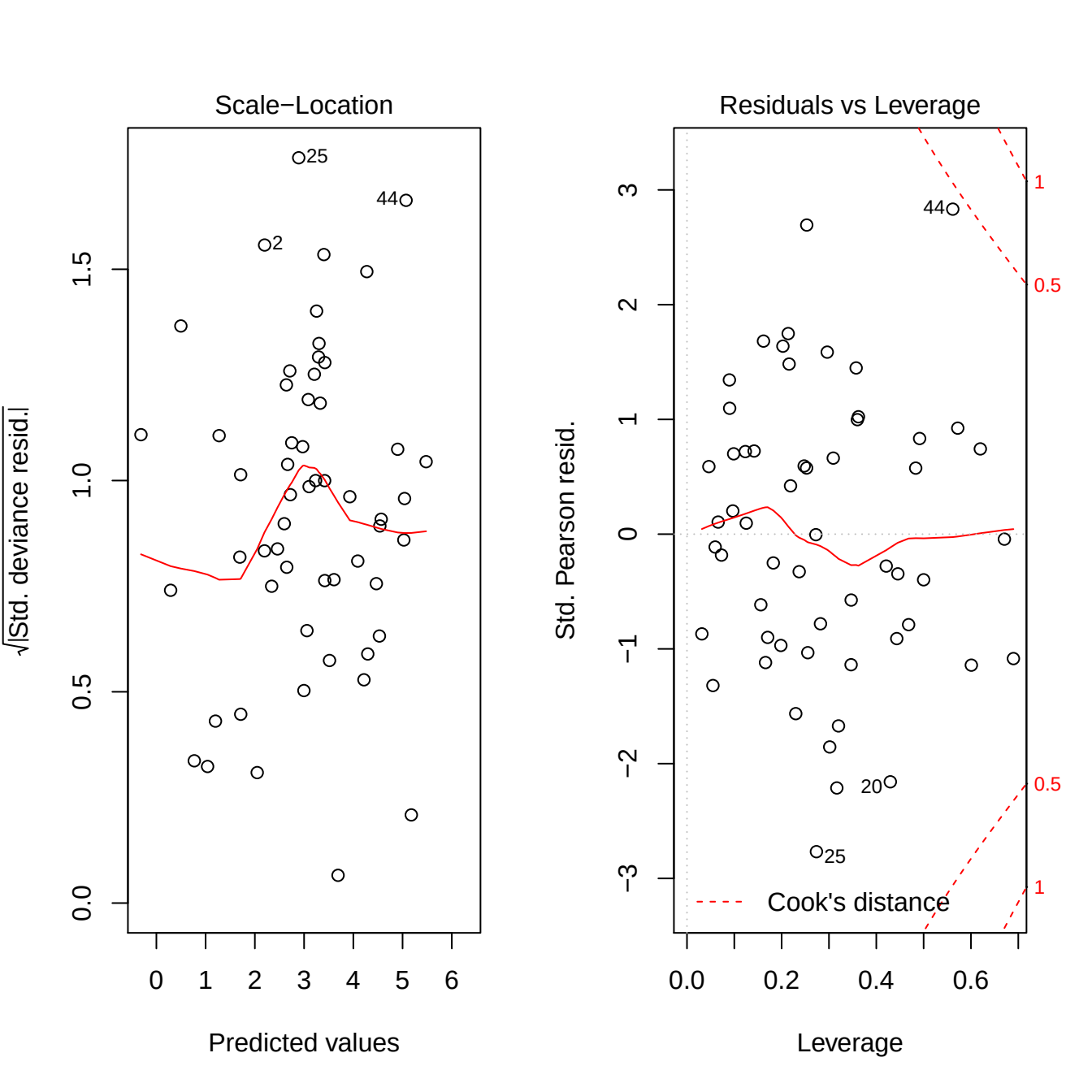

1:10
2
4
6
8
10
Index
2
4
6
8
10

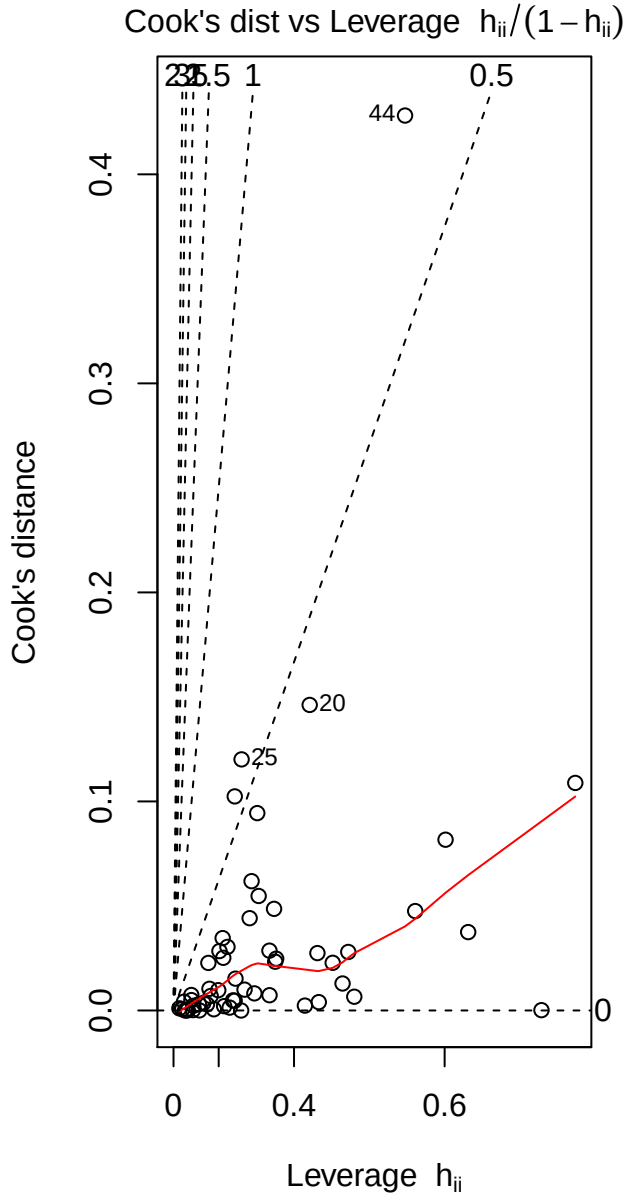

x
1e−307
1e−247
1e−187
1e−127
1e−67
x^0.9
1e−299
1e−181
1e−63

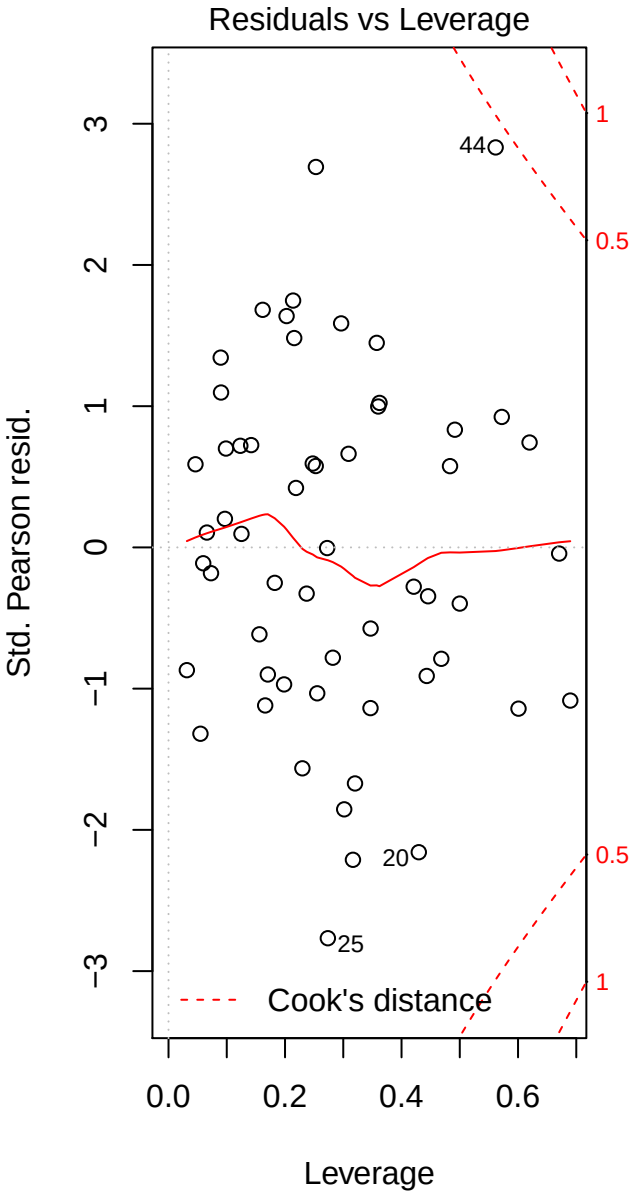

exp(x)
20
10
5
2
1
x
1.0
1.5
2.0
2.5
3.0

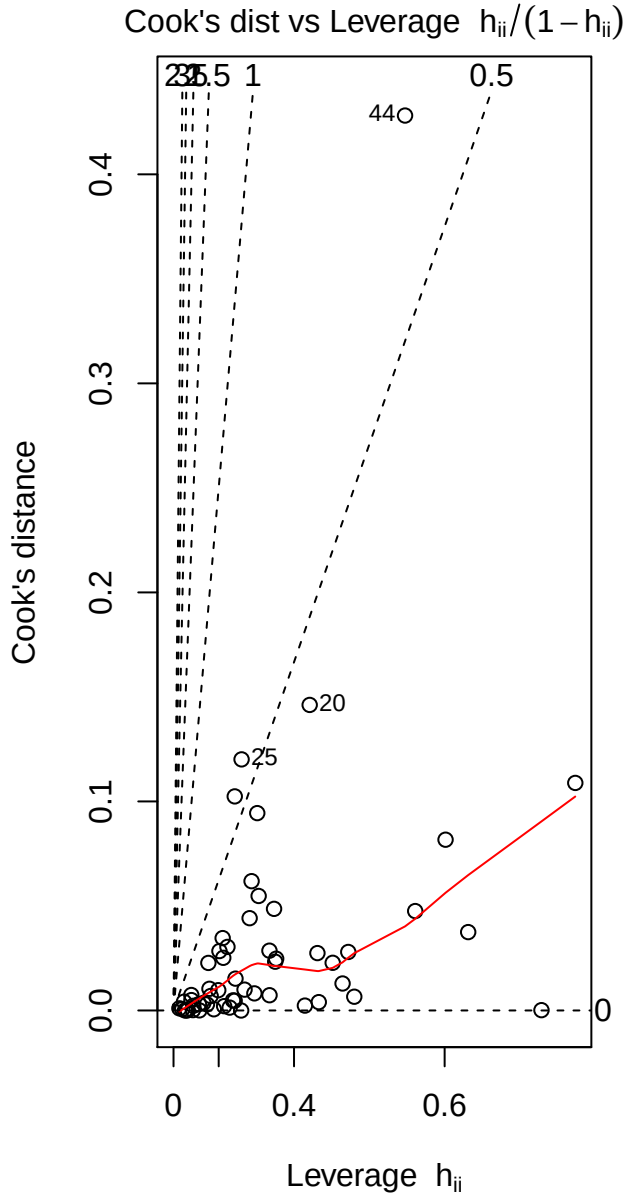

1:100
100
50
20
10
0
20
40
60
80
100
Index
0:1
0.0
0.2
0.4
0.6
0.8
1.0
0.0
0.2
0.4
0.6
0.8
1.0
0:1

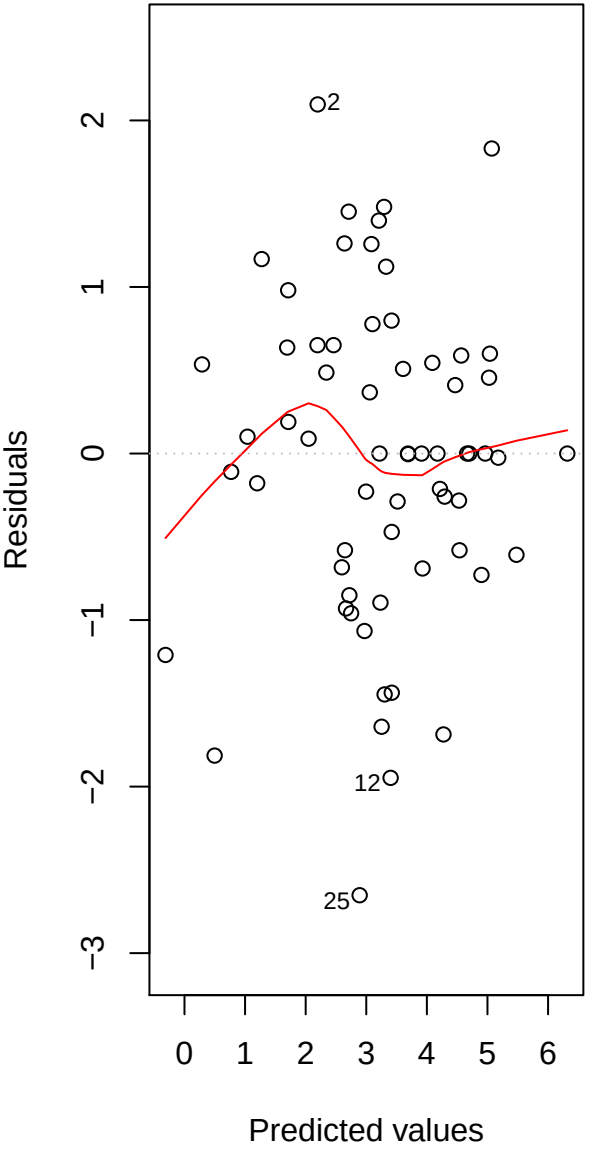

Residuals vs Fitted
Residuals
Predicted values
2
12
25
Normal Q−Q
Std. deviance resid.
Theoretical Quantiles
44
2
25

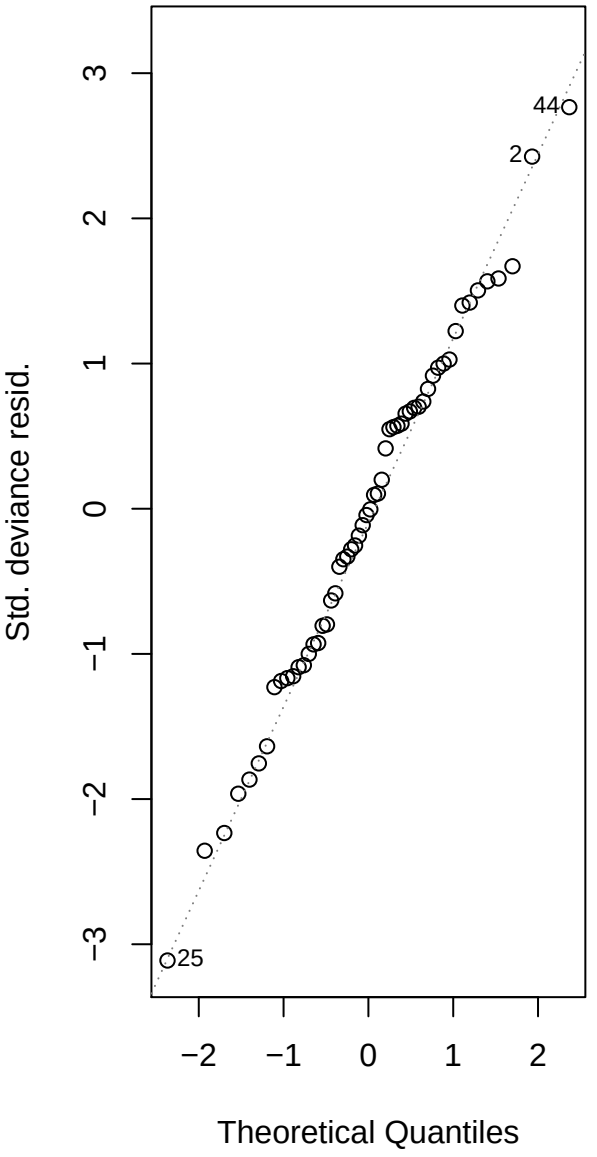

Scale−Location
√|Std. deviance resid.|
Predicted values
0.0
0.5
1.0
1.5
0
1
2
3
4
5
6
25
44
2
Residuals vs Leverage
Std. Pearson resid.
Leverage
−3
−2
−1
0
1
2
3
0.0
0.2
0.4
0.6
44
20
25
1
0.5
0.5
1
Cook's distance

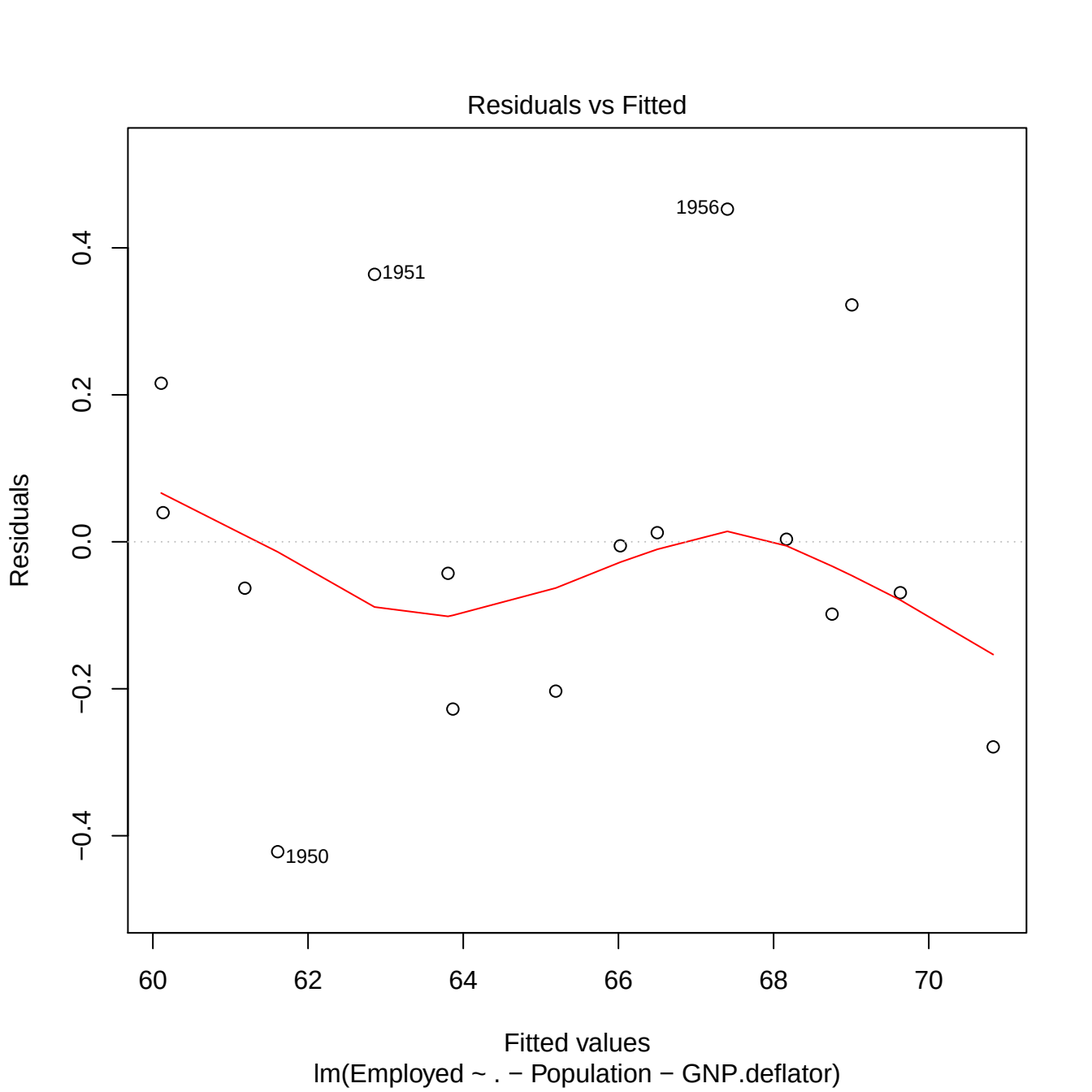

Cook's dist vs Leverage $h_{ii}/(1-h_{ii})$
Cook's distance
Leverage h_{ii}
0.5
1
44
20
25
0

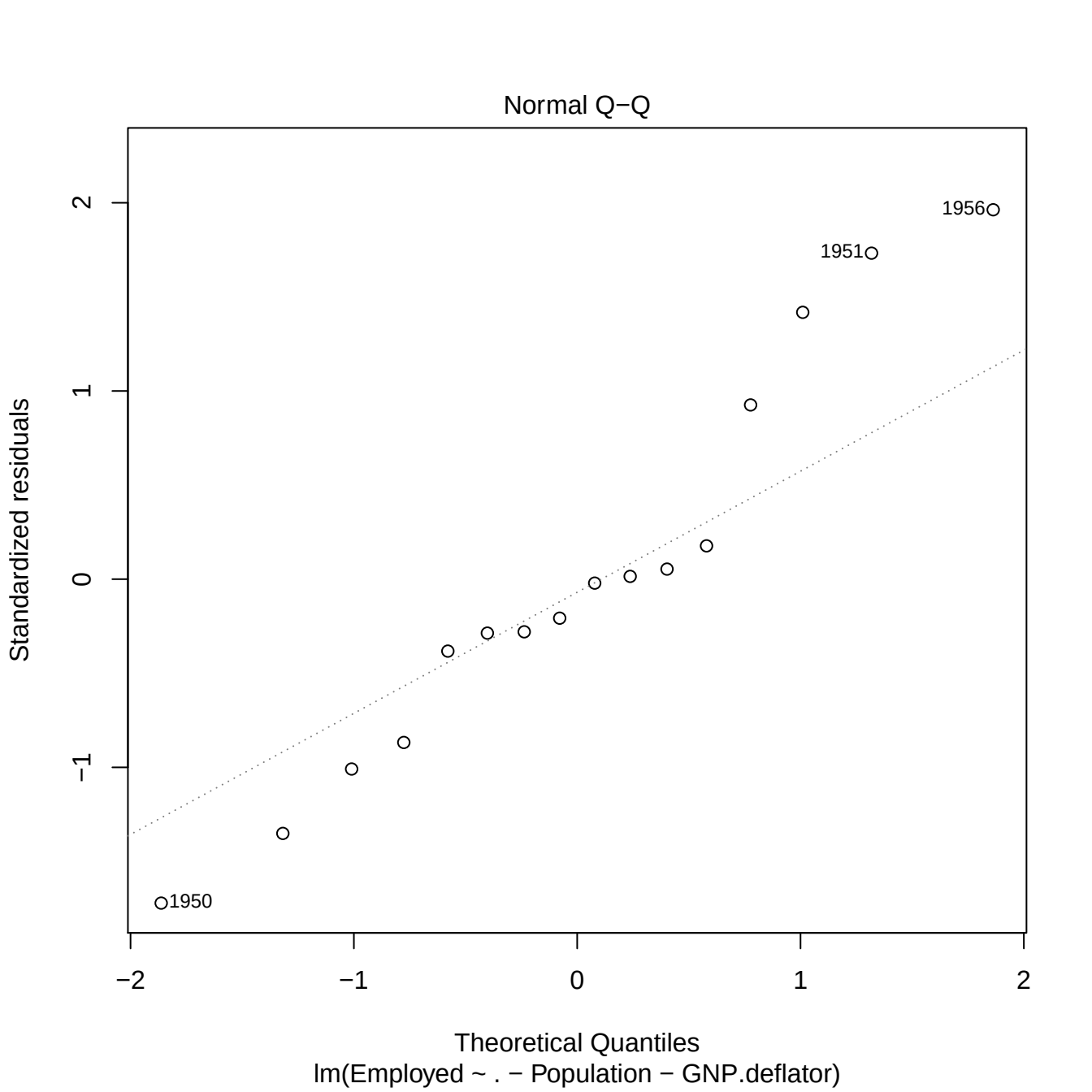

Residuals vs Leverage
Std. Pearson resid.
Leverage
Cook's distance
44
20
25
1
0.5
0.5
1

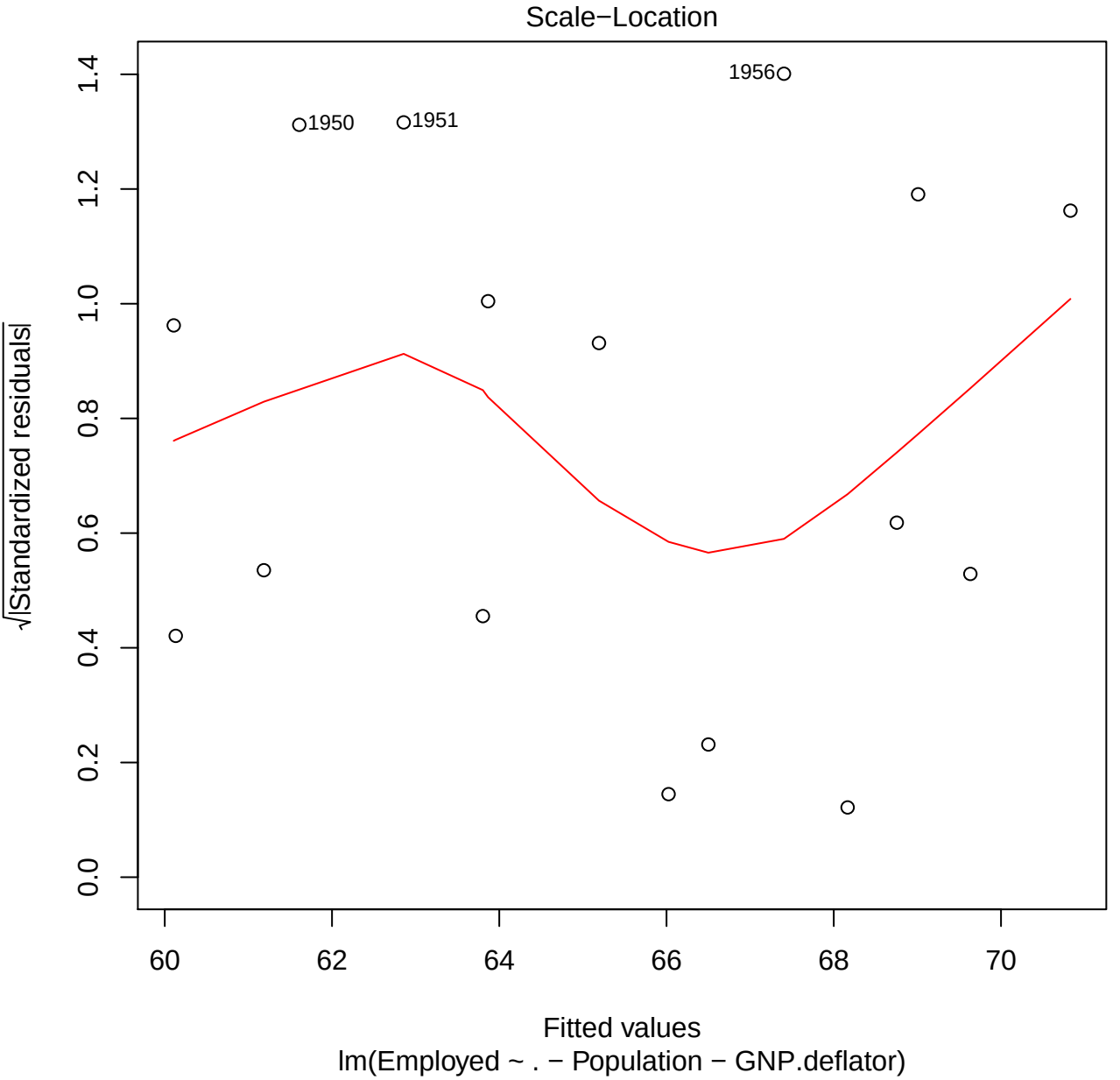

Cook's dist vs Leverage $h_{ii}/(1-h_{ii})$
0.5
1
0.5
44
20
25
0
Cook's distance
0.0
0.1
0.2
0.3
0.4
0
0.4
0.6
Leverage h_{ii}

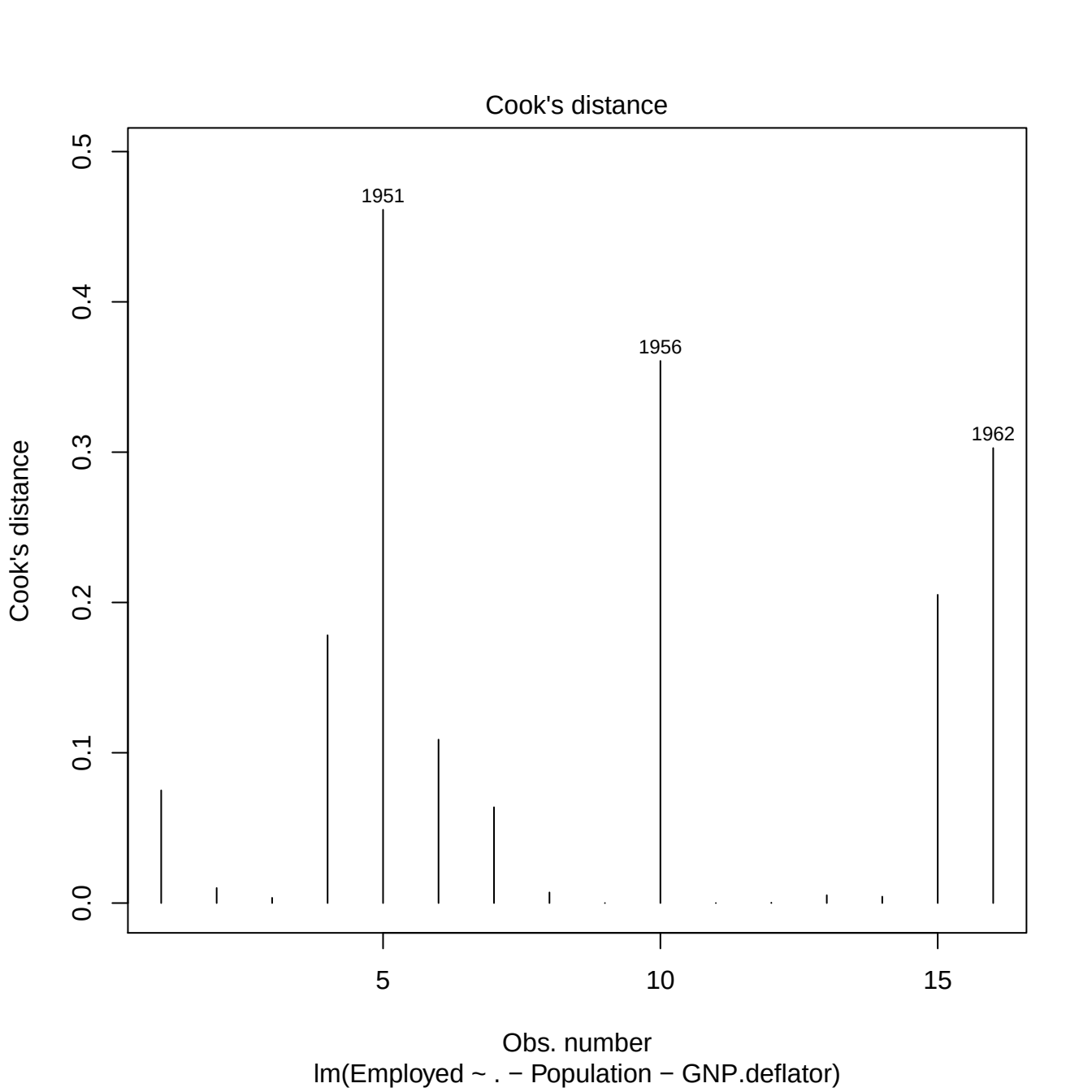

Residuals
2
12
25
−3
−2
−1
0
1
2
0
1
2
3
4
5
6
Predicted values

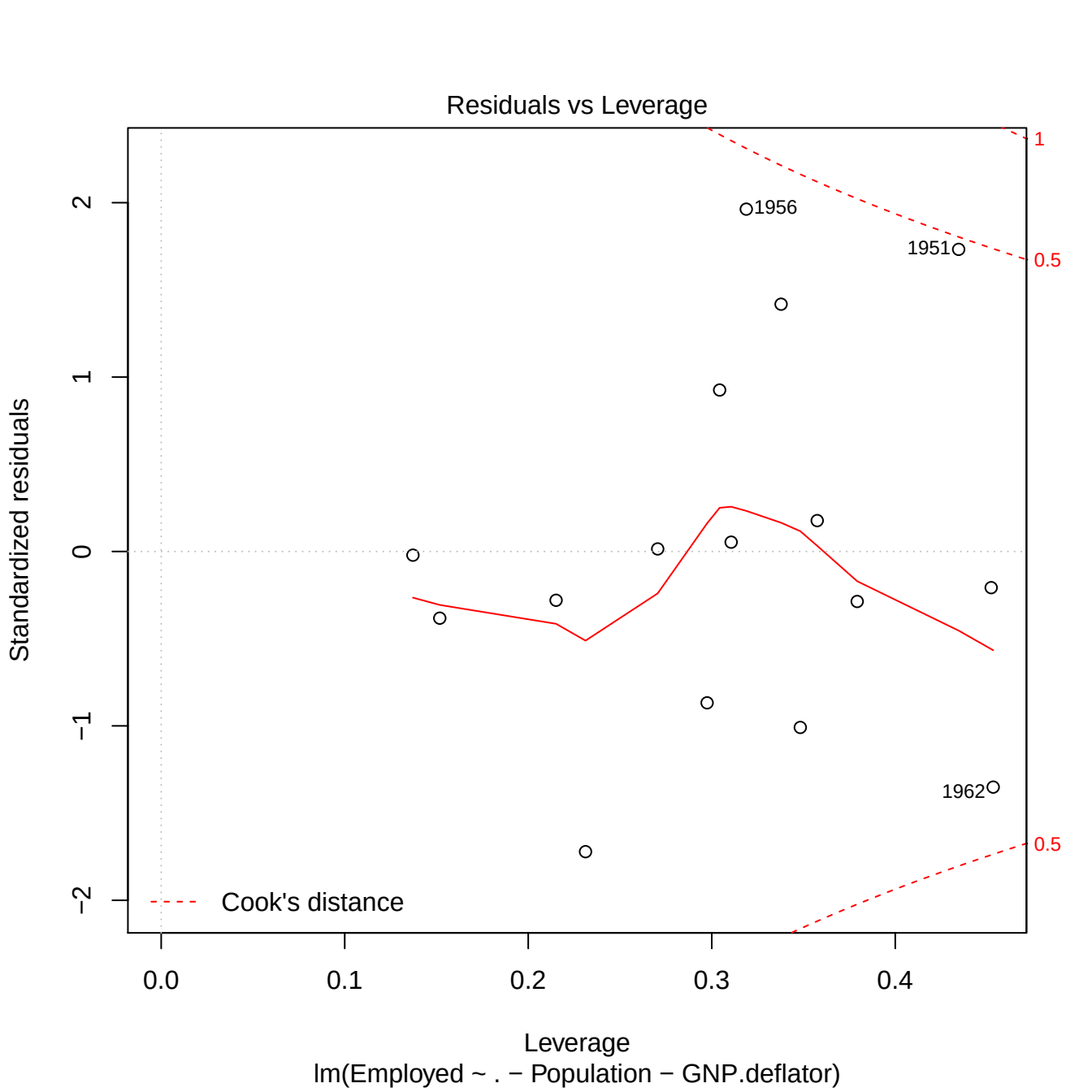

Std. deviance resid.
3
2
1
0
−1
−2
−3
44
2
25
−2
−1
0
1
2
Theoretical Quantiles

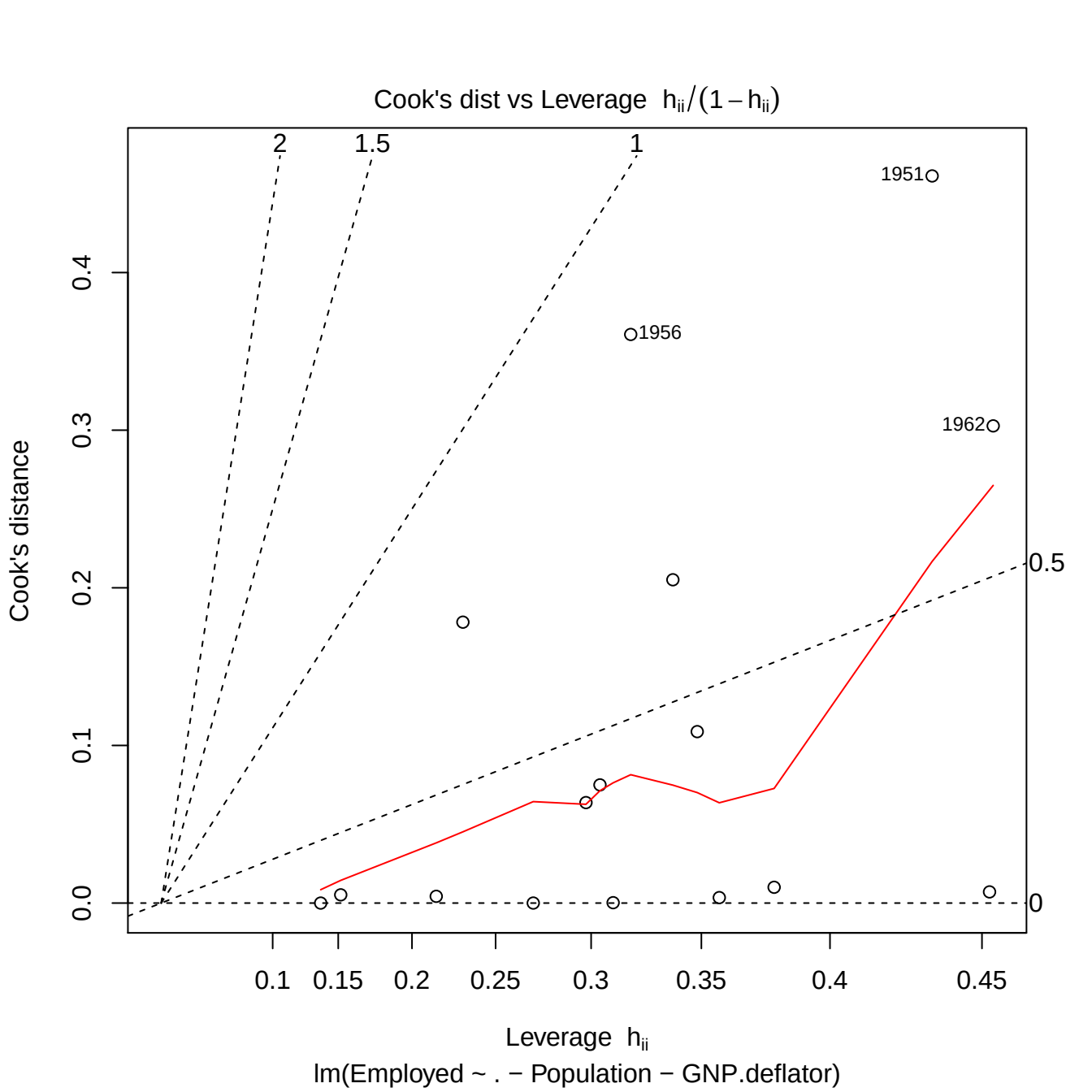

Residuals vs Fitted
1956
1951
1950
Residuals
0.4
0.2
0.0
−0.2
−0.4
60
62
64
66
68
70
Fitted values
lm(Employed ~ . − Population − GNP.deflator)

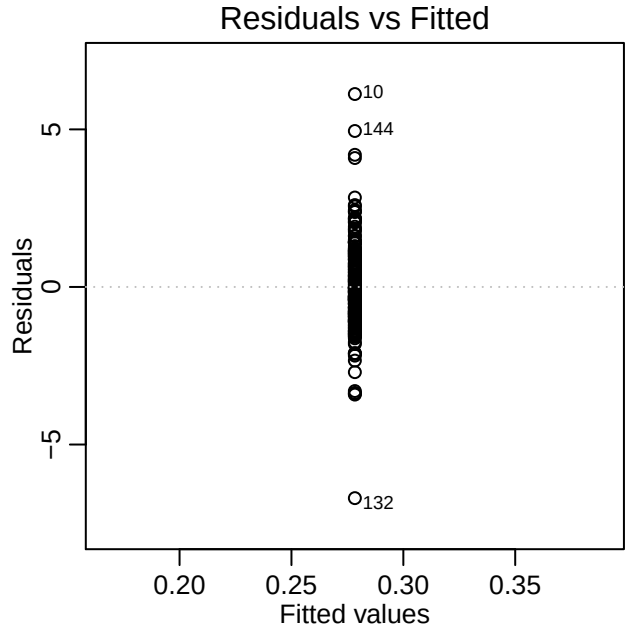

Normal Q−Q
Standardized residuals
Theoretical Quantiles
lm(Employed ~ . − Population − GNP.deflator)
1956
1951
1950
2
1
0
−1
−2
−2
−1
0
1
2

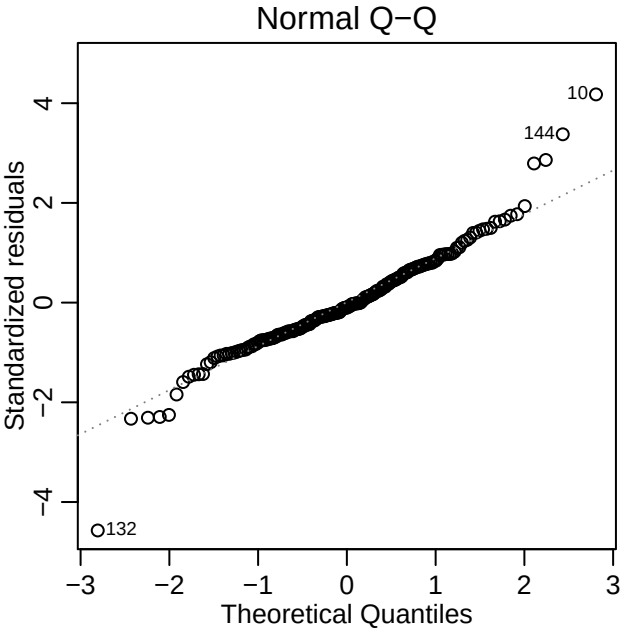

Scale−Location
1956
1950
1951
√|Standardized residuals|
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
60
62
64
66
68
70
Fitted values
lm(Employed ~ . − Population − GNP.deflator)

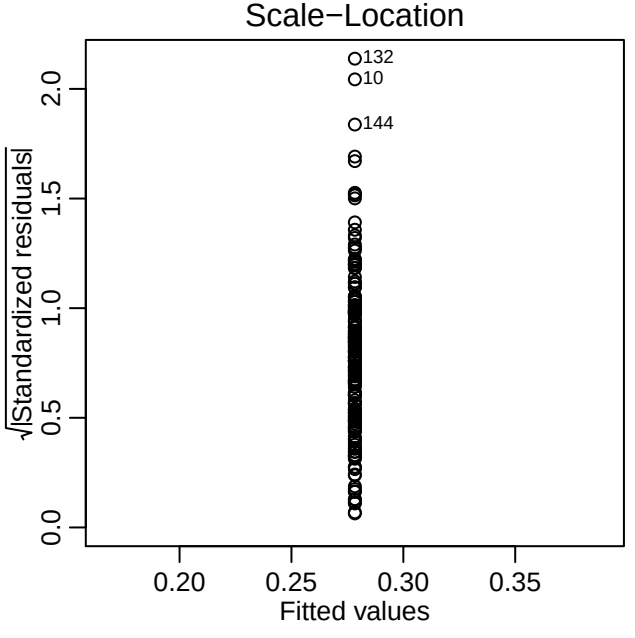

Cook's distance
Cook's distance
0.0
0.1
0.2
0.3
0.4
0.5
1951
1956
1962
5
10
15
Obs. number
lm(Employed ~ . − Population − GNP.deflator)

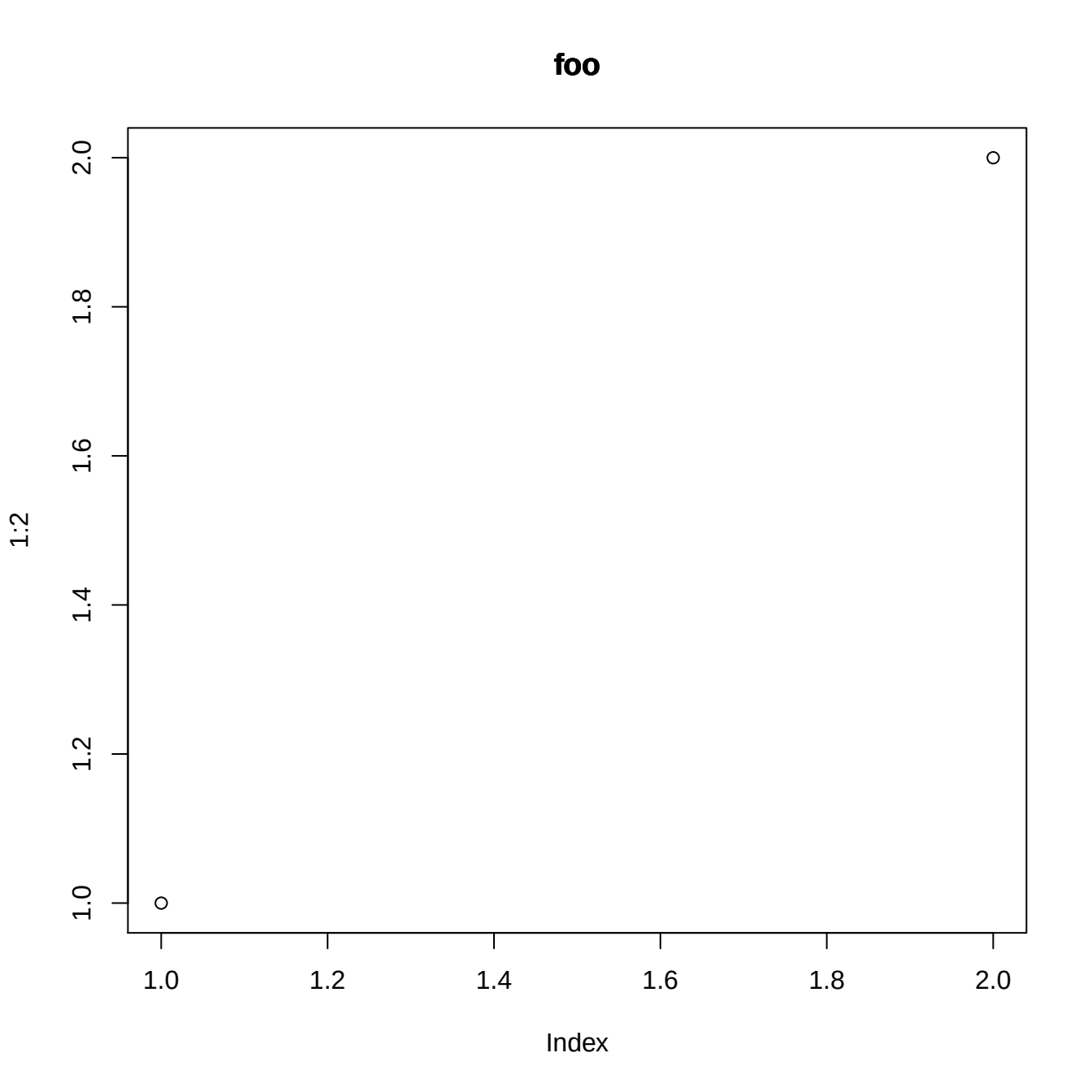

Residuals vs Leverage
Standardized residuals
Leverage
lm(Employed ~ . − Population − GNP.deflator)
1956
1951
1962
Cook's distance
1
0.5
0.5
2
1
0
−1
−2
0.0
0.1
0.2
0.3
0.4

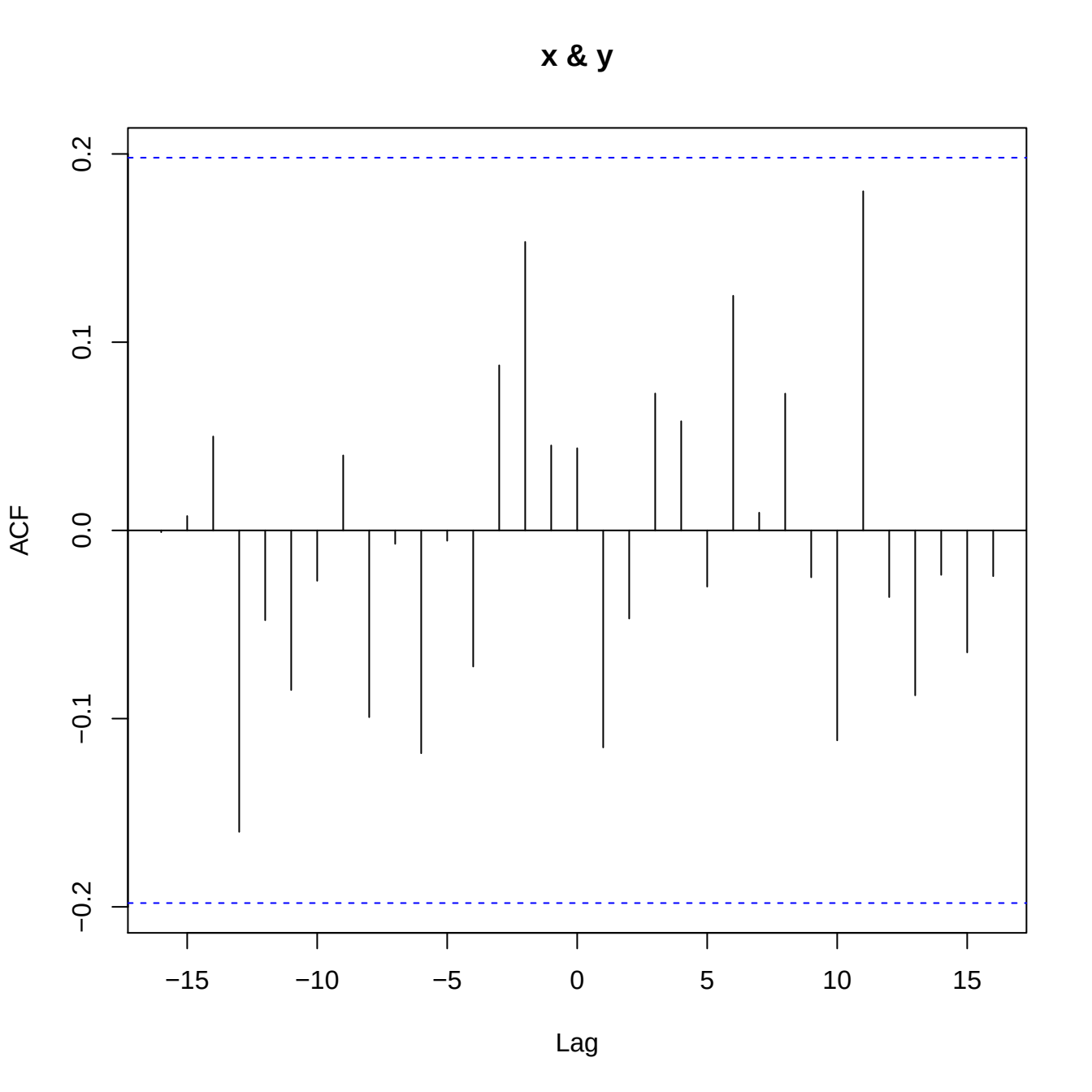

Cook's dist vs Leverage $h_{ii}/(1-h_{ii})$
2
1.5
1
0.5
1951
1956
1962
Cook's distance
0.0
0.1
0.2
0.3
0.4
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
Leverage h_{ii}
lm(Employed ~ . − Population − GNP.deflator)

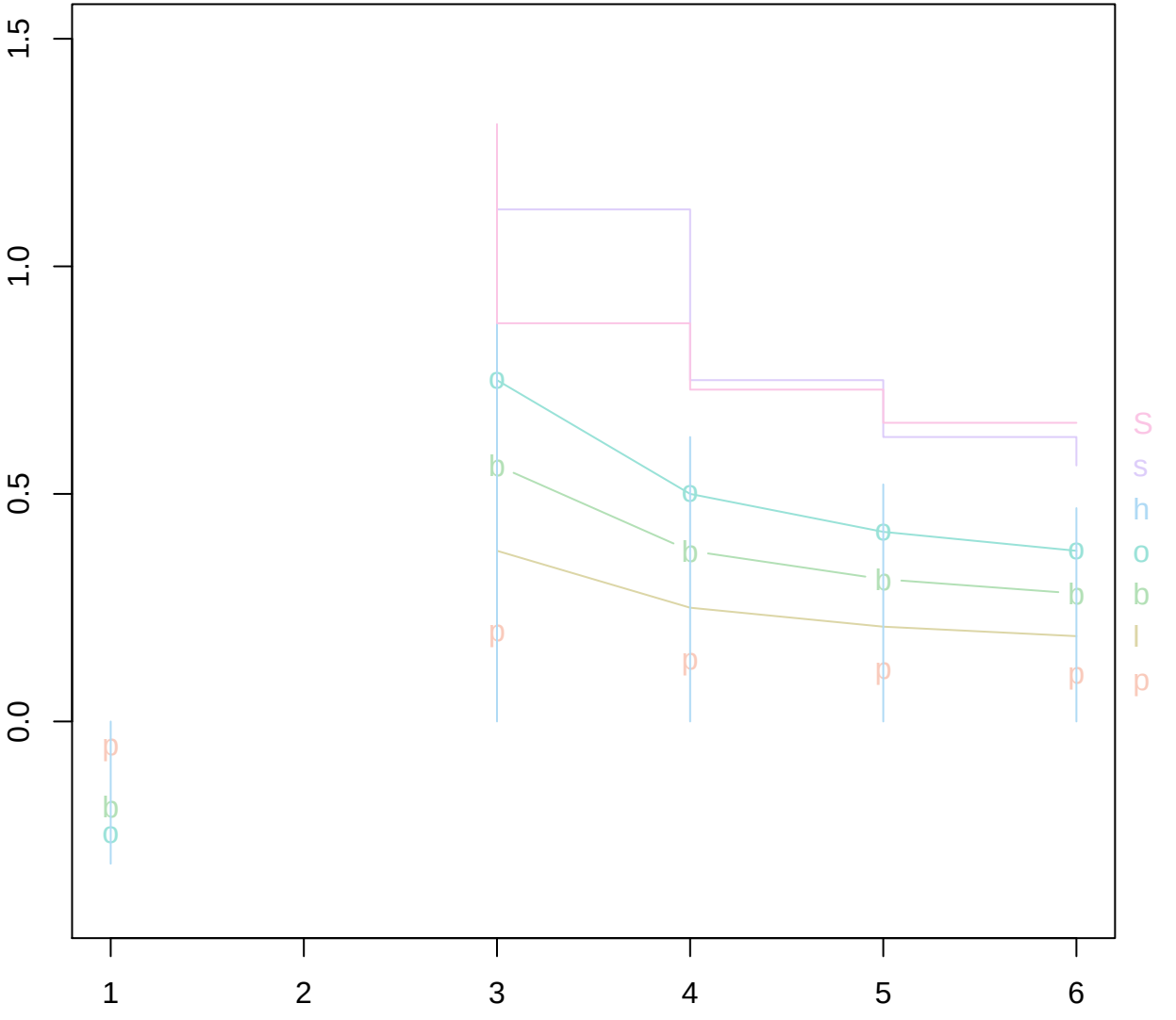

Residuals vs Fitted
Residuals
Fitted values
10
144
132
5
0
−5
0.20
0.25
0.30
0.35

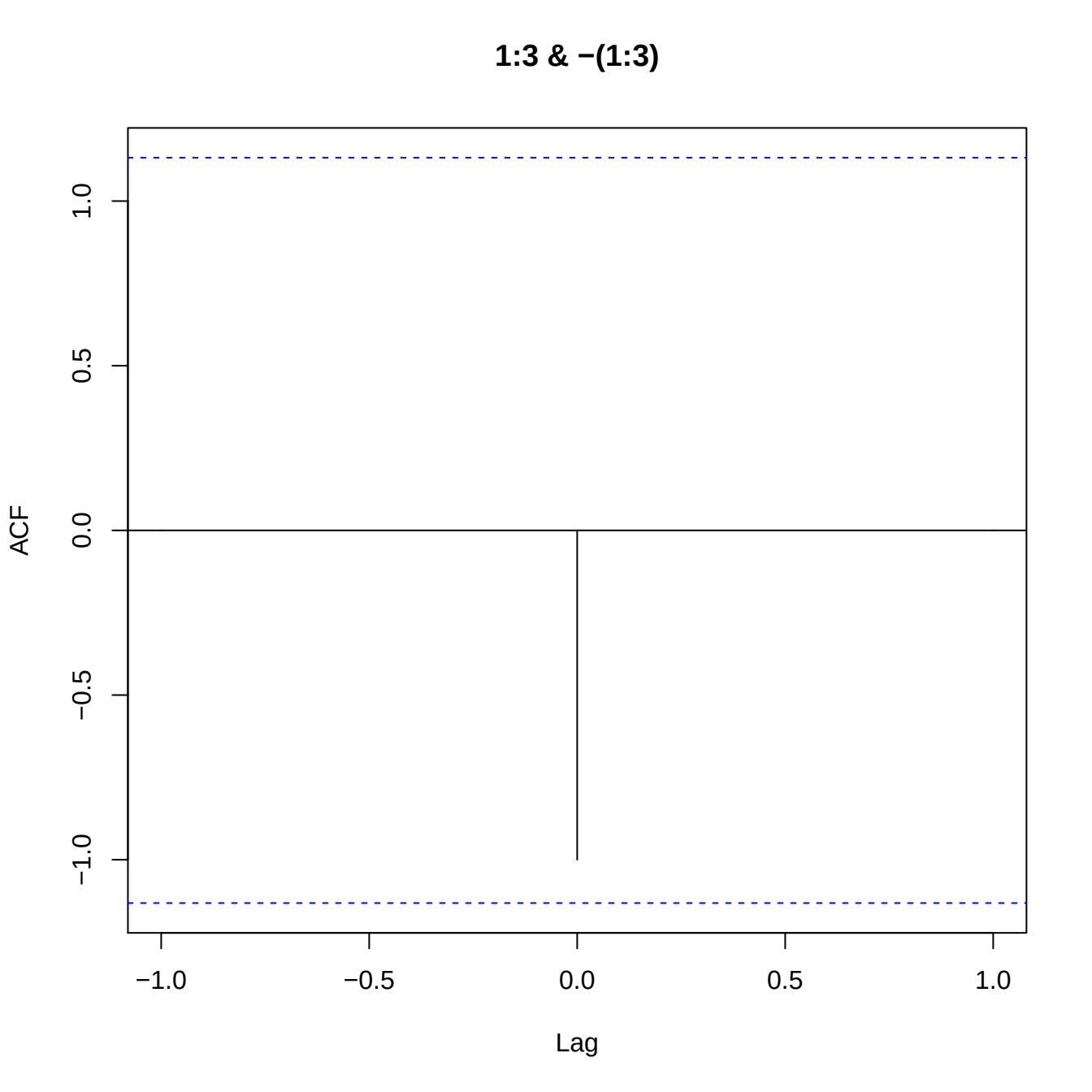

Normal Q−Q
Standardized residuals
Theoretical Quantiles
10
144
132
4
2
0
−2
−4
−3
−2
−1
0
1
2
3

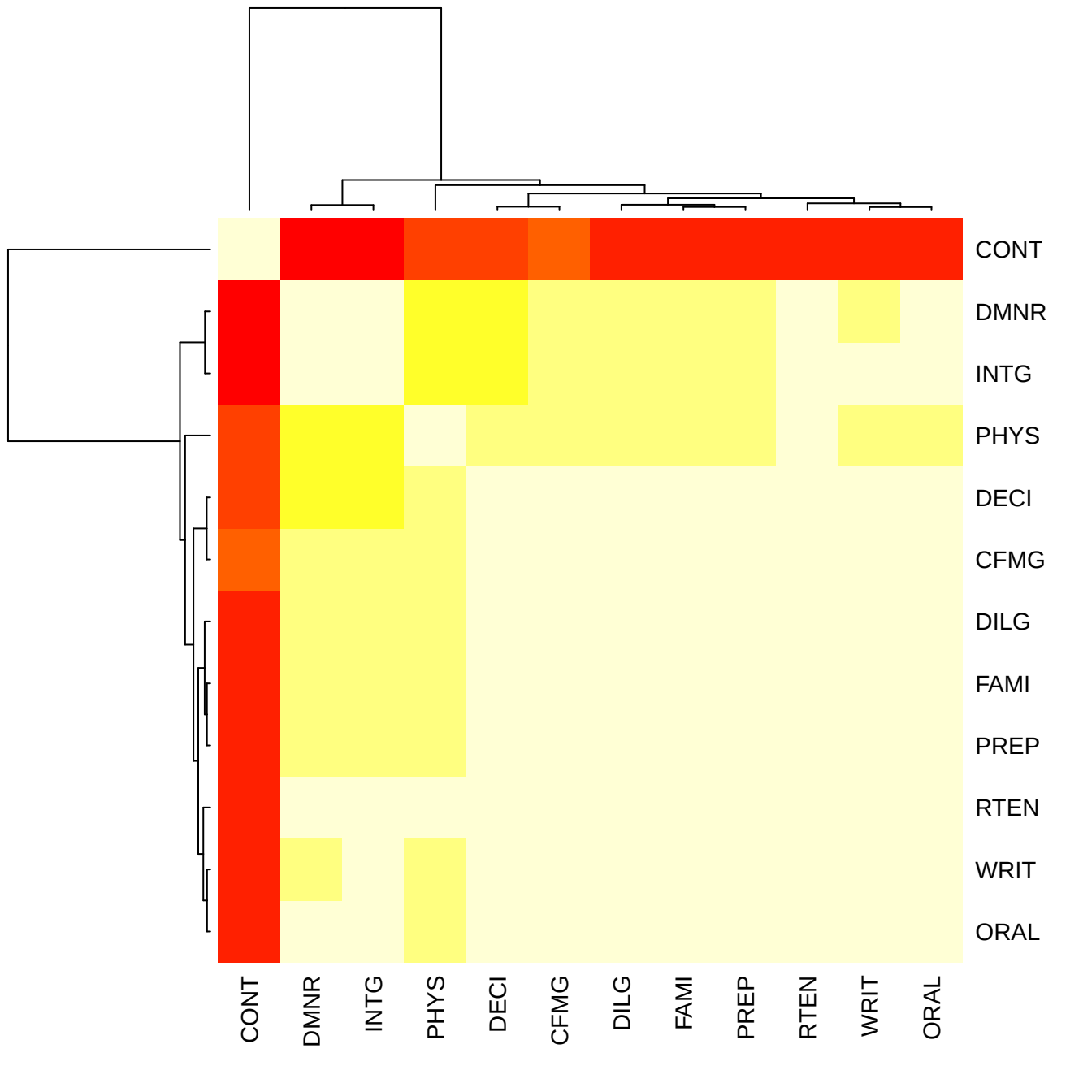

Scale−Location
√|Standardized residuals|
Fitted values
132
10
144
2.0
1.5
1.0
0.5
0.0
0.20
0.25
0.30
0.35


foo
1:2
Index
1.0
1.2
1.4
1.6
1.8
2.0


x & y
ACF
0.2
0.1
0.0
−0.1
−0.2
−15
−10
−5
0
5
10
15
Lag


1.5
1.0
0.5
0.0
1
2
3
4
5
6
S
s
h
o
b
l
p


1:3 & −(1:3)
ACF
1.0
0.5
0.0
−0.5
−1.0
−1.0
−0.5
0.0
0.5
1.0
Lag


CONT
DMNR
INTG
PHYS
DECI
CFMG
DILG
FAMI
PREP
RTEN
WRIT
ORAL
CONT
DMNR
INTG
PHYS
DECI
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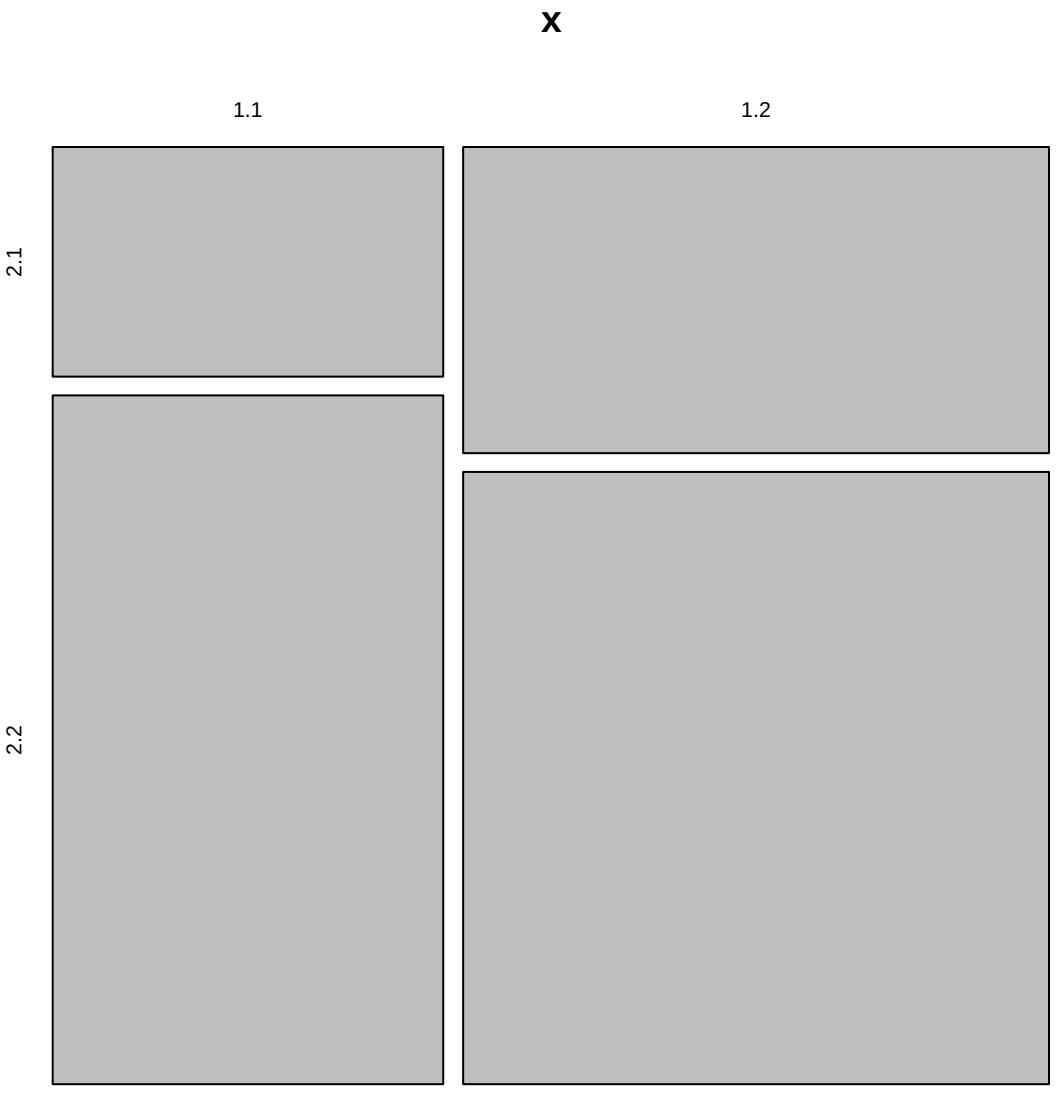
DILG
FAMI
PREP
RTEN
WRIT
ORAL


x
1.1
1.2
2.1
2.2