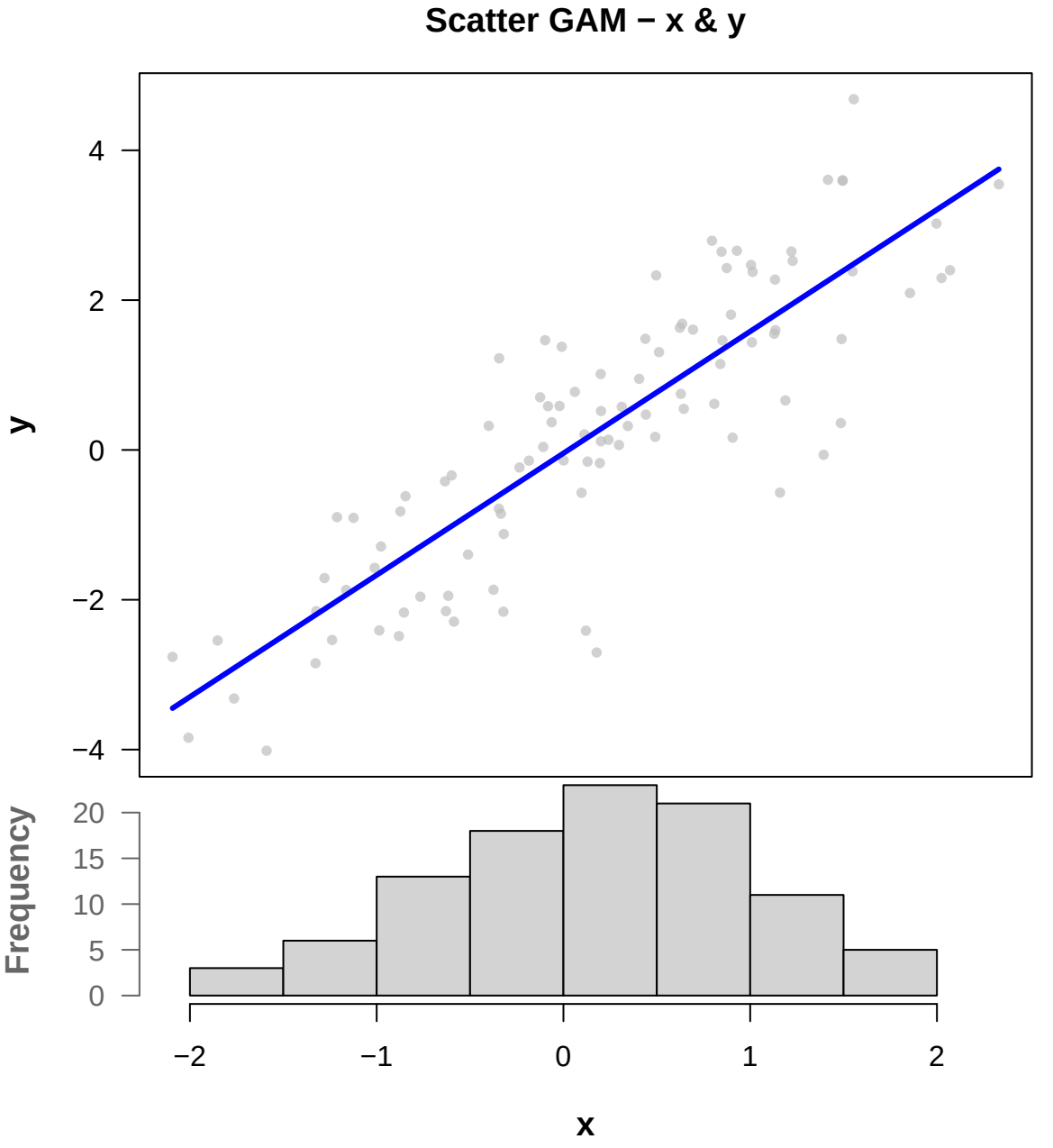
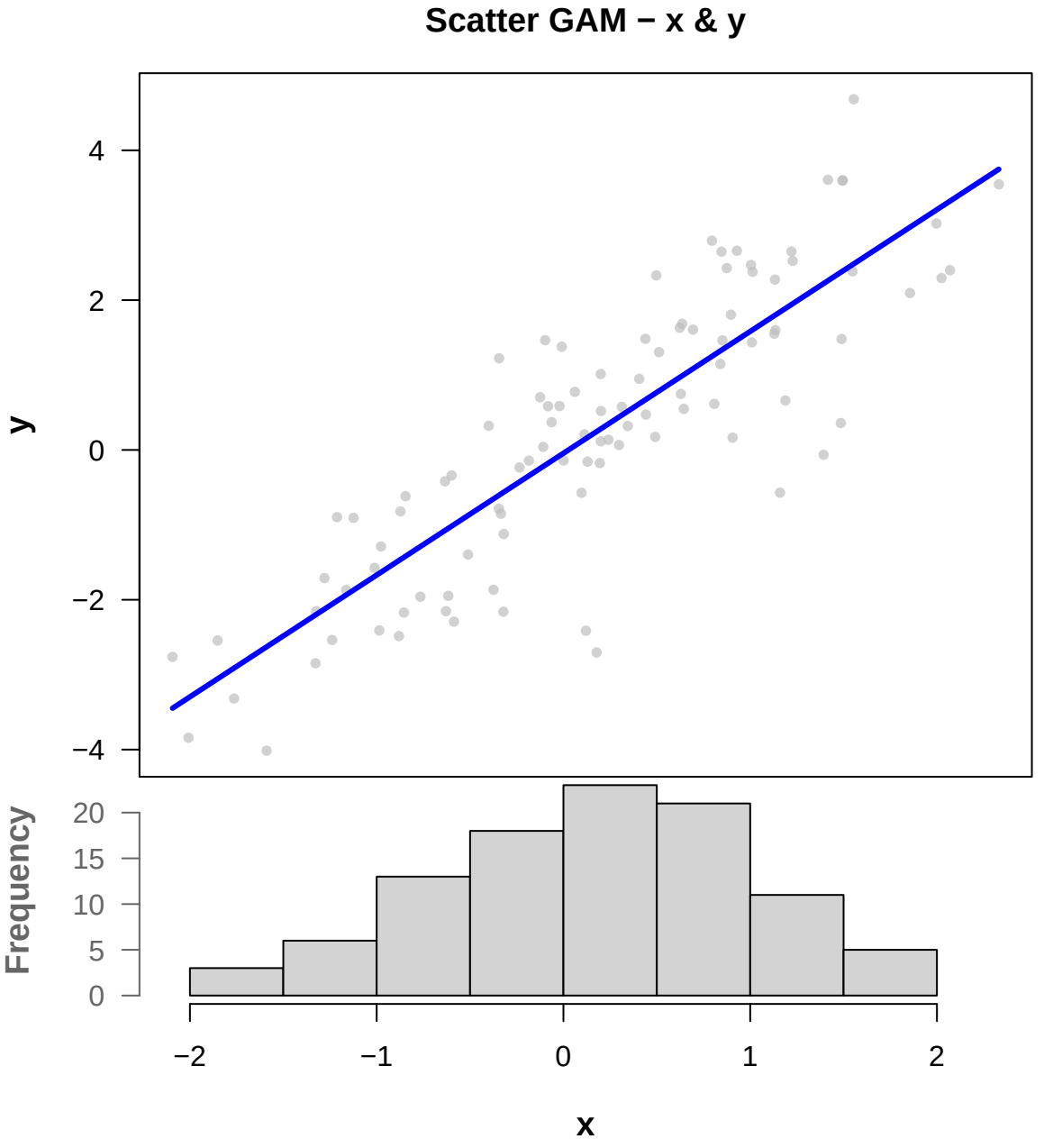
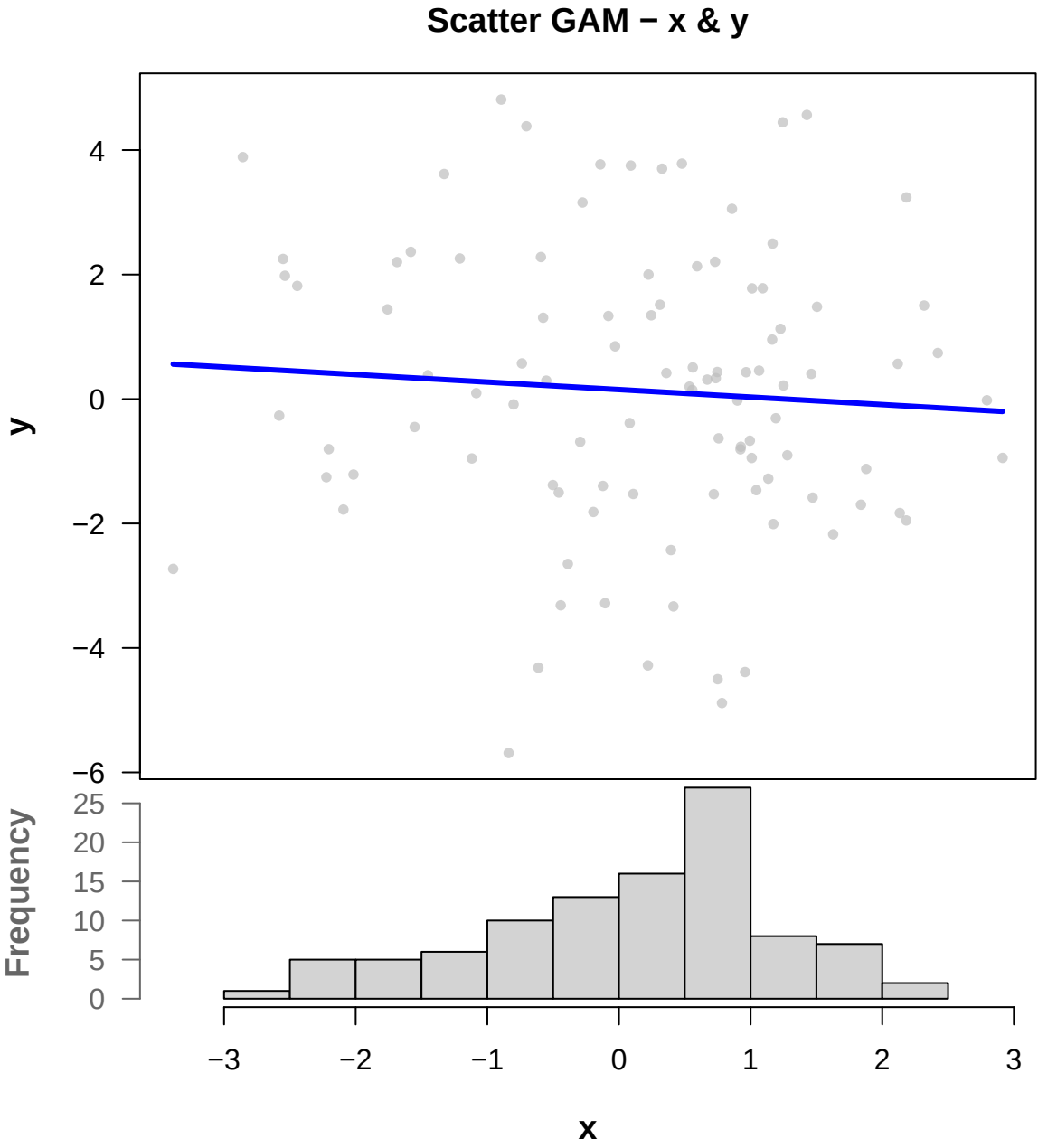
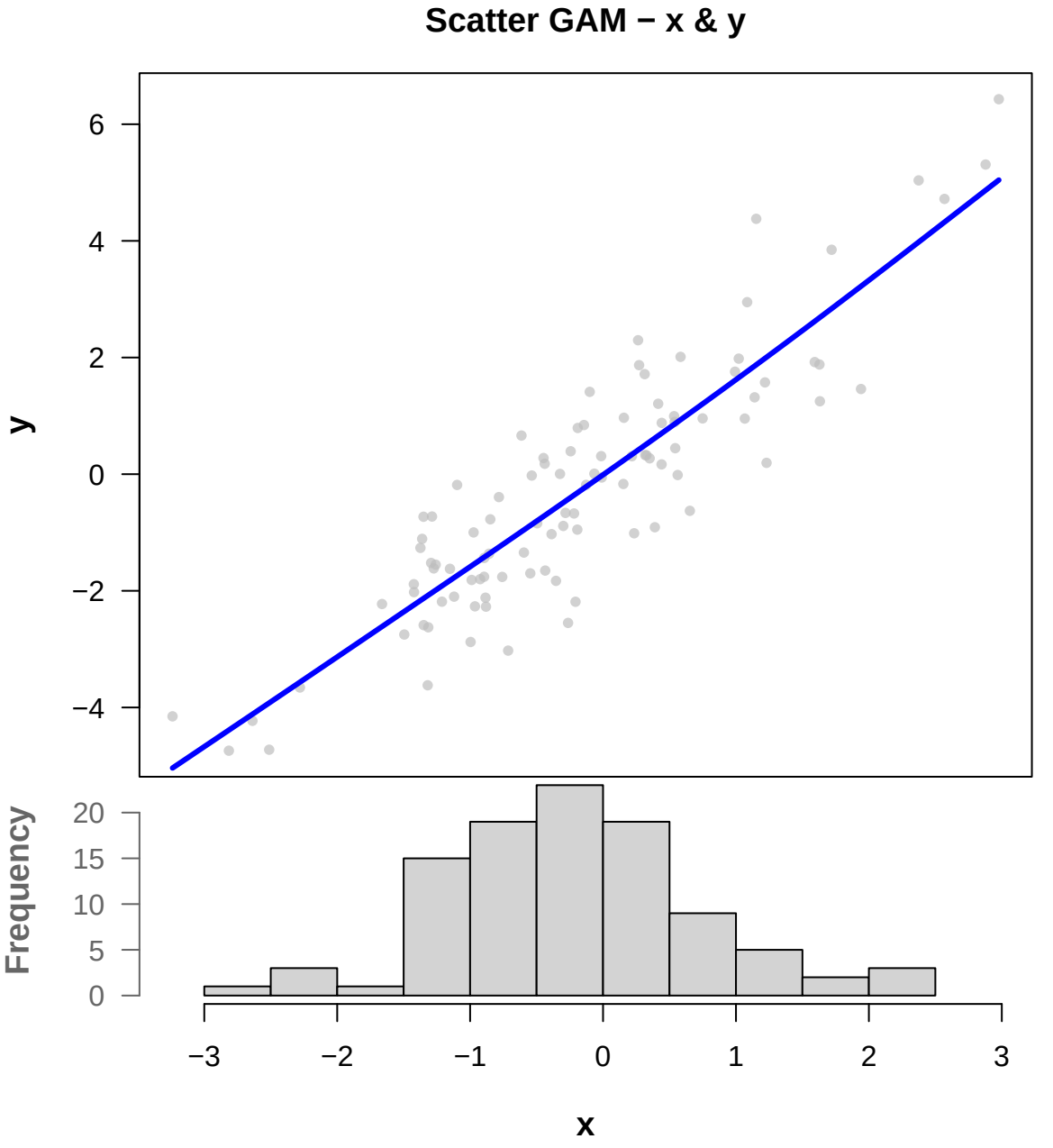
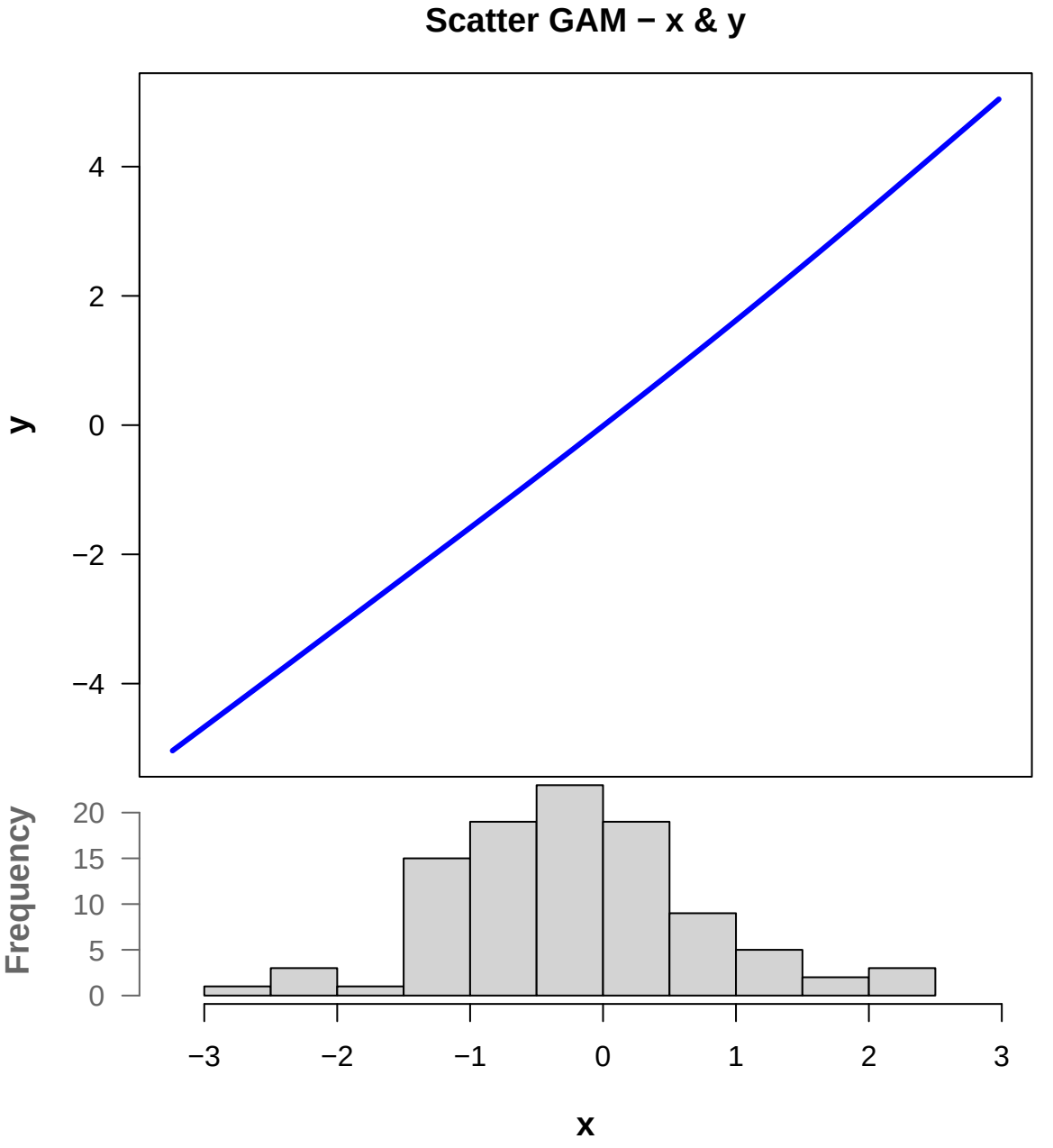
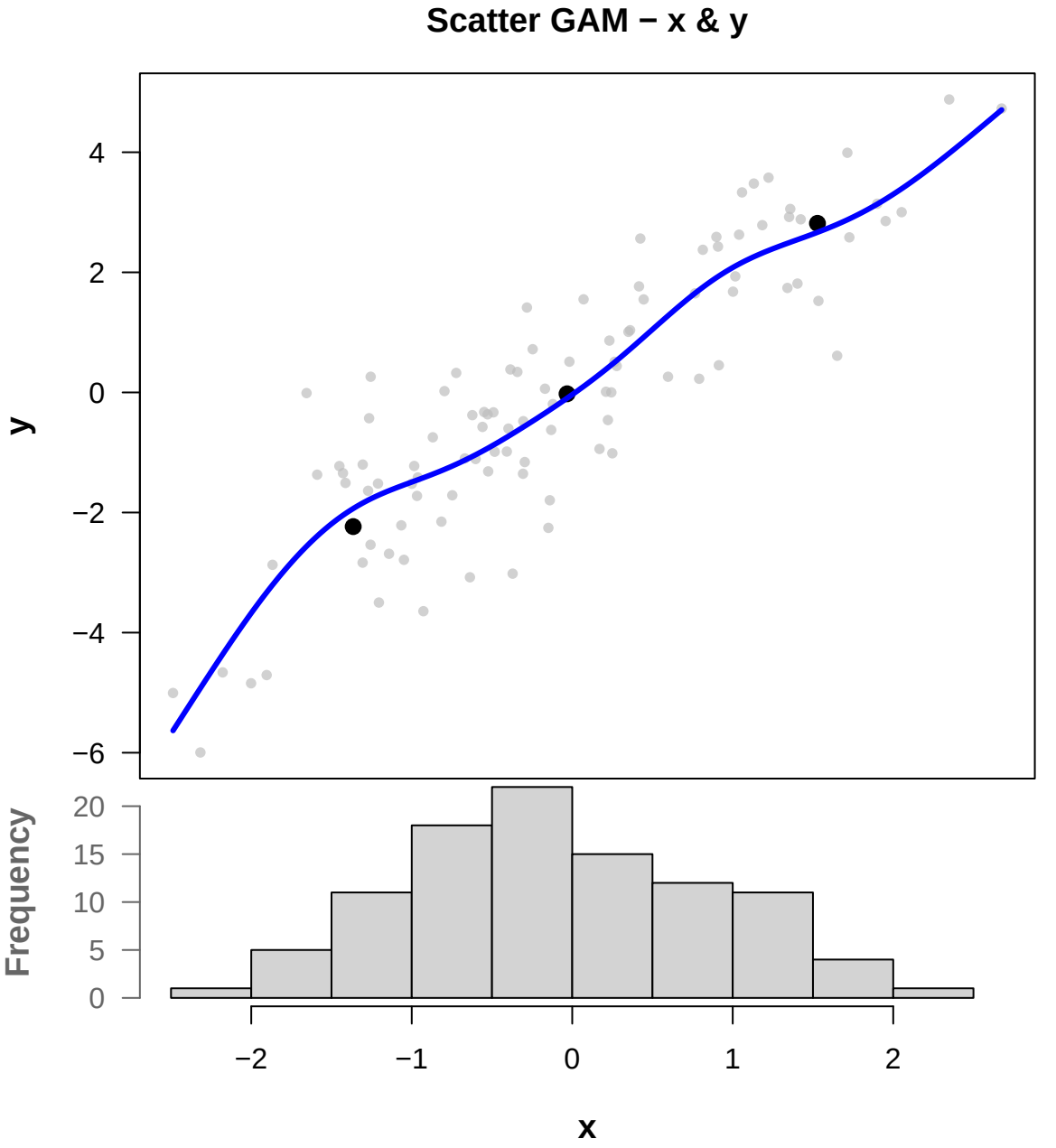

Scatter GAM − x & y
y
4
2
0
−2
−4
Frequency
20
15
10
5
0
−2
−1
0
1
2
x

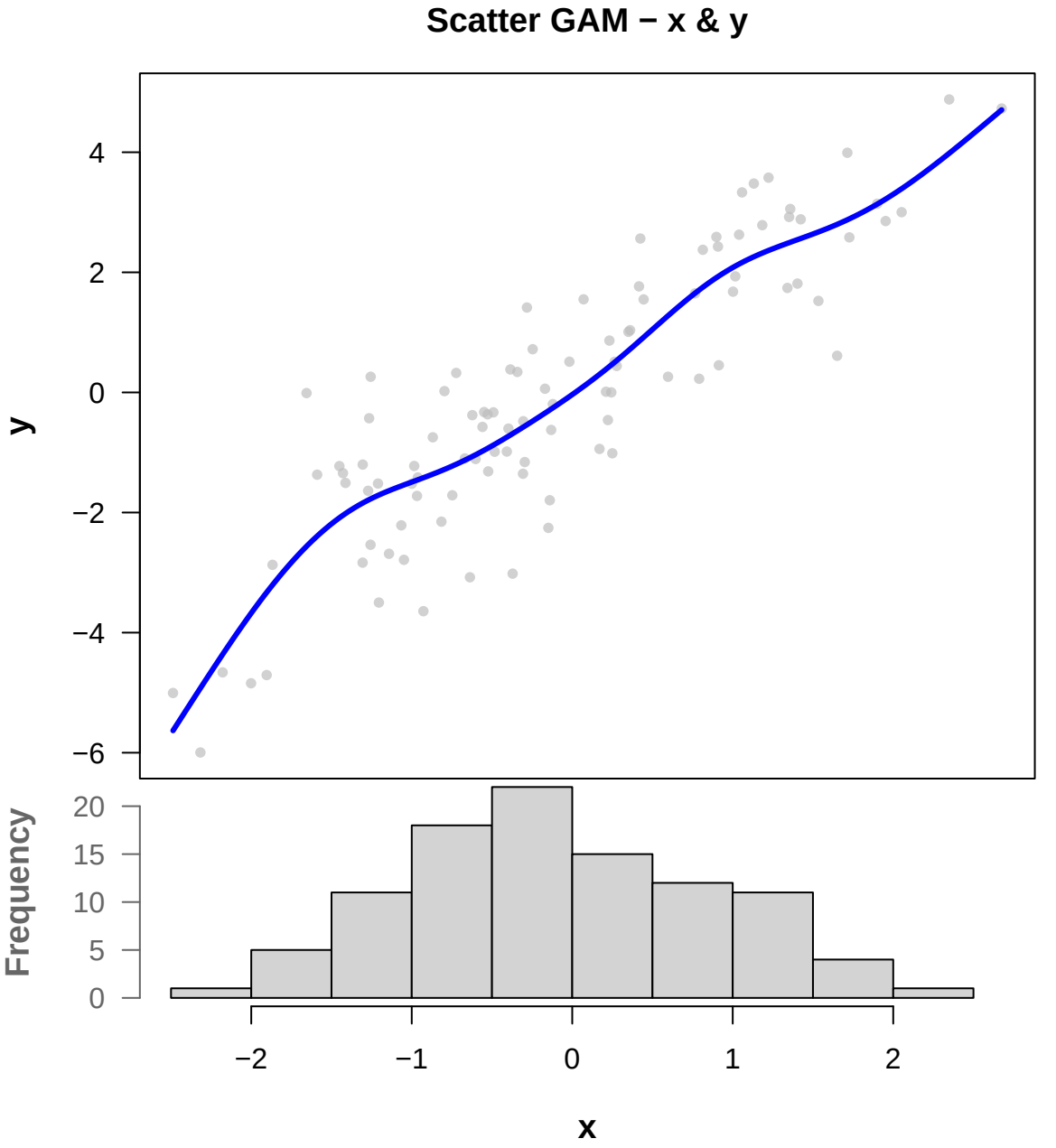

Scatter GAM − x & y
y
4
2
0
−2
−4
Frequency
20
15
10
5
0
−2
−1
0
1
2
x

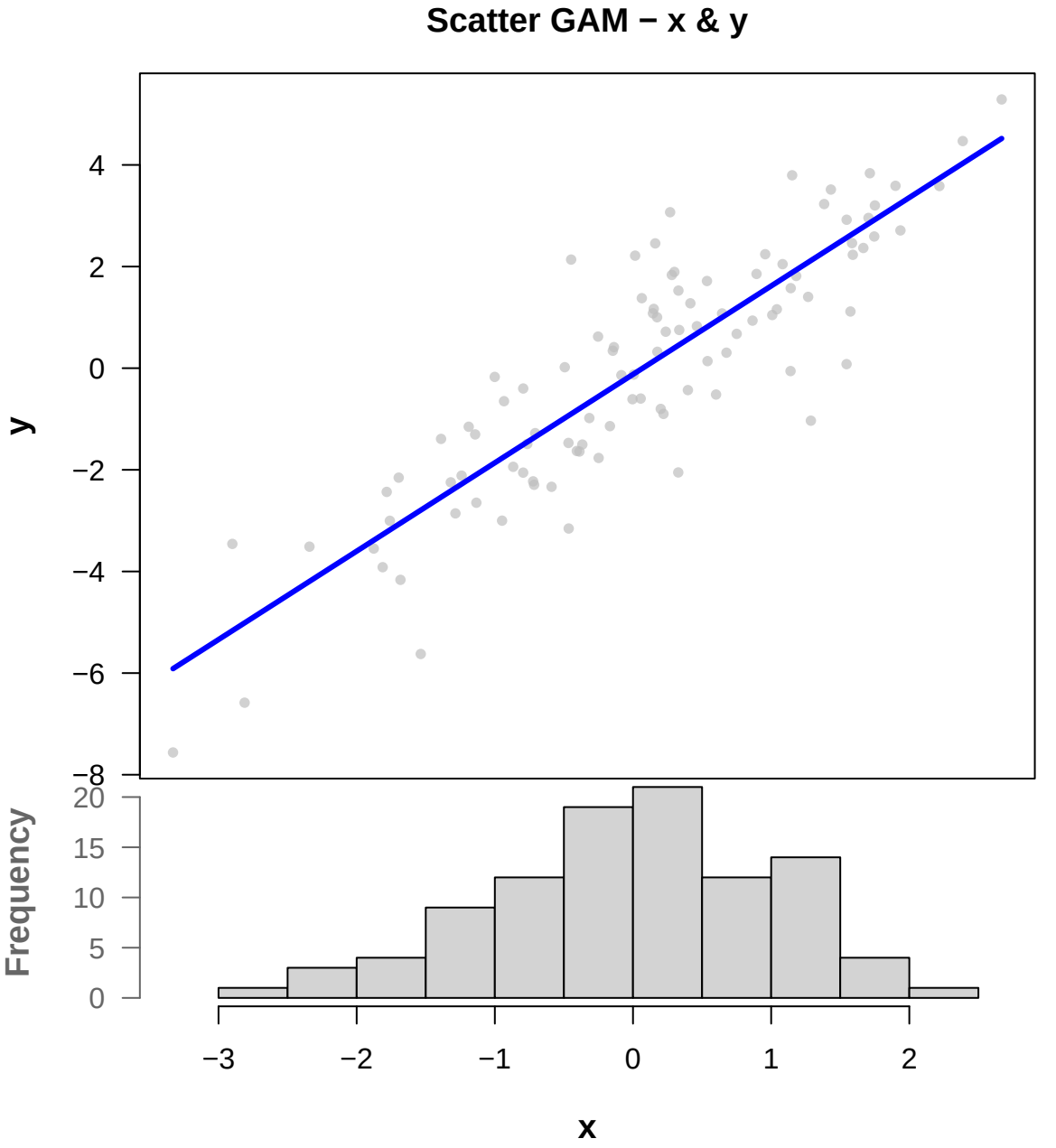

Scatter GAM − x & y
y
4
2
0
−2
−4
−6
Frequency
25
20
15
10
5
0
−3
−2
−1
0
1
2
3
x

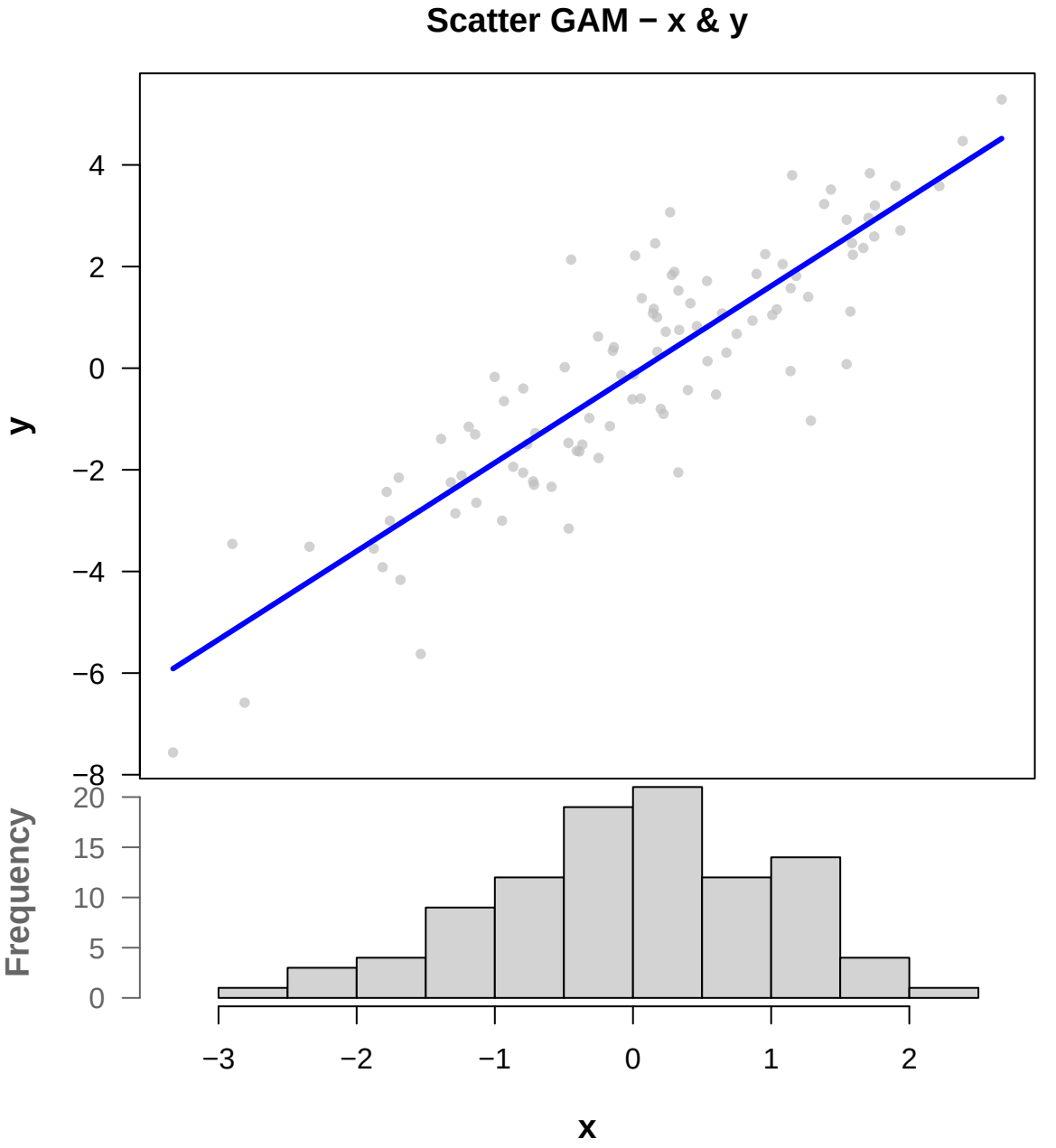

Scatter GAM − x & y
y
6
4
2
0
−2
−4
Frequency
20
15
10
5
0
−3
−2
−1
0
1
2
3
x

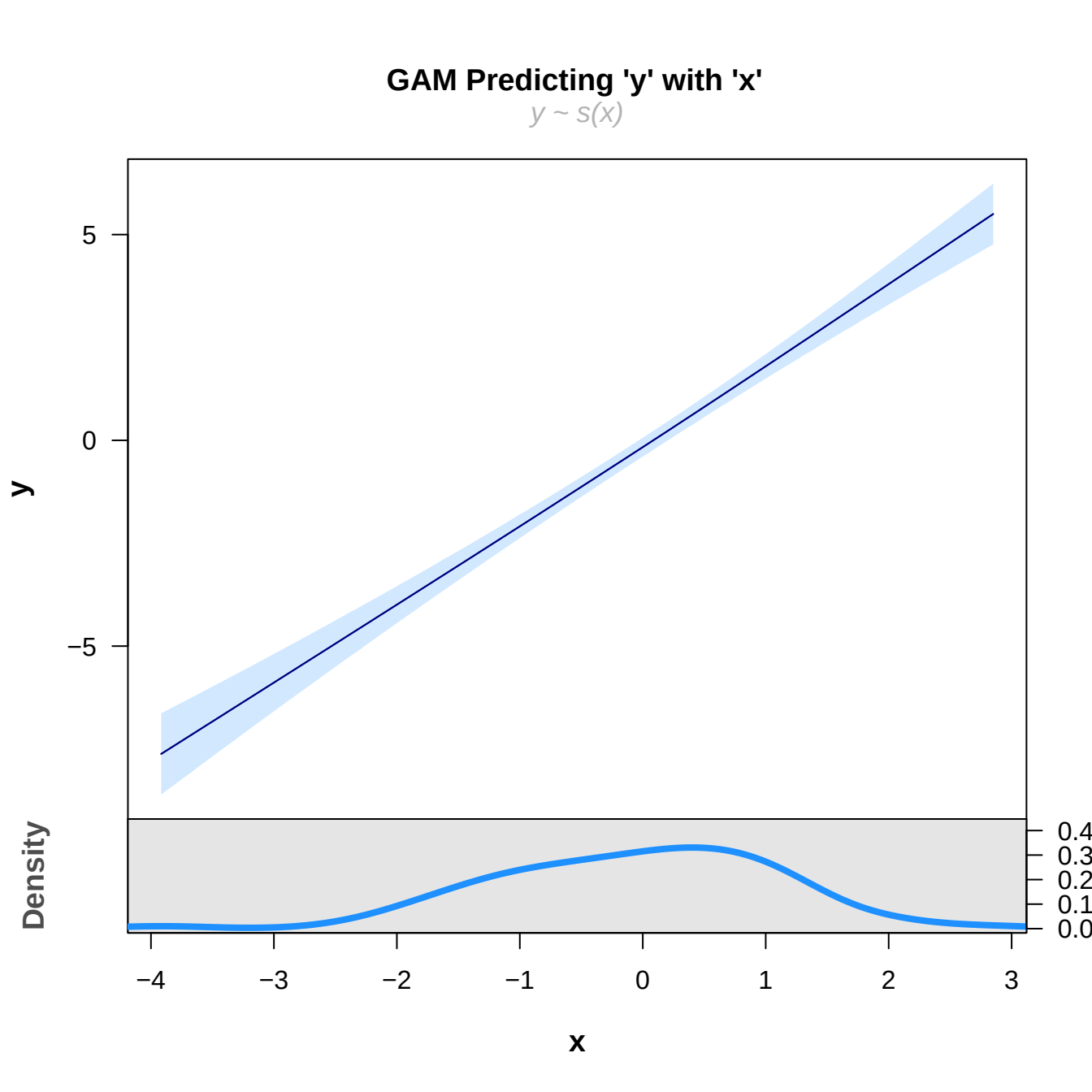

Scatter GAM − x & y
y
4
2
0
−2
−4
Frequency
20
15
10
5
0
−3
−2
−1
0
1
2
3
x

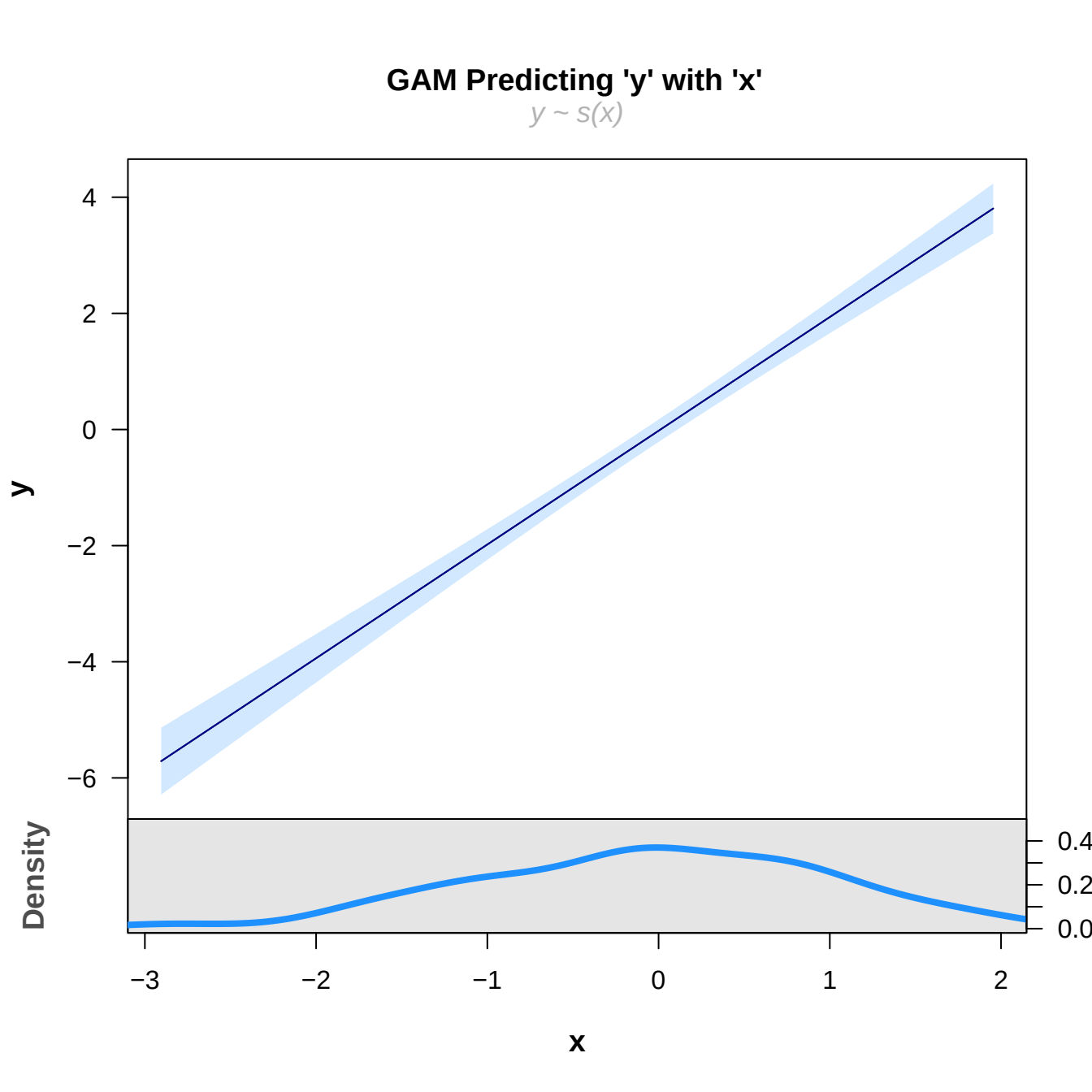

Scatter GAM − x & y
y
4
2
0
−2
−4
−6
Frequency
20
15
10
5
0
−2
−1
0
1
2
x

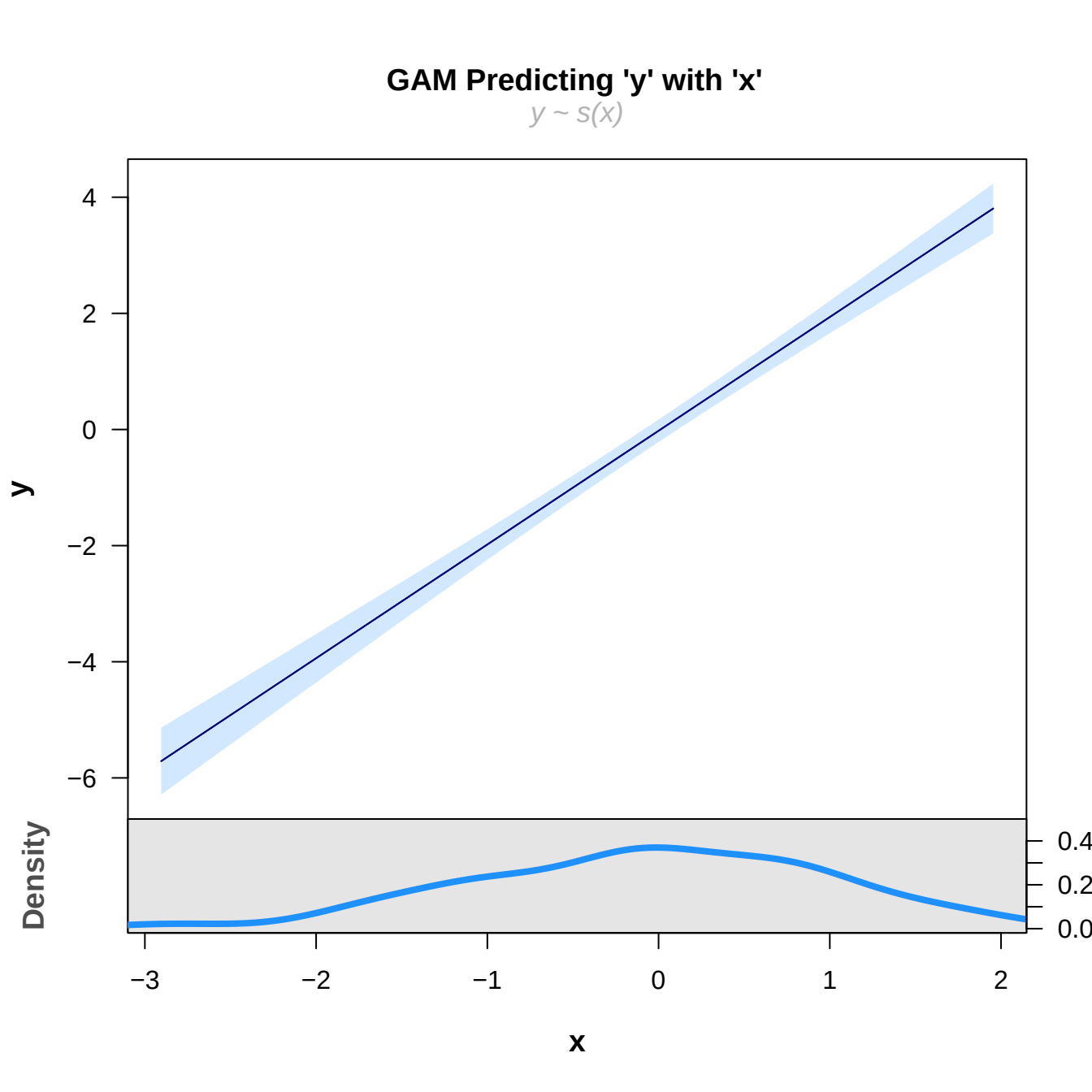

Scatter GAM − x & y
y
4
2
0
−2
−4
−6
Frequency
20
15
10
5
0
−2
−1
0
1
2
x

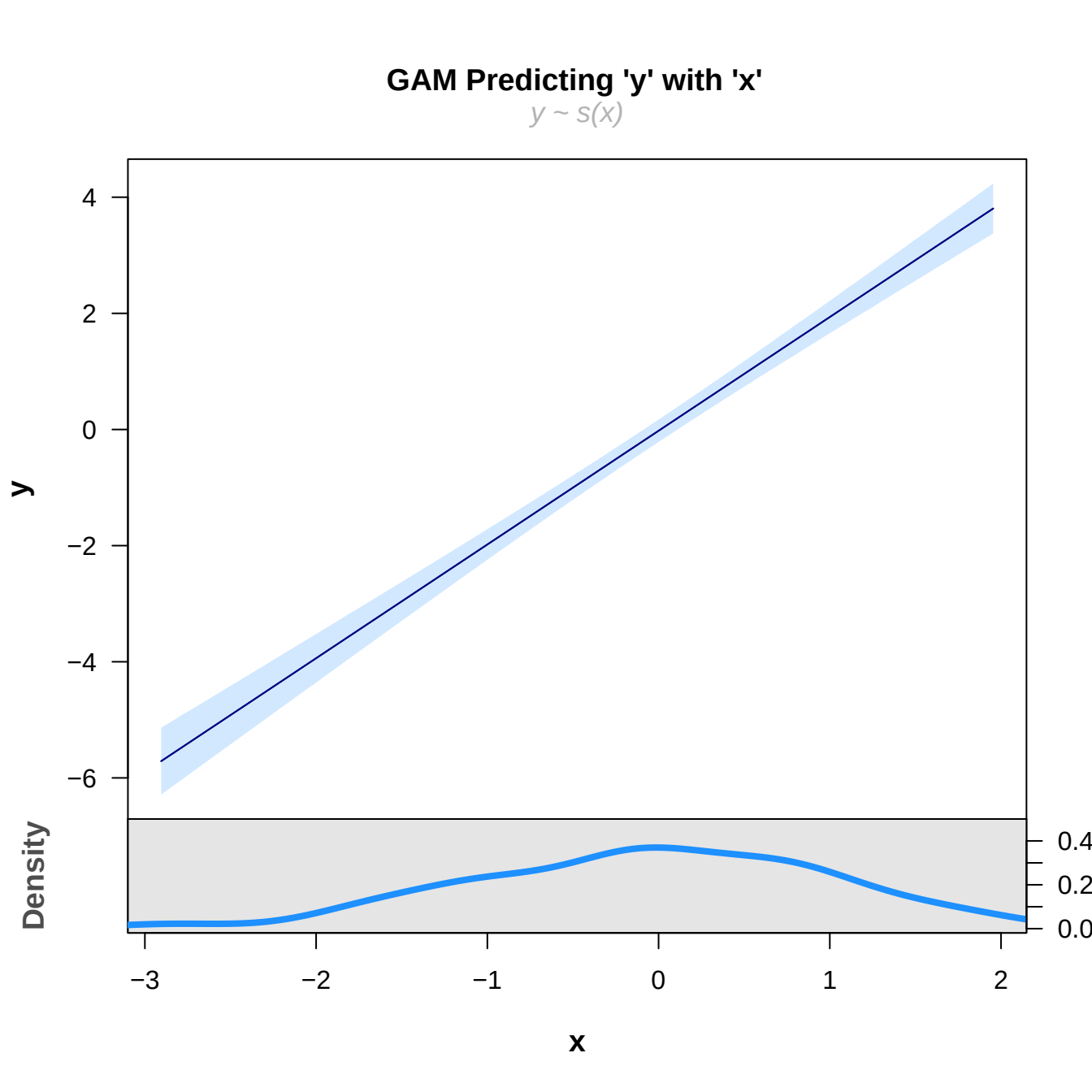

Scatter GAM − x & y
y
4
2
0
−2
−4
−6
−8
Frequency
20
15
10
5
0
−3
−2
−1
0
1
2
x

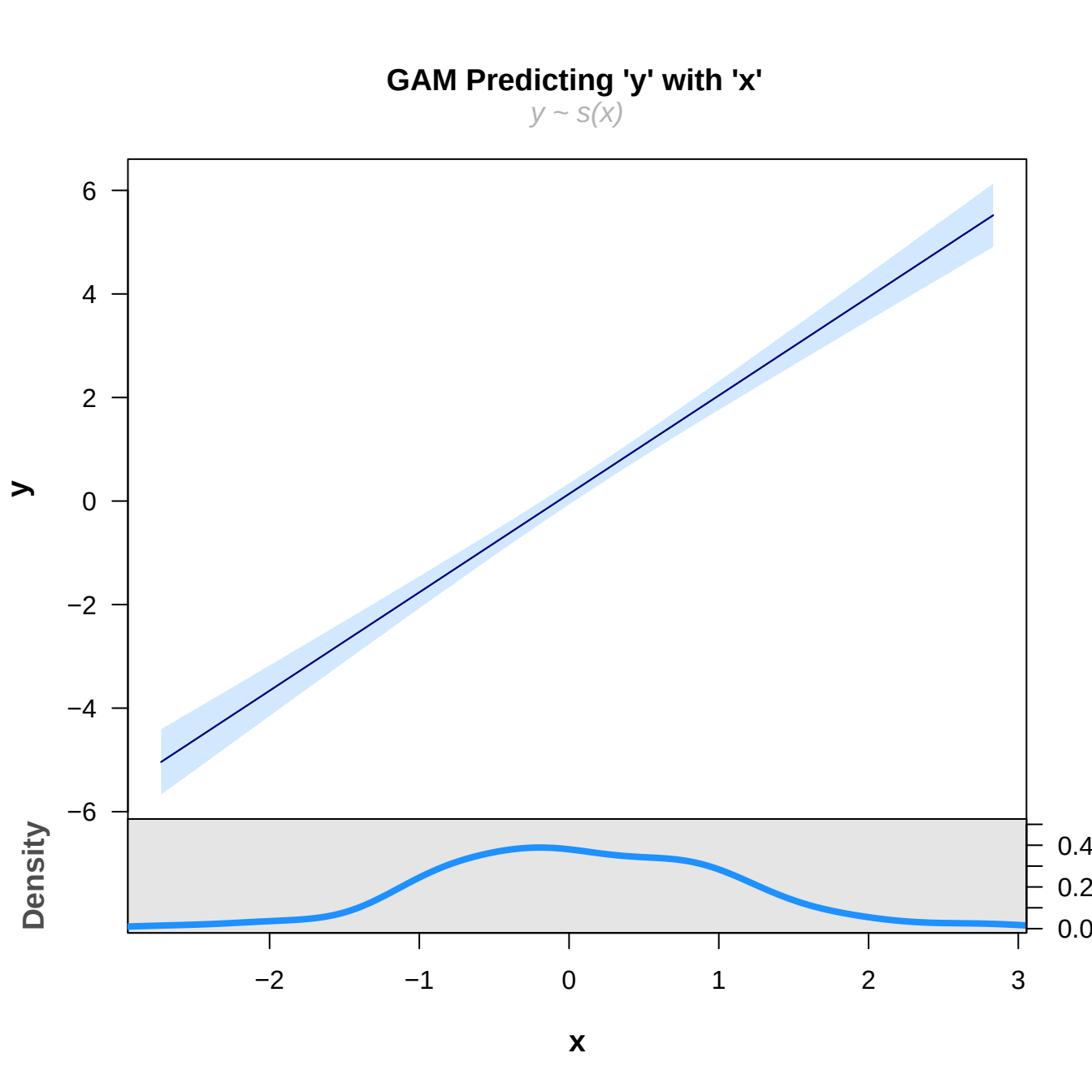

Scatter GAM − x & y
y
4
2
0
−2
−4
−6
−8
Frequency
20
15
10
5
0
−3
−2
−1
0
1
2
x

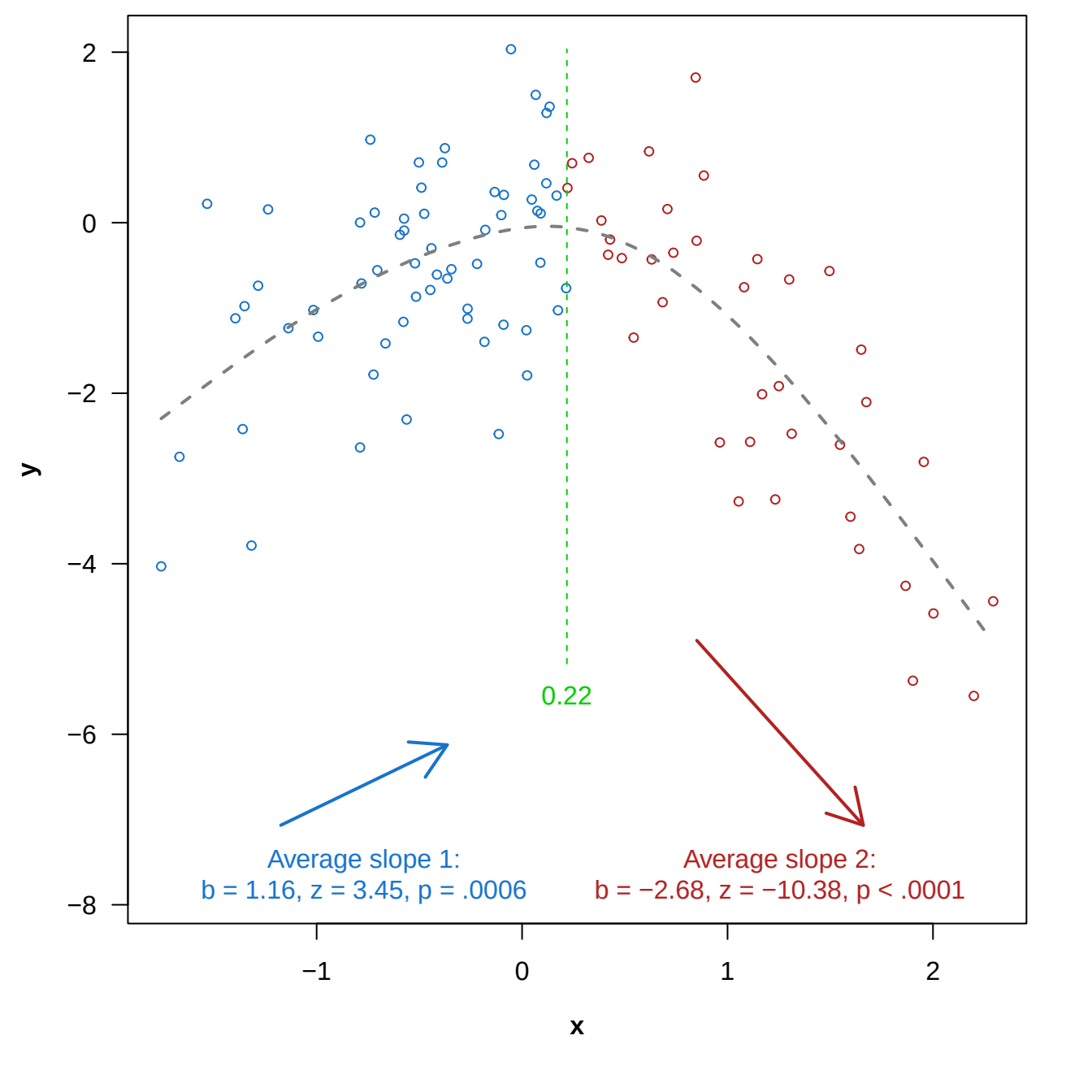

GAM Predicting 'y' with 'x'
y ~ s(x)
y
5
0
−5
Density
0.4
0.3
0.2
0.1
0.0
−4
−3
−2
−1
0
1
2
3
x

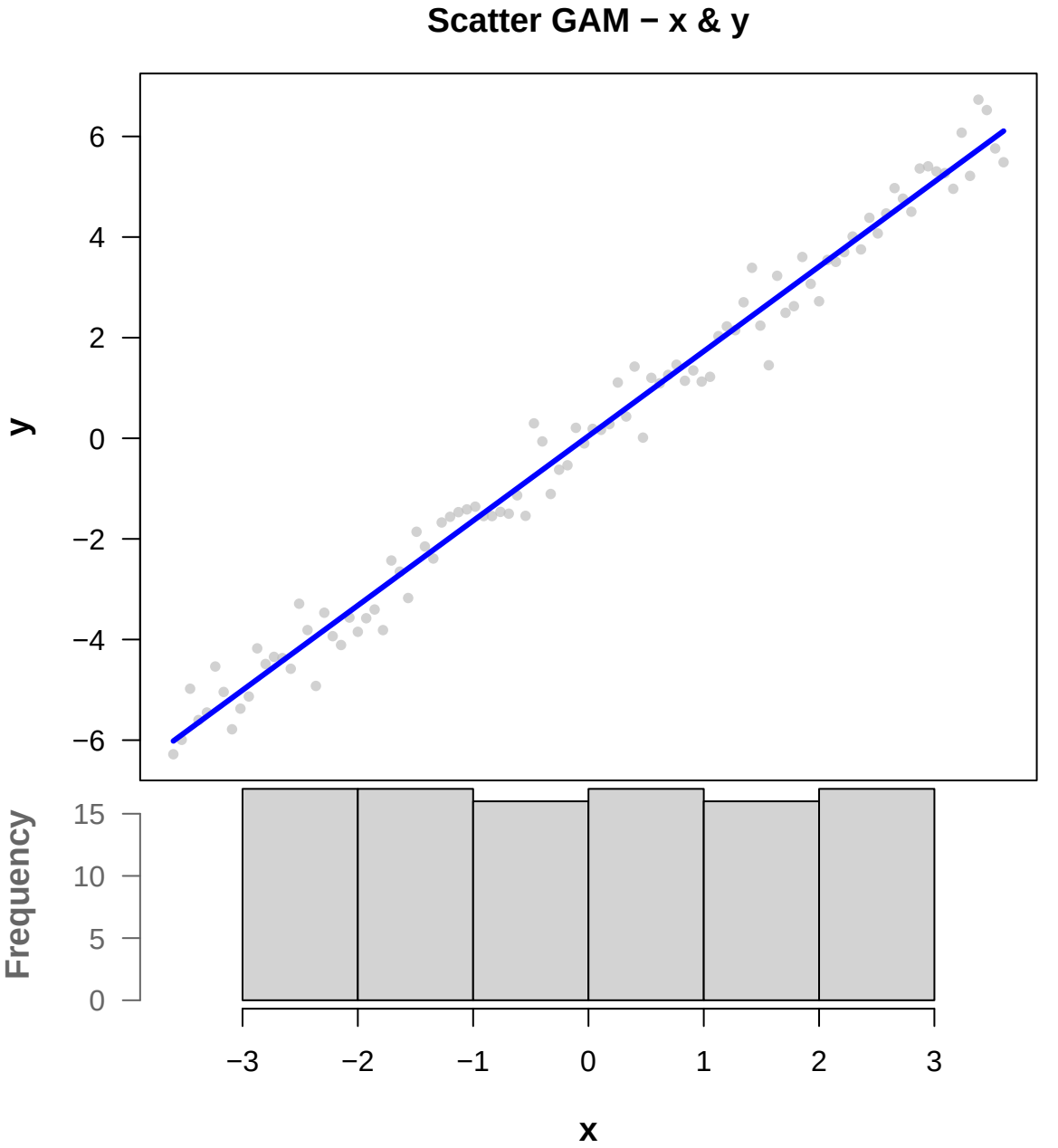

GAM Predicting 'y' with 'x'
y ~ s(x)
y
4
2
0
−2
−4
−6
Density
0.4
0.2
0.0
−3
−2
−1
0
1
2
x

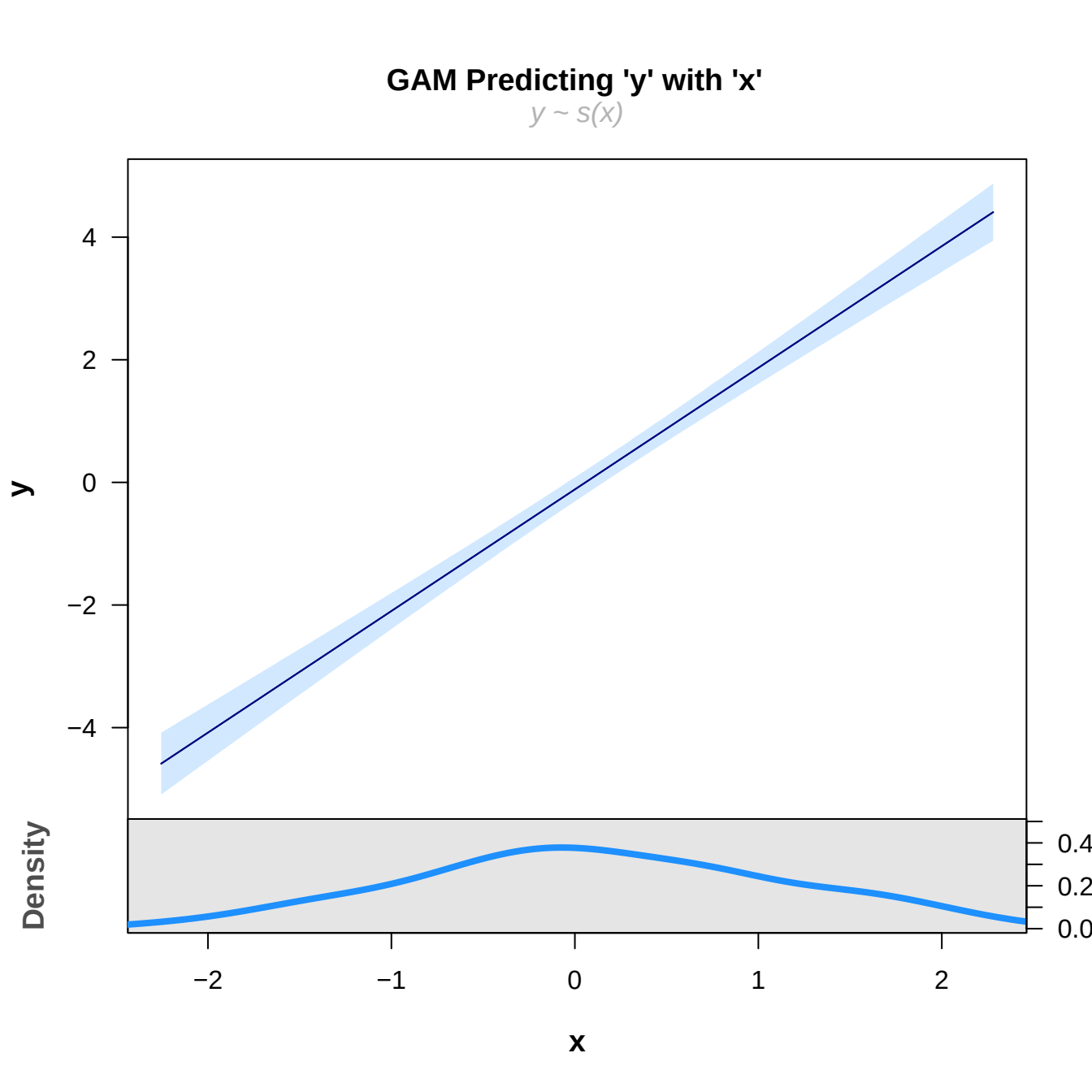

GAM Predicting 'y' with 'x'
y ~ s(x)
y
4
2
0
−2
−4
−6
Density
0.4
0.2
0.0
−3
−2
−1
0
1
2
x

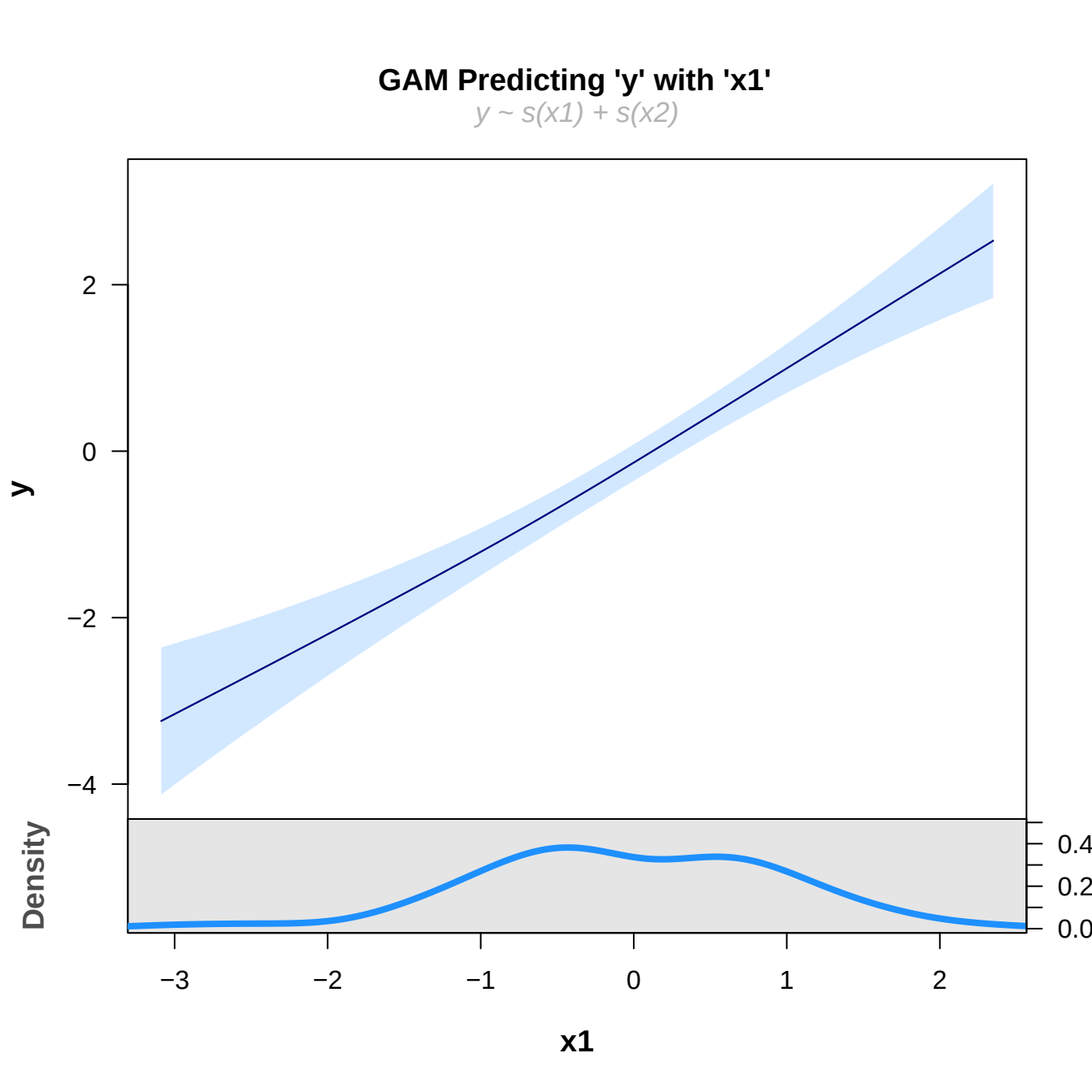

GAM Predicting 'y' with 'x'
y ~ s(x)
y
4
2
0
−2
−4
−6
Density
0.4
0.2
0.0
−3
−2
−1
0
1
2
x

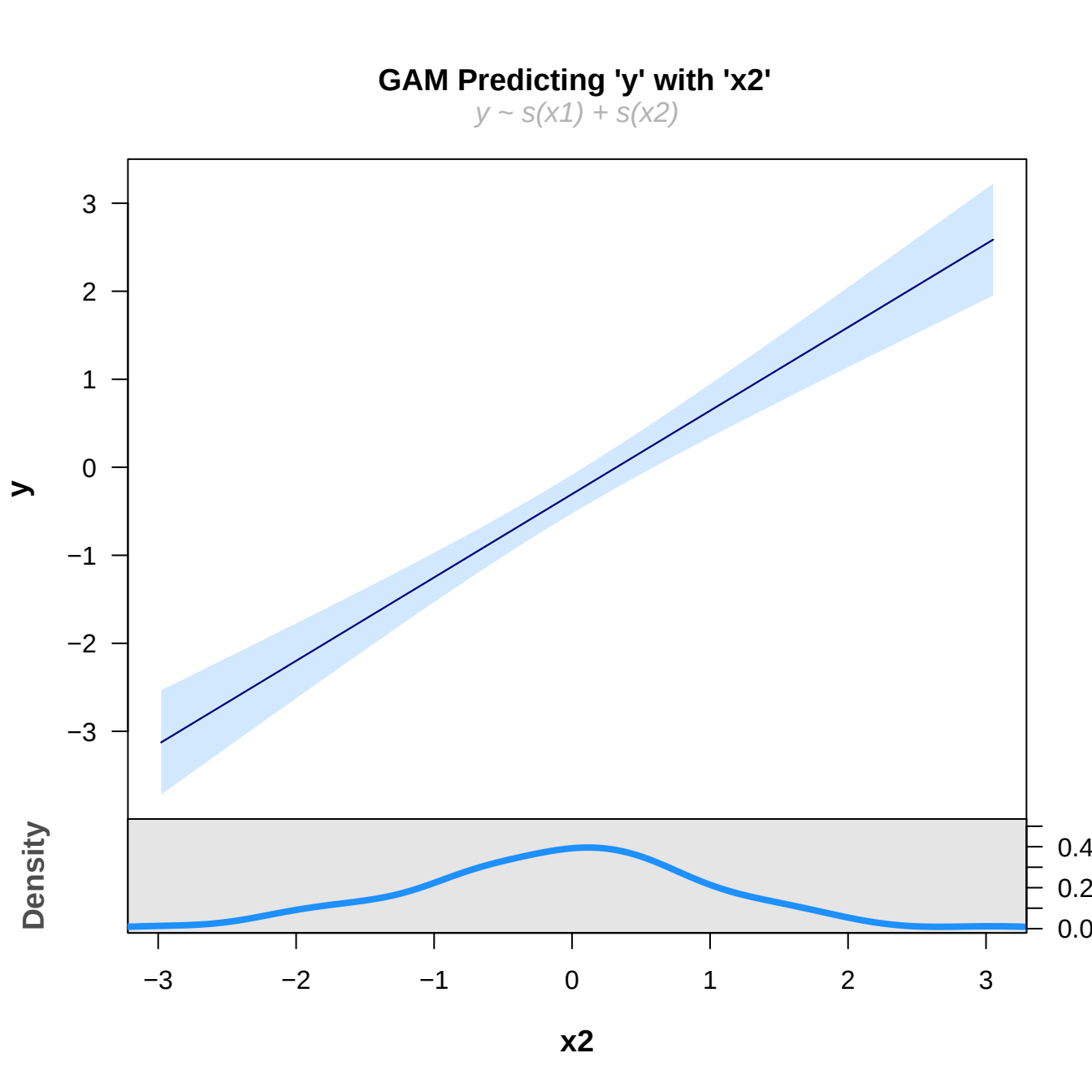

GAM Predicting 'y' with 'x'
y ~ s(x)
y
6
4
2
0
−2
−4
−6
Density
0.4
0.2
0.0
−2
−1
0
1
2
3
x

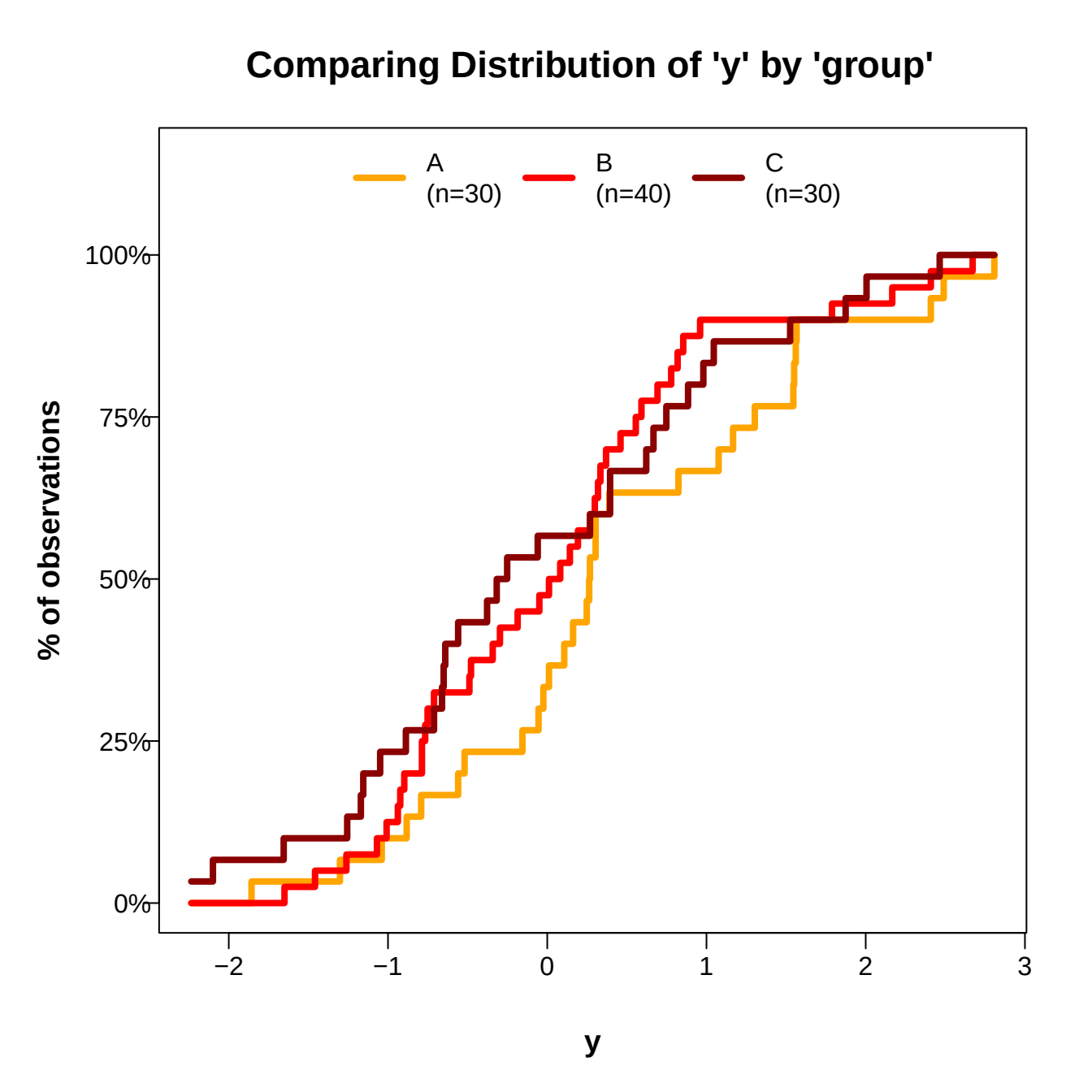

2
0
−2
−4
−6
−8
y
−1
0
1
2
x
0.22
Average slope 1:
b = 1.16, z = 3.45, p = .0006
Average slope 2:
b = −2.68, z = −10.38, p < .0001

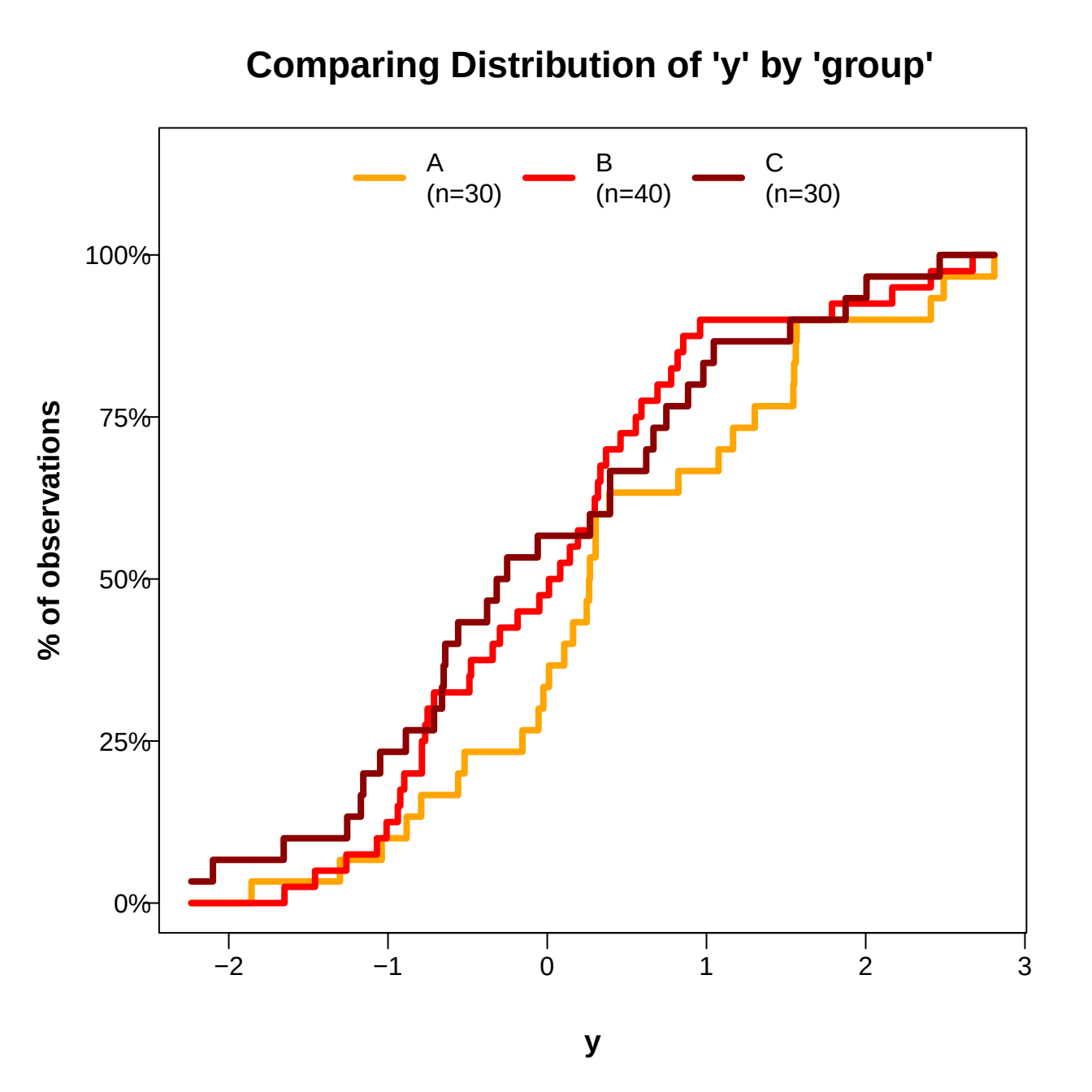

Scatter GAM − x & y
y
6
4
2
0
−2
−4
−6
Frequency
15
10
5
0
−3
−2
−1
0
1
2
3
x

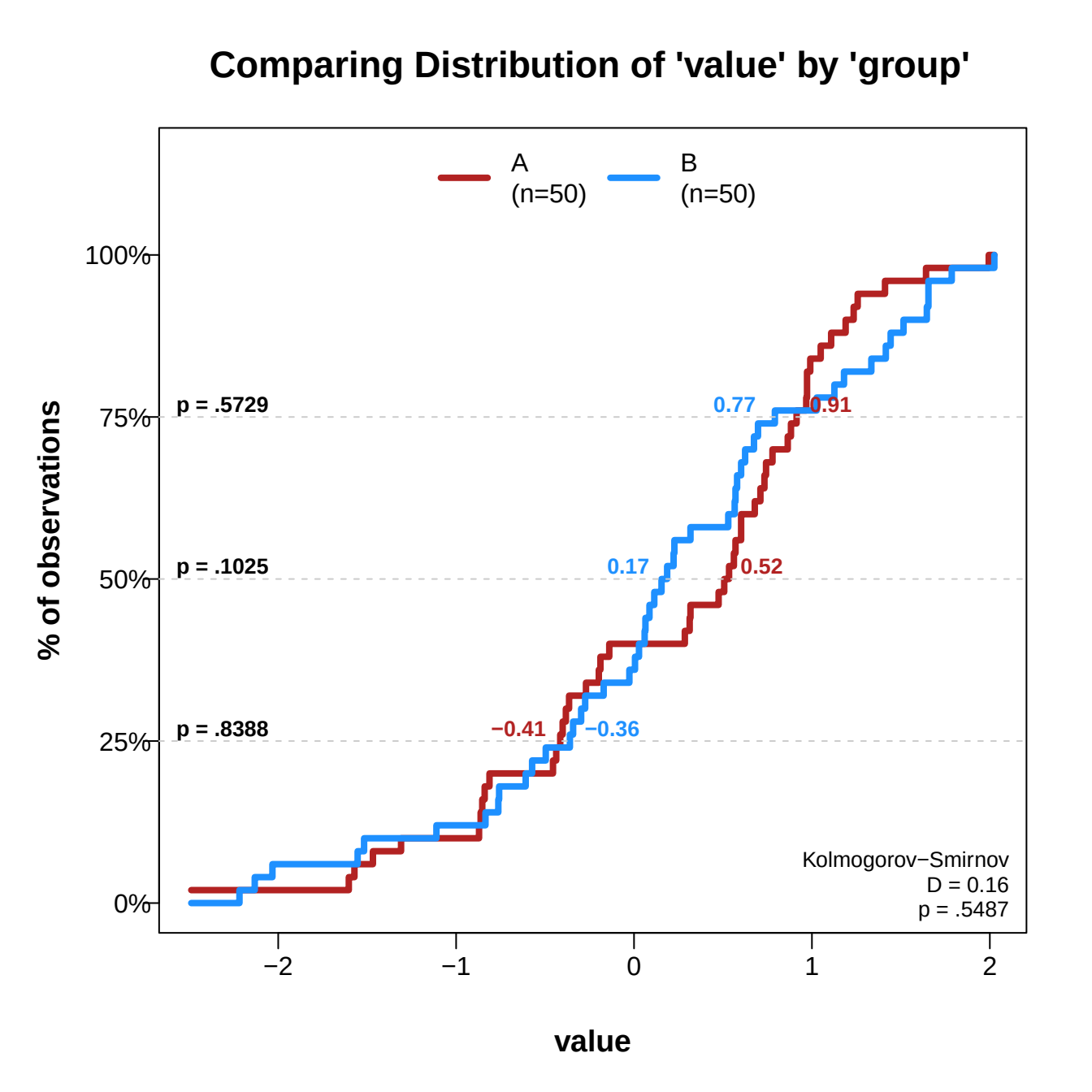

GAM Predicting 'y' with 'x'
y ~ s(x)
y
4
2
0
−2
−4
Density
0.4
0.2
0.0
−2
−1
0
1
2
x

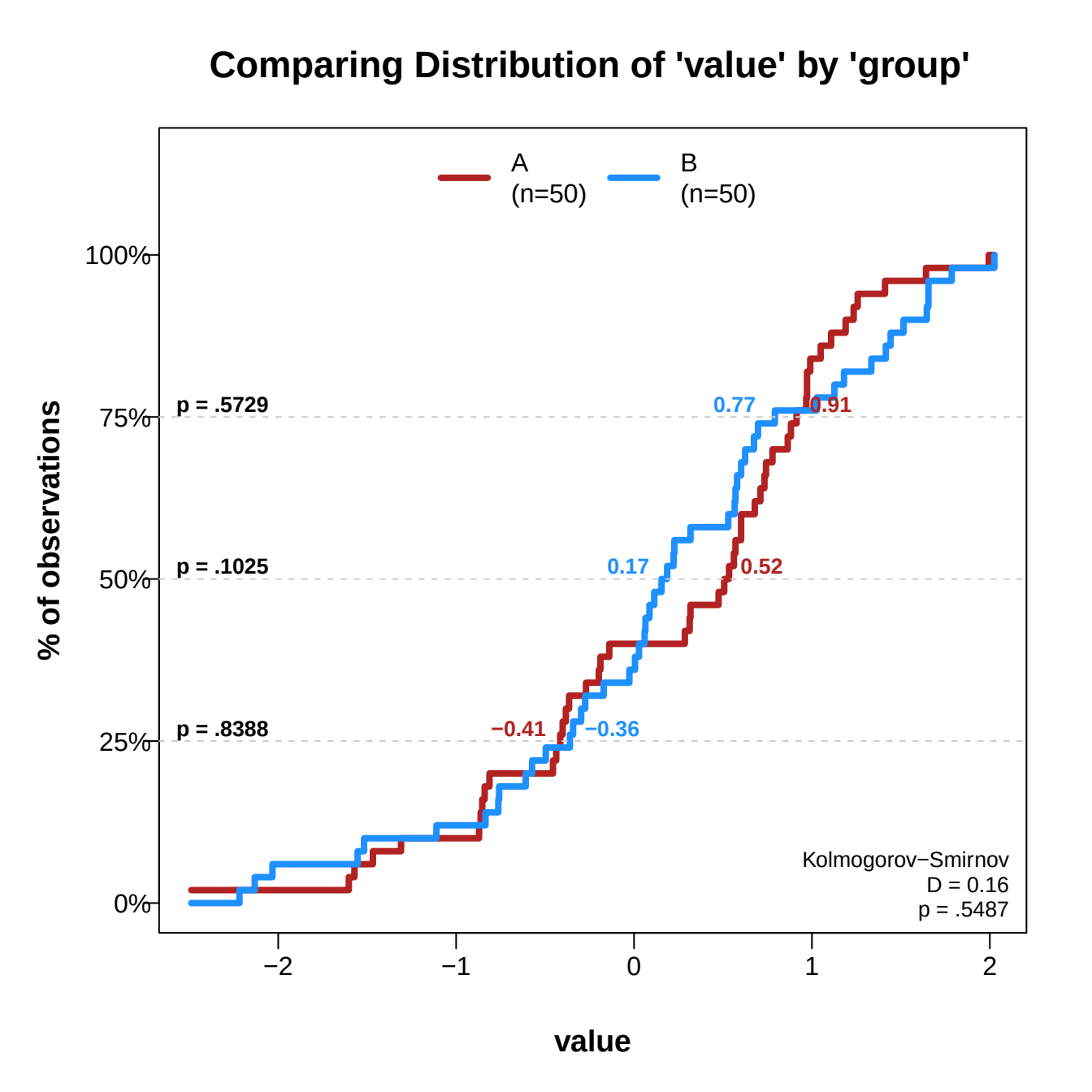

GAM Predicting 'y' with 'x1'
y ~ s(x1) + s(x2)
y
2
0
−2
−4
Density
0.4
0.2
0.0
−3
−2
−1
0
1
2
x1

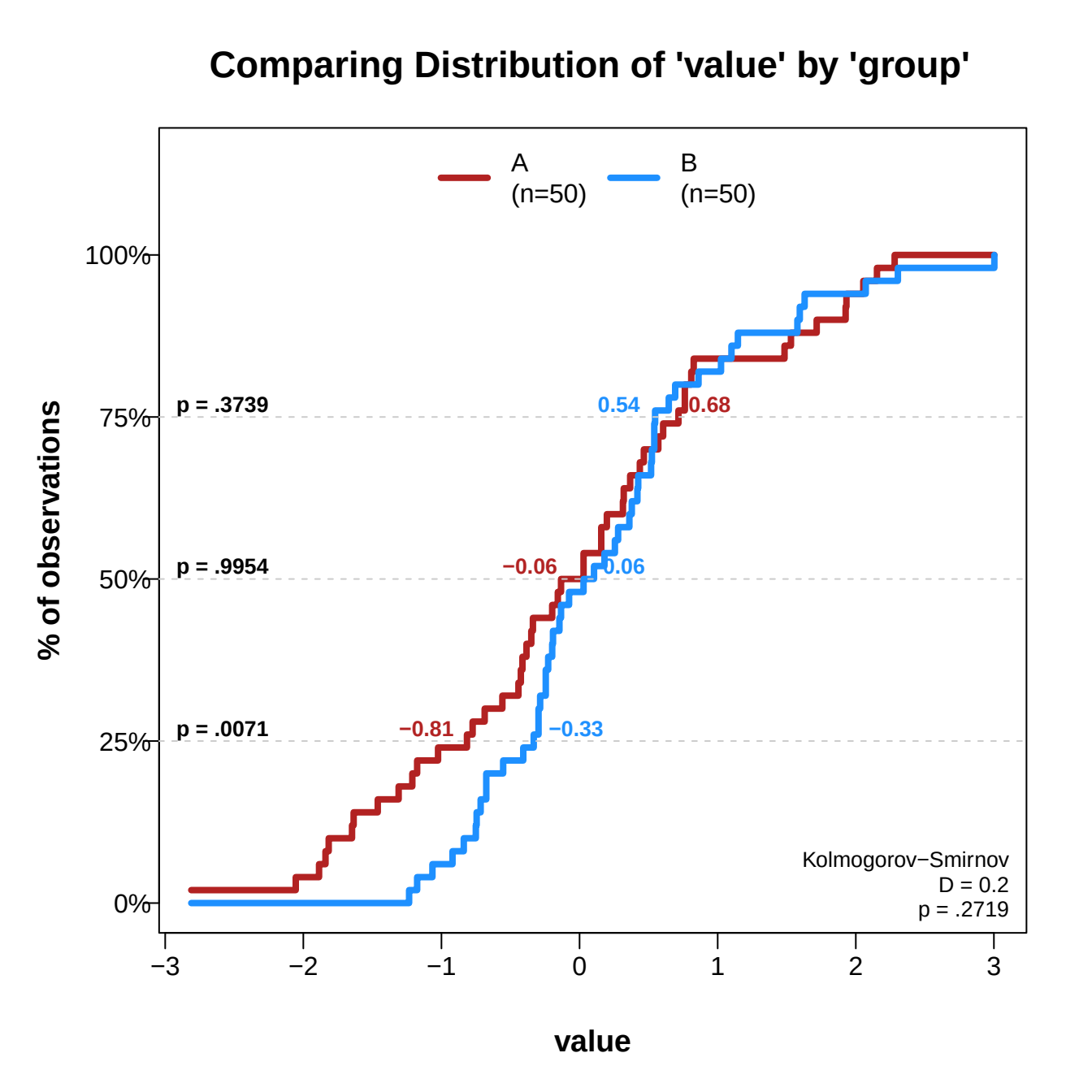

GAM Predicting 'y' with 'x2'
y ~ s(x1) + s(x2)
y
3
2
1
0
−1
−2
−3
Density
0.4
0.2
0.0
−3
−2
−1
0
1
2
3
x2

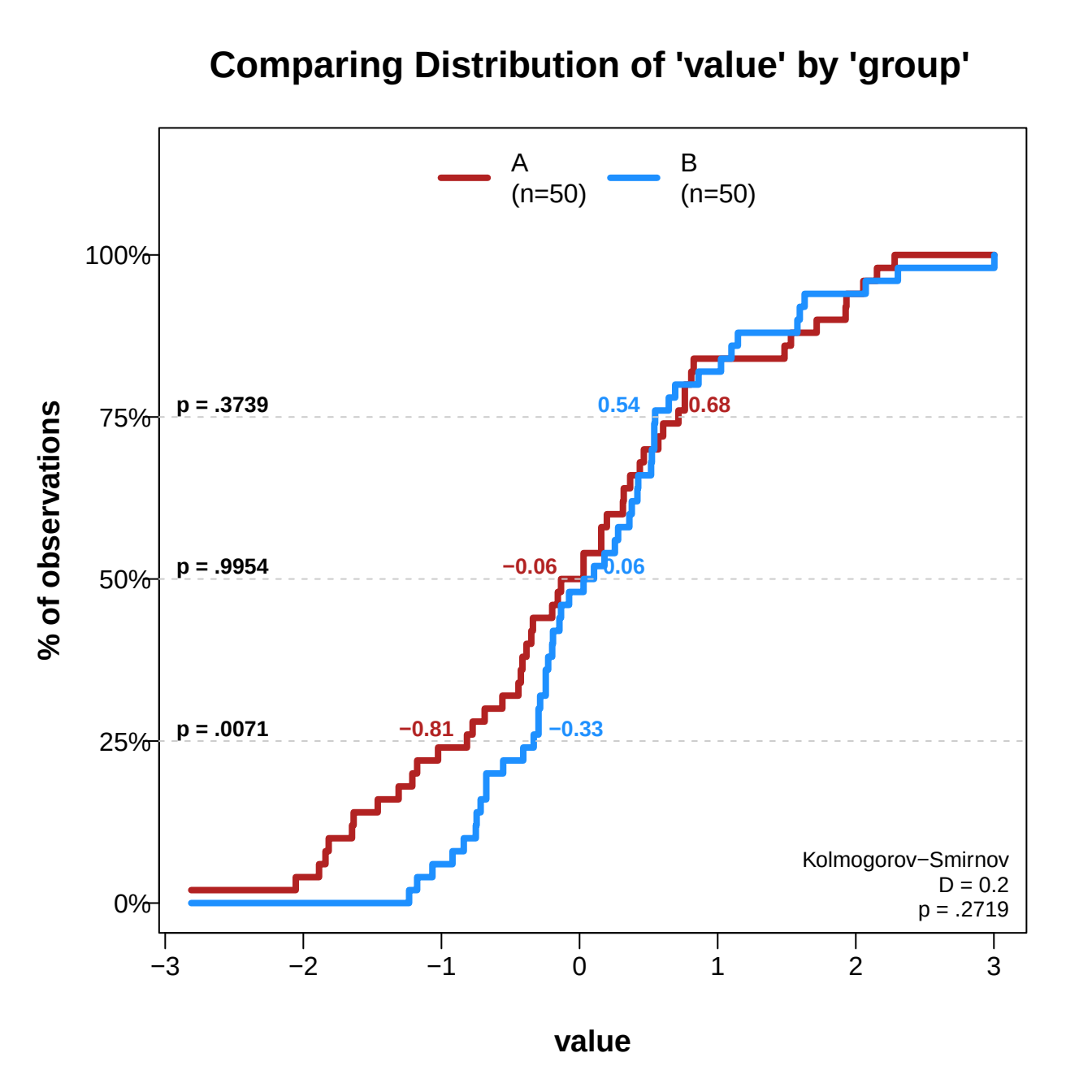

Comparing Distribution of 'y' by 'group'
A
(n=30)
B
(n=40)
C
(n=30)
100%
75%
50%
25%
0%
% of observations
−2
−1
0
1
2
3
y

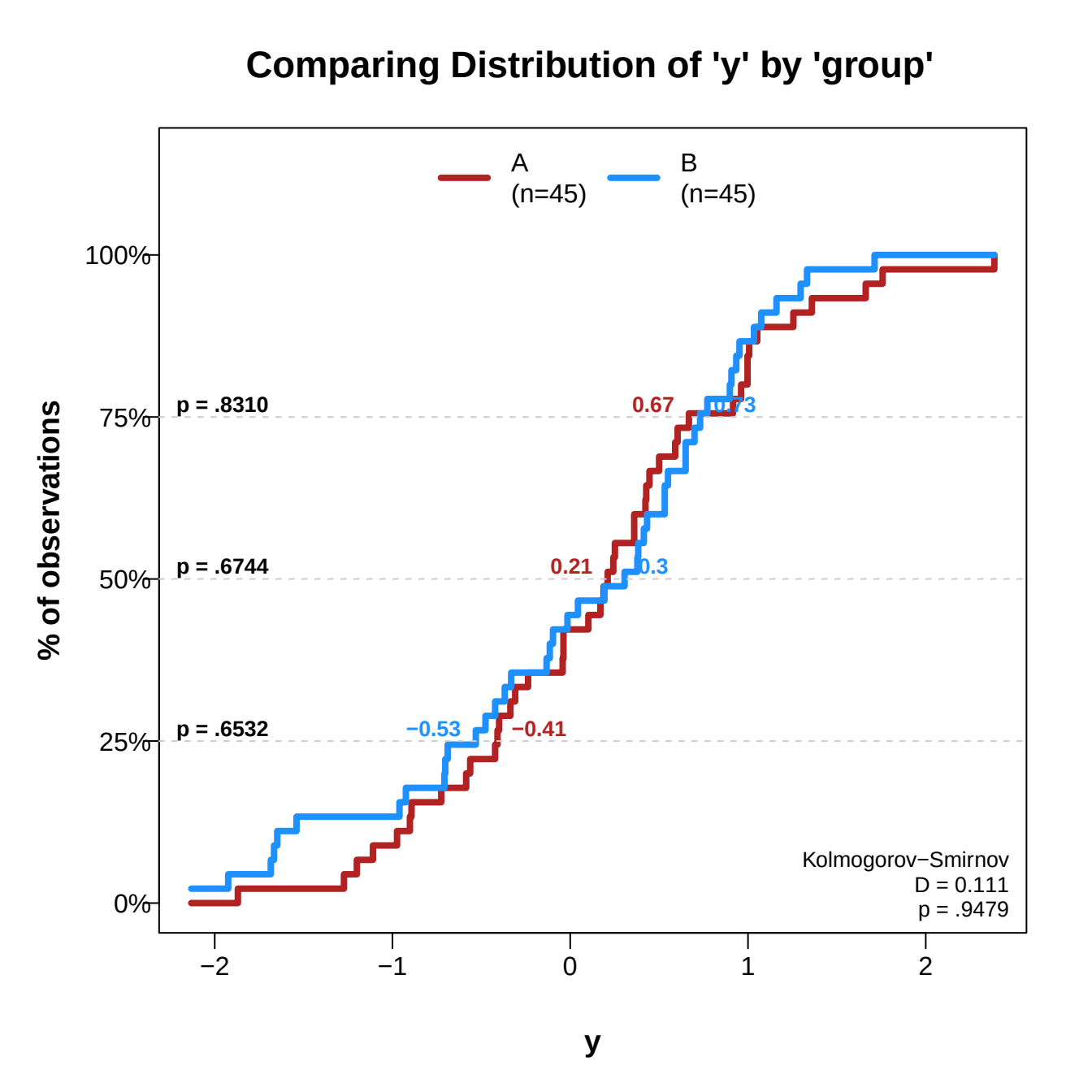

Comparing Distribution of 'y' by 'group'
A
(n=30)
B
(n=40)
C
(n=30)
100%
75%
50%
25%
0%
% of observations
−2
−1
0
1
2
3
y

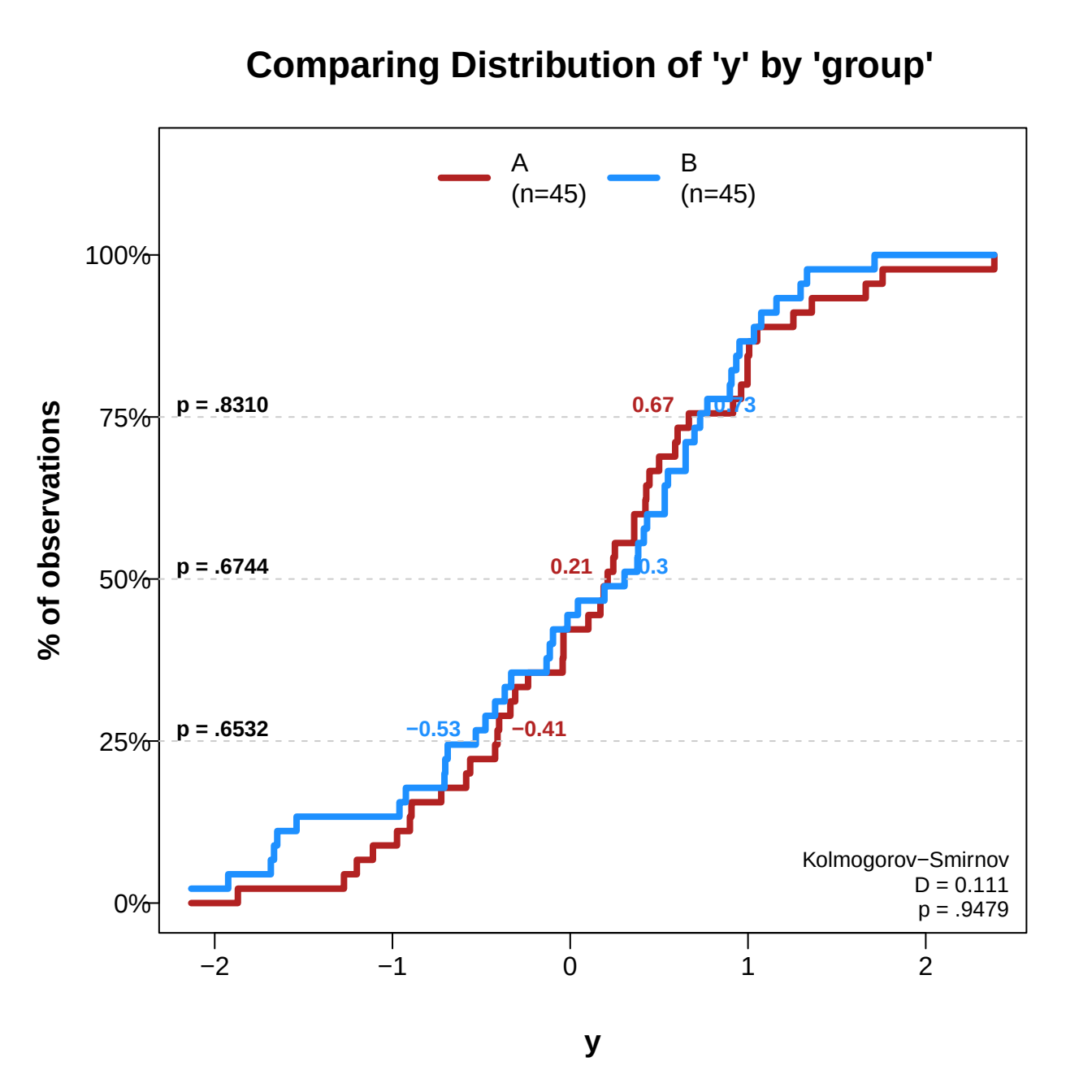

Comparing Distribution of 'value' by 'group'
A
(n=50)
B
(n=50)
100%
75%
50%
25%
0%
% of observations
p = .5729
p = .1025
p = .8388
0.77
0.91
0.17
0.52
−0.41
−0.36
Kolmogorov−Smirnov
D = 0.16
p = .5487
−2
−1
0
1
2
value

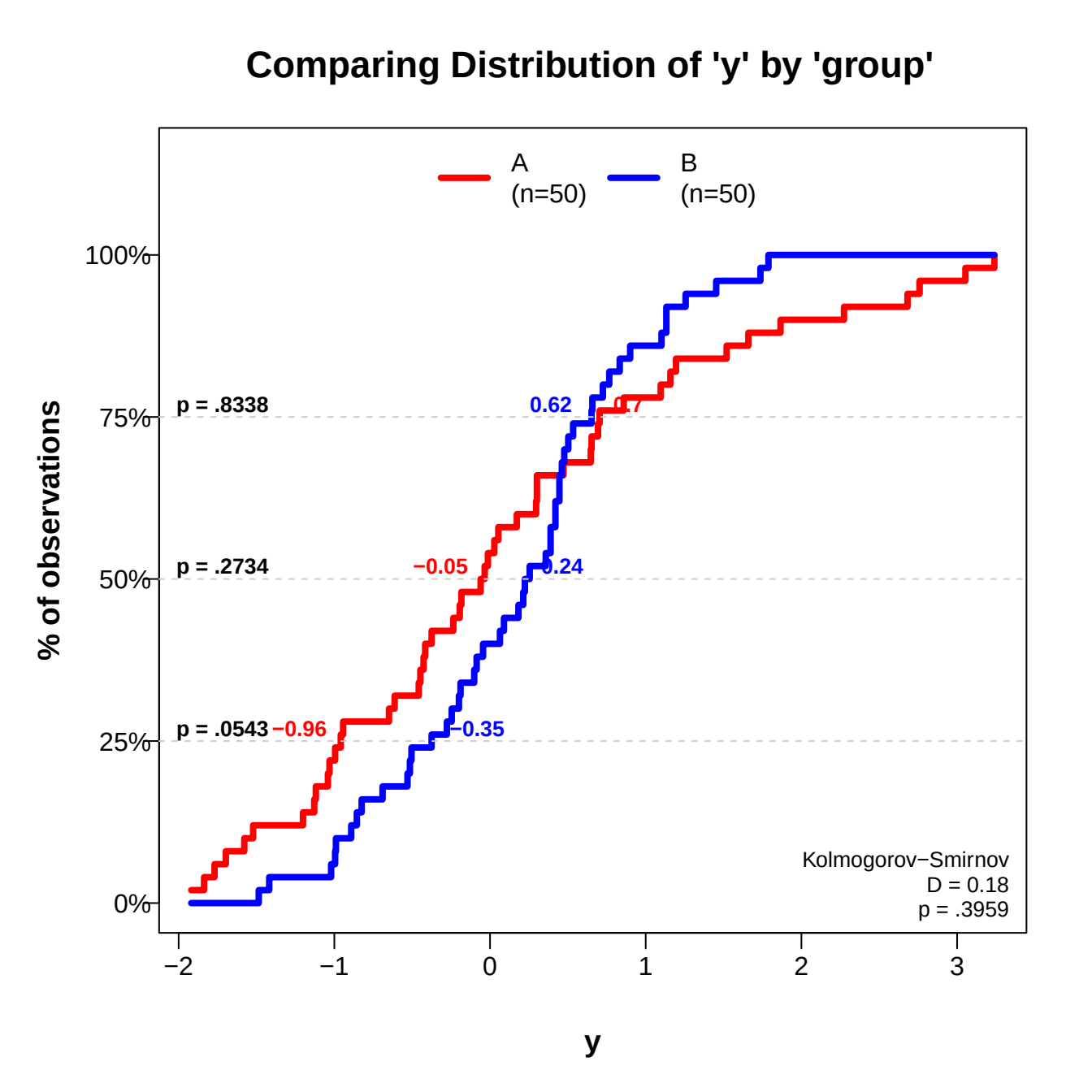

Comparing Distribution of 'value' by 'group'
A
(n=50)
B
(n=50)
100%
75%
50%
25%
0%
% of observations
p = .5729
p = .1025
p = .8388
0.77
0.91
0.17
0.52
−0.41
−0.36
Kolmogorov−Smirnov
D = 0.16
p = .5487
−2
−1
0
1
2
value

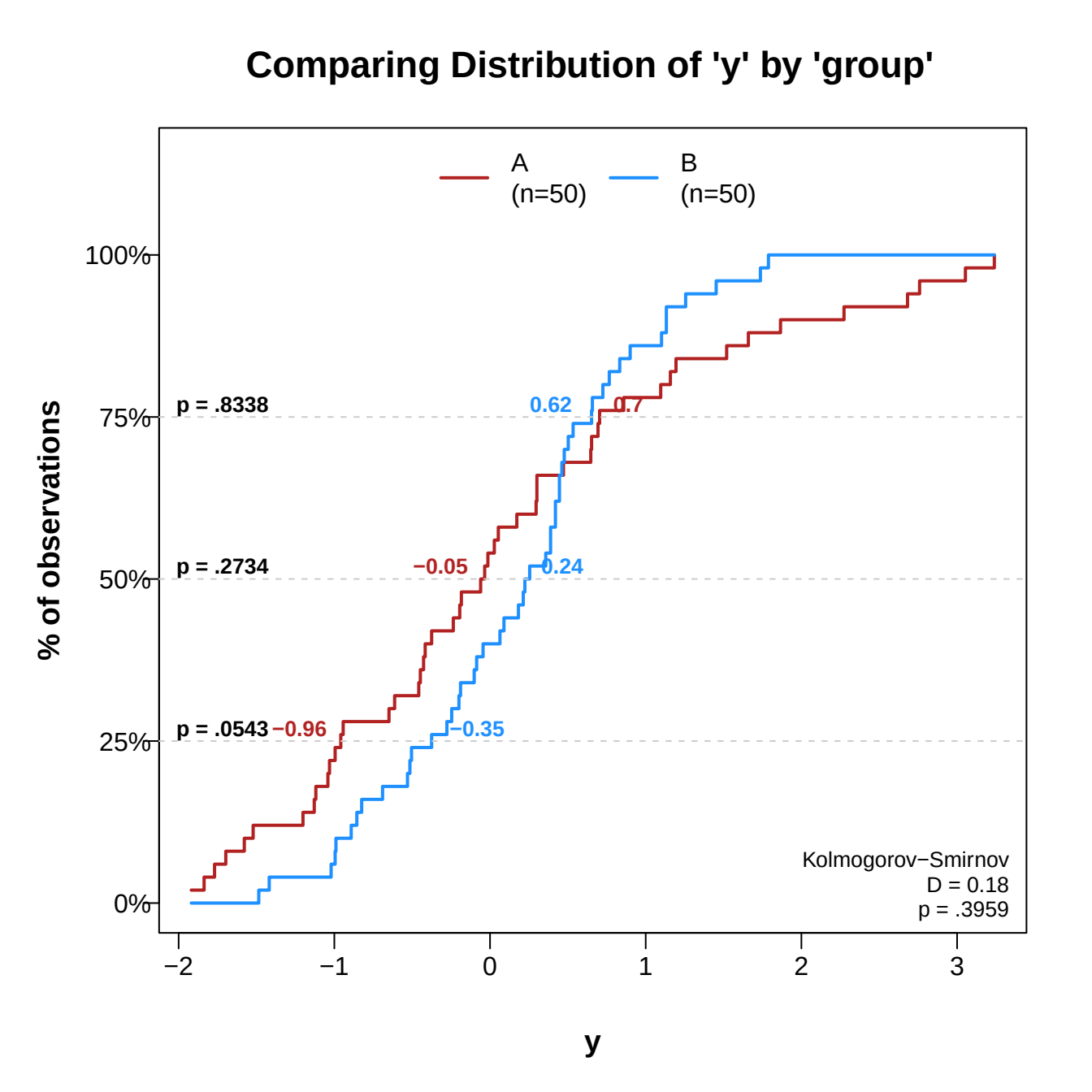

Comparing Distribution of 'value' by 'group'
A
(n=50)
B
(n=50)
100%
75%
50%
25%
0%
% of observations
p = .3739
p = .9954
p = .0071
0.54
0.68
−0.06
0.06
−0.81
−0.33
Kolmogorov−Smirnov
D = 0.2
p = .2719
−3
−2
−1
0
1
2
3
value

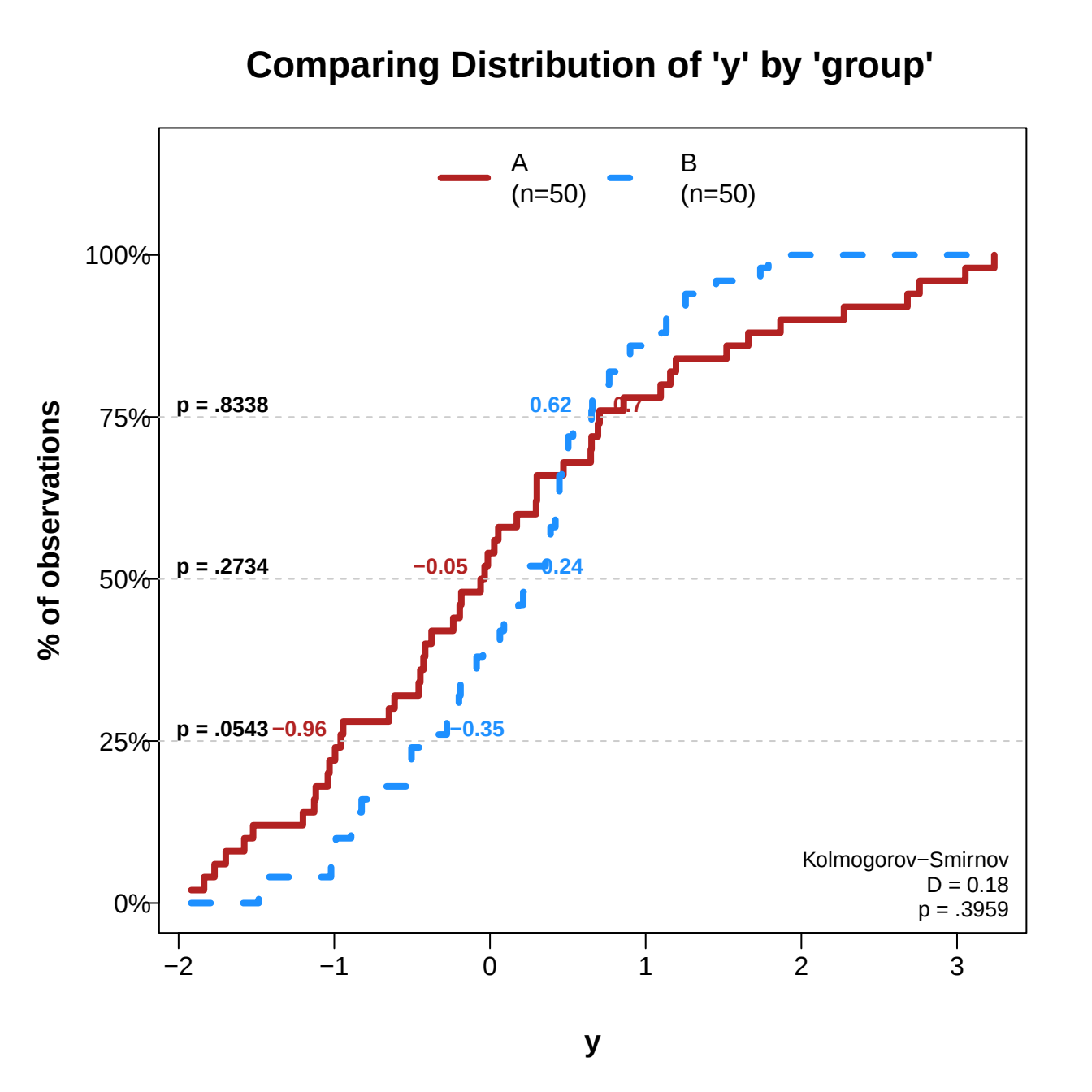

Comparing Distribution of 'value' by 'group'
A
(n=50)
B
(n=50)
100%
75%
50%
25%
0%
% of observations
p = .3739
p = .9954
p = .0071
0.54
0.68
−0.06
0.06
−0.81
−0.33
Kolmogorov−Smirnov
D = 0.2
p = .2719
−3
−2
−1
0
1
2
3
value

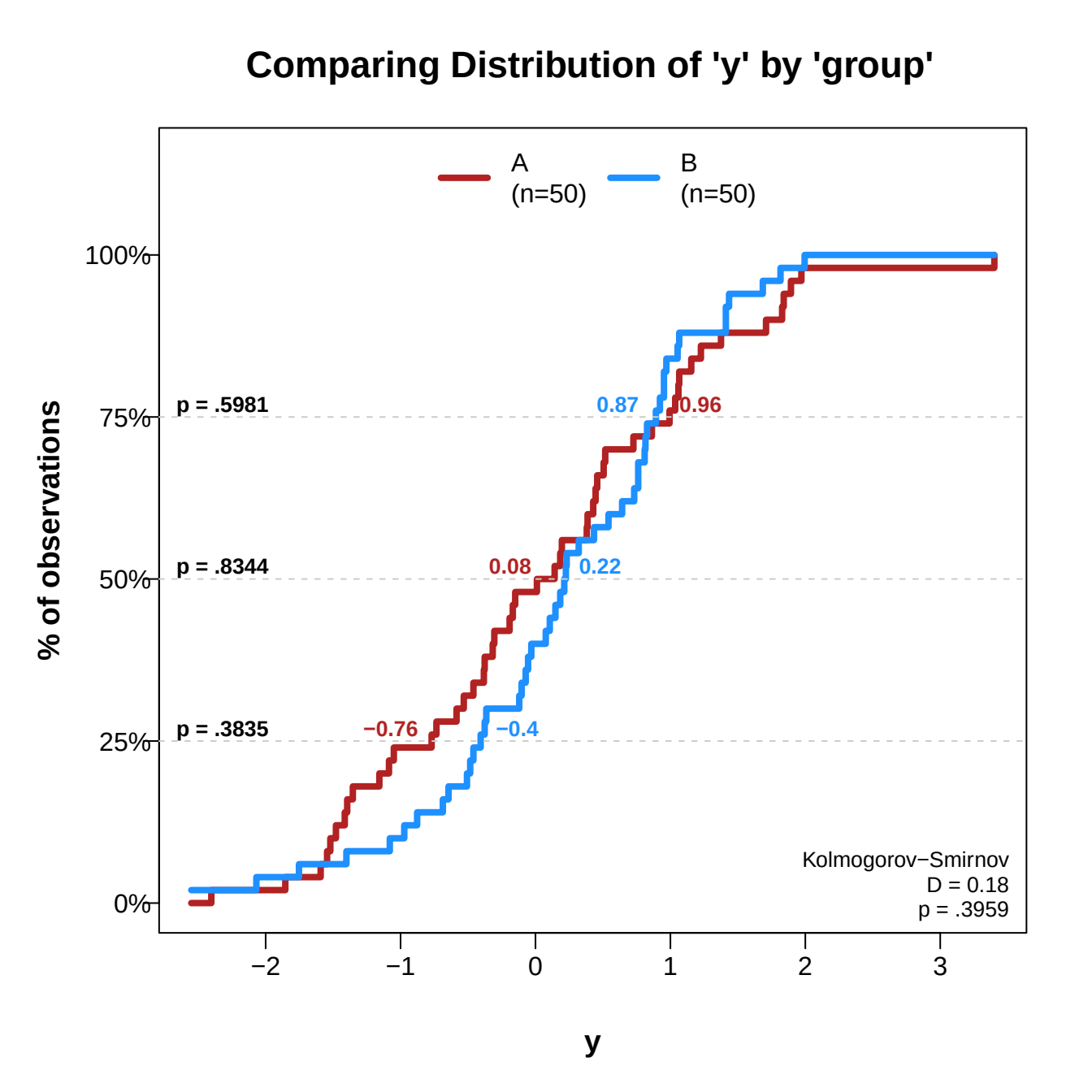

Comparing Distribution of 'y' by 'group'
A
(n=45)
B
(n=45)
100%
75%
50%
25%
0%
% of observations
p = .8310
p = .6744
p = .6532
0.67
0.73
0.21
0.3
−0.53
−0.41
Kolmogorov−Smirnov
D = 0.111
p = .9479
−2
−1
0
1
2
y

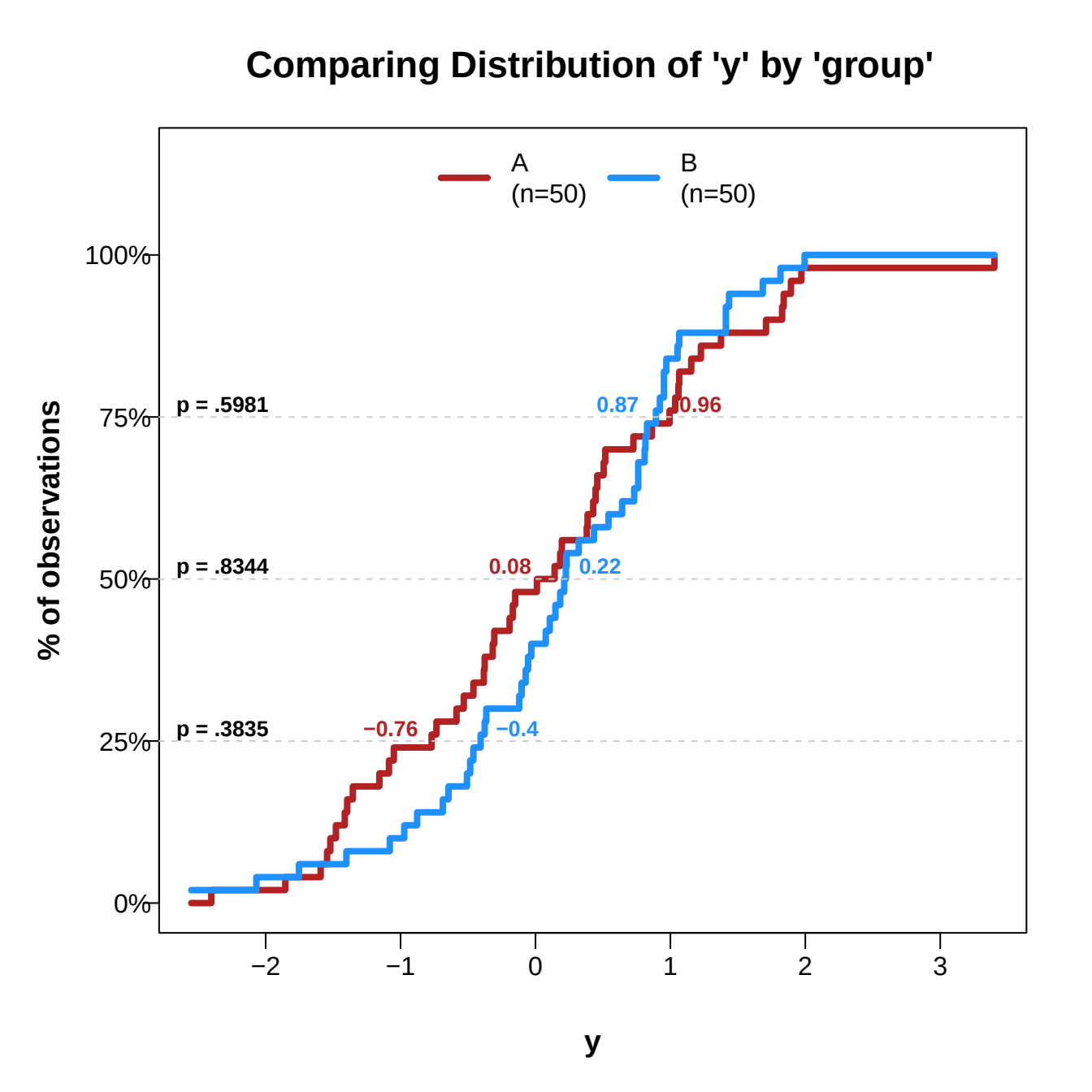

Comparing Distribution of 'y' by 'group'
A
(n=45)
B
(n=45)
100%
75%
50%
25%
0%
% of observations
p = .8310
p = .6744
p = .6532
0.67
0.73
0.21
0.3
−0.53
−0.41
Kolmogorov−Smirnov
D = 0.111
p = .9479
−2
−1
0
1
2
y

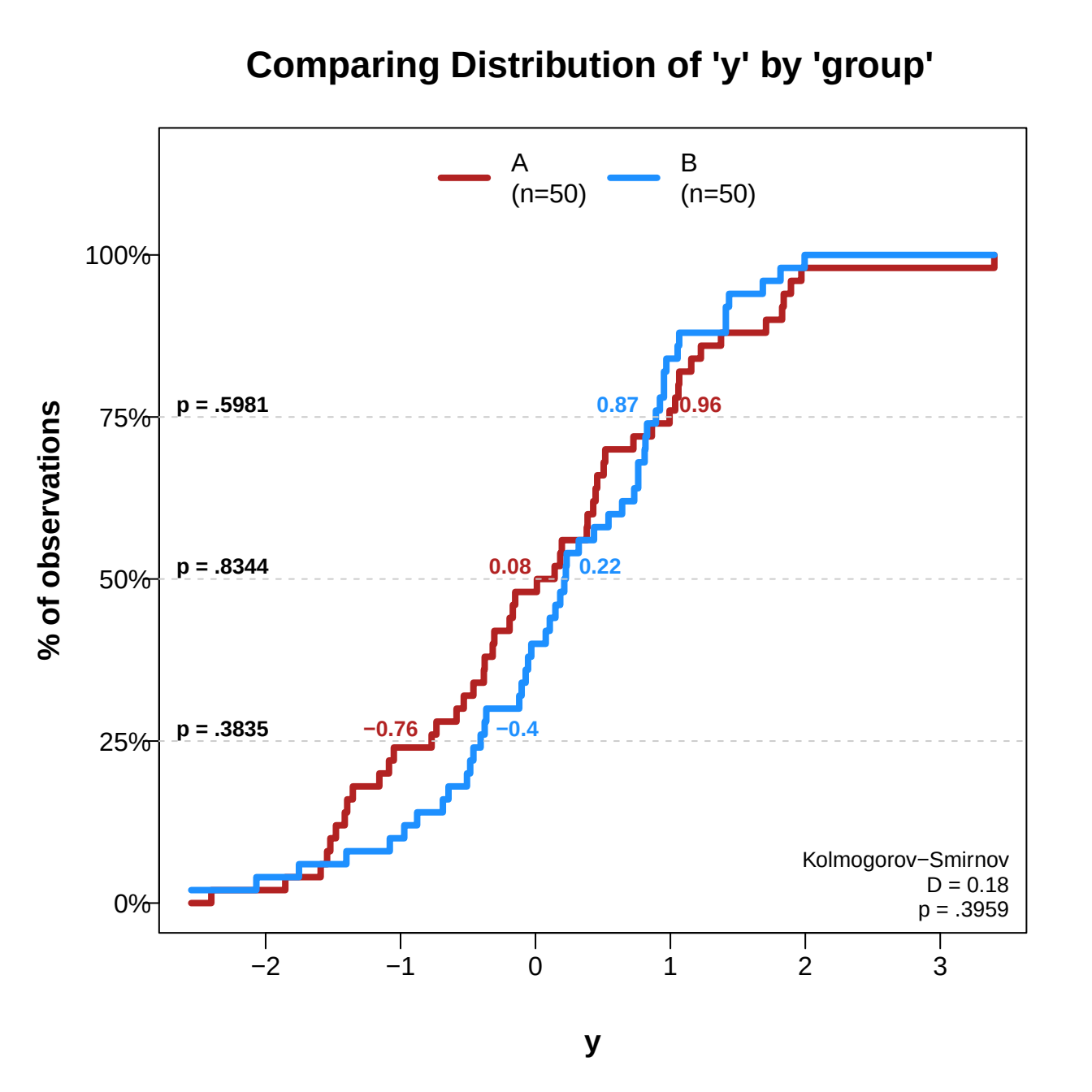

Comparing Distribution of 'y' by 'group'
A
(n=50)
B
(n=50)
100%
75%
50%
25%
0%
% of observations
p = .8338
p = .2734
p = .0543
0.62
0.7
−0.05
0.24
−0.96
−0.35
Kolmogorov−Smirnov
D = 0.18
p = .3959
−2
−1
0
1
2
3
y

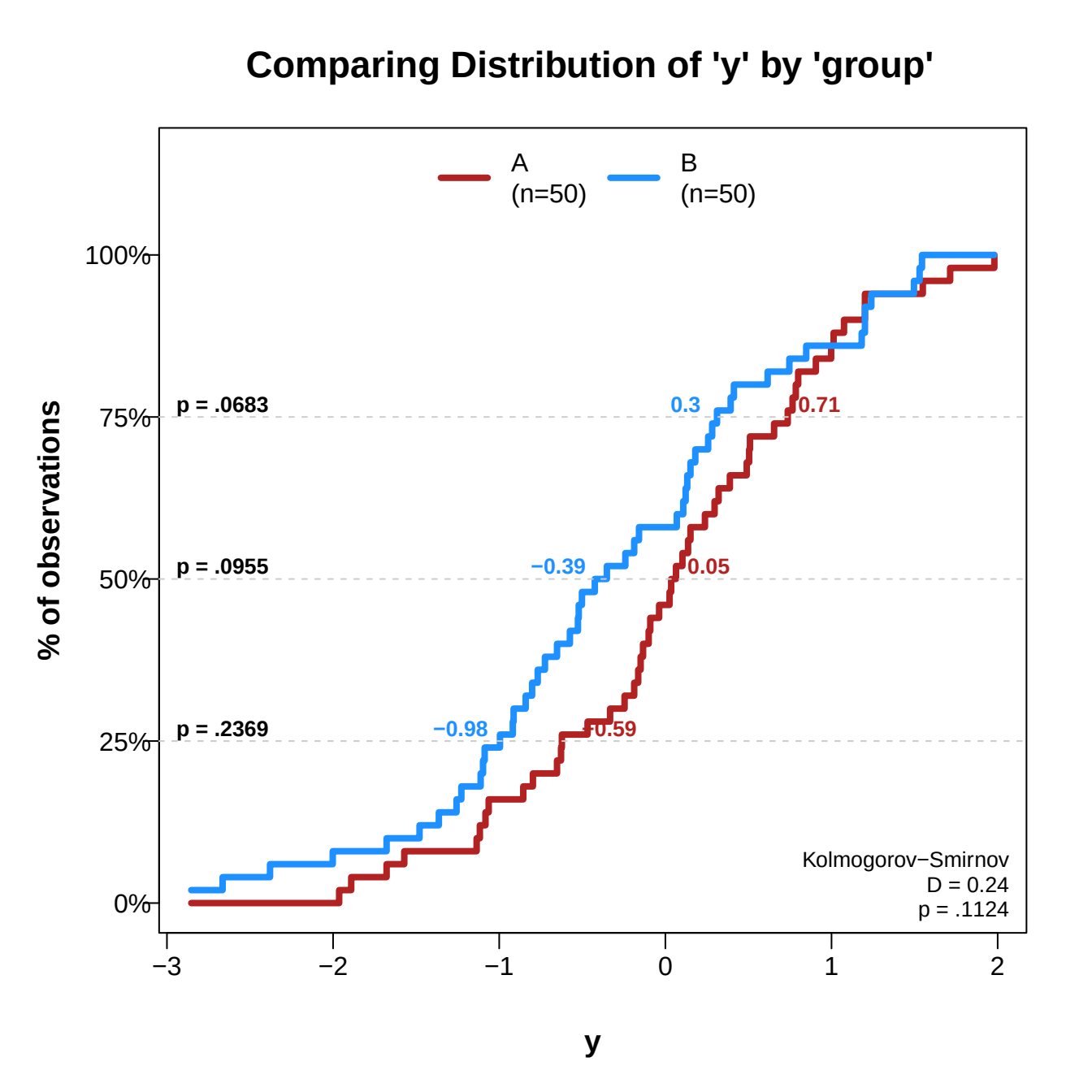

Comparing Distribution of 'y' by 'group'
A
(n=50)
B
(n=50)
100%
75%
50%
25%
0%
% of observations
p = .8338
p = .2734
p = .0543
0.62
0.7
−0.05
0.24
−0.96
−0.35
Kolmogorov−Smirnov
D = 0.18
p = .3959
−2
−1
0
1
2
3
y

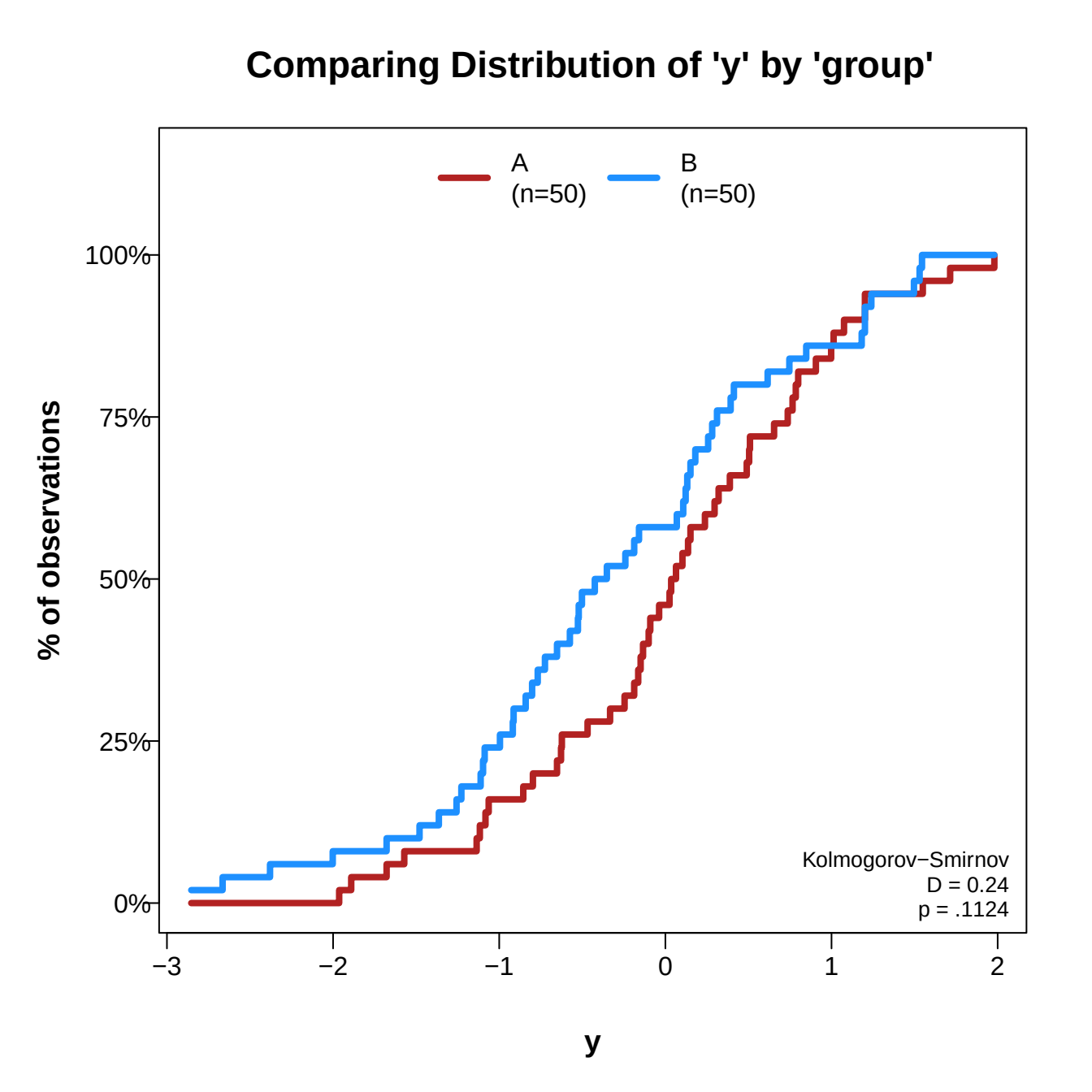

Comparing Distribution of 'y' by 'group'
A
(n=50)
B
(n=50)
100%
75%
50%
25%
0%
% of observations
p = .8338
p = .2734
p = .0543
0.62
0.7
−0.05
0.24
−0.96
−0.35
Kolmogorov−Smirnov
D = 0.18
p = .3959
−2
−1
0
1
2
3
y

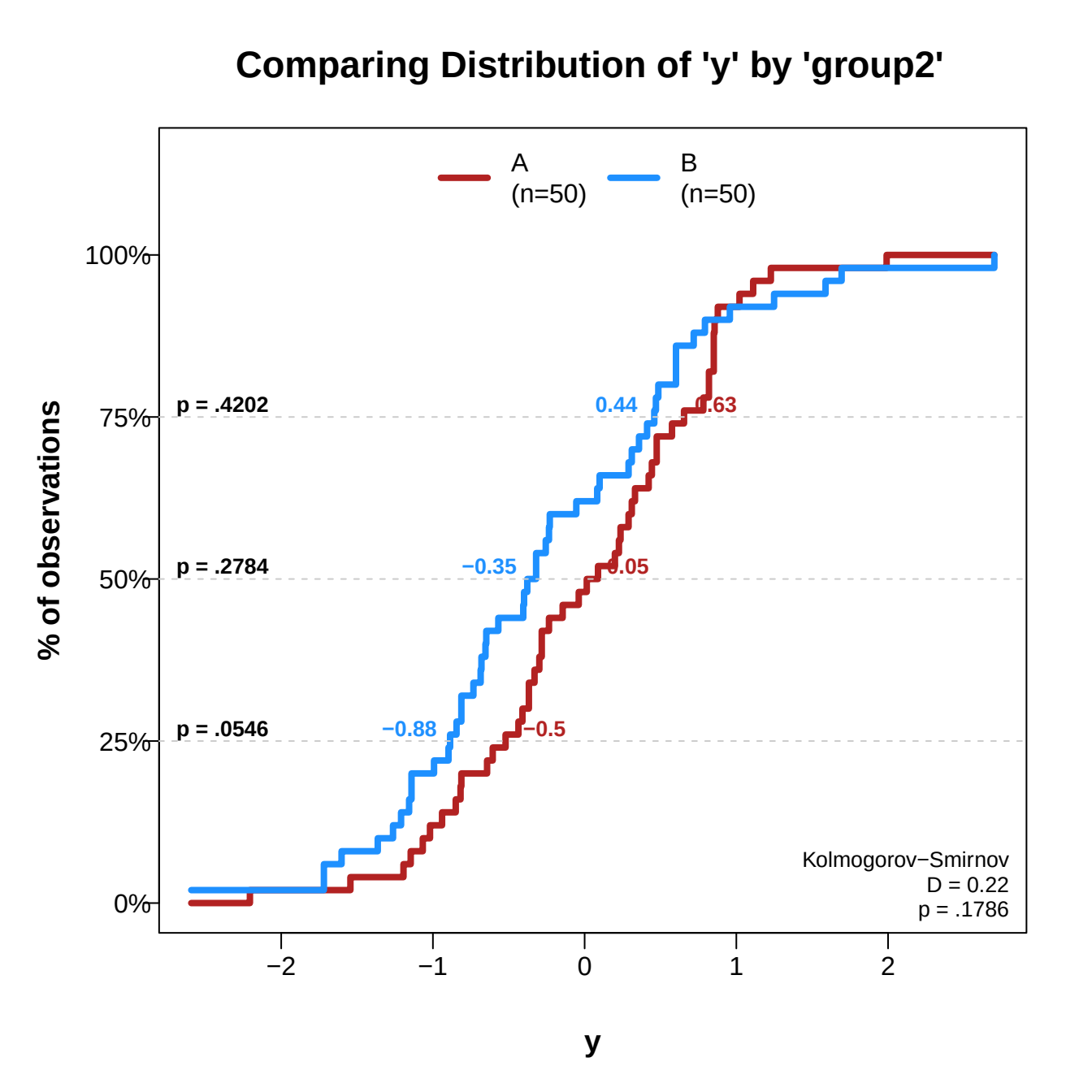

Comparing Distribution of 'y' by 'group'
A
(n=50)
B
(n=50)
100%
75%
50%
25%
0%
% of observations
p = .5981
p = .8344
p = .3835
0.87
0.96
0.08
0.22
−0.76
−0.4
Kolmogorov−Smirnov
D = 0.18
p = .3959
−2
−1
0
1
2
3
y

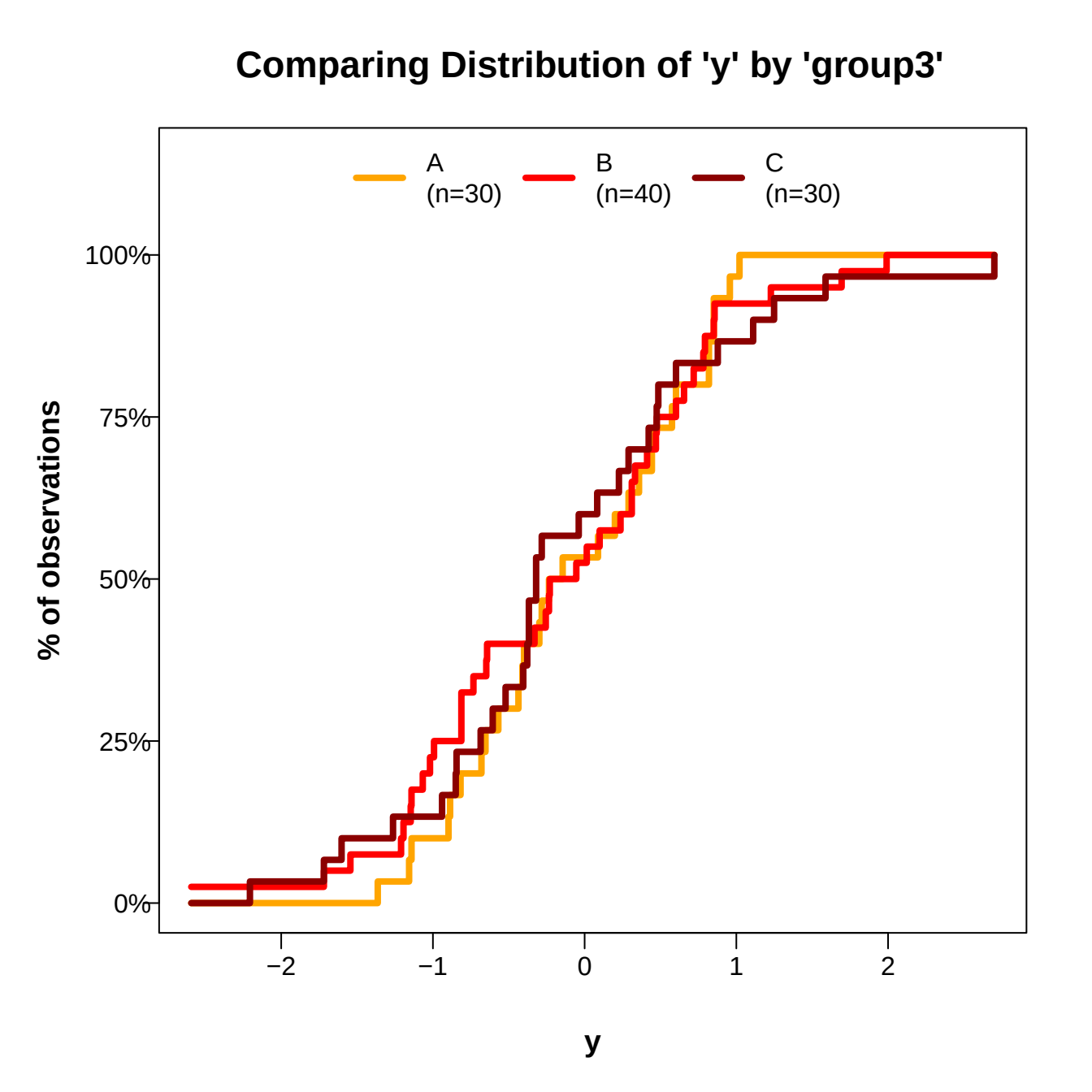

Comparing Distribution of 'y' by 'group'
A
(n=50)
B
(n=50)
100%
75%
50%
25%
0%
% of observations
p = .5981
p = .8344
p = .3835
0.87
0.96
0.08
0.22
−0.76
−0.4
−2
−1
0
1
2
3
y

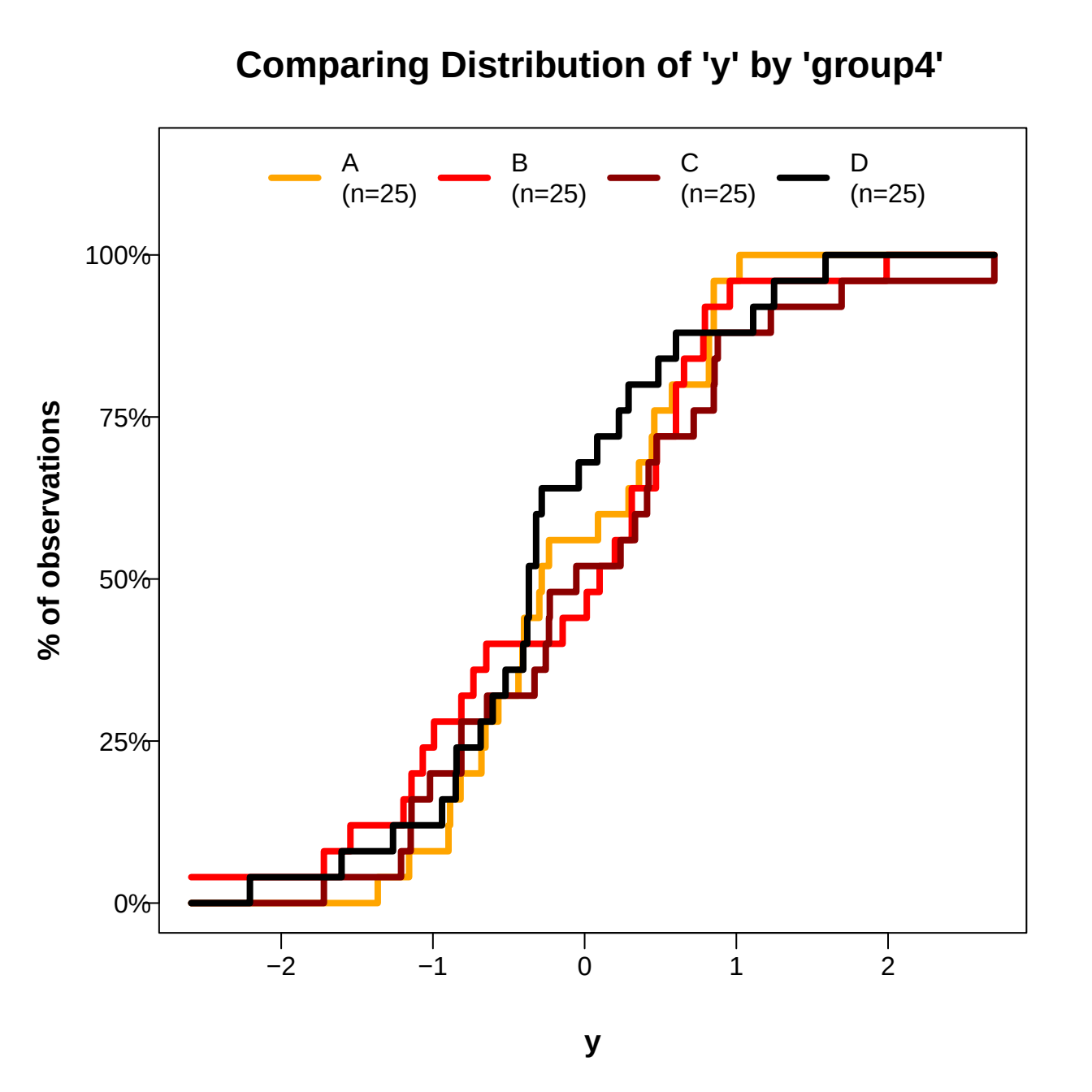

Comparing Distribution of 'y' by 'group'
A
(n=50)
B
(n=50)
100%
75%
50%
25%
0%
% of observations
p = .5981
p = .8344
p = .3835
0.87
0.96
0.08
0.22
−0.76
−0.4
Kolmogorov−Smirnov
D = 0.18
p = .3959
−2
−1
0
1
2
3
y

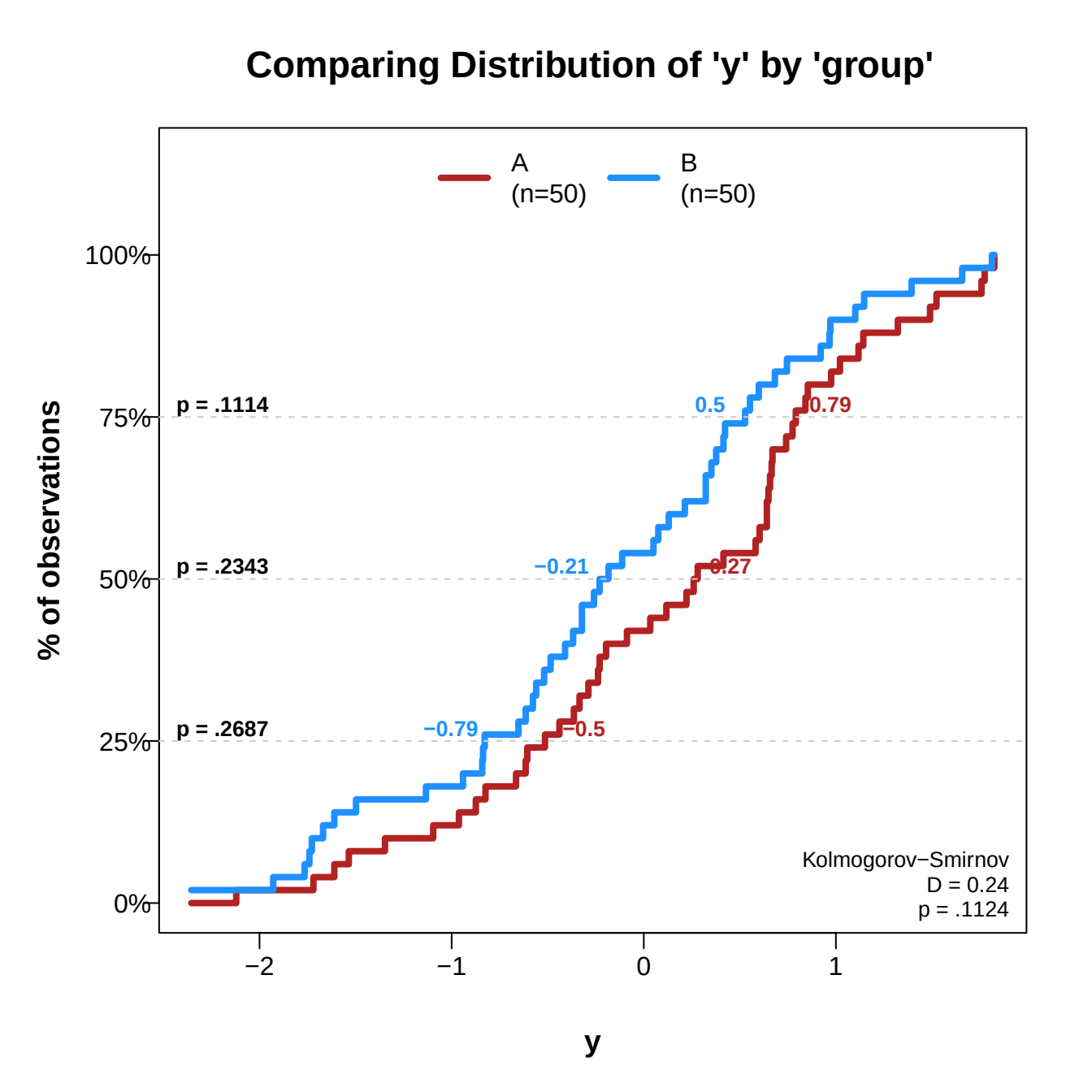

Comparing Distribution of 'y' by 'group'
A
(n=50)
B
(n=50)
100%
75%
50%
25%
0%
% of observations
p = .0683
p = .0955
p = .2369
0.3
0.71
−0.39
0.05
−0.98
0.59
Kolmogorov−Smirnov
D = 0.24
p = .1124
−3
−2
−1
0
1
2
y

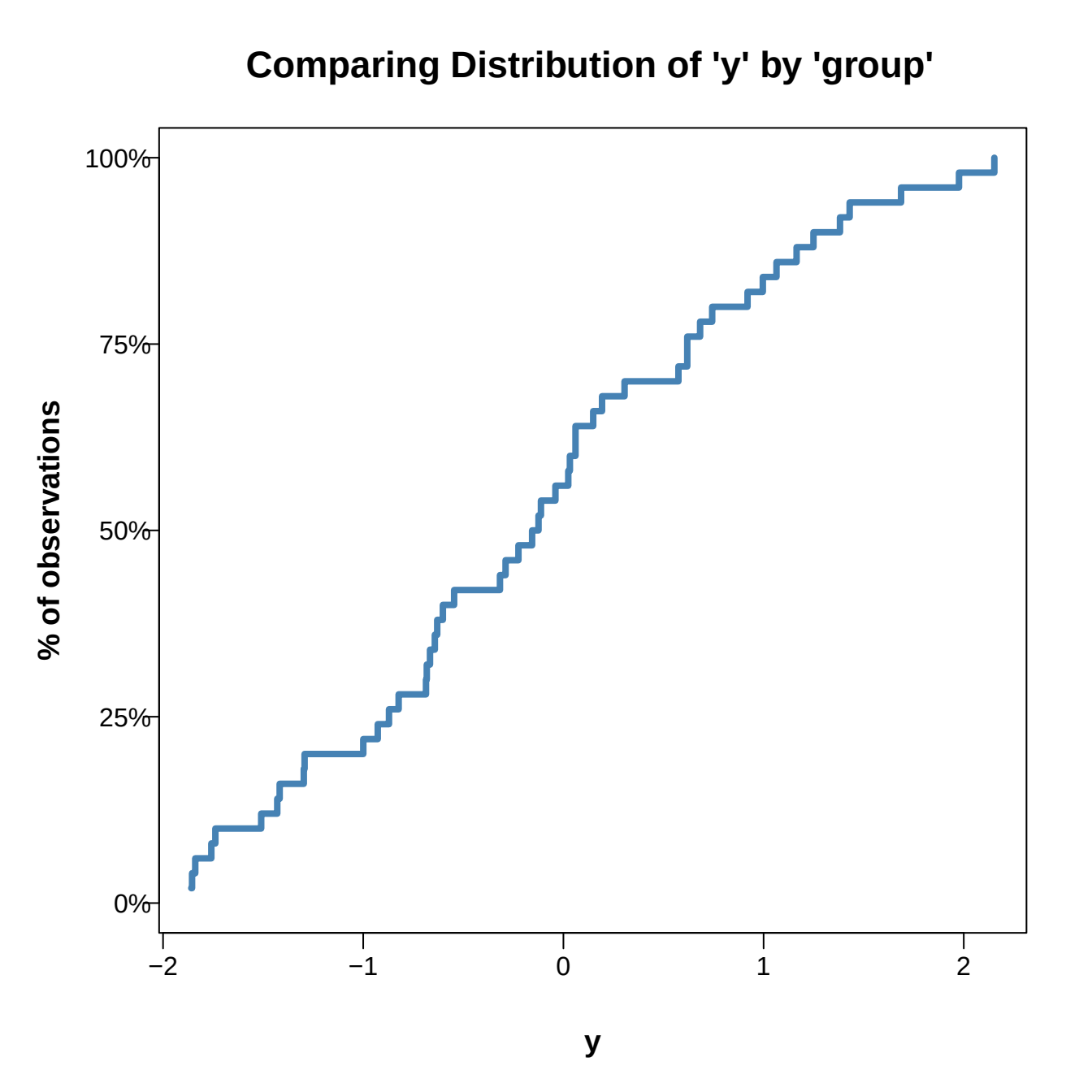

Comparing Distribution of 'y' by 'group'
A
(n=50)
B
(n=50)
100%
75%
50%
25%
0%
% of observations
−3
−2
−1
0
1
2
y
Kolmogorov−Smirnov
D = 0.24
p = .1124

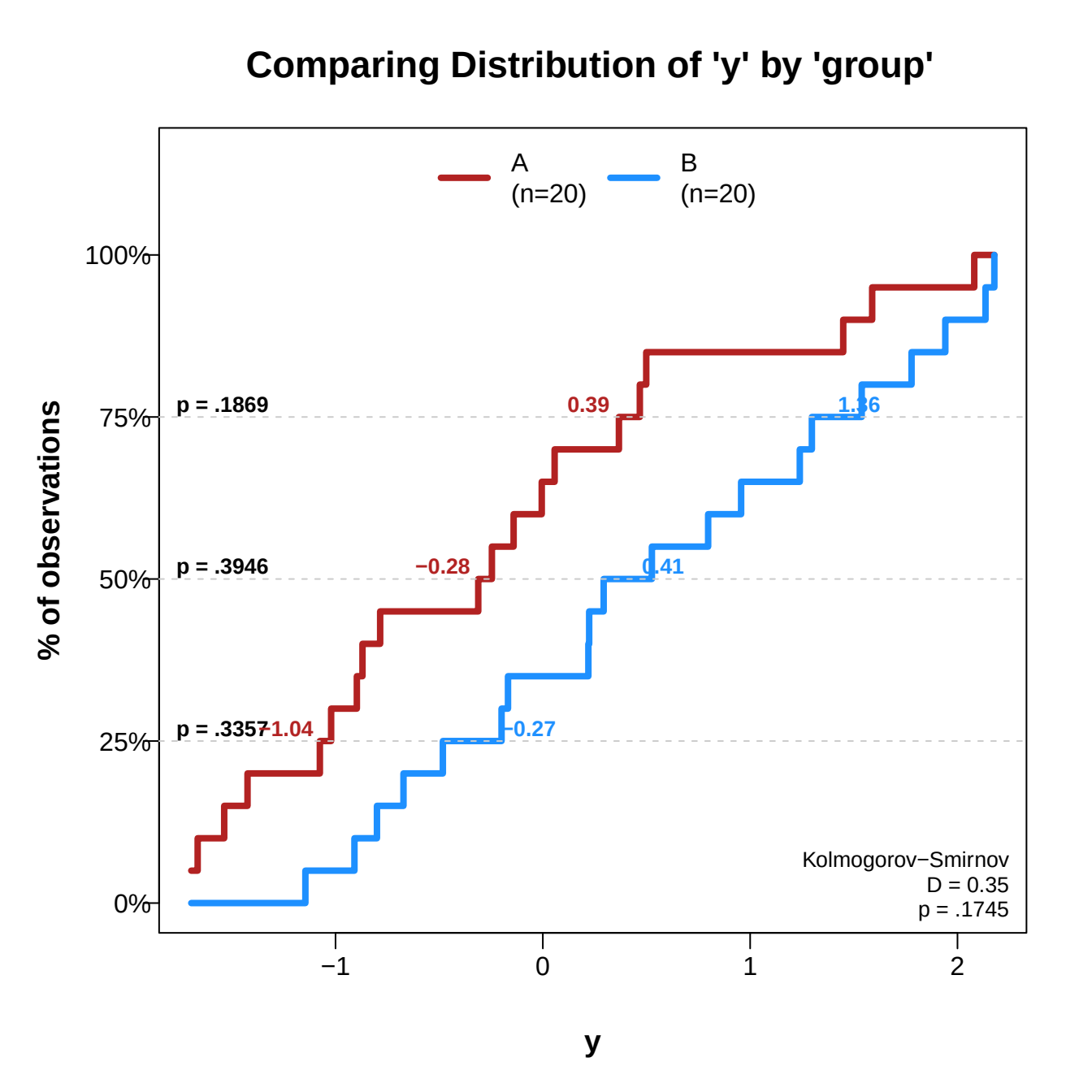

Comparing Distribution of 'y' by 'group2'
A
(n=50)
B
(n=50)
100%
75%
50%
25%
0%
% of observations
p = .4202
p = .2784
p = .0546
0.44
.63
−0.35
.05
−0.88
−0.5
Kolmogorov−Smirnov
D = 0.22
p = .1786
−2
−1
0
1
2
y

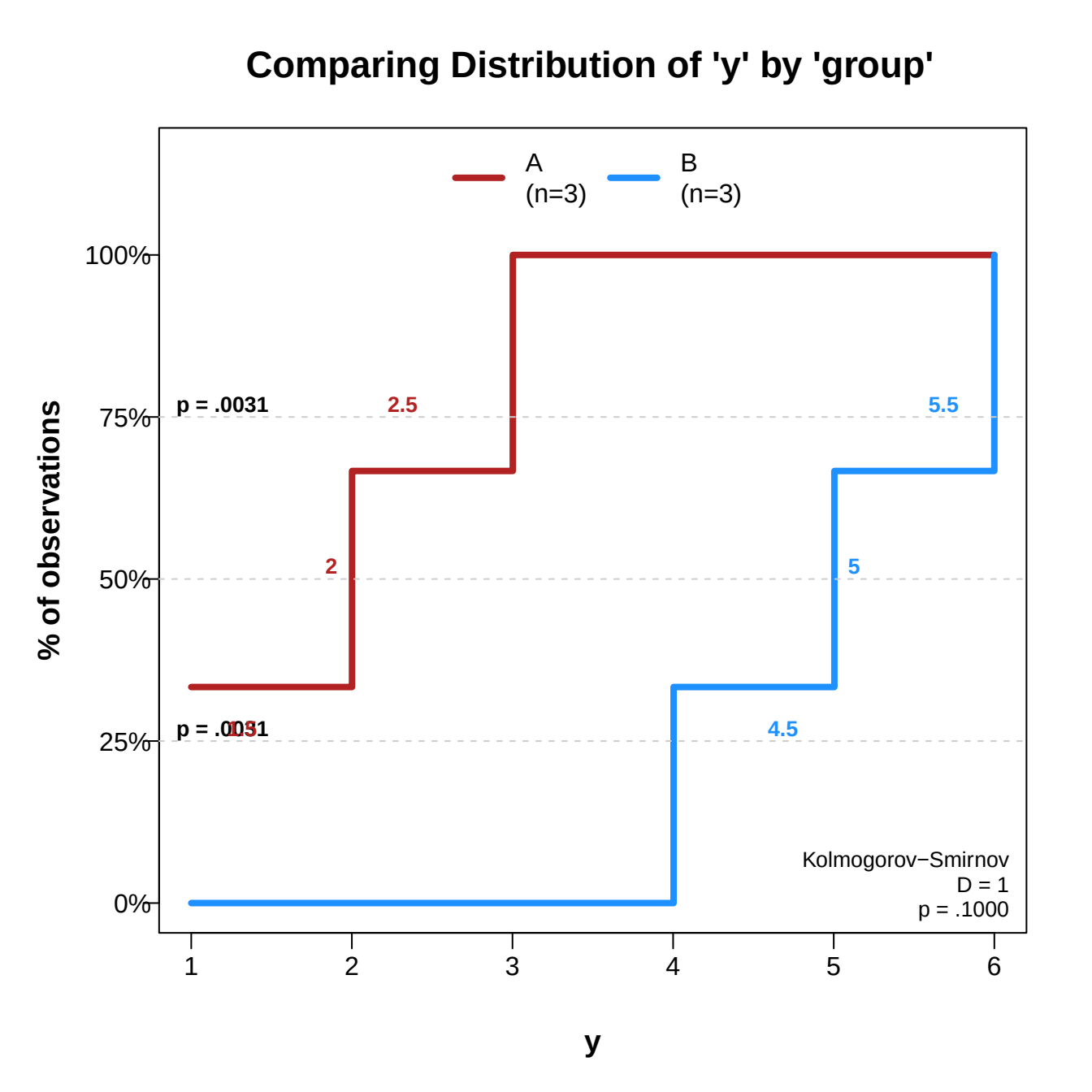

Comparing Distribution of 'y' by 'group3'
A
(n=30)
B
(n=40)
C
(n=30)
100%
75%
50%
25%
0%
% of observations
−2
−1
0
1
2
y

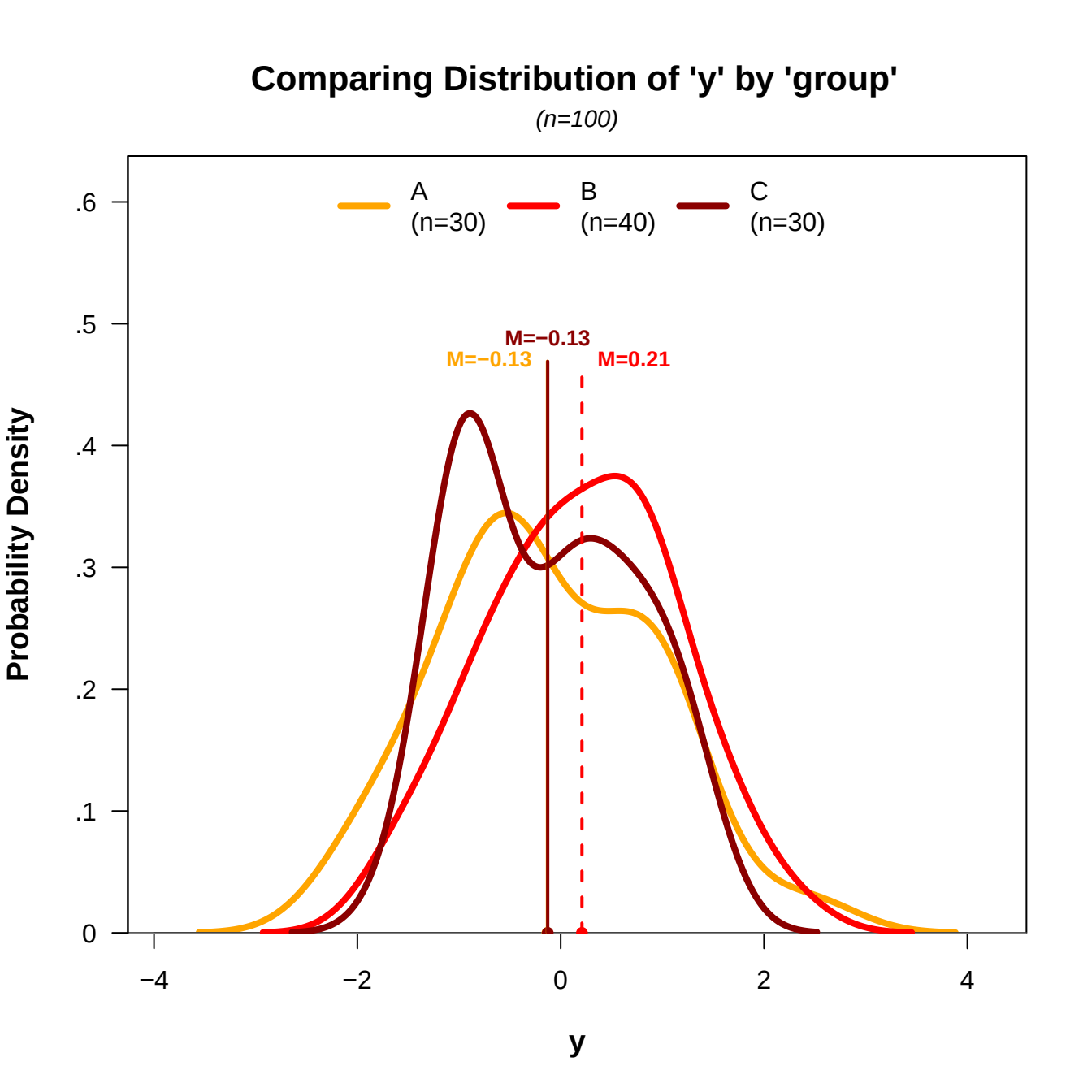

Comparing Distribution of 'y' by 'group4'
A
(n=25)
B
(n=25)
C
(n=25)
D
(n=25)
100%
75%
50%
25%
0%
% of observations
−2
−1
0
1
2
y

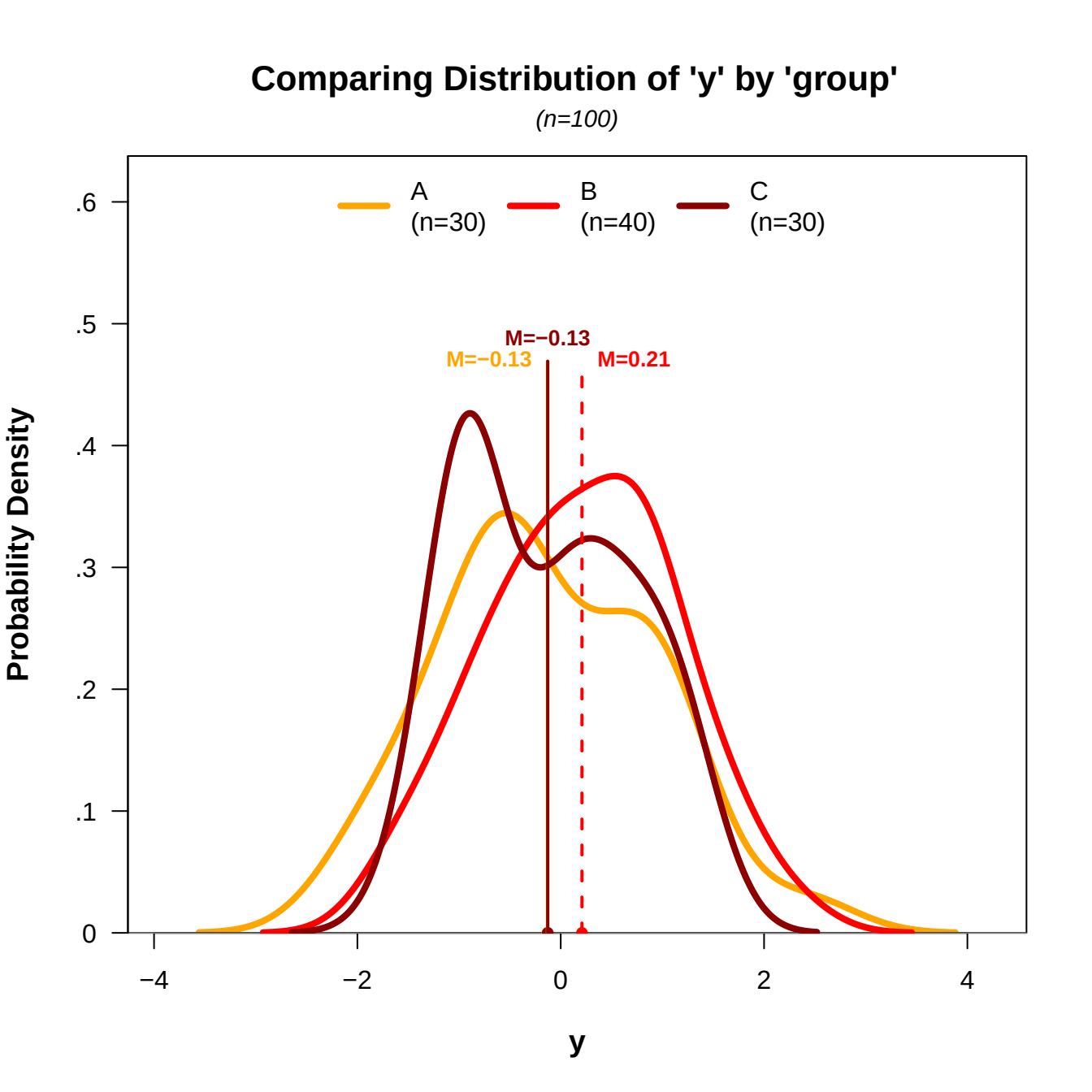

Comparing Distribution of 'y' by 'group'
A
(n=50)
B
(n=50)
100%
75%
50%
25%
0%
% of observations
p = .1114
p = .2343
p = .2687
0.5
0.79
−0.21
0.27
−0.79
−0.5
Kolmogorov−Smirnov
D = 0.24
p = .1124
−2
−1
0
1
y

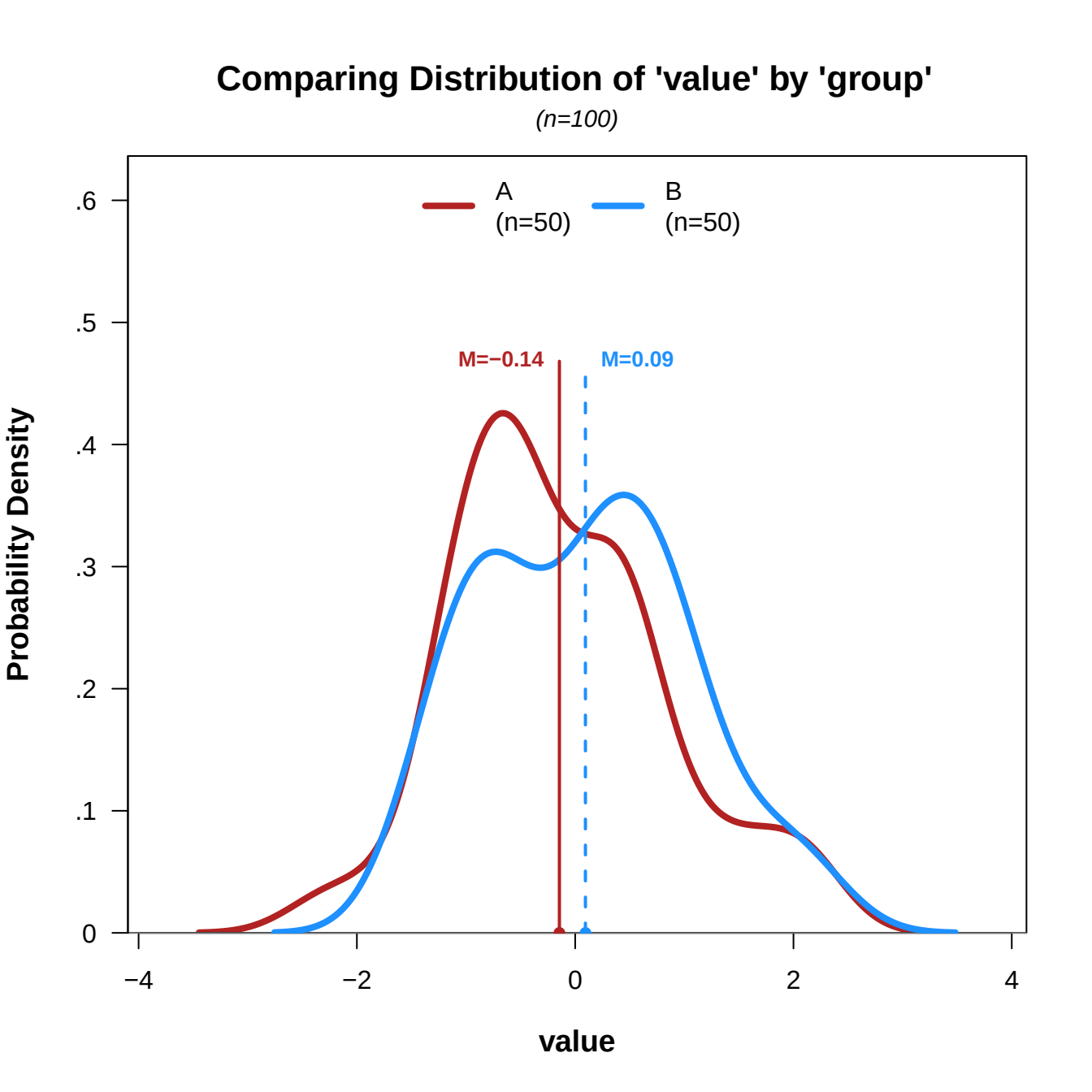

Comparing Distribution of 'y' by 'group'
100%
75%
50%
25%
0%
% of observations
−2
−1
0
1
2
y

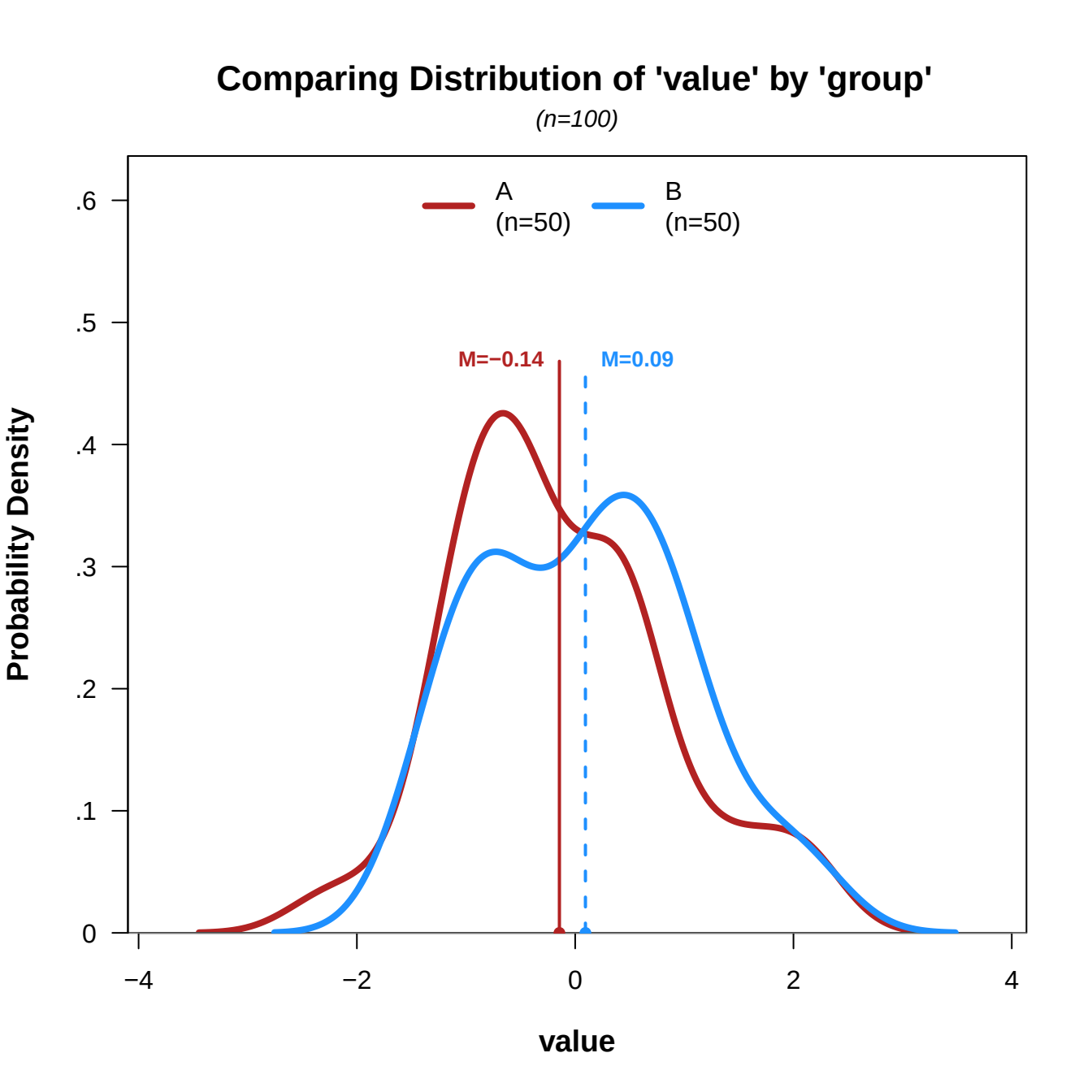

Comparing Distribution of 'y' by 'group'
A
(n=20)
B
(n=20)
100%
75%
50%
25%
0%
% of observations
p = .1869
p = .3946
p = .3357
0.39
−0.28
−1.04
0.41
−0.27
Kolmogorov−Smirnov
D = 0.35
p = .1745
−1
0
1
2
y

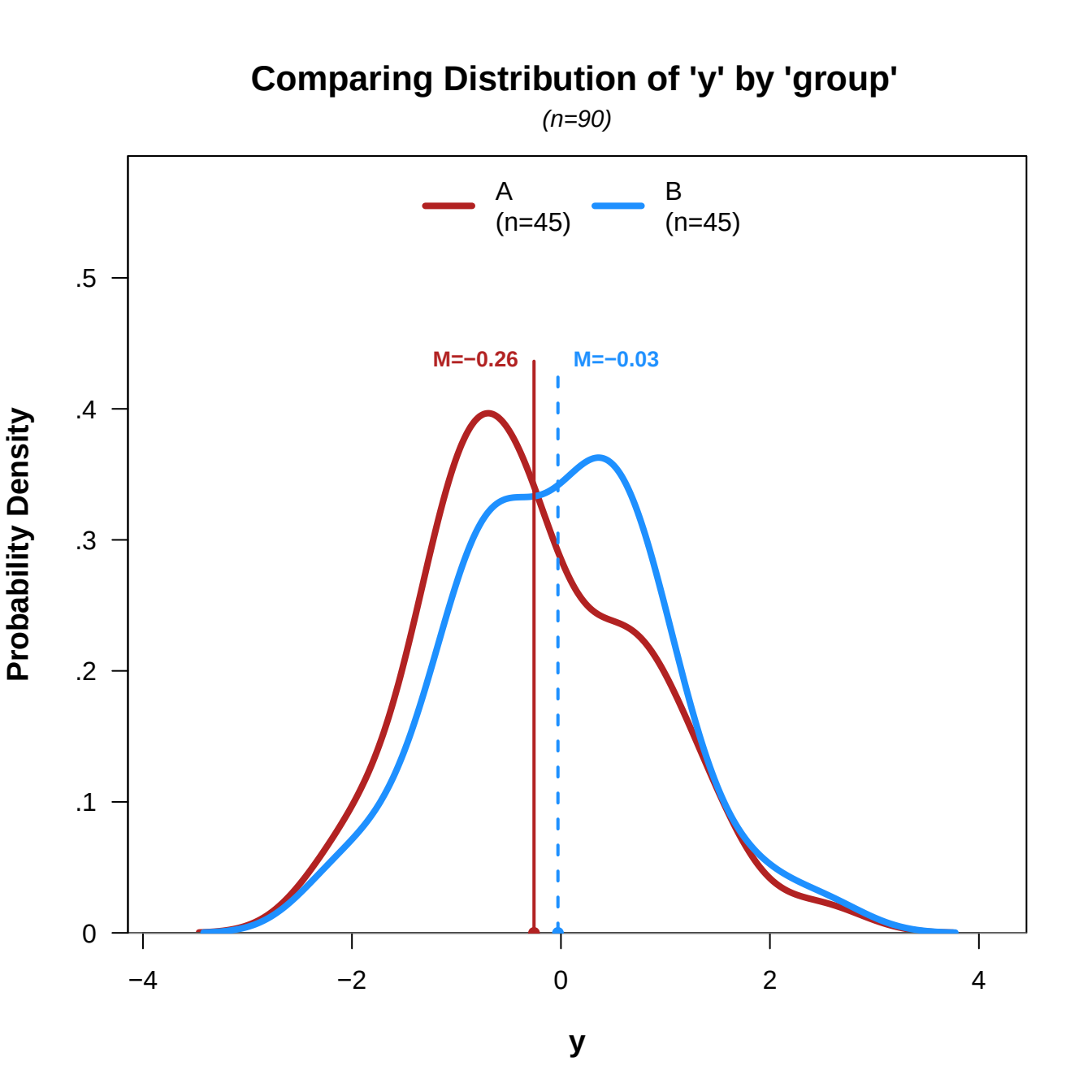

Comparing Distribution of 'y' by 'group'
A
(n=3)
B
(n=3)
100%
75%
50%
25%
0%
% of observations
p = .0031
2.5
5.5
2
5
p = .0031
1.5
4.5
Kolmogorov−Smirnov
D = 1
p = .1000
1
2
3
4
5
6
y

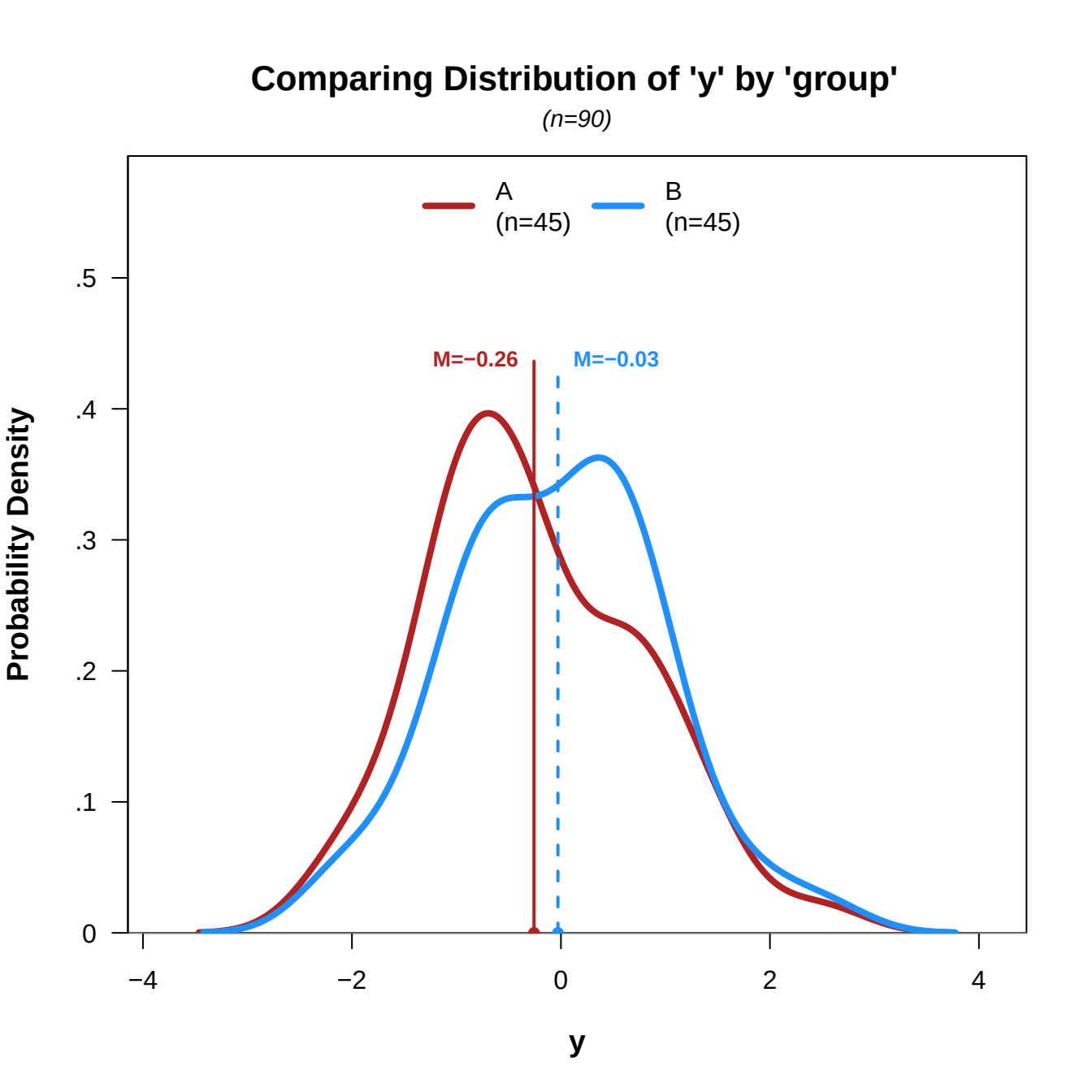

Comparing Distribution of 'y' by 'group'
(n=100)
A
(n=30)
B
(n=40)
C
(n=30)
M=−0.13
M=−0.13
M=0.21
Probability Density
.6
.5
.4
.3
.2
.1
0
−4
−2
0
2
4
y

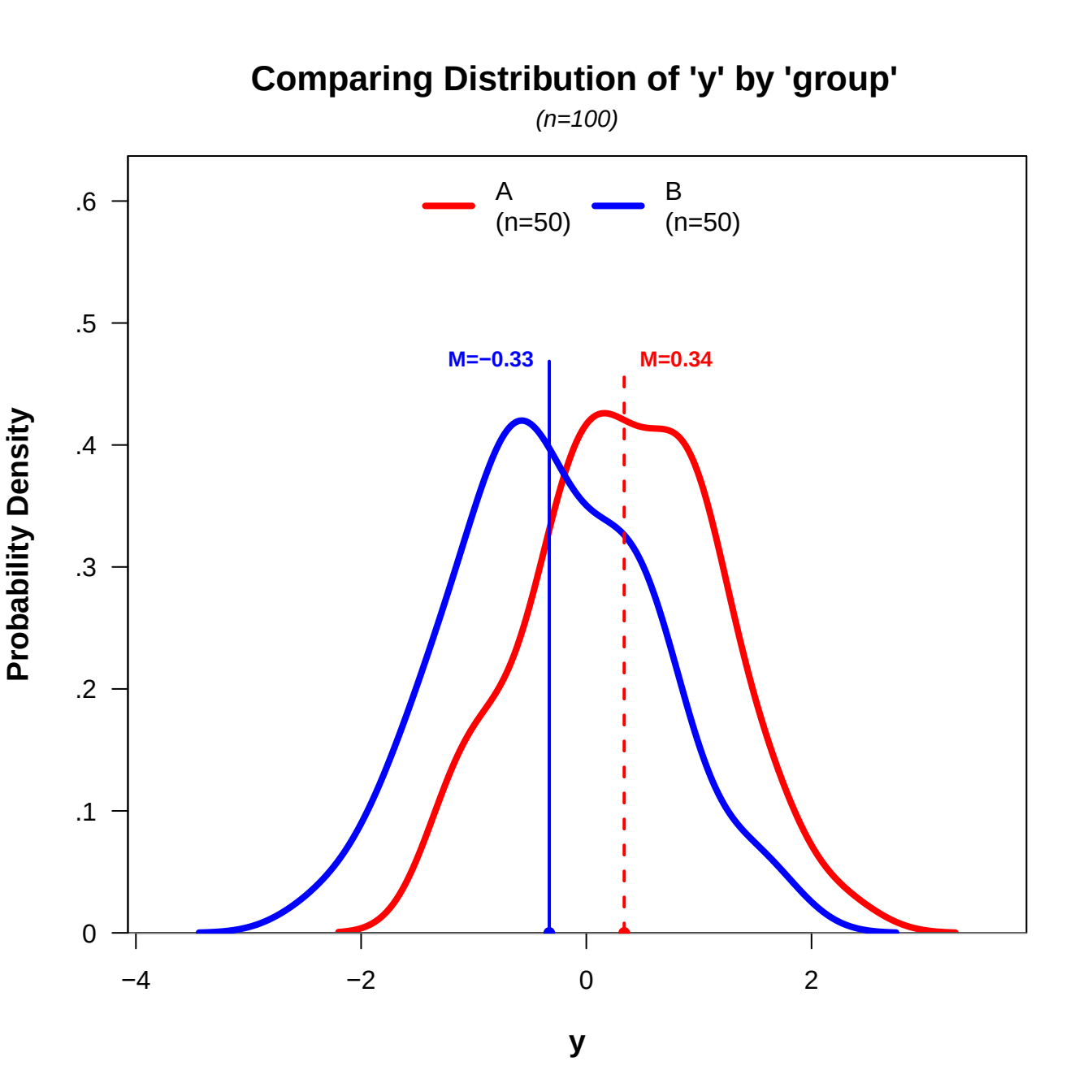

Comparing Distribution of 'y' by 'group'
(n=100)
A
(n=30)
B
(n=40)
C
(n=30)
M=−0.13
M=−0.13
M=0.21
Probability Density
.6
.5
.4
.3
.2
.1
0
−4
−2
0
2
4
y

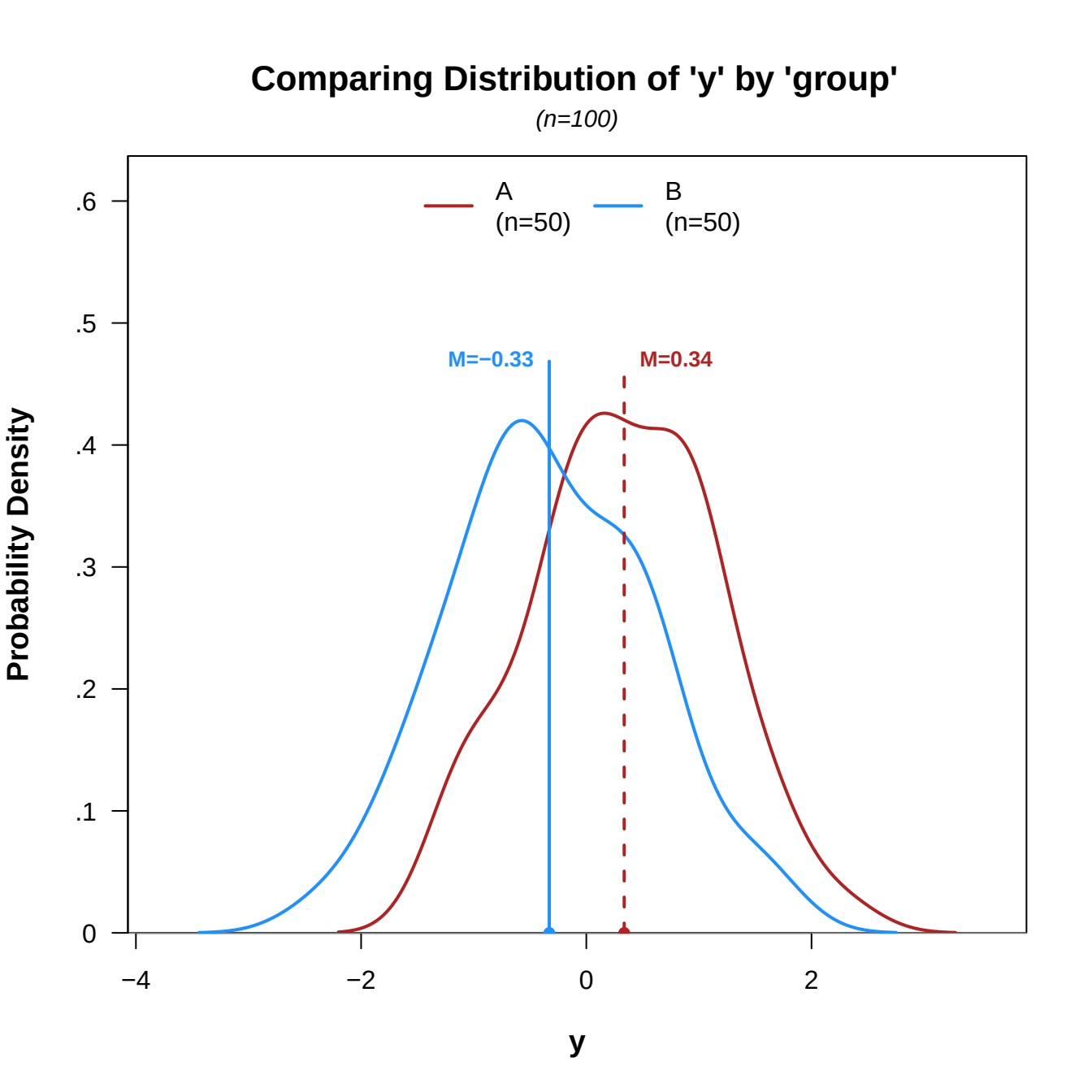

Comparing Distribution of 'value' by 'group'
(n=100)
A
(n=50)
B
(n=50)
M=−0.14
M=0.09
Probability Density
.6
.5
.4
.3
.2
.1
0
−4
−2
0
2
4
value

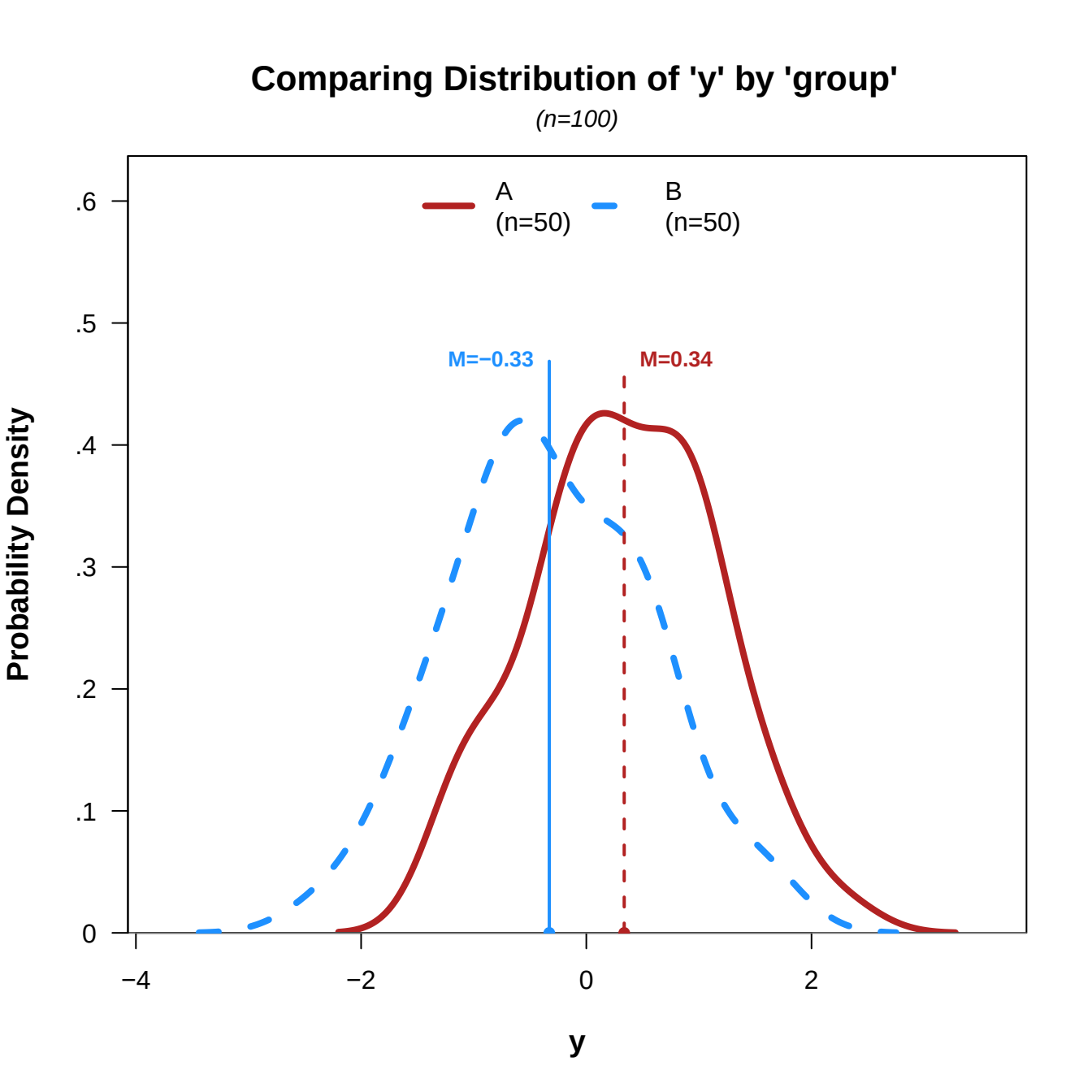

Comparing Distribution of 'value' by 'group'
(n=100)
A
(n=50)
B
(n=50)
M=−0.14
M=0.09
Probability Density
.6
.5
.4
.3
.2
.1
0
−4
−2
0
2
4
value

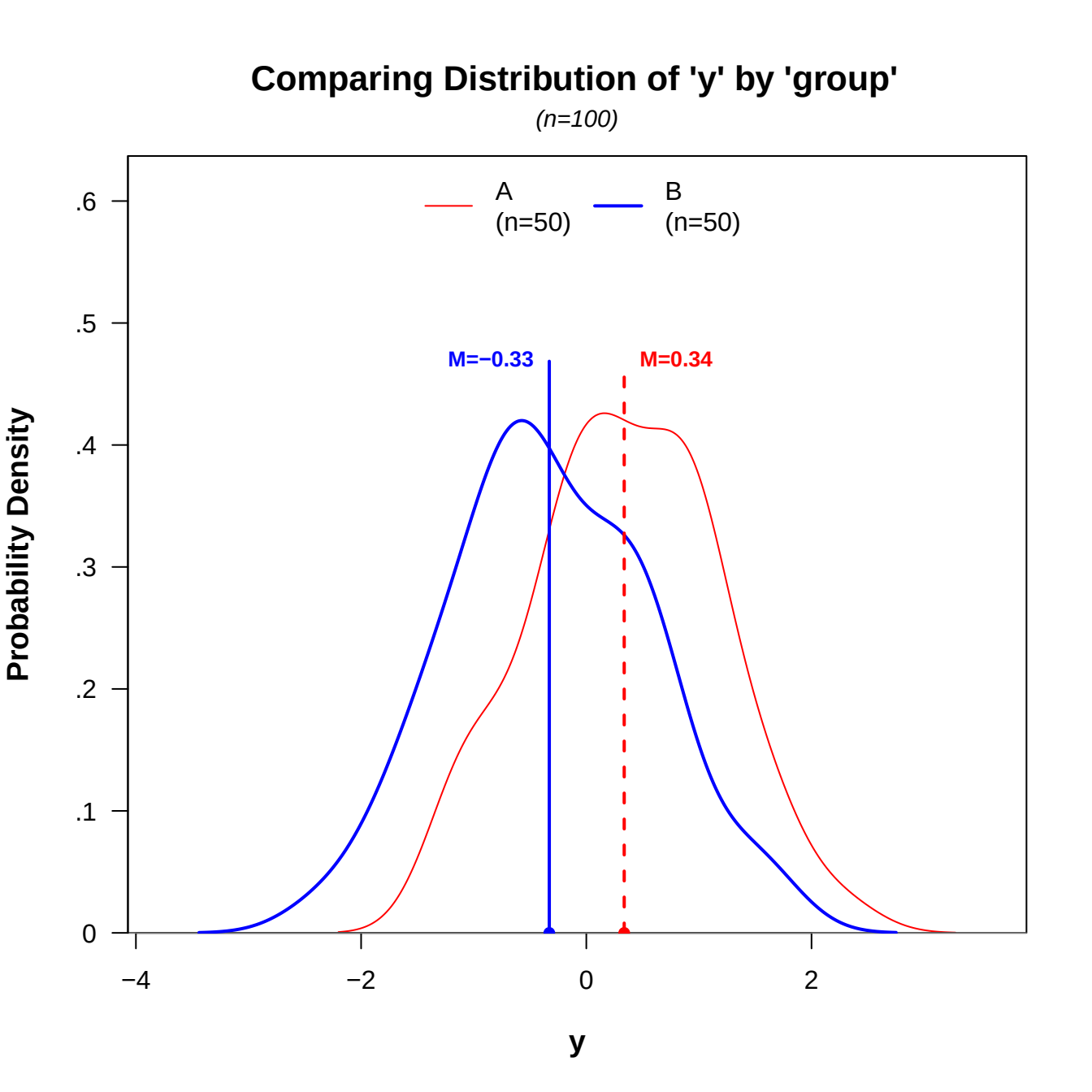

Comparing Distribution of 'y' by 'group'
(n=90)
A
(n=45)
B
(n=45)
M=−0.26
M=−0.03
Probability Density
.5
.4
.3
.2
.1
0
−4
−2
0
2
4
y

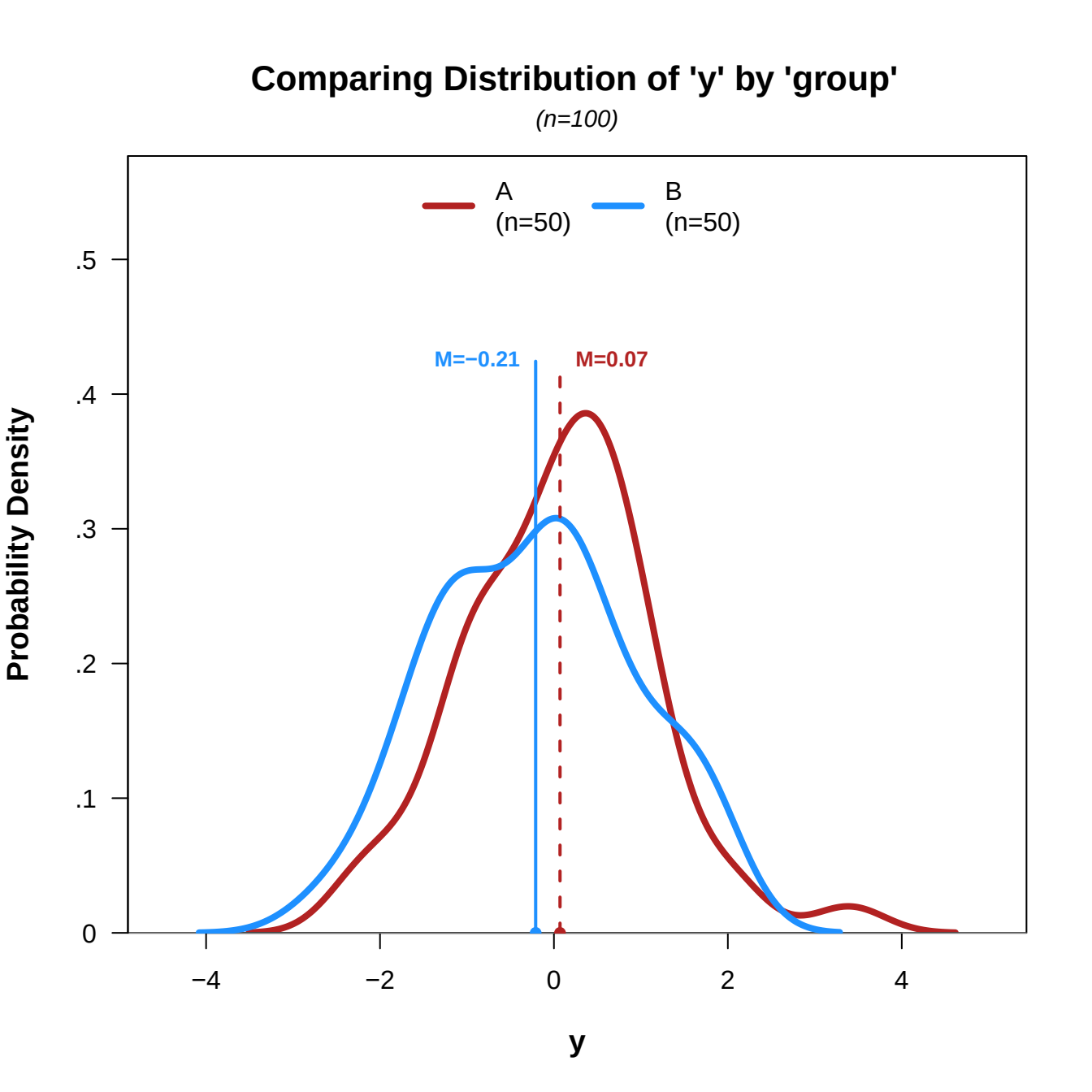

Comparing Distribution of 'y' by 'group'
(n=90)
A
(n=45)
B
(n=45)
M=−0.26
M=−0.03
Probability Density
.5
.4
.3
.2
.1
0
−4
−2
0
2
4
y

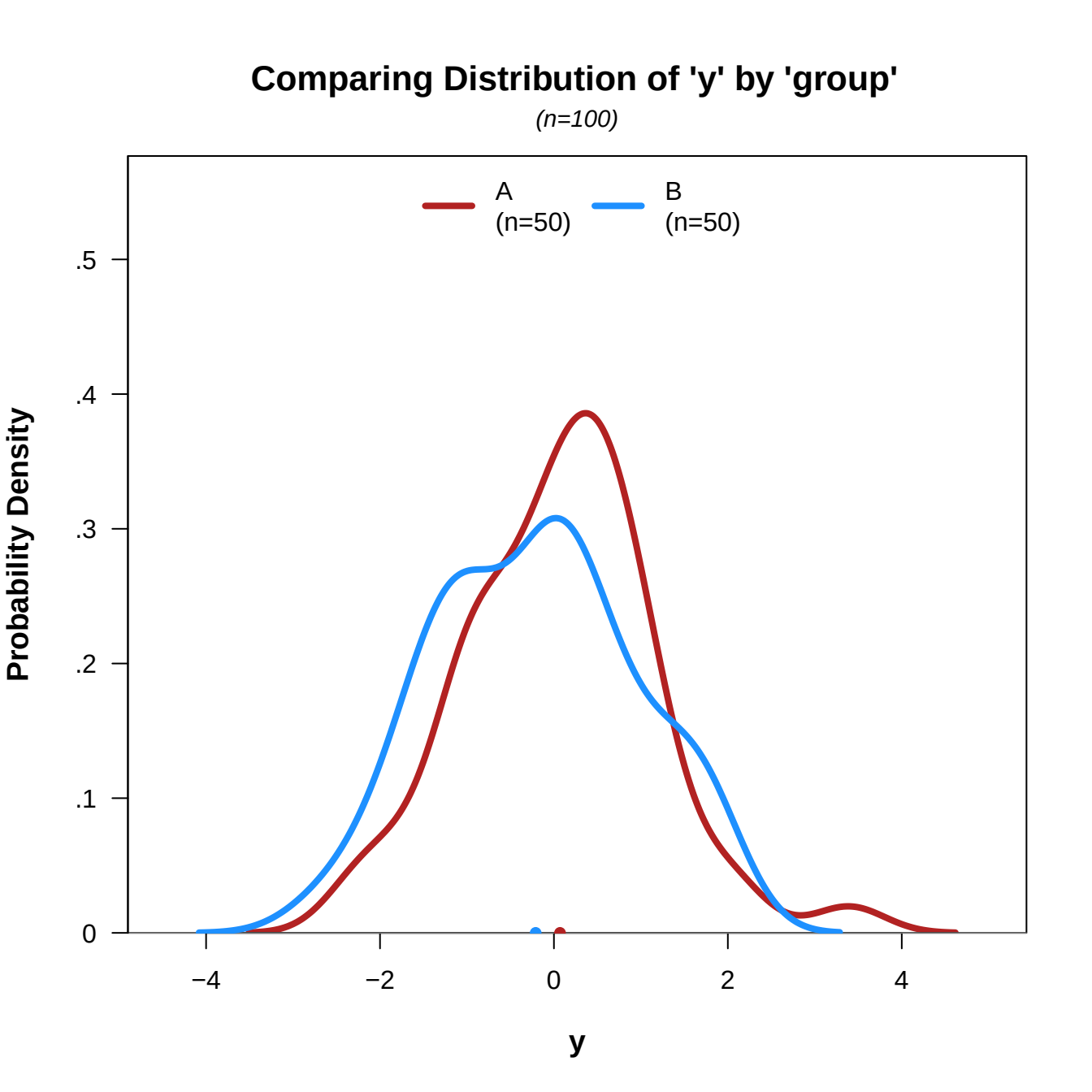

Comparing Distribution of 'y' by 'group'
(n=100)
A
(n=50)
B
(n=50)
M=−0.33
M=0.34
Probability Density
.6
.5
.4
.3
.2
.1
0
−4
−2
0
2
y

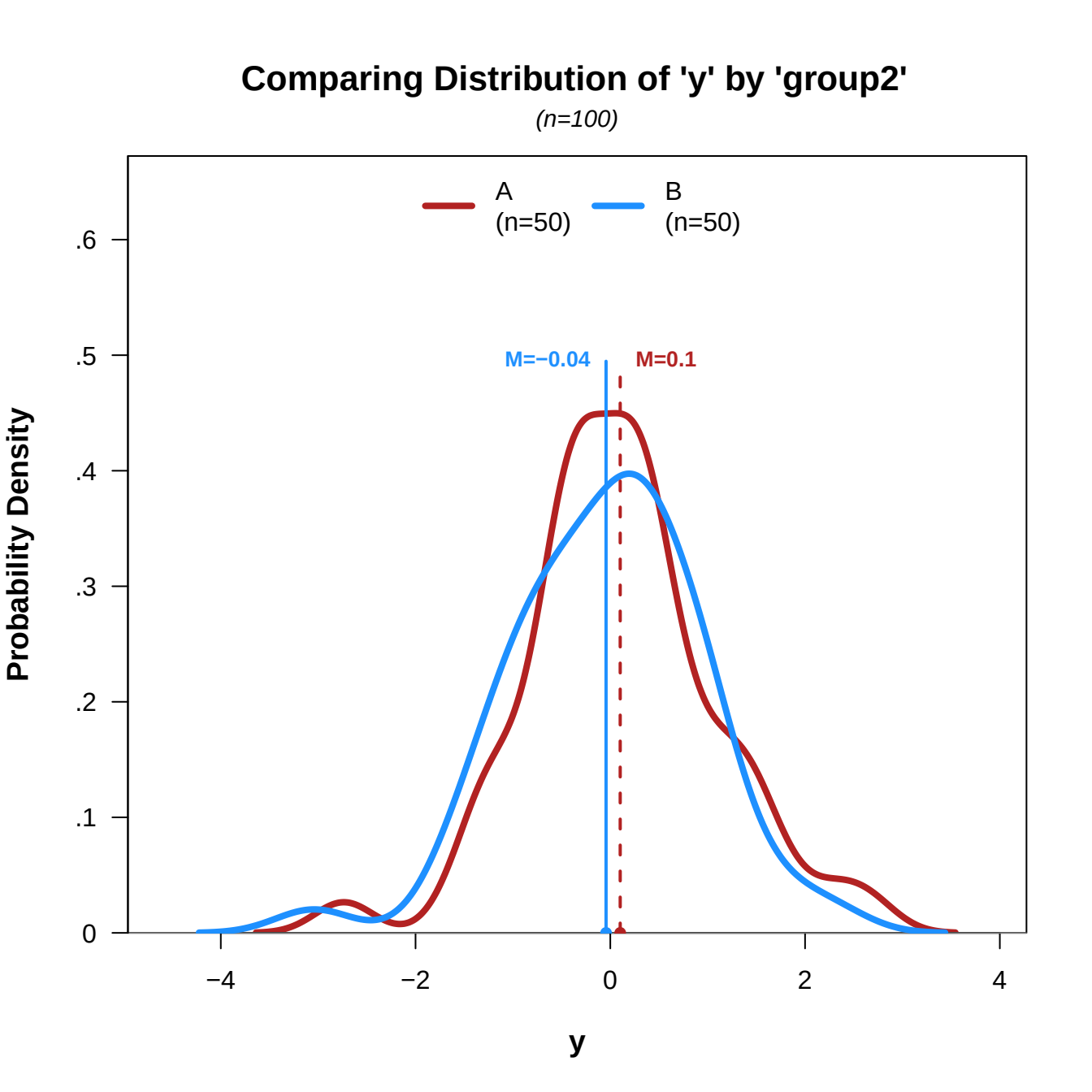

Comparing Distribution of 'y' by 'group'
(n=100)
A
(n=50)
B
(n=50)
M=−0.33
M=0.34
Probability Density
.6
.5
.4
.3
.2
.1
0
−4
−2
0
2
y

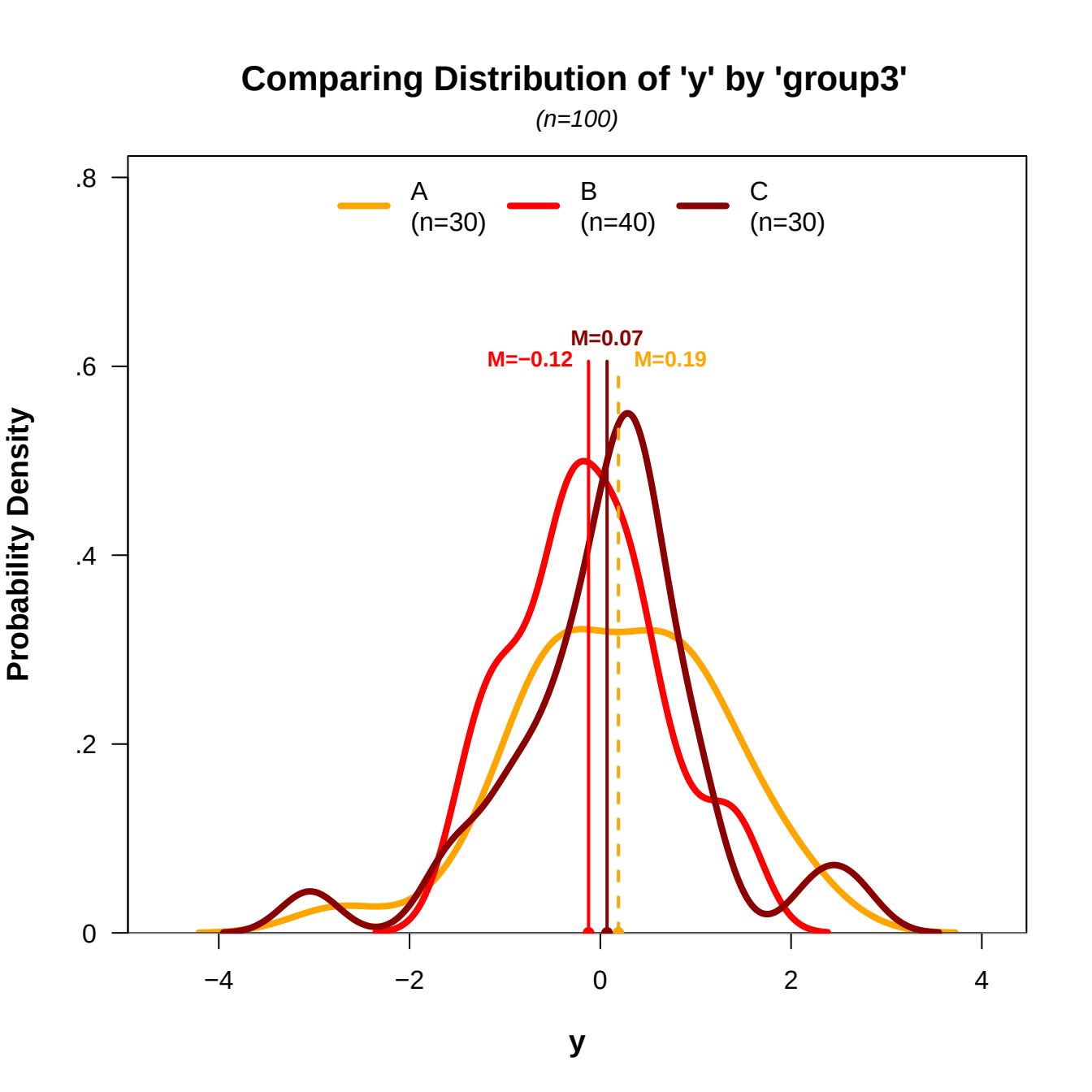

Comparing Distribution of 'y' by 'group'
(n=100)
A
(n=50)
B
(n=50)
M=−0.33
M=0.34
Probability Density
.6
.5
.4
.3
.2
.1
0
−4
−2
0
2
y

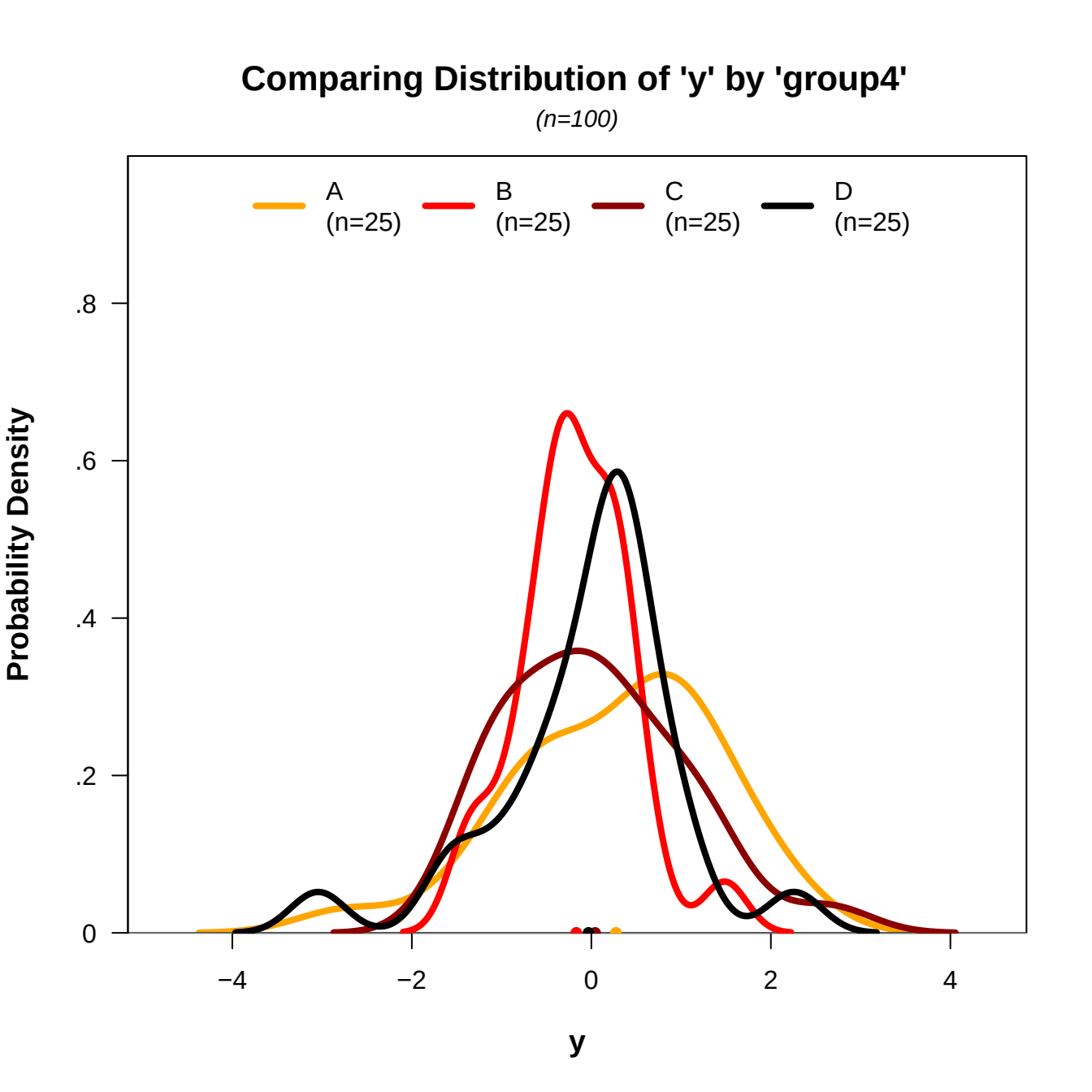

Comparing Distribution of 'y' by 'group'
(n=100)
A
(n=50)
B
(n=50)
M=−0.33
M=0.34
Probability Density
.6
.5
.4
.3
.2
.1
0
−4
−2
0
2
y

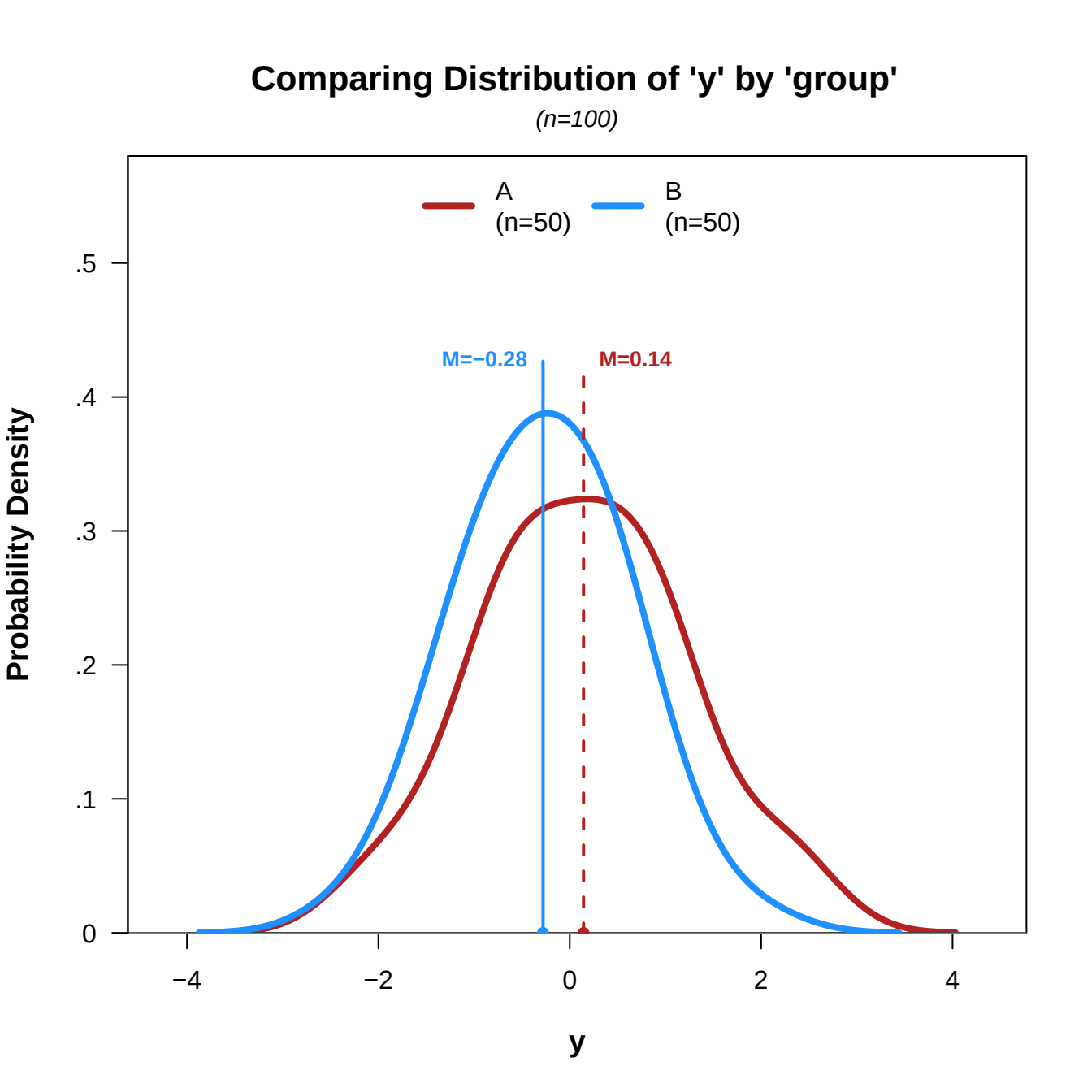

Comparing Distribution of 'y' by 'group'
(n=100)
A
(n=50)
B
(n=50)
M=−0.21
M=0.07
Probability Density
.5
.4
.3
.2
.1
0
−4
−2
0
2
4
y

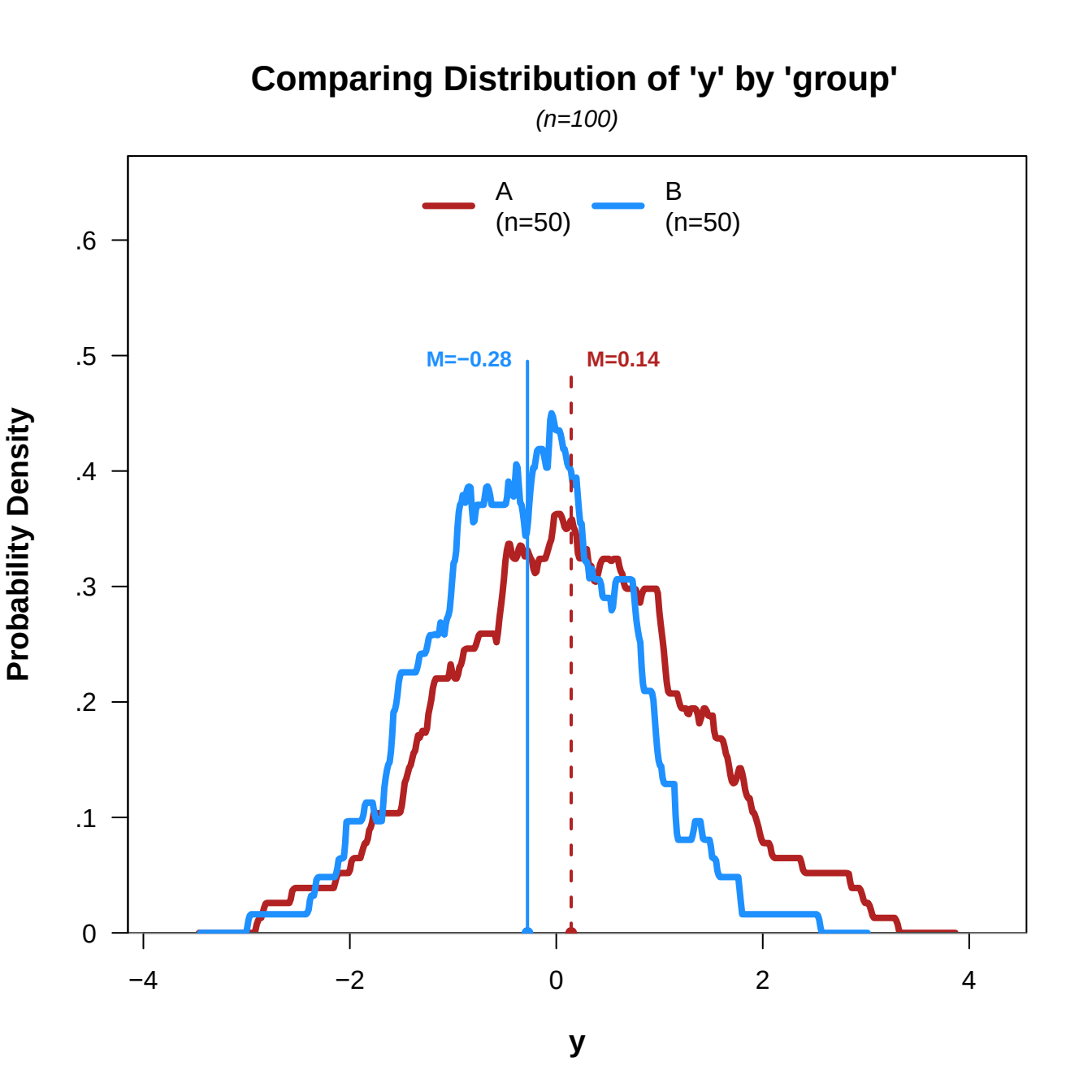

Comparing Distribution of 'y' by 'group'
(n=100)
A
(n=50)
B
(n=50)
Probability Density
.5
.4
.3
.2
.1
0
−4
−2
0
2
4
y

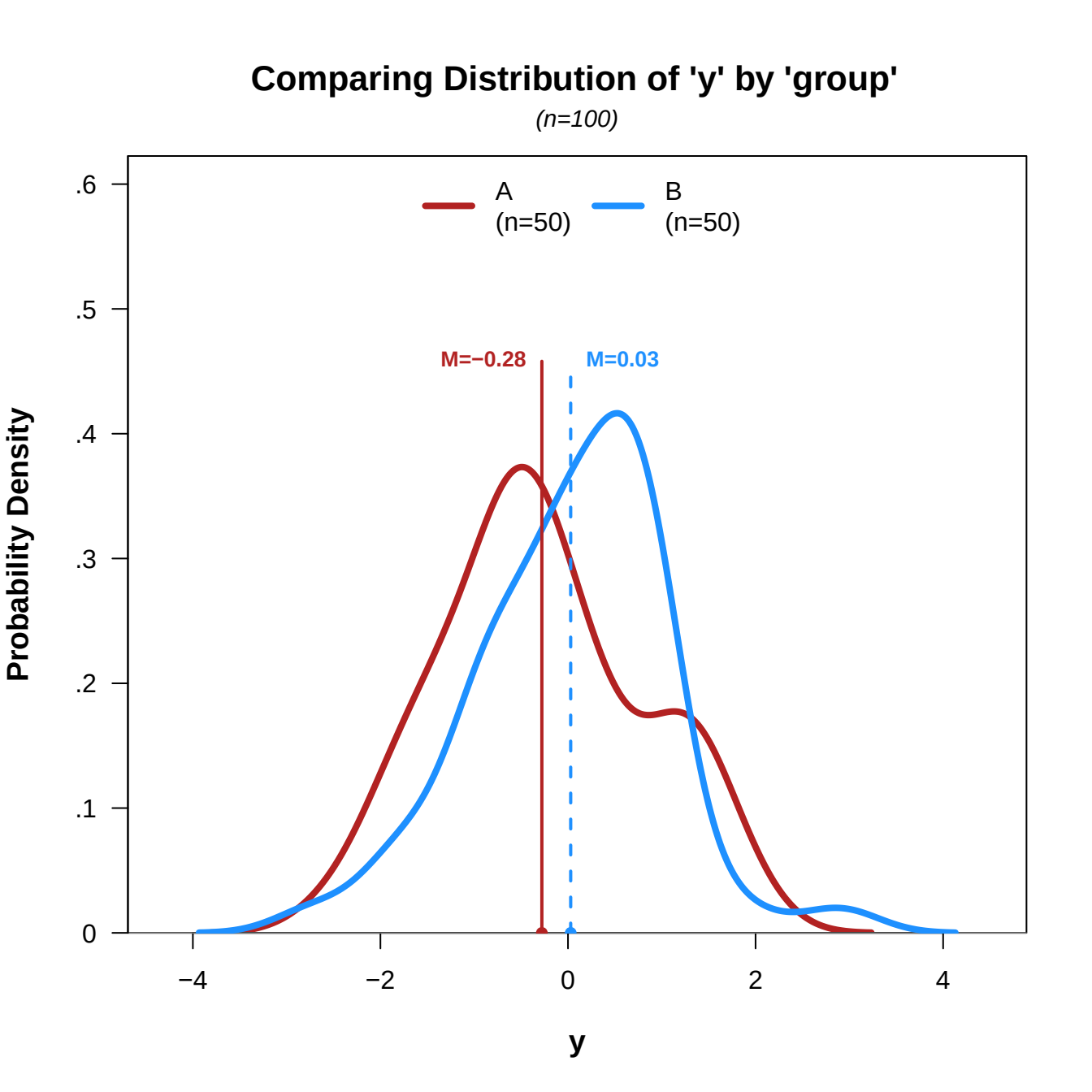

Comparing Distribution of 'y' by 'group2'
(n=100)
A
(n=50)
B
(n=50)
M=−0.04
M=0.1
Probability Density
.6
.5
.4
.3
.2
.1
0
−4
−2
0
2
4
y

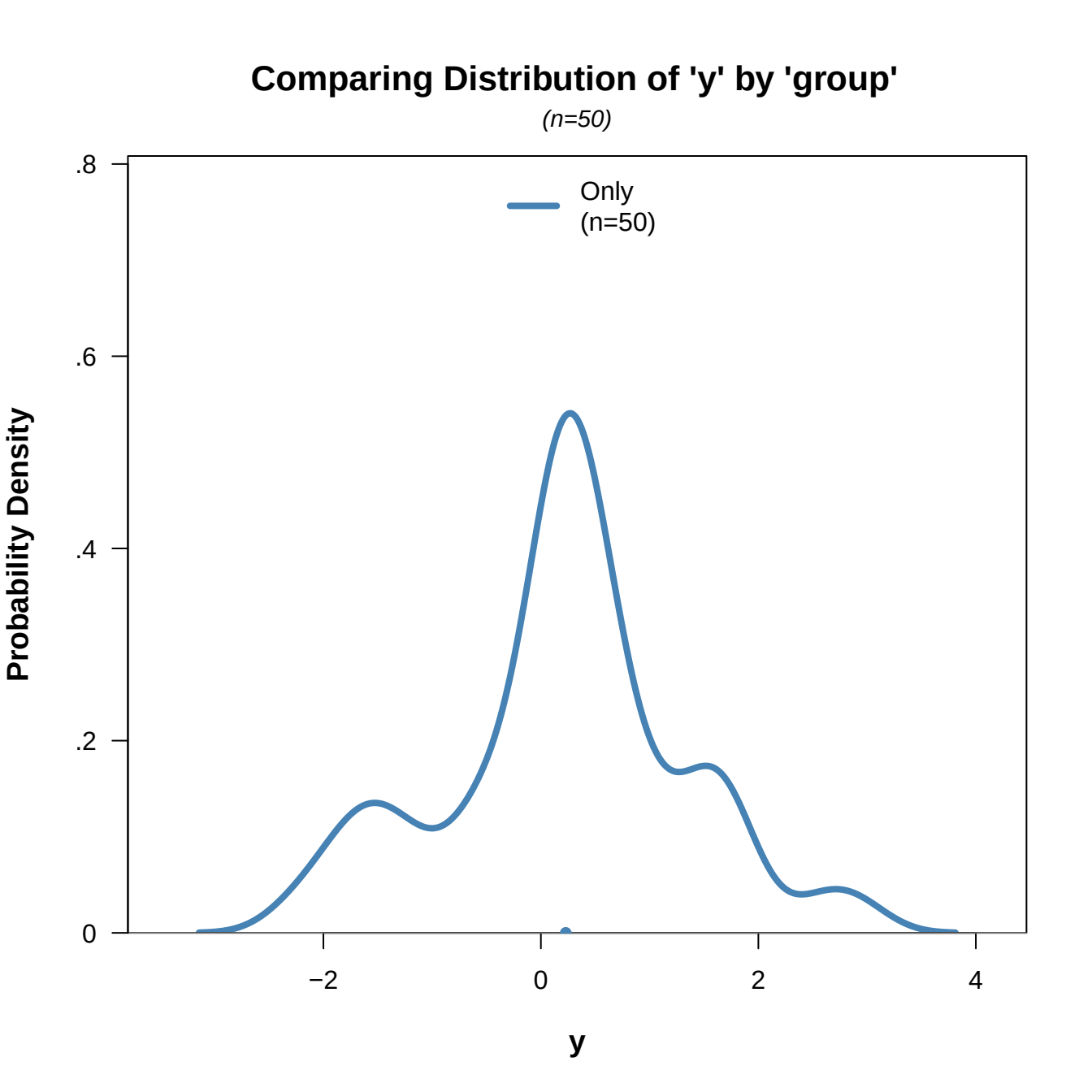

Comparing Distribution of 'y' by 'group3'
(n=100)
A
(n=30)
B
(n=40)
C
(n=30)
M=0.07
M=−0.12
M=0.19
Probability Density
.8
.6
.4
.2
0
−4
−2
0
2
4
y

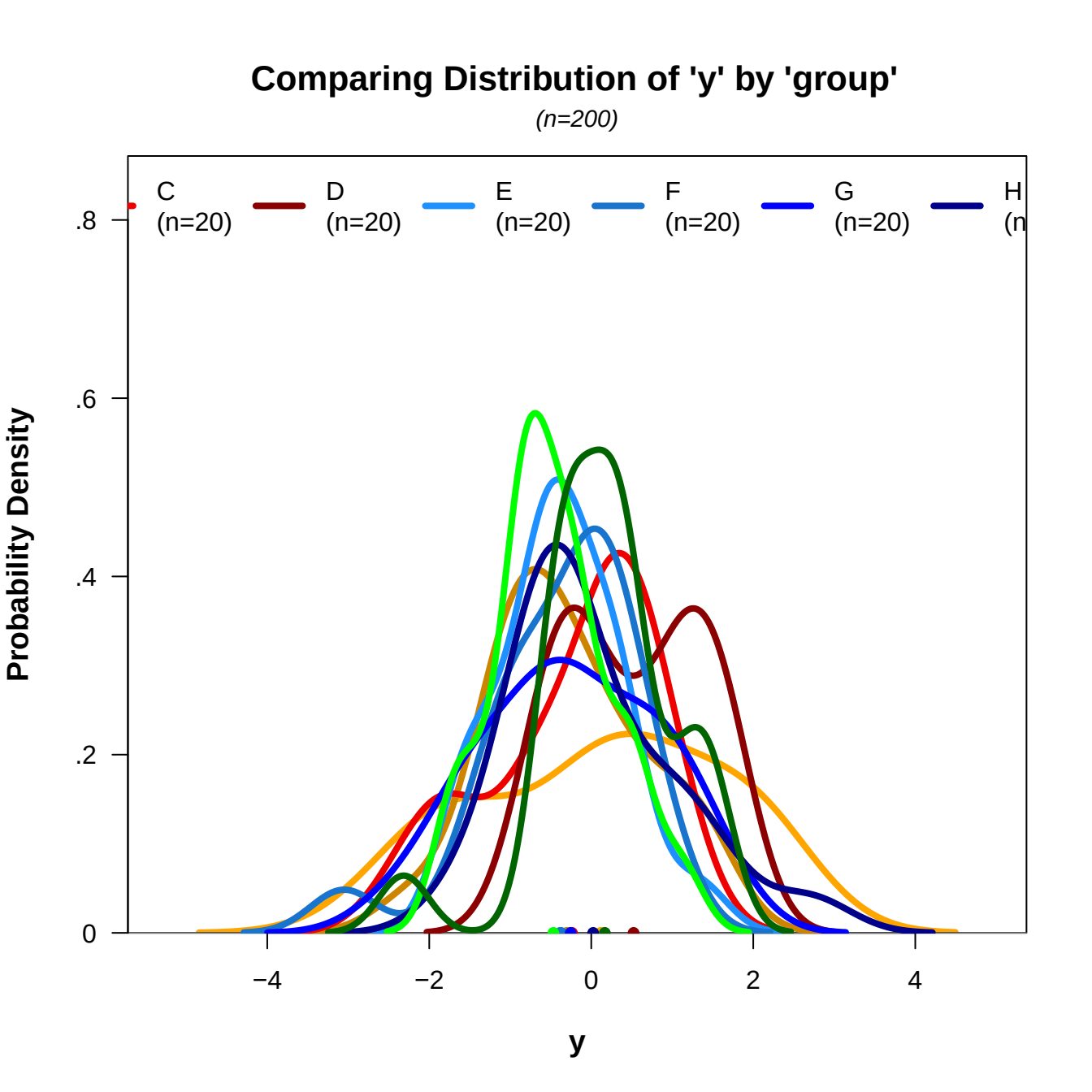

Comparing Distribution of 'y' by 'group4'
(n=100)
A
(n=25)
B
(n=25)
C
(n=25)
D
(n=25)
Probability Density
.8
.6
.4
.2
0
−4
−2
0
2
4
y

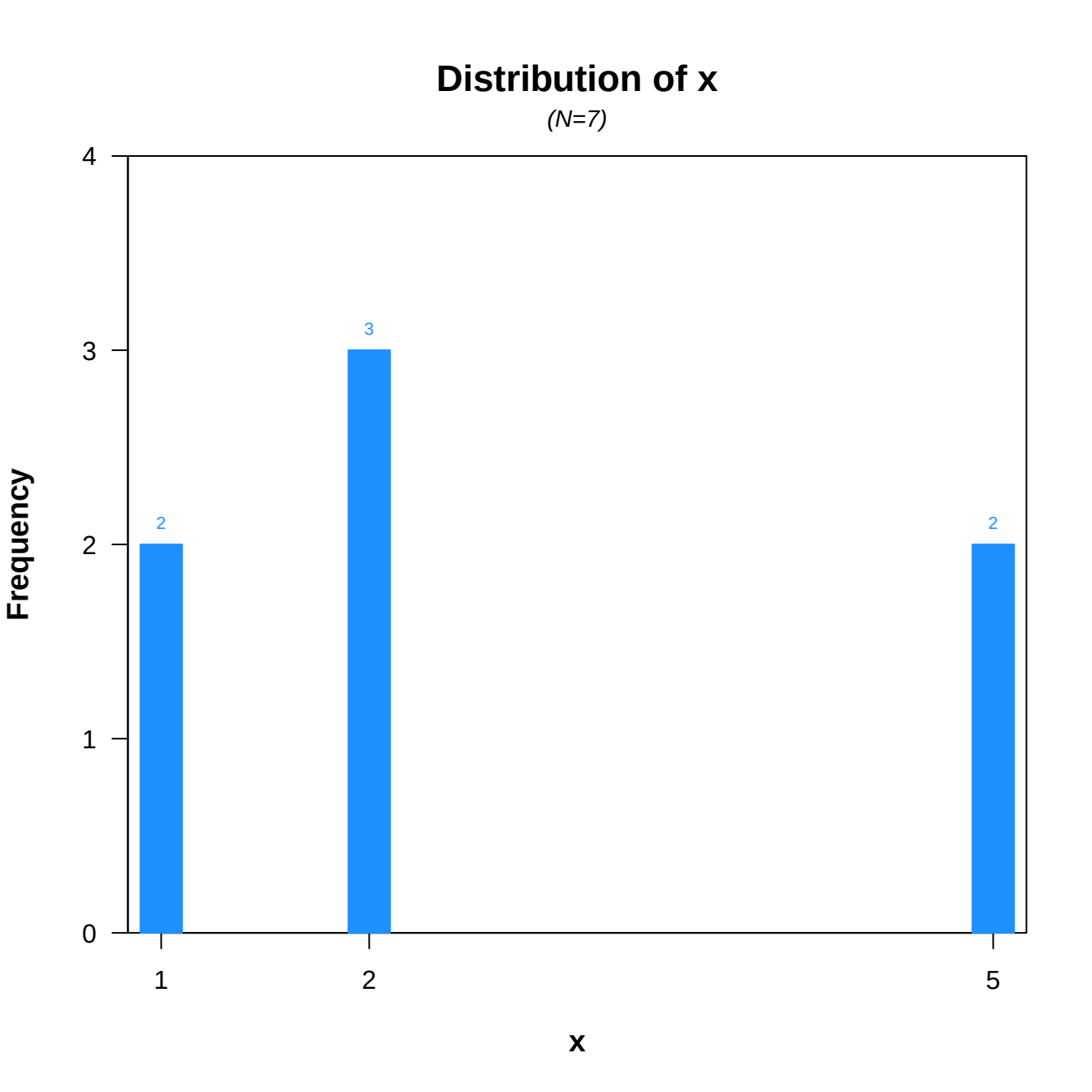

Comparing Distribution of 'y' by 'group'
(n=100)
A
(n=50)
B
(n=50)
M=−0.28
M=0.14
Probability Density
.5
.4
.3
.2
.1
0
−4
−2
0
2
4
y

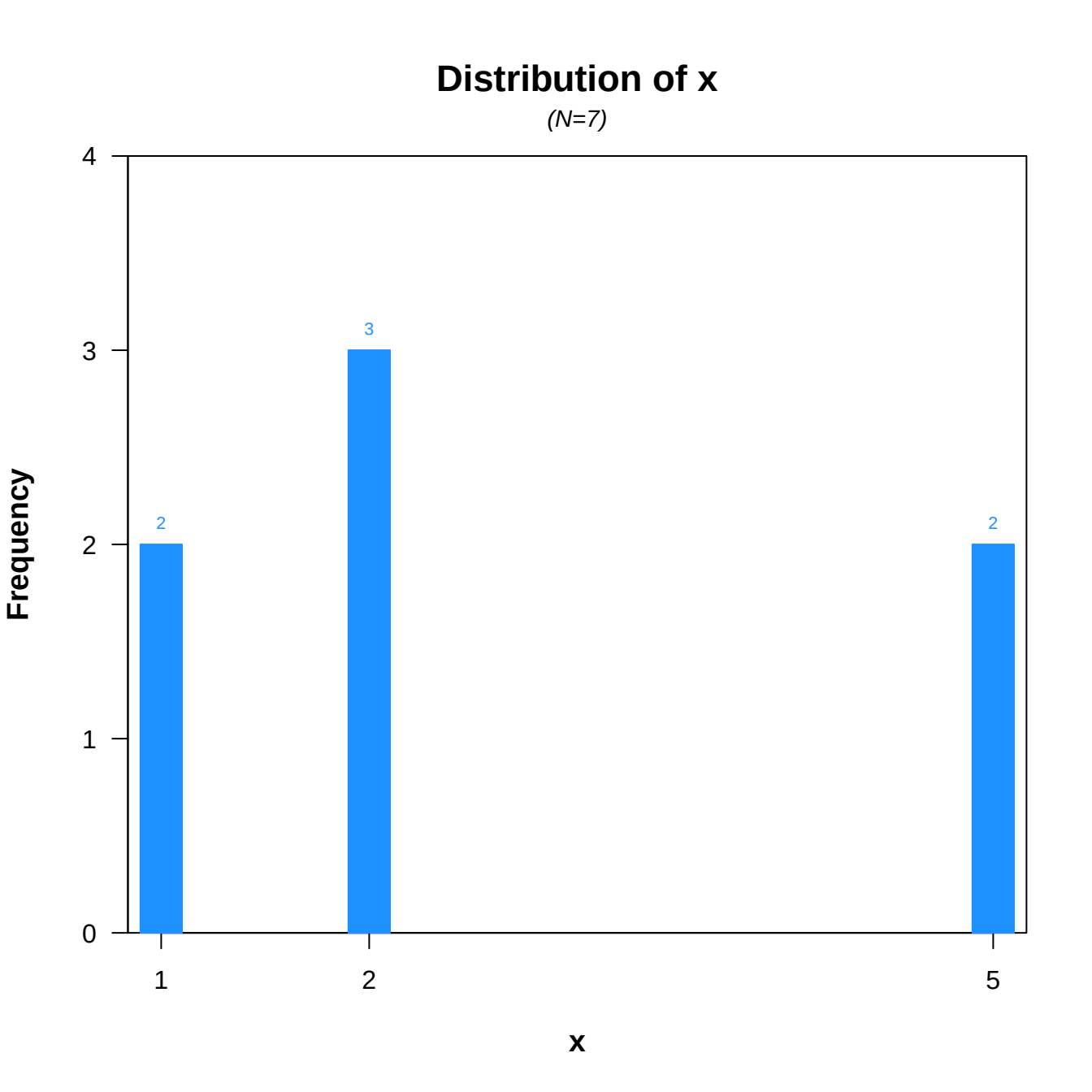

Comparing Distribution of 'y' by 'group'
(n=100)
A
(n=50)
B
(n=50)
M=−0.28
M=0.14
Probability Density
.6
.5
.4
.3
.2
.1
0
−4
−2
0
2
4
y

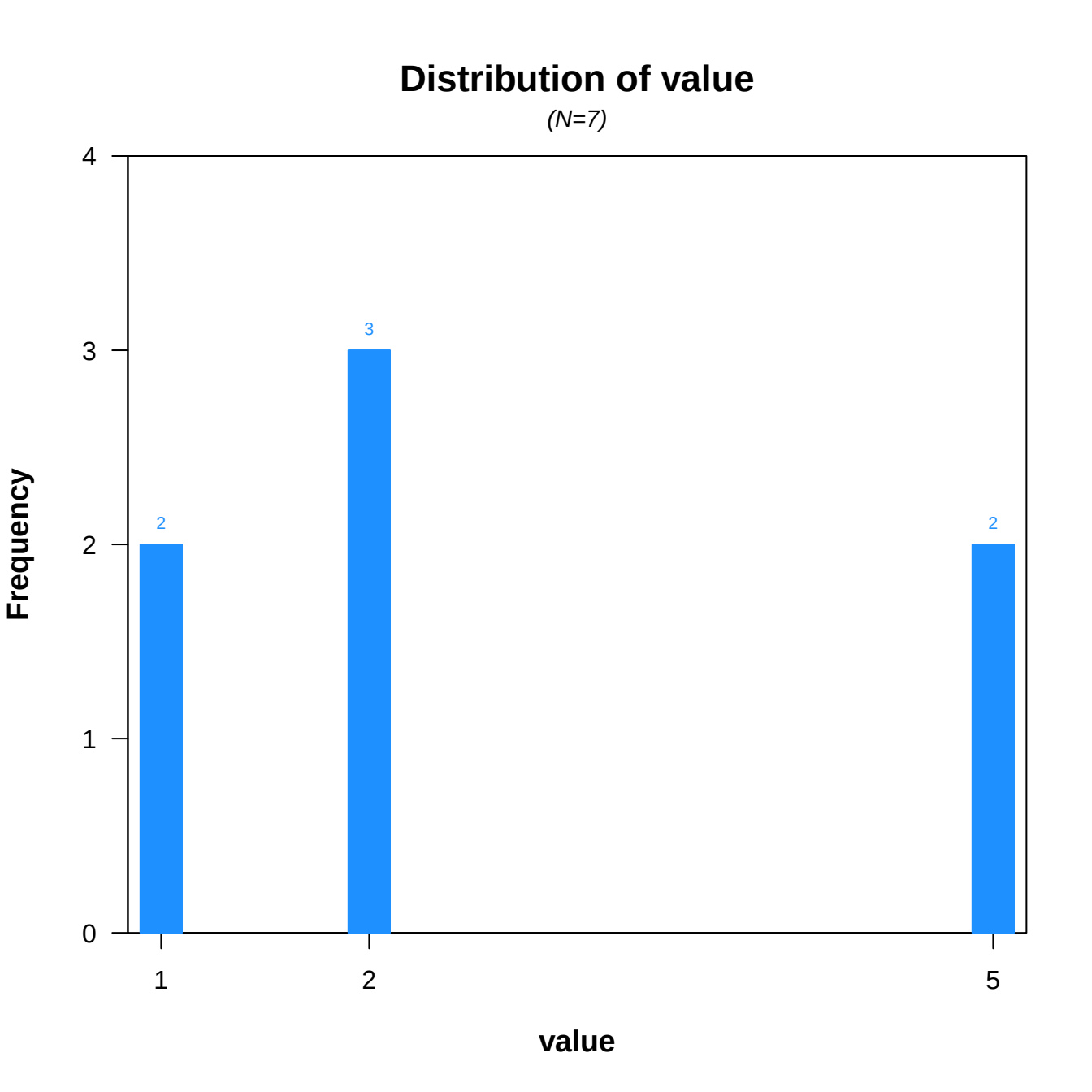

Comparing Distribution of 'y' by 'group'
(n=100)
A
(n=50)
B
(n=50)
M=−0.28
M=0.03
Probability Density
.6
.5
.4
.3
.2
.1
0
−4
−2
0
2
4
y

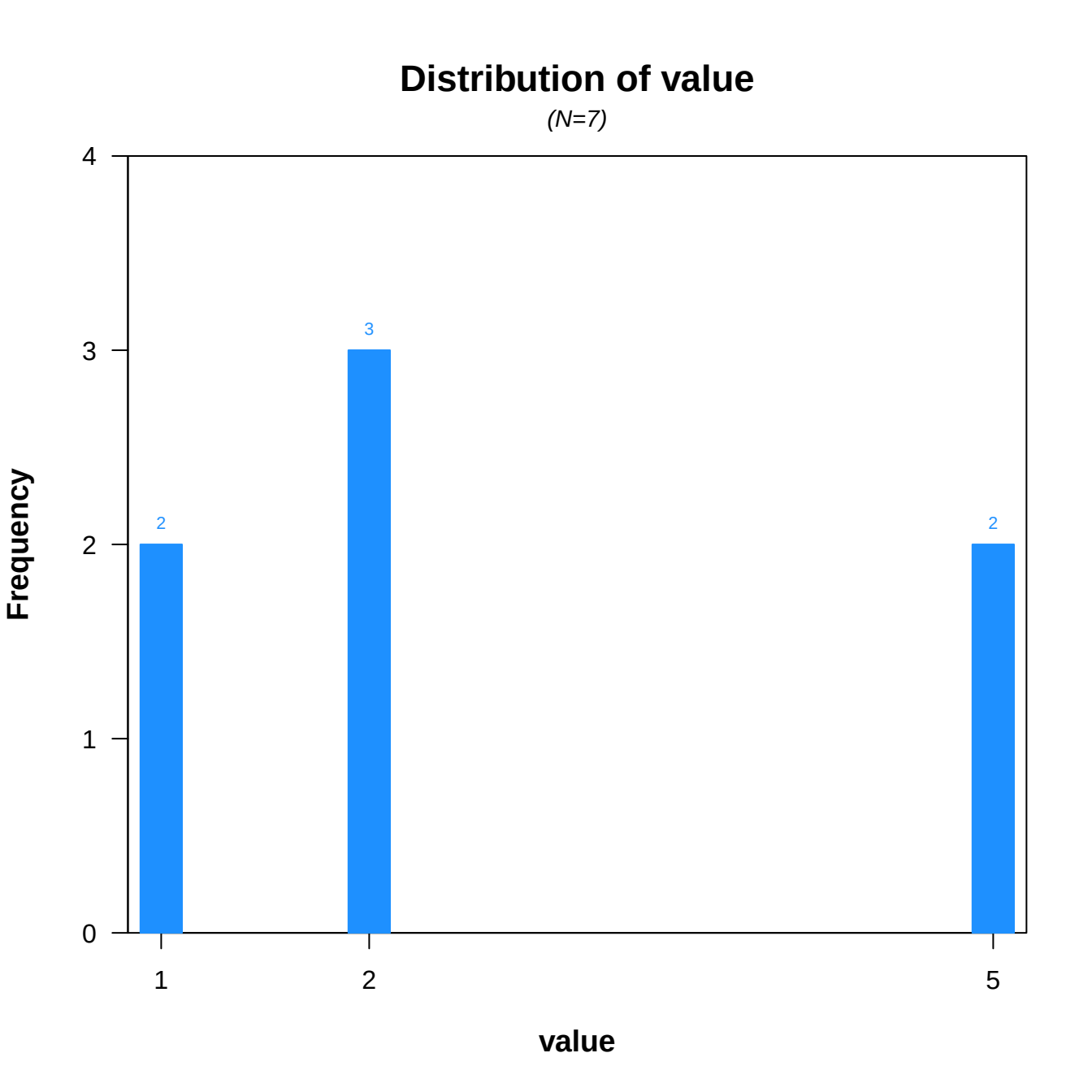

Comparing Distribution of 'y' by 'group'
(n=50)
Only
(n=50)
Probability Density
.8
.6
.4
.2
0
−2
0
2
4
y

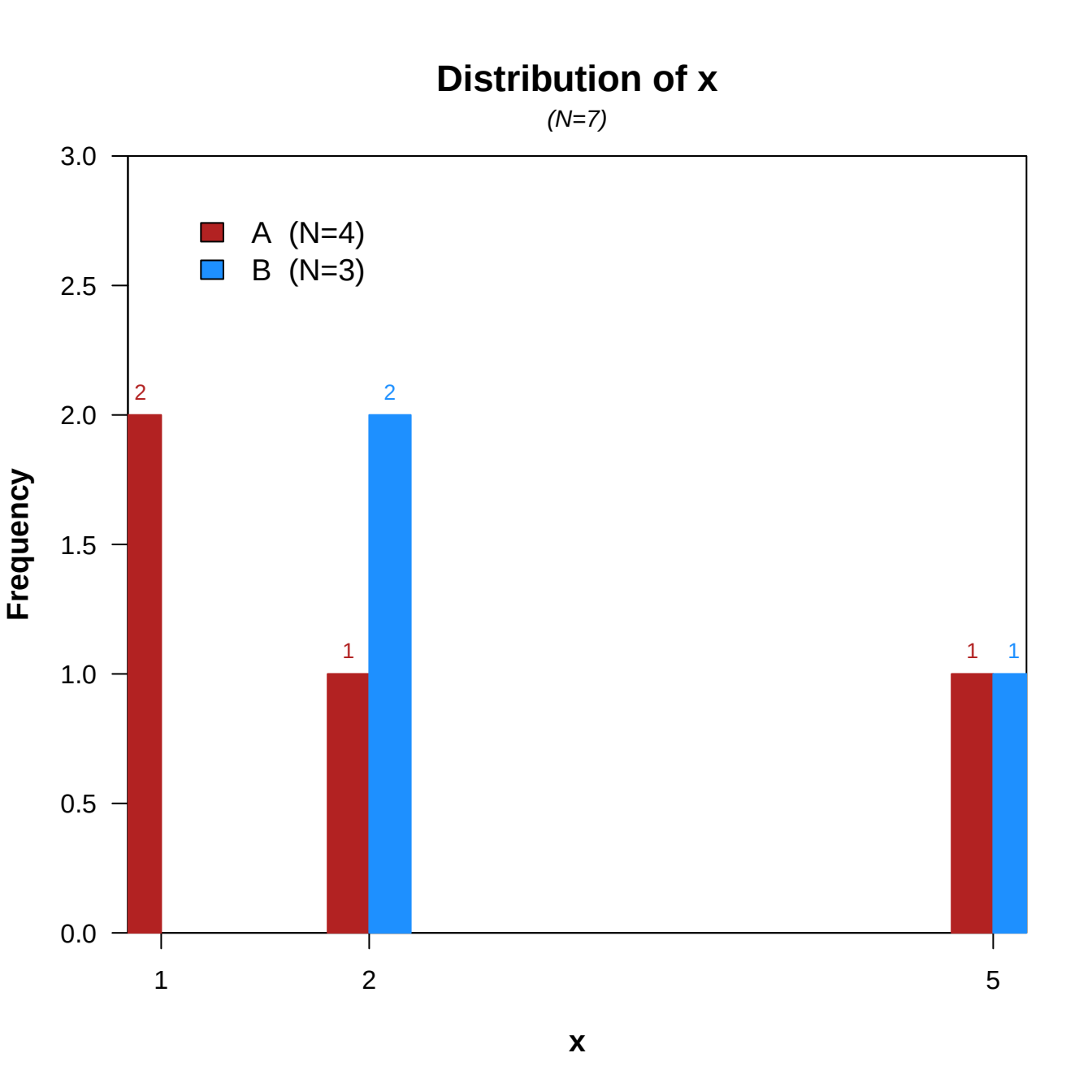

Comparing Distribution of 'y' by 'group'
(n=200)
C
(n=20)
D
(n=20)
E
(n=20)
F
(n=20)
G
(n=20)
H
(n
Probability Density
.8
.6
.4
.2
0
−4
−2
0
2
4
y

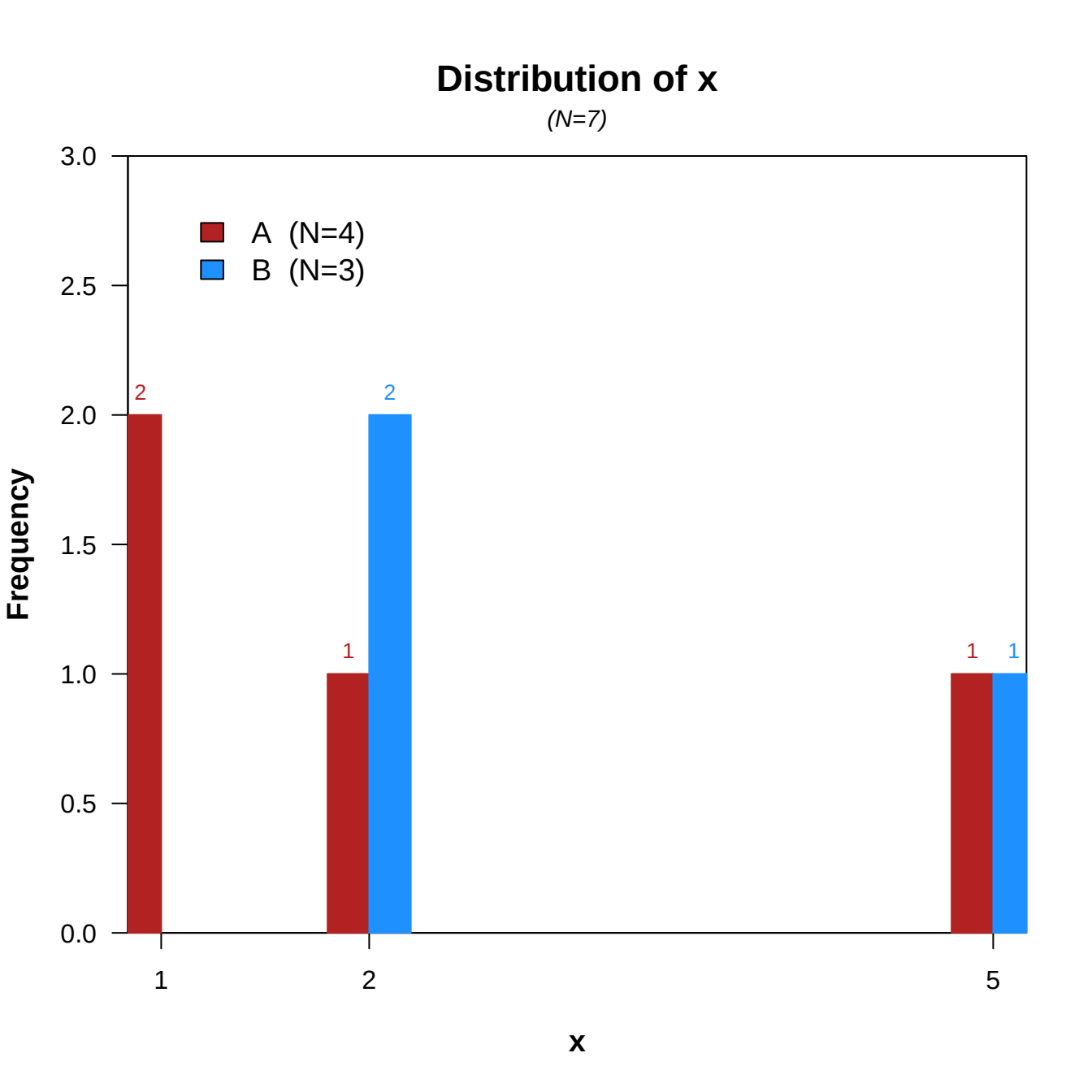

Distribution of x
(N=7)
Frequency
4
3
2
1
0
2
3
2
1
2
5
x

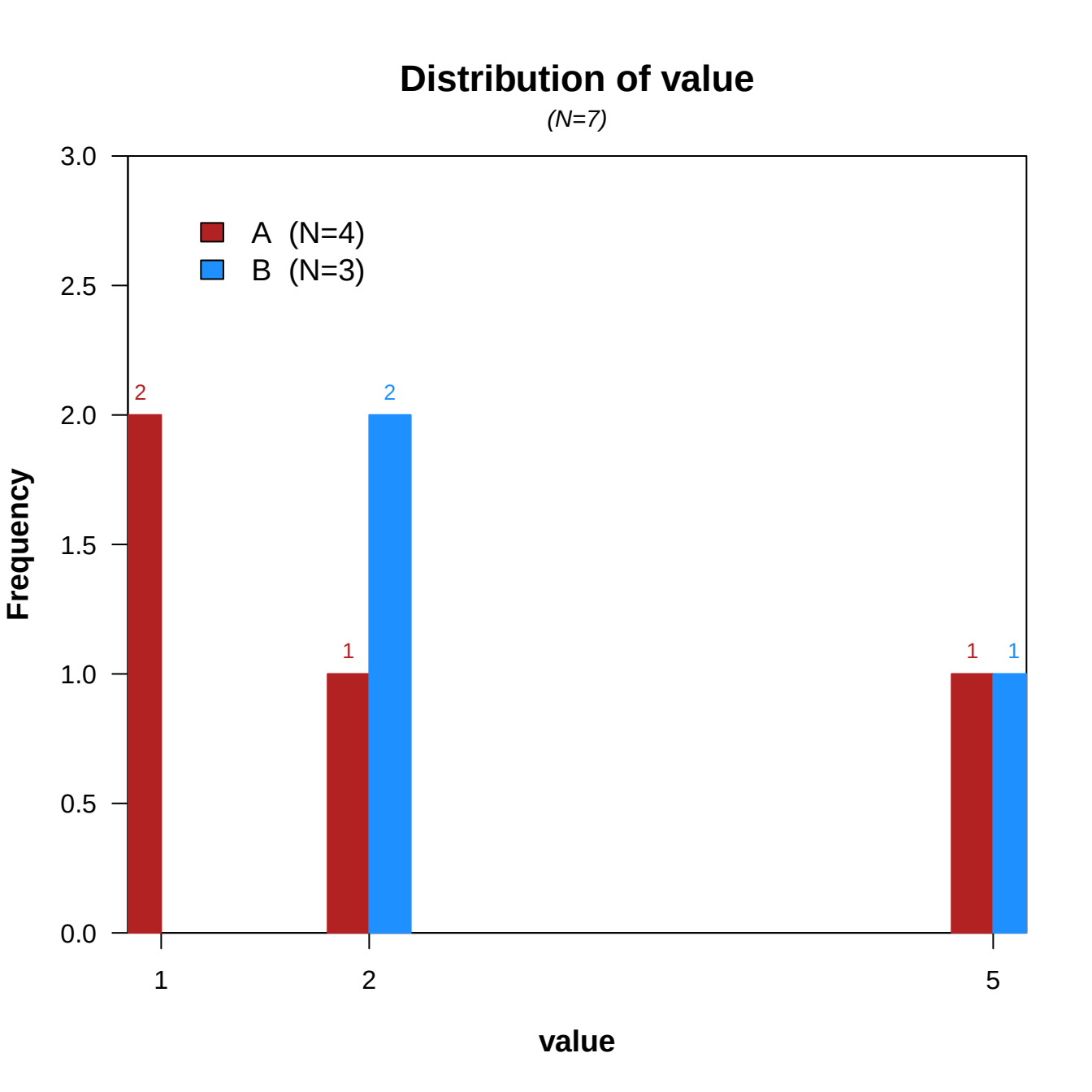

Distribution of x
(N=7)
Frequency
4
3
2
1
0
2
3
2
1
2
5
x

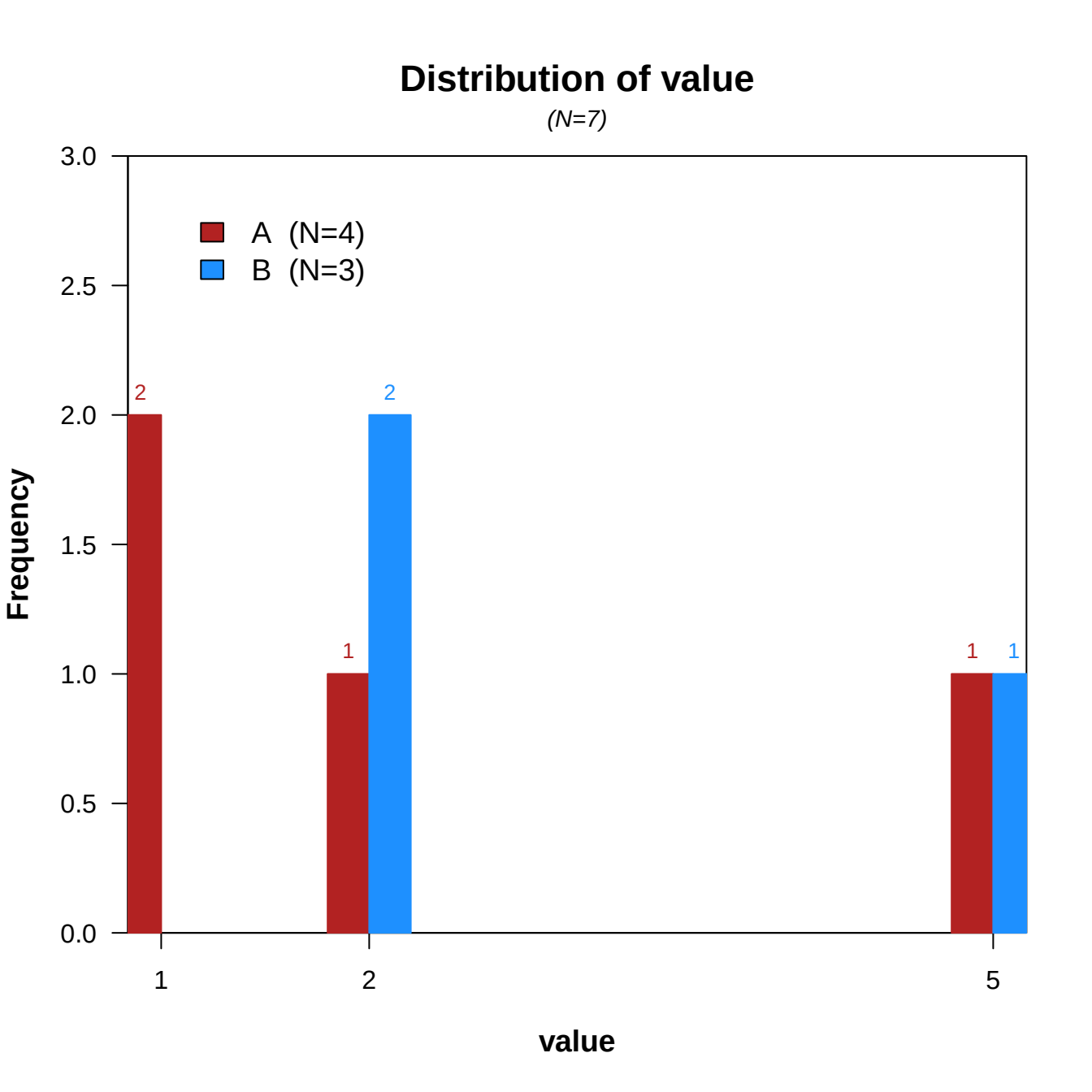

Distribution of value
(N=7)
Frequency
4
3
2
1
0
2
3
2
1
2
5
value

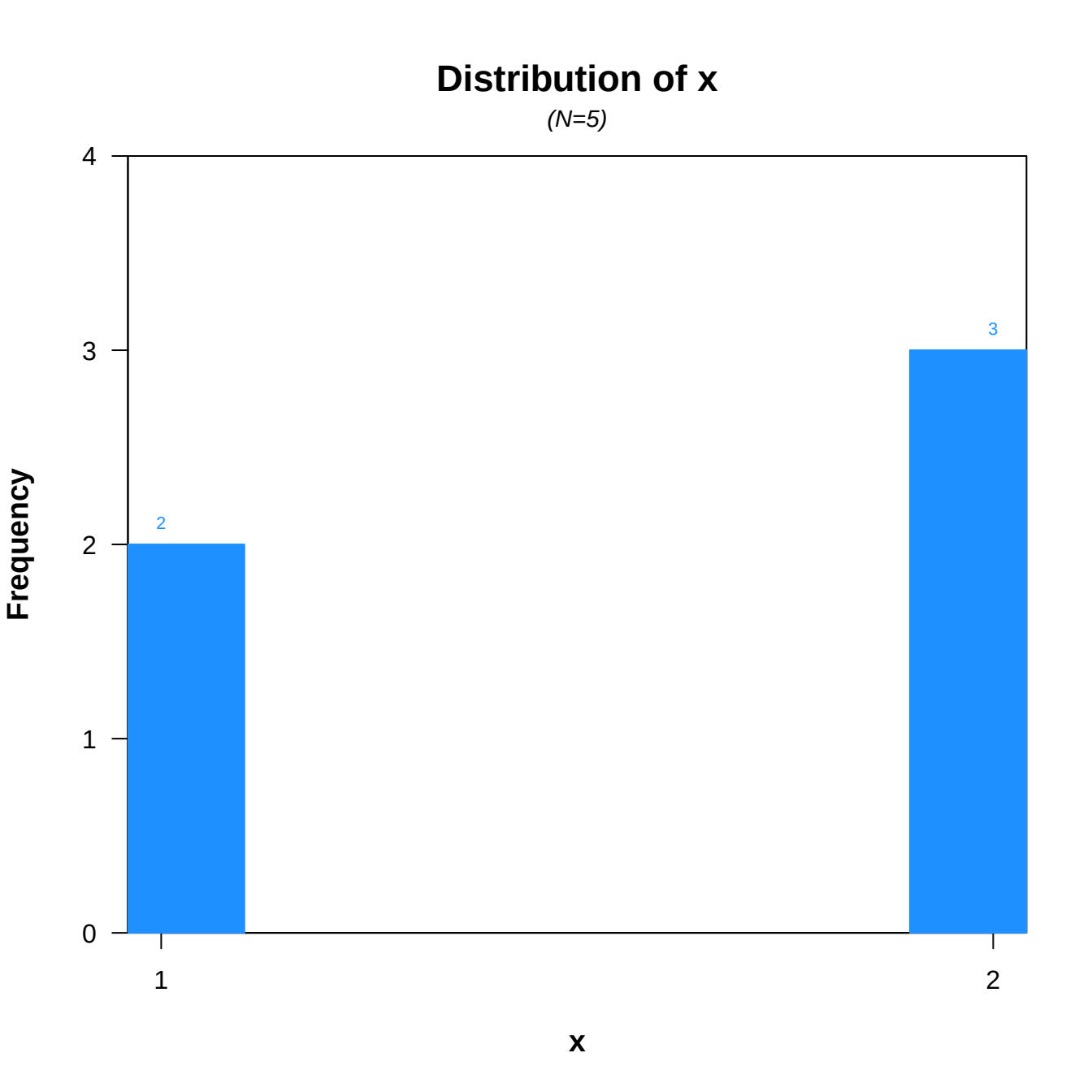

Distribution of value
(N=7)
Frequency
4
3
2
1
0
2
3
2
1
2
5
value

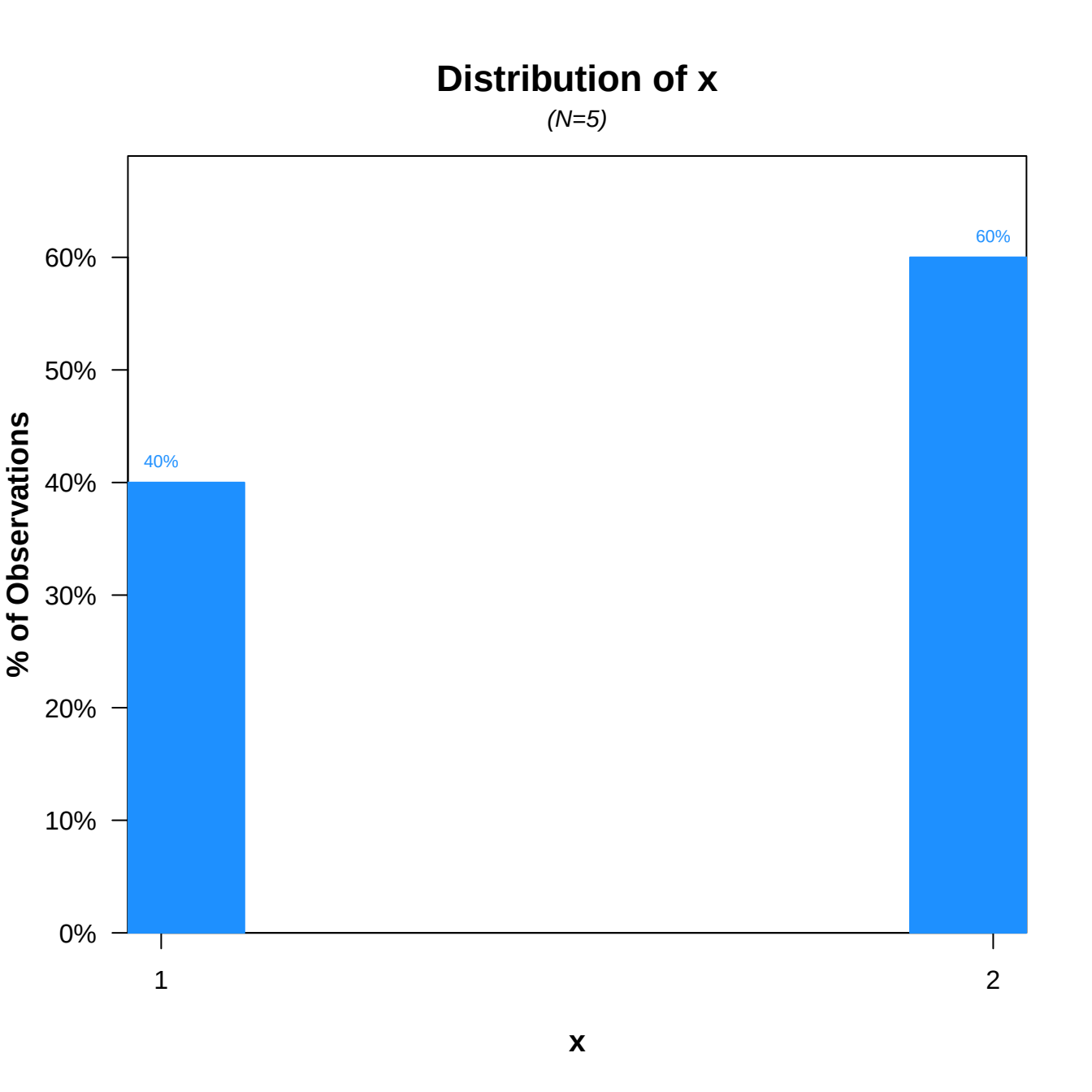

Distribution of x
(N=7)
A (N=4)
B (N=3)
Frequency
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2
2
1
1
1
1
2
5
x

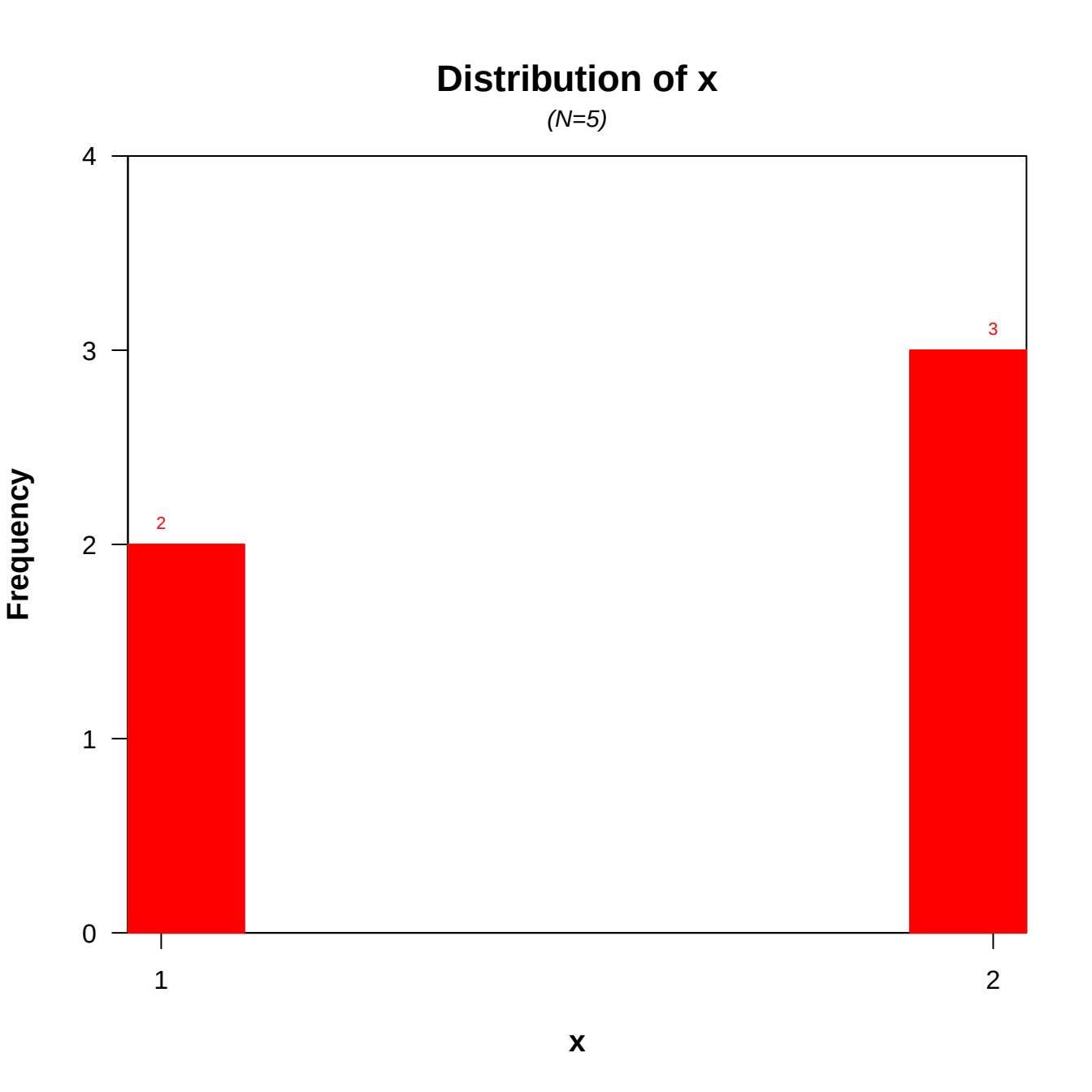

Distribution of x
(N=7)
A (N=4)
B (N=3)
Frequency
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2
2
1
1
1
1
2
5
x

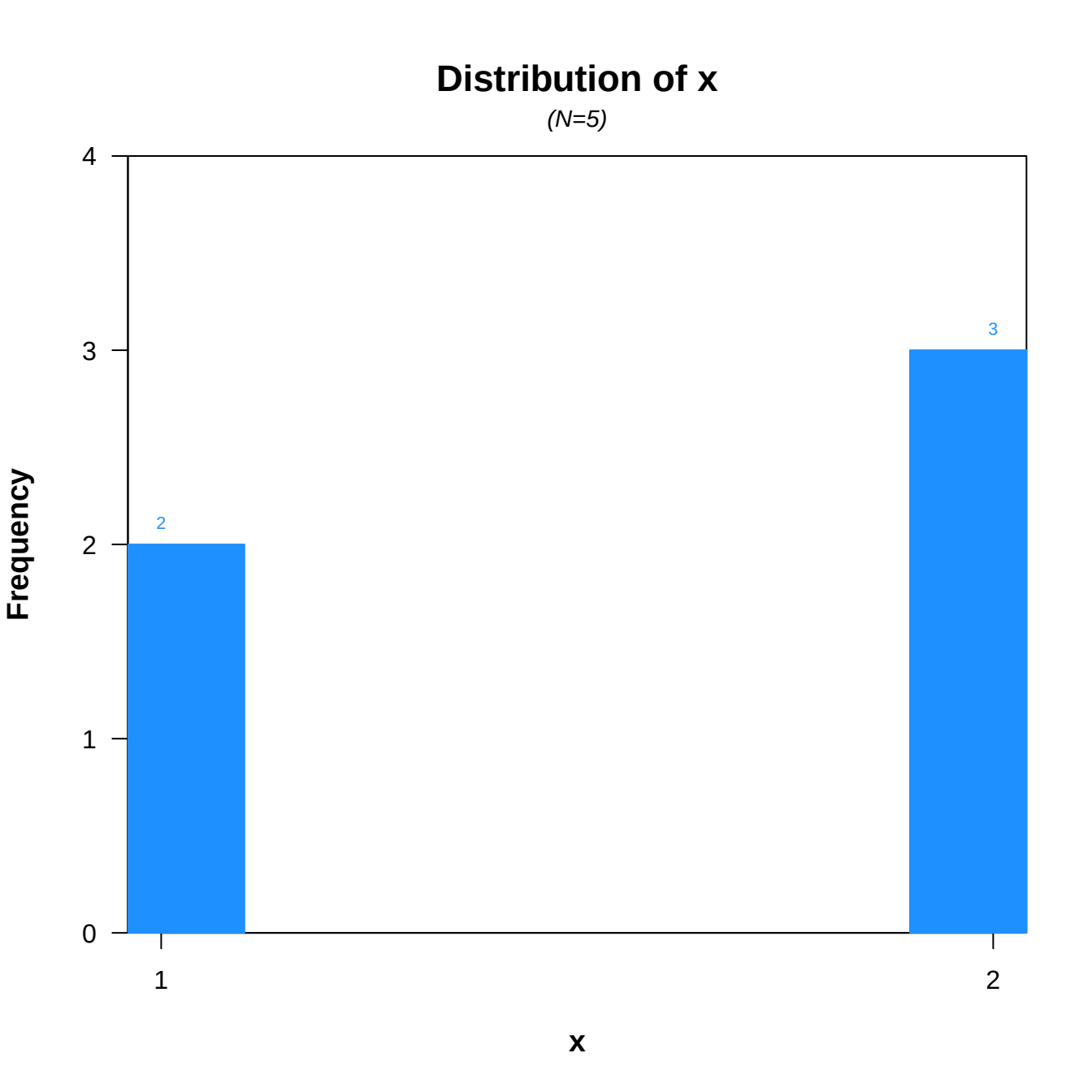

Distribution of value
(N=7)
A (N=4)
B (N=3)
Frequency
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2
2
1
1
1
1
2
5
value

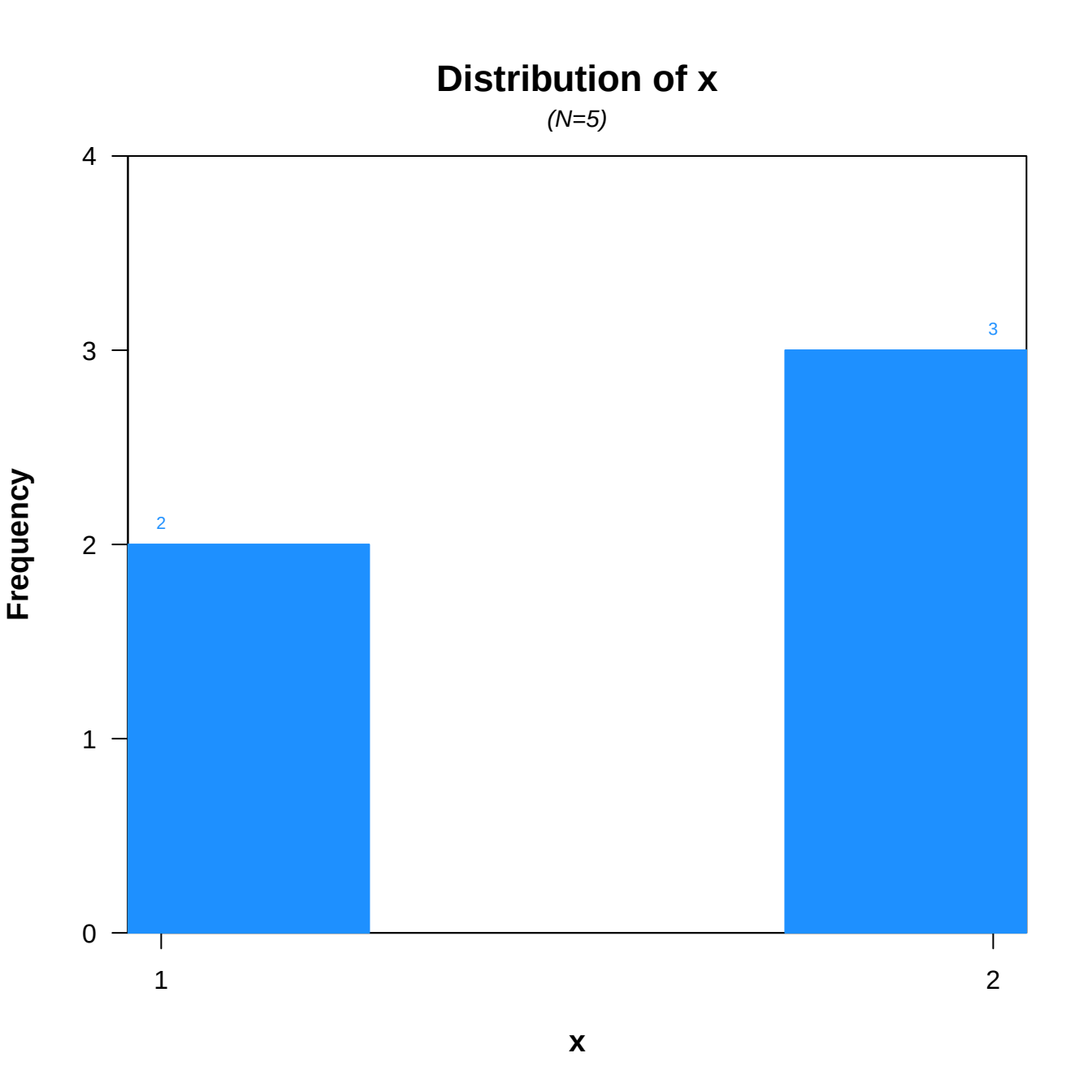

Distribution of value
(N=7)
A (N=4)
B (N=3)
Frequency
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2
2
1
1
1
1
2
5
value

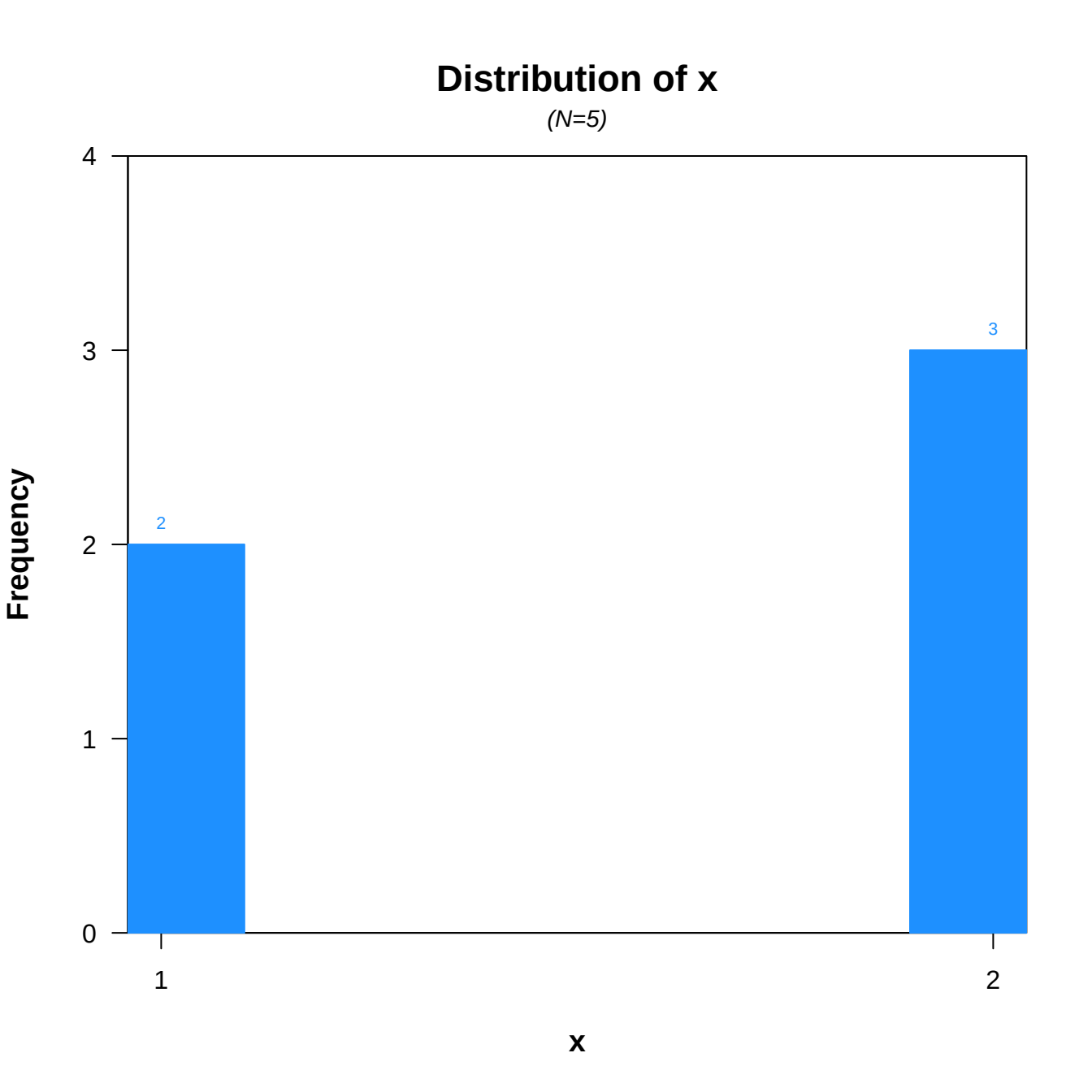

Distribution of x
(N=5)
Frequency
4
3
2
1
0
2
3
1
2
x

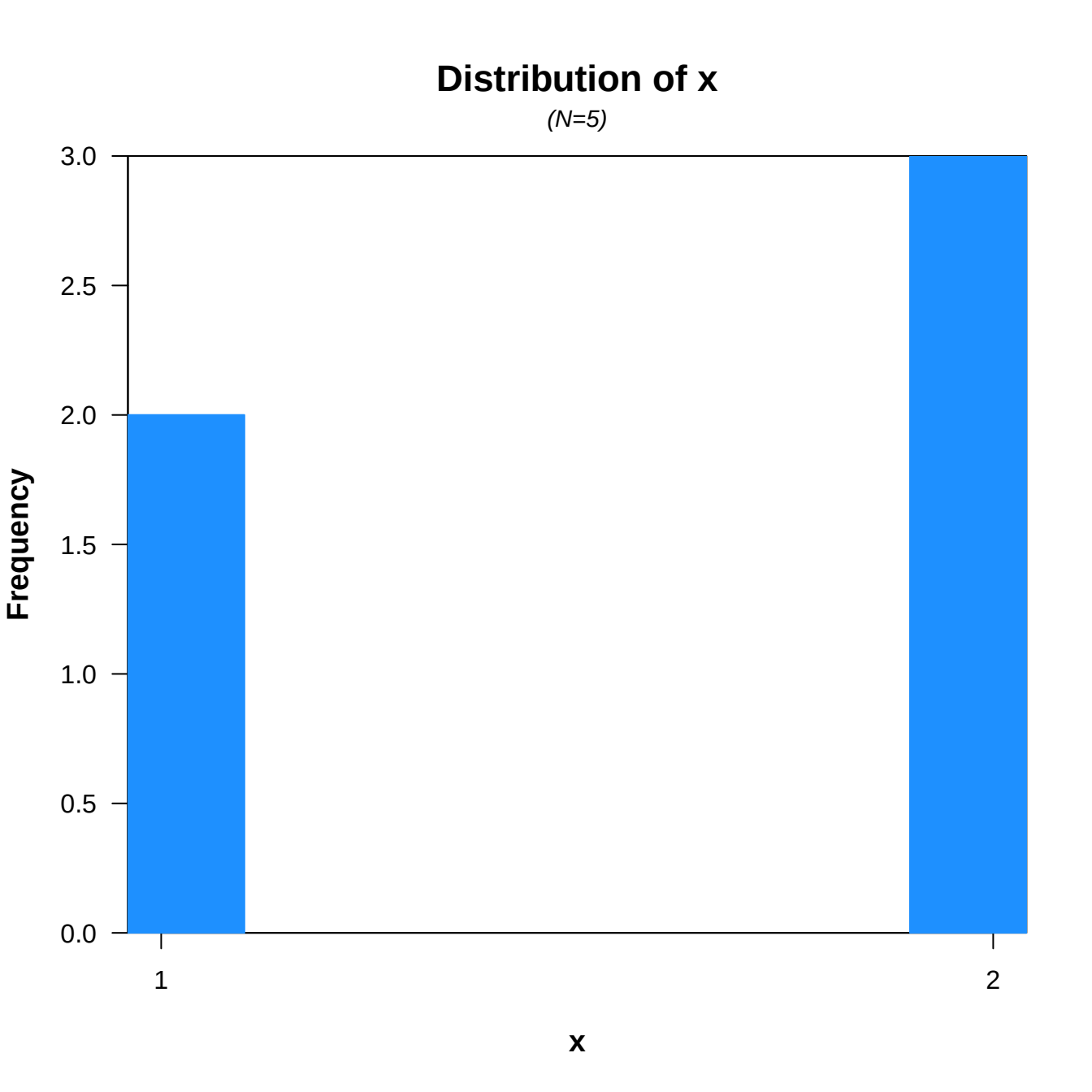

Distribution of x
(N=5)
% of Observations
60%
50%
40%
30%
20%
10%
0%
40%
60%
1
2
x

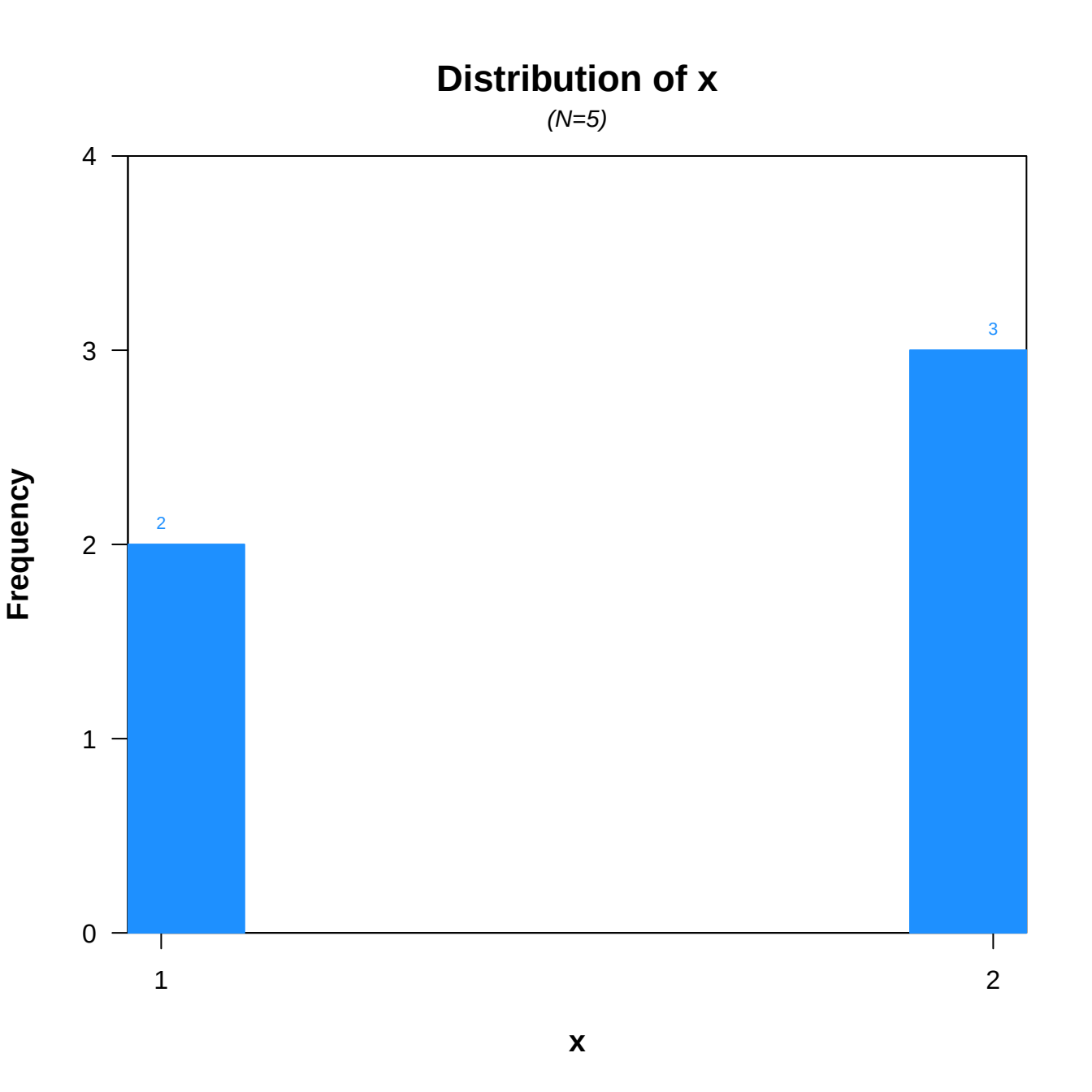

Distribution of x
(N=5)
Frequency
4
3
2
1
0
2
3
1
2
x

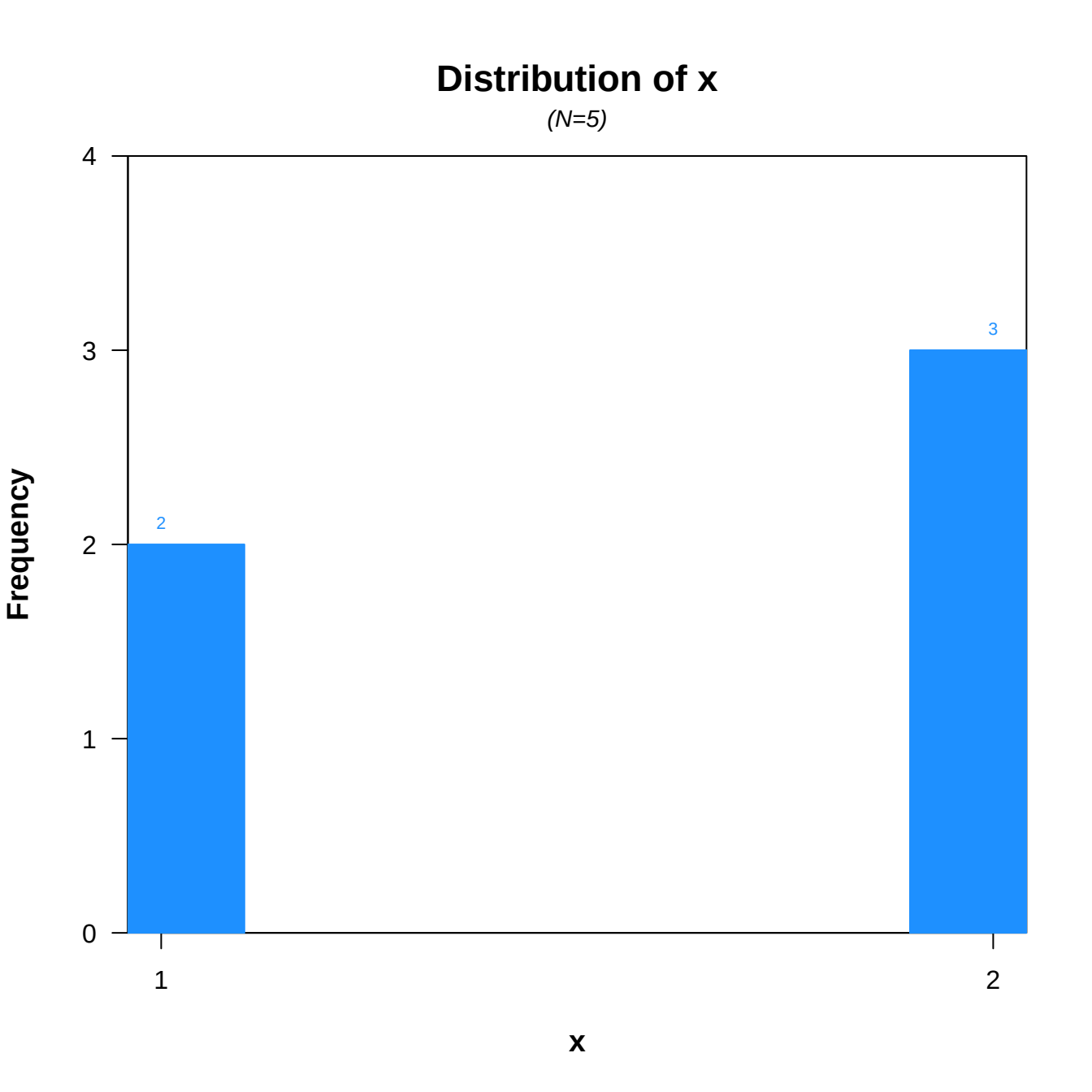

Distribution of x
(N=5)
Frequency
4
3
2
1
0
2
3
1
2
x

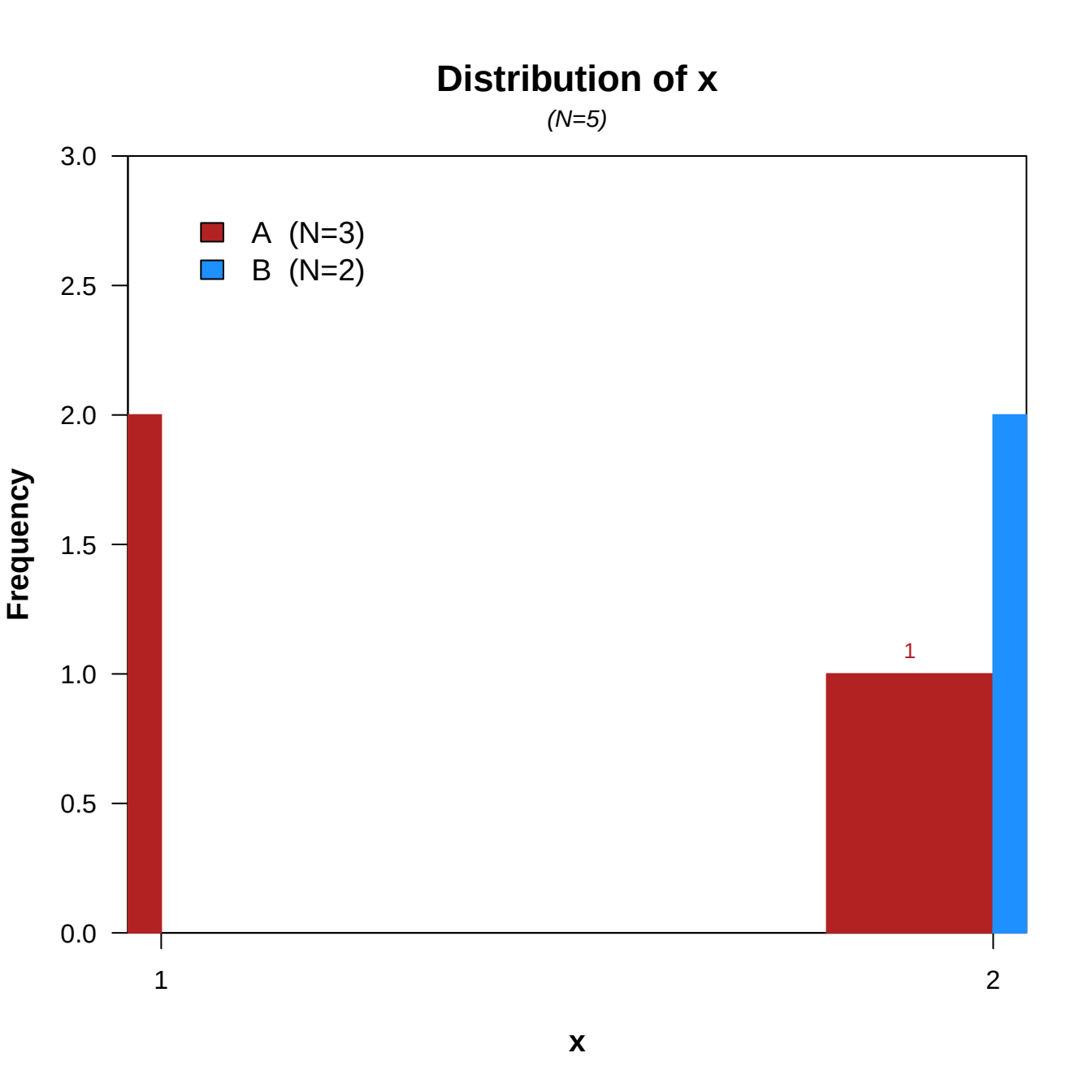

Distribution of x
(N=5)
Frequency
4
3
2
1
0
2
3
1
2
x

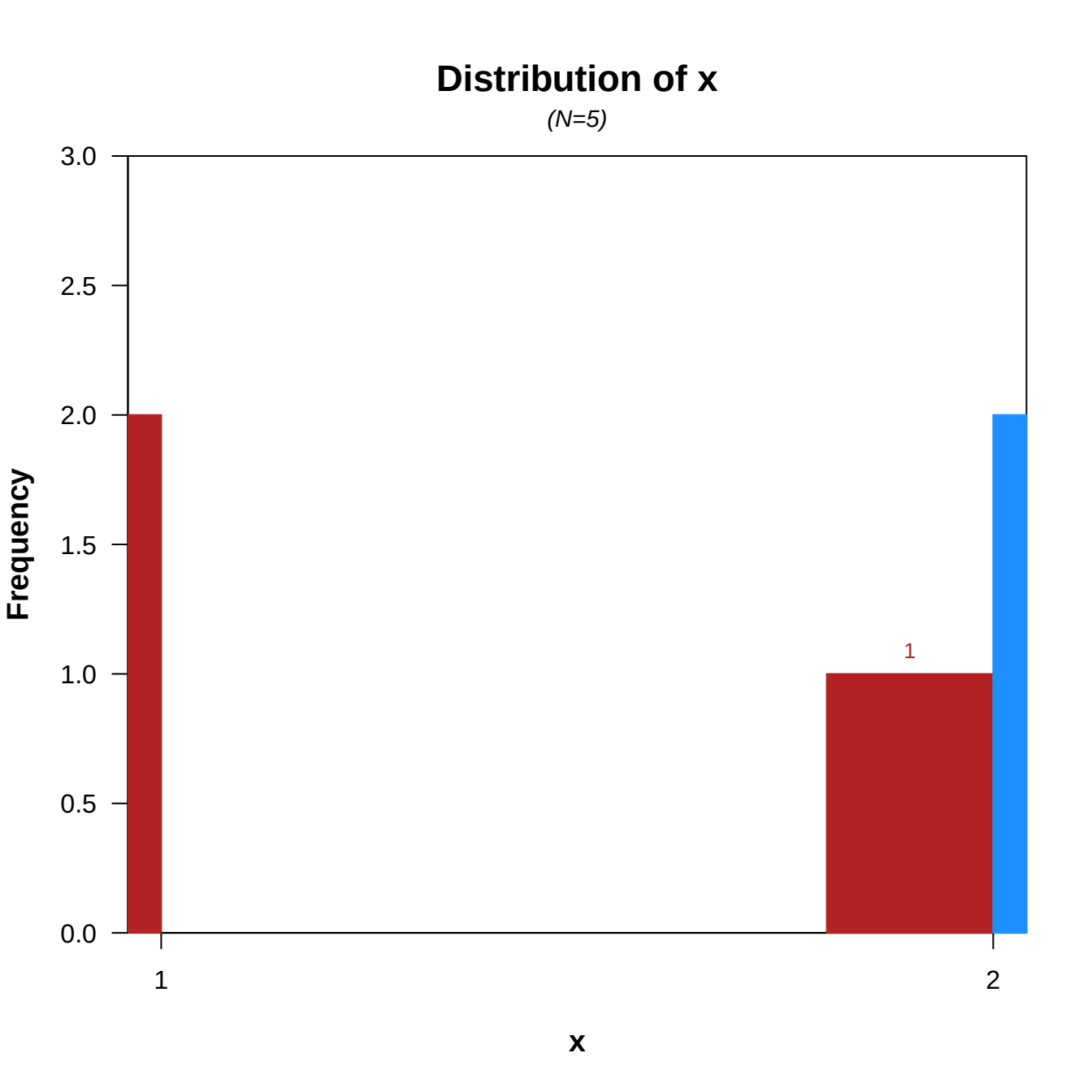

Distribution of x
(N=5)
Frequency
4
3
2
1
0
2
3
1
2
x

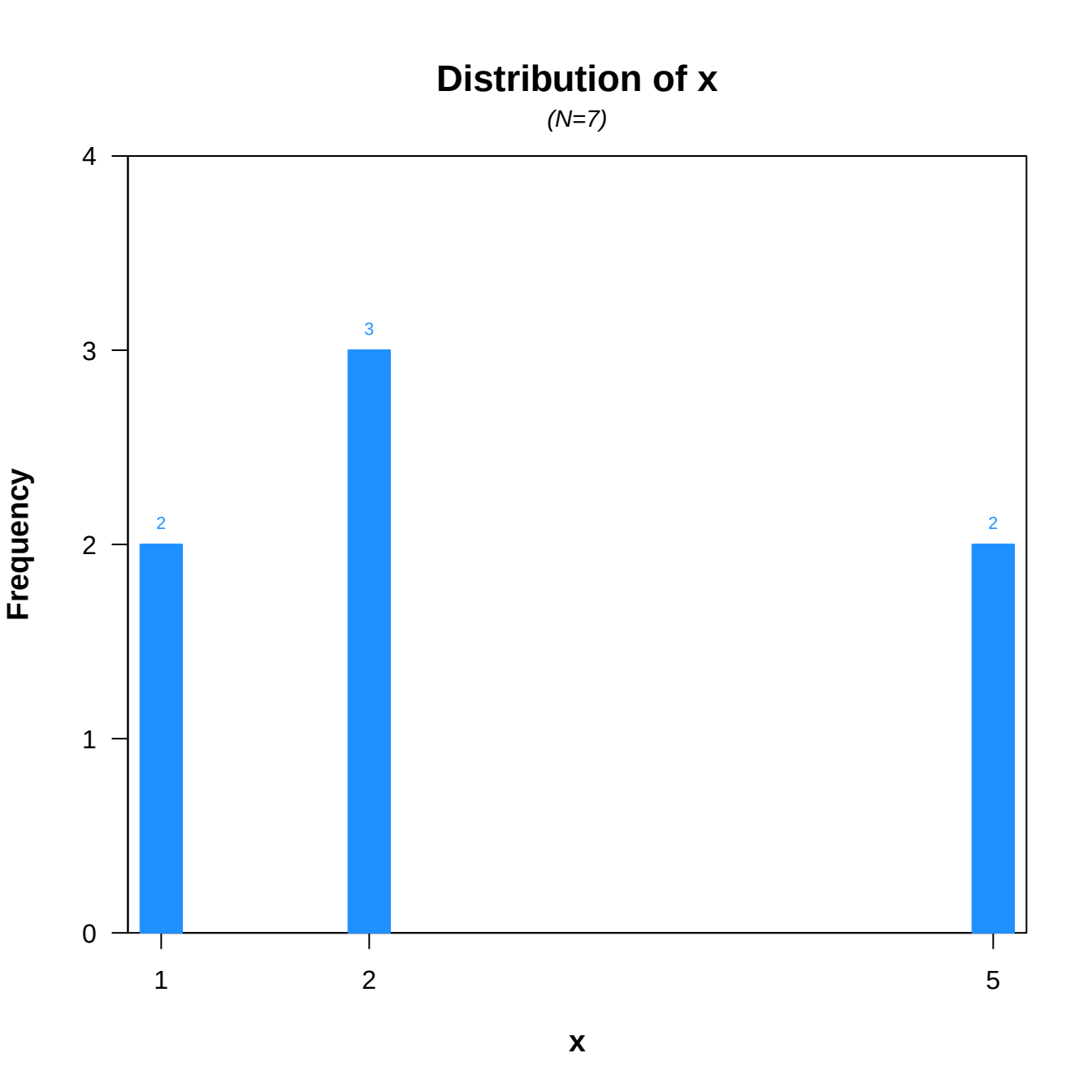

Distribution of x
(N=5)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Frequency
1
2
x

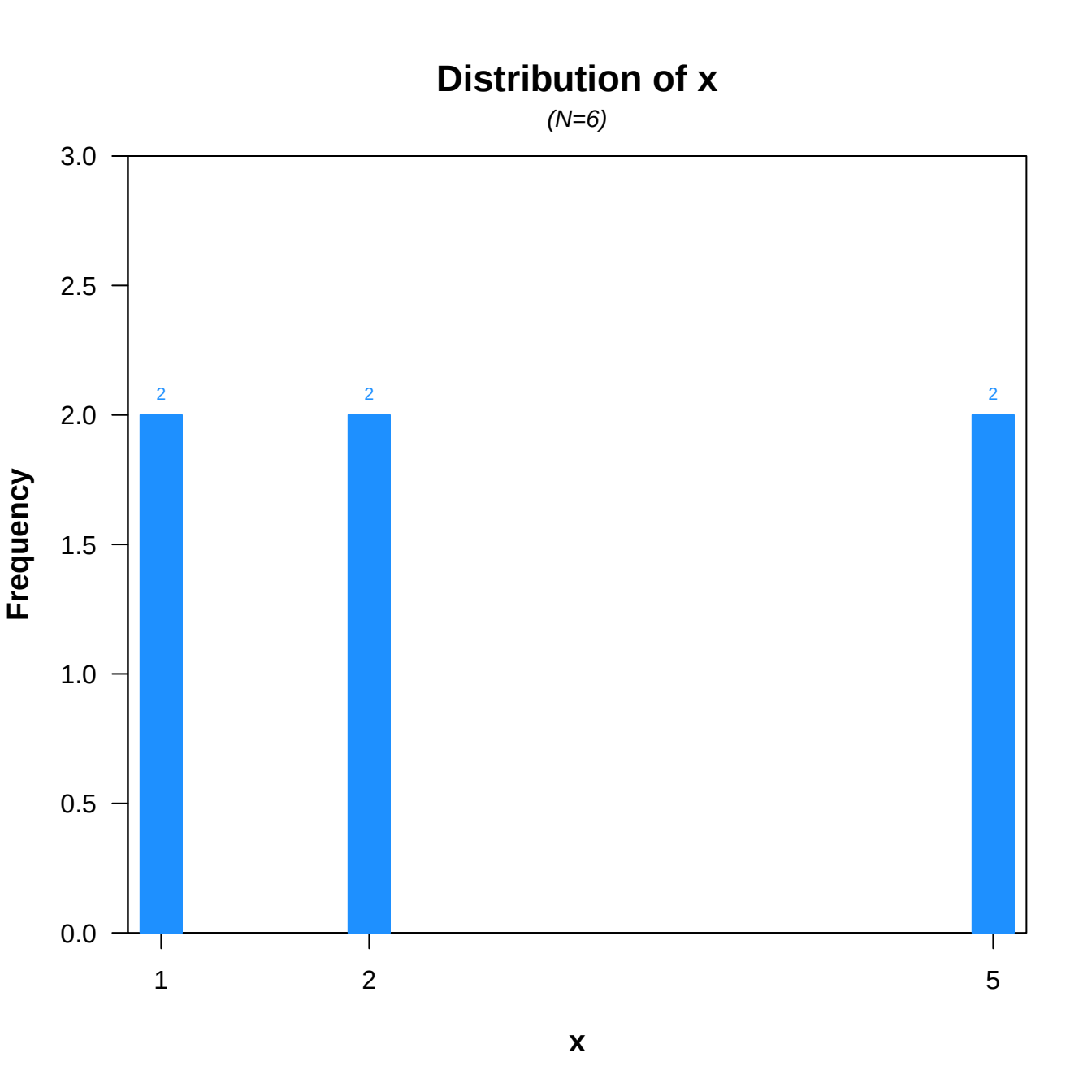

Distribution of x
(N=5)
Frequency
4
3
2
1
0
2
3
1
2
x

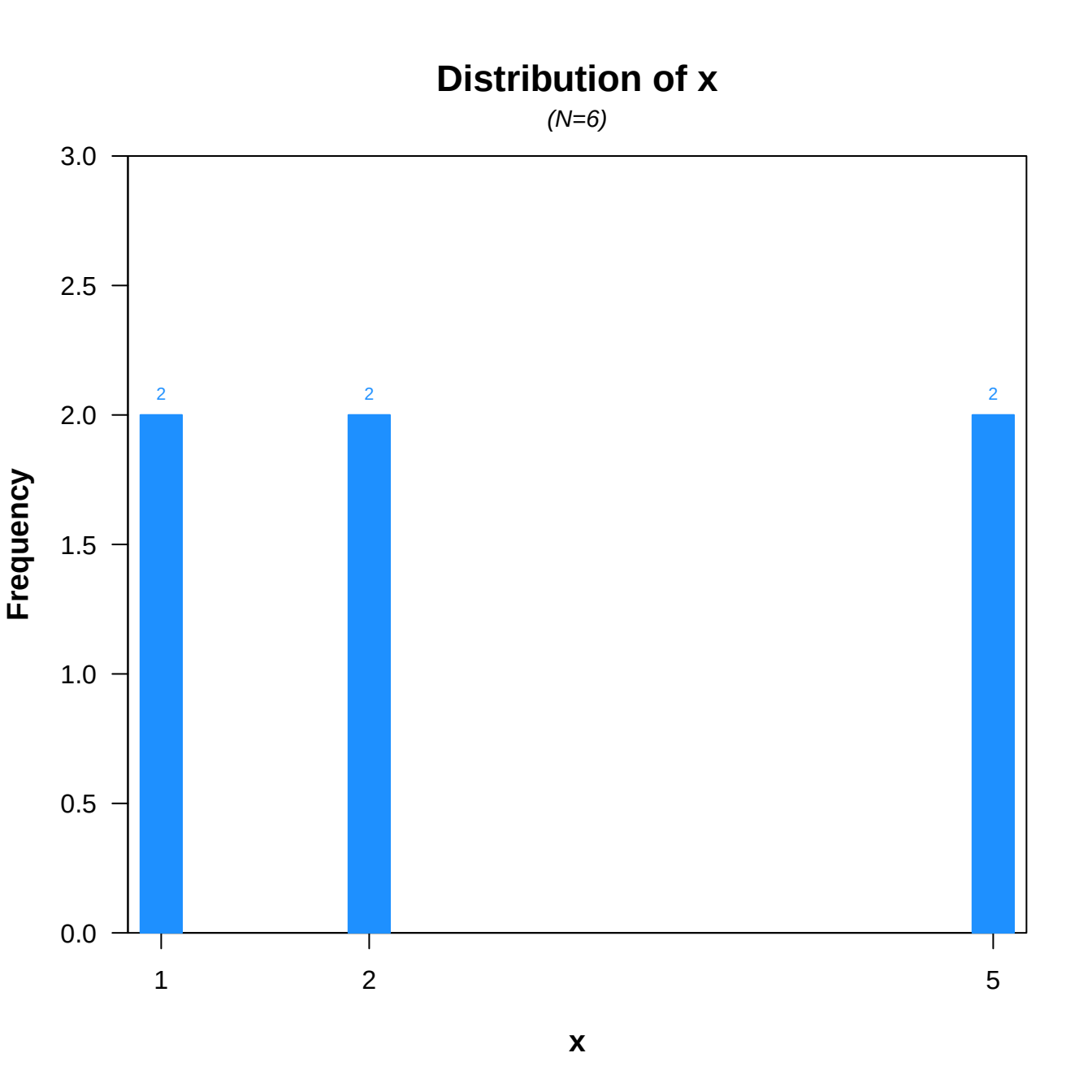

Distribution of x
(N=5)
Frequency
4
3
2
1
0
2
3
1
2
x

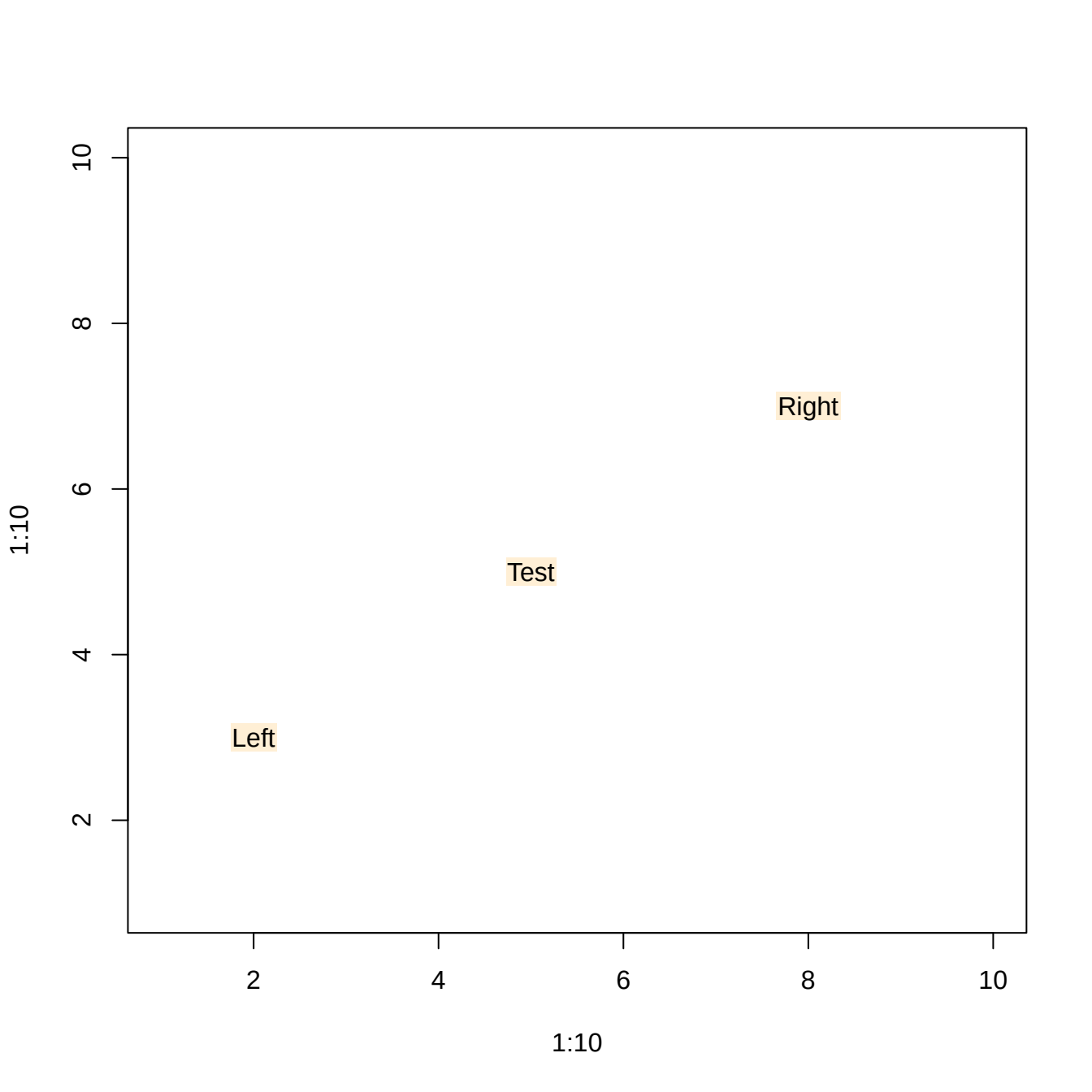

Distribution of x
(N=5)
A (N=3)
B (N=2)
Frequency
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1
1
2
x

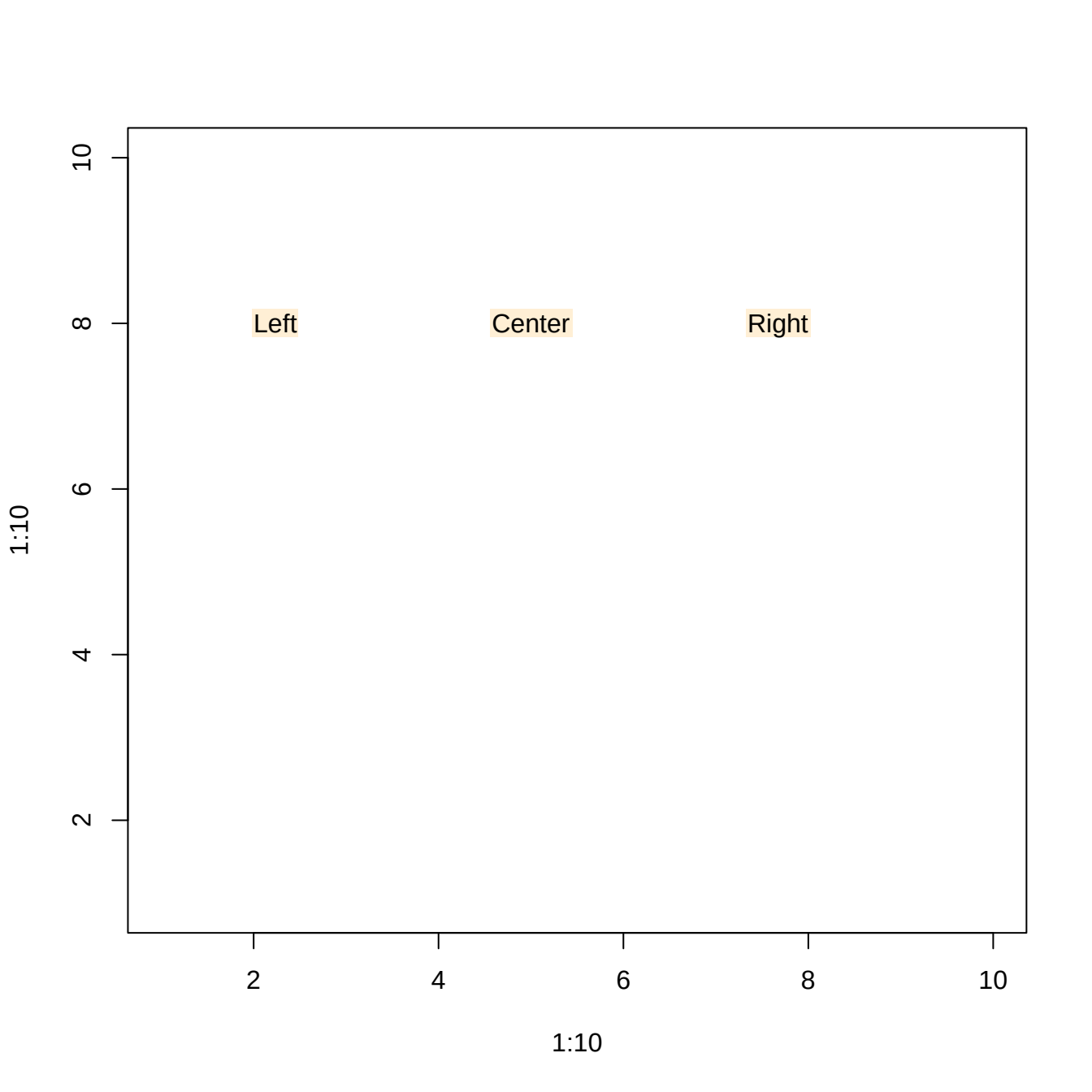

Distribution of x
(N=5)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Frequency
1
1
2
x

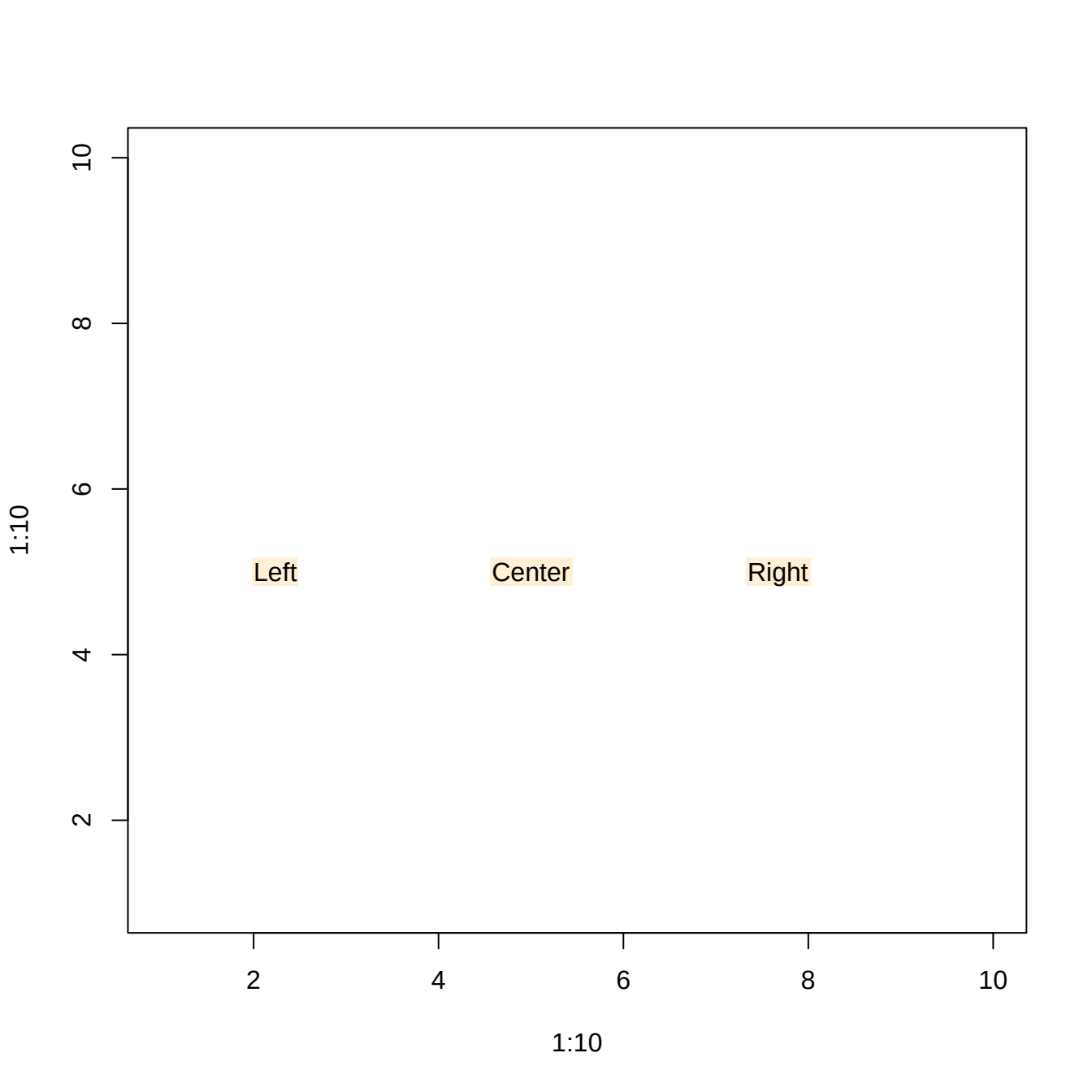

Distribution of x
(N=7)
Frequency
4
3
2
1
0
2
3
2
1
2
5
x

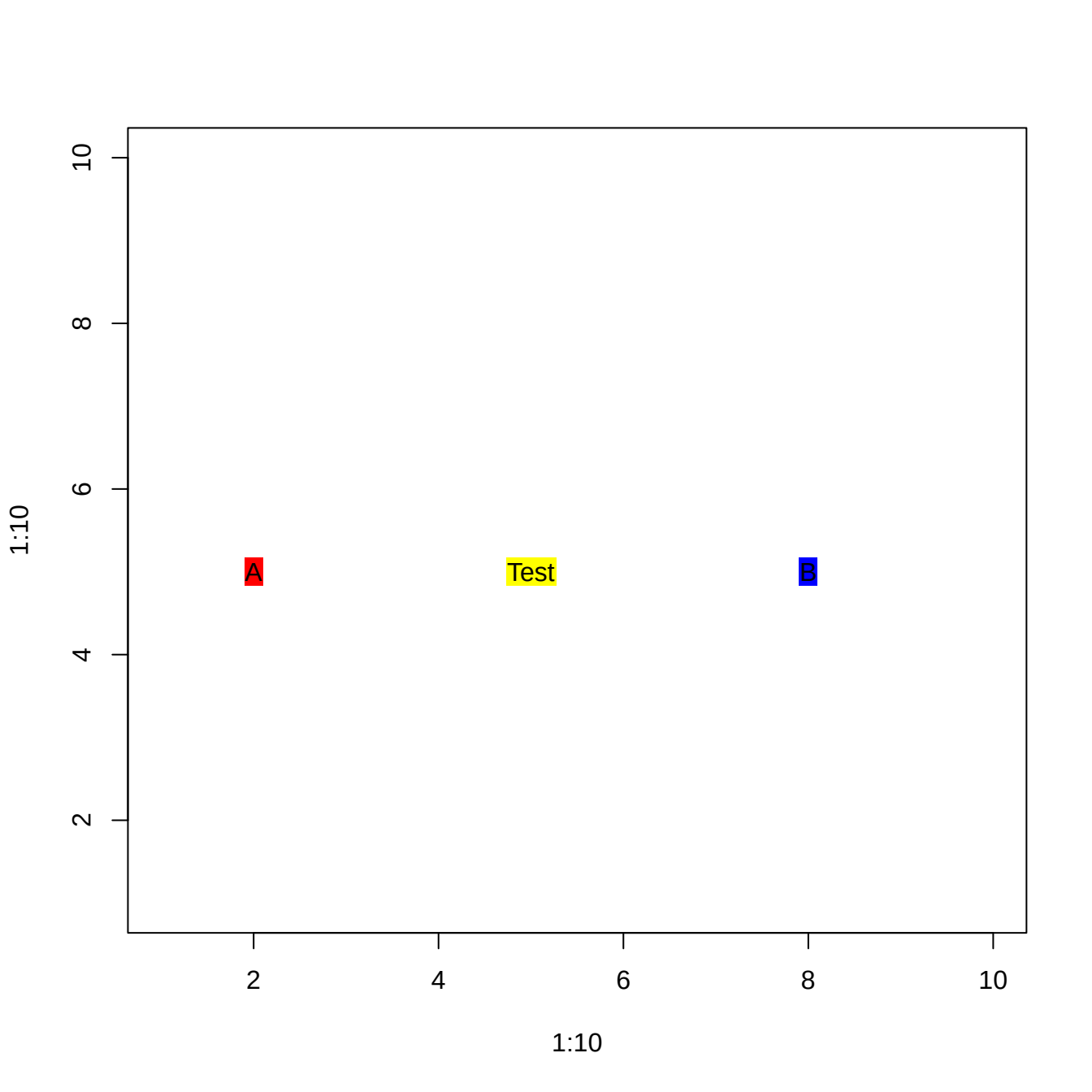

Distribution of x
(N=6)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Frequency
2
2
2
1
2
5
x

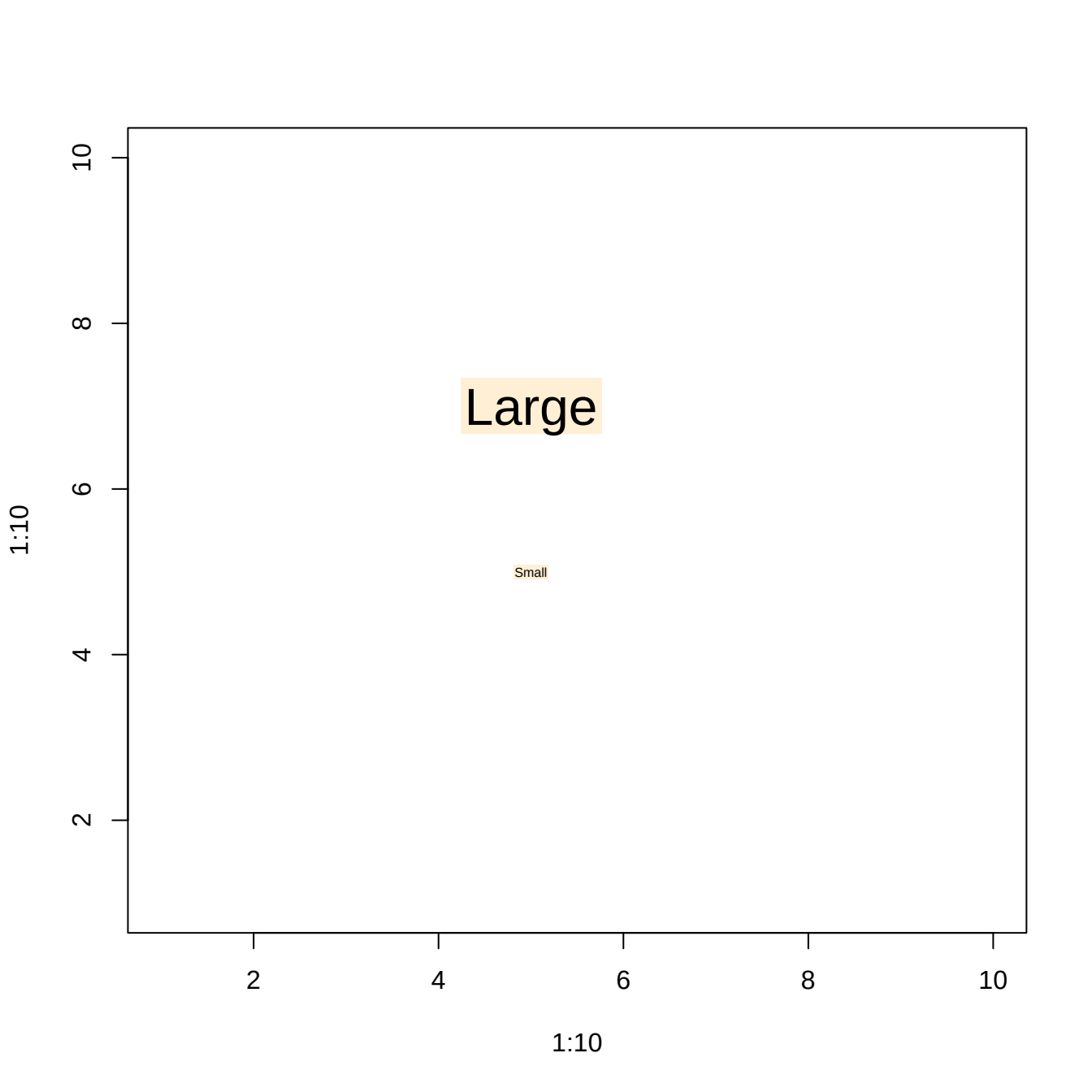

Distribution of x
(N=6)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Frequency
2
2
2
1
2
5
x

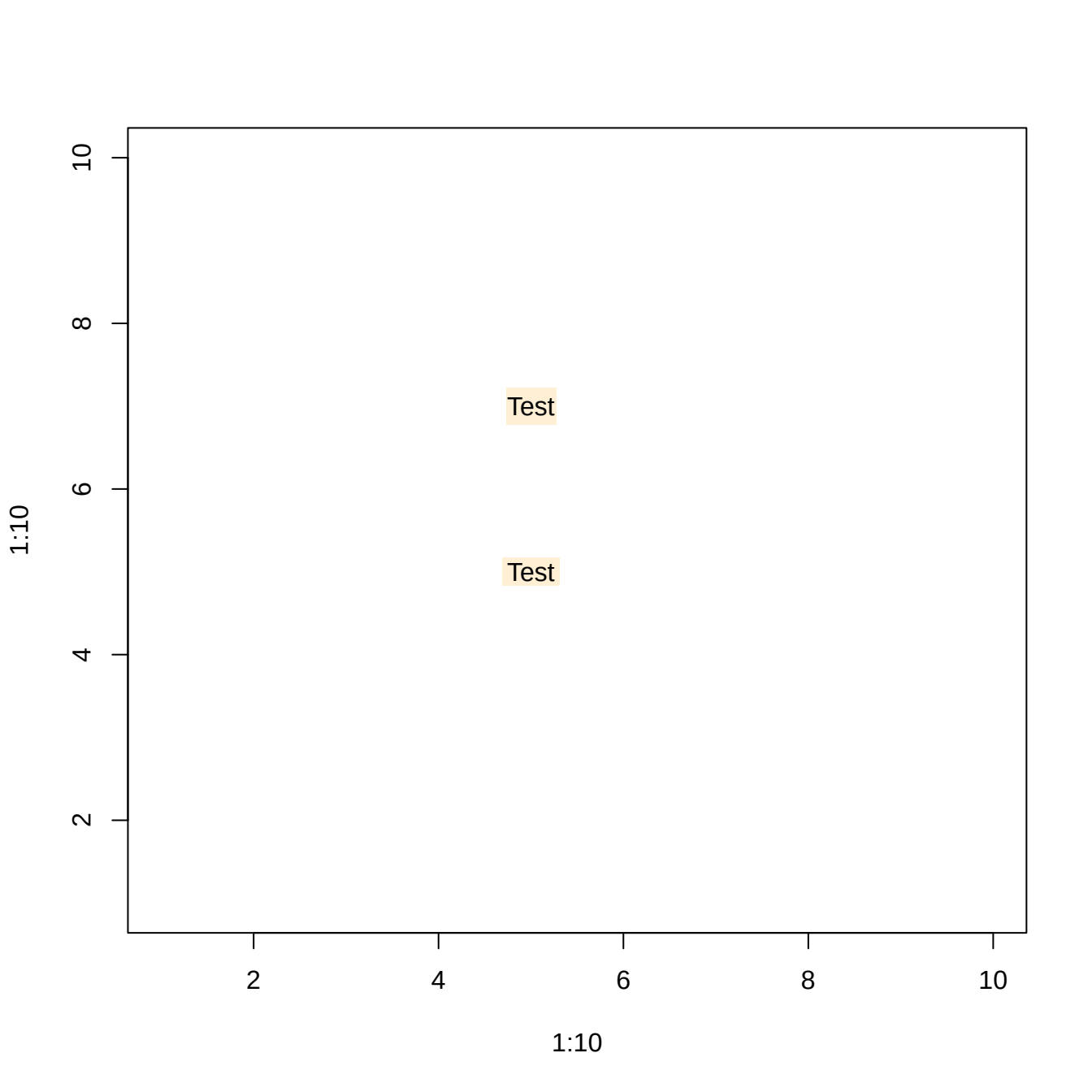

Right
Test
Left
1:10
1:10
2
4
6
8
10
2
4
6
8
10

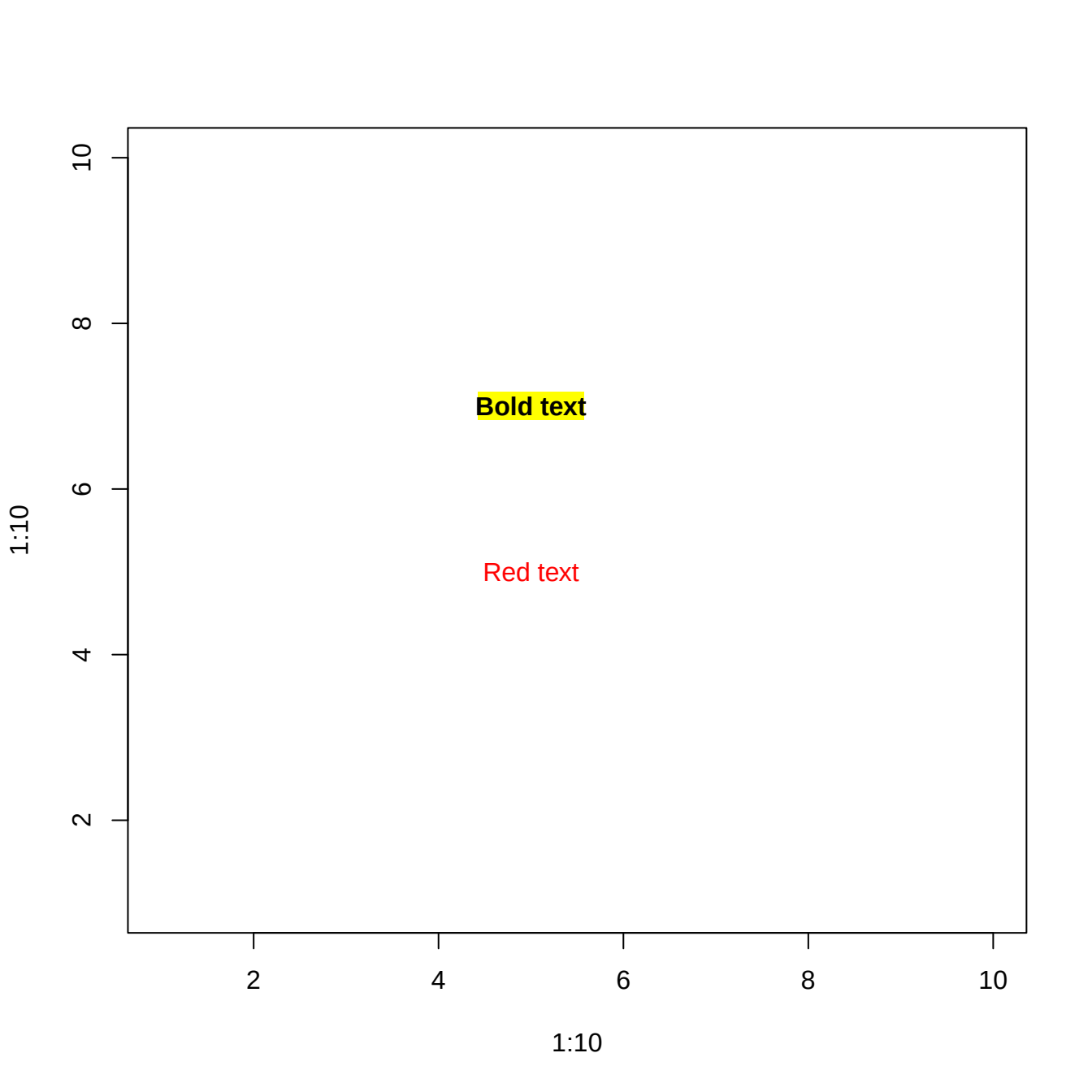

Left
Center
Right
1:10
1:10
2
4
6
8
10
2
4
6
8
10

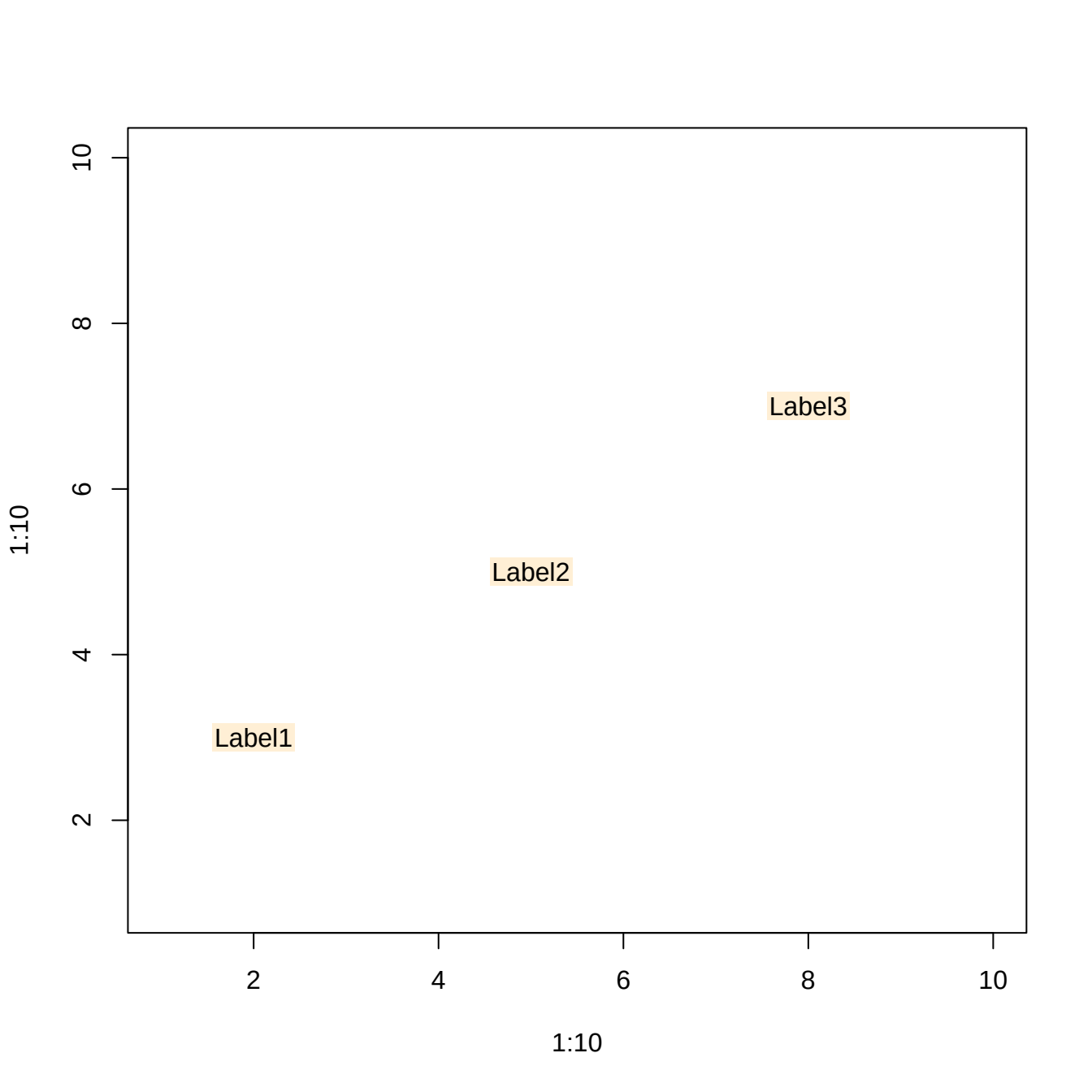

Left
Center
Right
1:10
1:10
2
4
6
8
10
2
4
6
8
10

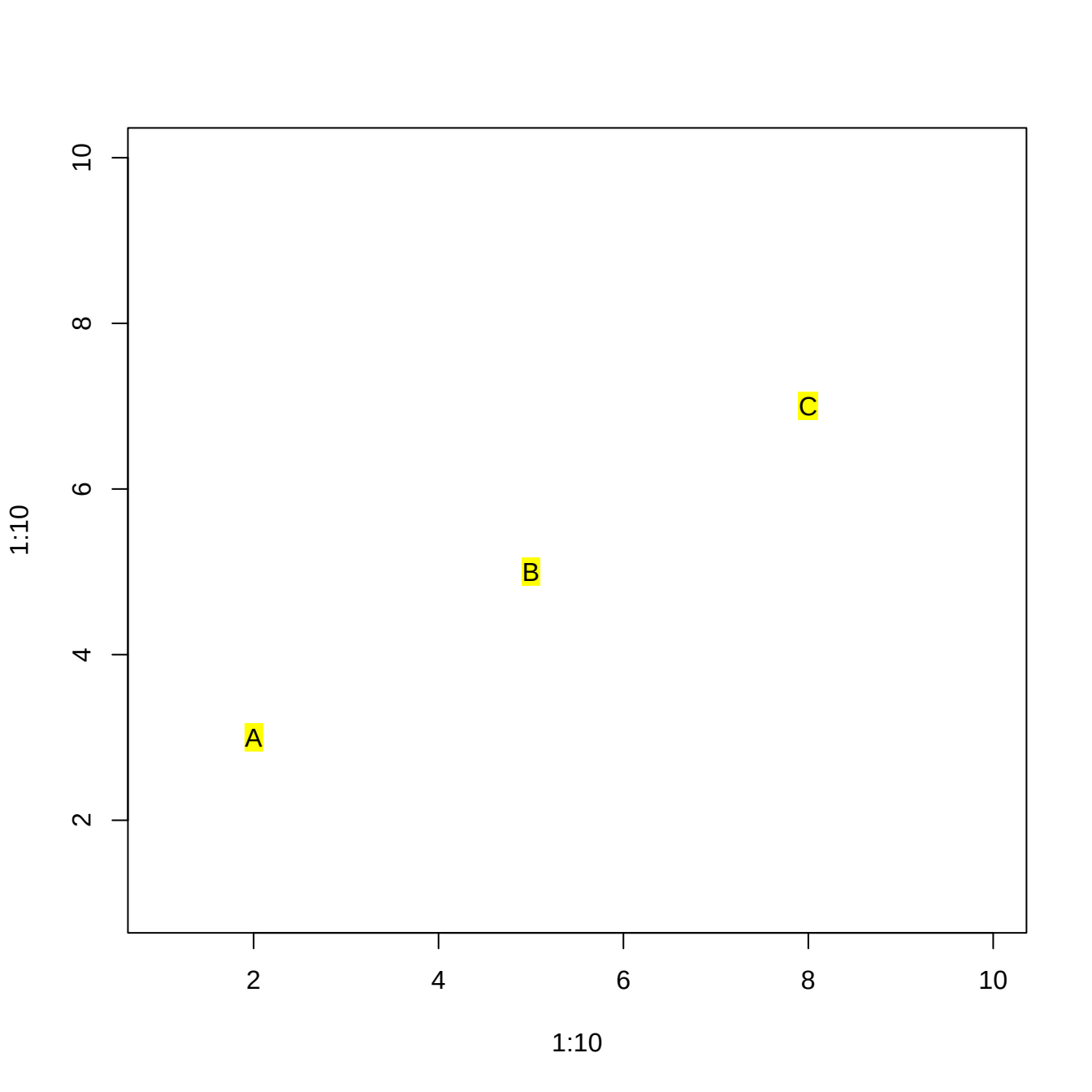

A
Test
B
1:10
1:10
2
4
6
8
10
2
4
6
8
10

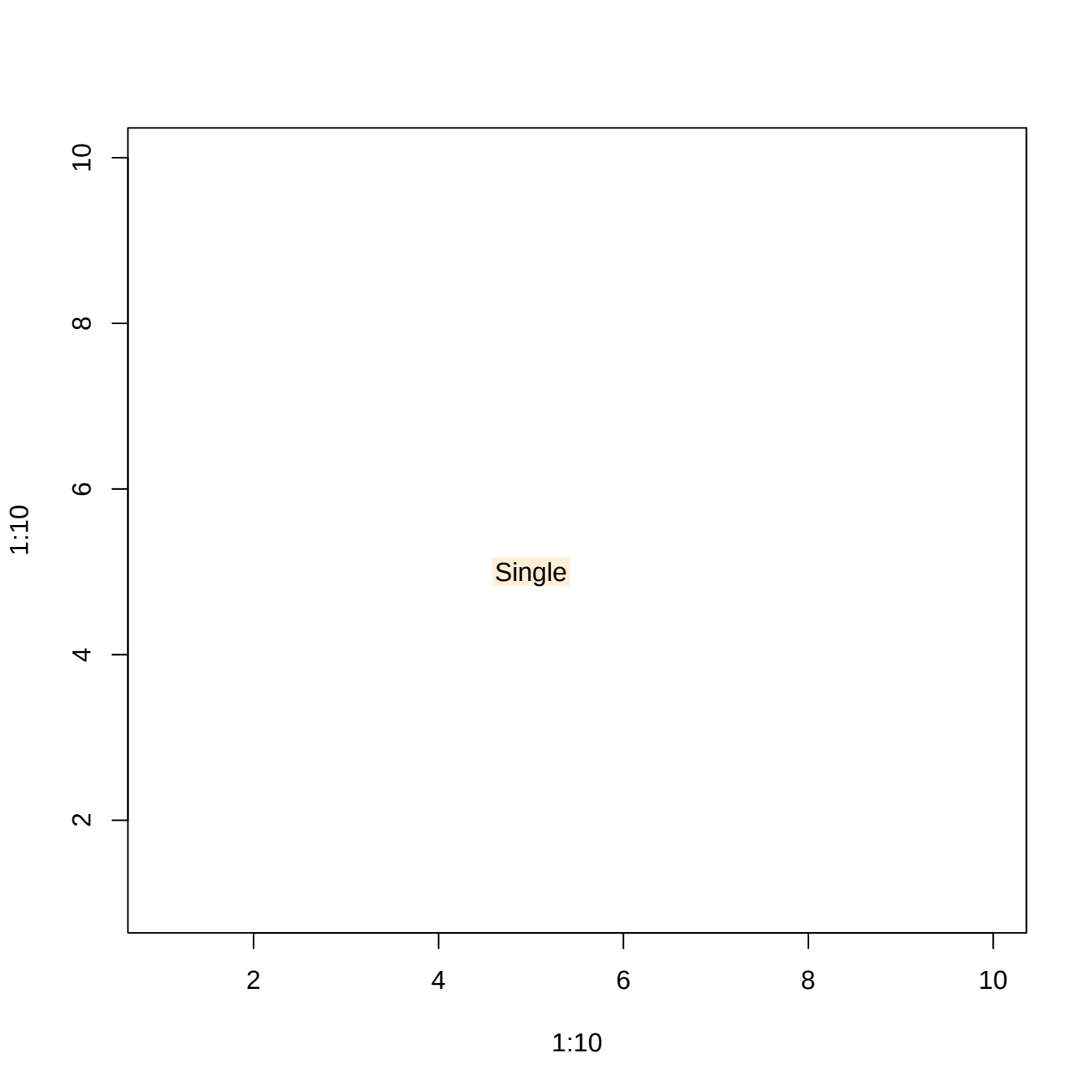

Large
Small
1:10
1:10
2
4
6
8
10
2
4
6
8
10


Test
Test
1:10
1:10
2
4
6
8
10
2
4
6
8
10


Bold text
Red text
1:10
1:10
2
4
6
8
10
2
4
6
8
10


Label1
Label2
Label3
1:10
1:10
2
4
6
8
10
2
4
6
8
10


A
B
C
2
4
6
8
10
1:10
2
4
6
8
10
1:10


Single
1:10
1:10
2
4
6
8
10
2
4
6
8
10