ABC model fit and posterior distributions

Supplementary File 3 for Carroll et al., Incorporating non-equilibrium situations into demographic history inferences of a migratory marine species

For each scenario, the following plots are displayed for each estimated parameter:

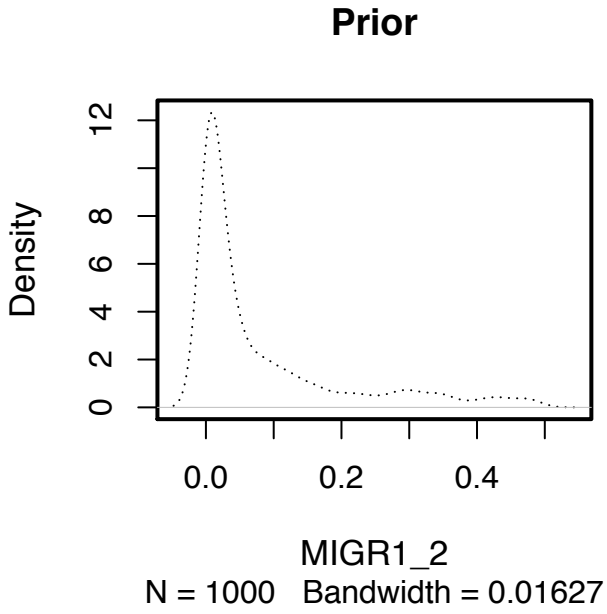
1. Top left: a density plot of the prior distribution

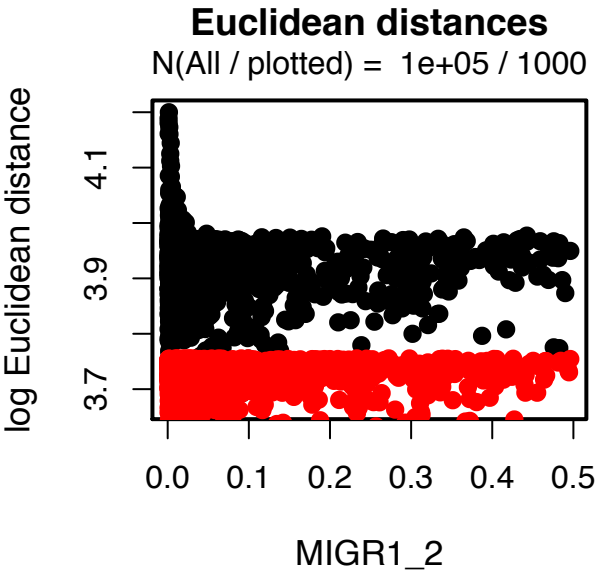
2. Bottom left: a density plot of the posterior distribution For the density plot of the posterior distribution, values estimated with the non-linear regression correction method or ‘neural net’ (red thick lines) and, for reference, using the simple rejection method (black fine lines) are displayed. The prior distribution (in the posterior distributions' range) is also displayed (dashed lines). For the scatter plot Euclidean

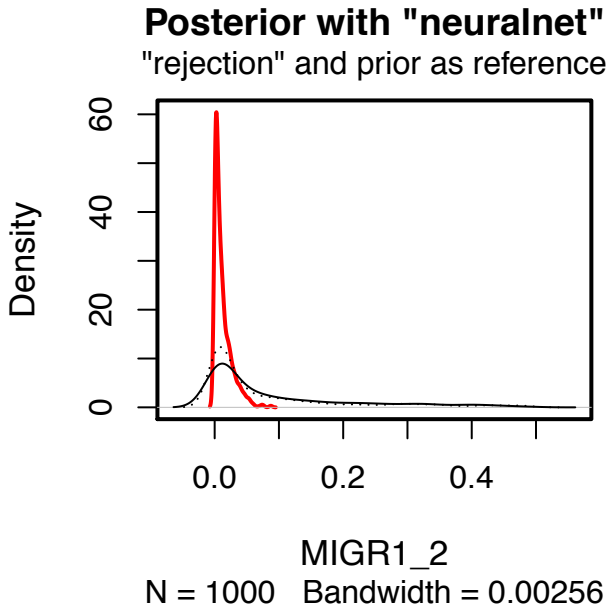
3. Top right: a scatter plot of the Euclidean distances as a function of the parameter values

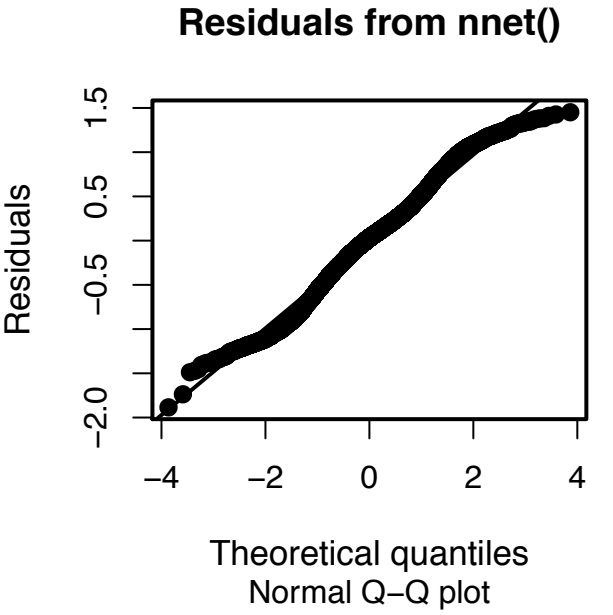
4. Bottom right: Normal Q-Q plot of the residuals from the regression. Points corresponding to the accepted simulations are displayed in red.

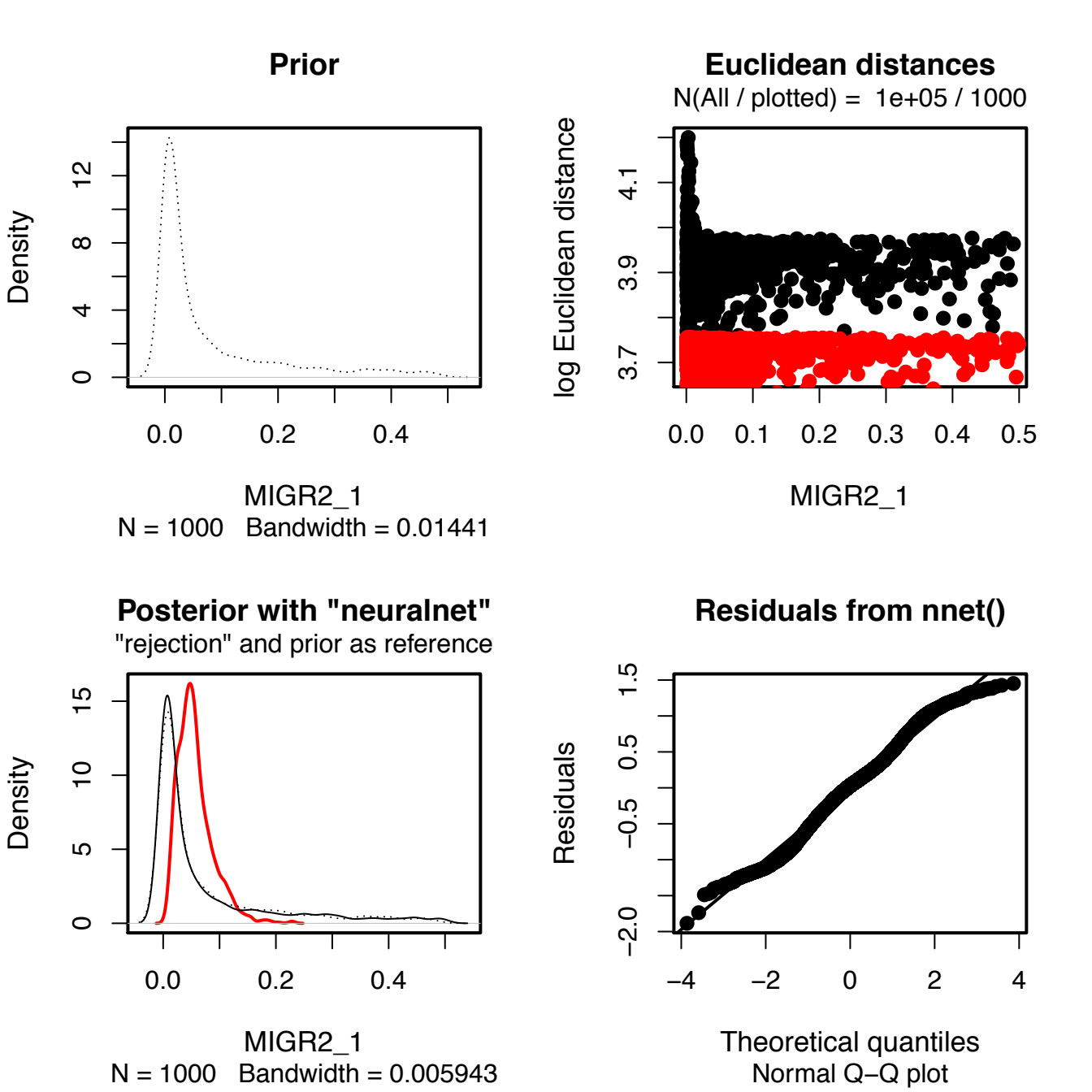
Scenario 1: random lineage sorting with continuous gene flow and a single migration rate M_H

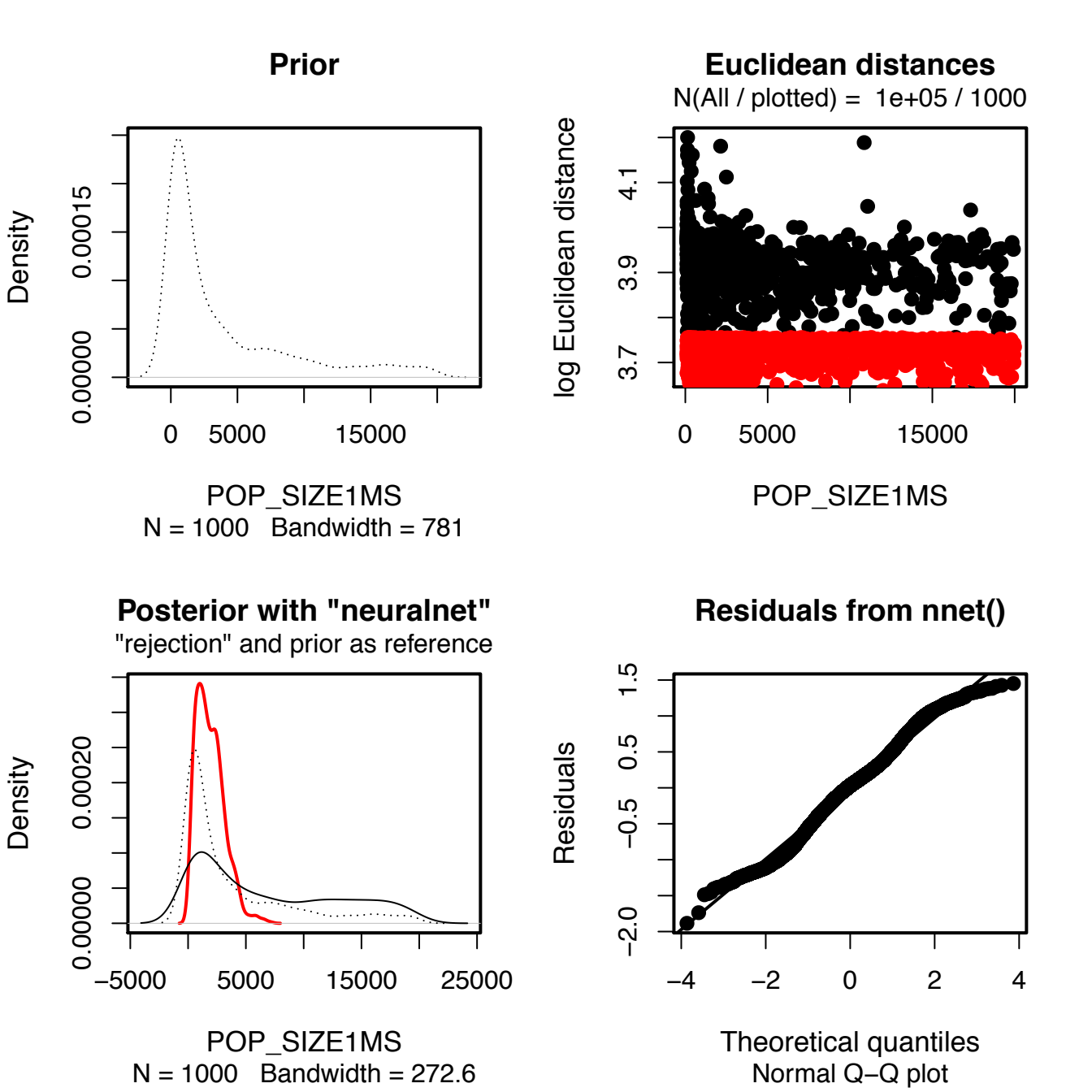

Prior
Density
0
2
4
6
8
12
0.0
0.2
0.4
MIGR1_2
N = 1000 Bandwidth = 0.01627

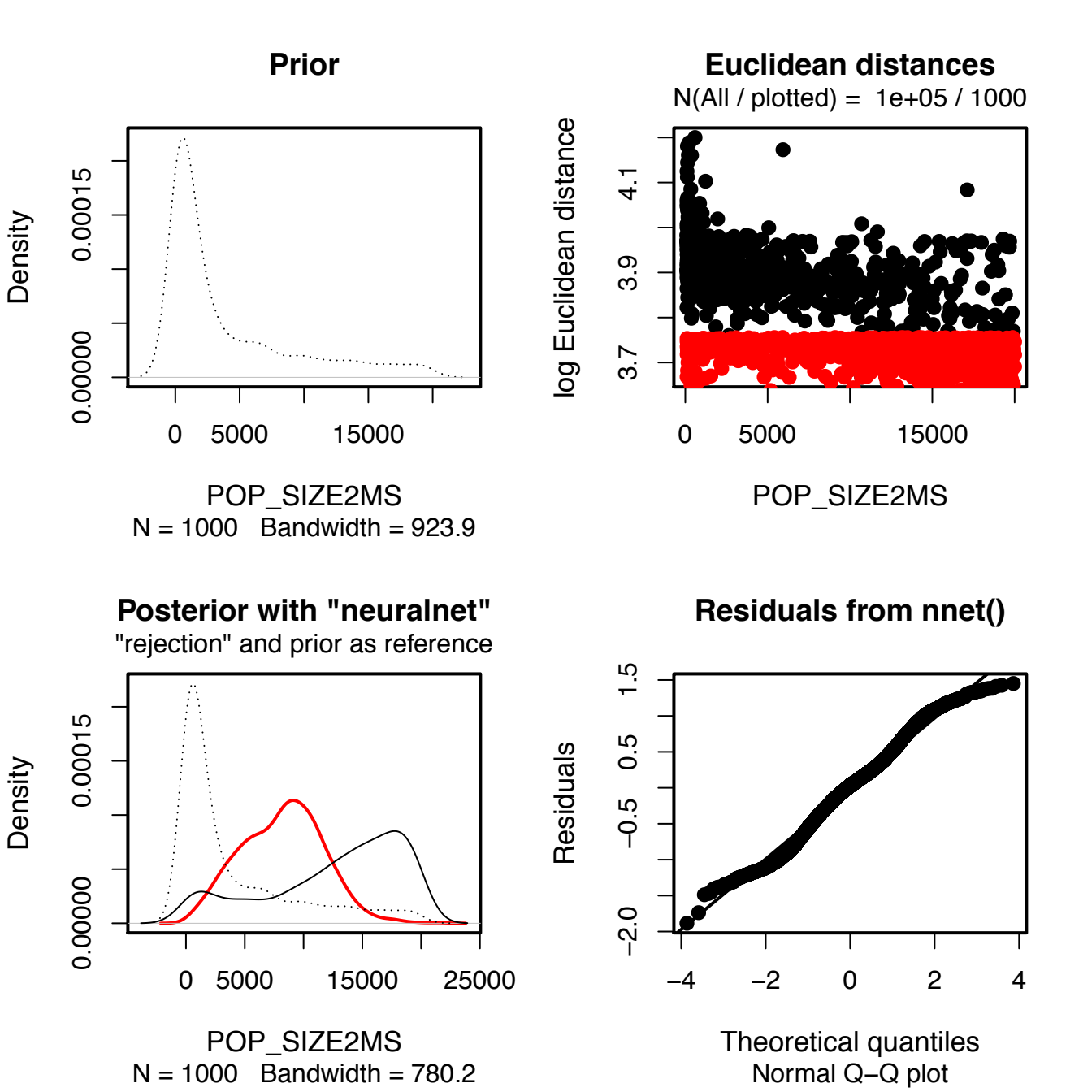

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0.0
0.1
0.2
0.3
0.4
0.5
MIGR1_2

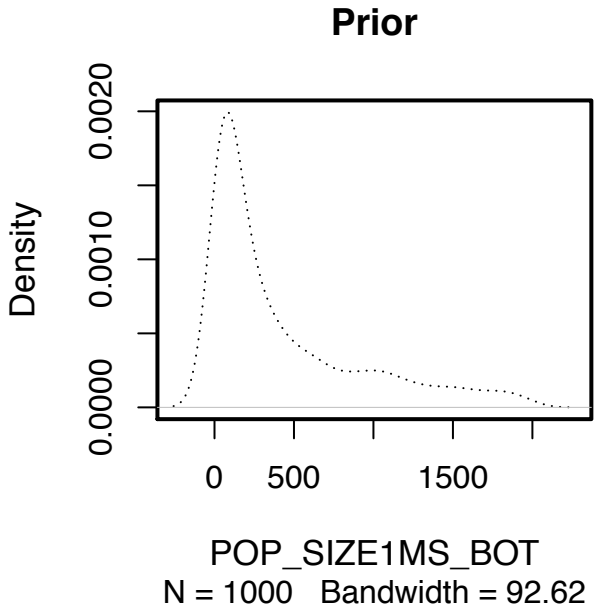

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0
20
40
60
0.0
0.2
0.4
MIGR1_2
N = 1000 Bandwidth = 0.00256

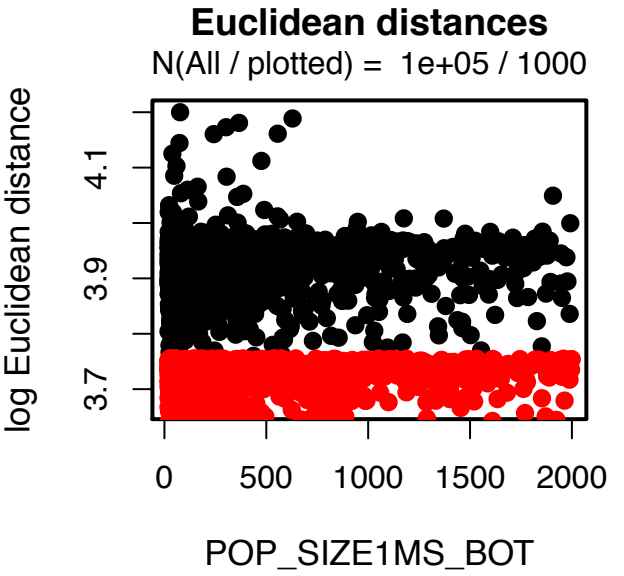

Residuals from nnet()
Residuals
−2.0
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

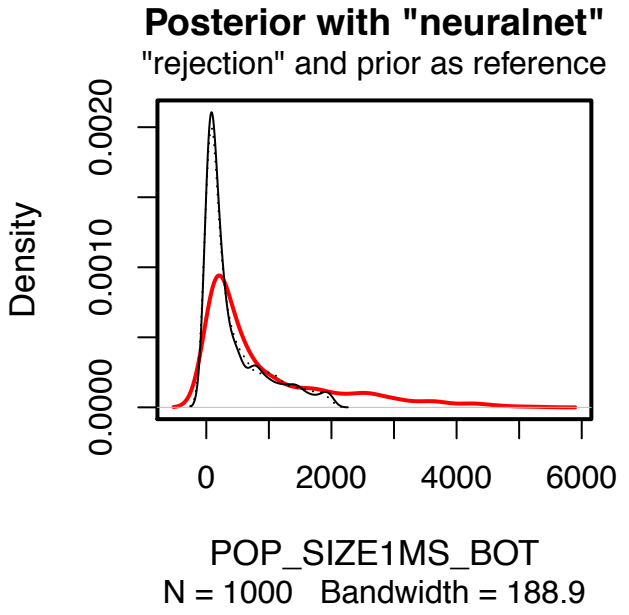

Prior
Density
0
4
8
12
0.0
0.2
0.4
MIGR2_1
N = 1000 Bandwidth = 0.01441
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0.0
0.1
0.2
0.3
0.4
0.5
MIGR2_1
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0
5
10
15
0.0
0.2
0.4
MIGR2_1
N = 1000 Bandwidth = 0.005943
Residuals from nnet()
Residuals
−2.0
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

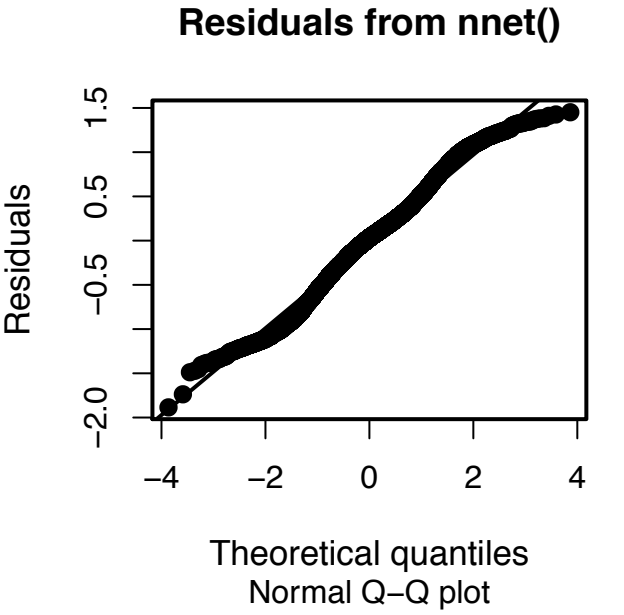

Prior
Density
0.00000
0.00015
0
5000
15000
POP_SIZE1MS
N = 1000 Bandwidth = 781
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0
5000
15000
POP_SIZE1MS
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.00000
0.00020
−5000
5000
15000
25000
POP_SIZE1MS
N = 1000 Bandwidth = 272.6
Residuals from nnet()
Residuals
−2.0
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

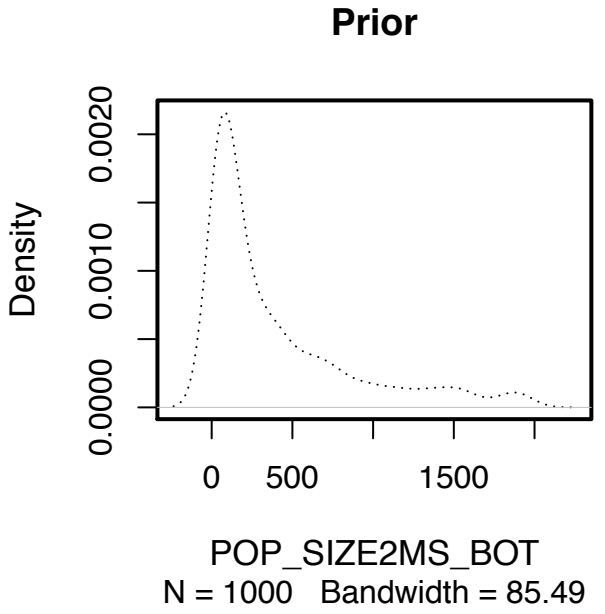

Prior
Density
0.00000
0.00015
0
5000
15000
POP_SIZE2MS
N = 1000 Bandwidth = 923.9
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0
5000
15000
POP_SIZE2MS
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.00000
0.00015
0
5000
15000
25000
POP_SIZE2MS
N = 1000 Bandwidth = 780.2
Residuals from nnet()
Residuals
−2.0
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

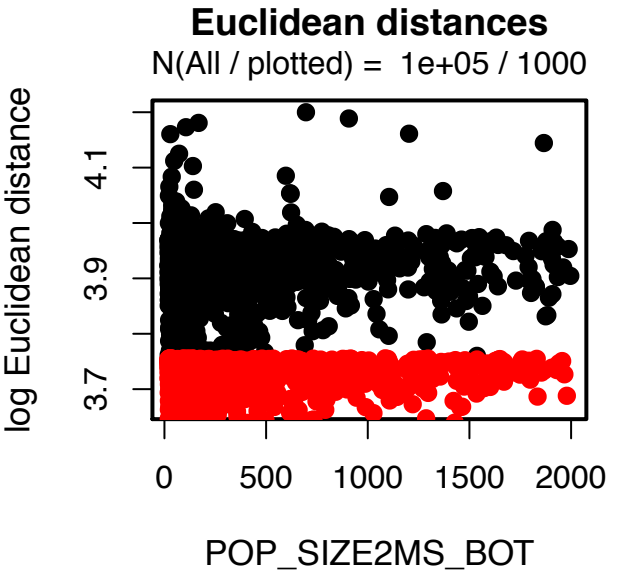

Prior
Density
0.0000
0.0010
0.0020
0
500
1500
POP_SIZE1MS_BOT
N = 1000 Bandwidth = 92.62

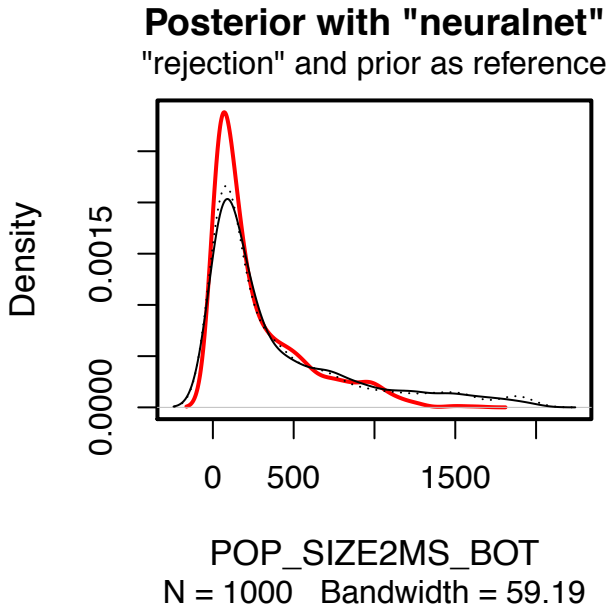

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0
500
1000
1500
2000
POP_SIZE1MS_BOT

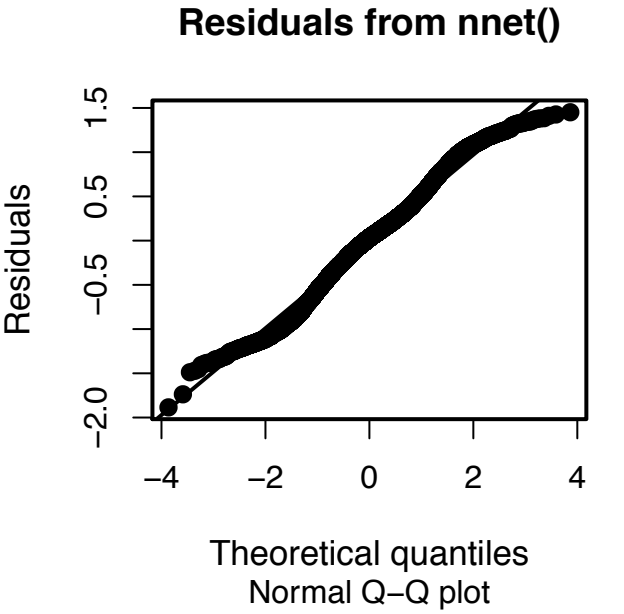

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0000
0.0010
0.0020
0
2000
4000
6000
POP_SIZE1MS_BOT
N = 1000 Bandwidth = 188.9

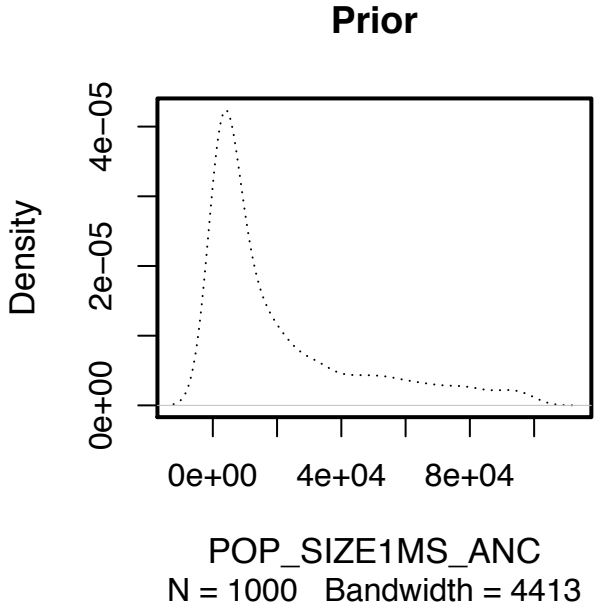

Residuals from nnet()
Residuals
−2.0
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

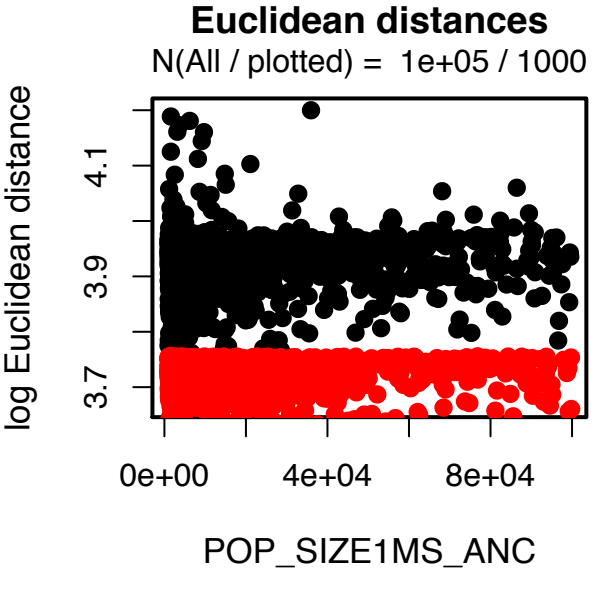

Prior
Density
0.0000
0.0010
0.0020
0
500
1500
POP_SIZE2MS_BOT
N = 1000 Bandwidth = 85.49

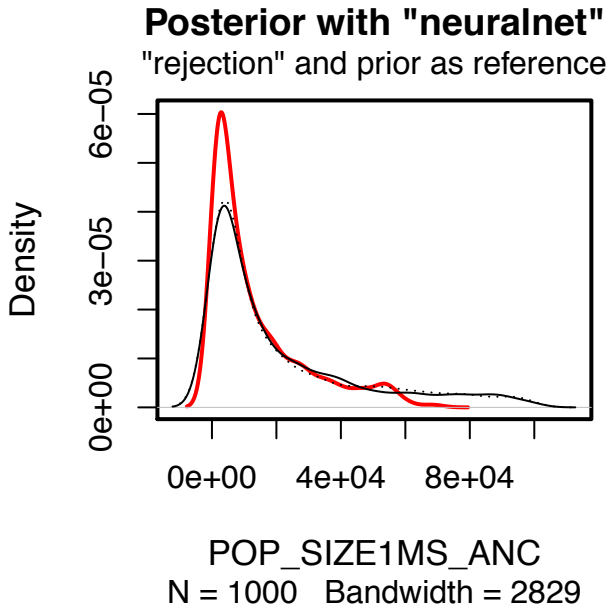

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0
500
1000
1500
2000
POP_SIZE2MS_BOT

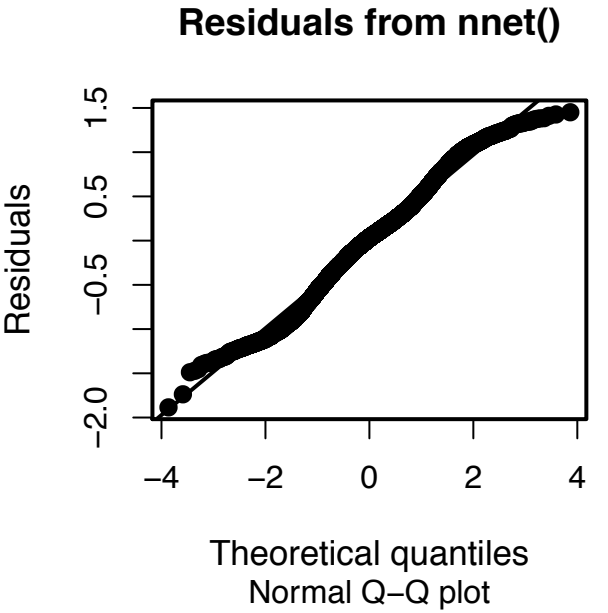

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0000
0.0015
0
500
1500
POP_SIZE2MS_BOT
N = 1000 Bandwidth = 59.19

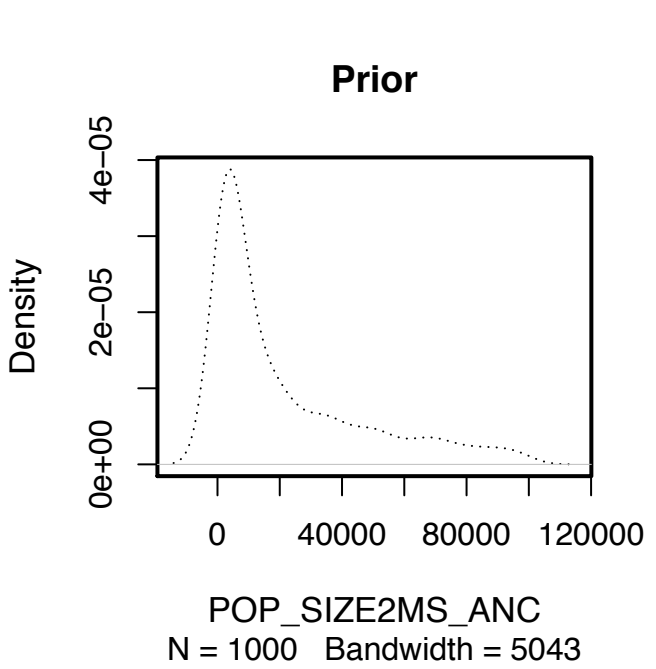

Residuals from nnet()
Residuals
−2.0
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

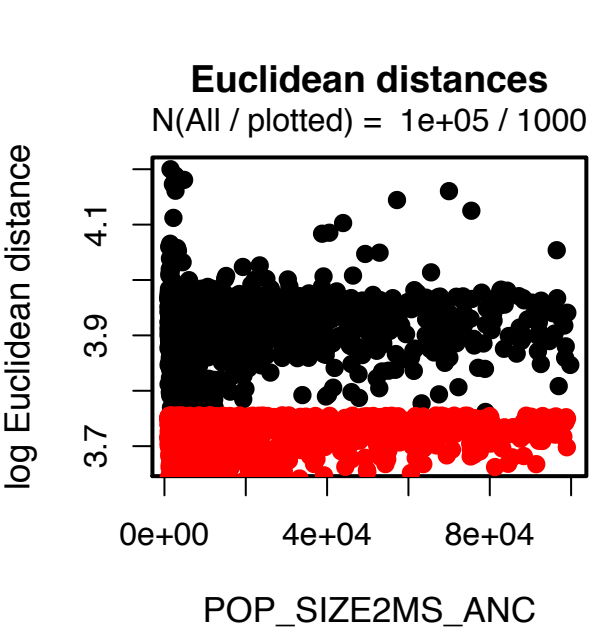

Prior
Density
0e+00
2e−05
4e−05
0e+00
4e+04
8e+04
POP_SIZE1MS_ANC
N = 1000 Bandwidth = 4413

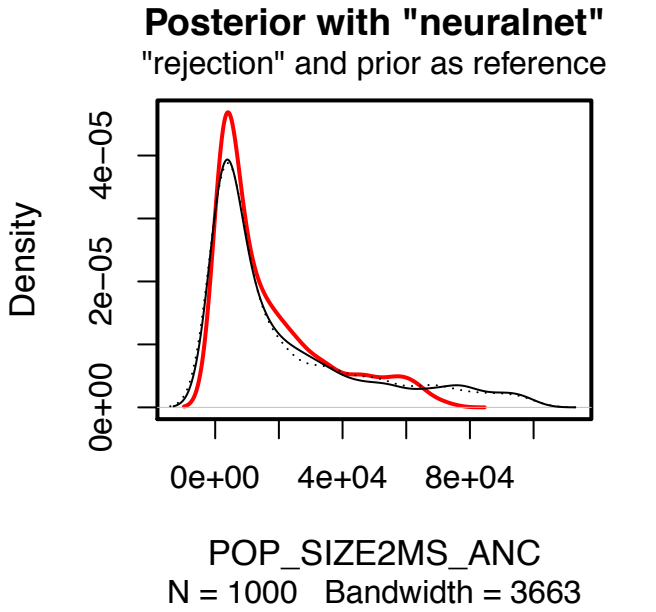

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0e+00
4e+04
8e+04
POP_SIZE1MS_ANC

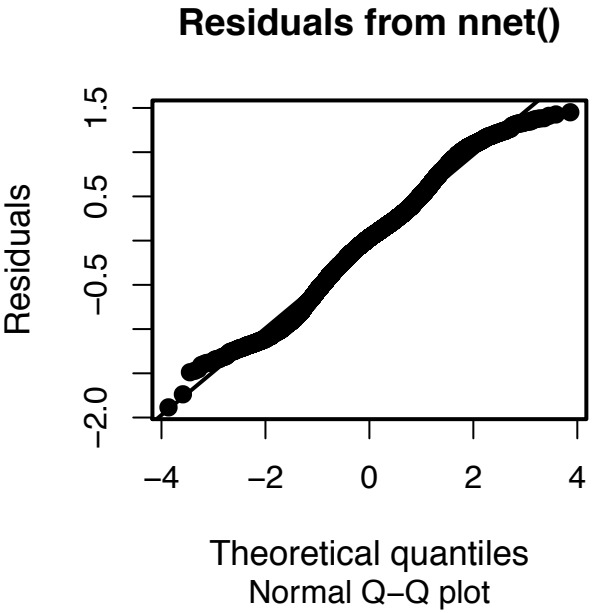

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0e+00
3e−05
6e−05
0e+00
4e+04
8e+04
POP_SIZE1MS_ANC
N = 1000 Bandwidth = 2829

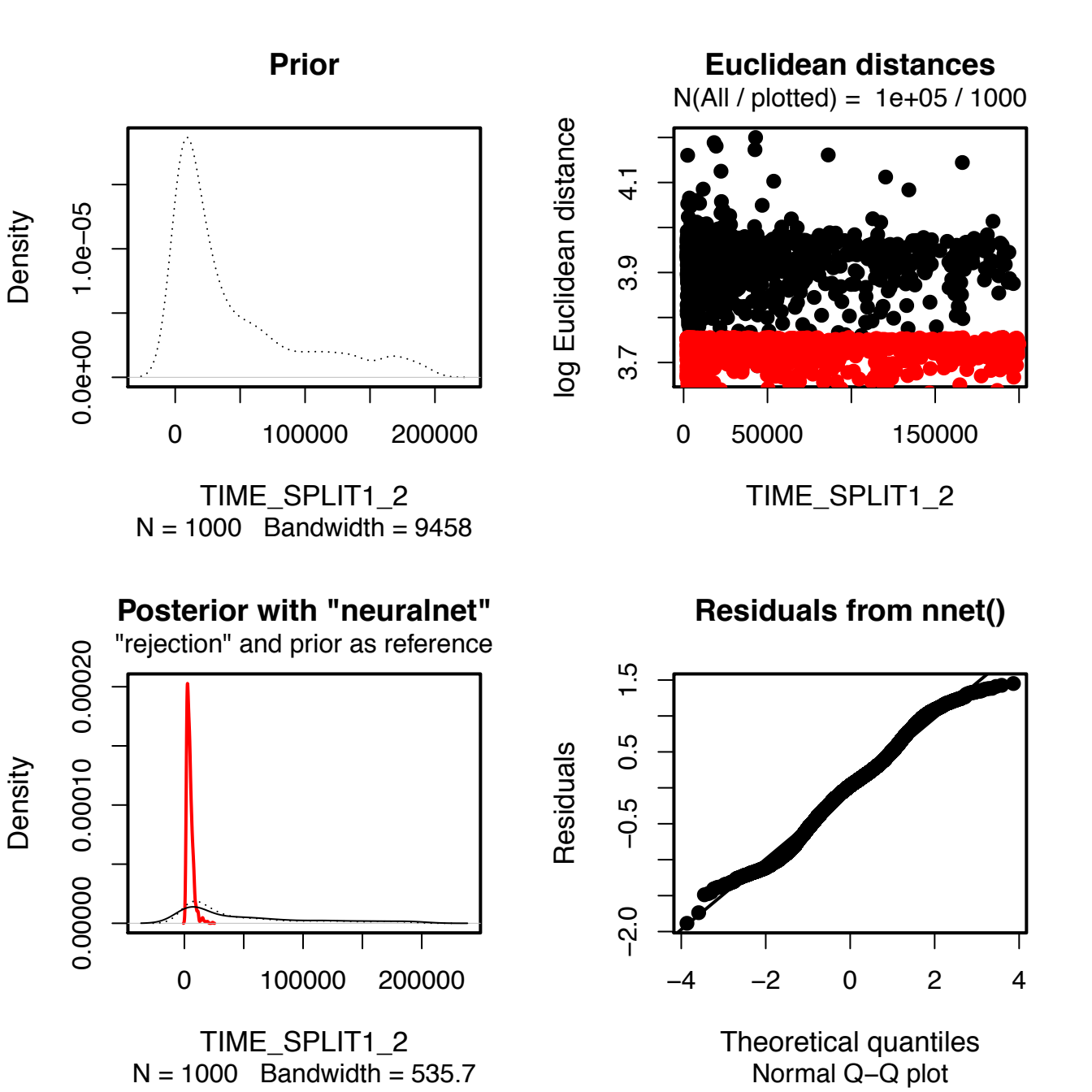

Residuals from nnet()
Residuals
−2.0
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot


Prior
Density
0e+00
2e−05
4e−05
0
40000
80000
120000
POP_SIZE2MS_ANC
N = 1000 Bandwidth = 5043

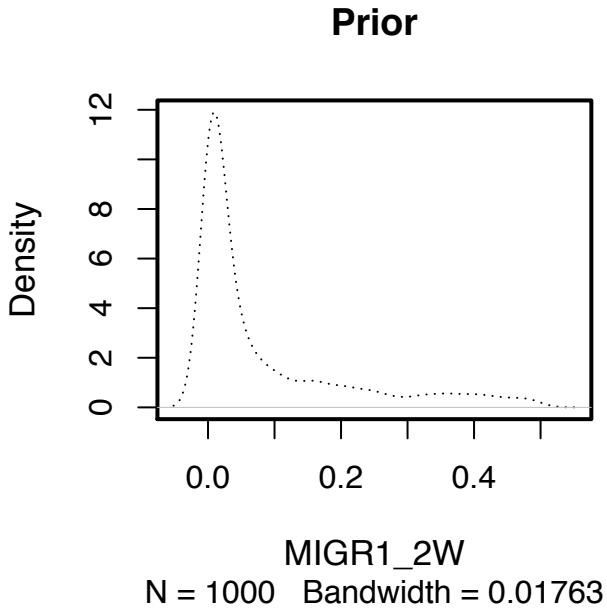

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0e+00
4e+04
8e+04
POP_SIZE2MS_ANC

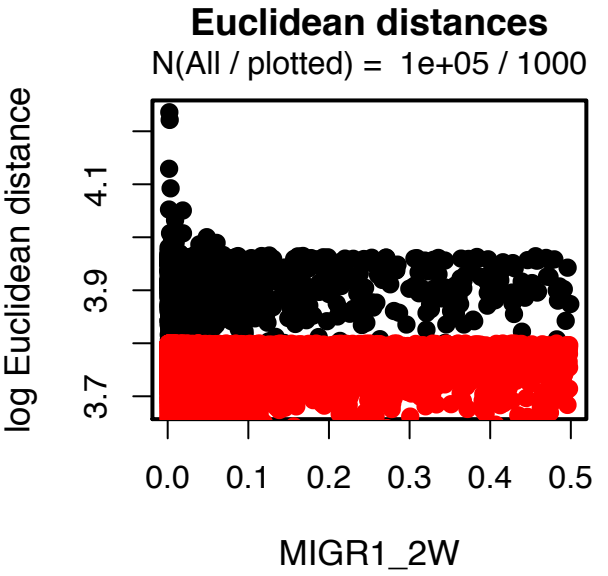

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0e+00
2e−05
4e−05
0e+00
4e+04
8e+04
POP_SIZE2MS_ANC
N = 1000 Bandwidth = 3663

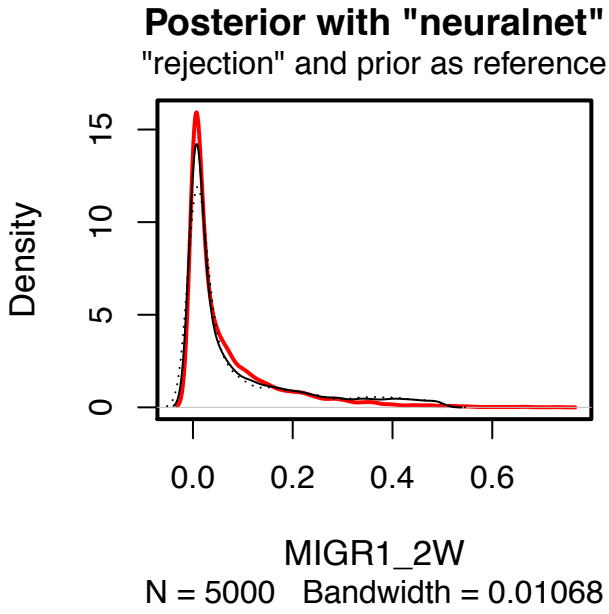

Residuals from nnet()
Residuals
−2.0
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

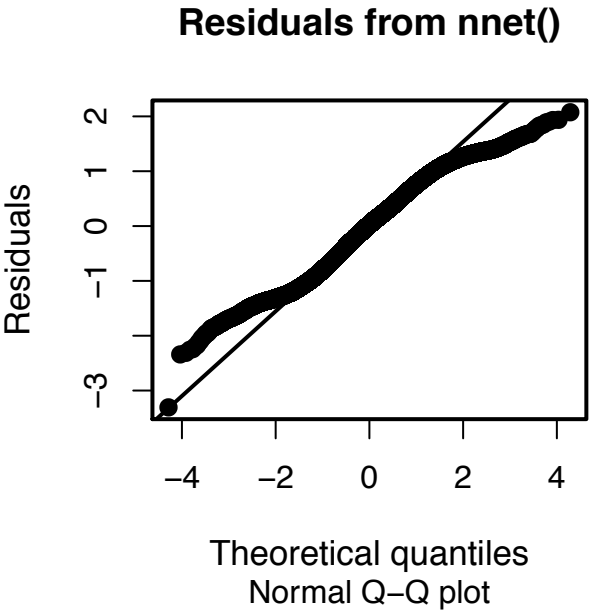

Prior
Density
0.0e+00
1.0e−05
0
100000
200000
TIME_SPLIT1_2
N = 1000 Bandwidth = 9458
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0
50000
150000
TIME_SPLIT1_2
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.00000
0.00010
0.00020
0
100000
200000
TIME_SPLIT1_2
N = 1000 Bandwidth = 535.7
Residuals from nnet()
Residuals
−2.0
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

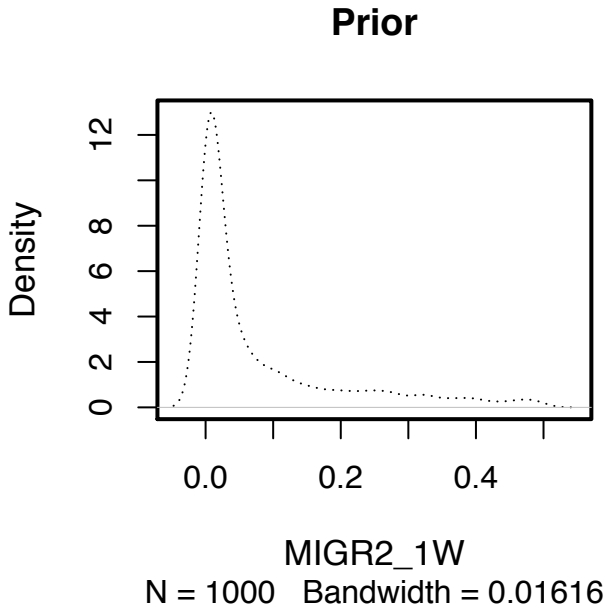
Scenario 2: random lineage sorting with continuous gene flow and two migration rates: one since divergence M_H and one since the whaling era M_W

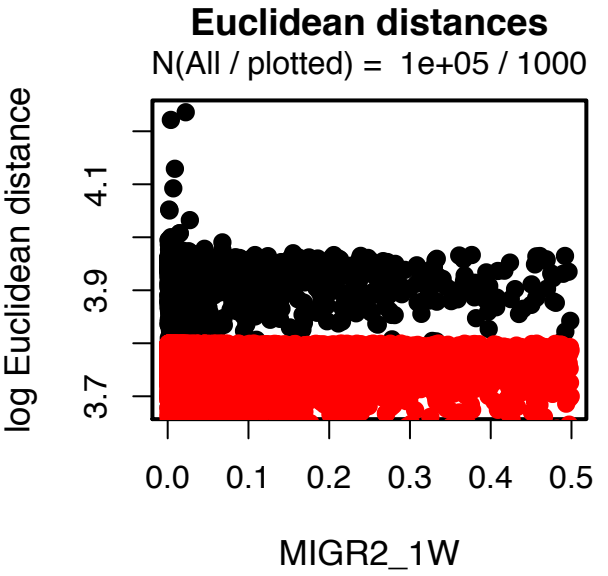

Prior
Density
0
2
4
6
8
12
0.0
0.2
0.4
MIGR1_2W
N = 1000 Bandwidth = 0.01763

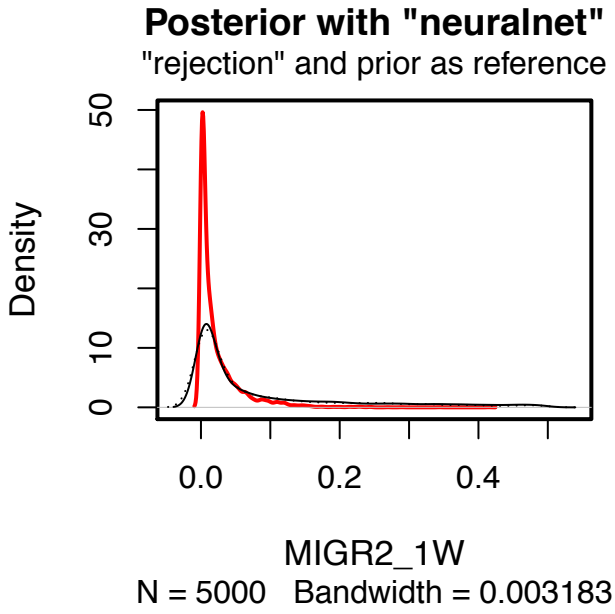

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0.0
0.1
0.2
0.3
0.4
0.5
MIGR1_2W

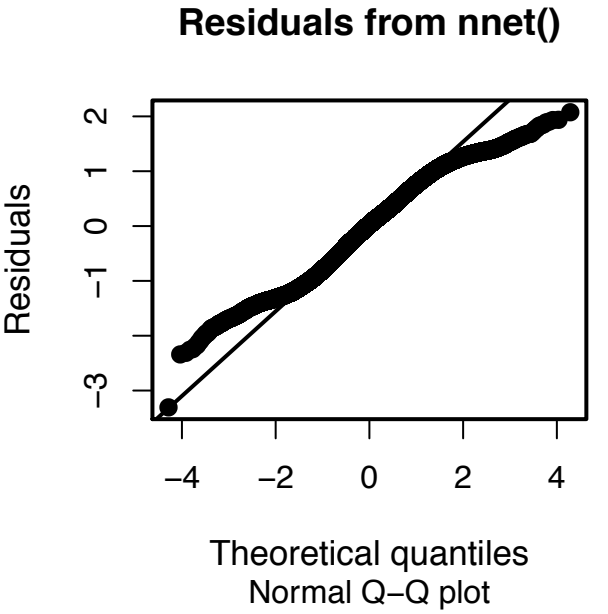

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0
5
10
15
0.0
0.2
0.4
0.6
MIGR1_2W
N = 5000 Bandwidth = 0.01068

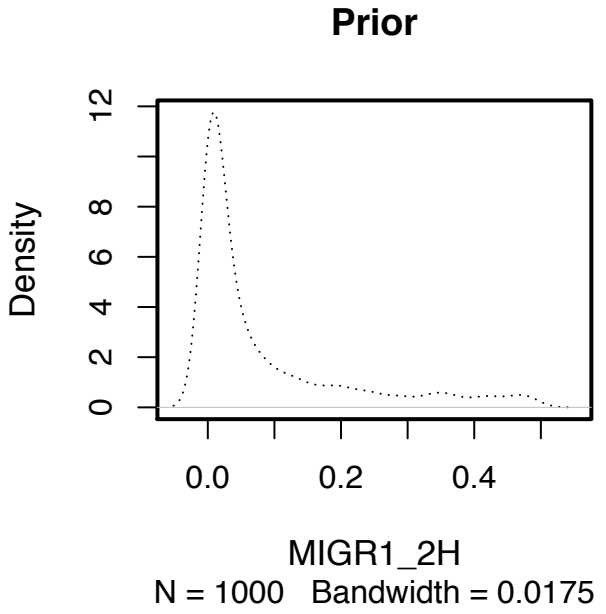

Residuals from nnet()
Residuals
−3
−1
0
1
2
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

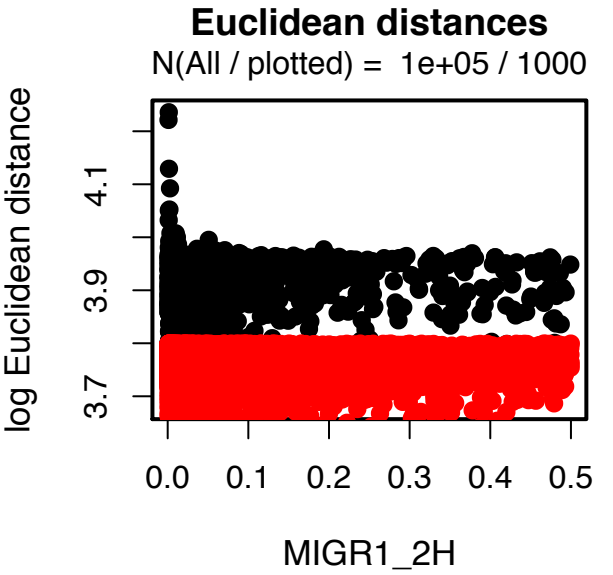

Prior
Density
0 2 4 6 8 12
0.0 0.2 0.4
MIGR2_1W
N = 1000 Bandwidth = 0.01616

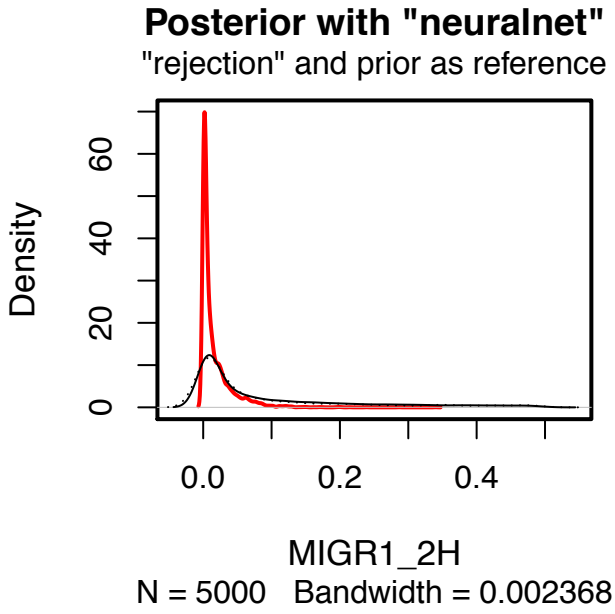

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7 3.9 4.1
0.0 0.1 0.2 0.3 0.4 0.5
MIGR2_1W

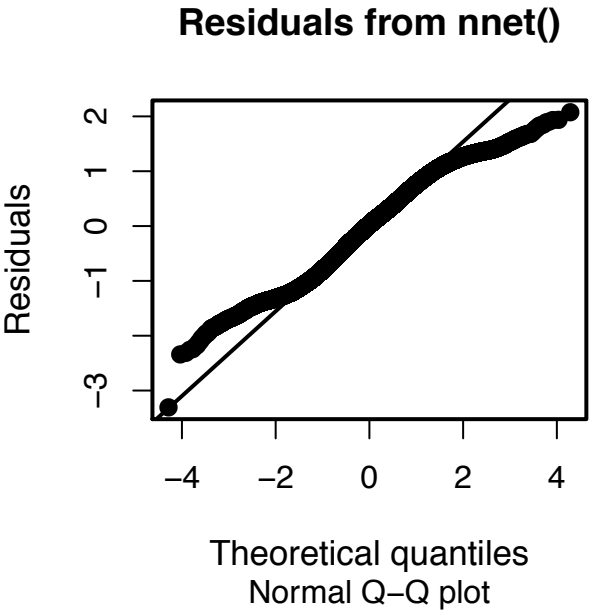

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0 10 30 50
0.0 0.2 0.4
MIGR2_1W
N = 5000 Bandwidth = 0.003183

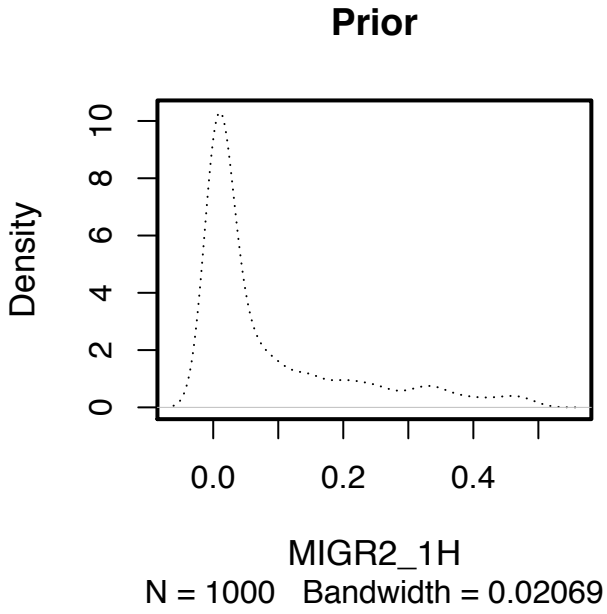

Residuals from nnet()
Residuals
−3 −1 0 1 2
−4 −2 0 2 4
Theoretical quantiles
Normal Q−Q plot

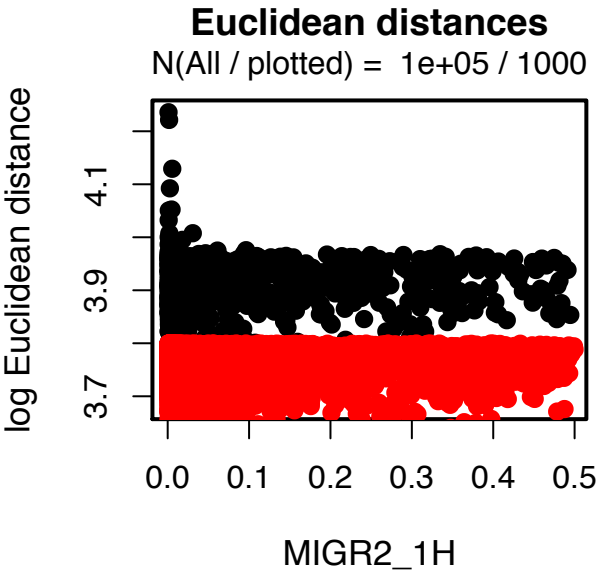

Prior
Density
0
2
4
6
8
12
0.0
0.2
0.4
MIGR1_2H
N = 1000 Bandwidth = 0.0175

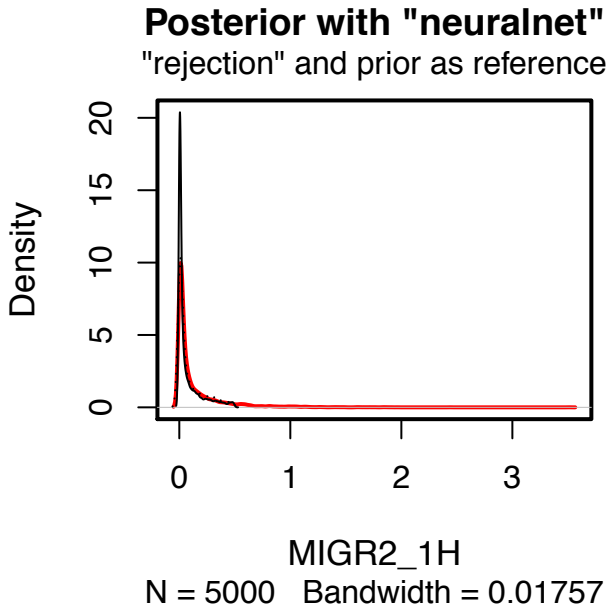

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0.0
0.1
0.2
0.3
0.4
0.5
MIGR1_2H

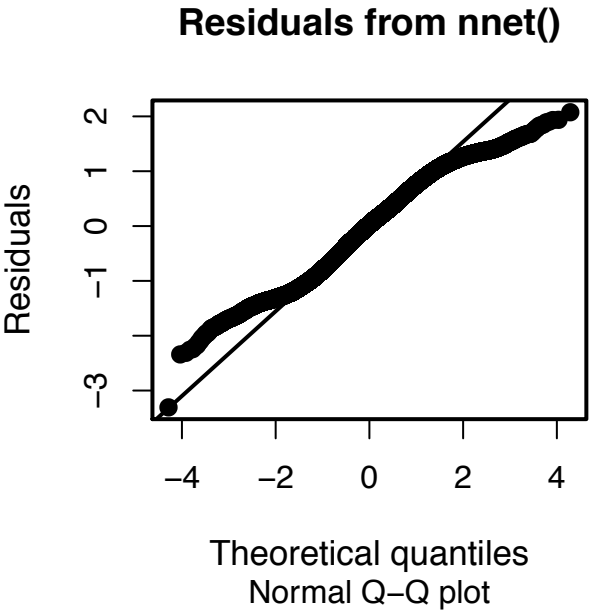

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0
20
40
60
0.0
0.2
0.4
MIGR1_2H
N = 5000 Bandwidth = 0.002368

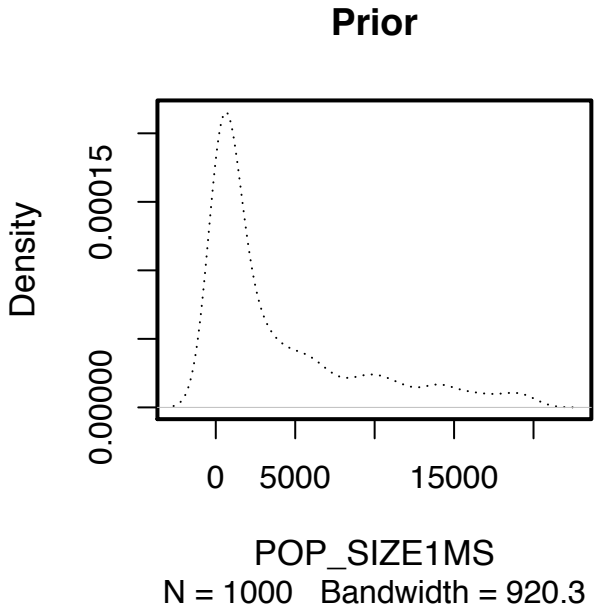

Residuals from nnet()
Residuals
−3
−1
0
1
2
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

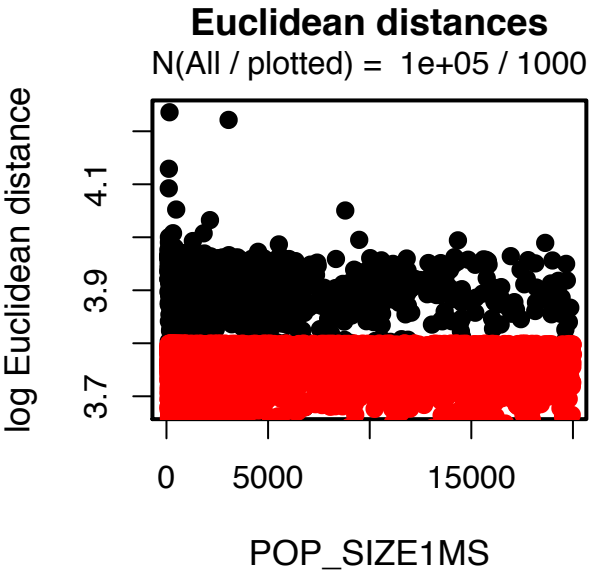

Prior
Density
0
2
4
6
8
10
0.0
0.2
0.4
MIGR2_1H
N = 1000 Bandwidth = 0.02069

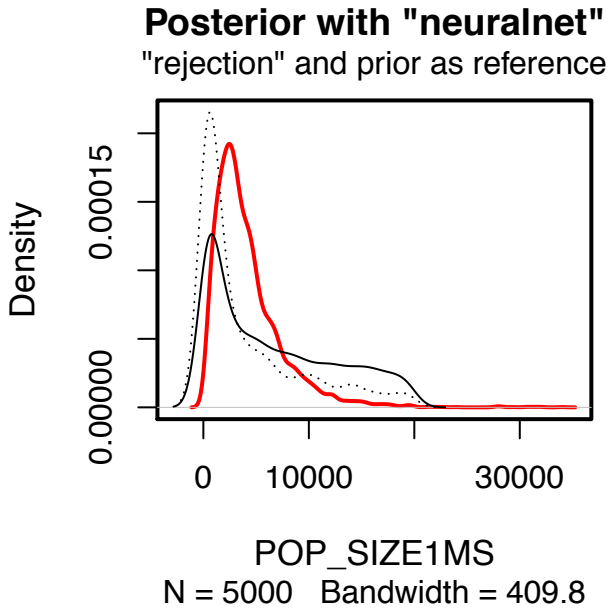

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0.0
0.1
0.2
0.3
0.4
0.5
MIGR2_1H

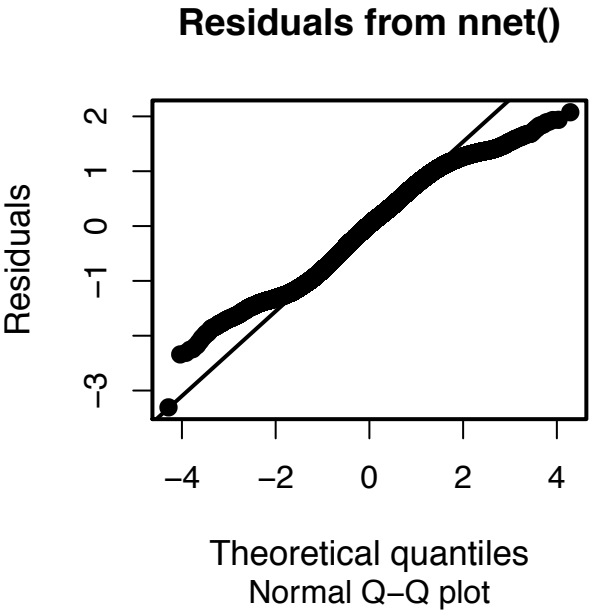

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0
5
10
15
20
0
1
2
3
MIGR2_1H
N = 5000 Bandwidth = 0.01757

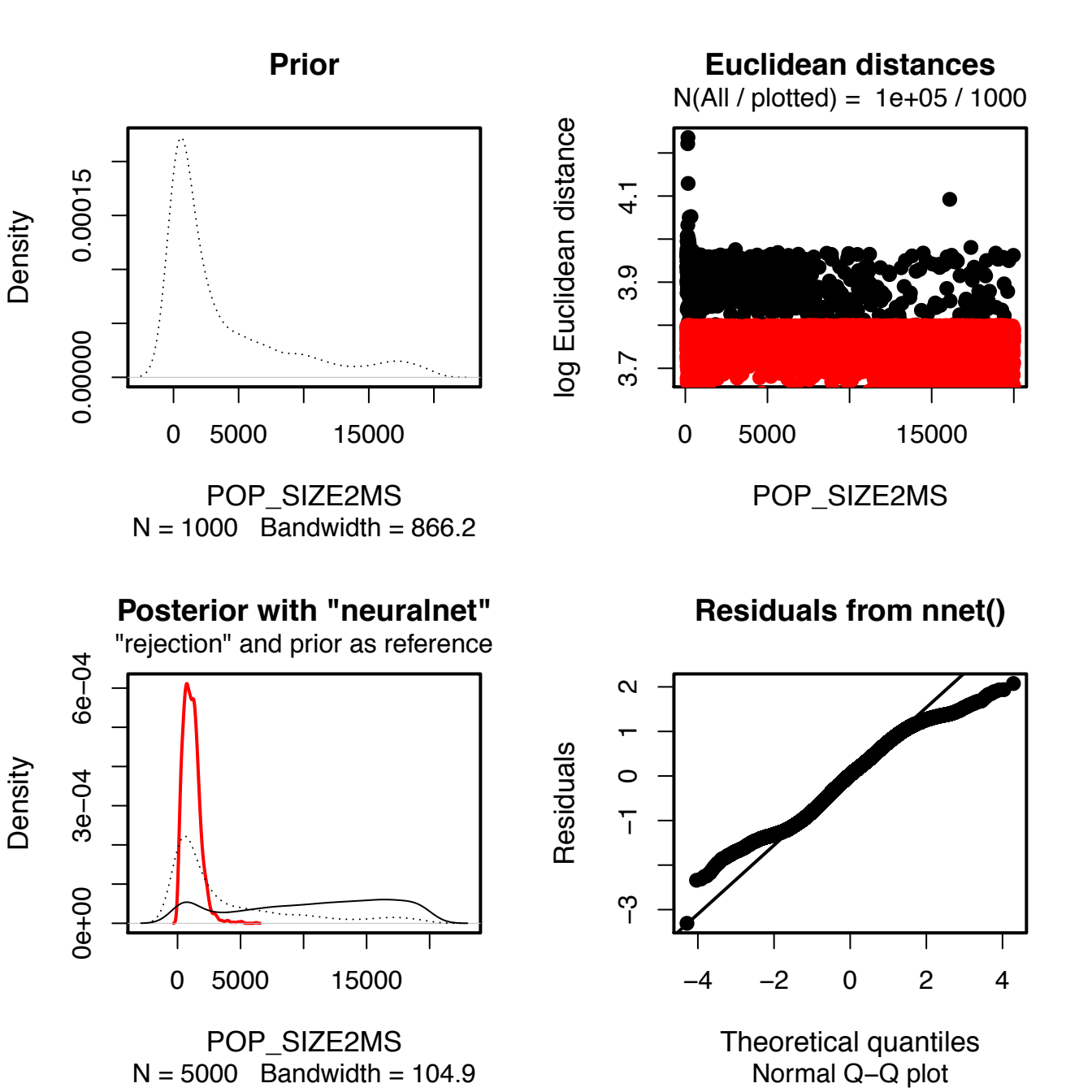

Residuals from nnet()
Residuals
−3
−1
0
1
2
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

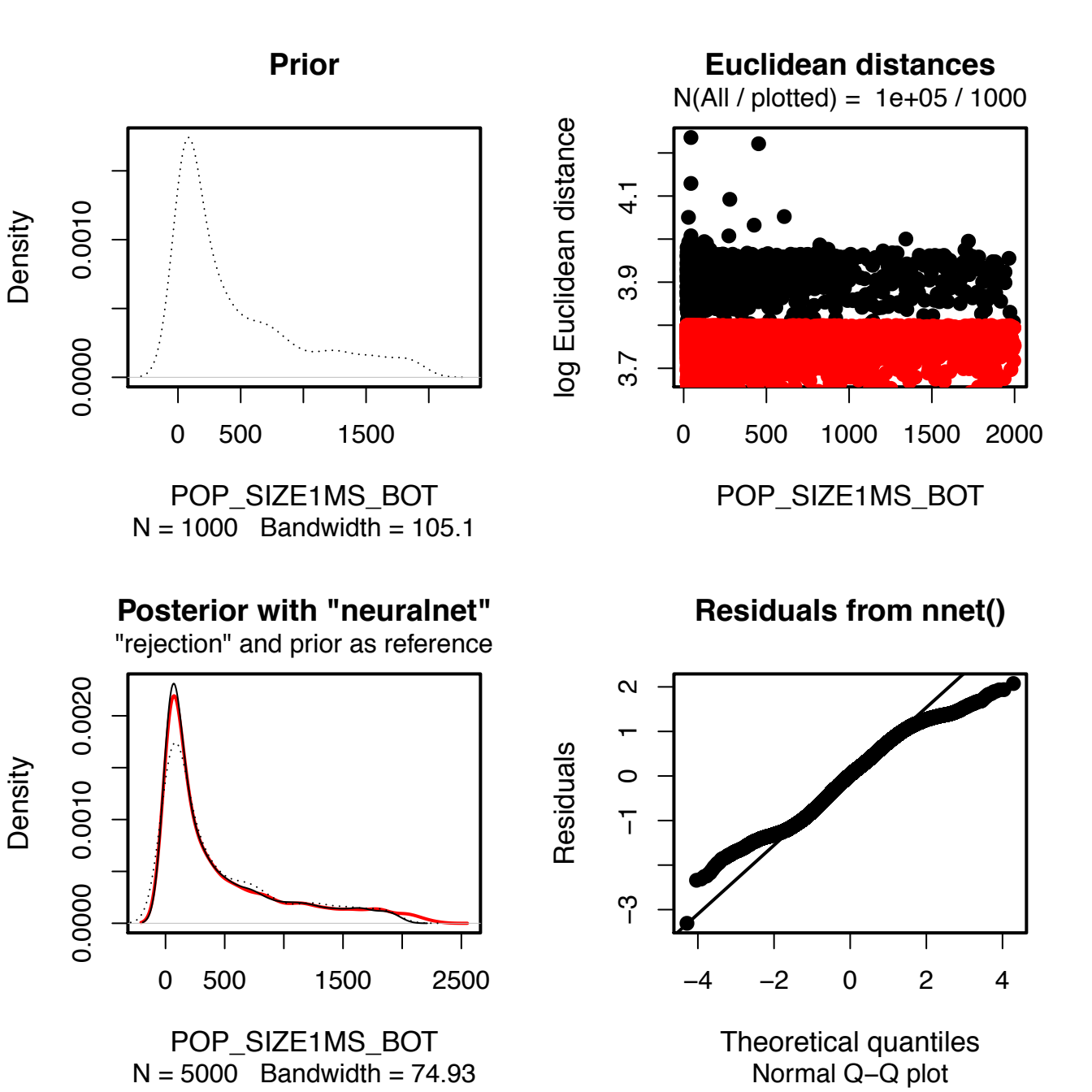

Prior
Density
0.00015
0.00000
0
5000
15000
POP_SIZE1MS
N = 1000 Bandwidth = 920.3

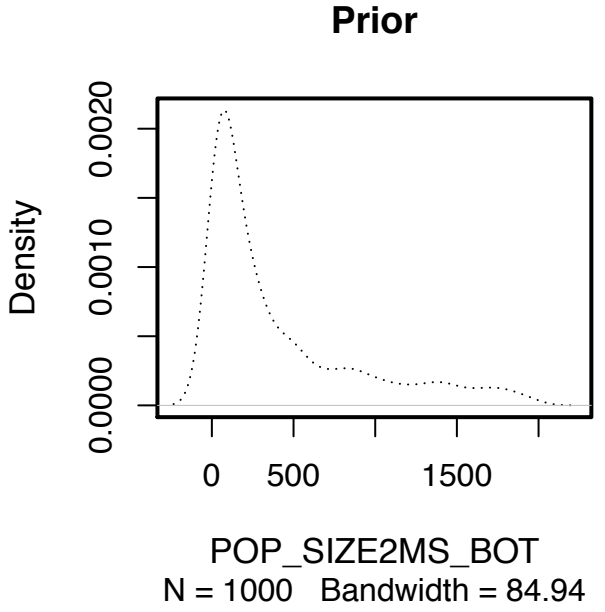

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
4.1
3.9
3.7
0
5000
15000
POP_SIZE1MS

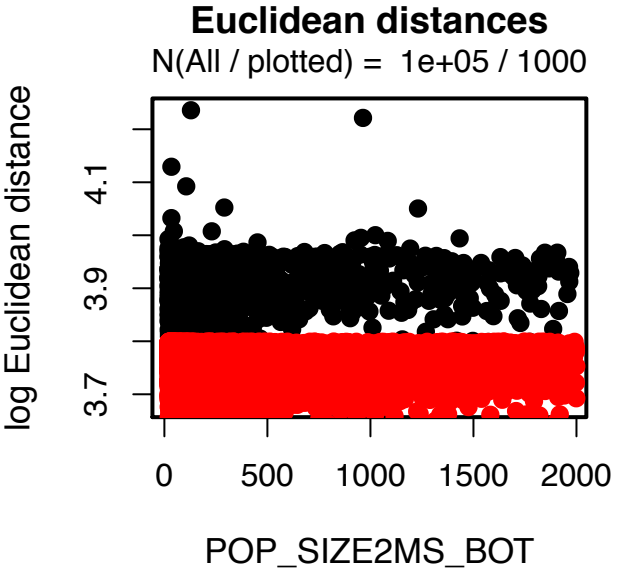

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.00015
0.00000
0
10000
30000
POP_SIZE1MS
N = 5000 Bandwidth = 409.8

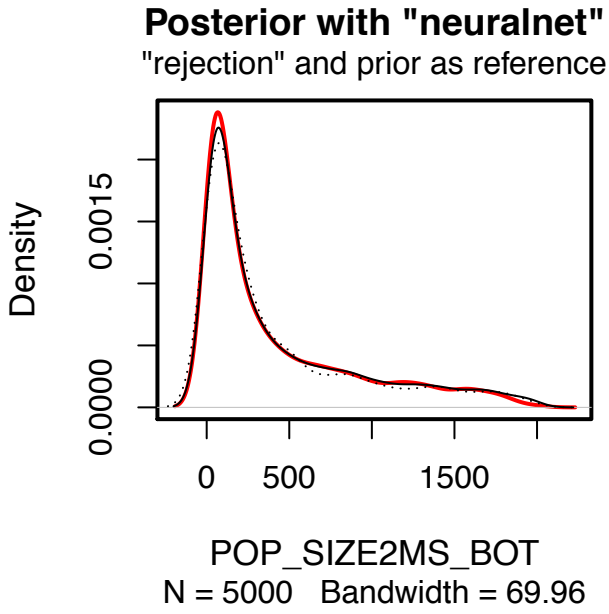

Residuals from nnet()
Residuals
2
1
0
−1
−3
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

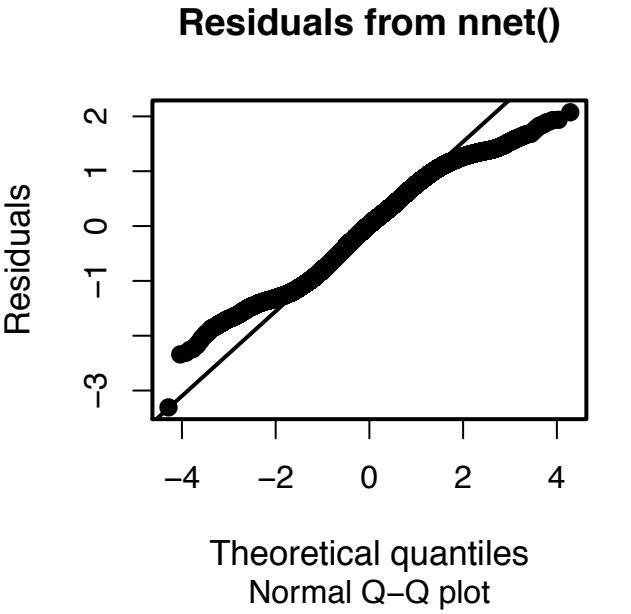

Prior
Density
0.00015
0.00000
0
5000
15000
POP_SIZE2MS
N = 1000 Bandwidth = 866.2
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
4.1
3.9
3.7
0
5000
15000
POP_SIZE2MS
Posterior with "neuralnet"
"rejection" and prior as reference
Density
6e−04
3e−04
0e+00
0
5000
15000
POP_SIZE2MS
N = 5000 Bandwidth = 104.9
Residuals from nnet()
Residuals
2
1
0
−1
−3
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

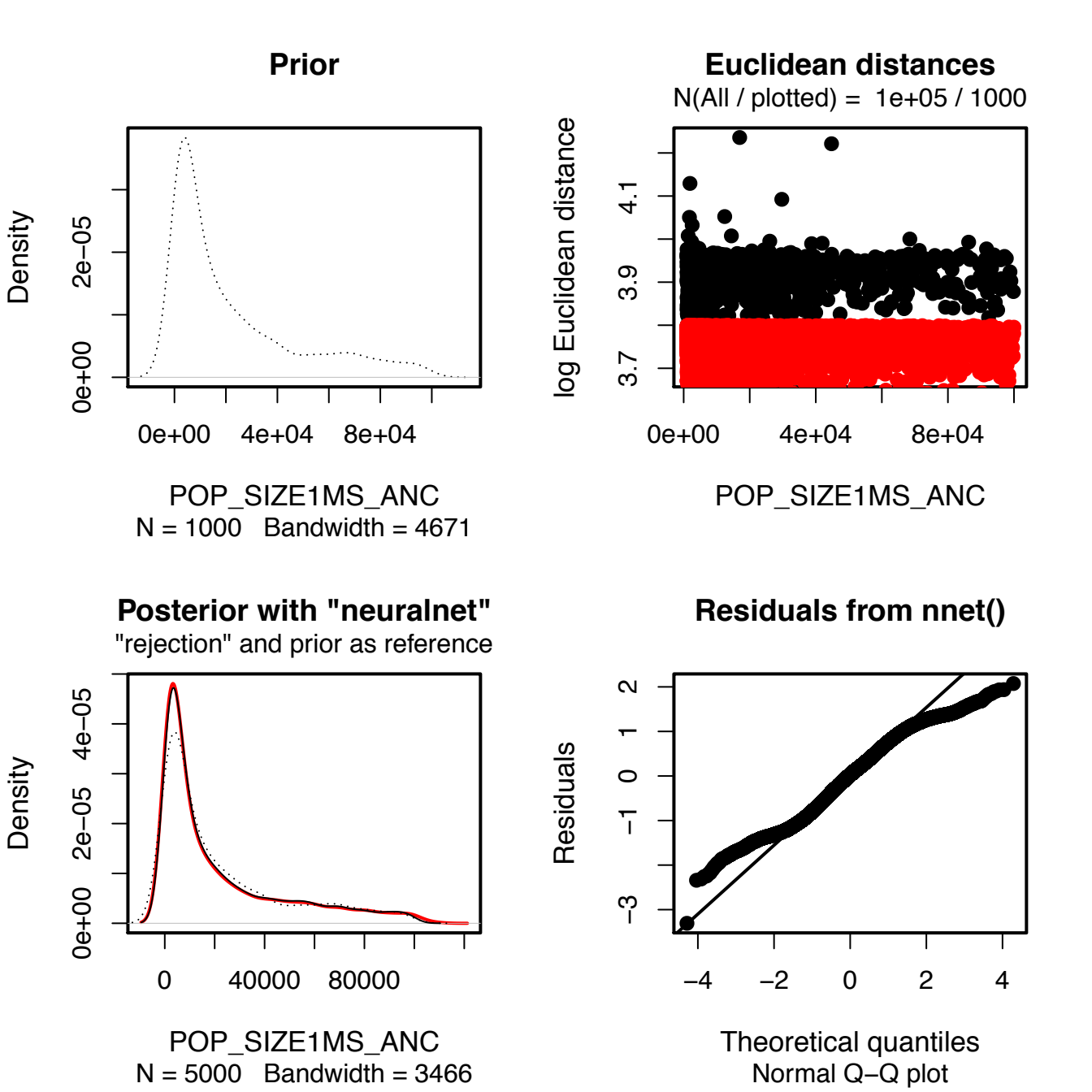

Prior
Density
0.0000
0.0010
0
500
1500
POP_SIZE1MS_BOT
N = 1000 Bandwidth = 105.1
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0
500
1000
1500
2000
POP_SIZE1MS_BOT
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0000
0.0010
0.0020
0
500
1500
2500
POP_SIZE1MS_BOT
N = 5000 Bandwidth = 74.93
Residuals from nnet()
Residuals
−3
−1
0
1
2
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

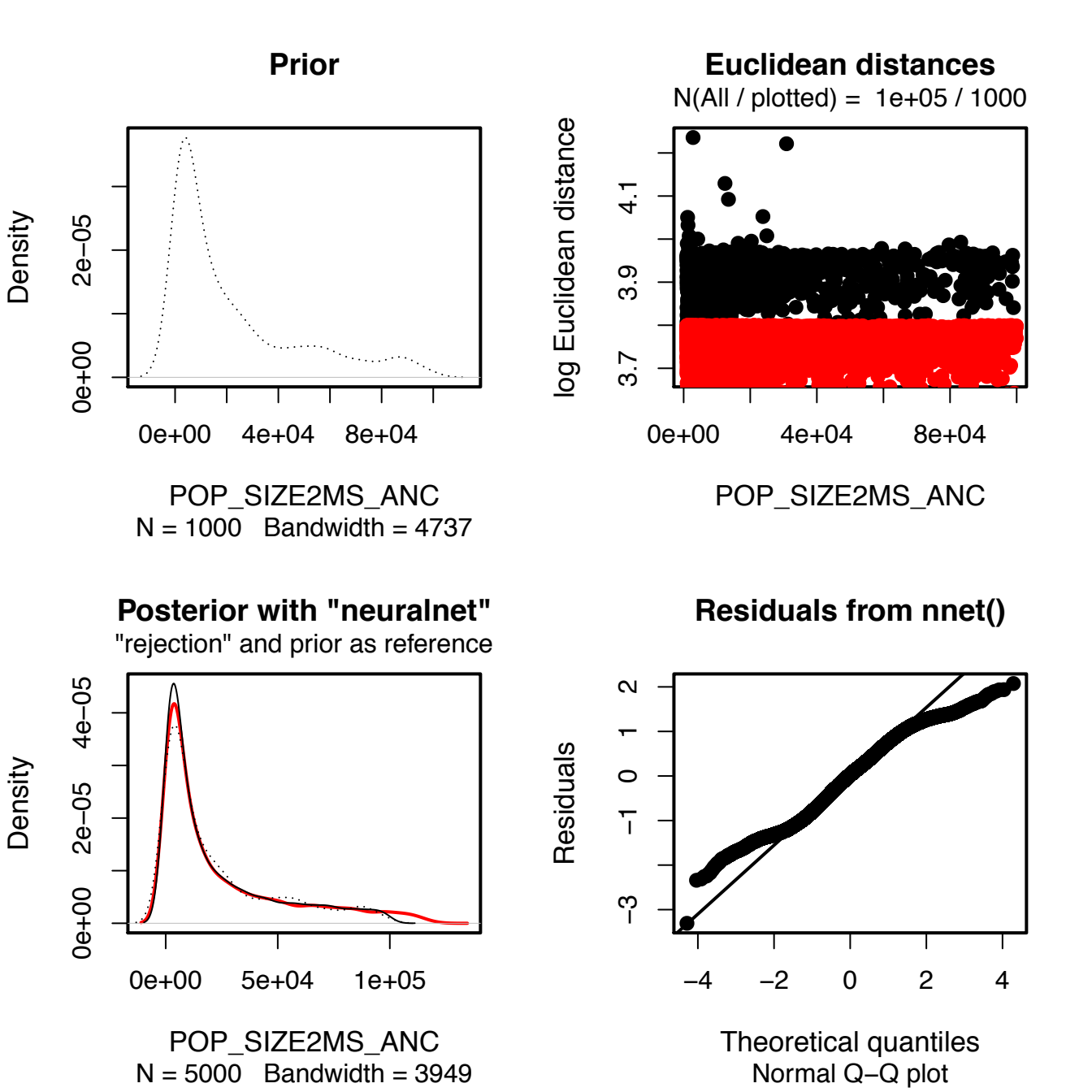

Prior
Density
0.0000
0.0010
0.0020
0
500
1500
POP_SIZE2MS_BOT
N = 1000 Bandwidth = 84.94

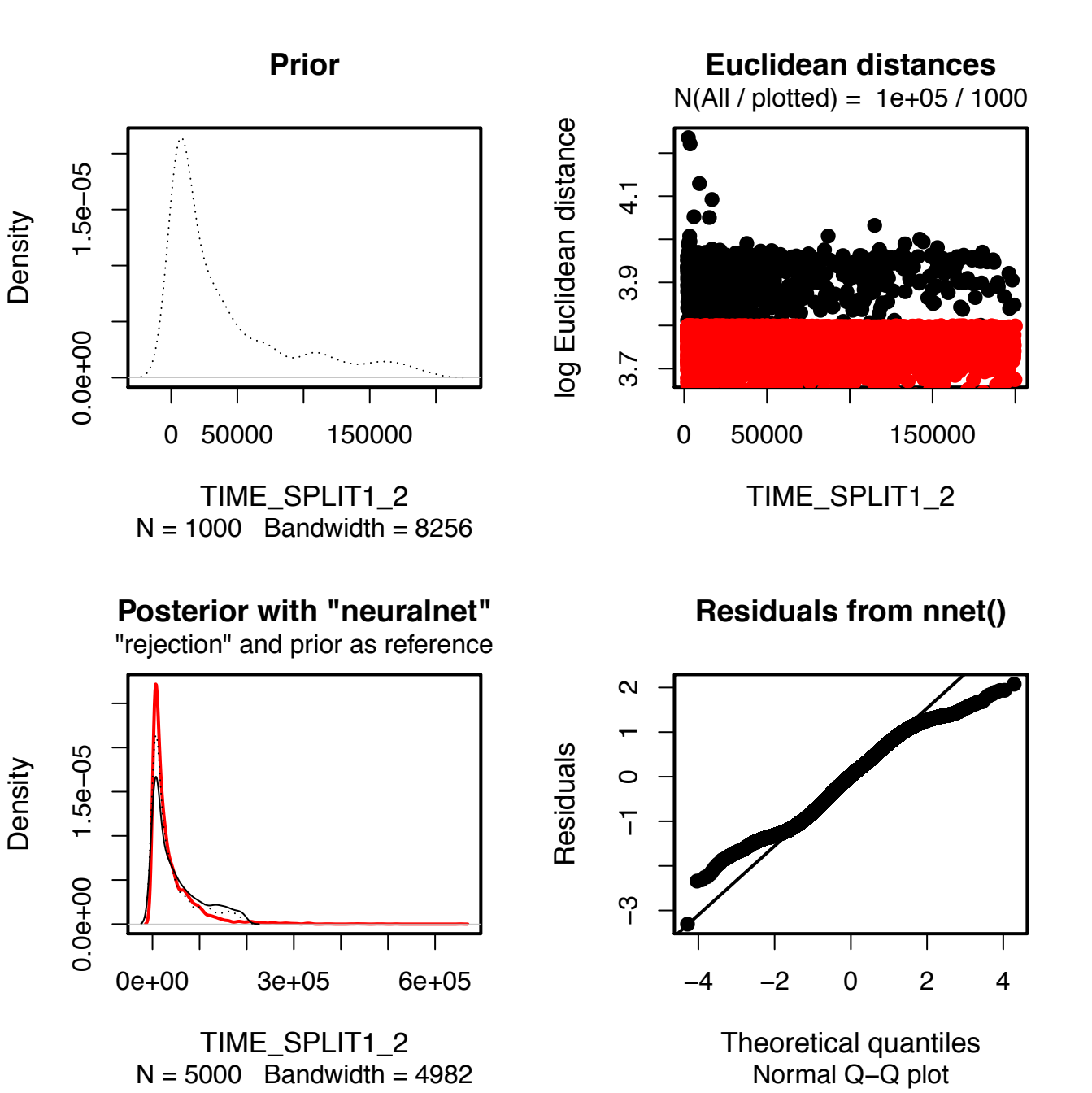

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0
500
1000
1500
2000
POP_SIZE2MS_BOT


Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0000
0.0015
0
500
1500
POP_SIZE2MS_BOT
N = 5000 Bandwidth = 69.96

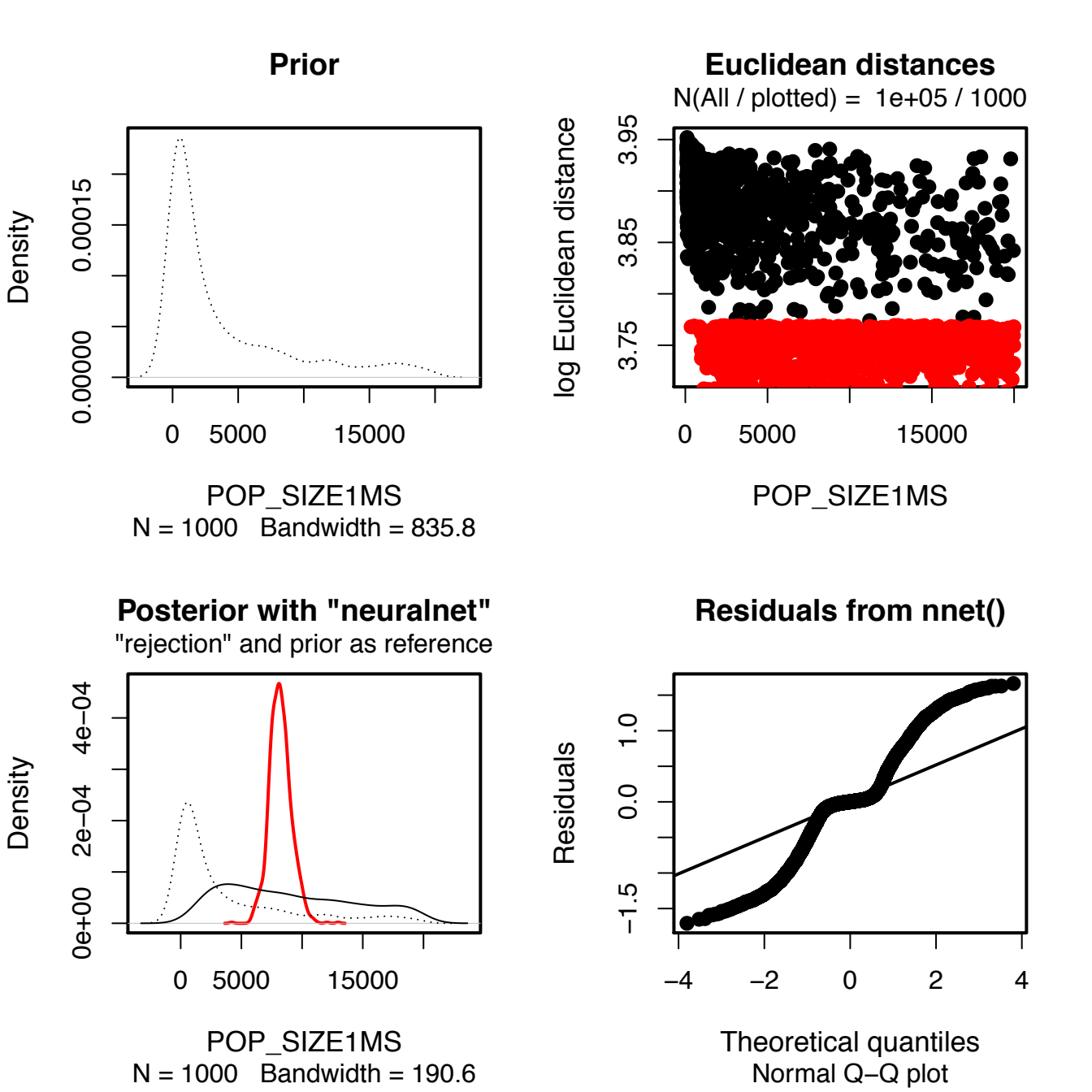

Residuals from nnet()
Residuals
−3
−1
0
1
2
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

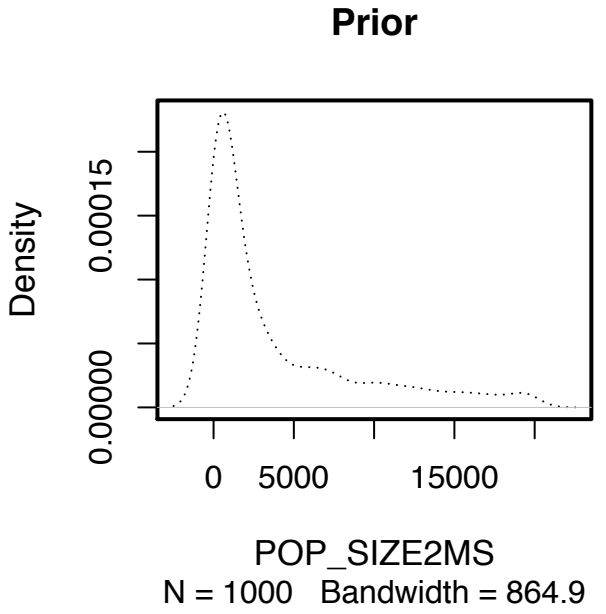

Prior
Density
0e+00
2e−05
0e+00
4e+04
8e+04
POP_SIZE1MS_ANC
N = 1000 Bandwidth = 4671
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0e+00
4e+04
8e+04
POP_SIZE1MS_ANC
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0e+00
2e−05
4e−05
0
40000
80000
POP_SIZE1MS_ANC
N = 5000 Bandwidth = 3466
Residuals from nnet()
Residuals
−3
−1
0
1
2
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

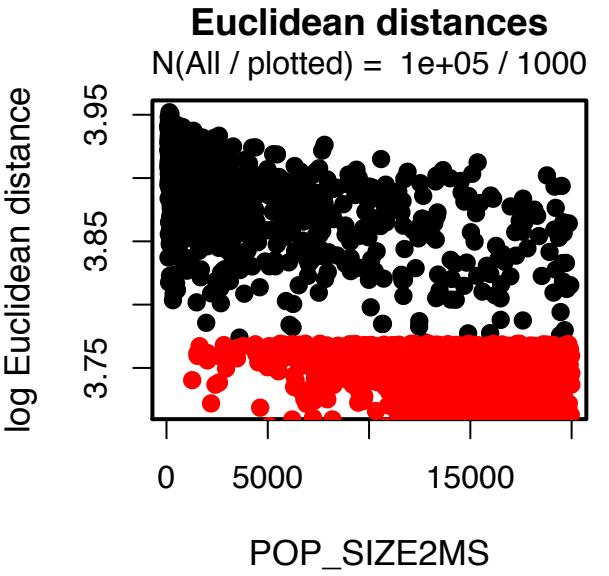

Prior
Density
0e+00
2e−05
0e+00
4e+04
8e+04
POP_SIZE2MS_ANC
N = 1000 Bandwidth = 4737
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0e+00
4e+04
8e+04
POP_SIZE2MS_ANC
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0e+00
2e−05
4e−05
0e+00
5e+04
1e+05
POP_SIZE2MS_ANC
N = 5000 Bandwidth = 3949
Residuals from nnet()
Residuals
−3
−1
0
1
2
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

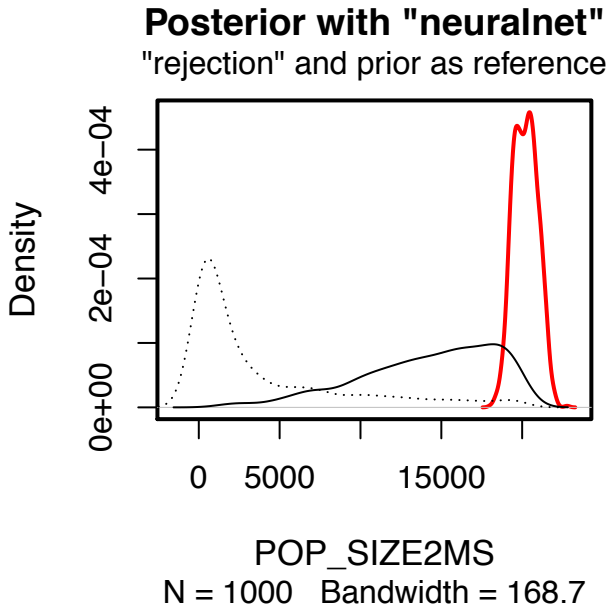

Prior
Density
0.0e+00
1.5e−05
0
50000
150000
TIME_SPLIT1_2
N = 1000 Bandwidth = 8256
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.7
3.9
4.1
0
50000
150000
TIME_SPLIT1_2
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0e+00
1.5e−05
0e+00
3e+05
6e+05
TIME_SPLIT1_2
N = 5000 Bandwidth = 4982
Residuals from nnet()
Residuals
−3
−1
0
1
2
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

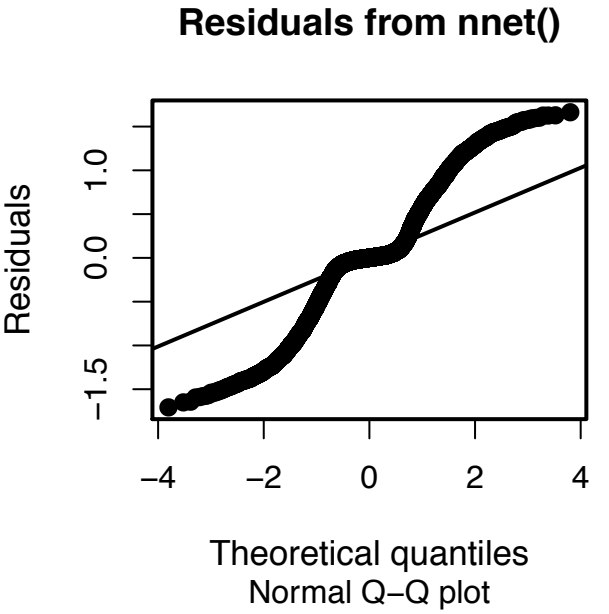
Scenario 3: isolation following divergence, with no subsequent gene flow

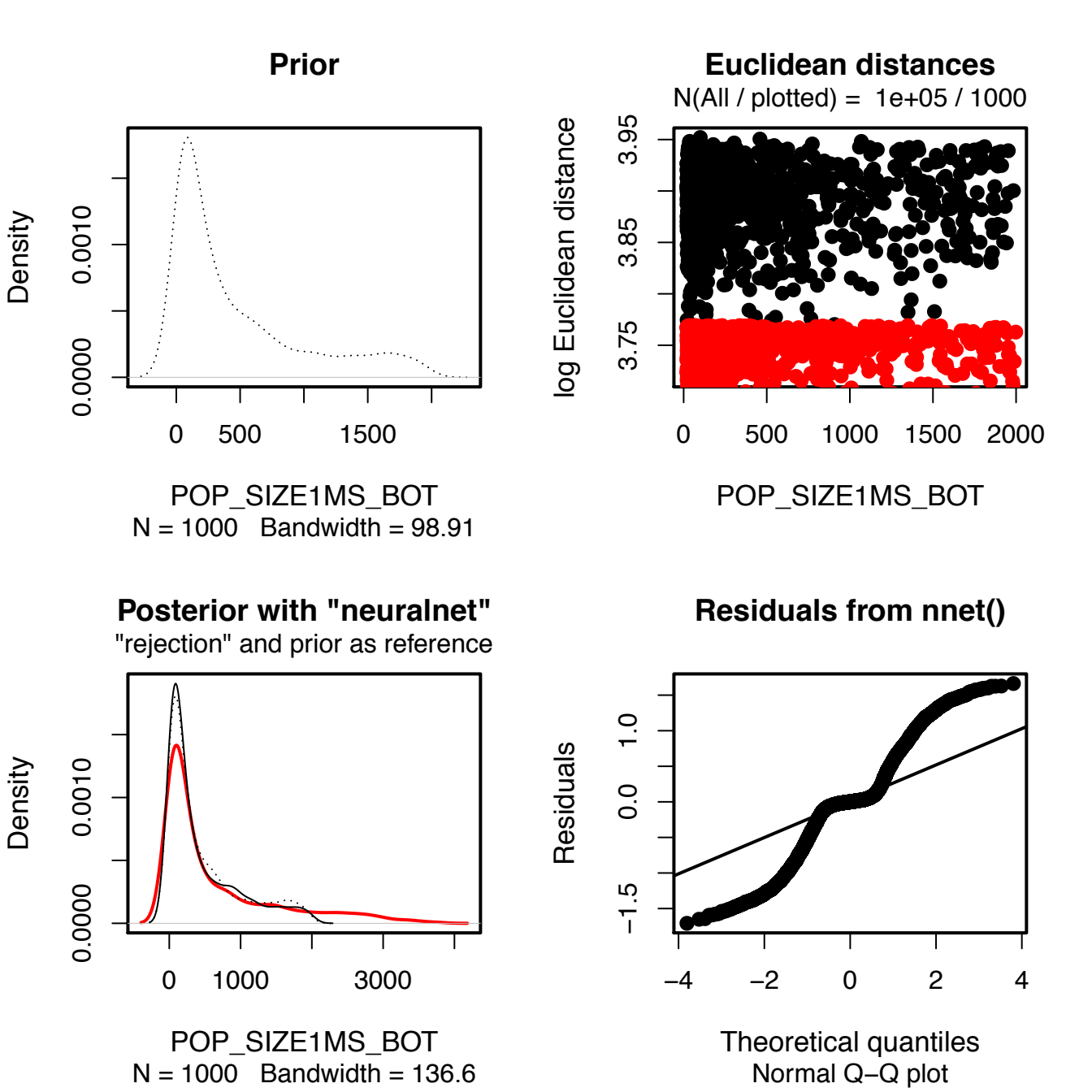

Prior
Density
0.00000
0.00015
0
5000
15000
POP_SIZE1MS
N = 1000 Bandwidth = 835.8
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.75
3.85
3.95
0
5000
15000
POP_SIZE1MS
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0e+00
2e−04
4e−04
0
5000
15000
POP_SIZE1MS
N = 1000 Bandwidth = 190.6
Residuals from nnet()
Residuals
−1.5
0.0
1.0
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

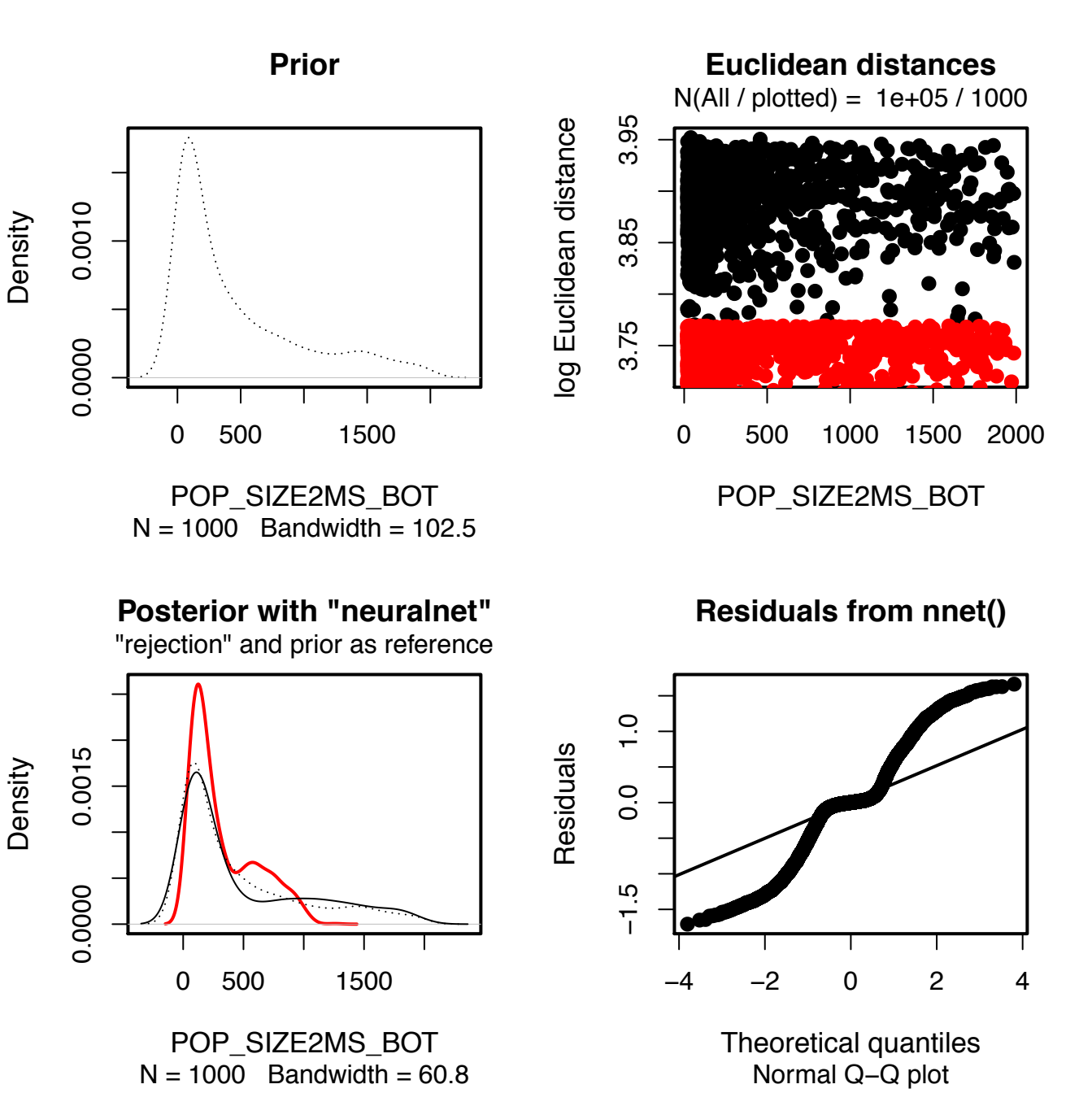

Prior
Density
0.00015
0.00000
0
5000
15000
POP_SIZE2MS
N = 1000 Bandwidth = 864.9

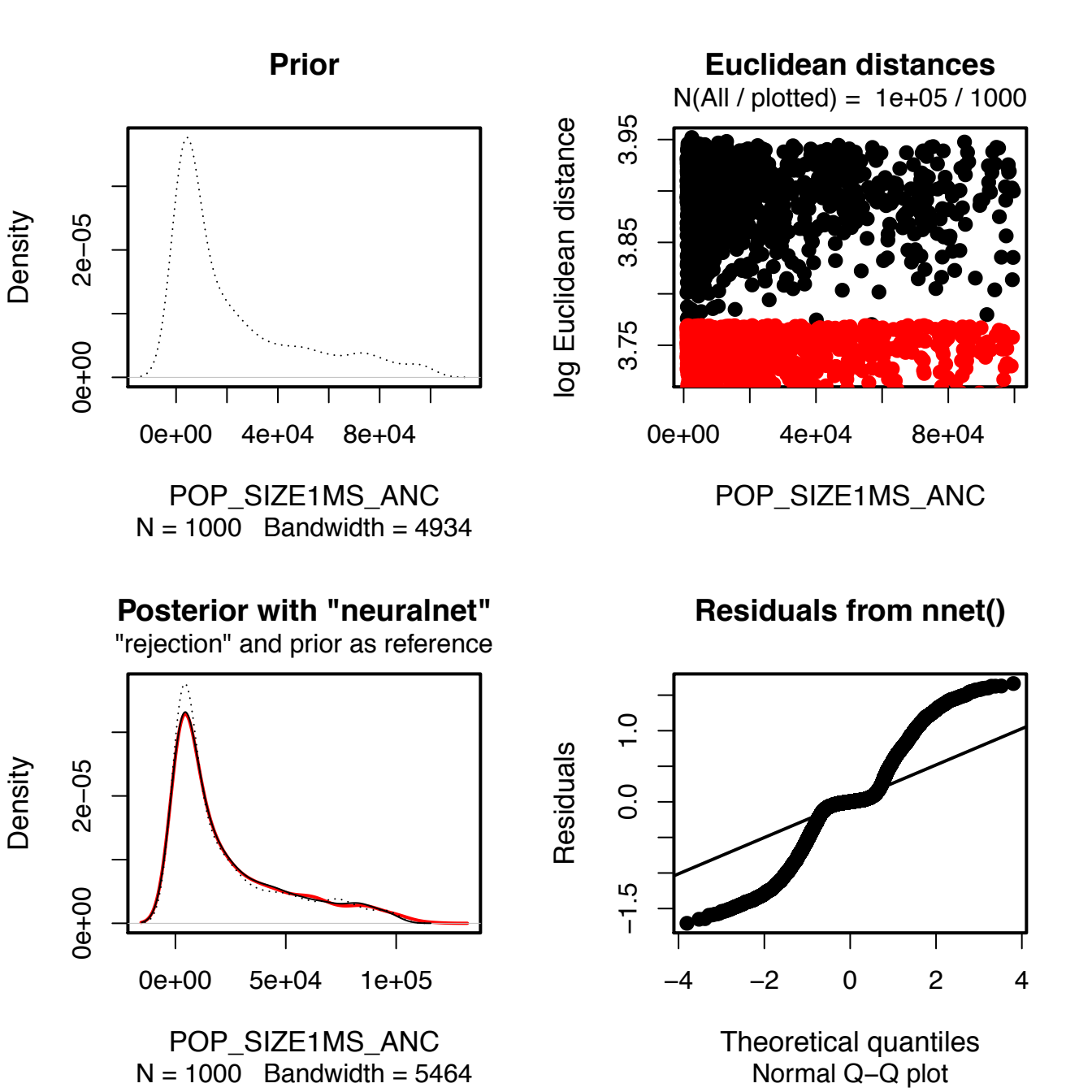

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.95
3.85
3.75
0
5000
15000
POP_SIZE2MS

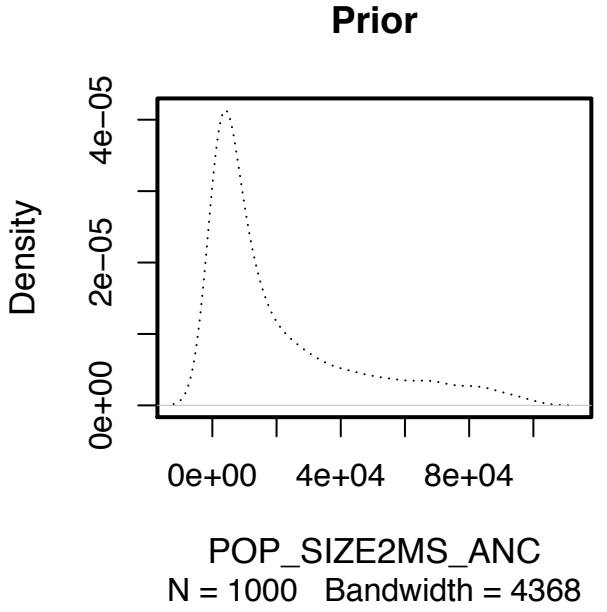

Posterior with "neuralnet"
"rejection" and prior as reference
Density
4e−04
2e−04
0e+00
0
5000
15000
POP_SIZE2MS
N = 1000 Bandwidth = 168.7

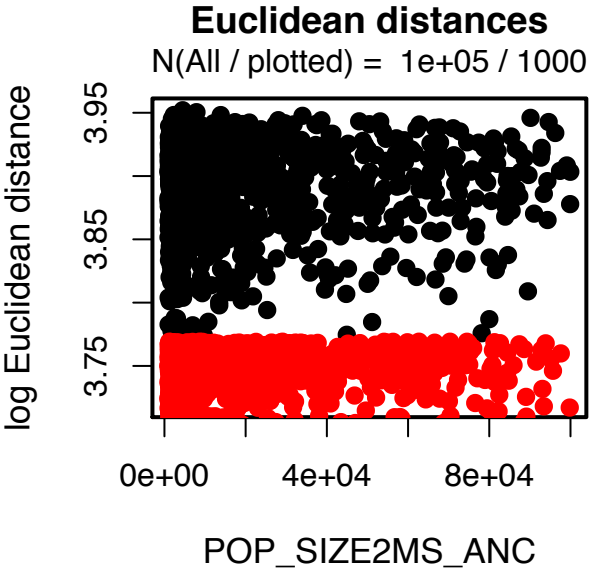

Residuals from nnet()
Residuals
1.0
0.0
−1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

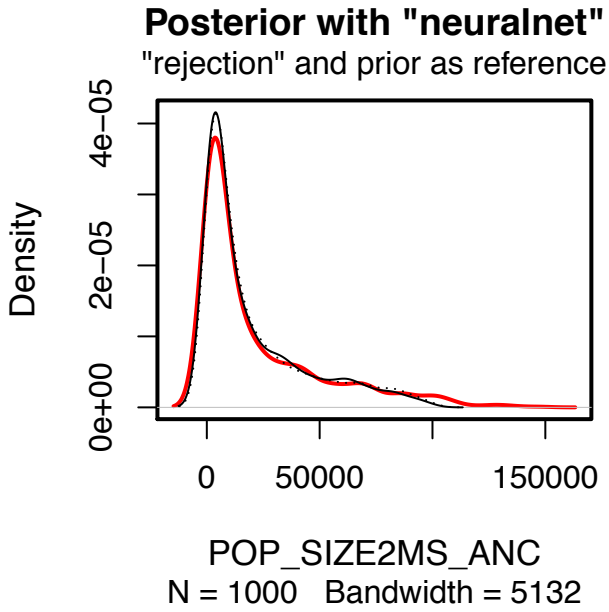

Prior
Density
0.0000
0.0010
0
500
1500
POP_SIZE1MS_BOT
N = 1000 Bandwidth = 98.91
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.75
3.85
3.95
0
500
1000
1500
2000
POP_SIZE1MS_BOT
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0000
0.0010
0
1000
3000
POP_SIZE1MS_BOT
N = 1000 Bandwidth = 136.6
Residuals from nnet()
Residuals
−1.5
0.0
1.0
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

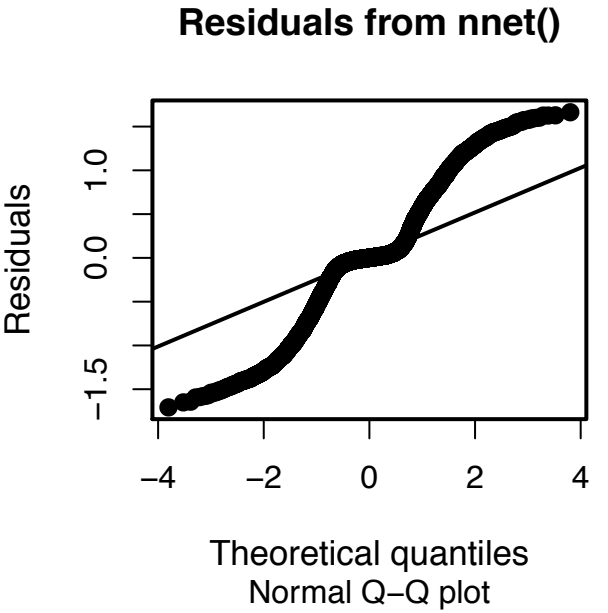

Prior
Density
0.0000
0.0010
0
500
1500
POP_SIZE2MS_BOT
N = 1000 Bandwidth = 102.5
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.75
3.85
3.95
0
500
1000
1500
2000
POP_SIZE2MS_BOT
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0000
0.0015
0
500
1500
POP_SIZE2MS_BOT
N = 1000 Bandwidth = 60.8
Residuals from nnet()
Residuals
−1.5
0.0
1.0
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

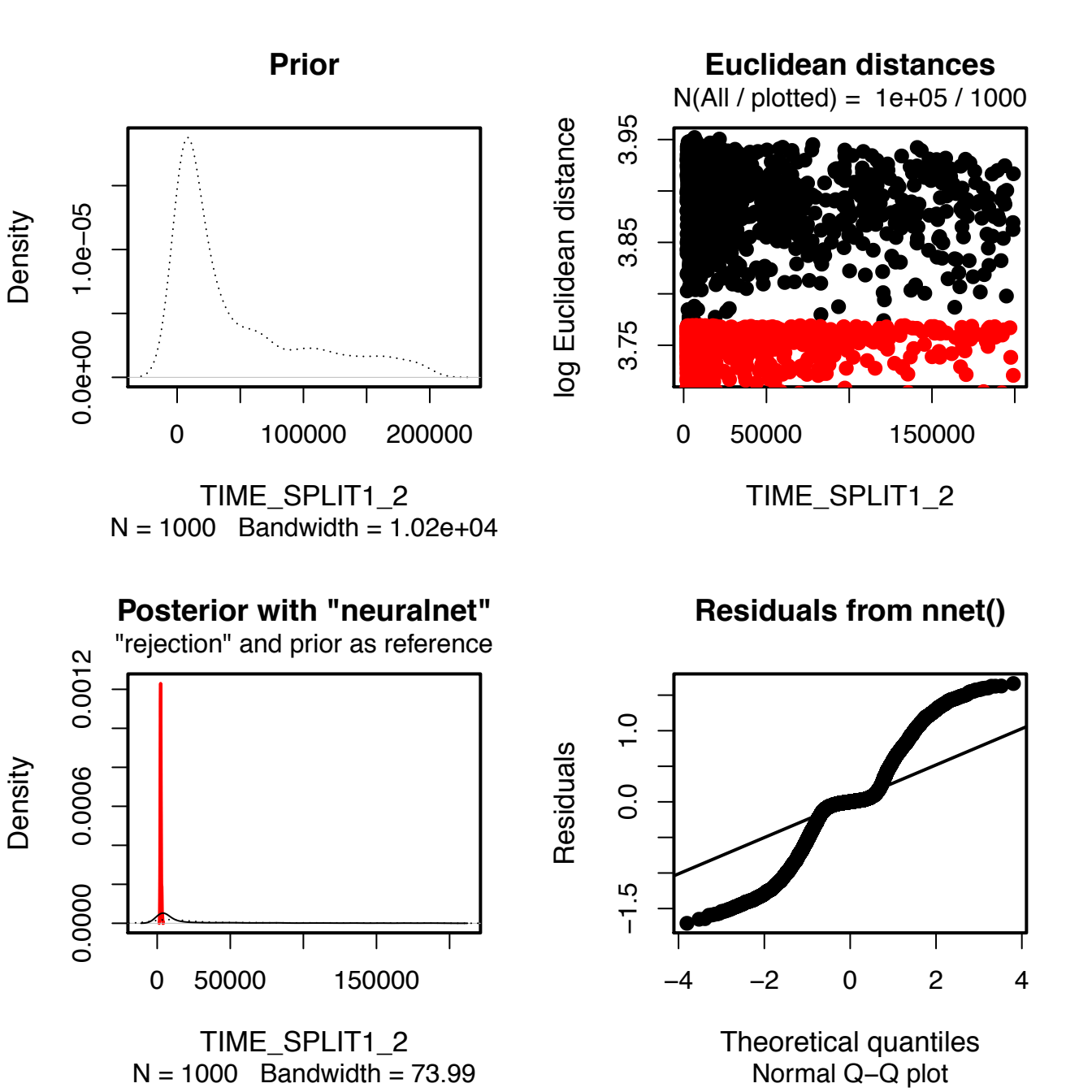

Prior
Density
0e+00
2e−05
0e+00
4e+04
8e+04
POP_SIZE1MS_ANC
N = 1000 Bandwidth = 4934
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.75
3.85
3.95
0e+00
4e+04
8e+04
POP_SIZE1MS_ANC
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0e+00
2e−05
0e+00
5e+04
1e+05
POP_SIZE1MS_ANC
N = 1000 Bandwidth = 5464
Residuals from nnet()
Residuals
−1.5
0.0
1.0
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot


Prior
Density
0e+00
2e−05
4e−05
0e+00
4e+04
8e+04
POP_SIZE2MS_ANC
N = 1000 Bandwidth = 4368

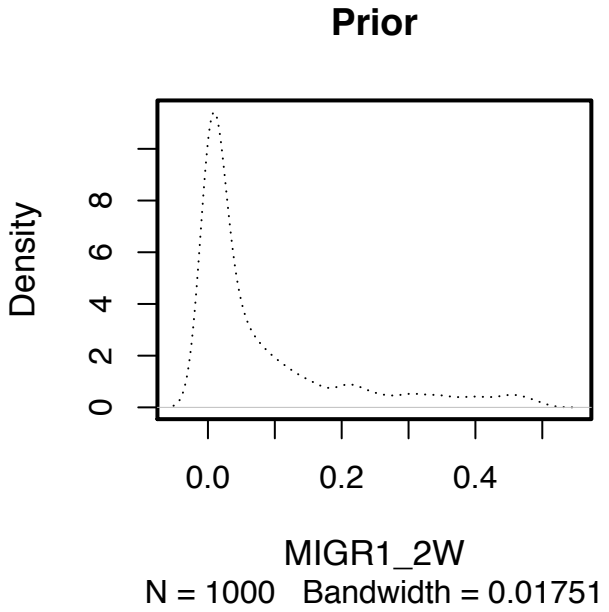

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.75
3.85
3.95
0e+00
4e+04
8e+04
POP_SIZE2MS_ANC

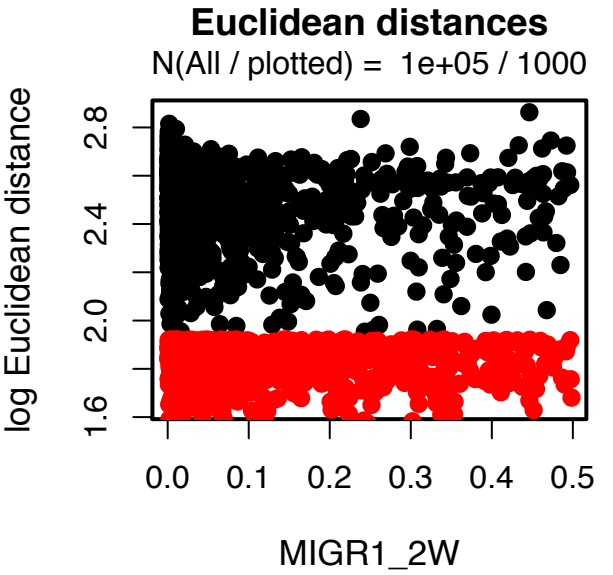

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0e+00
2e−05
4e−05
0
50000
150000
POP_SIZE2MS_ANC
N = 1000 Bandwidth = 5132

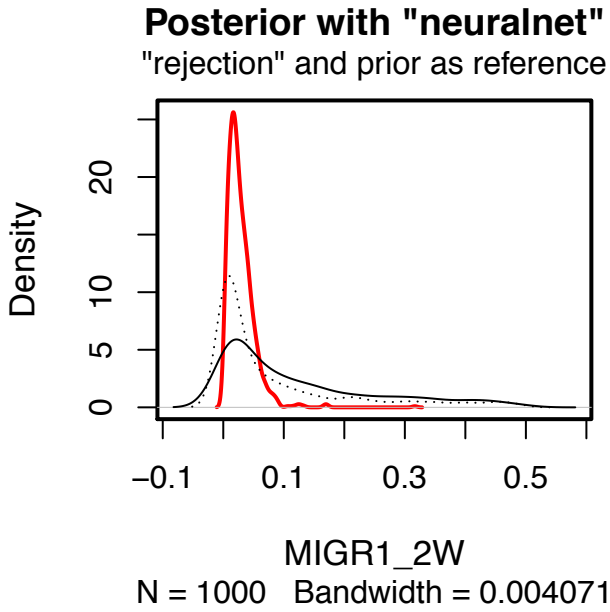

Residuals from nnet()
Residuals
−1.5
0.0
1.0
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

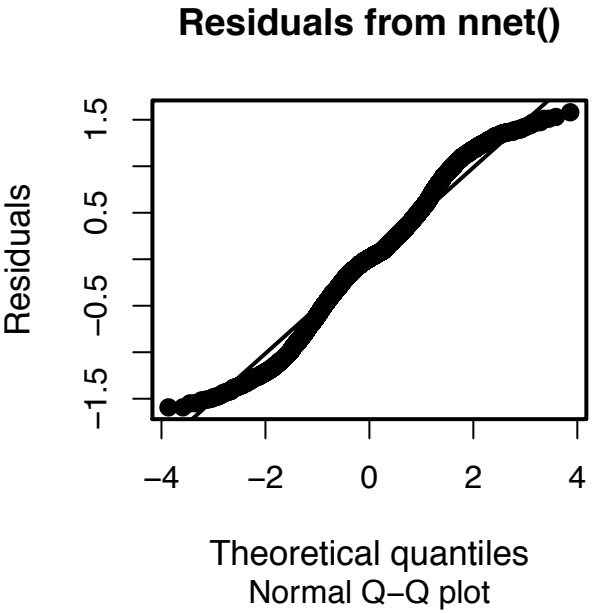

Prior
Density
0.0e+00
1.0e−05
0
100000
200000
TIME_SPLIT1_2
N = 1000 Bandwidth = 1.02e+04
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
3.75
3.85
3.95
0
50000
150000
TIME_SPLIT1_2
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0000
0.0006
0.0012
0
50000
150000
TIME_SPLIT1_2
N = 1000 Bandwidth = 73.99
Residuals from nnet()
Residuals
−1.5
0.0
1.0
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

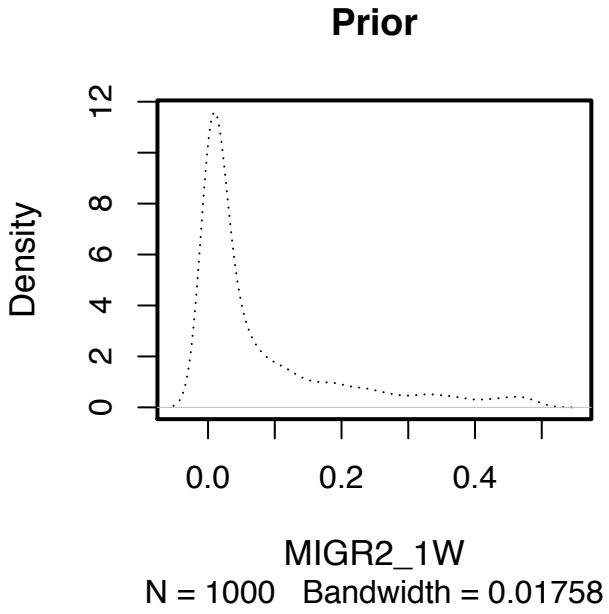
Scenario 4: isolation following divergence, with gene flow with one migration rate since the whaling era M_W

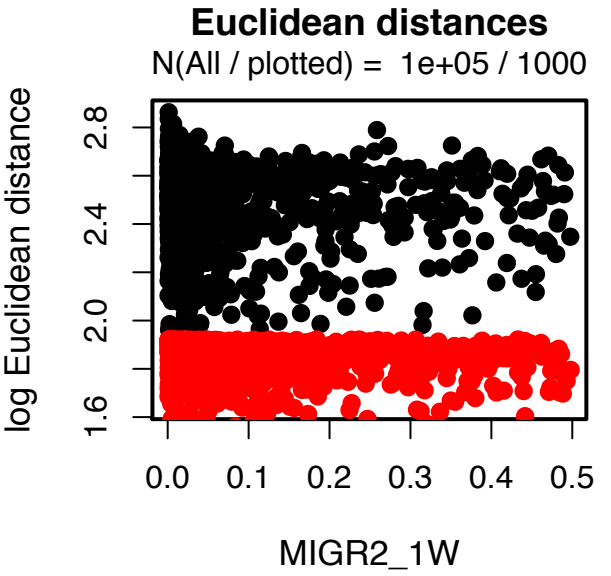

Prior
Density
0
2
4
6
8
0.0
0.2
0.4
MIGR1_2W
N = 1000 Bandwidth = 0.01751

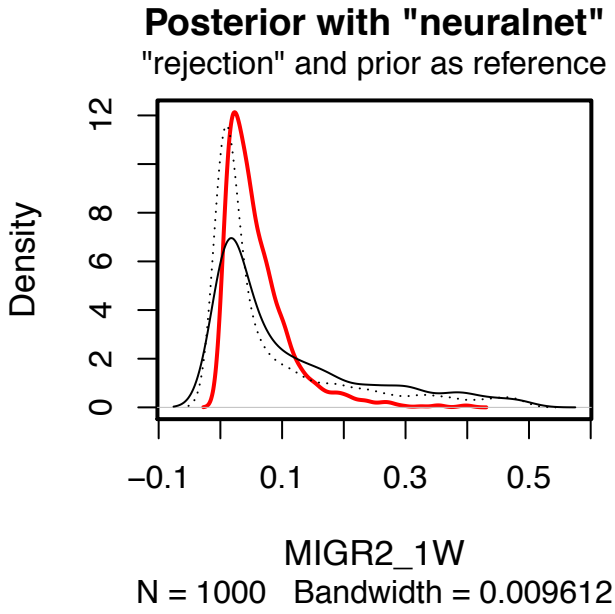

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
1.6
2.0
2.4
2.8
0.0
0.1
0.2
0.3
0.4
0.5
MIGR1_2W

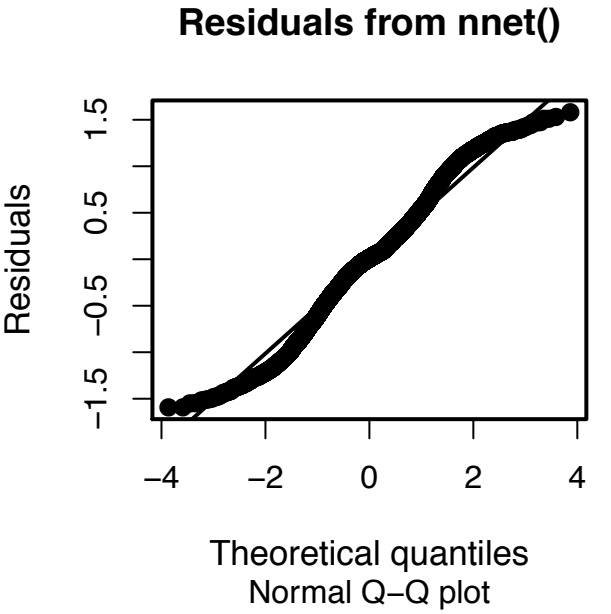

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0
5
10
20
−0.1
0.1
0.3
0.5
MIGR1_2W
N = 1000 Bandwidth = 0.004071

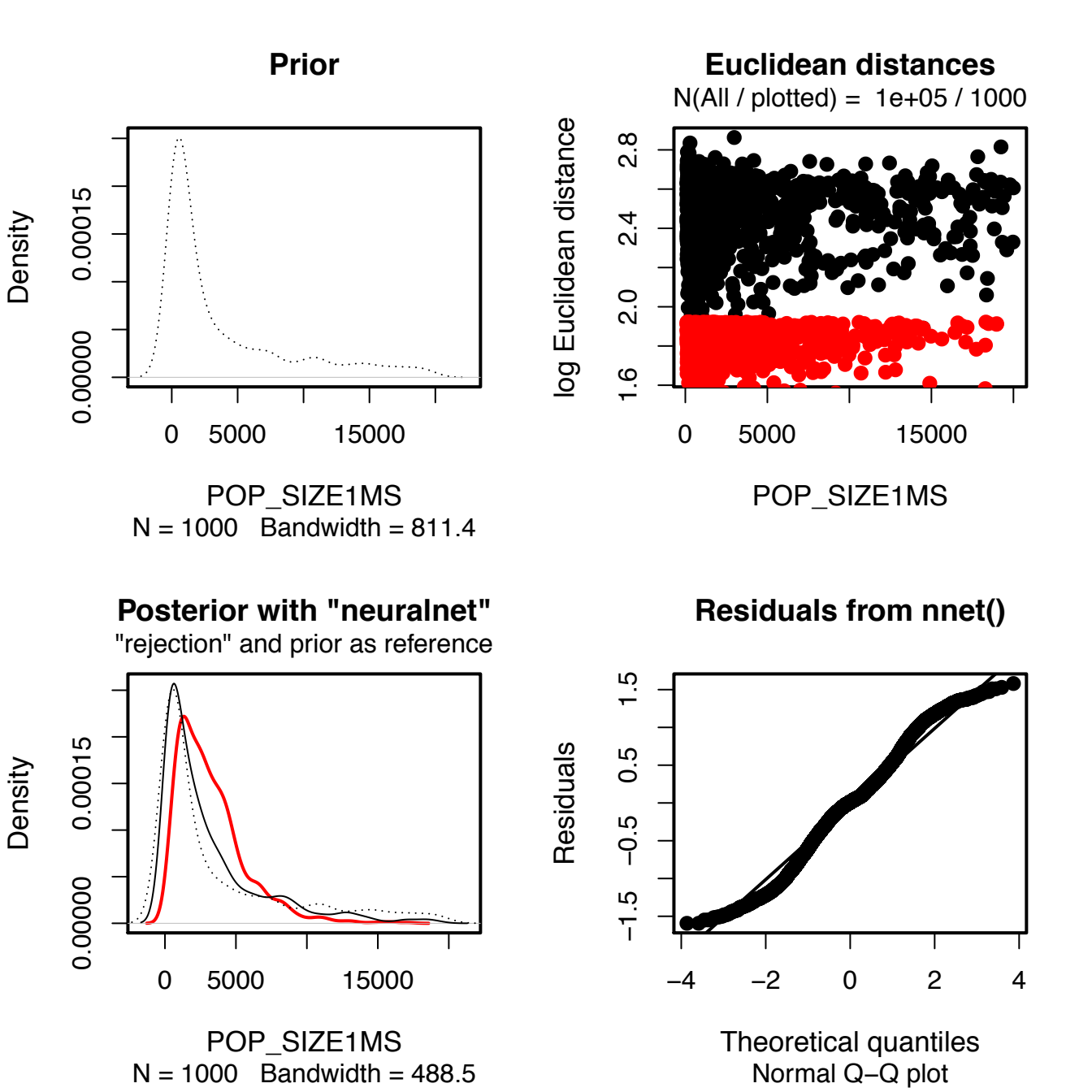

Residuals from nnet()
Residuals
−1.5
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

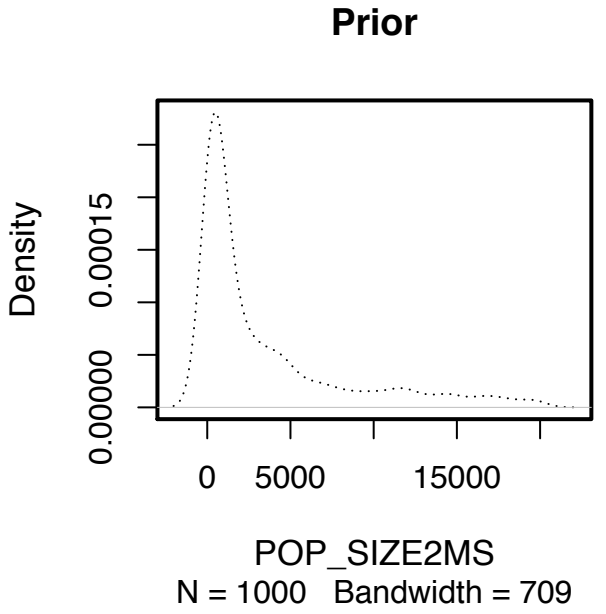

Prior
Density
0
2
4
6
8
12
0.0
0.2
0.4
MIGR2_1W
N = 1000 Bandwidth = 0.01758

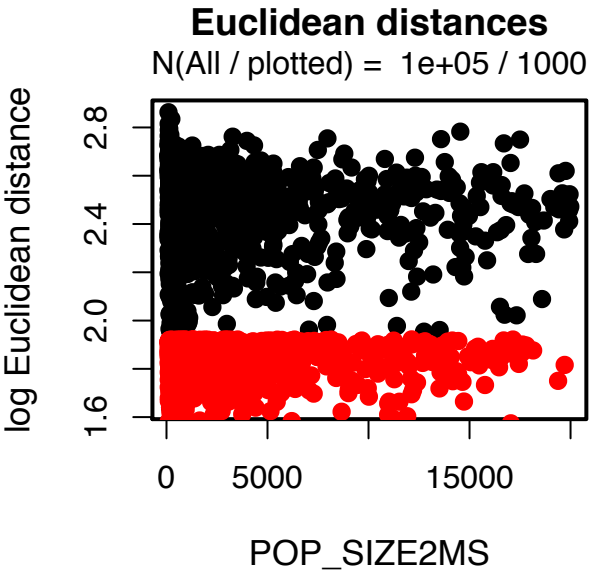

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
1.6
2.0
2.4
2.8
0.0
0.1
0.2
0.3
0.4
0.5
MIGR2_1W

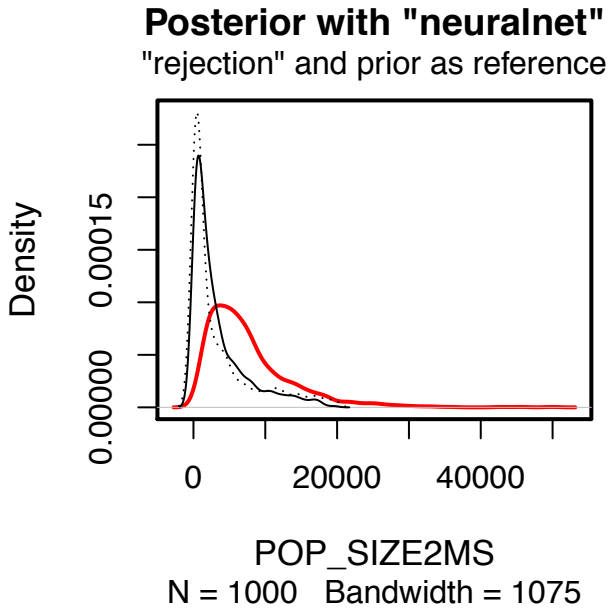

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0
2
4
6
8
12
−0.1
0.1
0.3
0.5
MIGR2_1W
N = 1000 Bandwidth = 0.009612

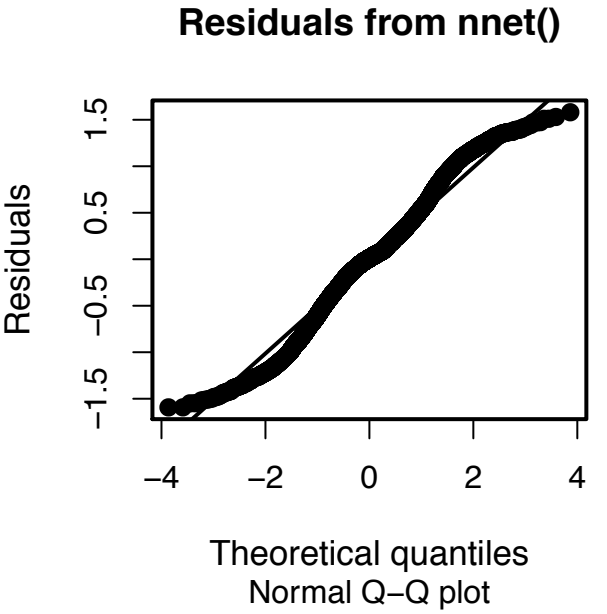

Residuals from nnet()
Residuals
−1.5
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

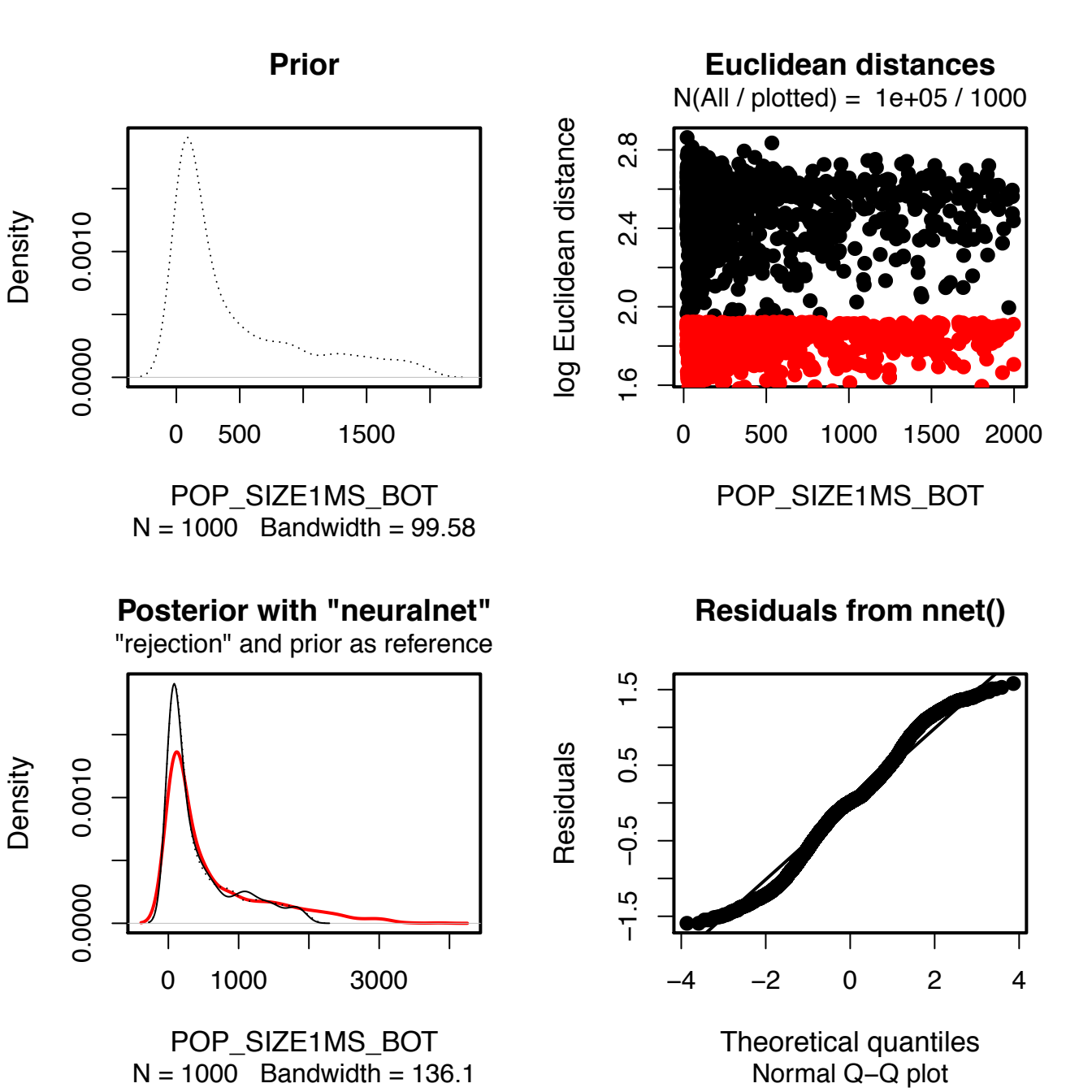

Prior
Density
0.00000
0.00015
0
5000
15000
POP_SIZE1MS
N = 1000 Bandwidth = 811.4
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
1.6
2.0
2.4
2.8
0
5000
15000
POP_SIZE1MS
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.00000
0.00015
0
5000
15000
POP_SIZE1MS
N = 1000 Bandwidth = 488.5
Residuals from nnet()
Residuals
−1.5
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

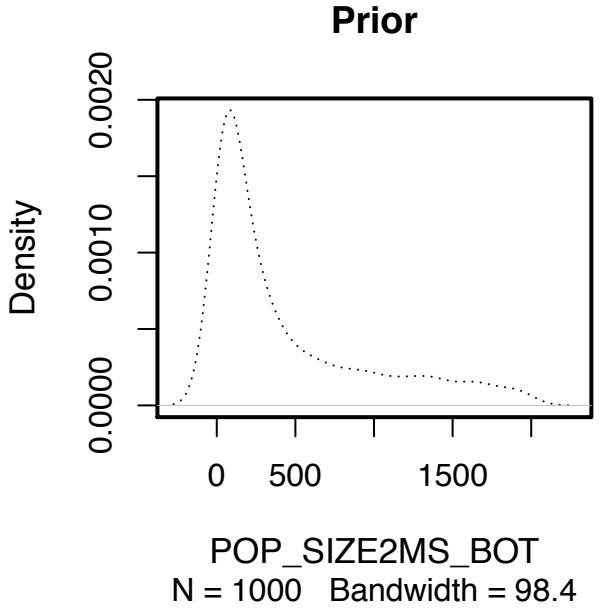

Prior
Density
0.00000
0.00015
0
5000
15000
POP_SIZE2MS
N = 1000 Bandwidth = 709

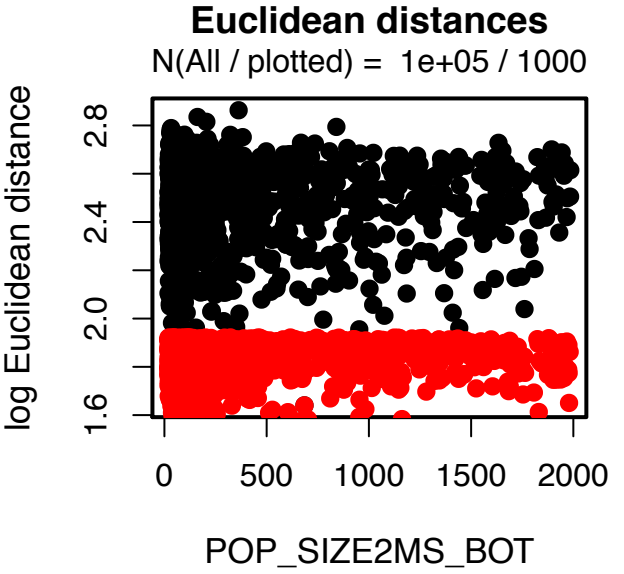

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
1.6
2.0
2.4
2.8
0
5000
15000
POP_SIZE2MS

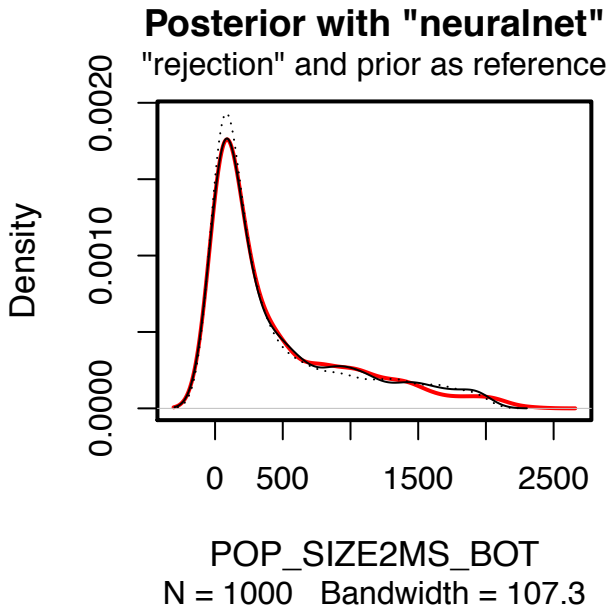

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.00000
0.00015
0
20000
40000
POP_SIZE2MS
N = 1000 Bandwidth = 1075

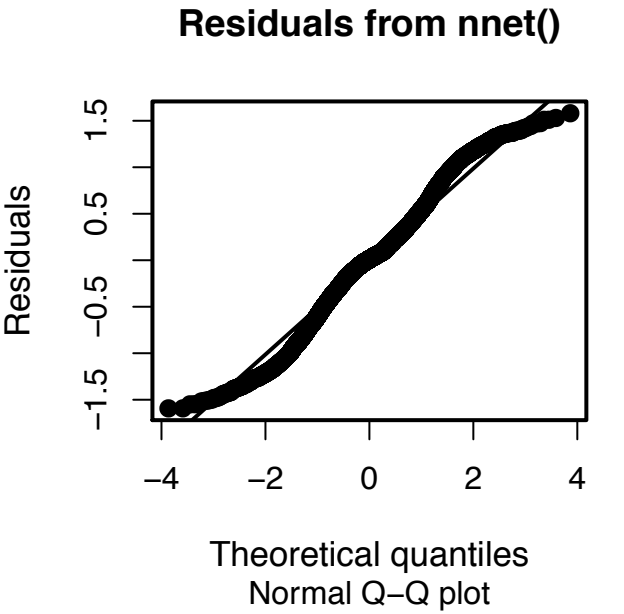

Residuals from nnet()
Residuals
−1.5
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

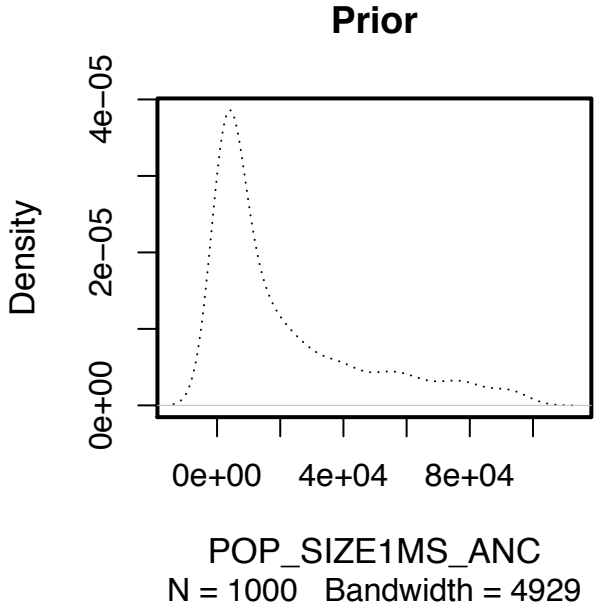

Prior
Density
0.0000
0.0010
0
500
1500
POP_SIZE1MS_BOT
N = 1000 Bandwidth = 99.58
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
1.6
2.0
2.4
2.8
0
500
1000
1500
2000
POP_SIZE1MS_BOT
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0000
0.0010
0
1000
3000
POP_SIZE1MS_BOT
N = 1000 Bandwidth = 136.1
Residuals from nnet()
Residuals
−1.5
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

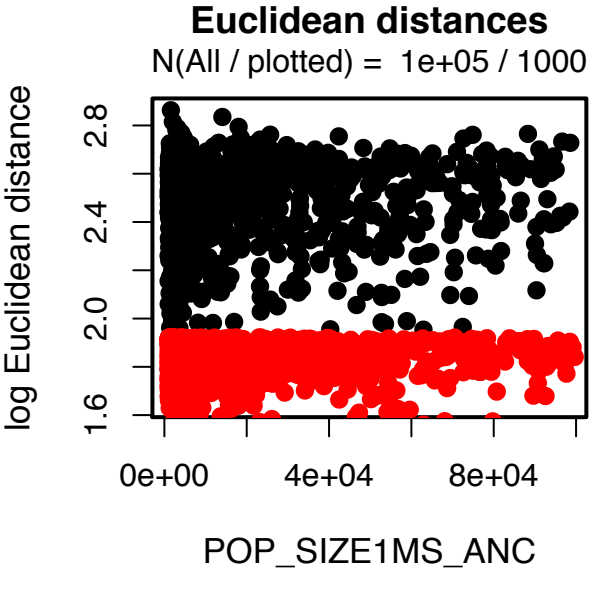

Prior
Density
0.0000
0.0010
0.0020
0
500
1500
POP_SIZE2MS_BOT
N = 1000 Bandwidth = 98.4

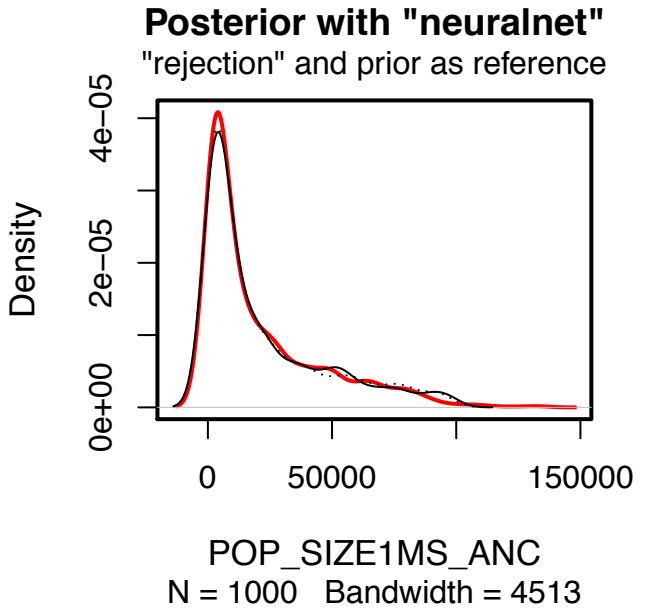

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
1.6
2.0
2.4
2.8
0
500
1000
1500
2000
POP_SIZE2MS_BOT

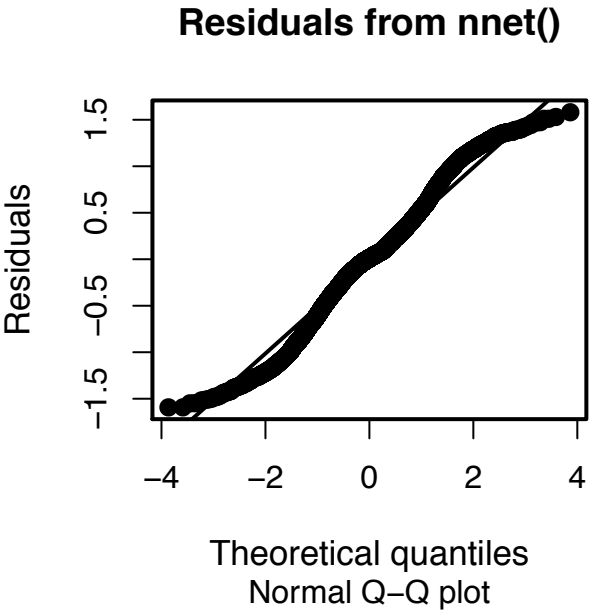

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0000
0.0010
0.0020
0
500
1500
2500
POP_SIZE2MS_BOT
N = 1000 Bandwidth = 107.3

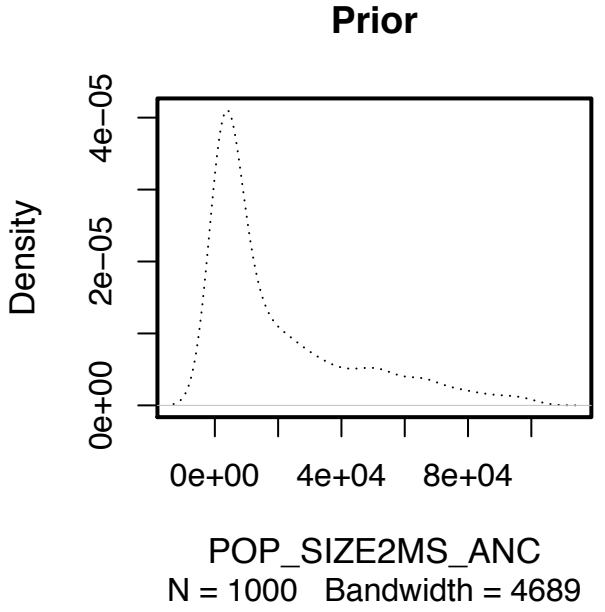

Residuals from nnet()
Residuals
−1.5
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

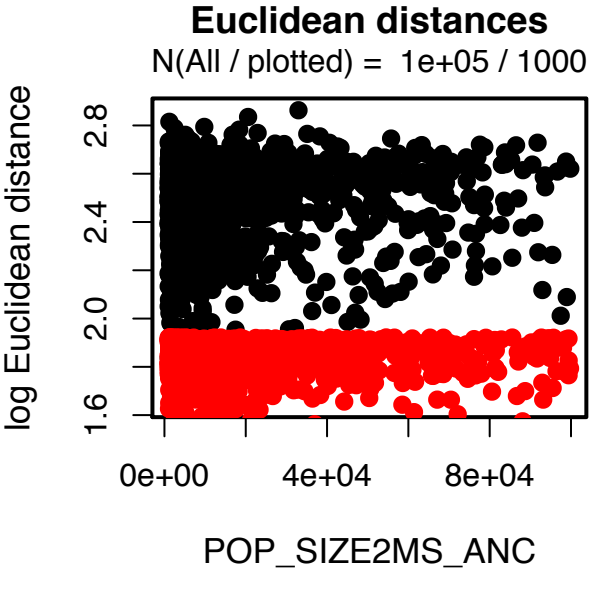

Prior
Density
0e+00
2e−05
4e−05
0e+00
4e+04
8e+04
POP_SIZE1MS_ANC
N = 1000 Bandwidth = 4929

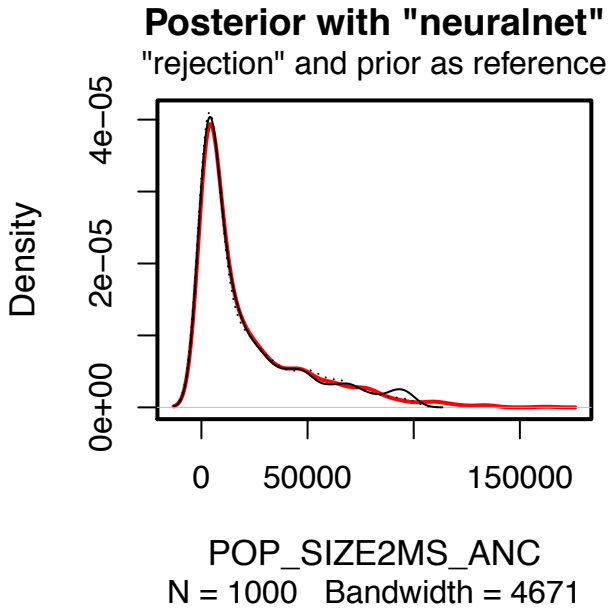

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
1.6
2.0
2.4
2.8
0e+00
4e+04
8e+04
POP_SIZE1MS_ANC

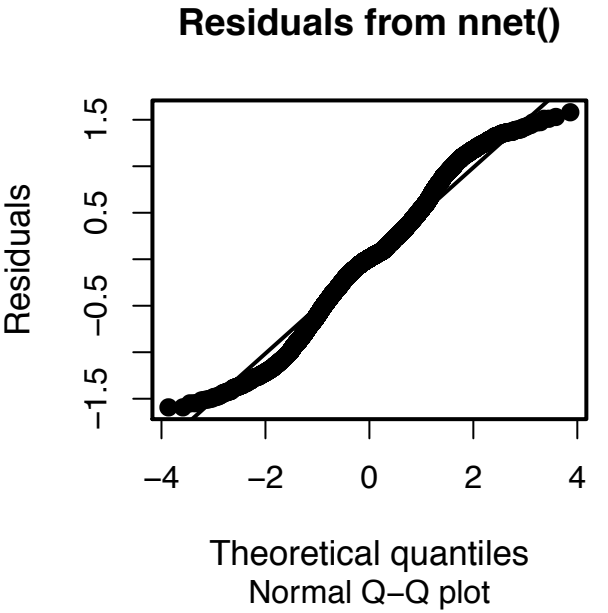

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0e+00
2e−05
4e−05
0
50000
150000
POP_SIZE1MS_ANC
N = 1000 Bandwidth = 4513

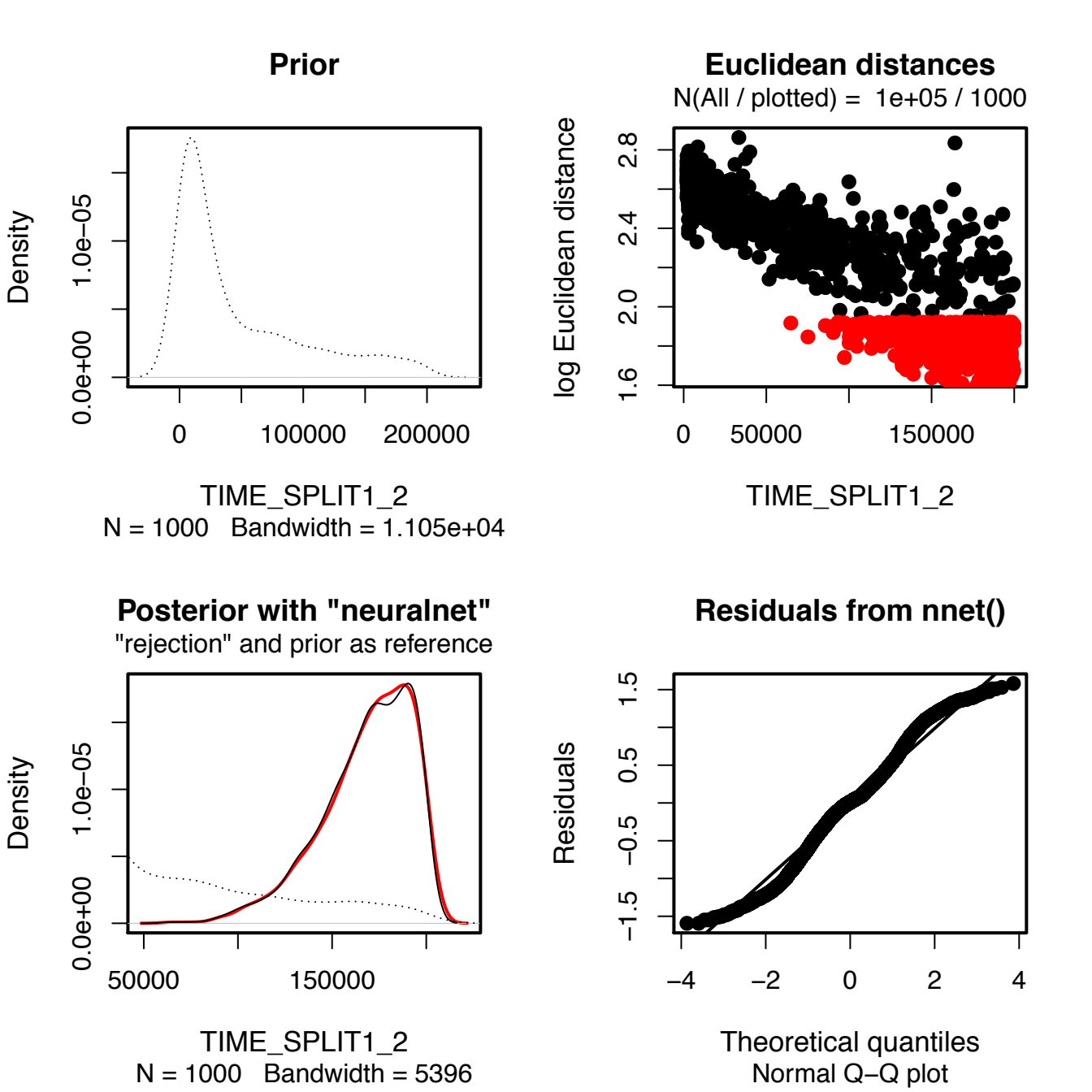

Residuals from nnet()
Residuals
−1.5
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot


Prior
Density
0e+00
2e−05
4e−05
0e+00
4e+04
8e+04
POP_SIZE2MS_ANC
N = 1000 Bandwidth = 4689

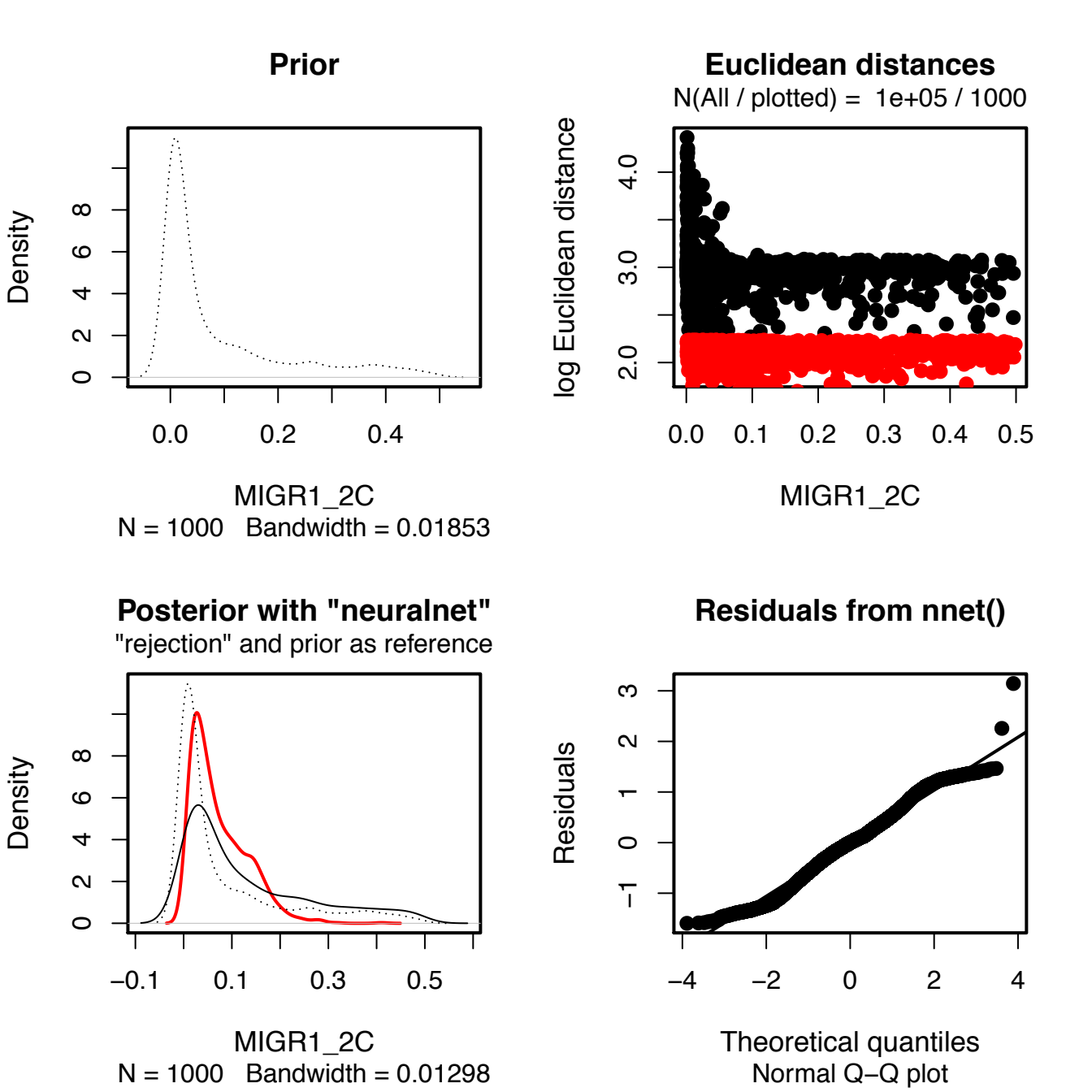

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
1.6
2.0
2.4
2.8
0e+00
4e+04
8e+04
POP_SIZE2MS_ANC

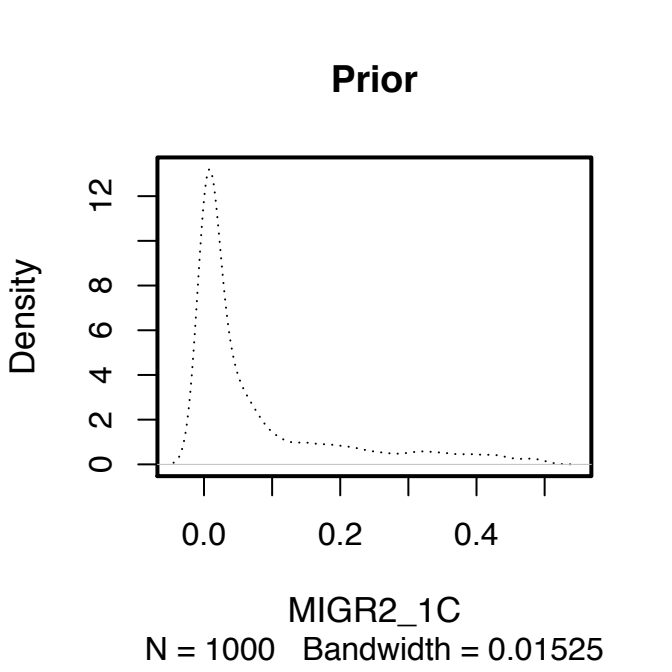

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0e+00
2e−05
4e−05
0
50000
150000
POP_SIZE2MS_ANC
N = 1000 Bandwidth = 4671

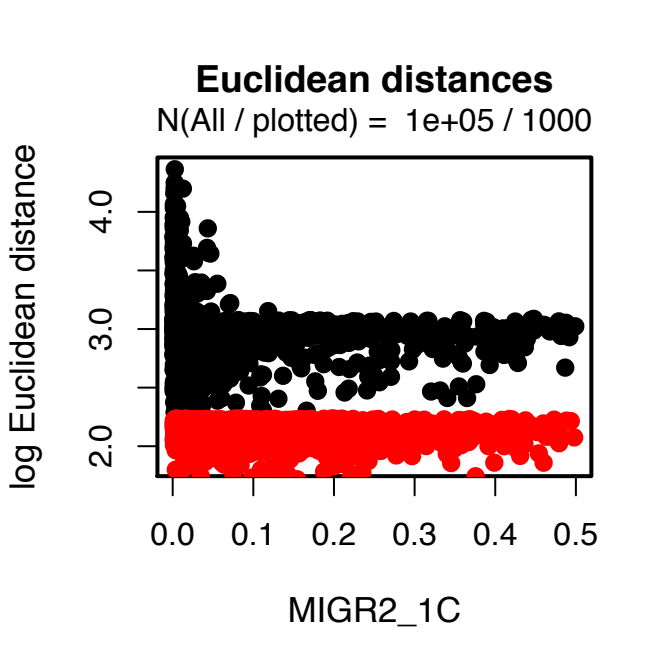

Residuals from nnet()
Residuals
−1.5
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

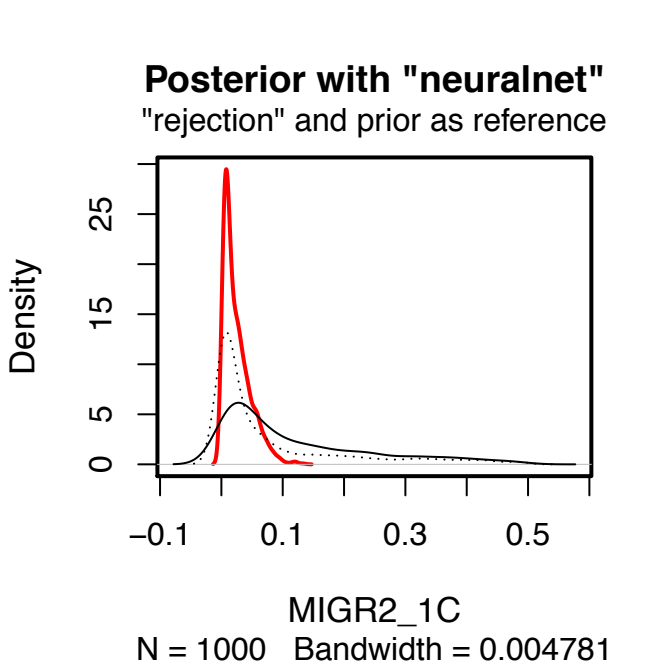

Prior
Density
0.0e+00
1.0e−05
0
100000
200000
TIME_SPLIT1_2
N = 1000 Bandwidth = 1.105e+04
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
1.6
2.0
2.4
2.8
0
50000
150000
TIME_SPLIT1_2
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0e+00
1.0e−05
50000
150000
TIME_SPLIT1_2
N = 1000 Bandwidth = 5396
Residuals from nnet()
Residuals
−1.5
−0.5
0.5
1.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

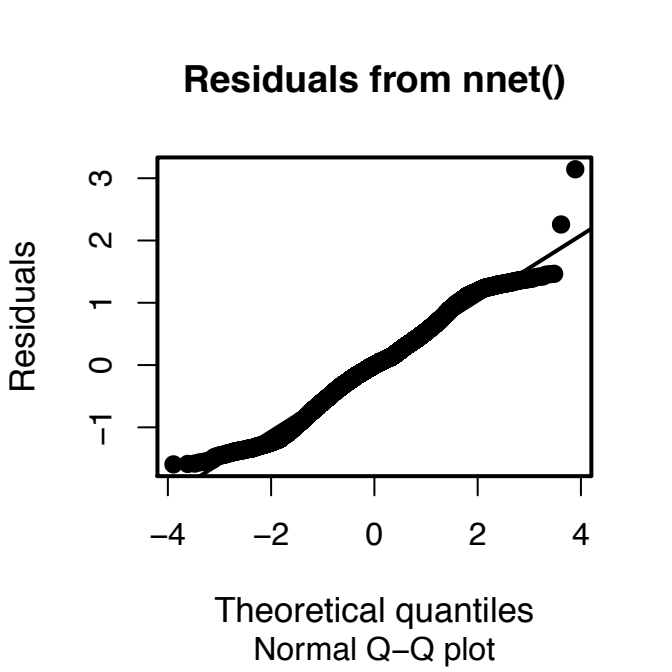
Scenario 5: isolation following divergence, with one migration rate since secondary contact, M_C

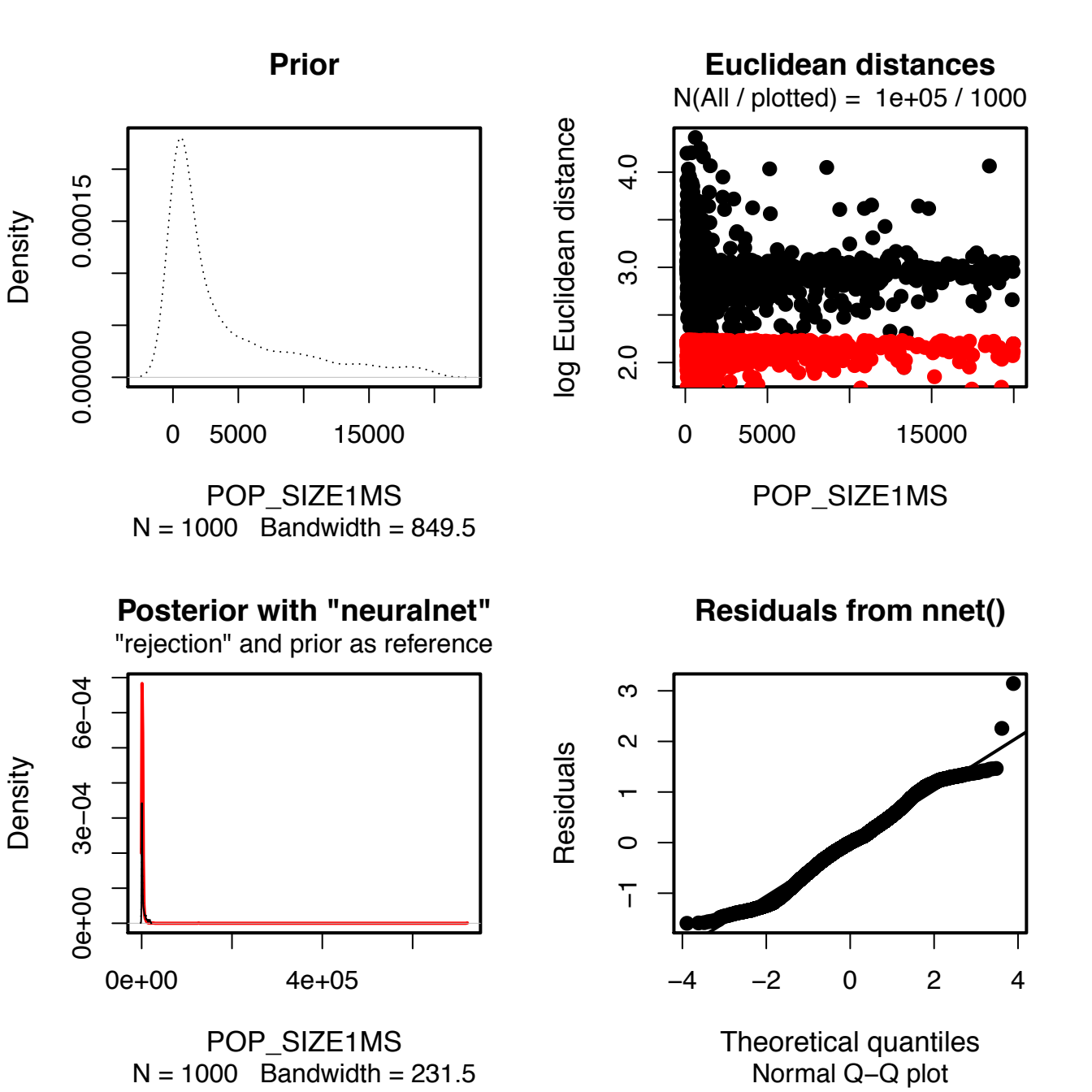

Prior
Density
0 2 4 6 8
0.0 0.2 0.4
MIGR1_2C
N = 1000 Bandwidth = 0.01853
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0 3.0 4.0
0.0 0.1 0.2 0.3 0.4 0.5
MIGR1_2C
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0 2 4 6 8
−0.1 0.1 0.3 0.5
MIGR1_2C
N = 1000 Bandwidth = 0.01298
Residuals from nnet()
Residuals
−1 0 1 2 3
−4 −2 0 2 4
Theoretical quantiles
Normal Q−Q plot

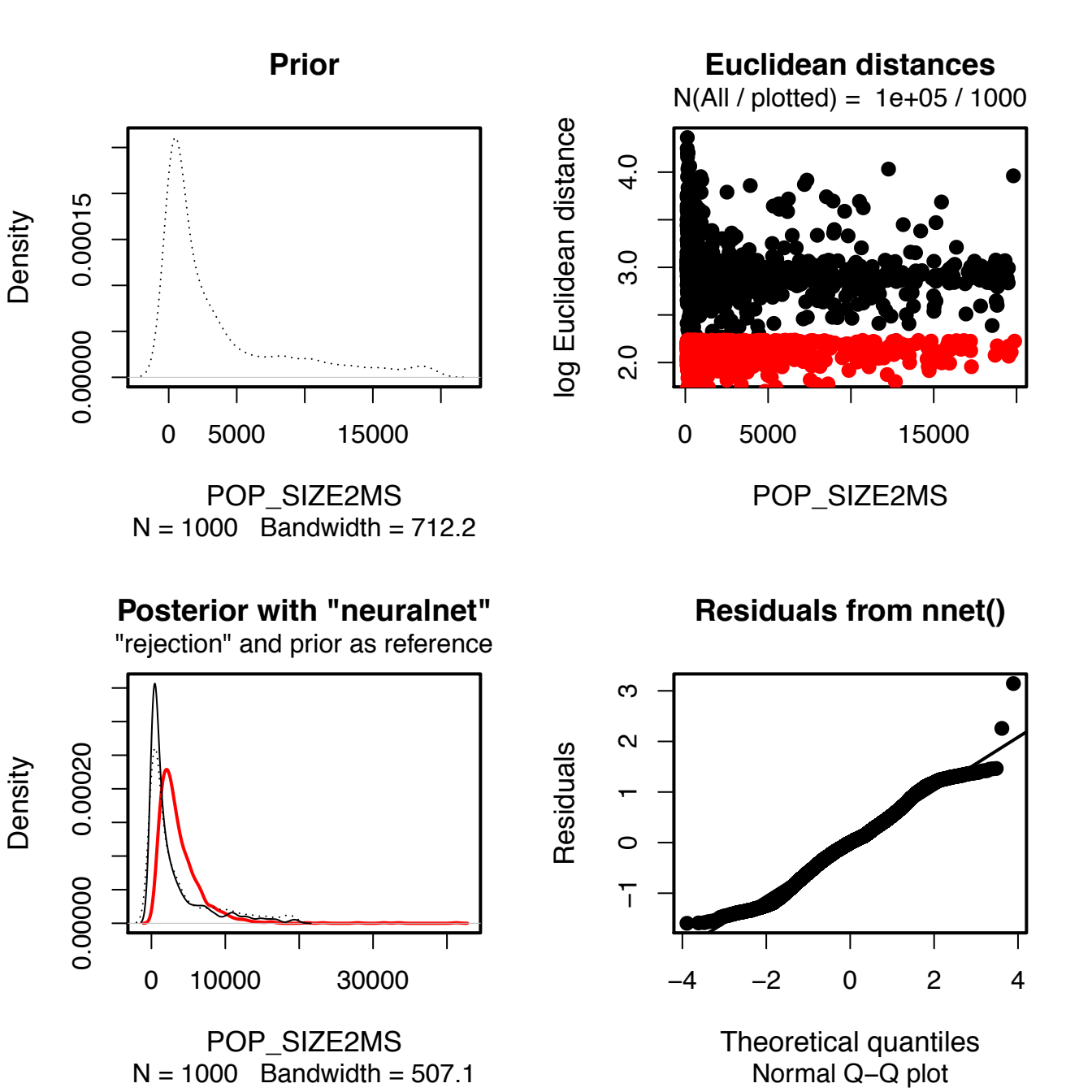

Prior
Density
0 2 4 6 8 12
0.0 0.2 0.4
MIGR2_1C
N = 1000 Bandwidth = 0.01525

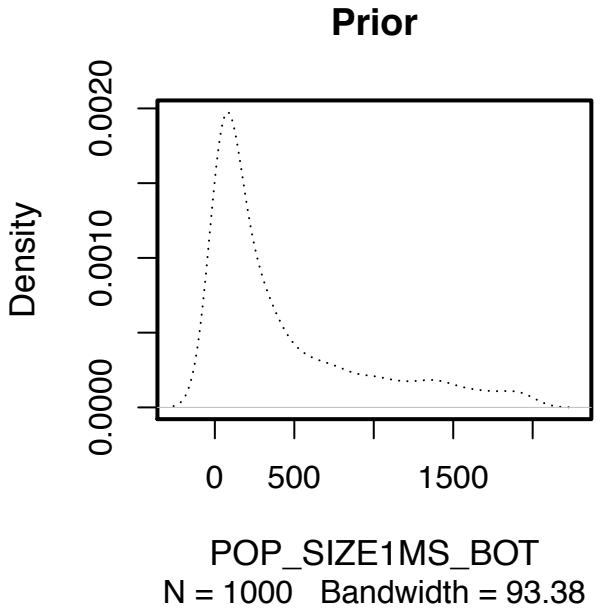

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0 3.0 4.0
0.0 0.1 0.2 0.3 0.4 0.5
MIGR2_1C

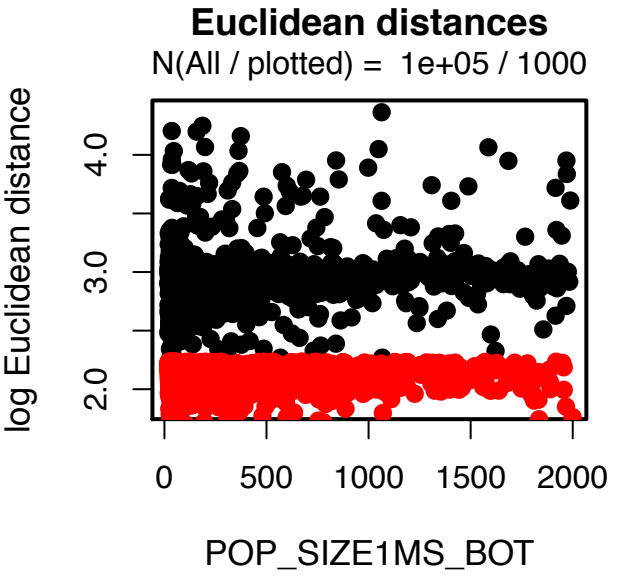

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0 5 15 25
−0.1 0.1 0.3 0.5
MIGR2_1C
N = 1000 Bandwidth = 0.004781

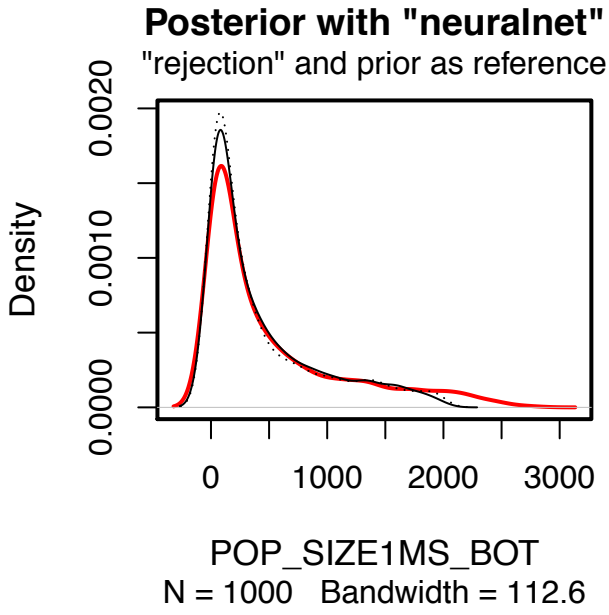

Residuals from nnet()
Residuals
−1 0 1 2 3
−4 −2 0 2 4
Theoretical quantiles
Normal Q−Q plot

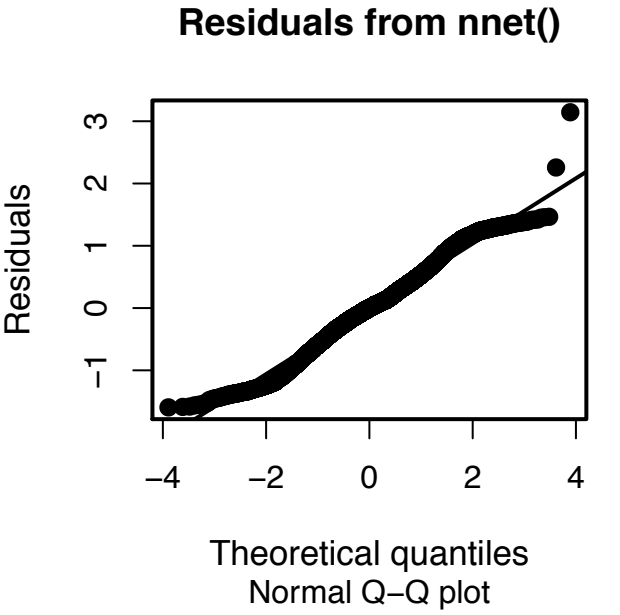

Prior
Density
0.00000
0.00015
0
5000
15000
POP_SIZE1MS
N = 1000 Bandwidth = 849.5
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
5000
15000
POP_SIZE1MS
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0e+00
3e−04
6e−04
0e+00
4e+05
POP_SIZE1MS
N = 1000 Bandwidth = 231.5
Residuals from nnet()
Residuals
−1
0
1
2
3
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

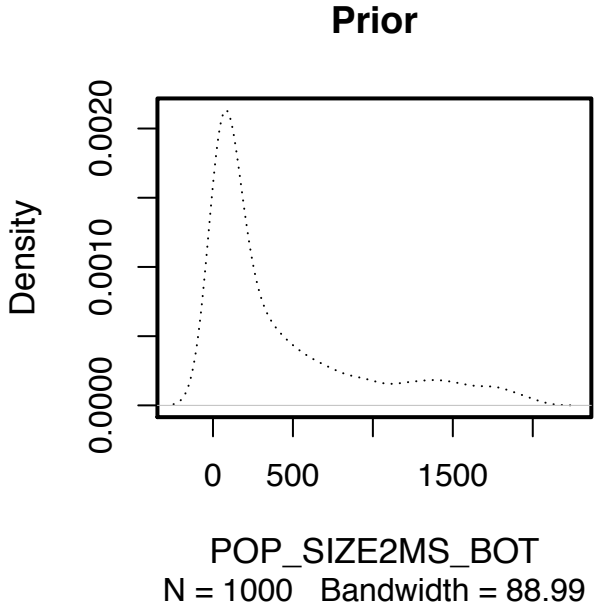

Prior
Density
0.00000
0.00015
0
5000
15000
POP_SIZE2MS
N = 1000 Bandwidth = 712.2
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
5000
15000
POP_SIZE2MS
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.00000
0.00020
0
10000
30000
POP_SIZE2MS
N = 1000 Bandwidth = 507.1
Residuals from nnet()
Residuals
−1
0
1
2
3
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

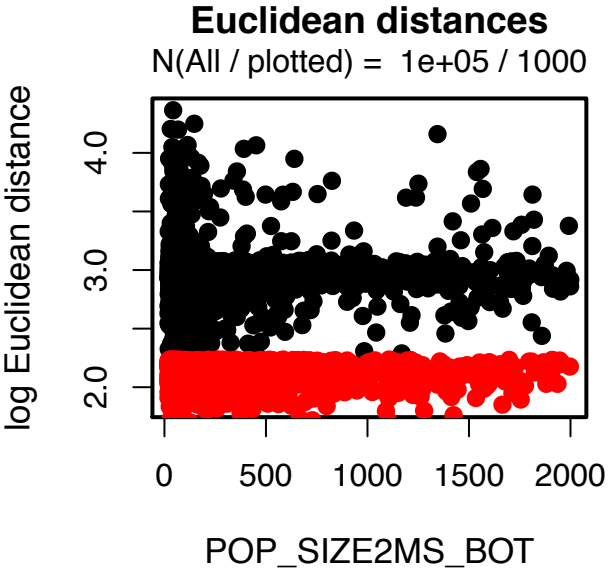

Prior
Density
0.0000
0.0010
0.0020
0
500
1500
POP_SIZE1MS_BOT
N = 1000 Bandwidth = 93.38

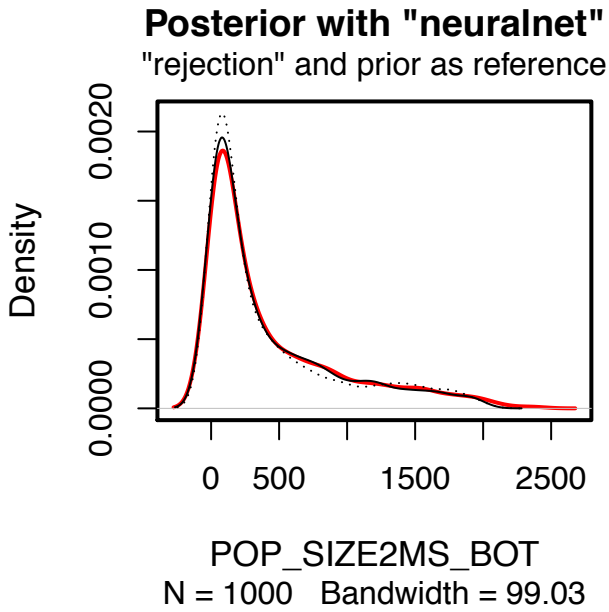

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
500
1000
1500
2000
POP_SIZE1MS_BOT

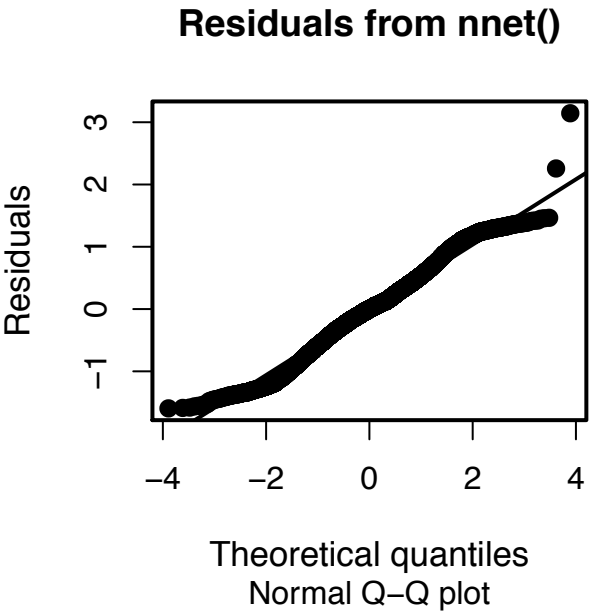

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0000
0.0010
0.0020
0
1000
2000
3000
POP_SIZE1MS_BOT
N = 1000 Bandwidth = 112.6

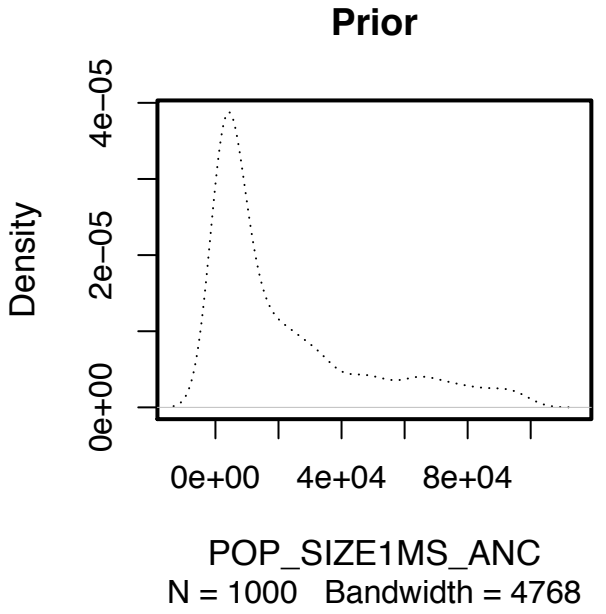

Residuals from nnet()
Residuals
−1
0
1
2
3
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

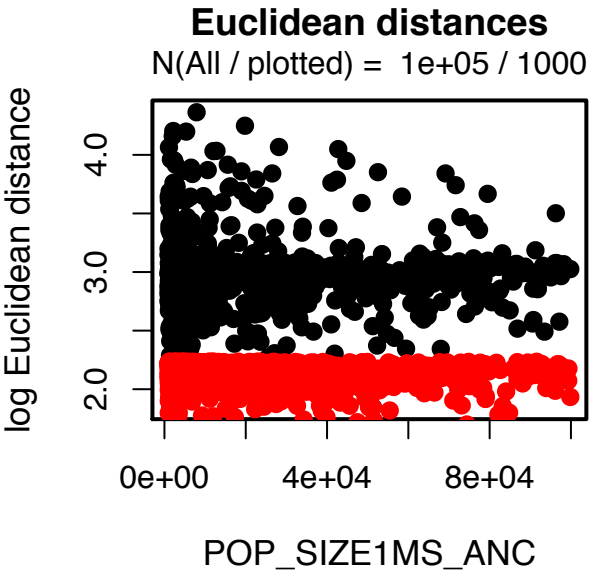

Prior
Density
0.0000
0.0010
0.0020
0
500
1500
POP_SIZE2MS_BOT
N = 1000 Bandwidth = 88.99

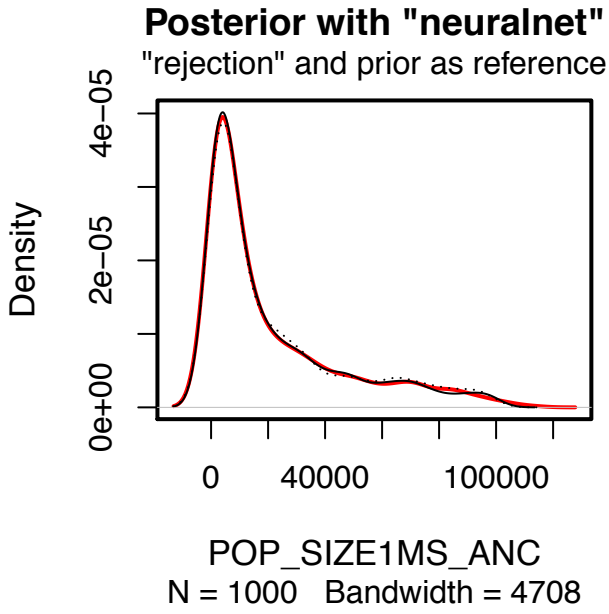

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
500
1000
1500
2000
POP_SIZE2MS_BOT

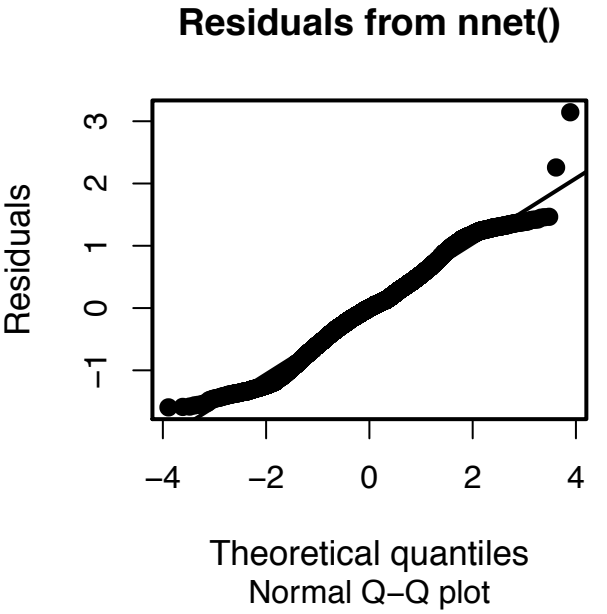

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0000
0.0010
0.0020
0
500
1500
2500
POP_SIZE2MS_BOT
N = 1000 Bandwidth = 99.03

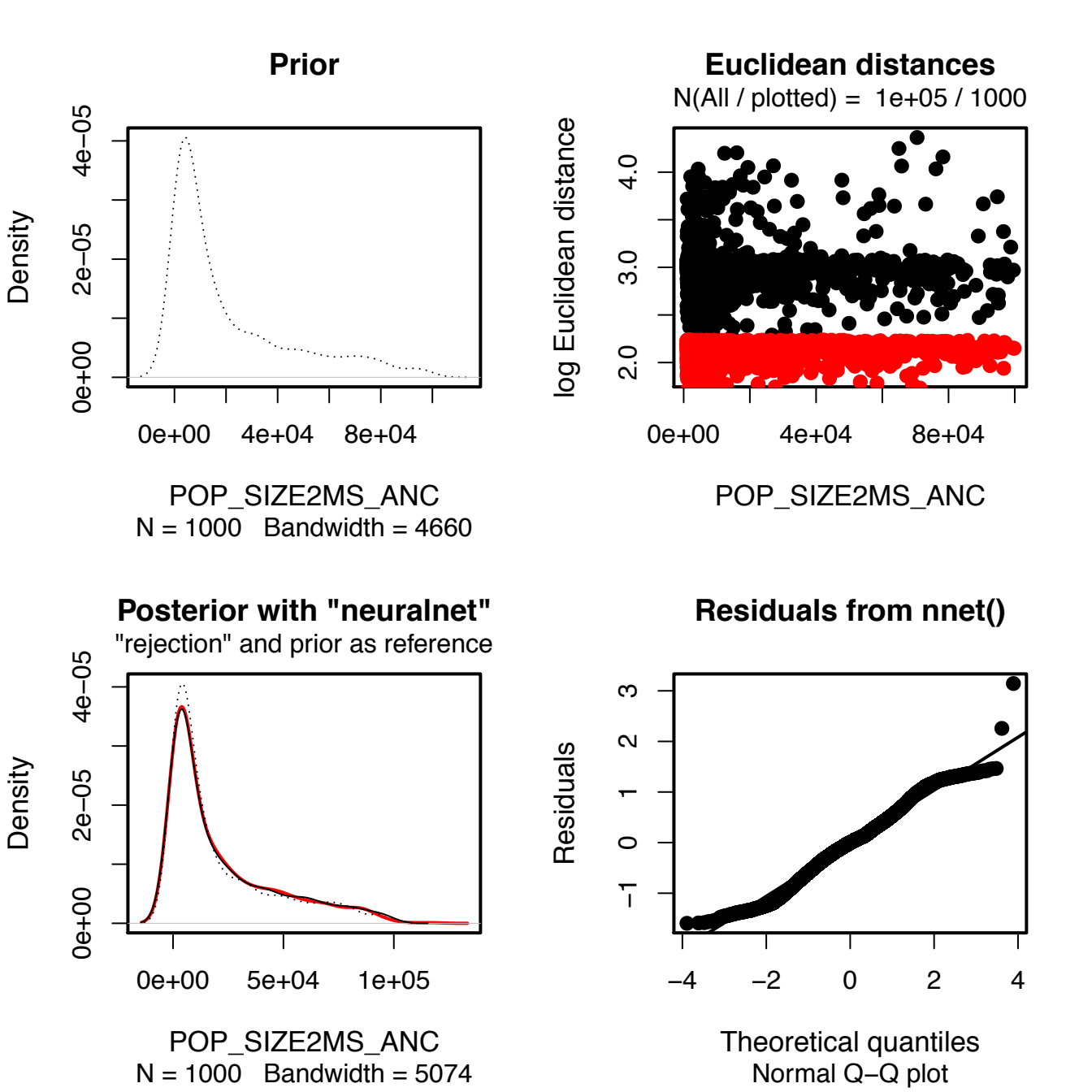

Residuals from nnet()
Residuals
−1
0
1
2
3
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

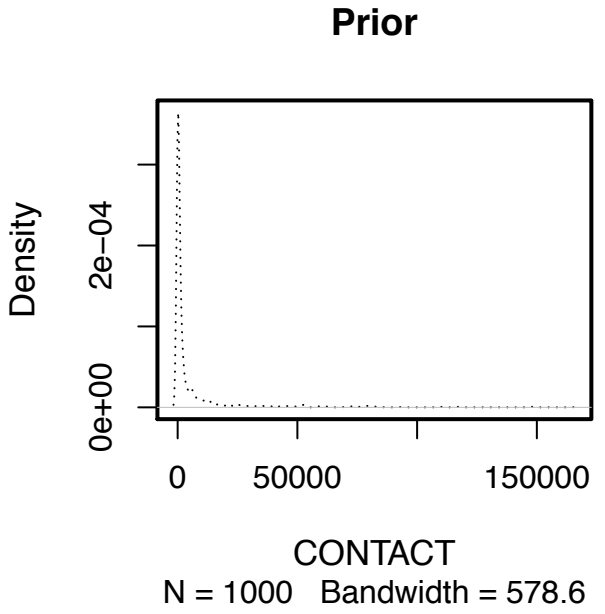

Prior
Density
0e+00
2e−05
4e−05
0e+00
4e+04
8e+04
POP_SIZE1MS_ANC
N = 1000 Bandwidth = 4768

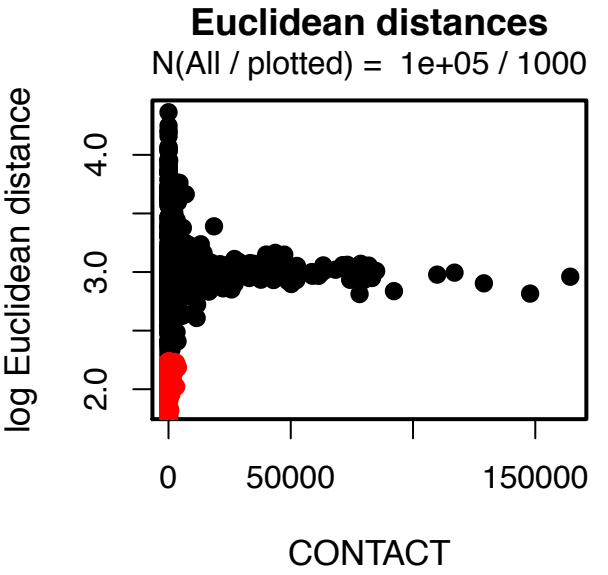

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0e+00
4e+04
8e+04
POP_SIZE1MS_ANC

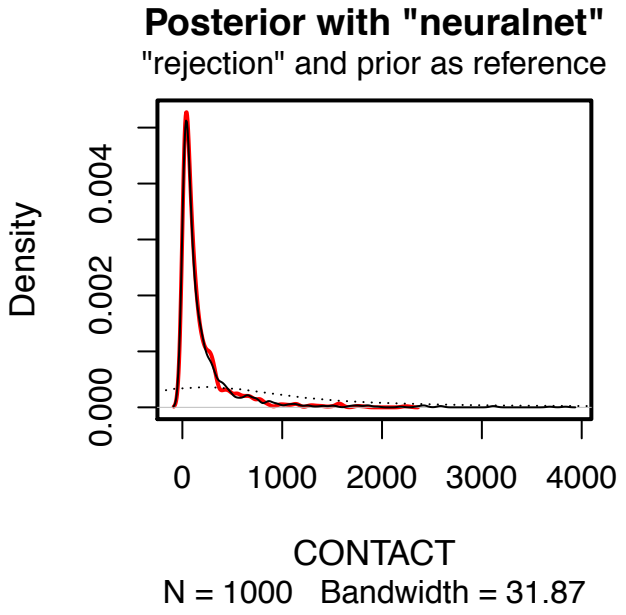

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0e+00
2e−05
4e−05
0
40000
100000
POP_SIZE1MS_ANC
N = 1000 Bandwidth = 4708

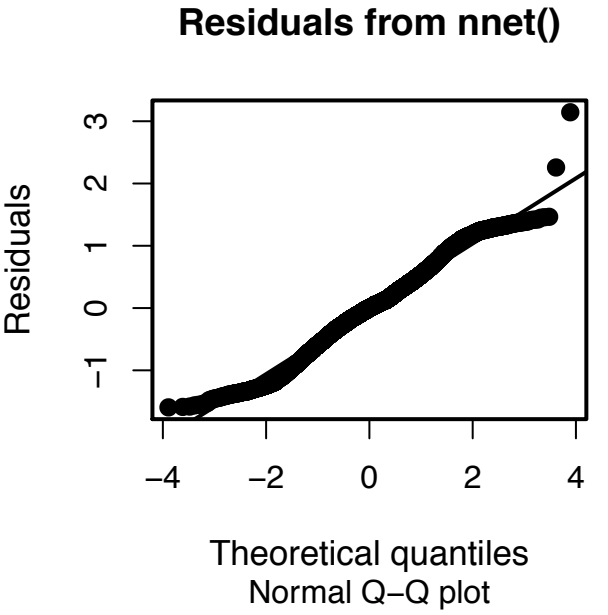

Residuals from nnet()
Residuals
−1
0
1
2
3
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

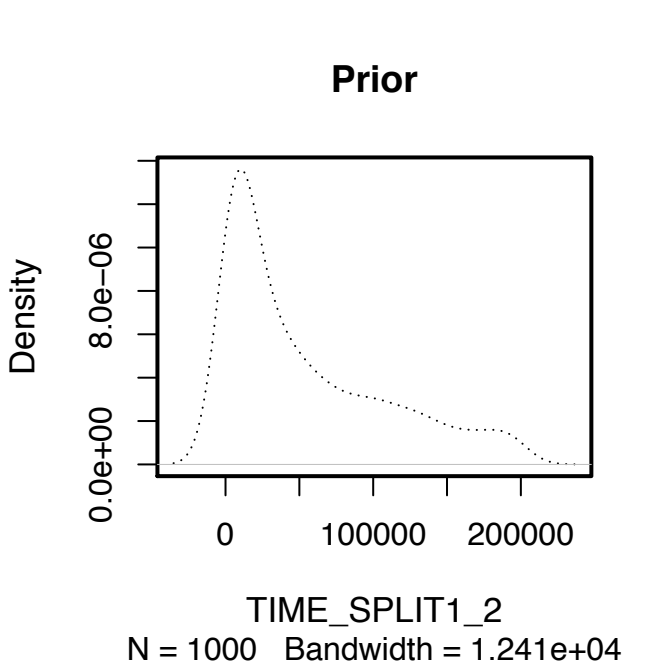

Prior
Density
0e+00
2e−05
4e−05
0e+00
4e+04
8e+04
POP_SIZE2MS_ANC
N = 1000 Bandwidth = 4660
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0e+00
4e+04
8e+04
POP_SIZE2MS_ANC
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0e+00
2e−05
4e−05
0e+00
5e+04
1e+05
POP_SIZE2MS_ANC
N = 1000 Bandwidth = 5074
Residuals from nnet()
Residuals
−1
0
1
2
3
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

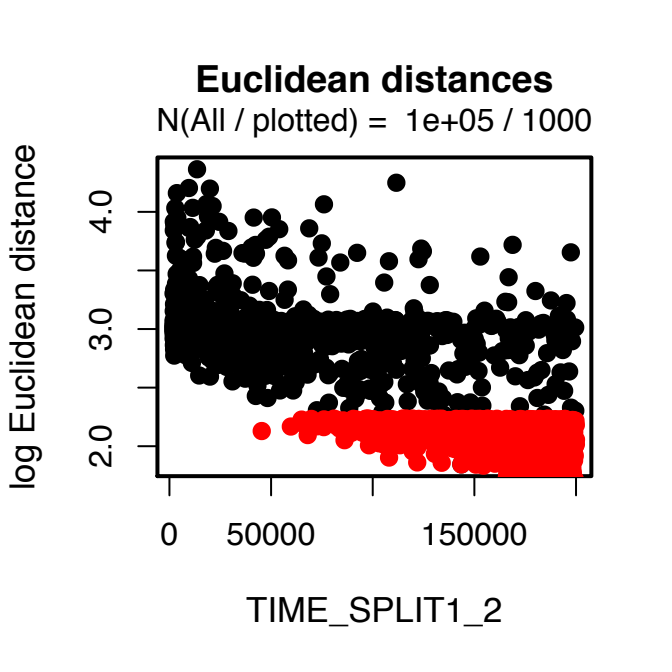

Prior
Density
0e+00
2e−04
0
50000
150000
CONTACT
N = 1000 Bandwidth = 578.6

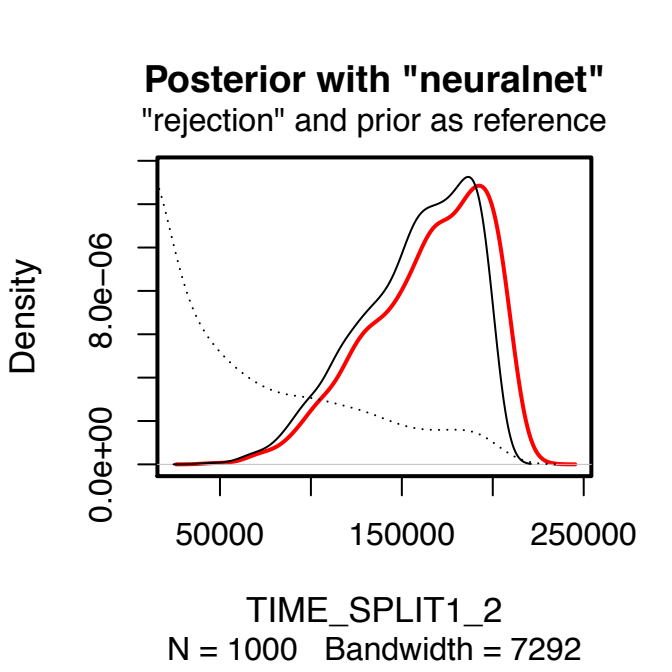

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
50000
150000
CONTACT

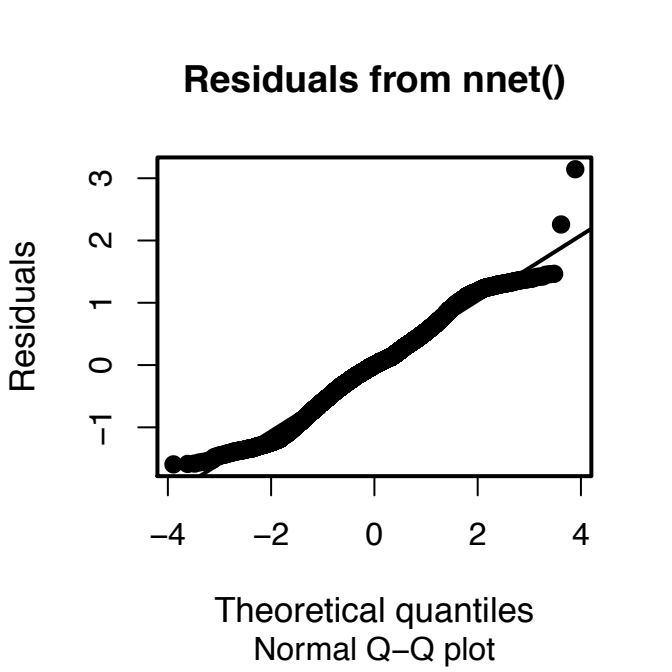

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.000
0.002
0.004
0
1000
2000
3000
4000
CONTACT
N = 1000 Bandwidth = 31.87


Residuals from nnet()
Residuals
−1
0
1
2
3
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

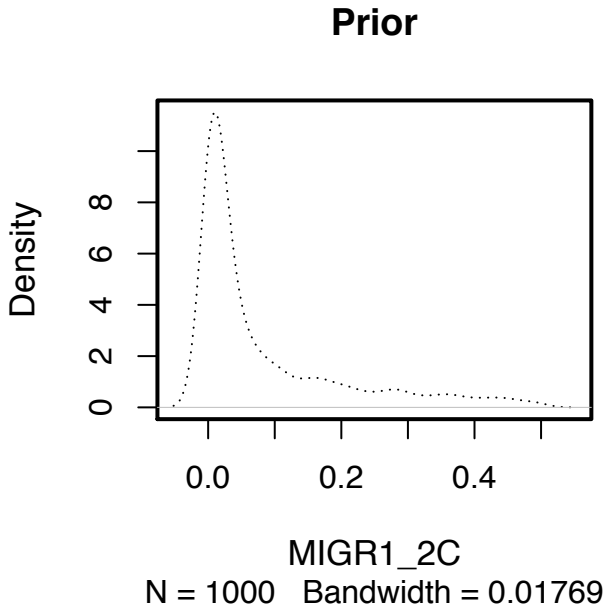

Prior
Density
0.0e+00
8.0e−06
0
100000
200000
TIME_SPLIT1_2
N = 1000 Bandwidth = 1.241e+04

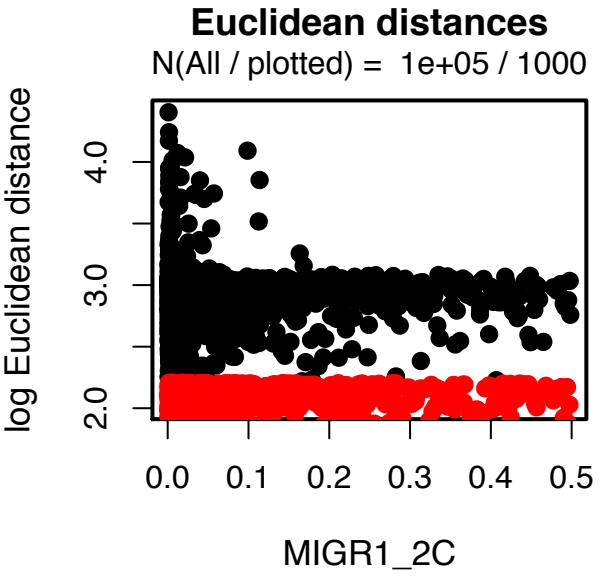

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
50000
150000
TIME_SPLIT1_2

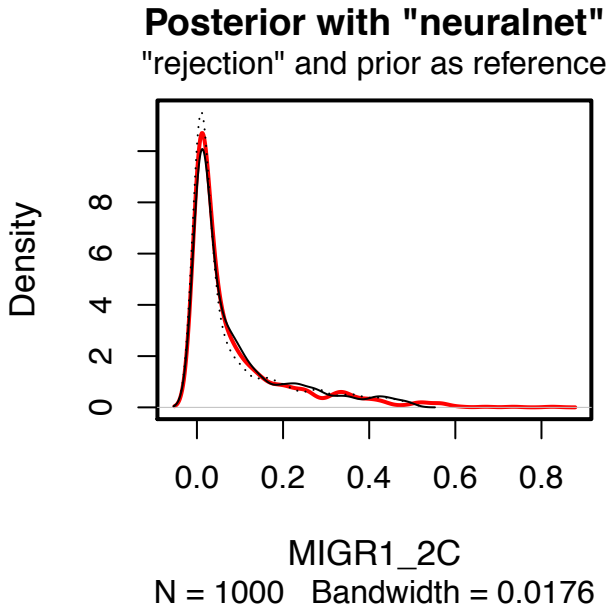

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0e+00
8.0e−06
50000
150000
250000
TIME_SPLIT1_2
N = 1000 Bandwidth = 7292

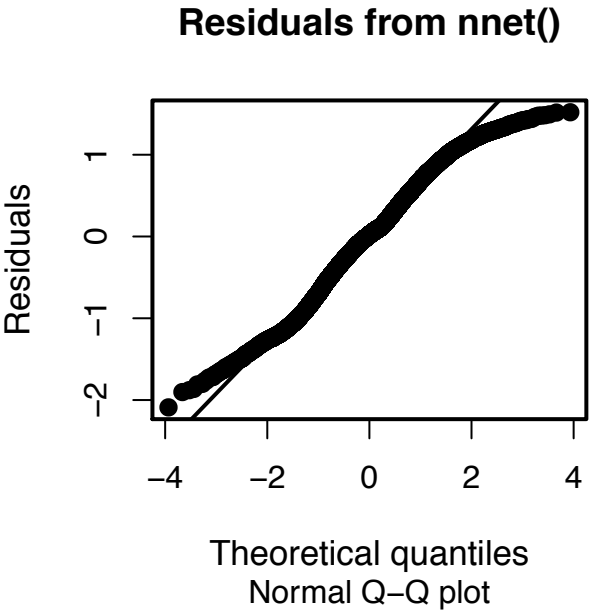

Residuals from nnet()
Residuals
−1
0
1
2
3
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

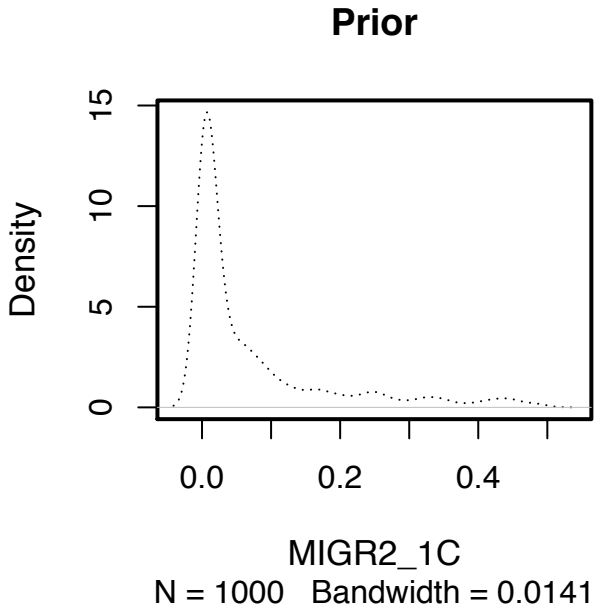
Scenario 6: isolation following divergence, with two migration rates: one since secondary contact, M_C, and one since the whaling era, M_W

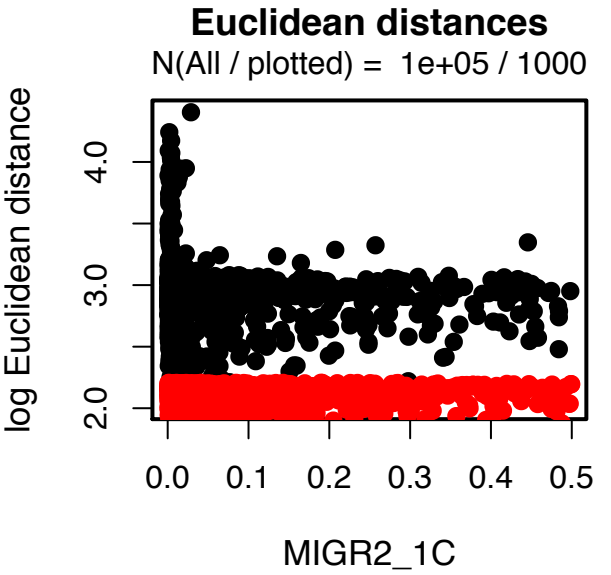

Prior
Density
0 2 4 6 8
0.0 0.2 0.4
MIGR1_2C
N = 1000 Bandwidth = 0.01769

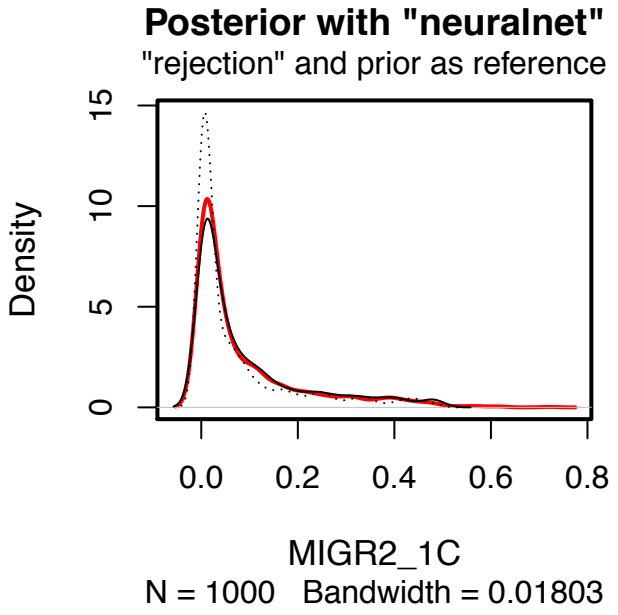

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0 3.0 4.0
0.0 0.1 0.2 0.3 0.4 0.5
MIGR1_2C

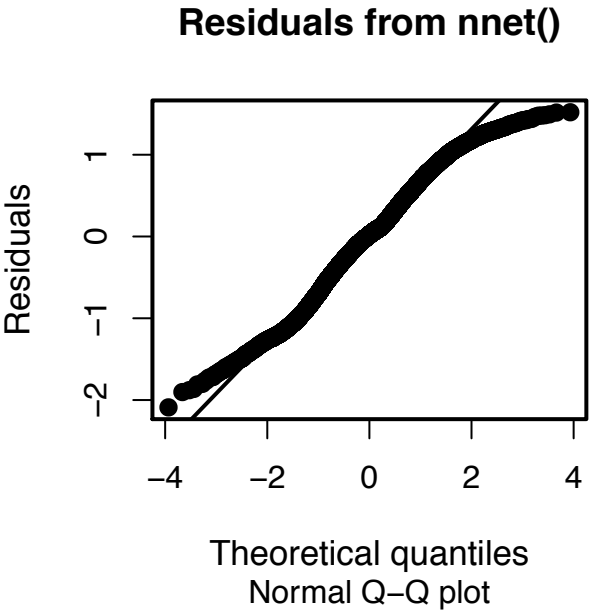

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0 2 4 6 8
0.0 0.2 0.4 0.6 0.8
MIGR1_2C
N = 1000 Bandwidth = 0.0176

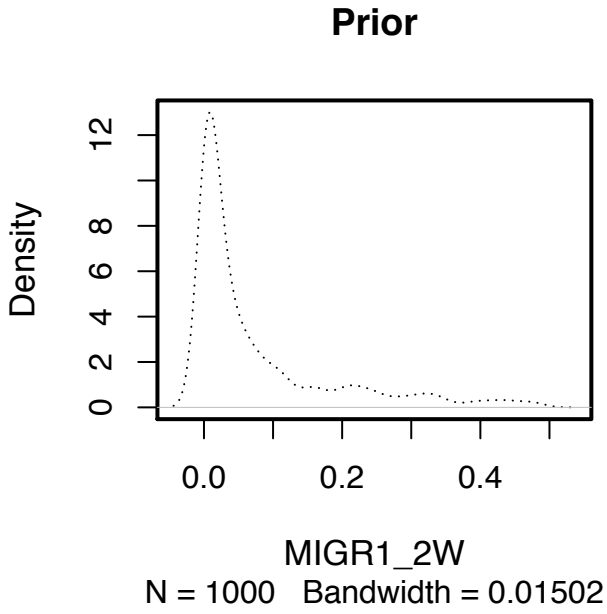

Residuals from nnet()
Residuals
−2 −1 0 1
−4 −2 0 2 4
Theoretical quantiles
Normal Q−Q plot

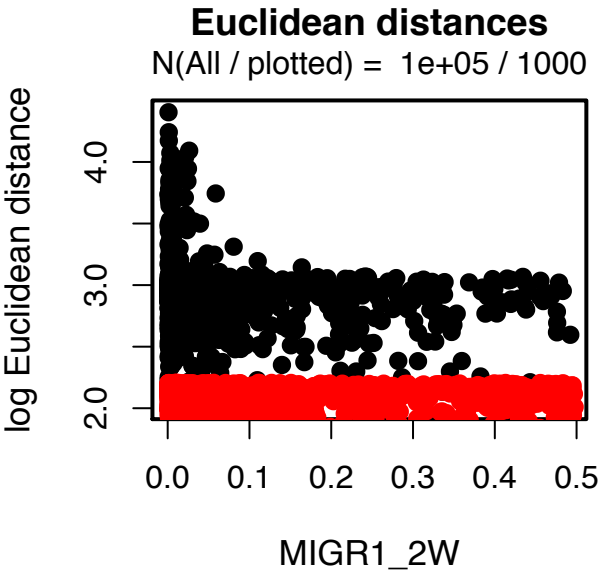

Prior
Density
0
5
10
15
0.0
0.2
0.4
MIGR2_1C
N = 1000 Bandwidth = 0.0141

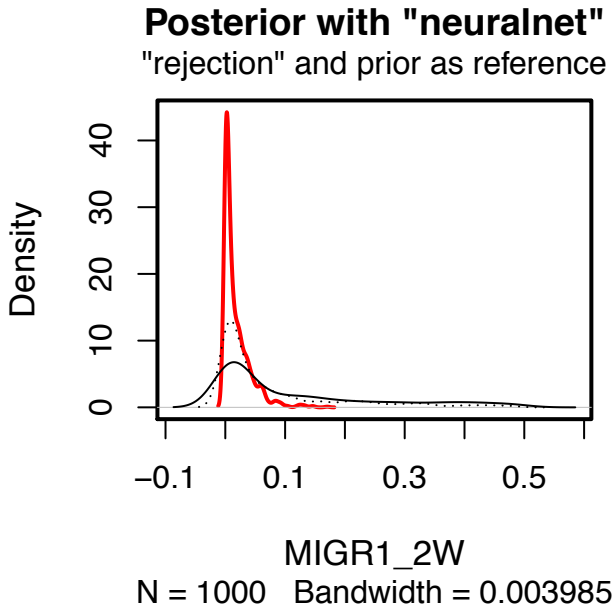

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0.0
0.1
0.2
0.3
0.4
0.5
MIGR2_1C

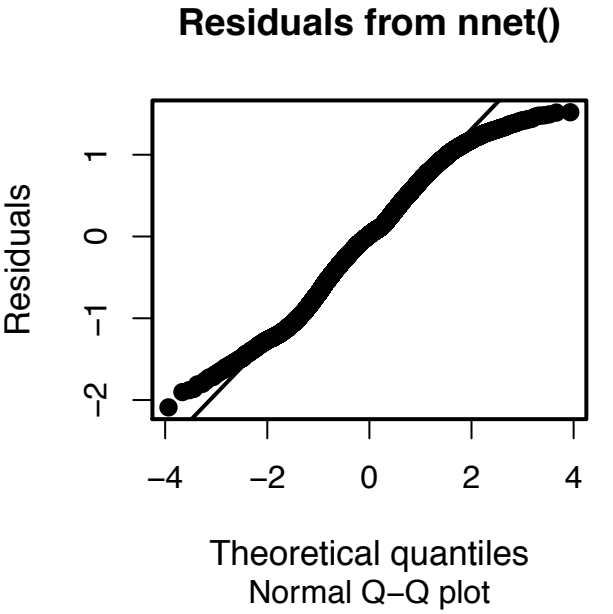

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0
5
10
15
0.0
0.2
0.4
0.6
0.8
MIGR2_1C
N = 1000 Bandwidth = 0.01803

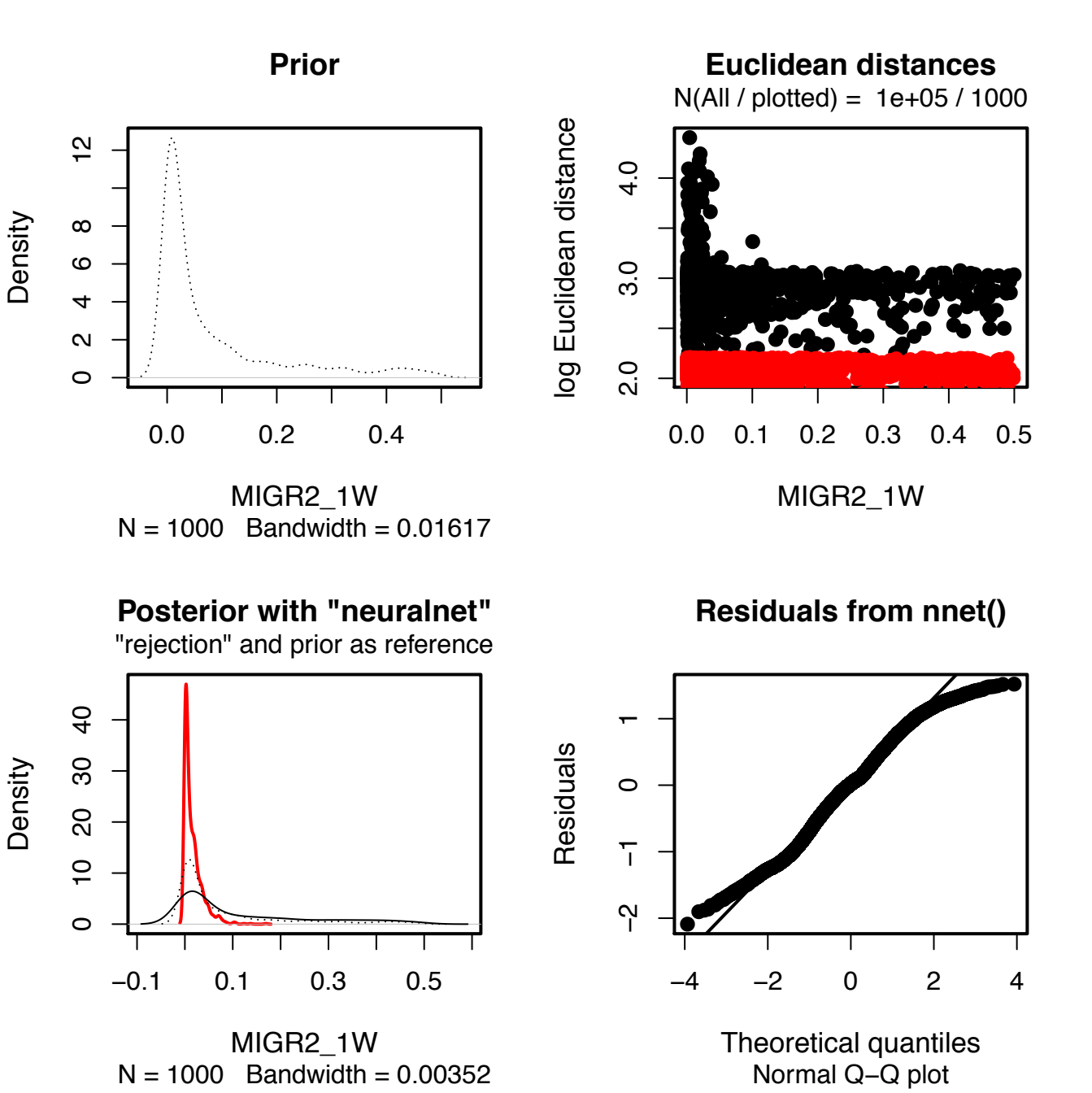

Residuals from nnet()
Residuals
−2
−1
0
1
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

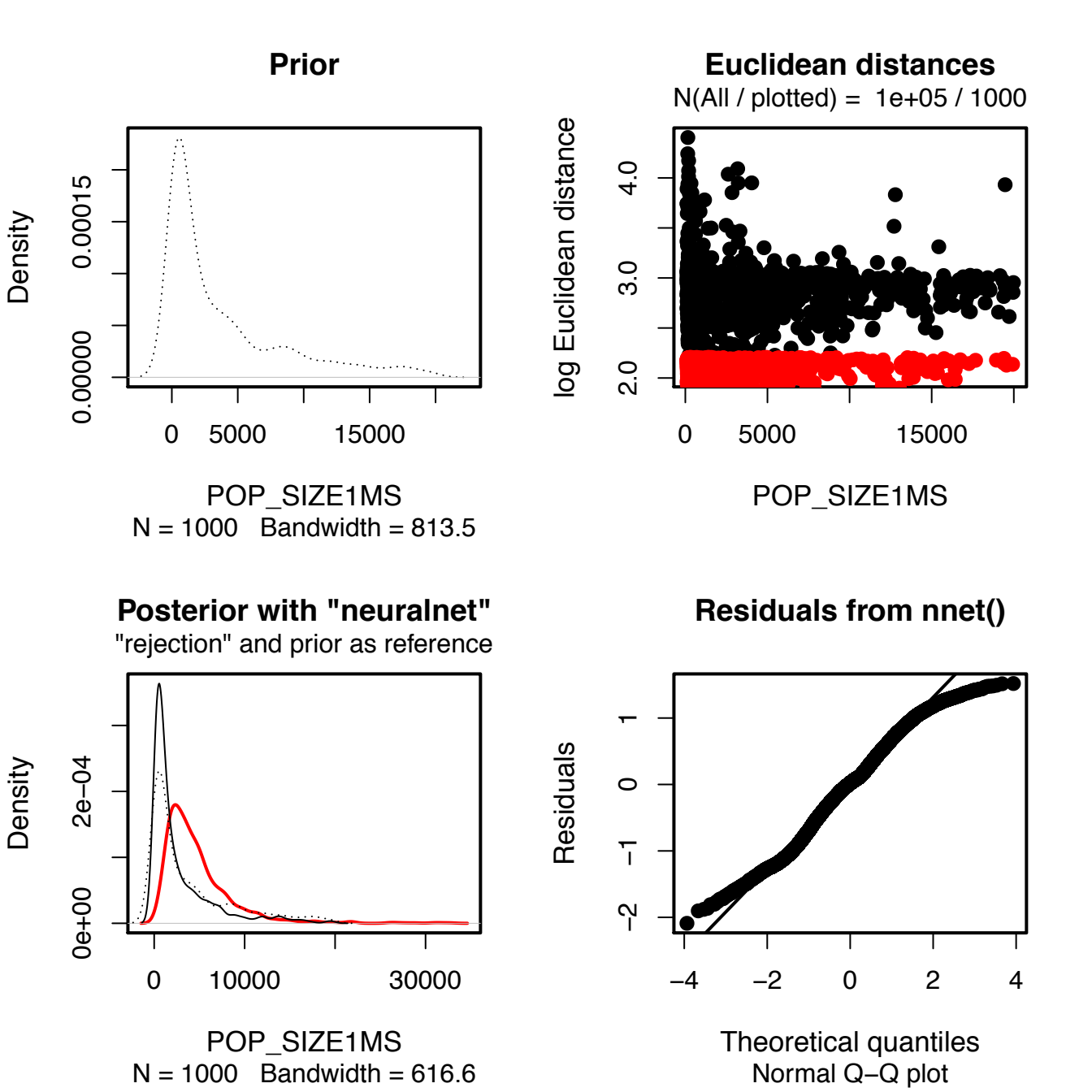

Prior
Density
0 2 4 6 8 12
0.0 0.2 0.4
MIGR1_2W
N = 1000 Bandwidth = 0.01502

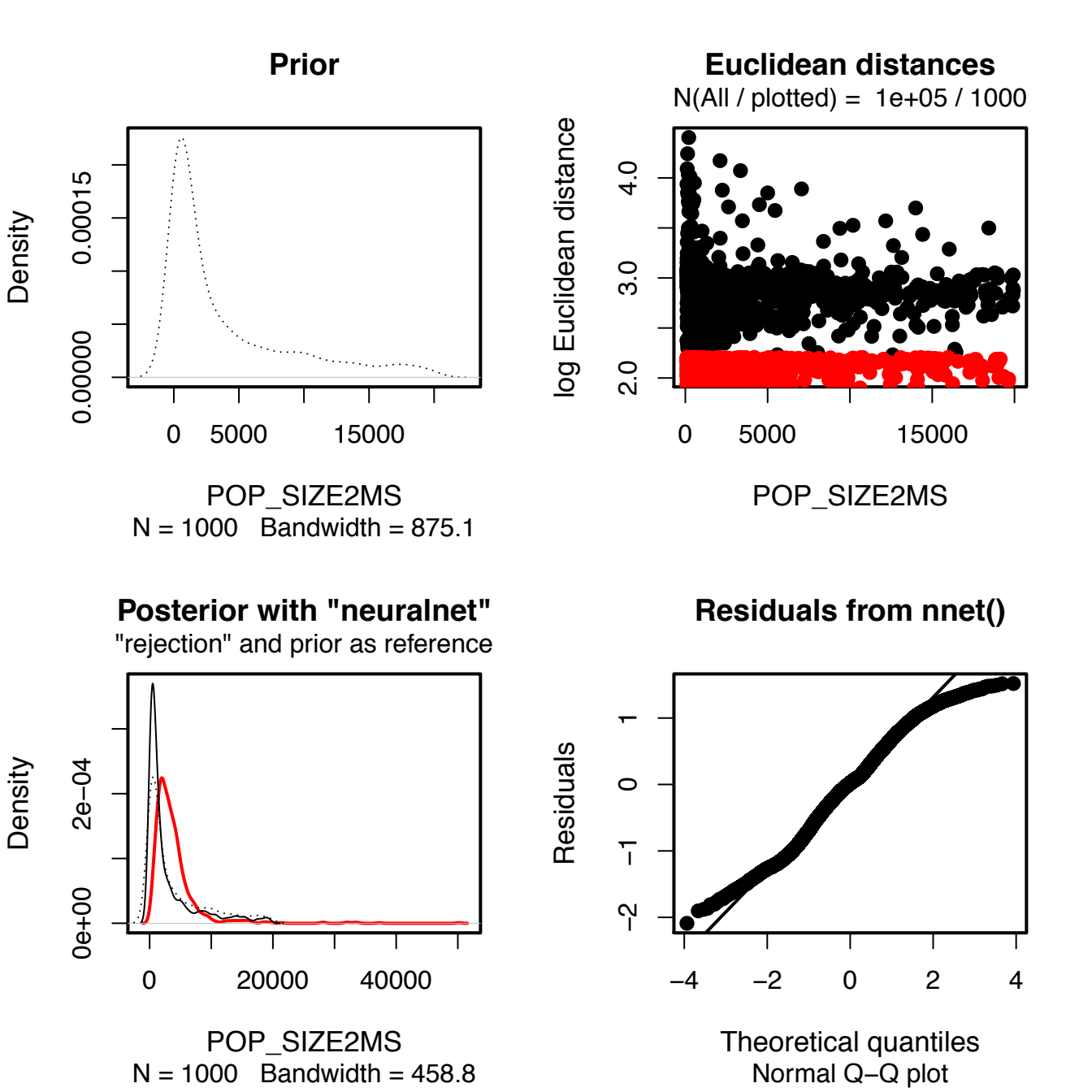

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0 3.0 4.0
0.0 0.1 0.2 0.3 0.4 0.5
MIGR1_2W

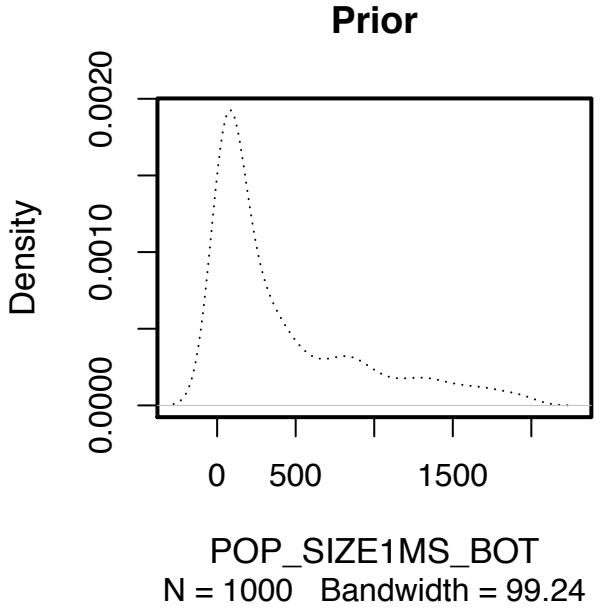

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0 10 20 30 40
−0.1 0.1 0.3 0.5
MIGR1_2W
N = 1000 Bandwidth = 0.003985

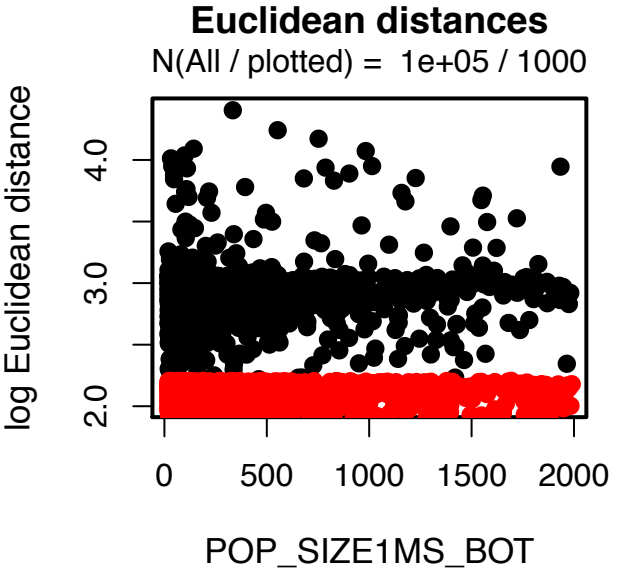

Residuals from nnet()
Residuals
−2 −1 0 1
−4 −2 0 2 4
Theoretical quantiles
Normal Q−Q plot

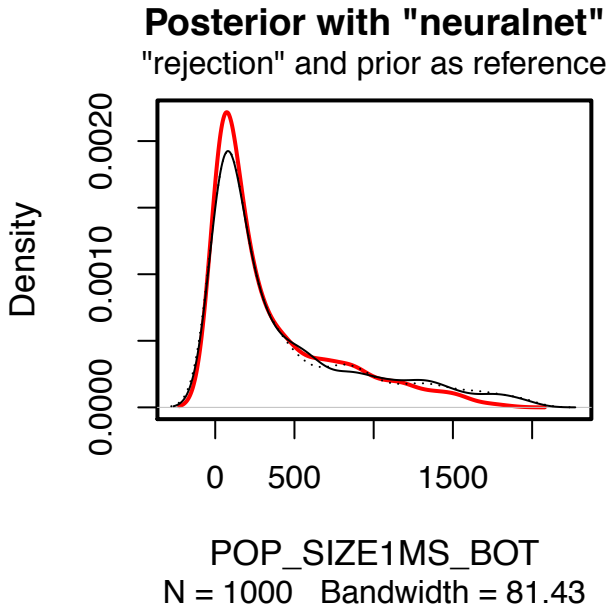

Prior
Density
0
2
4
6
8
12
0.0
0.2
0.4
MIGR2_1W
N = 1000 Bandwidth = 0.01617
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0.0
0.1
0.2
0.3
0.4
0.5
MIGR2_1W
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0
10
20
30
40
−0.1
0.1
0.3
0.5
MIGR2_1W
N = 1000 Bandwidth = 0.00352
Residuals from nnet()
Residuals
−2
−1
0
1
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

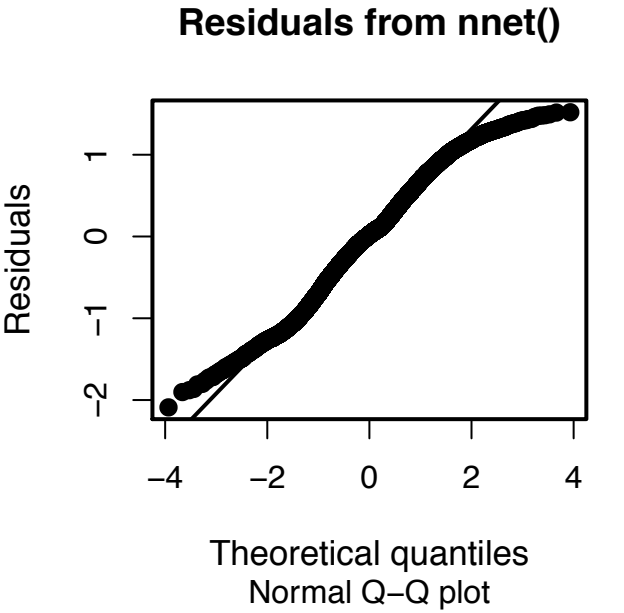

Prior
Density
0.00015
0.00000
0
5000
15000
POP_SIZE1MS
N = 1000 Bandwidth = 813.5
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
4.0
3.0
2.0
0
5000
15000
POP_SIZE1MS
Posterior with "neuralnet"
"rejection" and prior as reference
Density
2e−04
0e+00
0
10000
30000
POP_SIZE1MS
N = 1000 Bandwidth = 616.6
Residuals from nnet()
Residuals
1
0
−1
−2
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

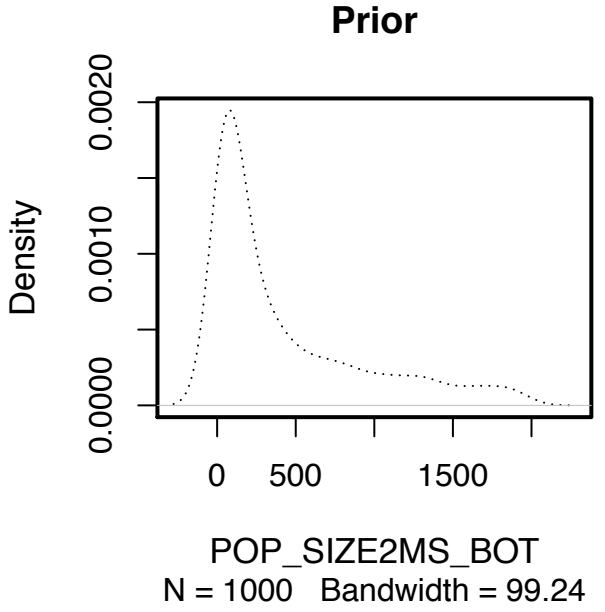

Prior
Density
0.00015
0.00000
0
5000
15000
POP_SIZE2MS
N = 1000 Bandwidth = 875.1
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
4.0
3.0
2.0
0
5000
15000
POP_SIZE2MS
Posterior with "neuralnet"
"rejection" and prior as reference
Density
2e−04
0e+00
0
20000
40000
POP_SIZE2MS
N = 1000 Bandwidth = 458.8
Residuals from nnet()
Residuals
1
0
−1
−2
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

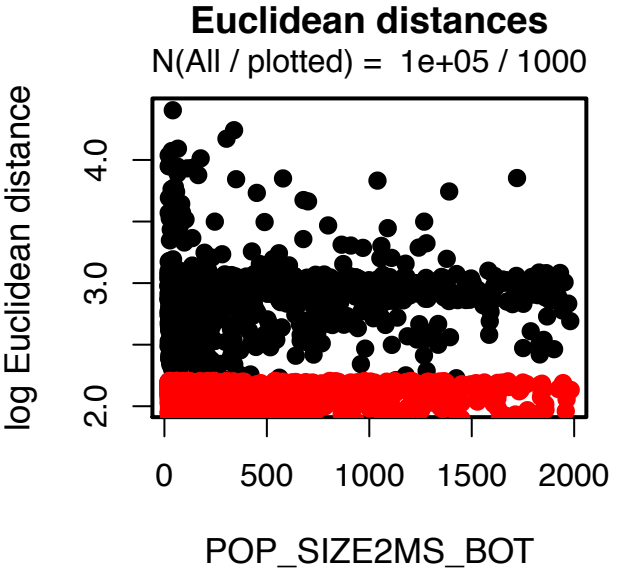

Prior
Density
0.0000
0.0010
0.0020
0
500
1500
POP_SIZE1MS_BOT
N = 1000 Bandwidth = 99.24

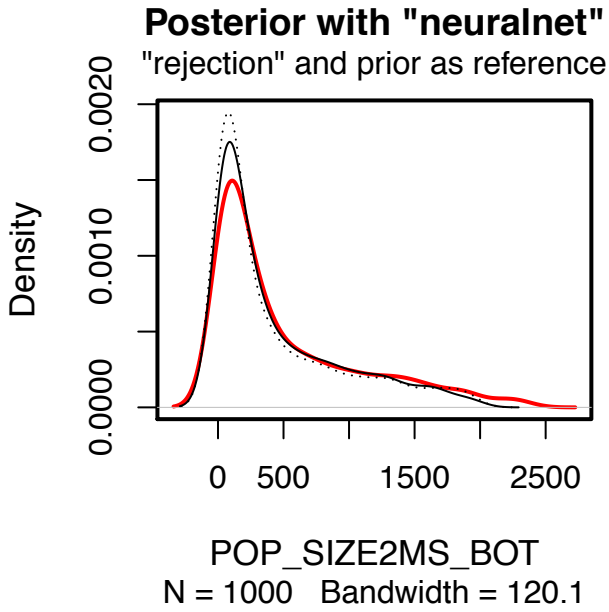

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
500
1000
1500
2000
POP_SIZE1MS_BOT

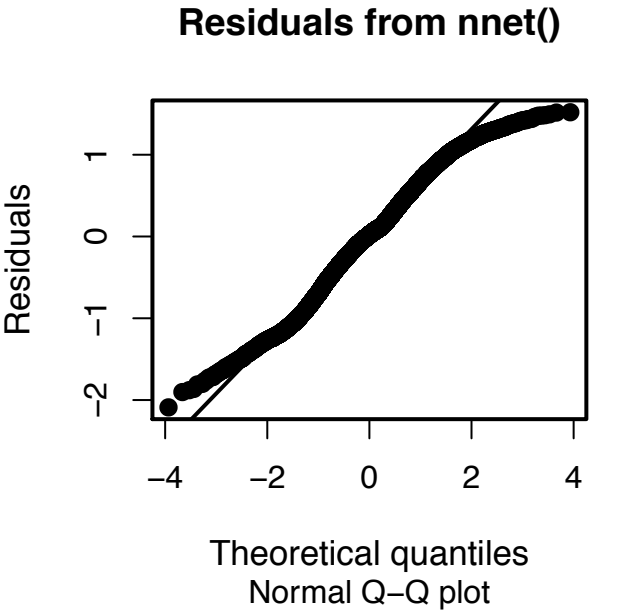

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0000
0.0010
0.0020
0
500
1500
POP_SIZE1MS_BOT
N = 1000 Bandwidth = 81.43

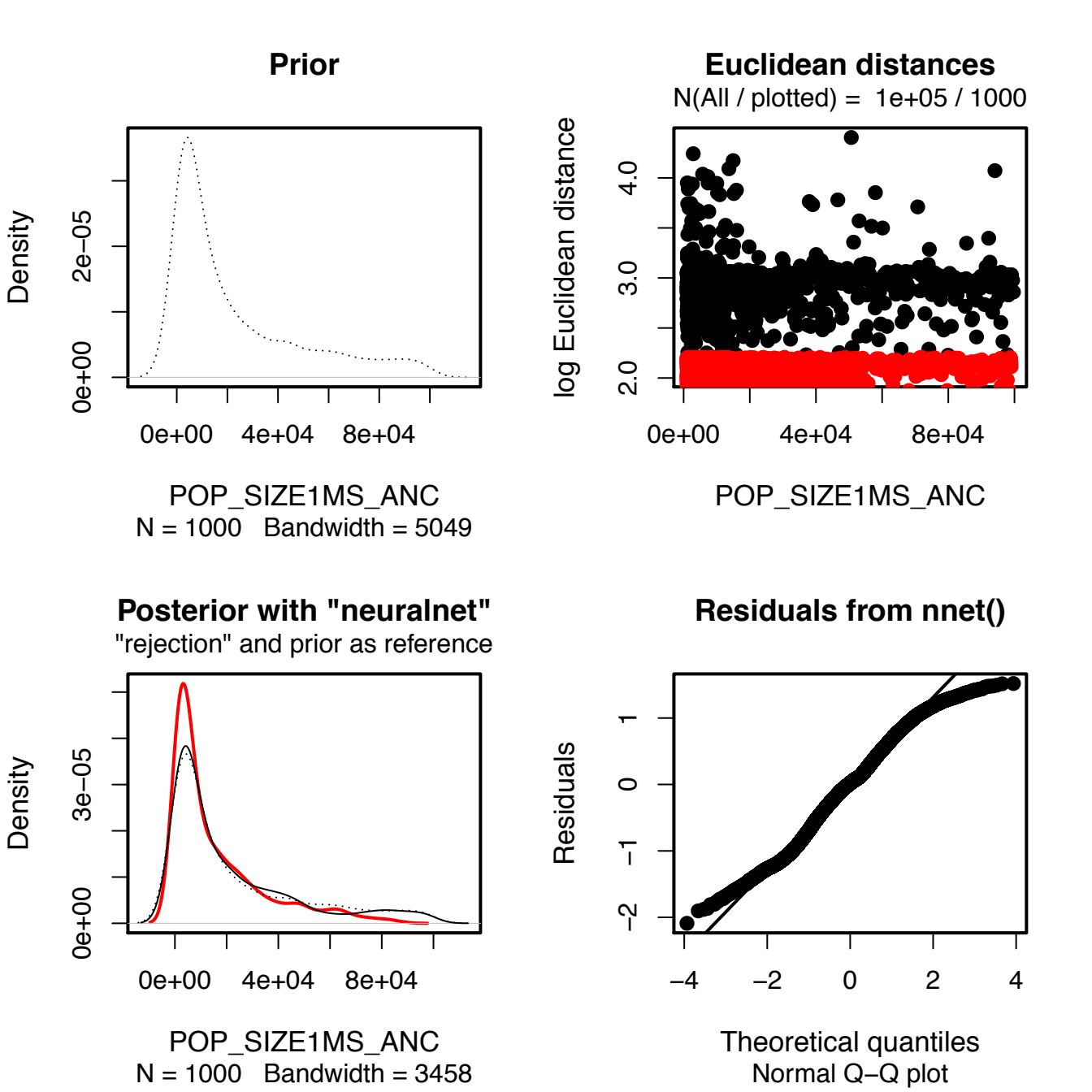

Residuals from nnet()
Residuals
−2
−1
0
1
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

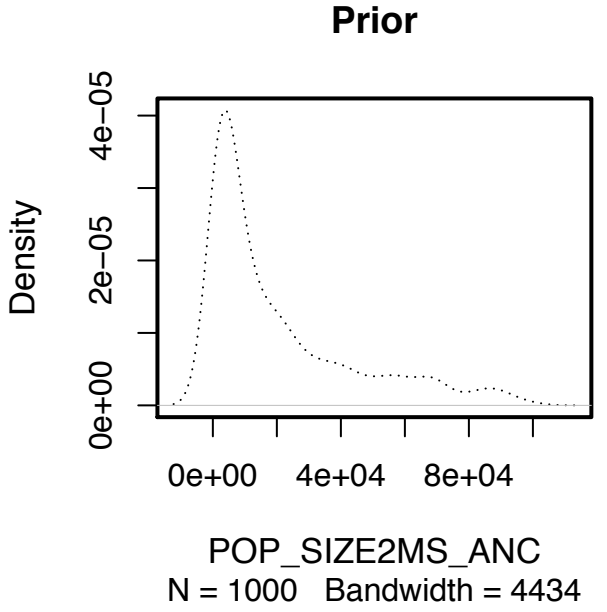

Prior
Density
0.0000
0.0010
0.0020
0
500
1500
POP_SIZE2MS_BOT
N = 1000 Bandwidth = 99.24

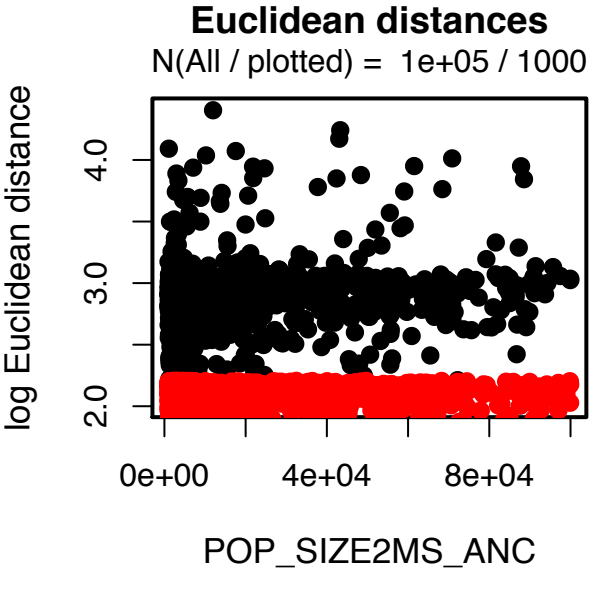

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
500
1000
1500
2000
POP_SIZE2MS_BOT

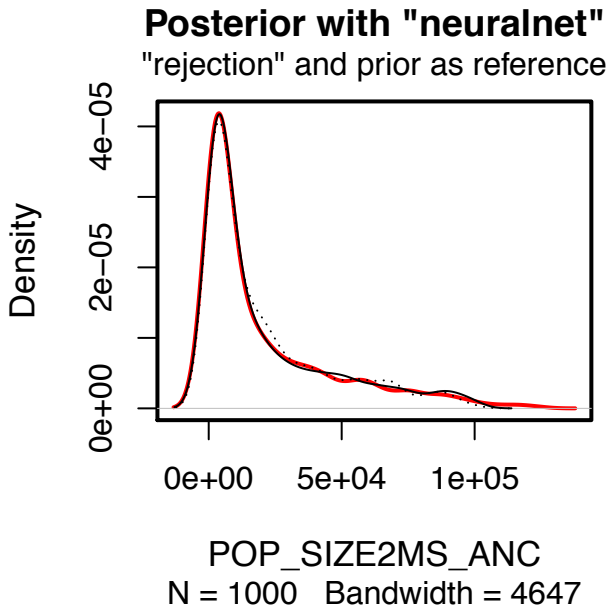

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0000
0.0010
0.0020
0
500
1500
2500
POP_SIZE2MS_BOT
N = 1000 Bandwidth = 120.1

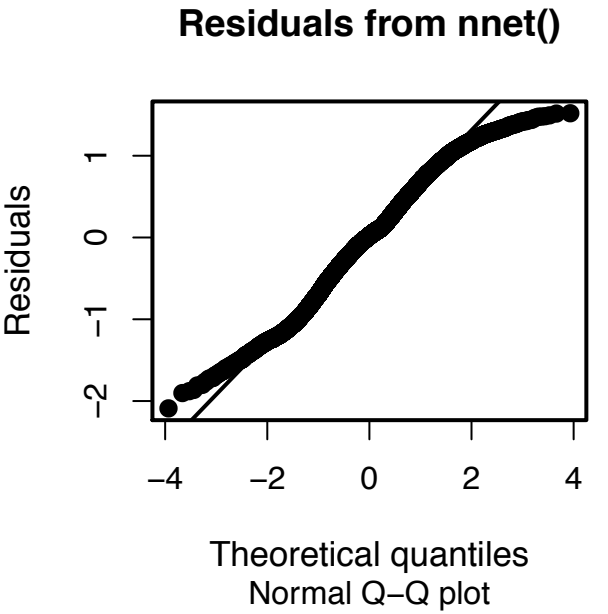

Residuals from nnet()
Residuals
−2
−1
0
1
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

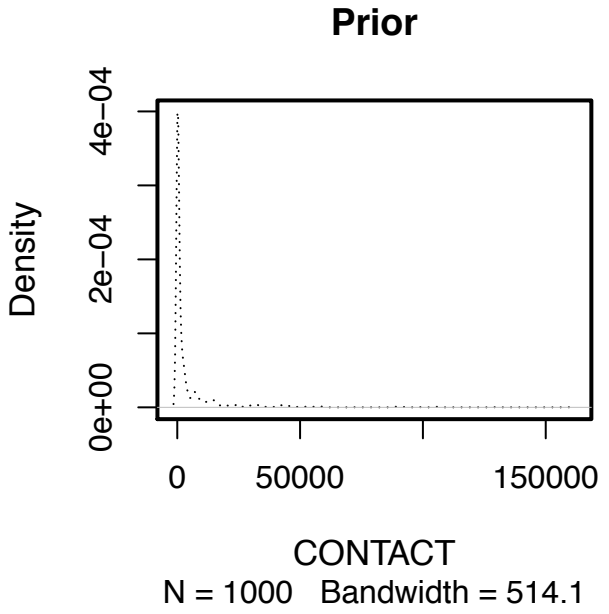

Prior
Density
0e+00
2e−05
0e+00
4e+04
8e+04
POP_SIZE1MS_ANC
N = 1000 Bandwidth = 5049
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0e+00
4e+04
8e+04
POP_SIZE1MS_ANC
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0e+00
3e−05
0e+00
4e+04
8e+04
POP_SIZE1MS_ANC
N = 1000 Bandwidth = 3458
Residuals from nnet()
Residuals
−2
−1
0
1
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

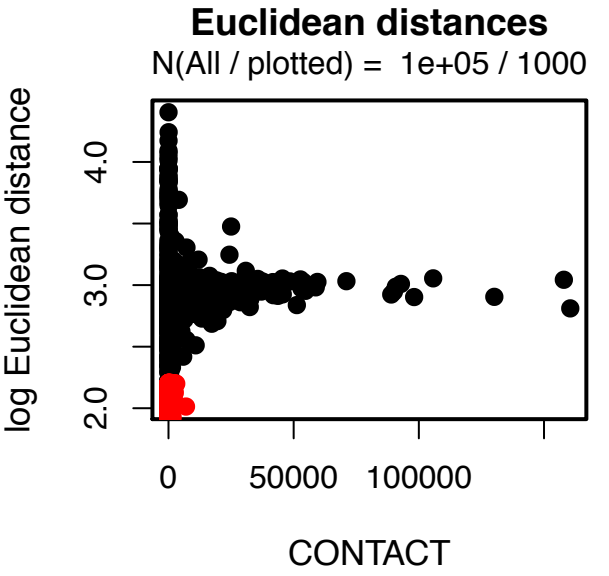

Prior
Density
0e+00
2e−05
4e−05
0e+00
4e+04
8e+04
POP_SIZE2MS_ANC
N = 1000 Bandwidth = 4434

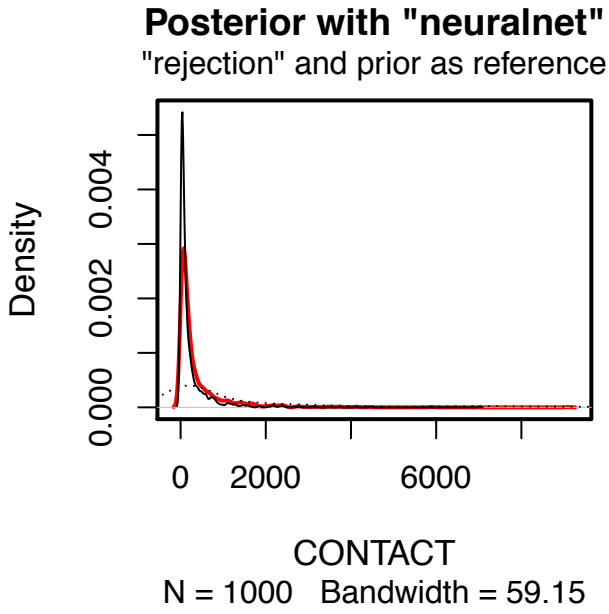

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0e+00
4e+04
8e+04
POP_SIZE2MS_ANC

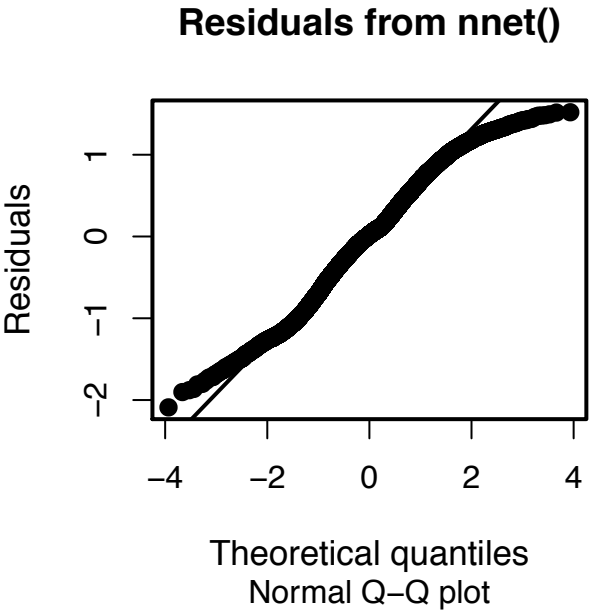

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0e+00
2e−05
4e−05
0e+00
5e+04
1e+05
POP_SIZE2MS_ANC
N = 1000 Bandwidth = 4647

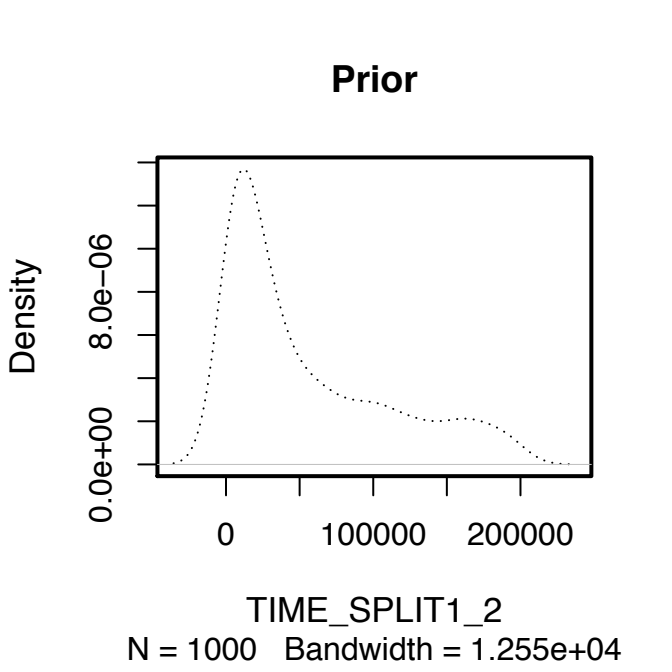

Residuals from nnet()
Residuals
−2
−1
0
1
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

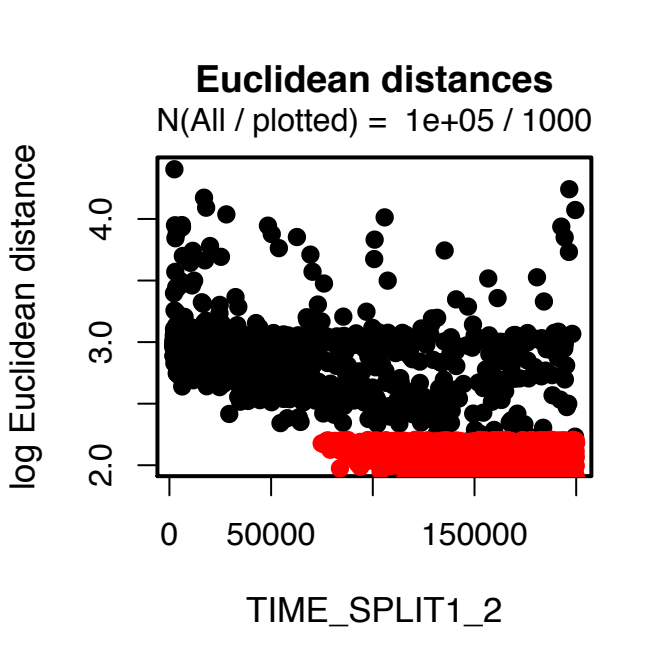

Prior
Density
0e+00
2e−04
4e−04
0
50000
150000
CONTACT
N = 1000 Bandwidth = 514.1

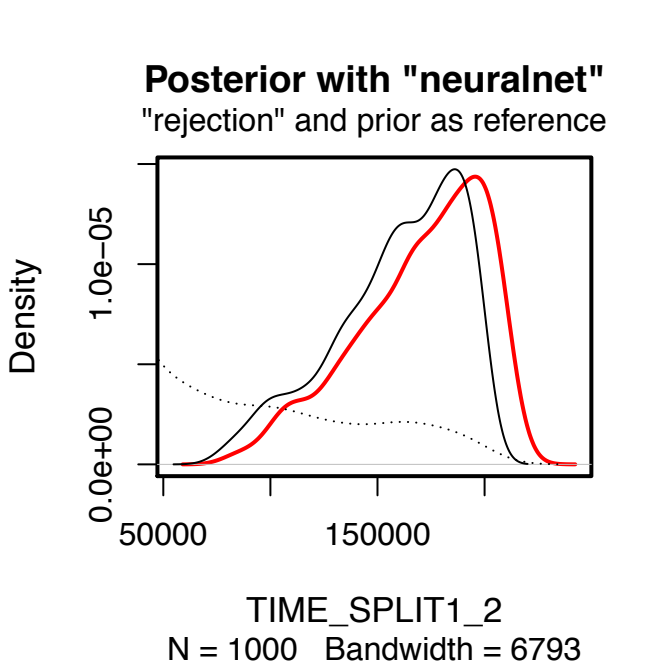

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
50000
100000
CONTACT

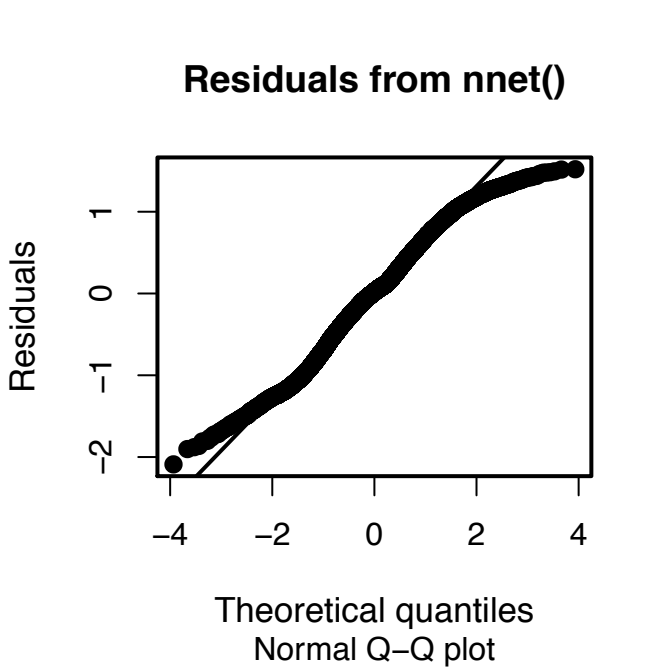

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.000
0.002
0.004
0
2000
6000
CONTACT
N = 1000 Bandwidth = 59.15


Residuals from nnet()
Residuals
−2
−1
0
1
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot


Prior
Density
0.0e+00
8.0e−06
0
100000
200000
TIME_SPLIT1_2
N = 1000 Bandwidth = 1.255e+04

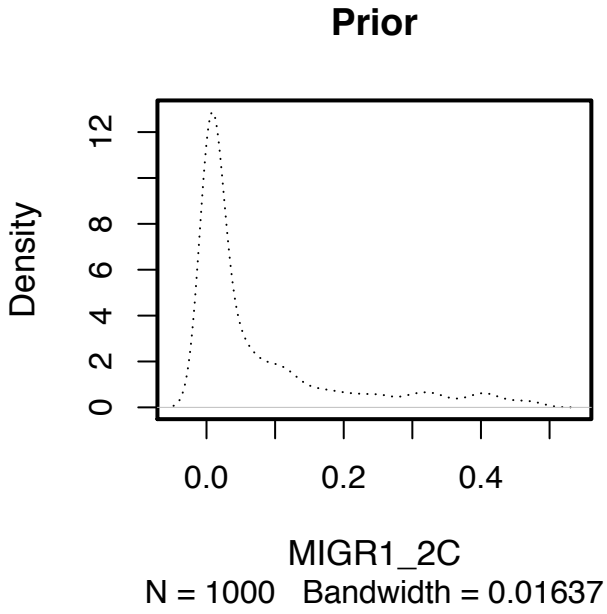

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
50000
150000
TIME_SPLIT1_2

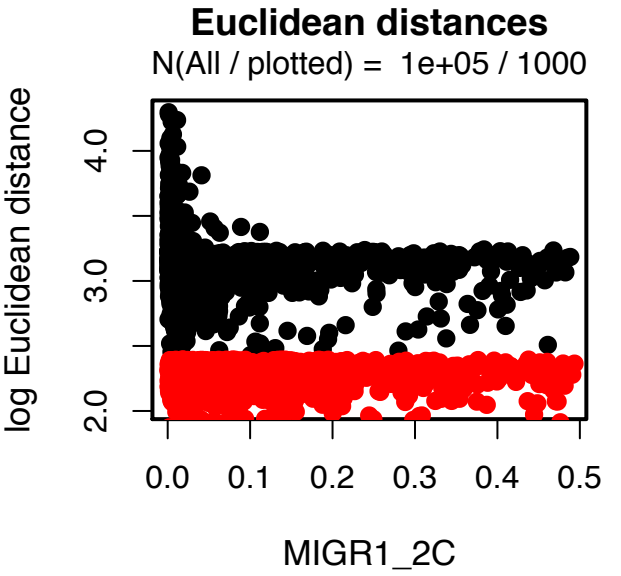

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0e+00
1.0e−05
50000
150000
TIME_SPLIT1_2
N = 1000 Bandwidth = 6793

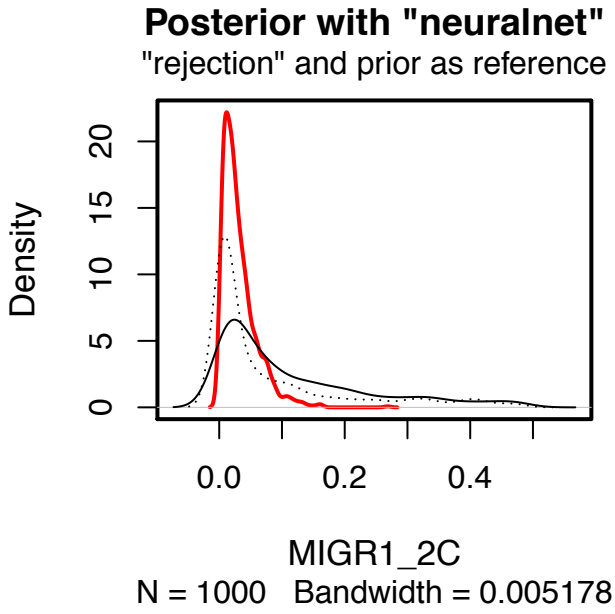

Residuals from nnet()
Residuals
−2
−1
0
1
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

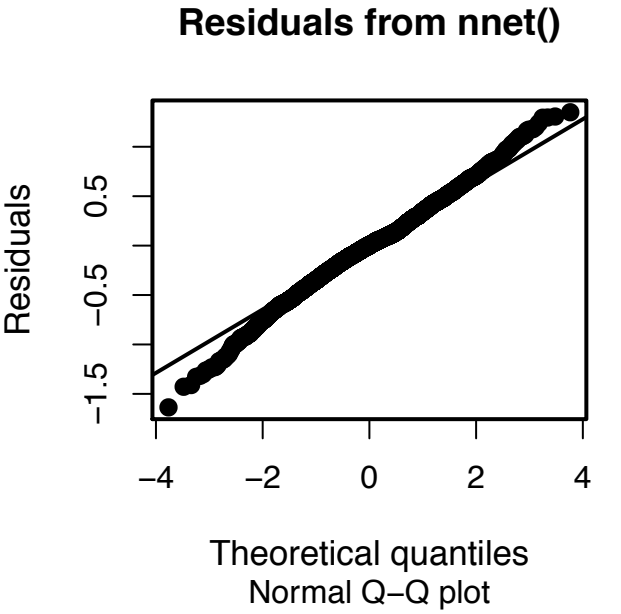
Scenario 5NB: isolation following divergence, with one migration rate since secondary contact, M_C

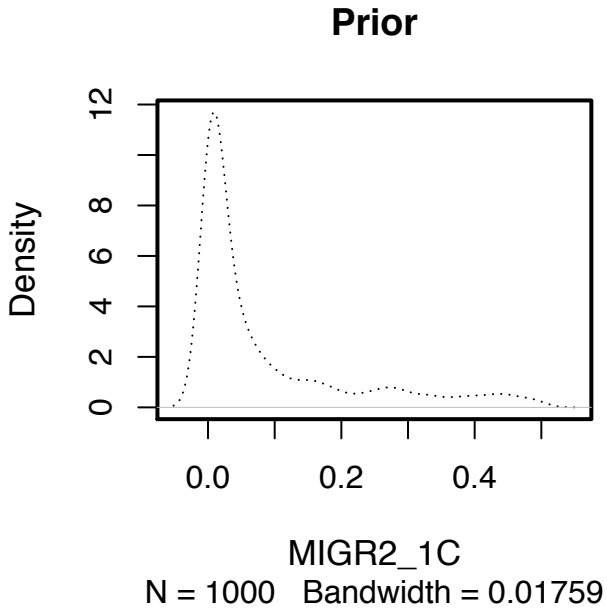
No whaling bottleneck

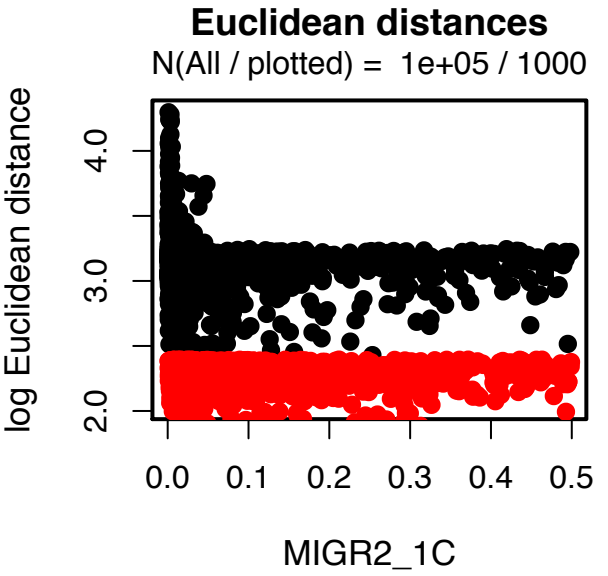

Prior
Density
0
2
4
6
8
12
0.0
0.2
0.4
MIGR1_2C
N = 1000 Bandwidth = 0.01637

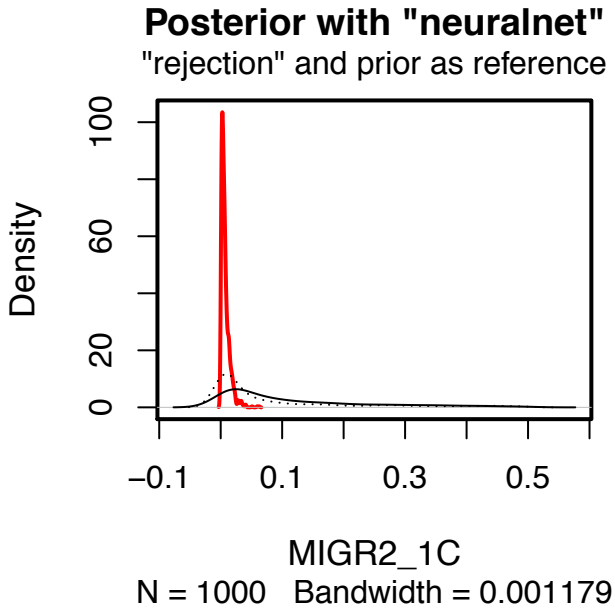

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0.0
0.1
0.2
0.3
0.4
0.5
MIGR1_2C

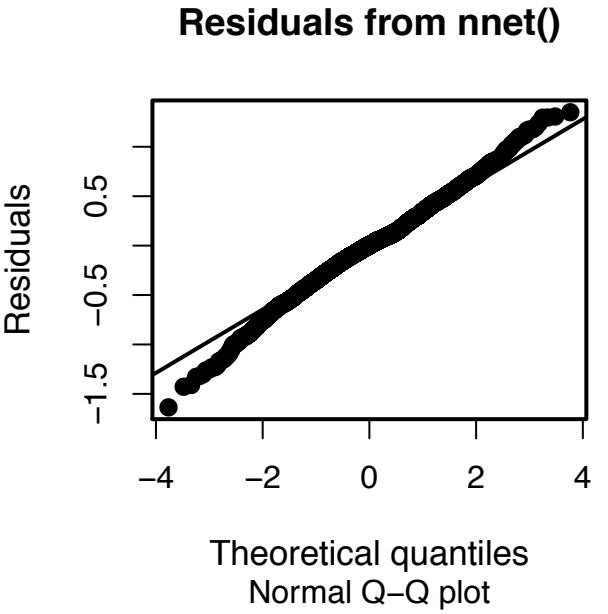

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0
5
10
15
20
0.0
0.2
0.4
MIGR1_2C
N = 1000 Bandwidth = 0.005178

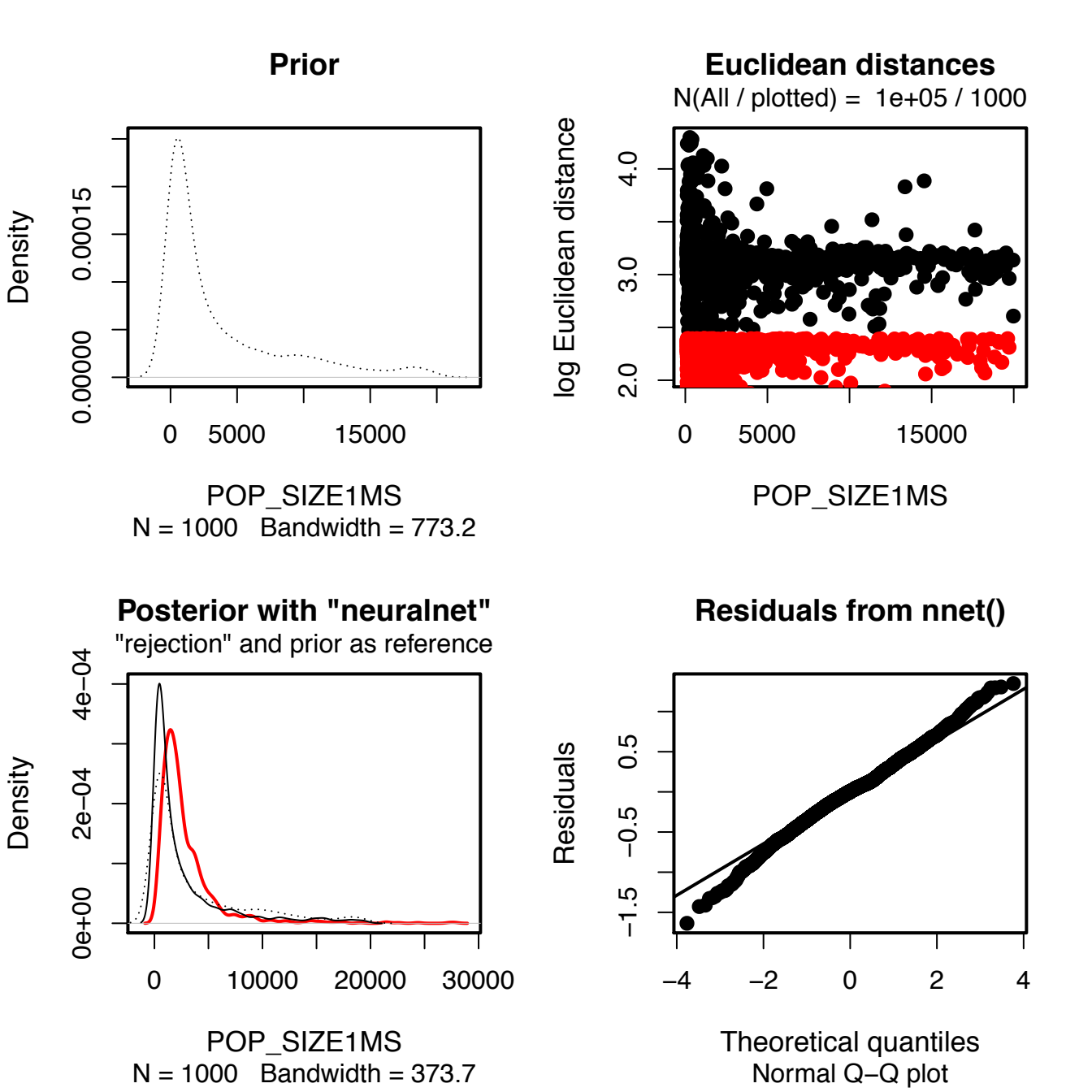

Residuals from nnet()
Residuals
−1.5
−0.5
0.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

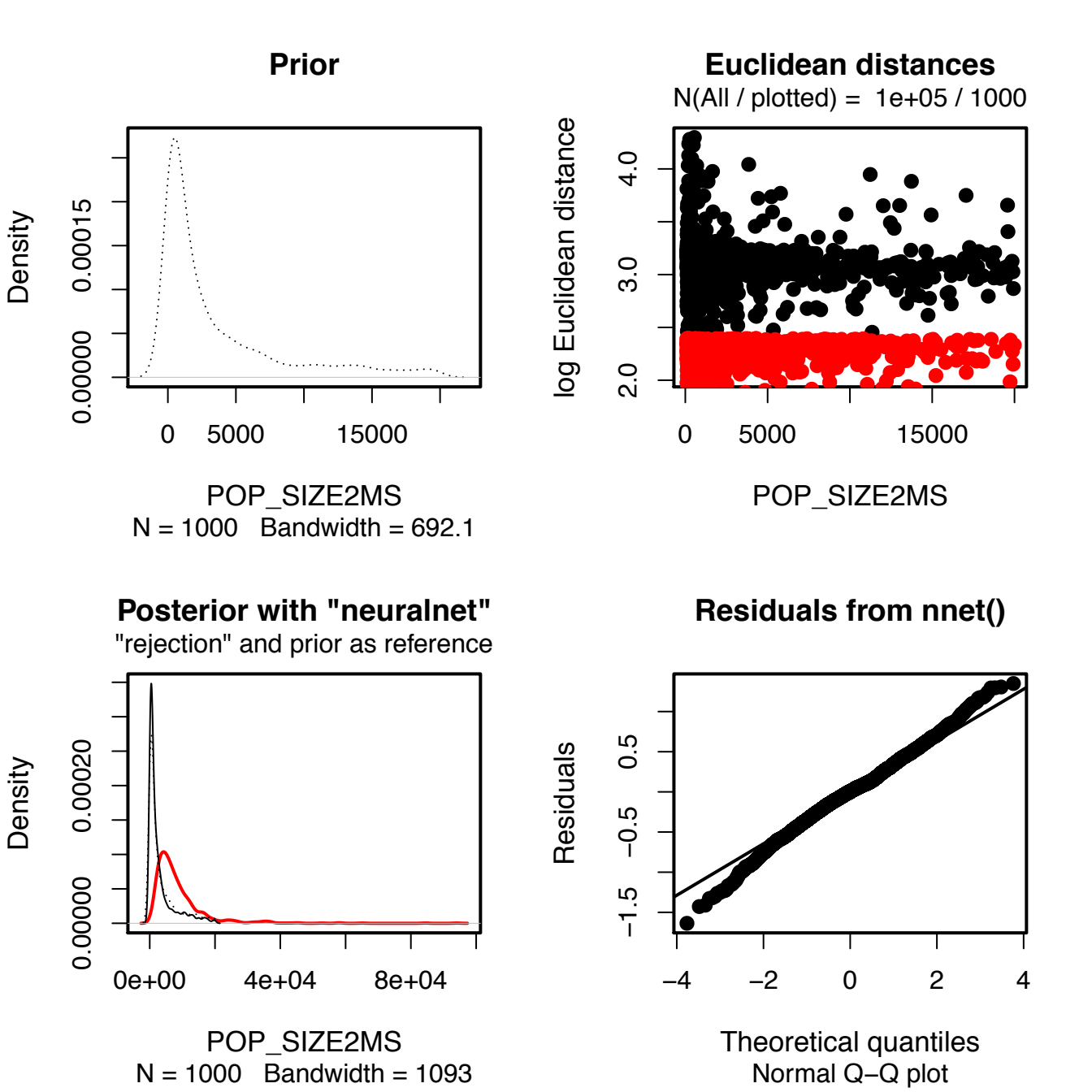

Prior
Density
0
2
4
6
8
12
0.0
0.2
0.4
MIGR2_1C
N = 1000 Bandwidth = 0.01759

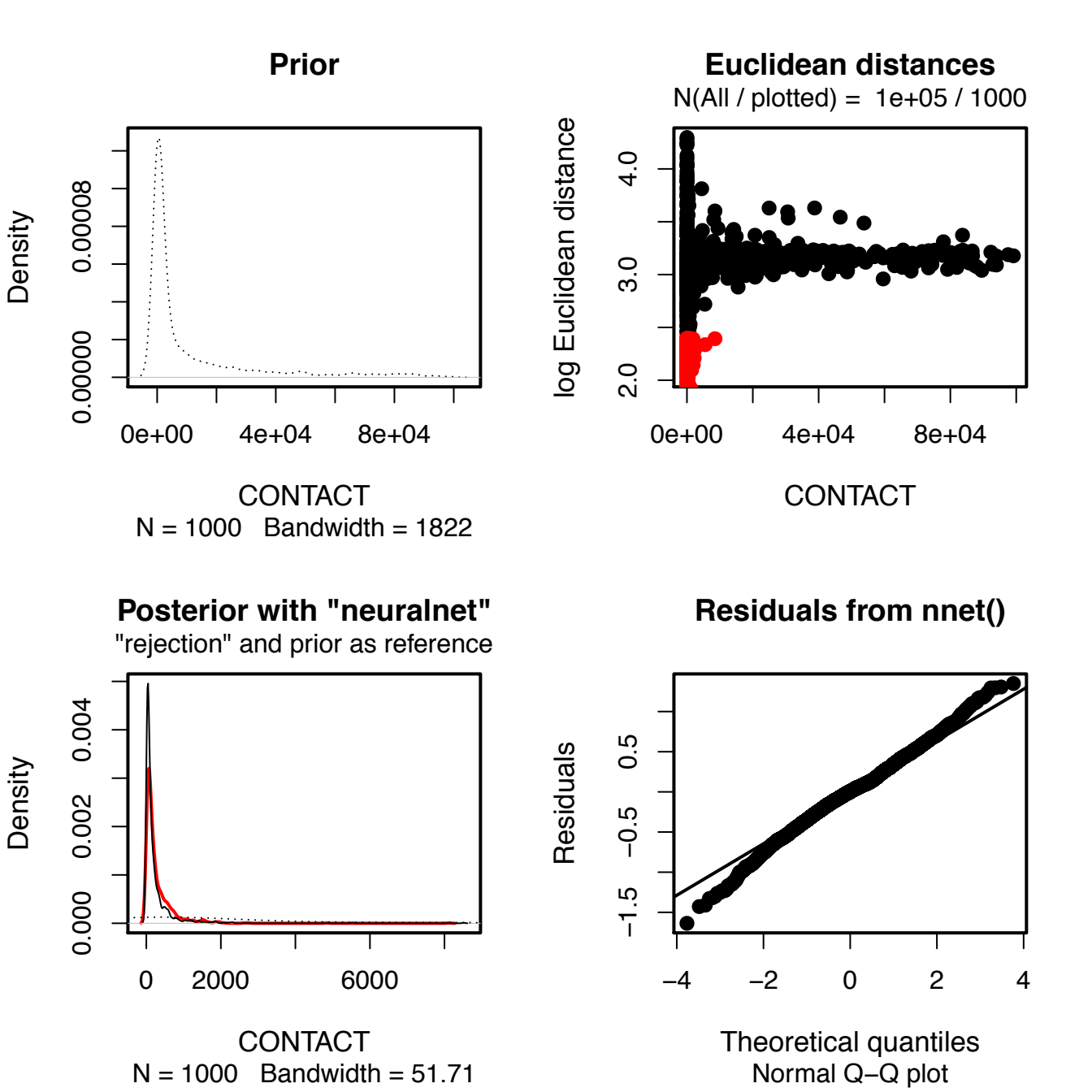

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0.0
0.1
0.2
0.3
0.4
0.5
MIGR2_1C

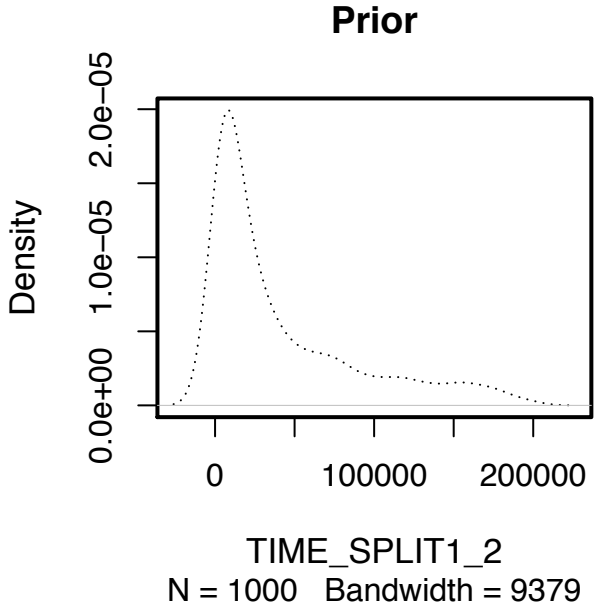

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0
20
60
100
−0.1
0.1
0.3
0.5
MIGR2_1C
N = 1000 Bandwidth = 0.001179

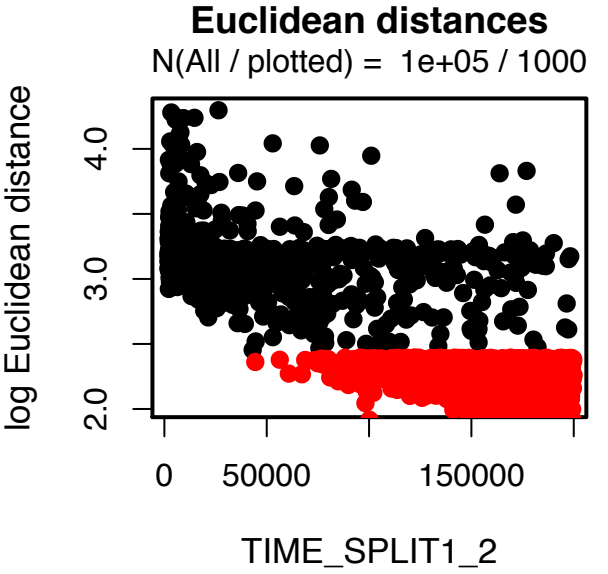

Residuals from nnet()
Residuals
−1.5
−0.5
0.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

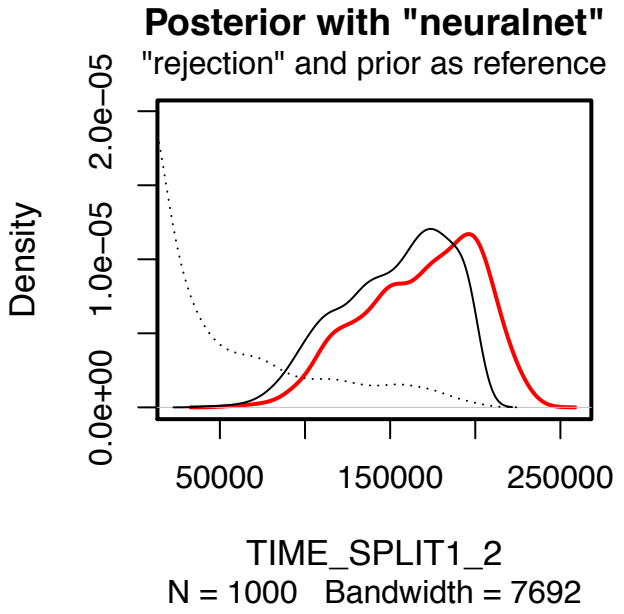

Prior
Density
0.00000
0.00015
0
5000
15000
POP_SIZE1MS
N = 1000 Bandwidth = 773.2
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
5000
15000
POP_SIZE1MS
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0e+00
2e−04
4e−04
0
10000
20000
30000
POP_SIZE1MS
N = 1000 Bandwidth = 373.7
Residuals from nnet()
Residuals
−1.5
−0.5
0.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

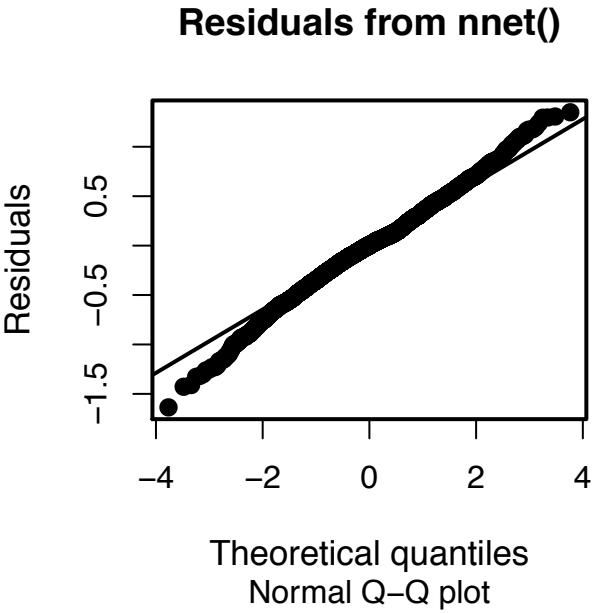

Prior
Density
0.00000
0.00015
0
5000
15000
POP_SIZE2MS
N = 1000 Bandwidth = 692.1
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
5000
15000
POP_SIZE2MS
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.00000
0.00020
0e+00
4e+04
8e+04
POP_SIZE2MS
N = 1000 Bandwidth = 1093
Residuals from nnet()
Residuals
−1.5
−0.5
0.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot


Prior
Density
0.00000
0.00008
0e+00
4e+04
8e+04
CONTACT
N = 1000 Bandwidth = 1822
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0e+00
4e+04
8e+04
CONTACT
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.000
0.002
0.004
0
2000
6000
CONTACT
N = 1000 Bandwidth = 51.71
Residuals from nnet()
Residuals
−1.5
−0.5
0.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot


Prior
Density
0.0e+00
1.0e−05
2.0e−05
0
100000
200000
TIME_SPLIT1_2
N = 1000 Bandwidth = 9379

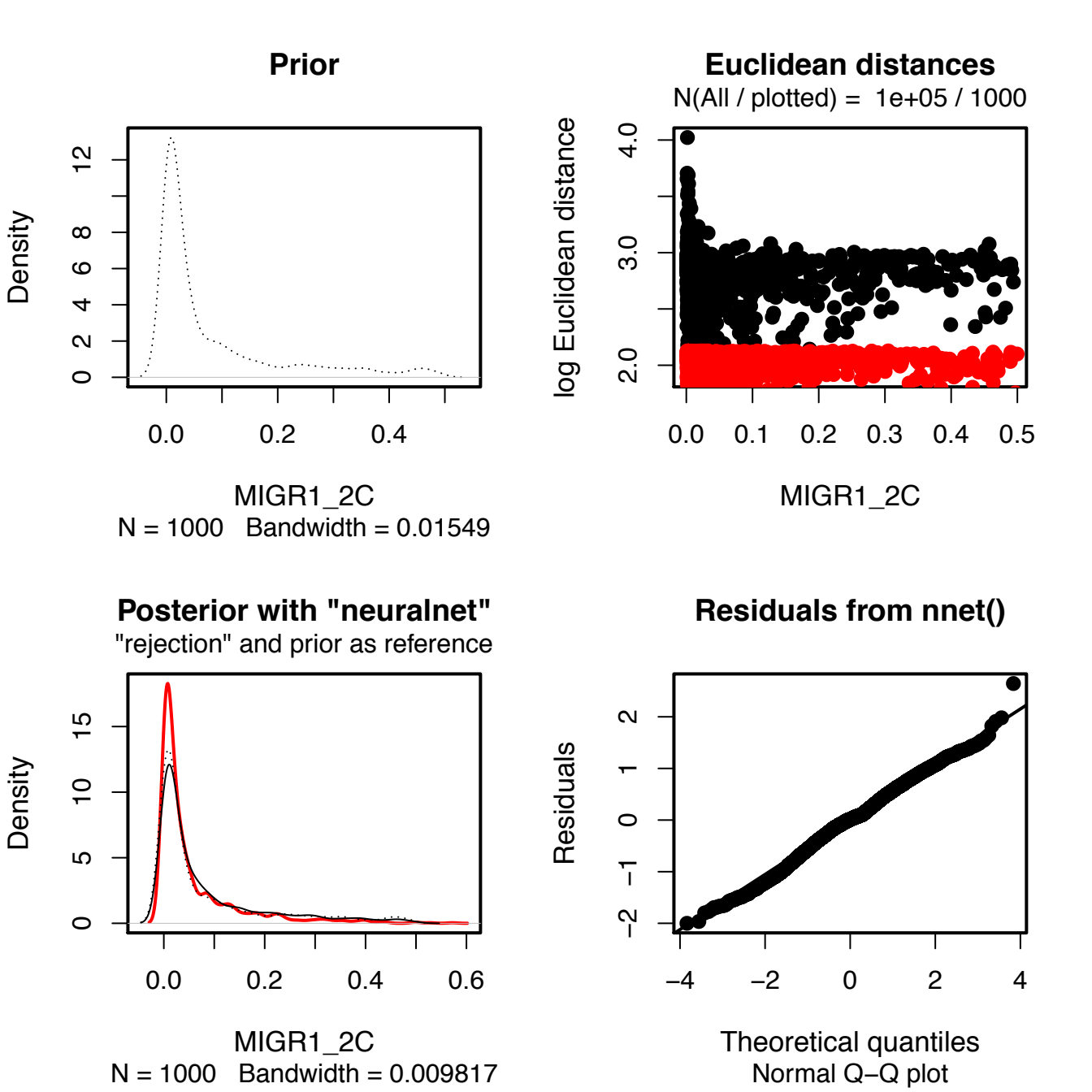

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
50000
150000
TIME_SPLIT1_2

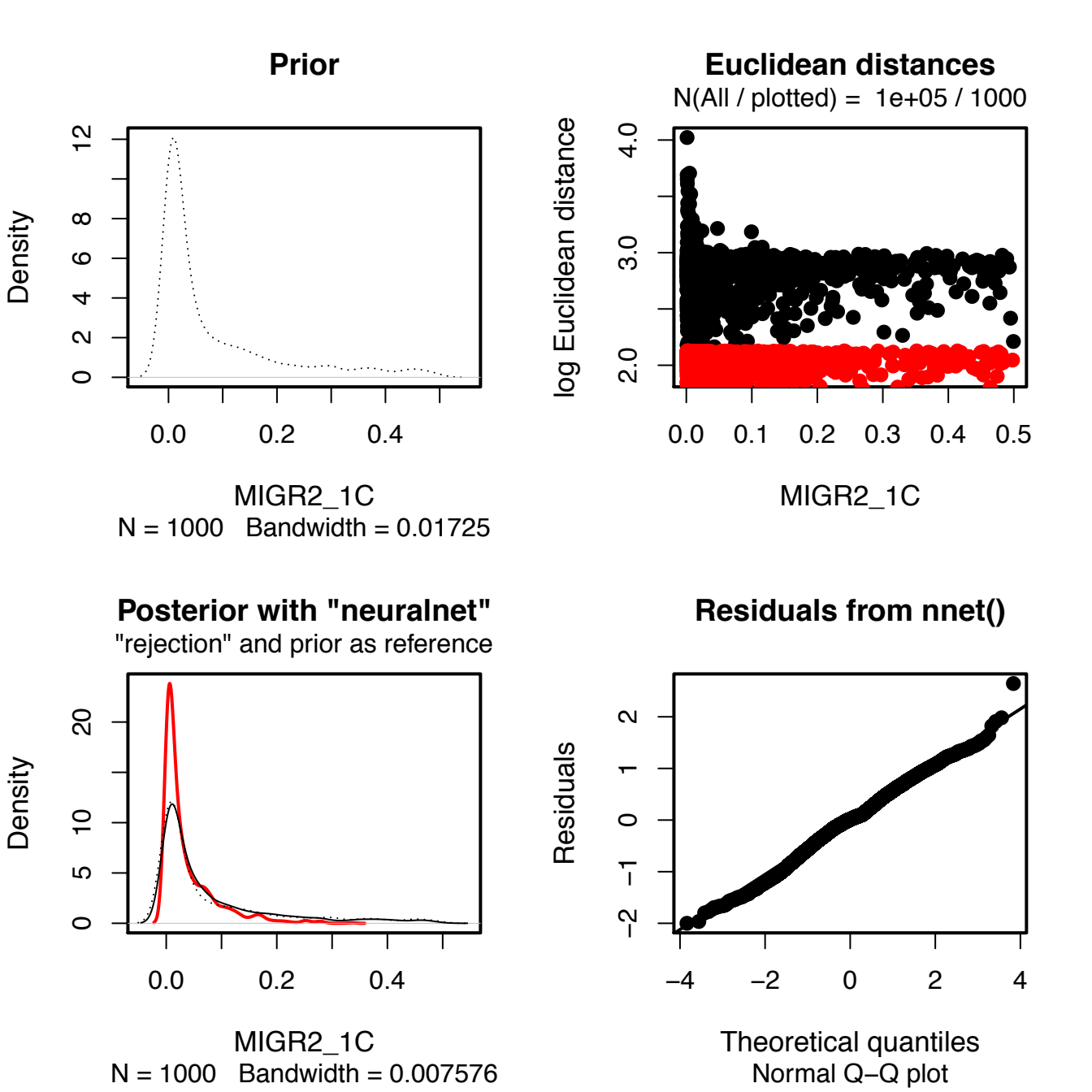

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0e+00
1.0e−05
2.0e−05
50000
150000
250000
TIME_SPLIT1_2
N = 1000 Bandwidth = 7692

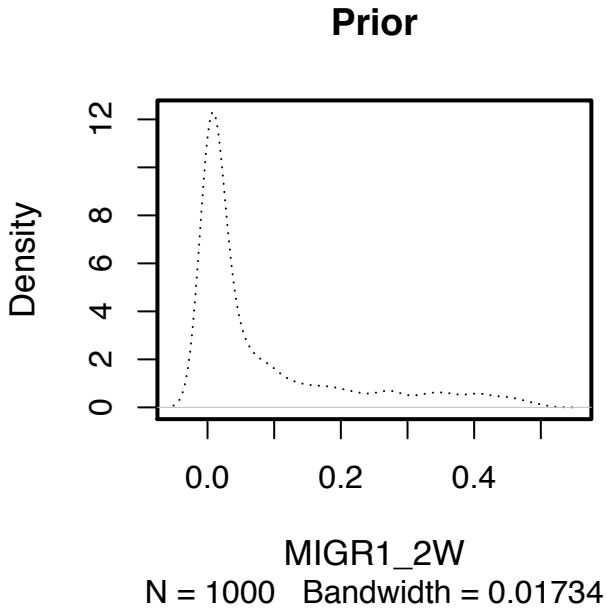

Residuals from nnet()
Residuals
−1.5
−0.5
0.5
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

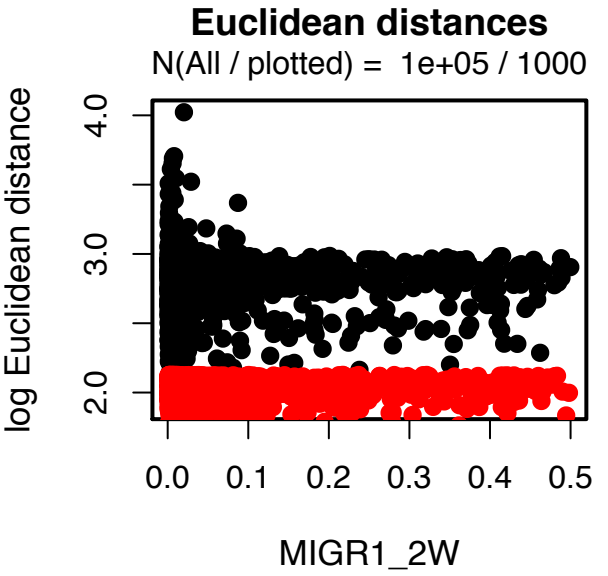
Scenario 6NB: isolation following divergence, with two migration rates: one since secondary contact, M_C, and one since the whaling era, M_W

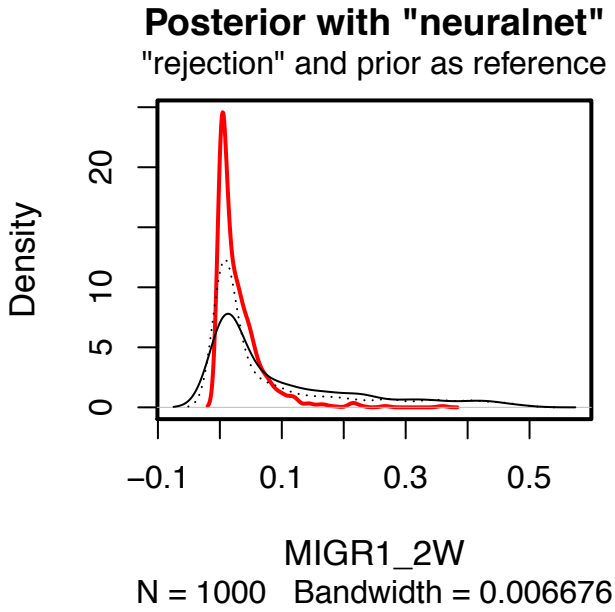
No whaling bottleneck

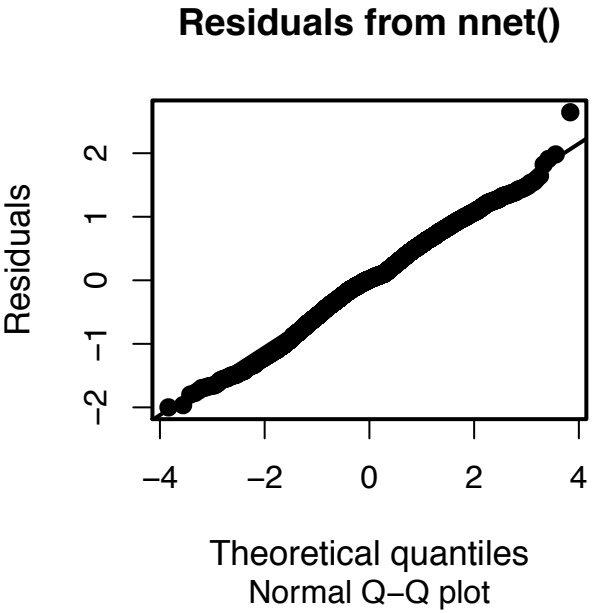

Prior
Density
0 2 4 6 8 12
0.0 0.2 0.4
MIGR1_2C
N = 1000 Bandwidth = 0.01549
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0 3.0 4.0
0.0 0.1 0.2 0.3 0.4 0.5
MIGR1_2C
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0 5 10 15
0.0 0.2 0.4 0.6
MIGR1_2C
N = 1000 Bandwidth = 0.009817
Residuals from nnet()
Residuals
−2 −1 0 1 2
−4 −2 0 2 4
Theoretical quantiles
Normal Q−Q plot

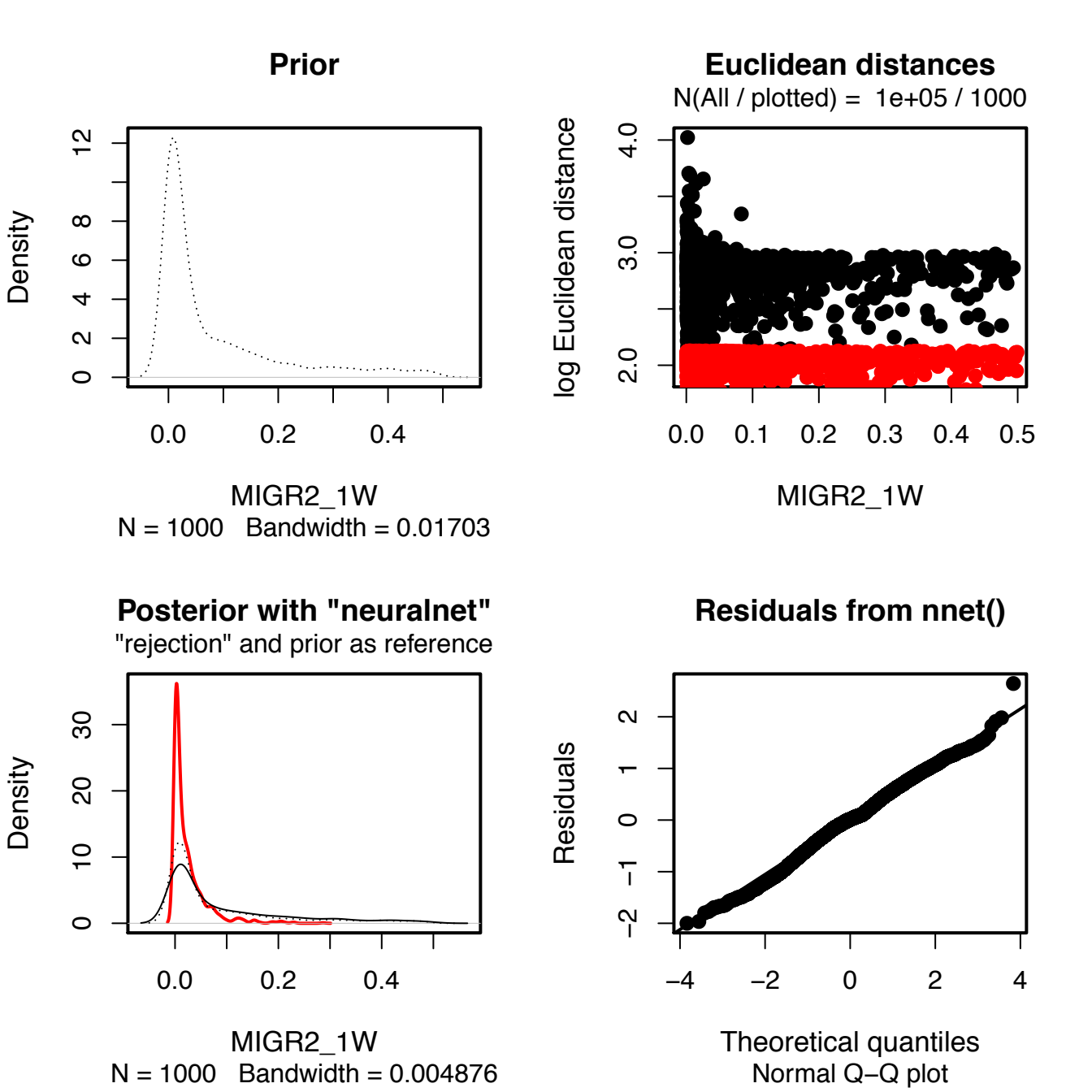

Prior
Density
0 2 4 6 8 12
0.0 0.2 0.4
MIGR2_1C
N = 1000 Bandwidth = 0.01725
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0 3.0 4.0
0.0 0.1 0.2 0.3 0.4 0.5
MIGR2_1C
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0 5 10 20
0.0 0.2 0.4
MIGR2_1C
N = 1000 Bandwidth = 0.007576
Residuals from nnet()
Residuals
−2 −1 0 1 2
−4 −2 0 2 4
Theoretical quantiles
Normal Q−Q plot

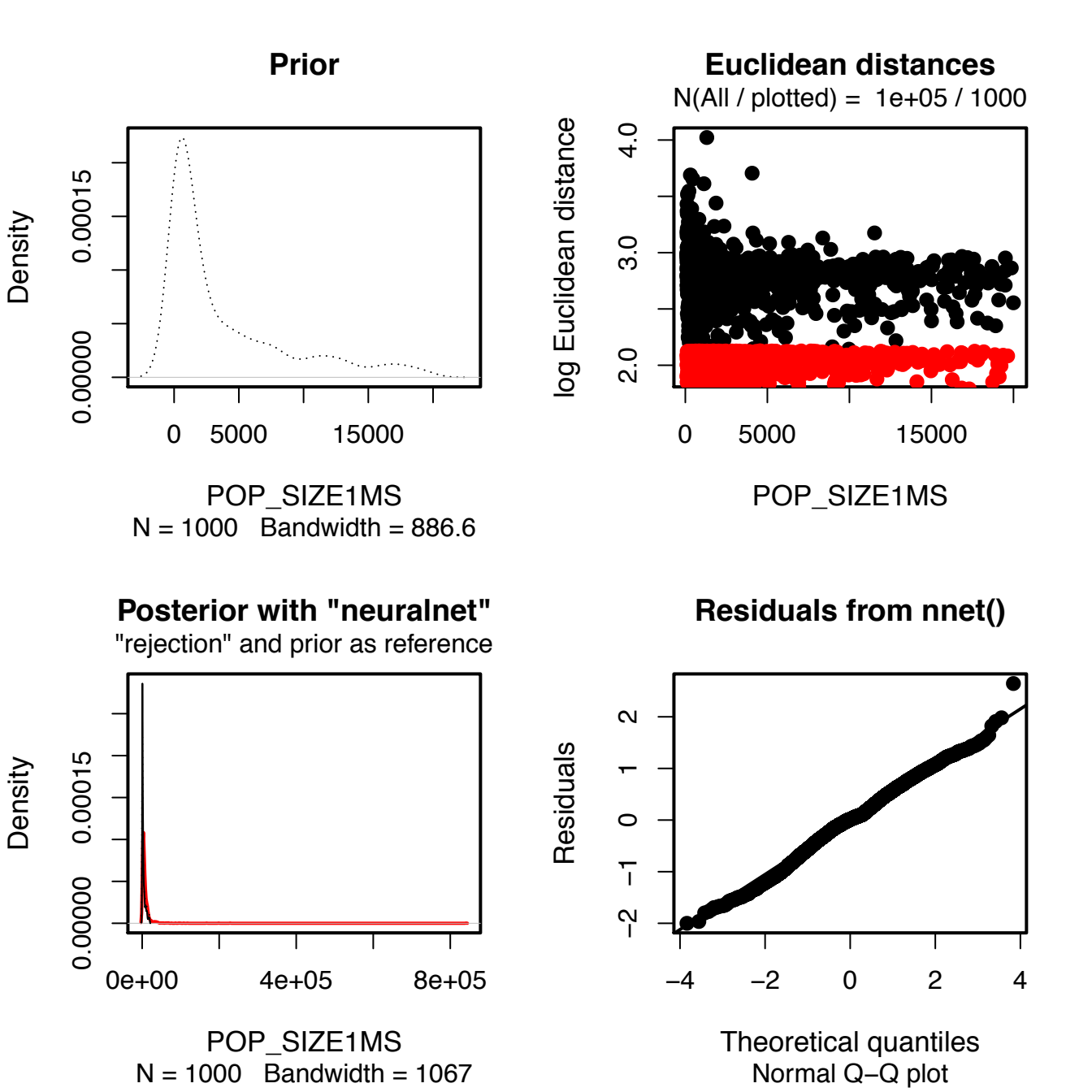

Prior
Density
0 2 4 6 8 12
0.0 0.2 0.4
MIGR1_2W
N = 1000 Bandwidth = 0.01734

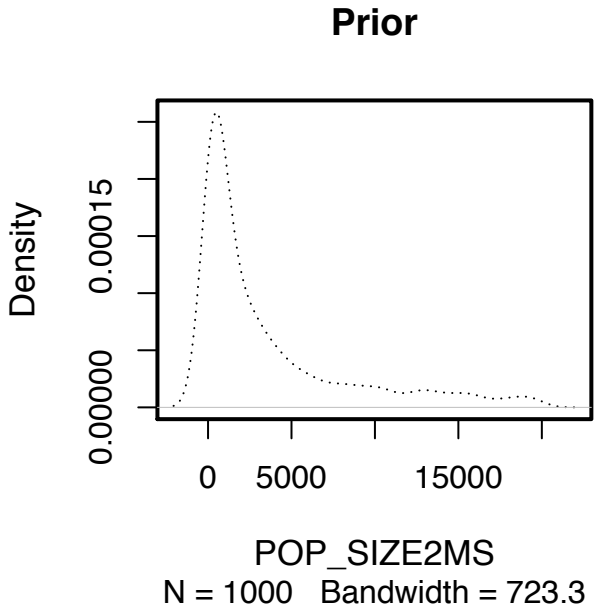

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0 3.0 4.0
0.0 0.1 0.2 0.3 0.4 0.5
MIGR1_2W

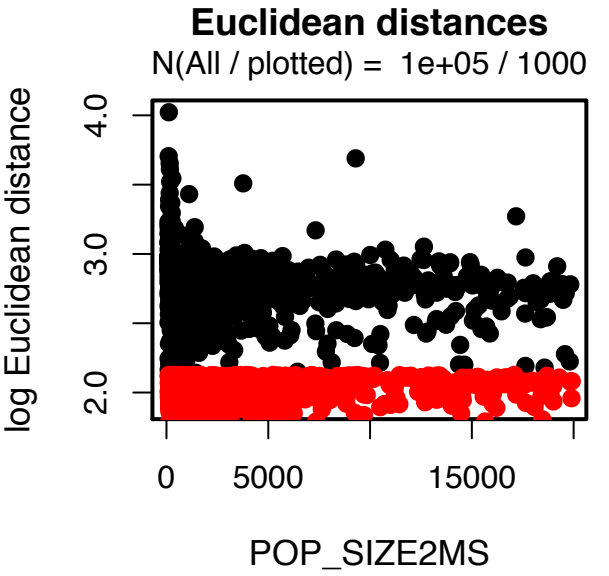

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0 5 10 20
−0.1 0.1 0.3 0.5
MIGR1_2W
N = 1000 Bandwidth = 0.006676

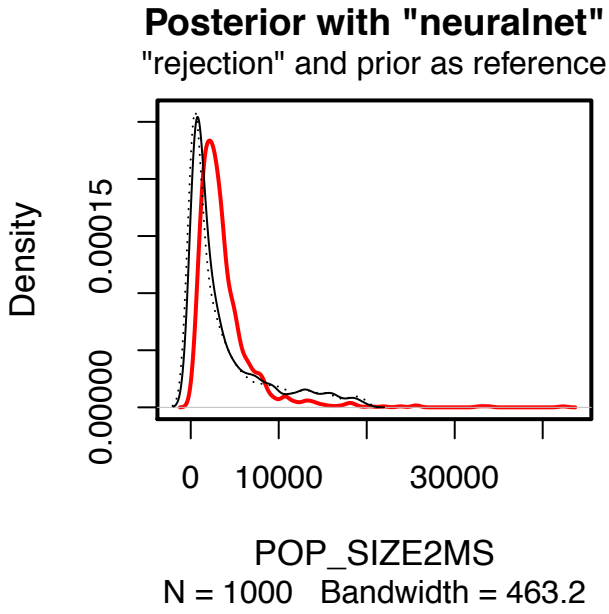

Residuals from nnet()
Residuals
−2 −1 0 1 2
−4 −2 0 2 4
Theoretical quantiles
Normal Q−Q plot

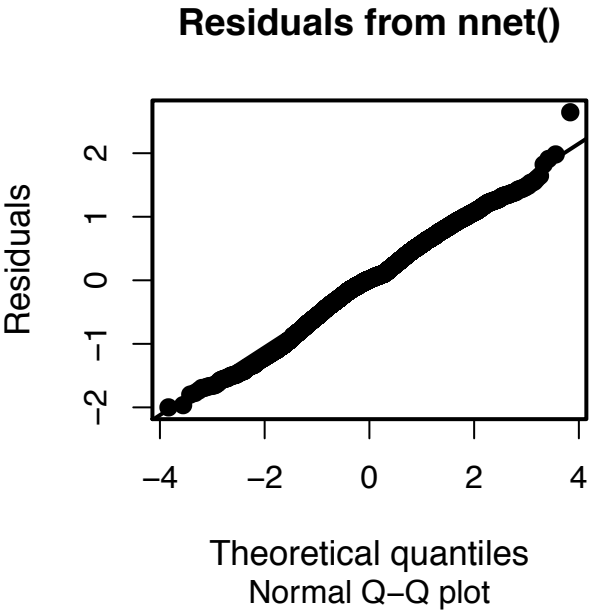

Prior
Density
0
2
4
6
8
12
0.0
0.2
0.4
MIGR2_1W
N = 1000 Bandwidth = 0.01703
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0.0
0.1
0.2
0.3
0.4
0.5
MIGR2_1W
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0
10
20
30
0.0
0.2
0.4
MIGR2_1W
N = 1000 Bandwidth = 0.004876
Residuals from nnet()
Residuals
−2
−1
0
1
2
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

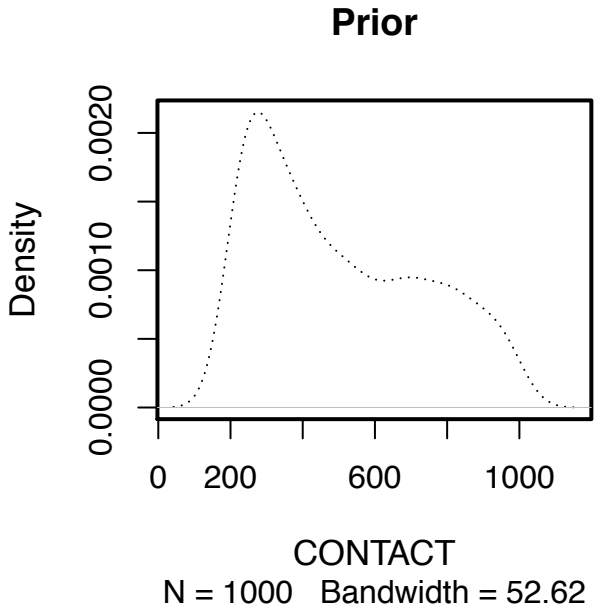

Prior
Density
0.00000
0.00015
0
5000
15000
POP_SIZE1MS
N = 1000 Bandwidth = 886.6
Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
5000
15000
POP_SIZE1MS
Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.00000
0.00015
0e+00
4e+05
8e+05
POP_SIZE1MS
N = 1000 Bandwidth = 1067
Residuals from nnet()
Residuals
−2
−1
0
1
2
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

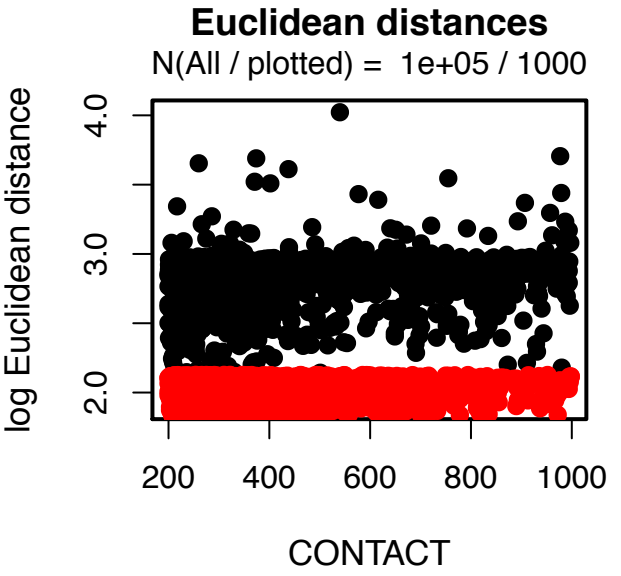

Prior
Density
0.00000
0.00015
0
5000
15000
POP_SIZE2MS
N = 1000 Bandwidth = 723.3

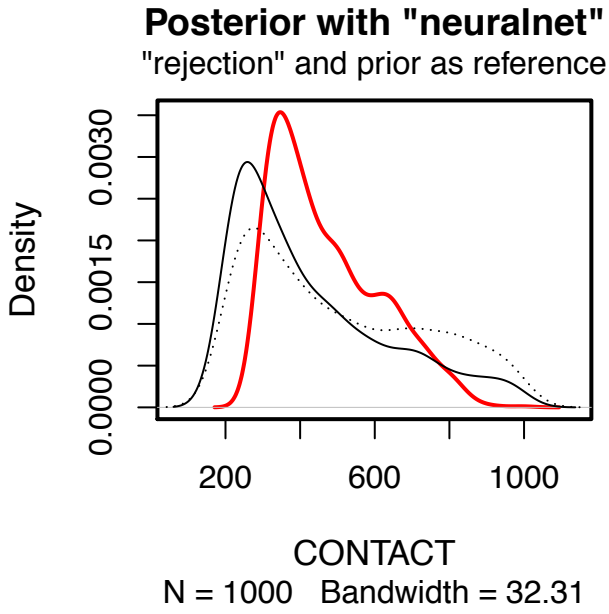

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
5000
15000
POP_SIZE2MS

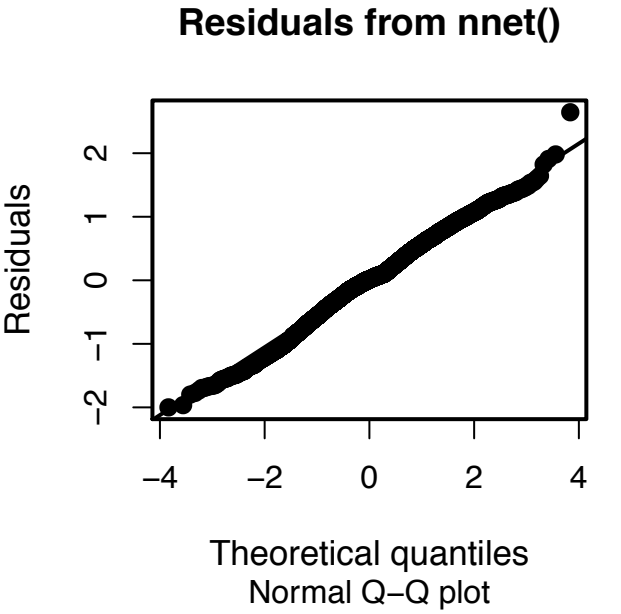

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.00000
0.00015
0
10000
30000
POP_SIZE2MS
N = 1000 Bandwidth = 463.2

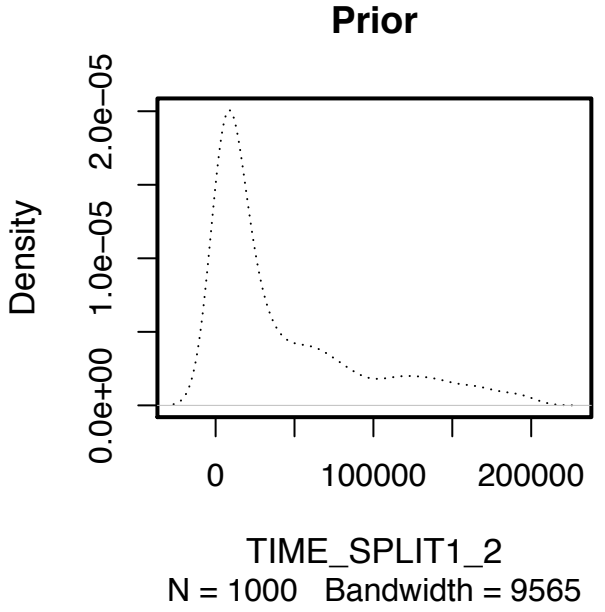

Residuals from nnet()
Residuals
−2
−1
0
1
2
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot

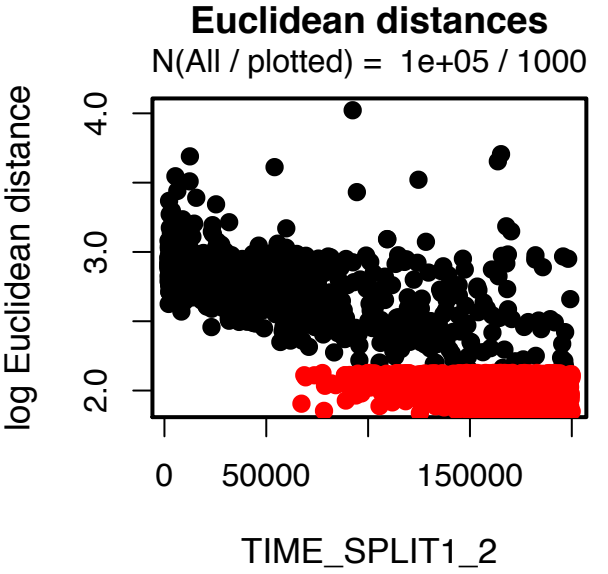

Prior
Density
0.0000
0.0010
0.0020
0
200
600
1000
CONTACT
N = 1000 Bandwidth = 52.62

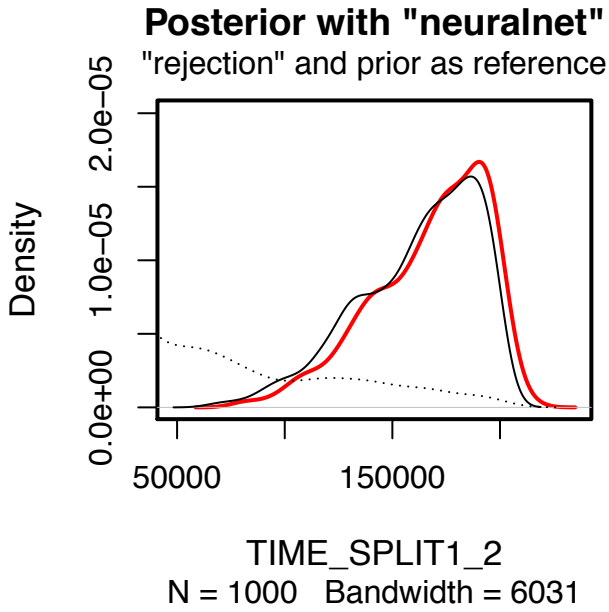

Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
200
400
600
800
1000
CONTACT

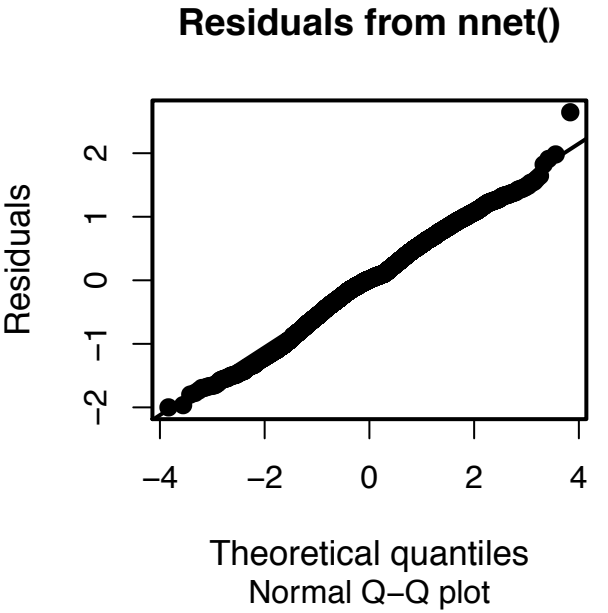

Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0000
0.0015
0.0030
200
600
1000
CONTACT
N = 1000 Bandwidth = 32.31


Residuals from nnet()
Residuals
−2
−1
0
1
2
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot


Prior
Density
0.0e+00
1.0e−05
2.0e−05
0
100000
200000
TIME_SPLIT1_2
N = 1000 Bandwidth = 9565


Euclidean distances
N(All / plotted) = 1e+05 / 1000
log Euclidean distance
2.0
3.0
4.0
0
50000
150000
TIME_SPLIT1_2


Posterior with "neuralnet"
"rejection" and prior as reference
Density
0.0e+00
1.0e−05
2.0e−05
50000
150000
TIME_SPLIT1_2
N = 1000 Bandwidth = 6031


Residuals from nnet()
Residuals
−2
−1
0
1
2
−4
−2
0
2
4
Theoretical quantiles
Normal Q−Q plot