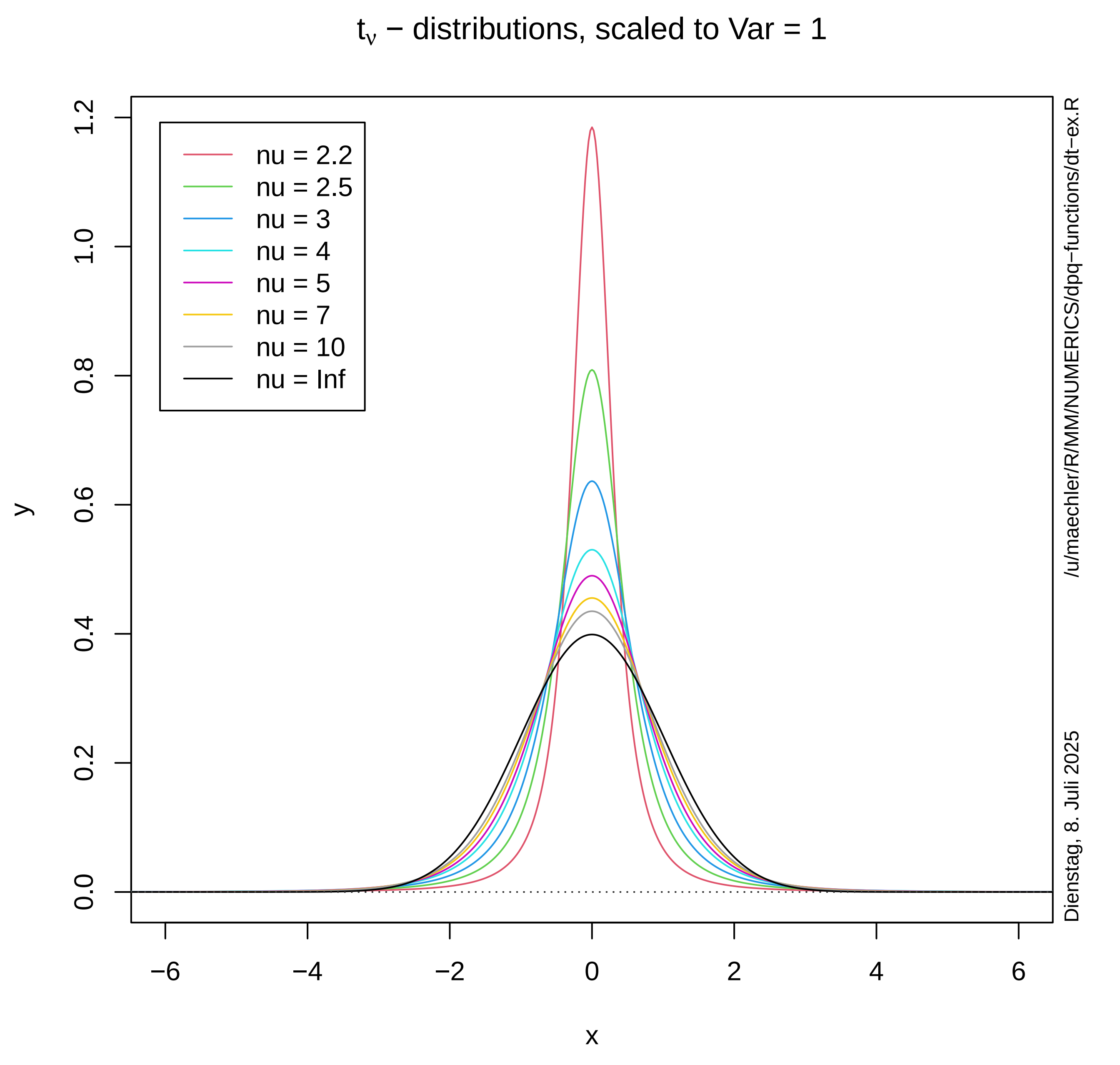
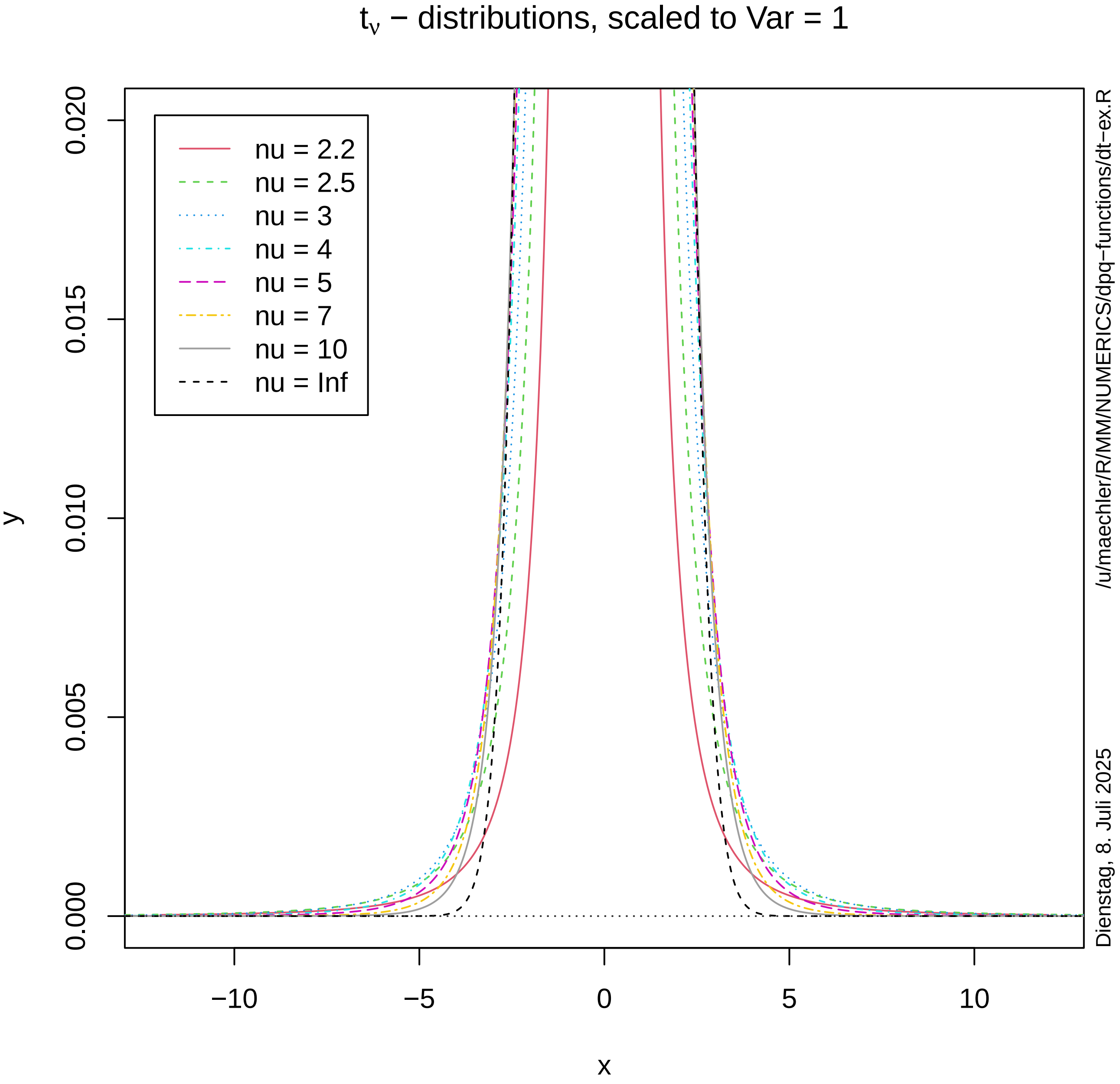
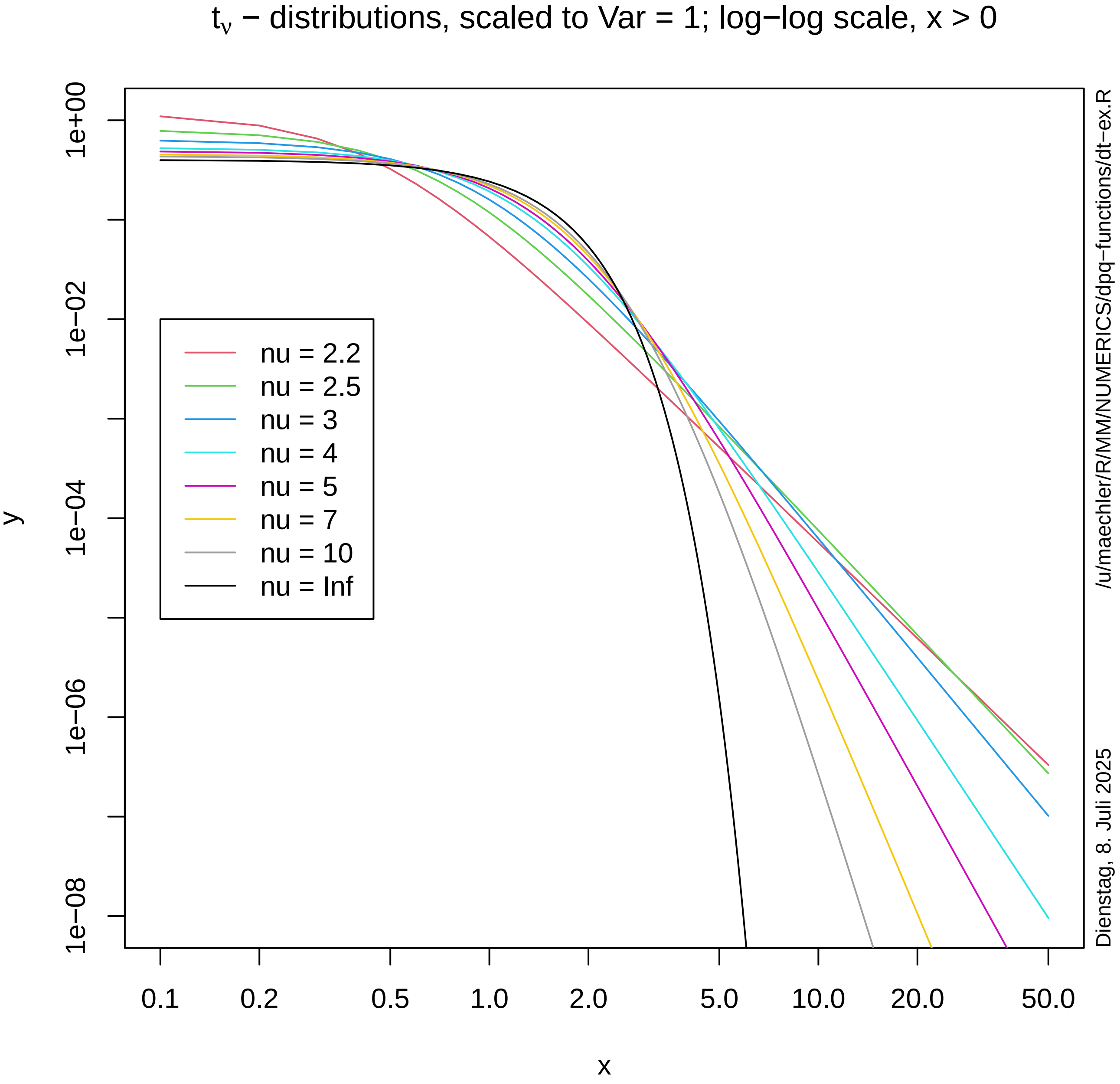


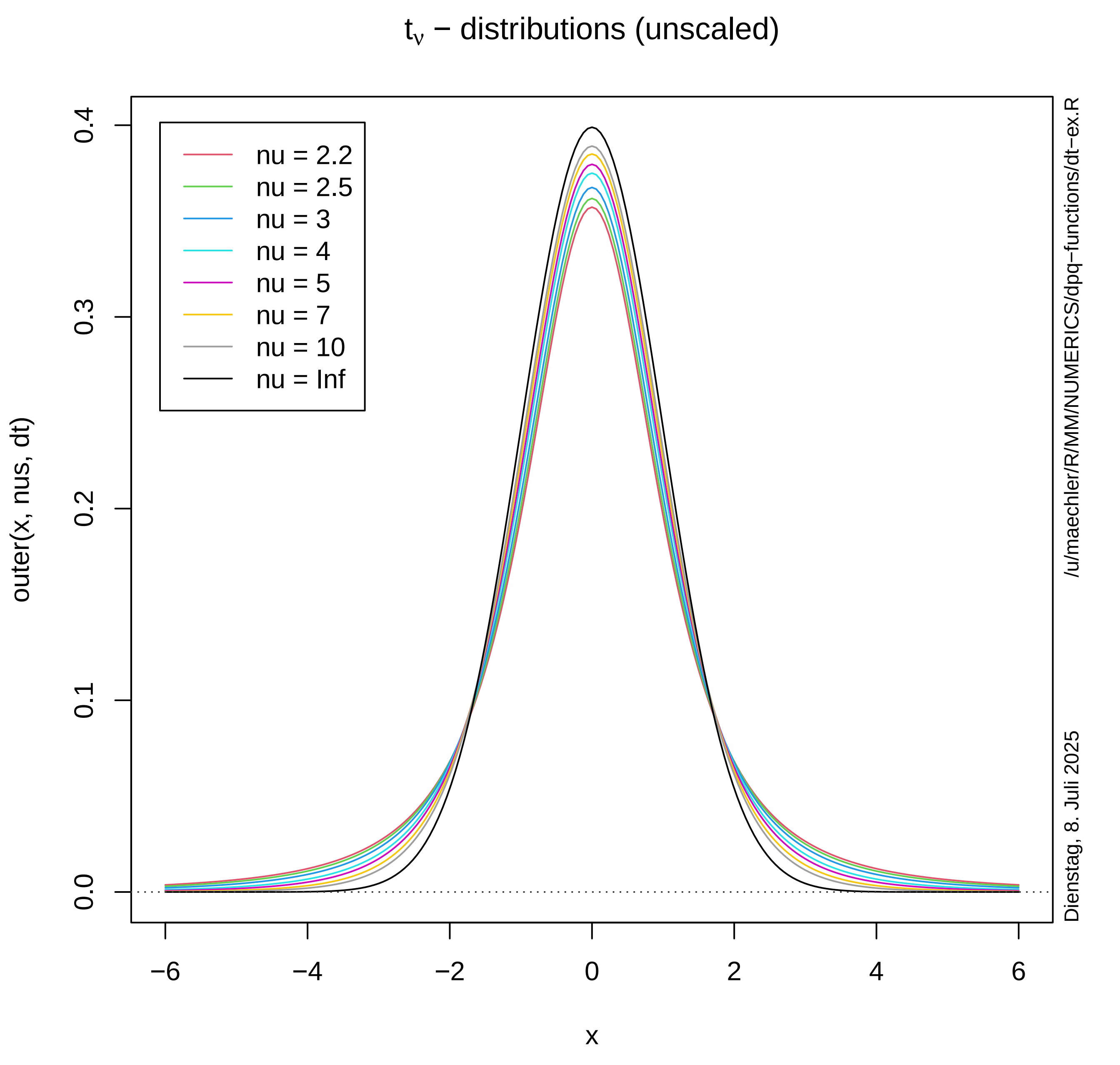
tν − distributions, scaled to Var = 1
nu = 2.2
nu = 2.5
nu = 3
nu = 4
nu = 5
nu = 7
nu = 10
nu = Inf
y
x
0.0
0.2
0.4
0.6
0.8
1.0
1.2
−6
−4
−2
0
2
4
6
/u/maechler/R/MM/NUMERICS/dpq−functions/dt−ex.R
Dienstag, 8. Juli 2025



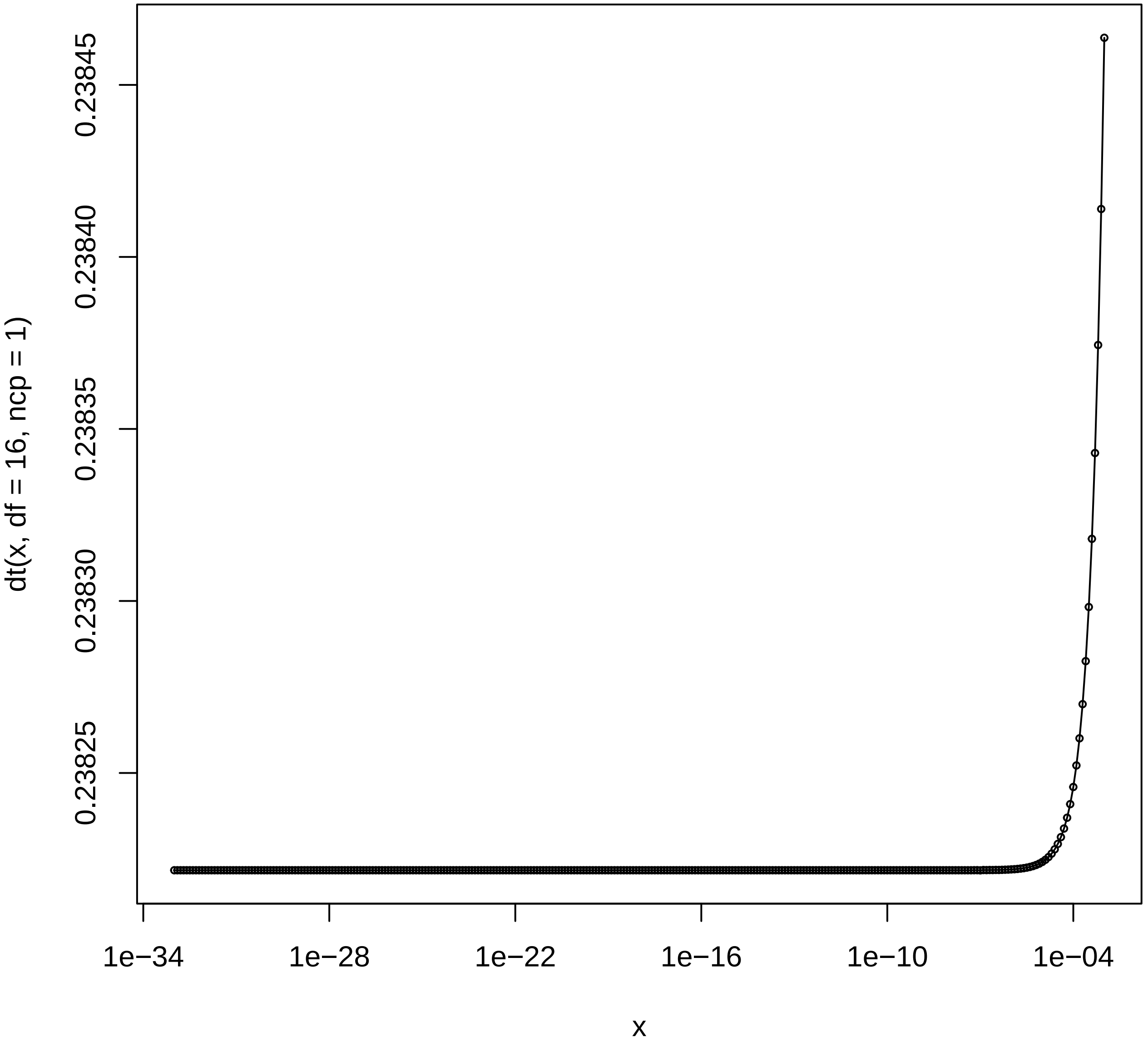
t_ν − distributions, scaled to Var = 1
nu = 2.2
nu = 2.5
nu = 3
nu = 4
nu = 5
nu = 7
nu = 10
nu = Inf
0.000
0.005
0.010
0.015
0.020
y
−10
−5
0
5
10
x
/u/maechler/R/MM/NUMERICS/dpq−functions/dt−ex.R
Dienstag, 8. Juli 2025



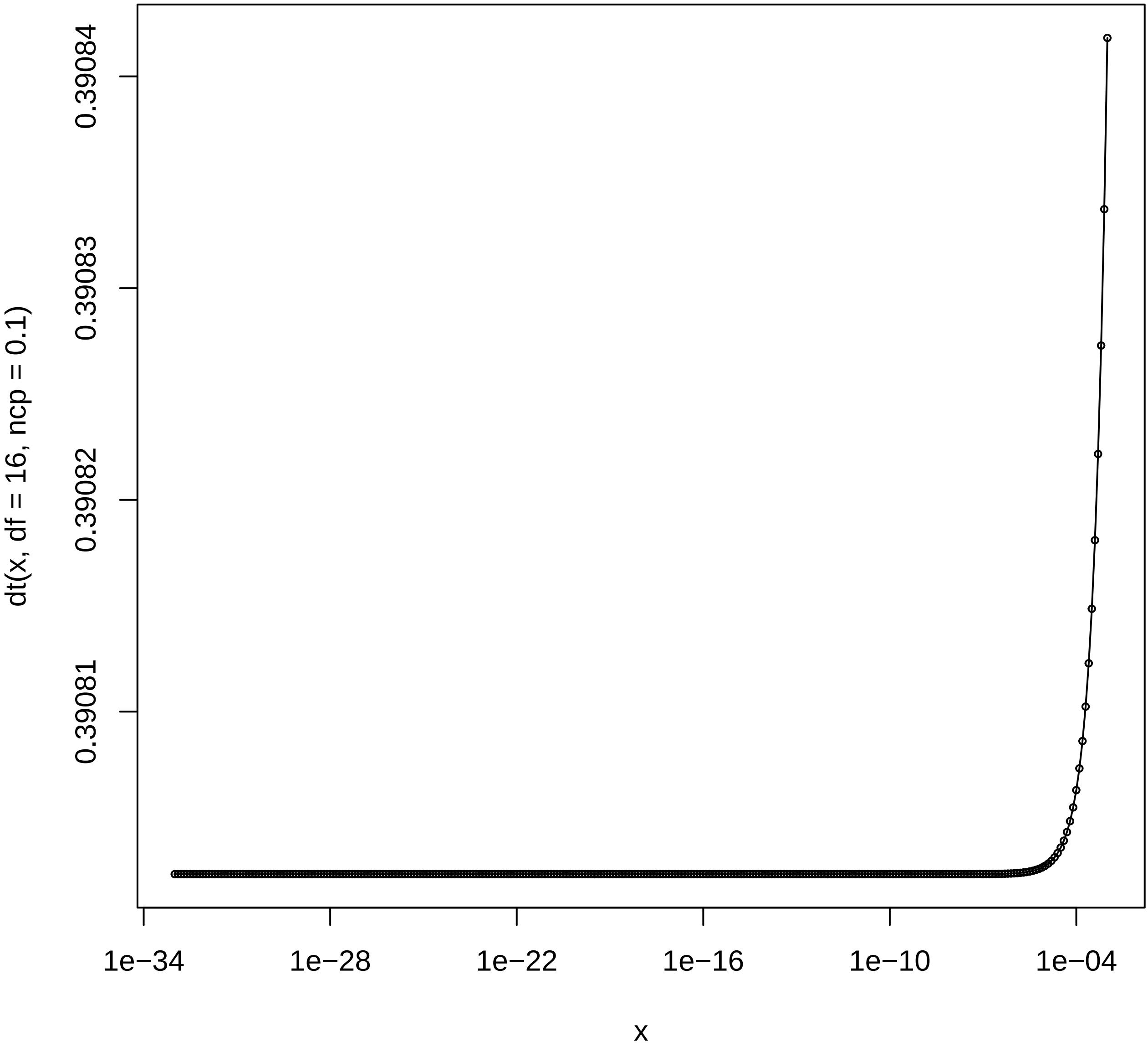
t_ν − distributions, scaled to Var = 1; log−log scale, x > 0
y
1e+00
1e−02
1e−04
1e−06
1e−08
x
0.1
0.2
0.5
1.0
2.0
5.0
10.0
20.0
50.0
nu = 2.2
nu = 2.5
nu = 3
nu = 4
nu = 5
nu = 7
nu = 10
nu = Inf
/u/maechler/R/MM/NUMERICS/dpq−functions/dt−ex.R
Dienstag, 8. Juli 2025



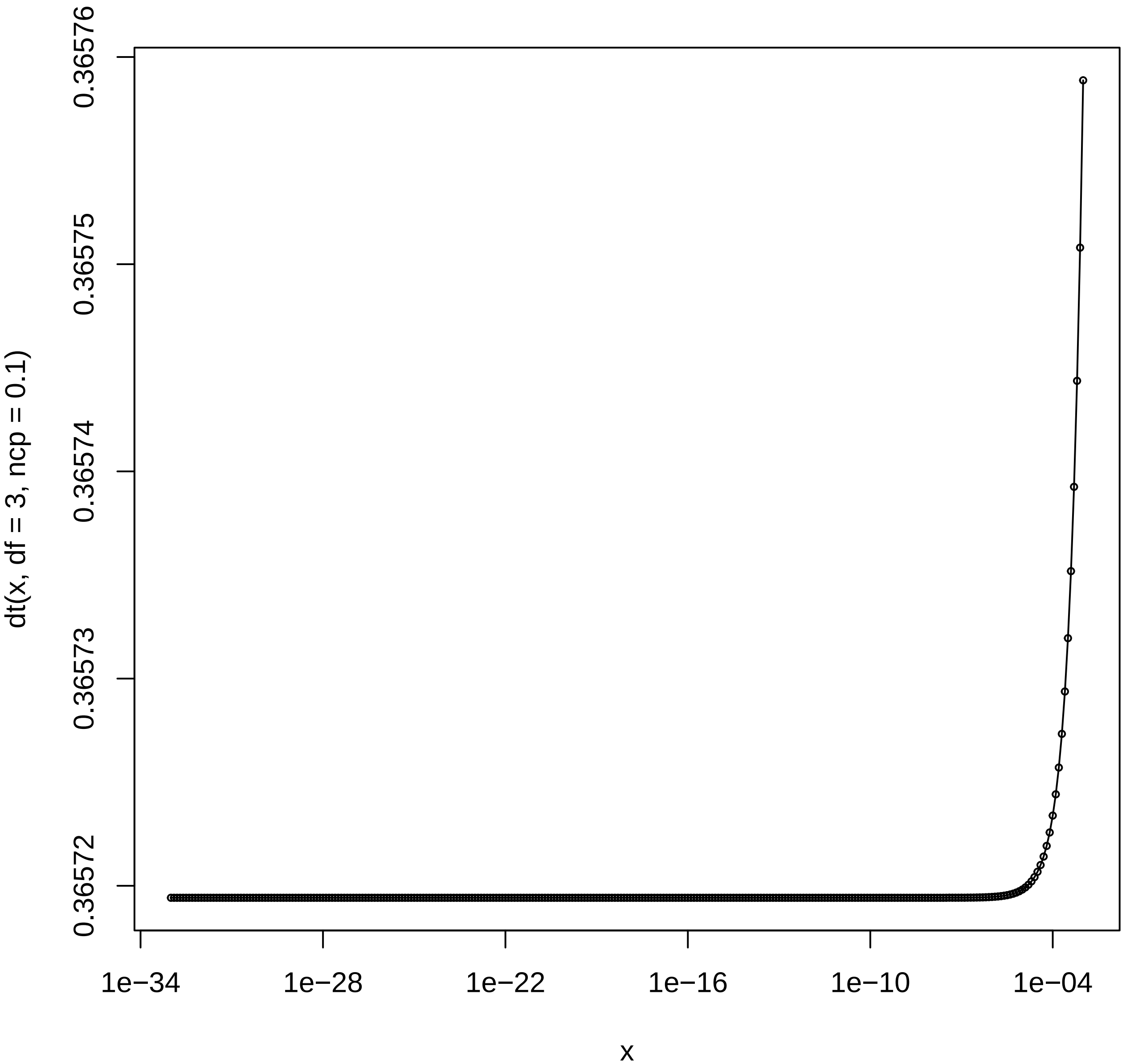
t_ν − distributions (unscaled)
nu = 2.2
nu = 2.5
nu = 3
nu = 4
nu = 5
nu = 7
nu = 10
nu = Inf
outer(x, nus, dt)
0.0
0.1
0.2
0.3
0.4
−6
−4
−2
0
2
4
6
x
/u/maechler/R/MM/NUMERICS/dpq−functions/dt−ex.R
Dienstag, 8. Juli 2025



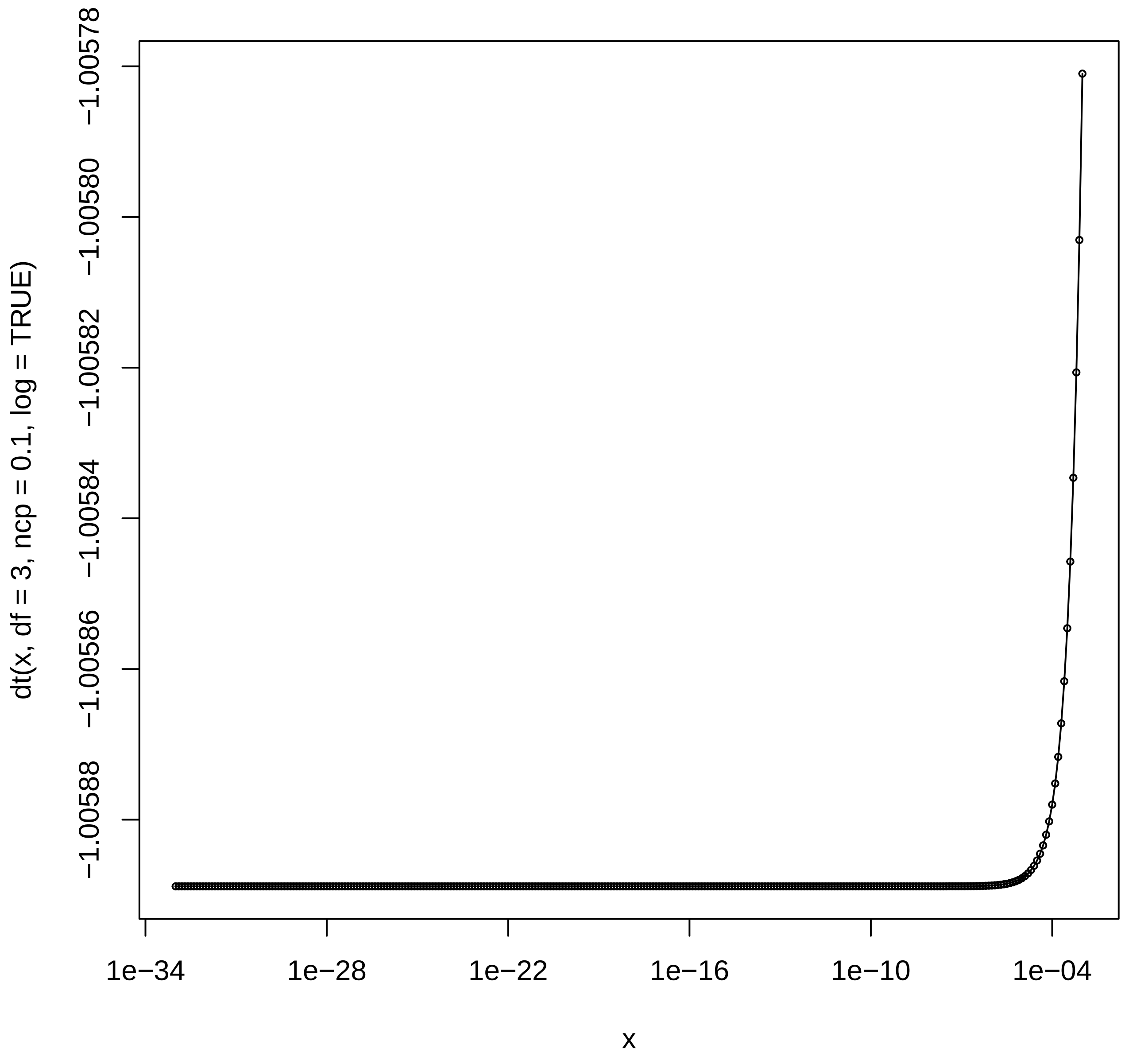
0.23845
0.23840
0.23835
0.23830
0.23825
dt(x, df = 16, ncp = 1)
1e−34
1e−28
1e−22
1e−16
1e−10
1e−04
x



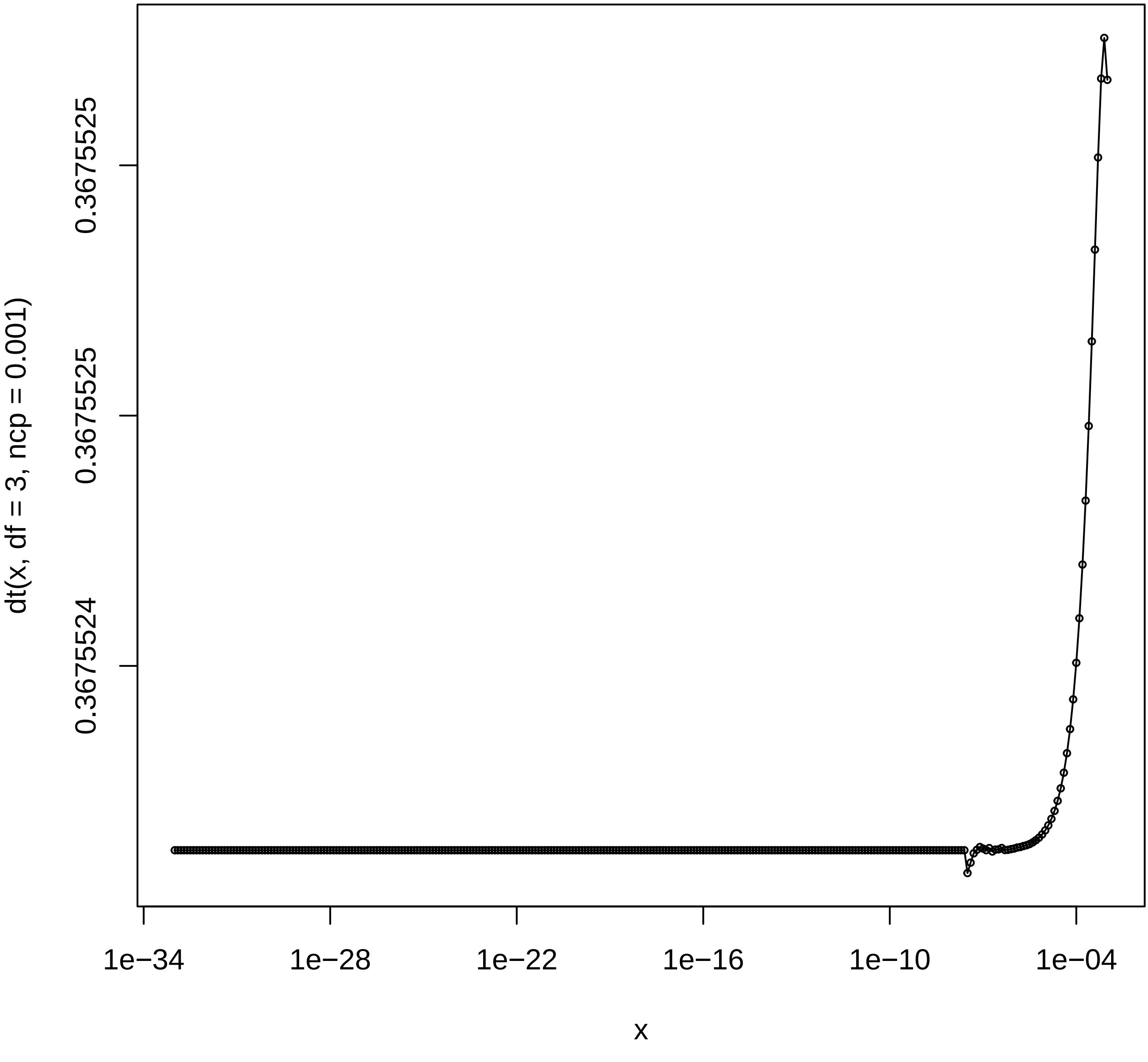
0.39081
0.39082
0.39083
0.39084
dt(x, df = 16, ncp = 0.1)
1e−34
1e−28
1e−22
1e−16
1e−10
1e−04
x



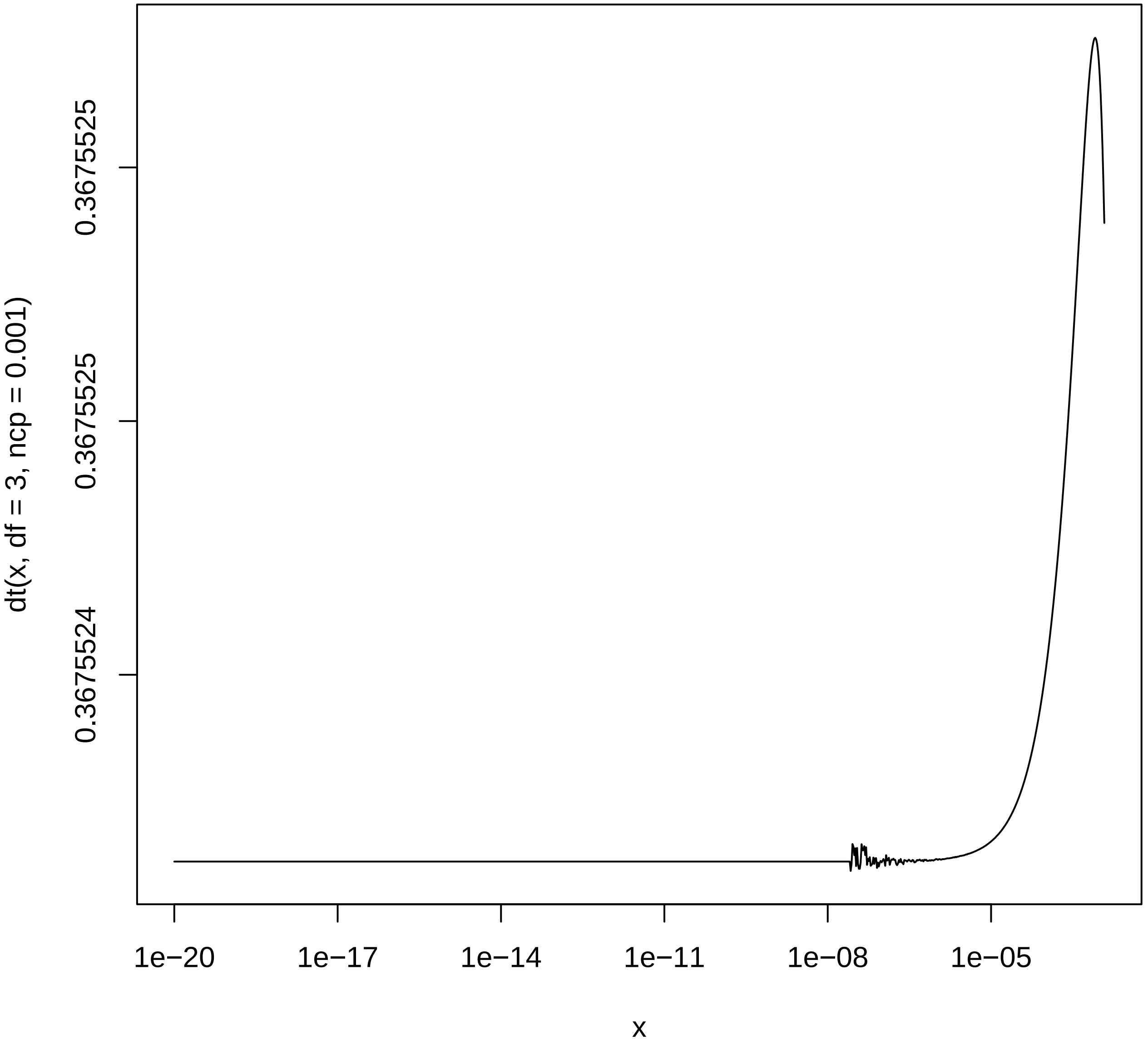
dt(x, df = 3, ncp = 0.1)
0.36572
0.36573
0.36574
0.36575
0.36576
1e−34
1e−28
1e−22
1e−16
1e−10
1e−04
x



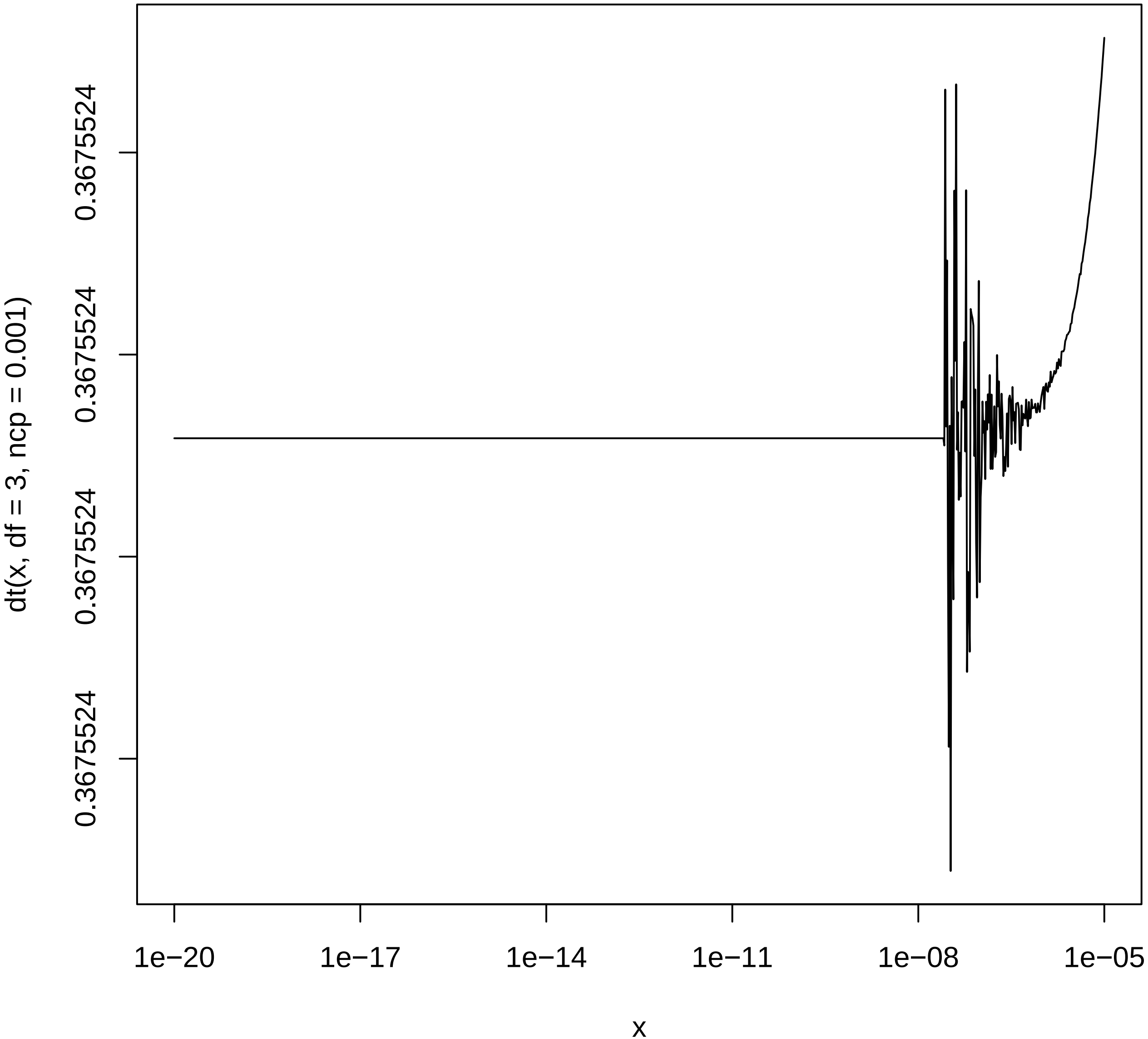
−1.00578
−1.00580
−1.00582
−1.00584
−1.00586
−1.00588
dt(x, df = 3, ncp = 0.1, log = TRUE)
1e−34
1e−28
1e−22
1e−16
1e−10
1e−04
x

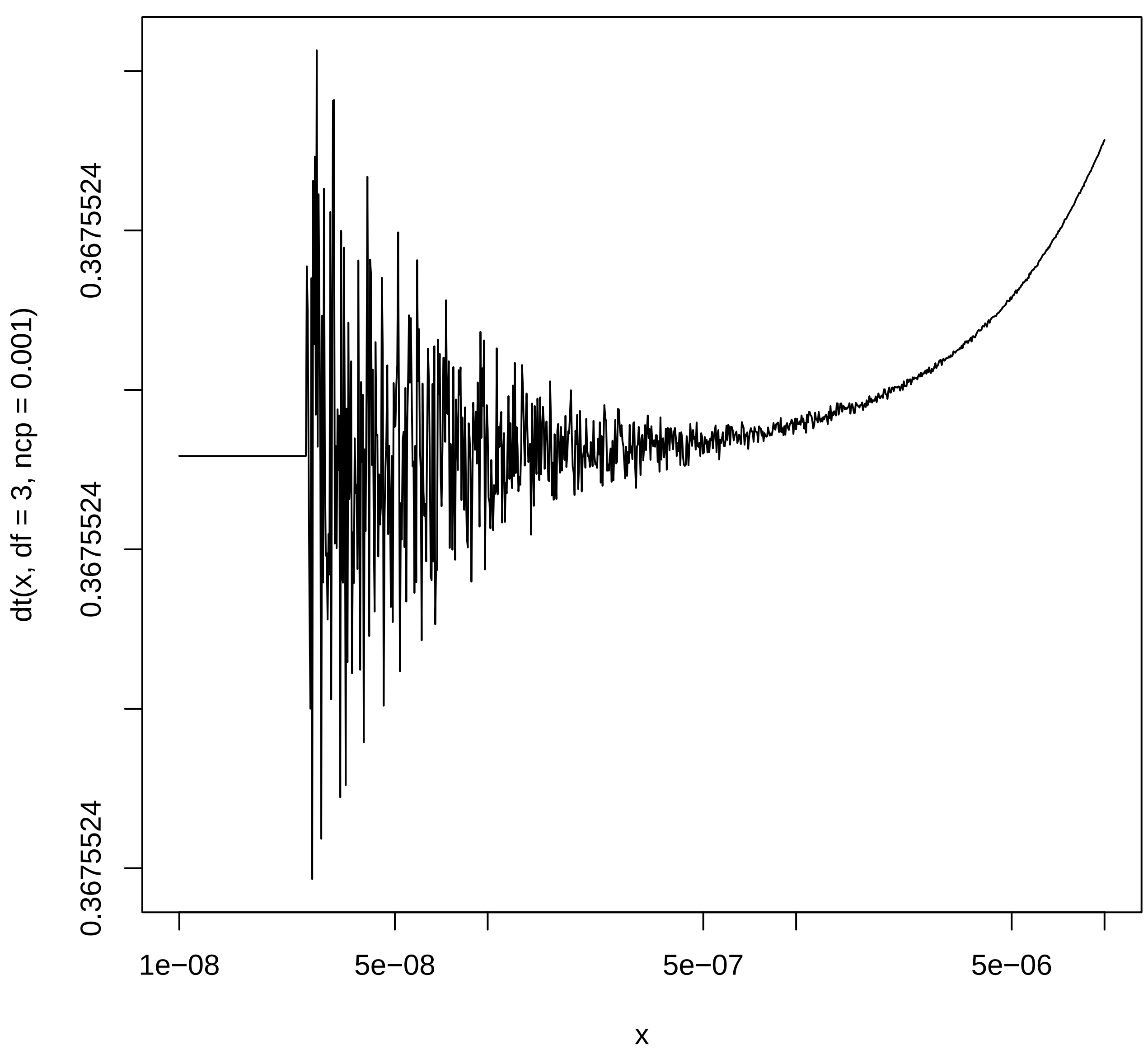


dt(x, df = 3, ncp = 0.001)
0.3675524
0.3675525
0.3675525
1e−34
1e−28
1e−22
1e−16
1e−10
1e−04
x

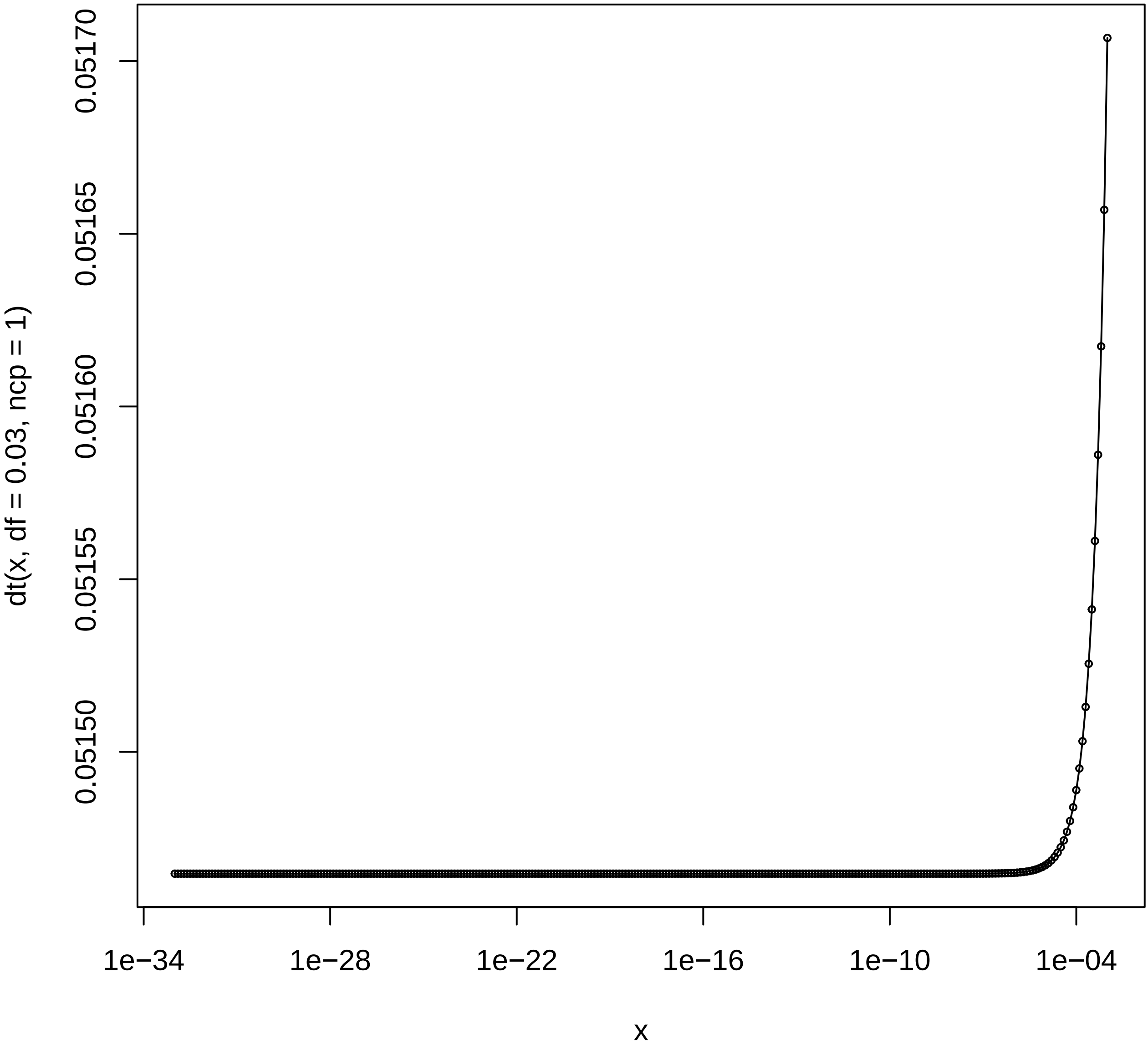


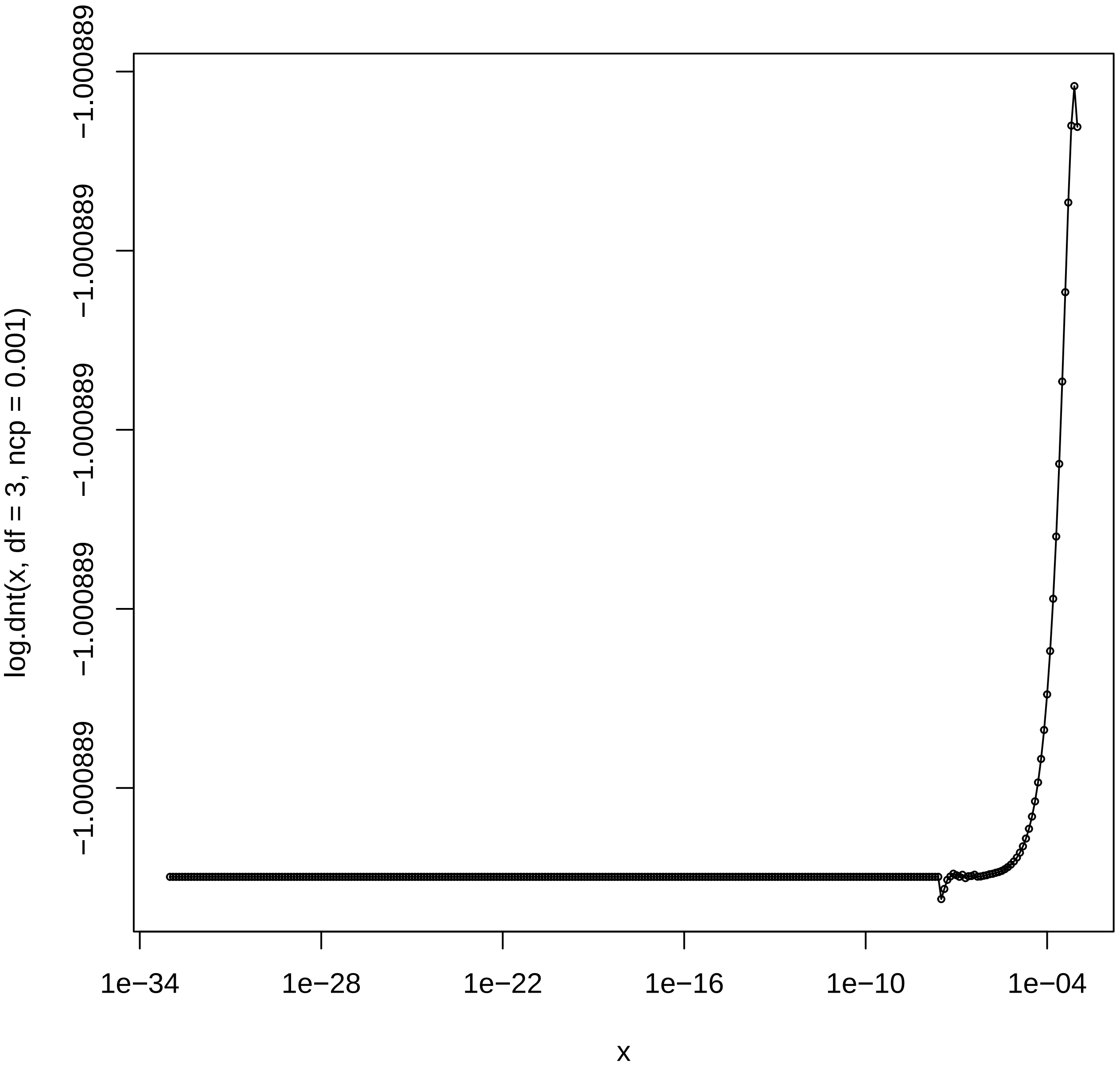
0.3675524
0.3675525
0.3675525
dt(x, df = 3, ncp = 0.001)
1e−20
1e−17
1e−14
1e−11
1e−08
1e−05
x


dt(x, df = 3, ncp = 0.001)
0.3675524
0.3675524
0.3675524
0.3675524
1e−20
1e−17
1e−14
1e−11
1e−08
1e−05
x

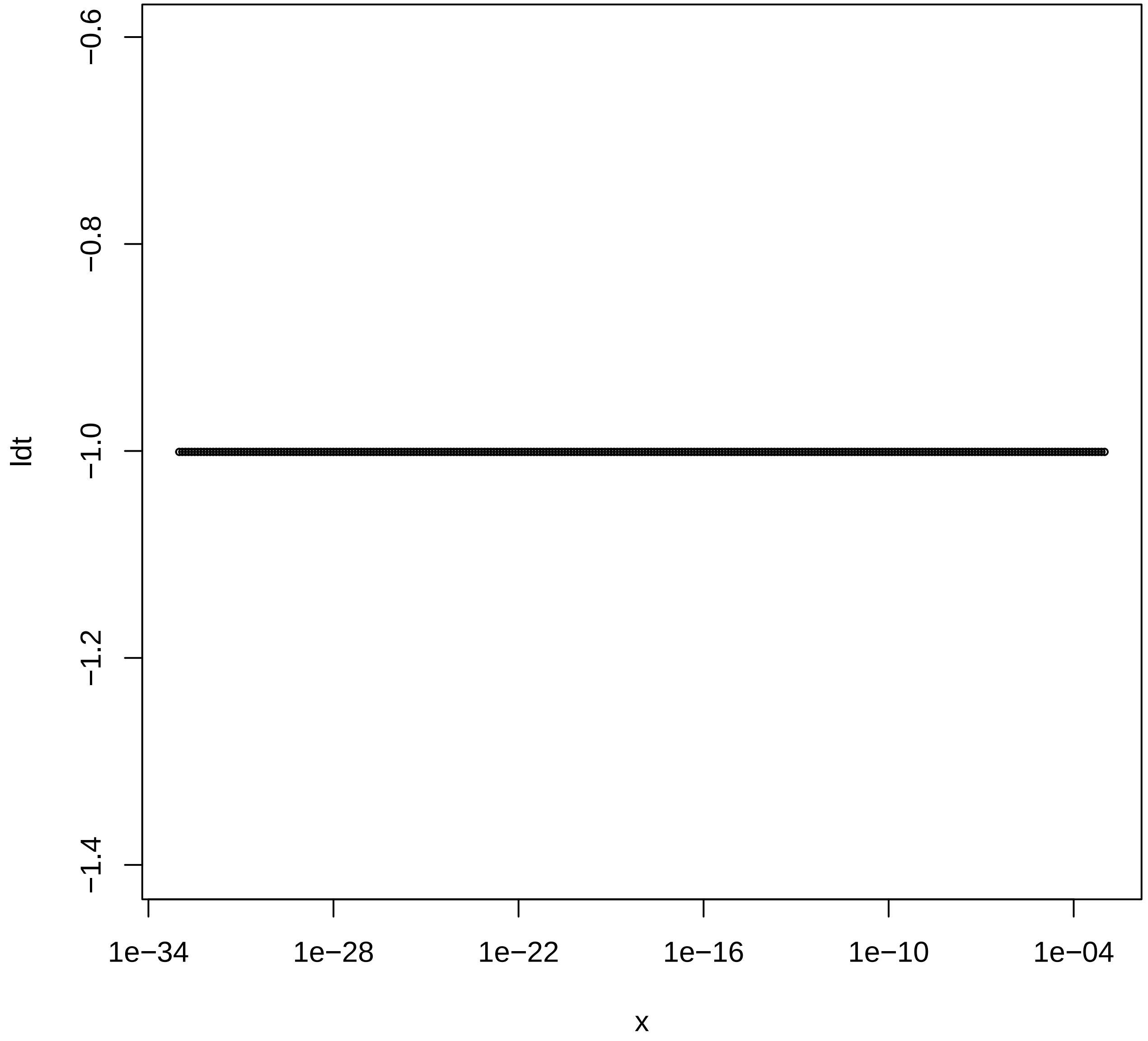


dt(x, df = 3, ncp = 0.001)
0.3675524
0.3675524
0.3675524
0.3675524
1e−08
5e−08
5e−07
5e−06
x

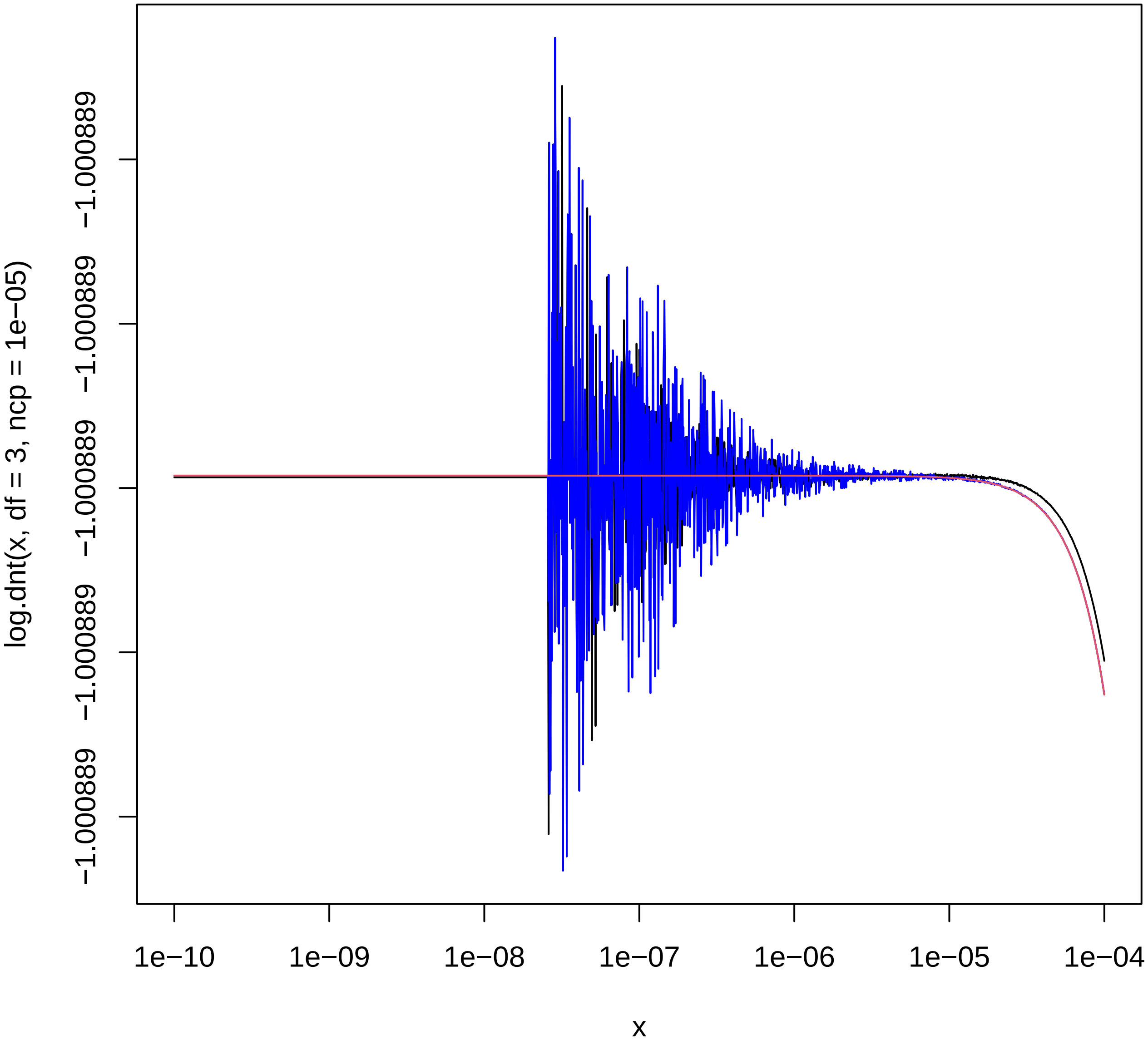

0.05150
0.05155
0.05160
0.05165
0.05170
dt(x, df = 0.03, ncp = 1)
1e−34
1e−28
1e−22
1e−16
1e−10
1e−04
x



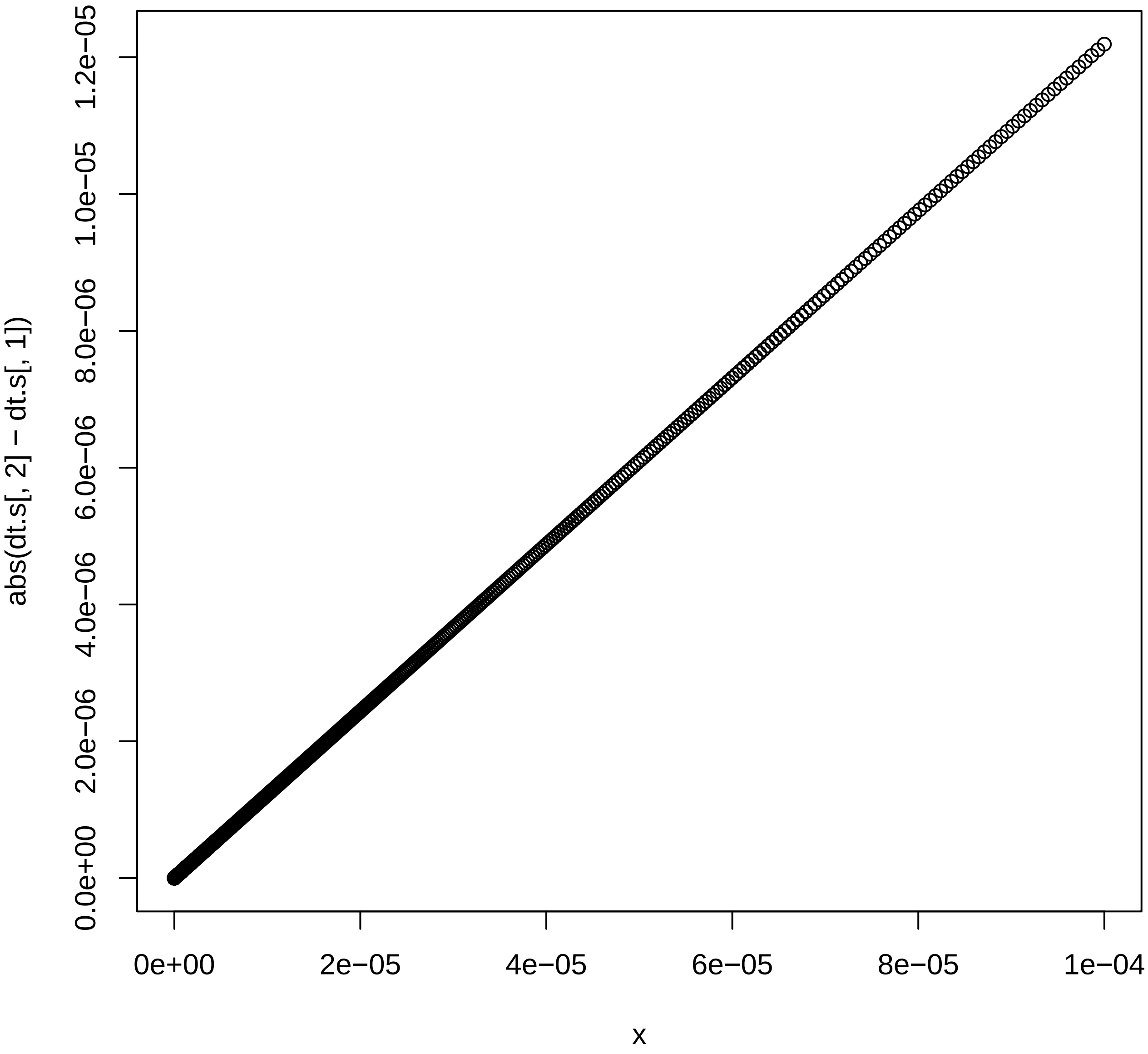
log.dnt(x, df = 3, ncp = 0.001)
−1.000889
−1.000889
−1.000889
−1.000889
−1.000889
1e−34
1e−28
1e−22
1e−16
1e−10
1e−04
x



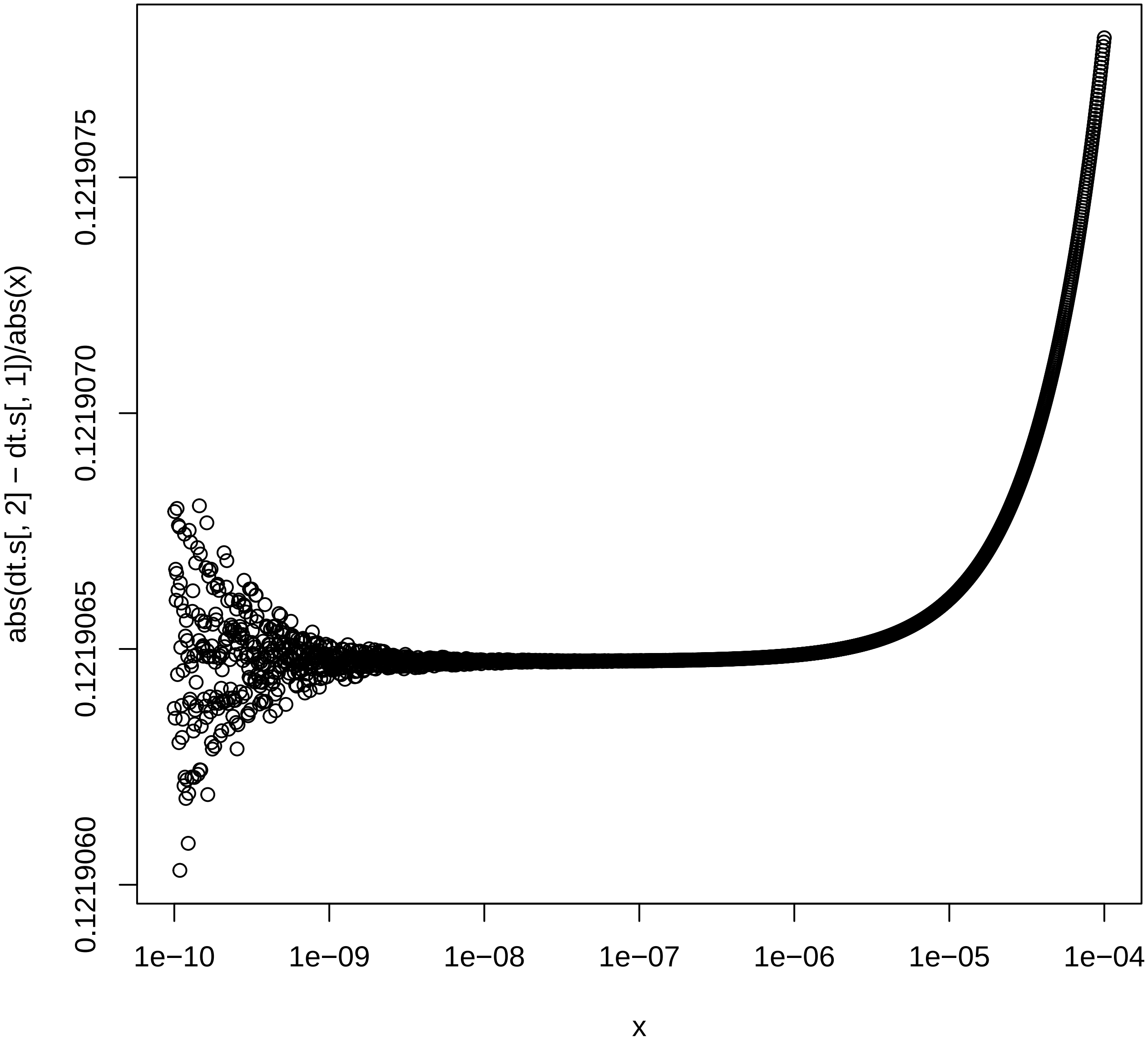
−0.6
−0.8
−1.0
−1.2
−1.4
ldt
1e−34
1e−28
1e−22
1e−16
1e−10
1e−04
x



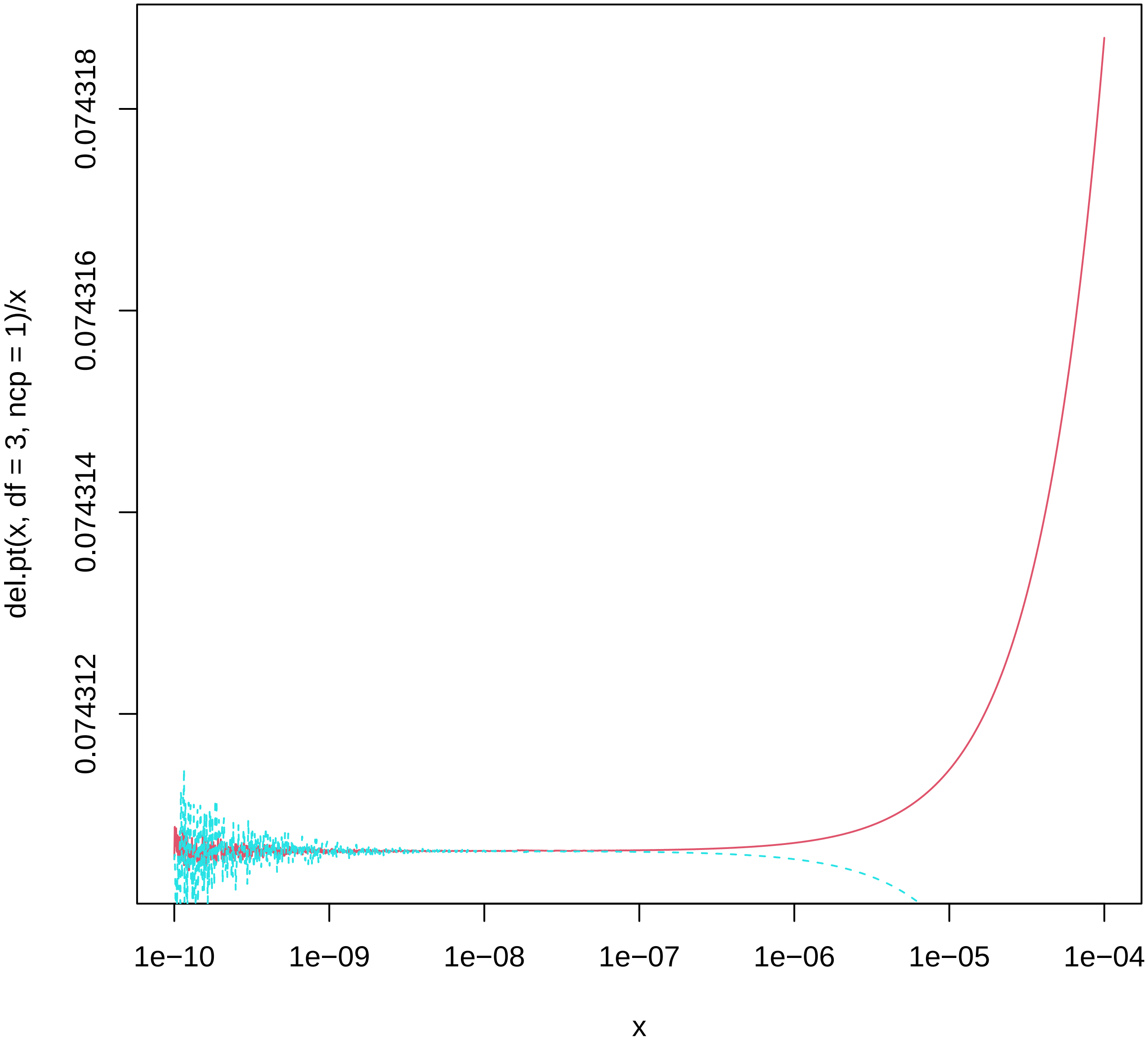
log.dnt(x, df = 3, ncp = 1e−05)
−1.000889
−1.000889
−1.000889
−1.000889
−1.000889
1e−10
1e−09
1e−08
1e−07
1e−06
1e−05
1e−04
x



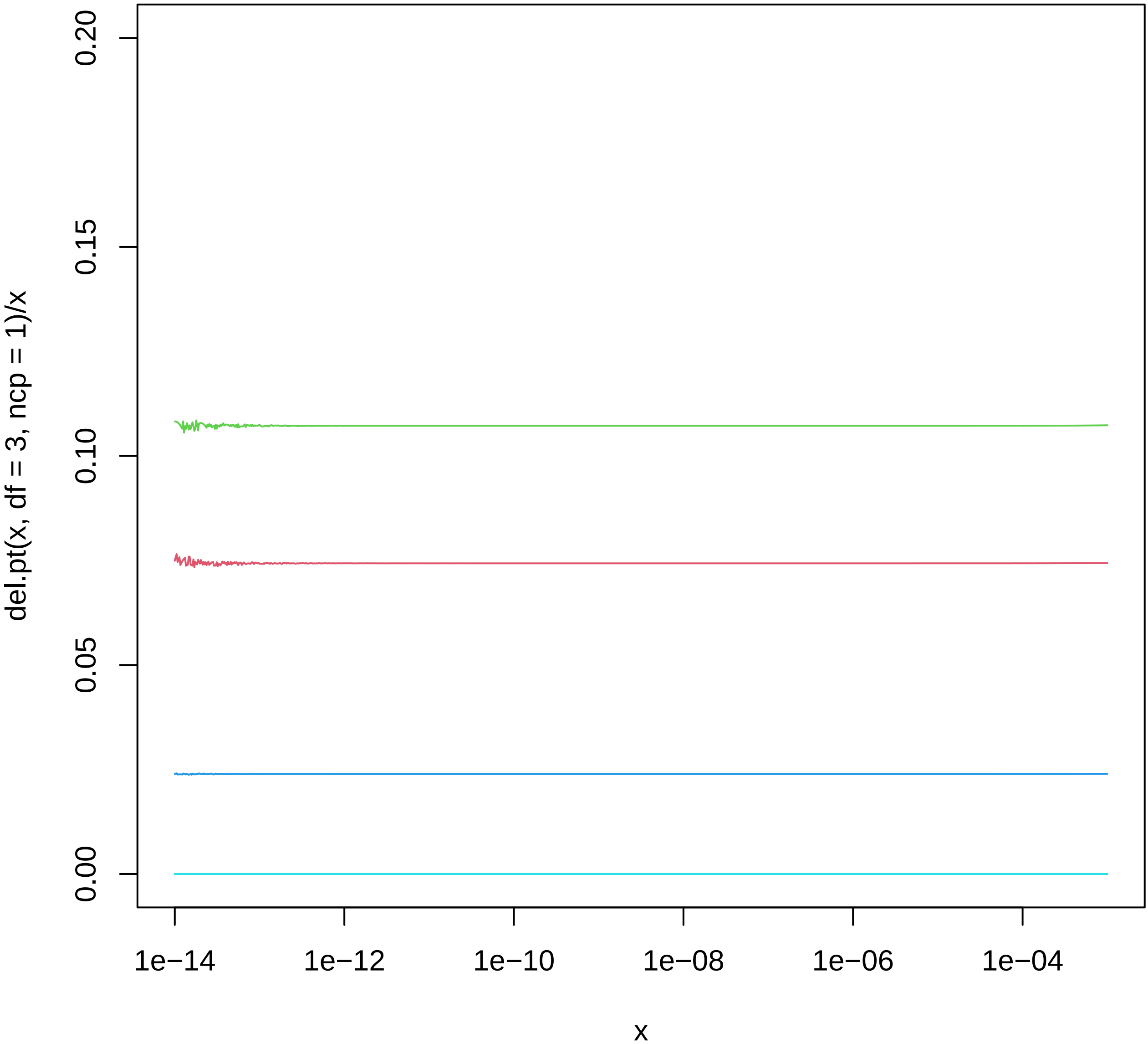
abs(dt.s[, 2] − dt.s[, 1])
0.0e+00
2.0e−06
4.0e−06
6.0e−06
8.0e−06
1.0e−05
1.2e−05
0e+00
2e−05
4e−05
6e−05
8e−05
1e−04
x



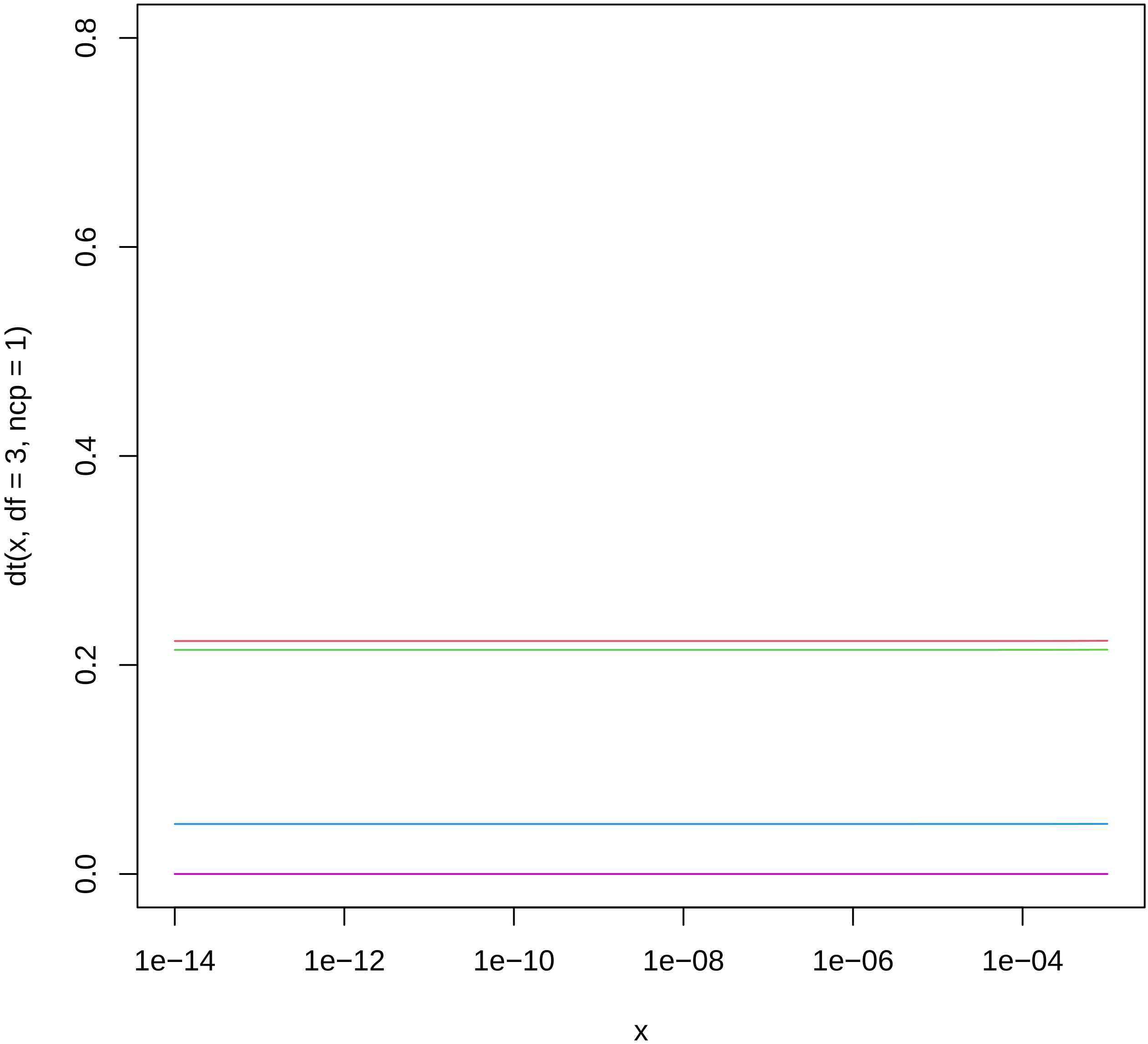
abs(dt.s[, 2] − dt.s[, 1])/abs(x)
0.1219060
0.1219065
0.1219070
0.1219075
1e−10
1e−09
1e−08
1e−07
1e−06
1e−05
1e−04
x



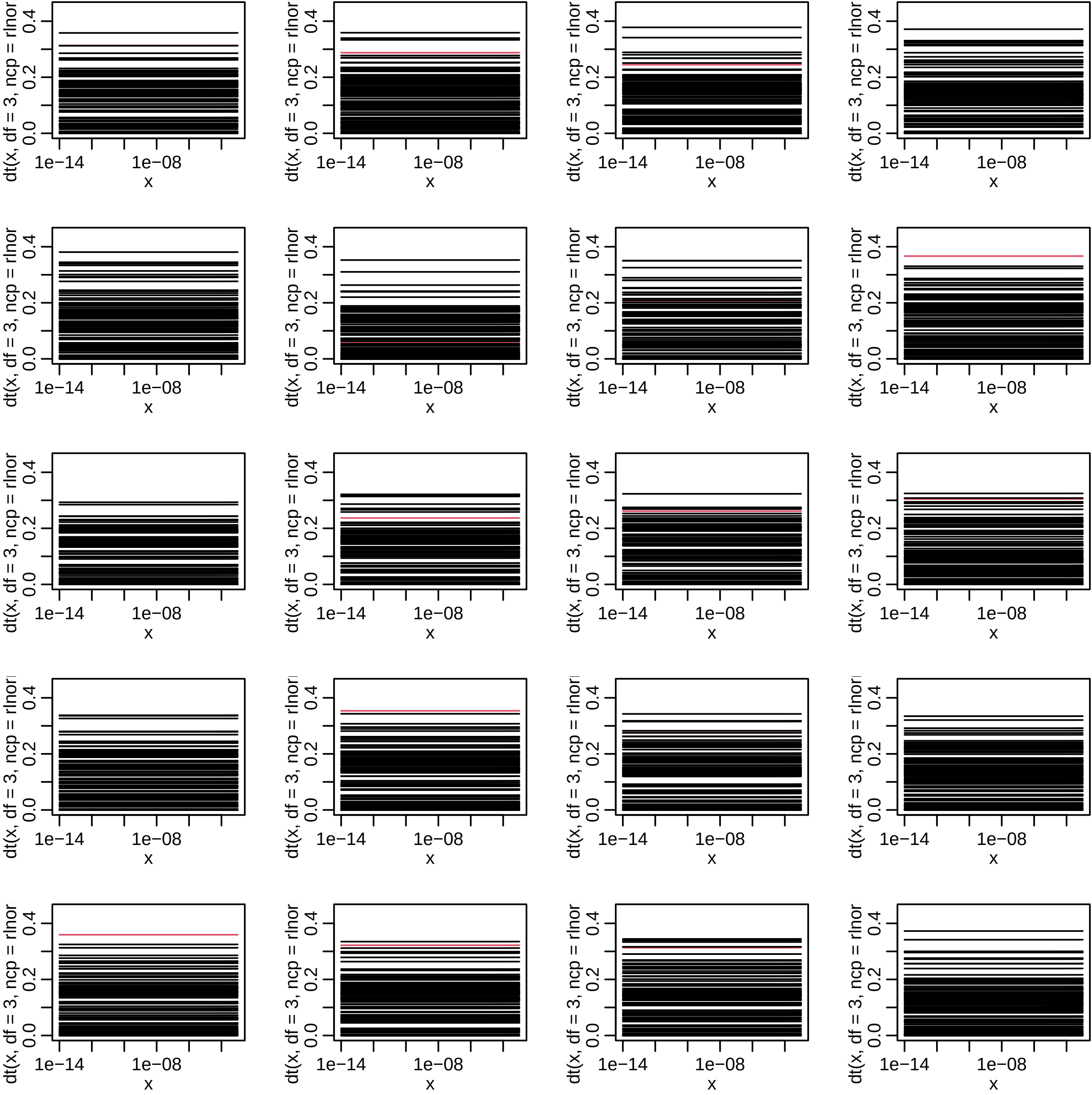
0.074318
0.074316
0.074314
0.074312
del.pt(x, df = 3, ncp = 1)/x
1e−10
1e−09
1e−08
1e−07
1e−06
1e−05
1e−04
x

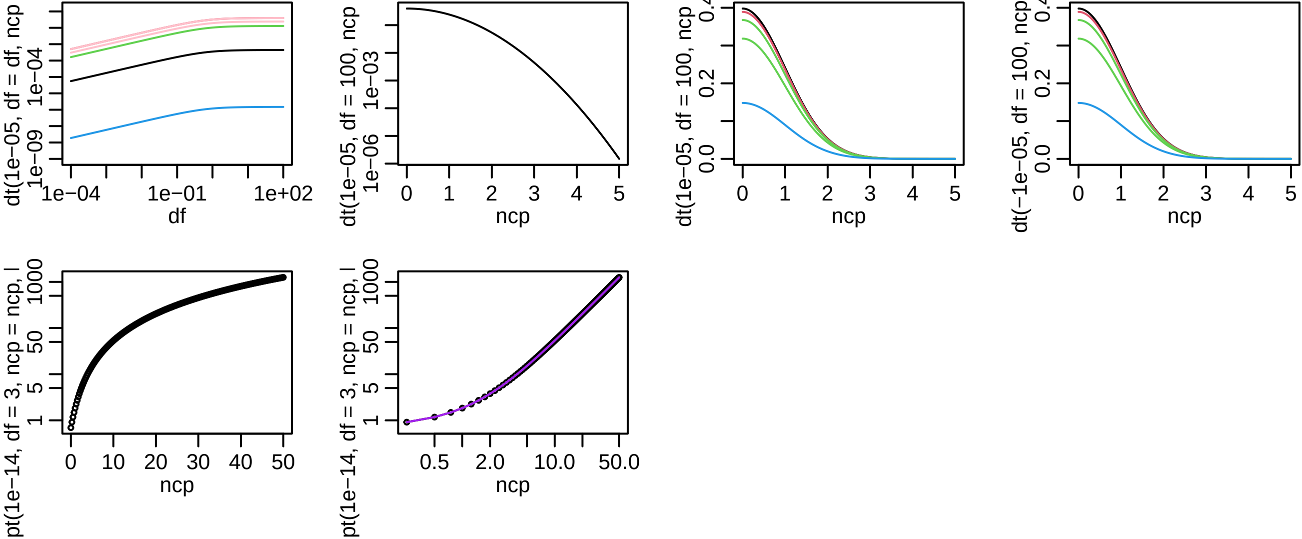


0.00
0.05
0.10
0.15
0.20
del.pt(x, df = 3, ncp = 1)/x
1e−14
1e−12
1e−10
1e−08
1e−06
1e−04
x



dt(x, df = 3, ncp = 1)
0.0
0.2
0.4
0.6
0.8
1e−14
1e−12
1e−10
1e−08
1e−06
1e−04
x


dt(x, df = 3, ncp = rlnor
0.0
0.2
0.4
1e−14
1e−08
x


dt(1e−05, df = df, ncp
1e−09
1e−04
1e−04
1e−01
1e+02
df
dt(1e−05, df = 100, ncp
1e−06
1e−03
0 1 2 3 4 5
ncp
dt(1e−05, df = 100, ncp
0.0
0.2
0 1 2 3 4 5
ncp
dt(−1e−05, df = 100, ncp
0.0
0.2
0 1 2 3 4 5
ncp
pt(1e−14, df = 3, ncp = ncp, l
1
5
50
1000
0 10 20 30 40 50
ncp
pt(1e−14, df = 3, ncp = ncp, l
1
5
50
1000
0.5 2.0 10.0 50.0
ncp