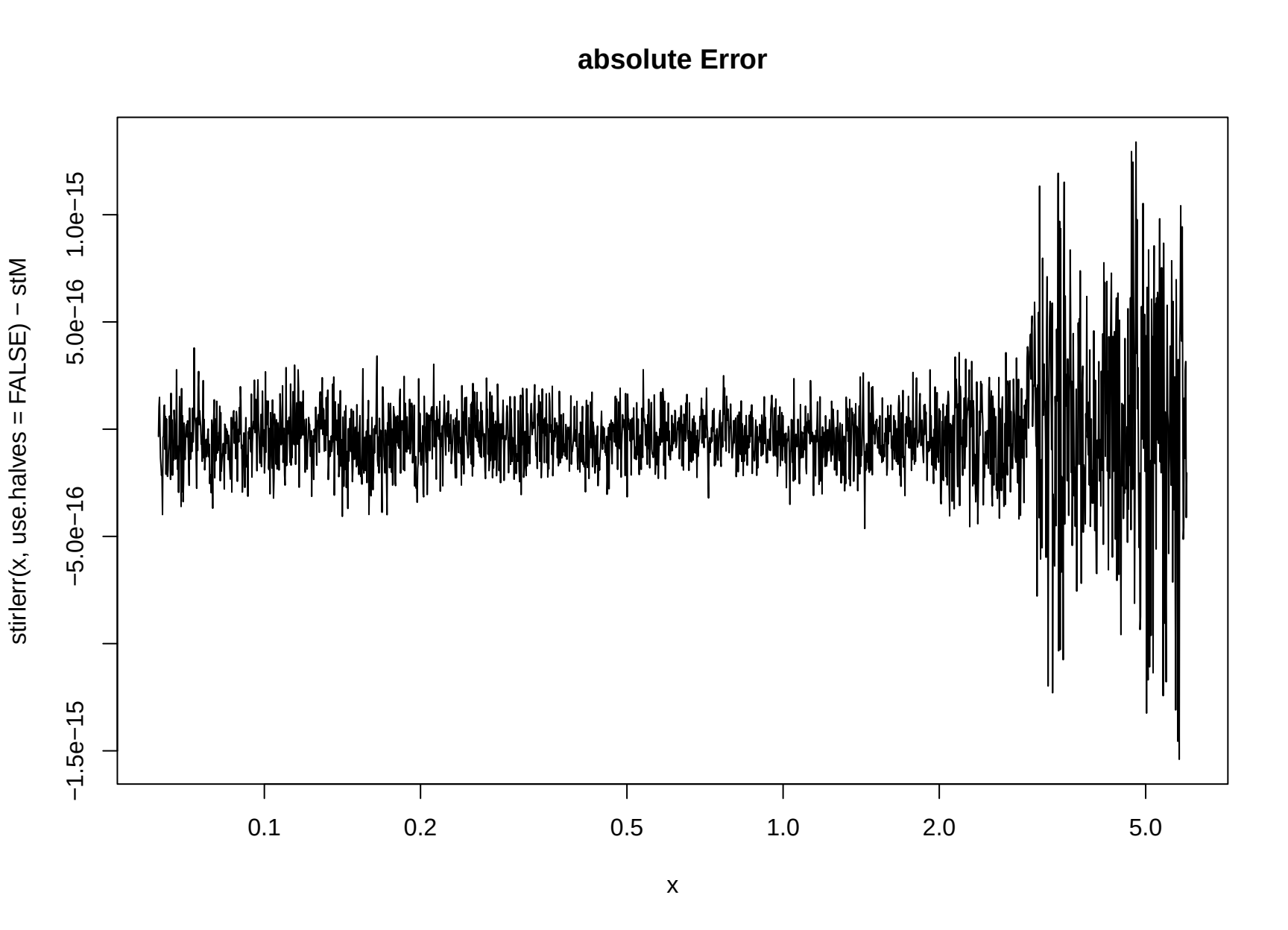
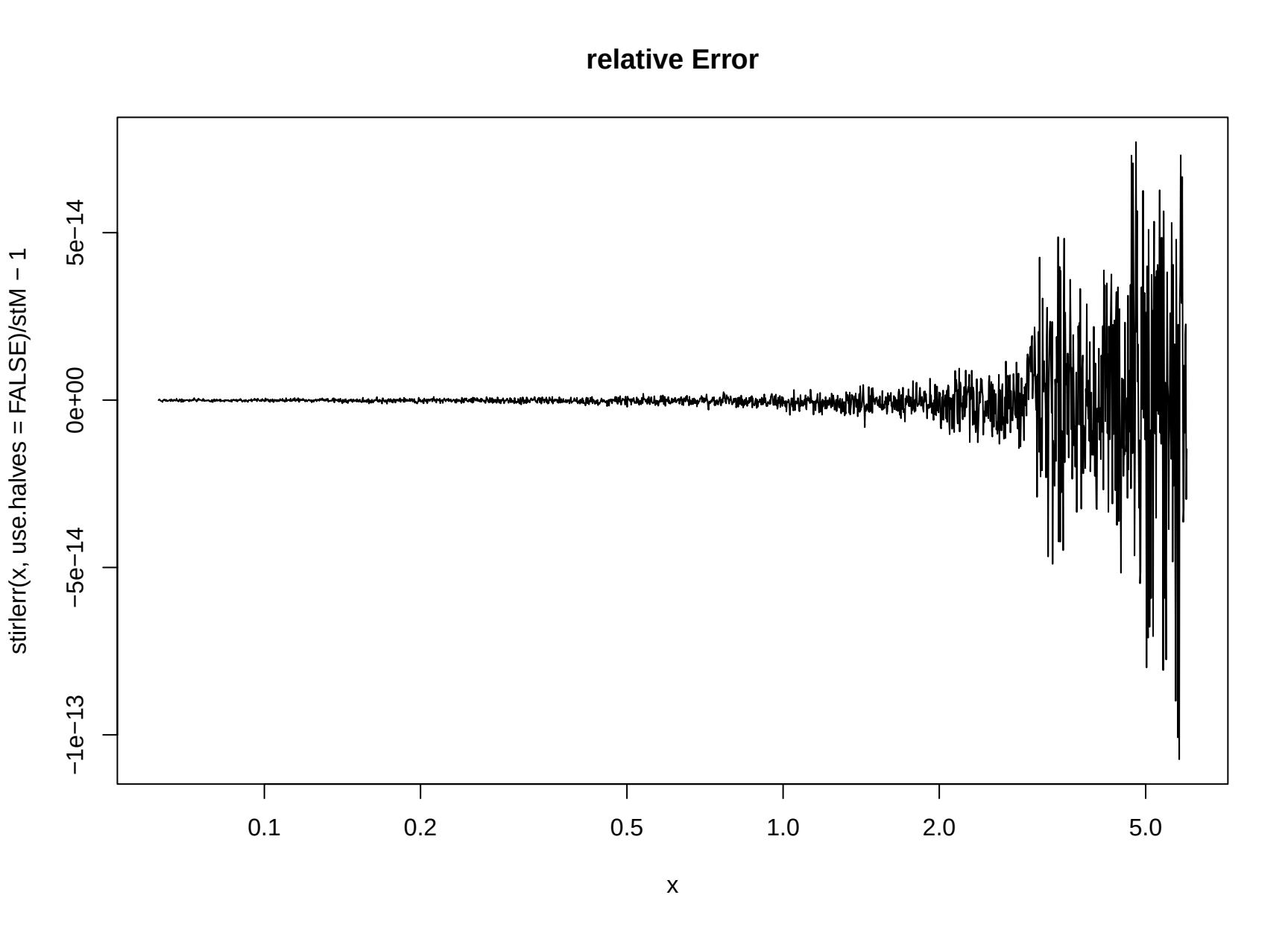
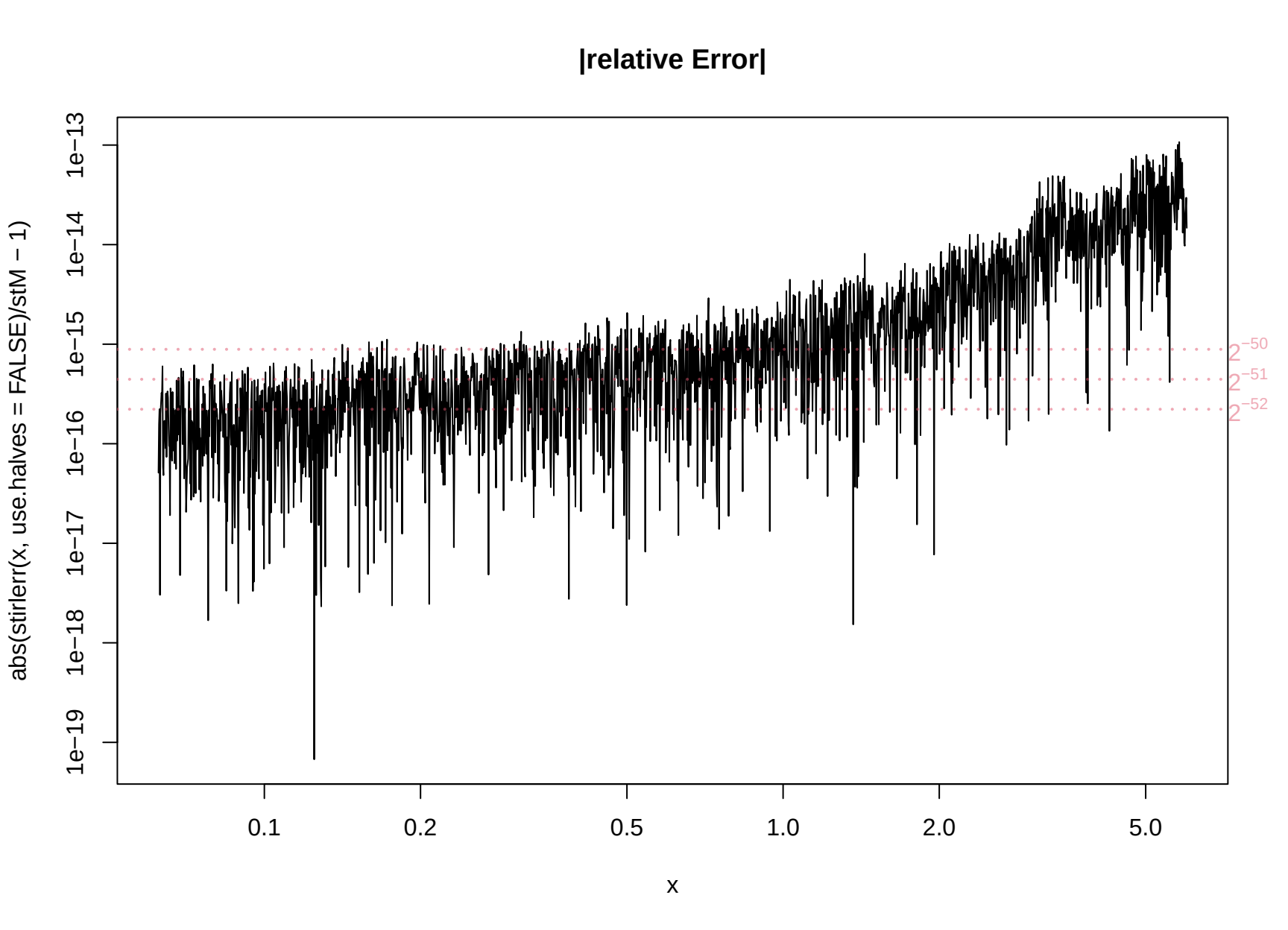
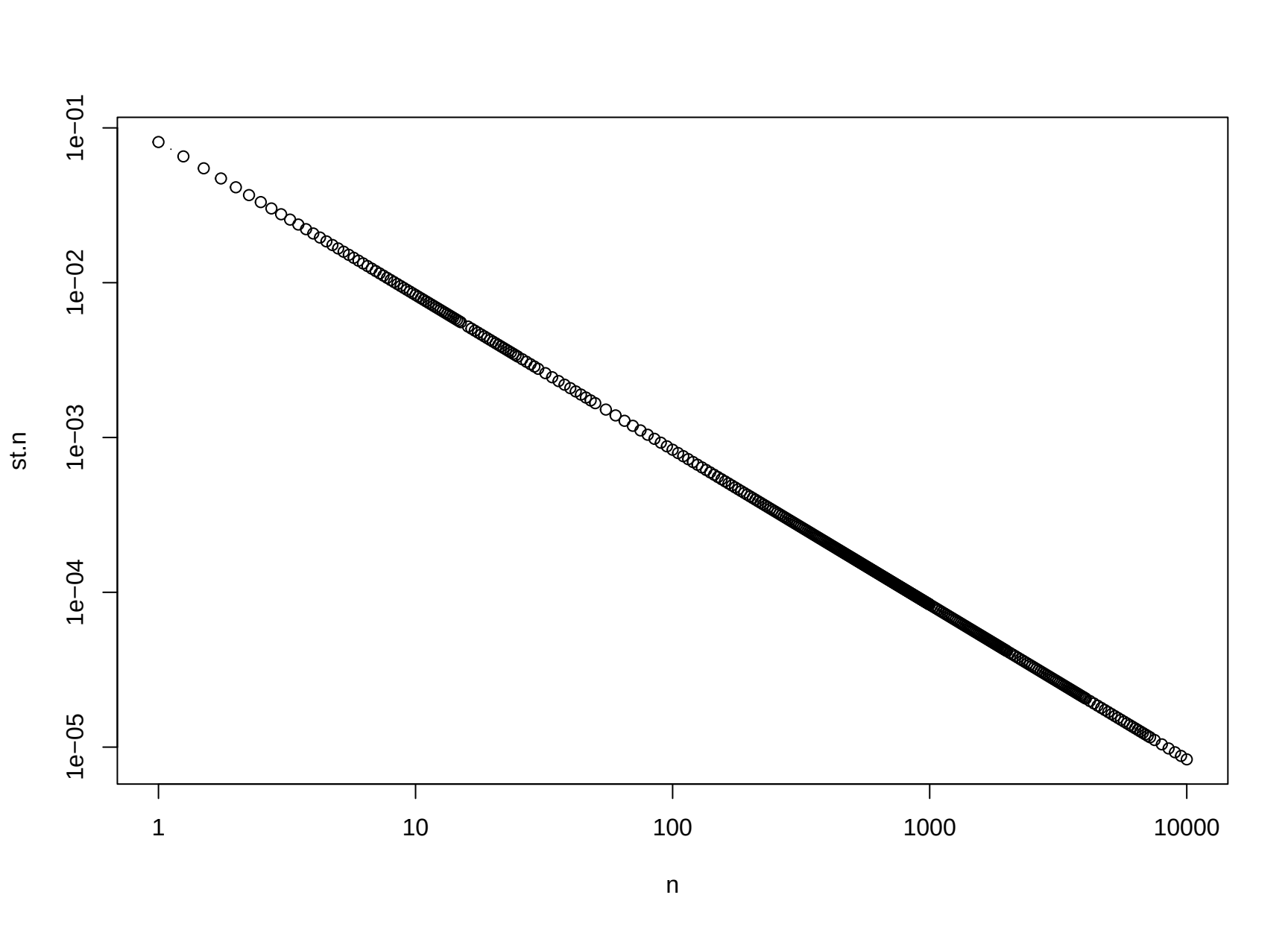
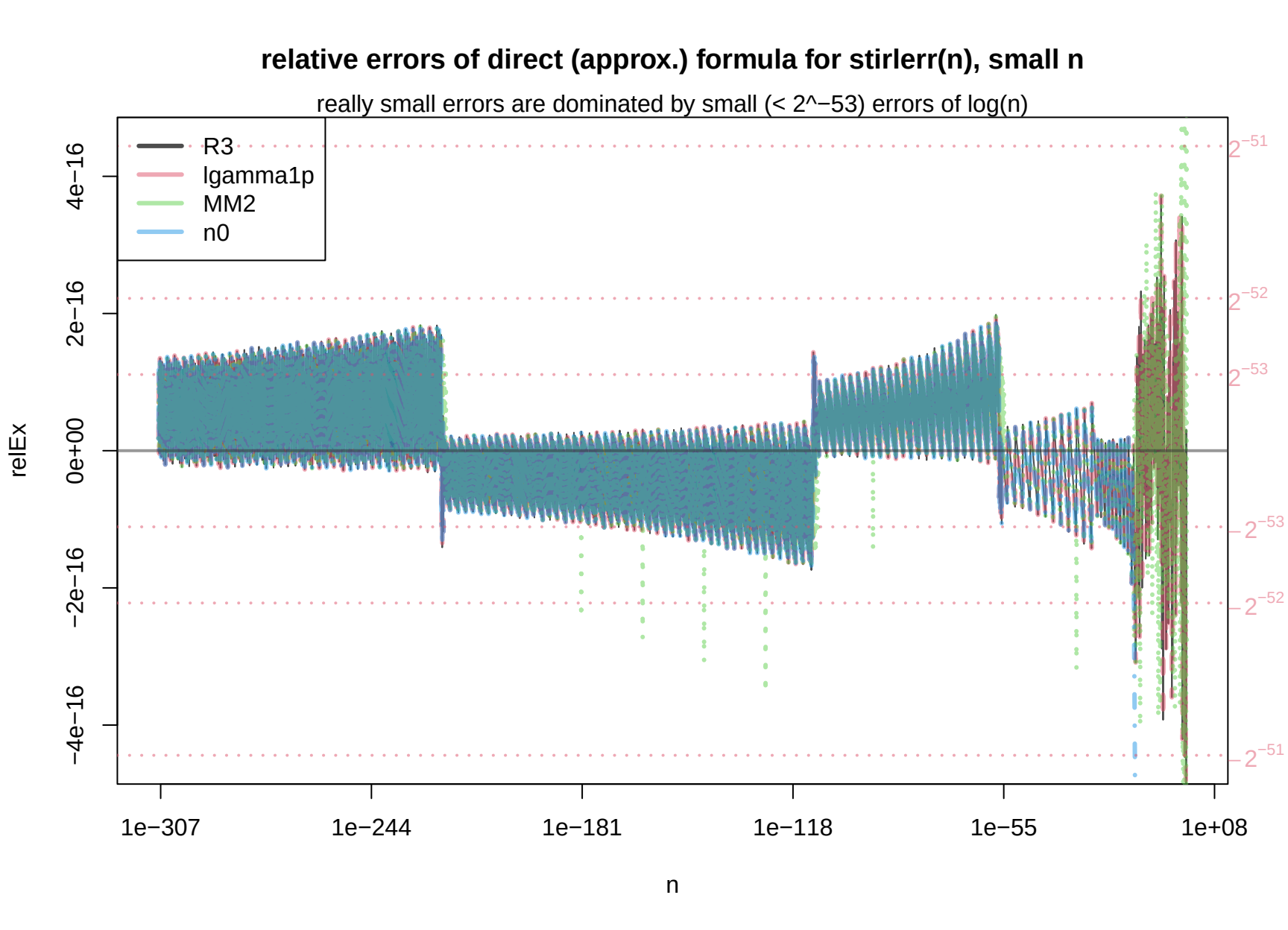
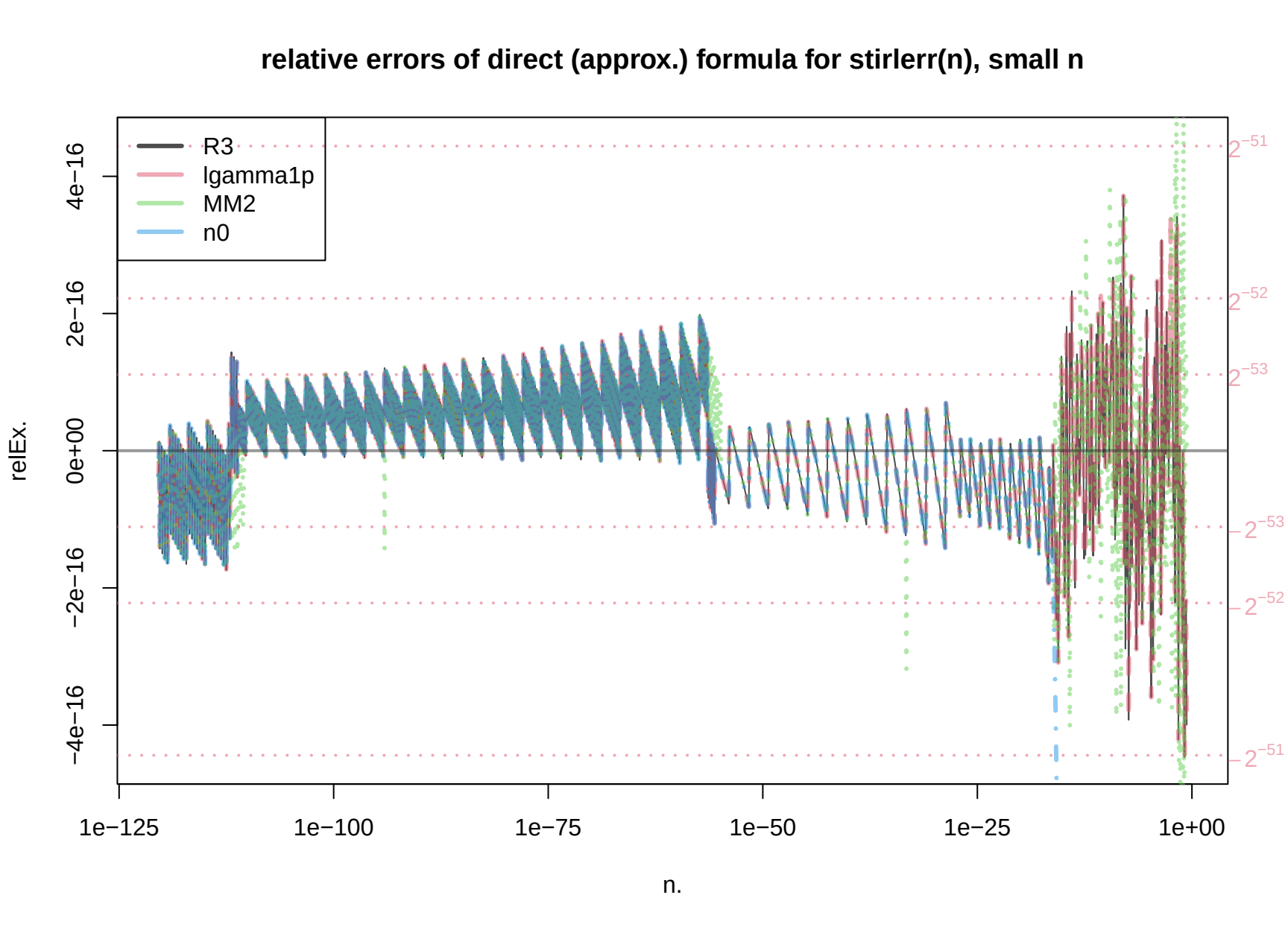

absolute Error
stirlerr(x, use.halves = FALSE) − stM
1.0e−15
5.0e−16
−5.0e−16
−1.5e−15
0.1
0.2
0.5
1.0
2.0
5.0
x

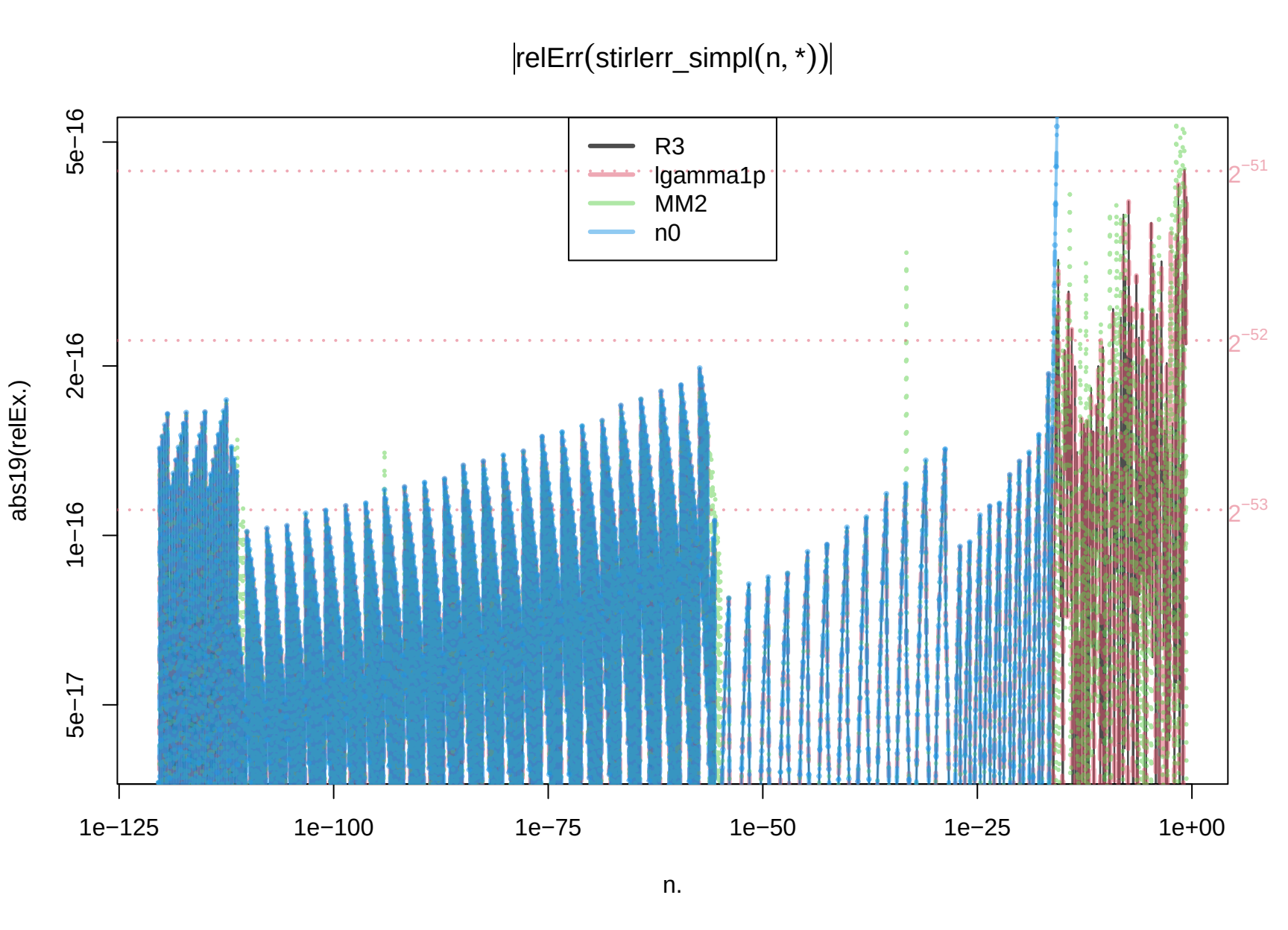

relative Error
stirlerr(x, use.halves = FALSE)/stM − 1
5e−14
0e+00
−5e−14
−1e−13
0.1
0.2
0.5
1.0
2.0
5.0
x

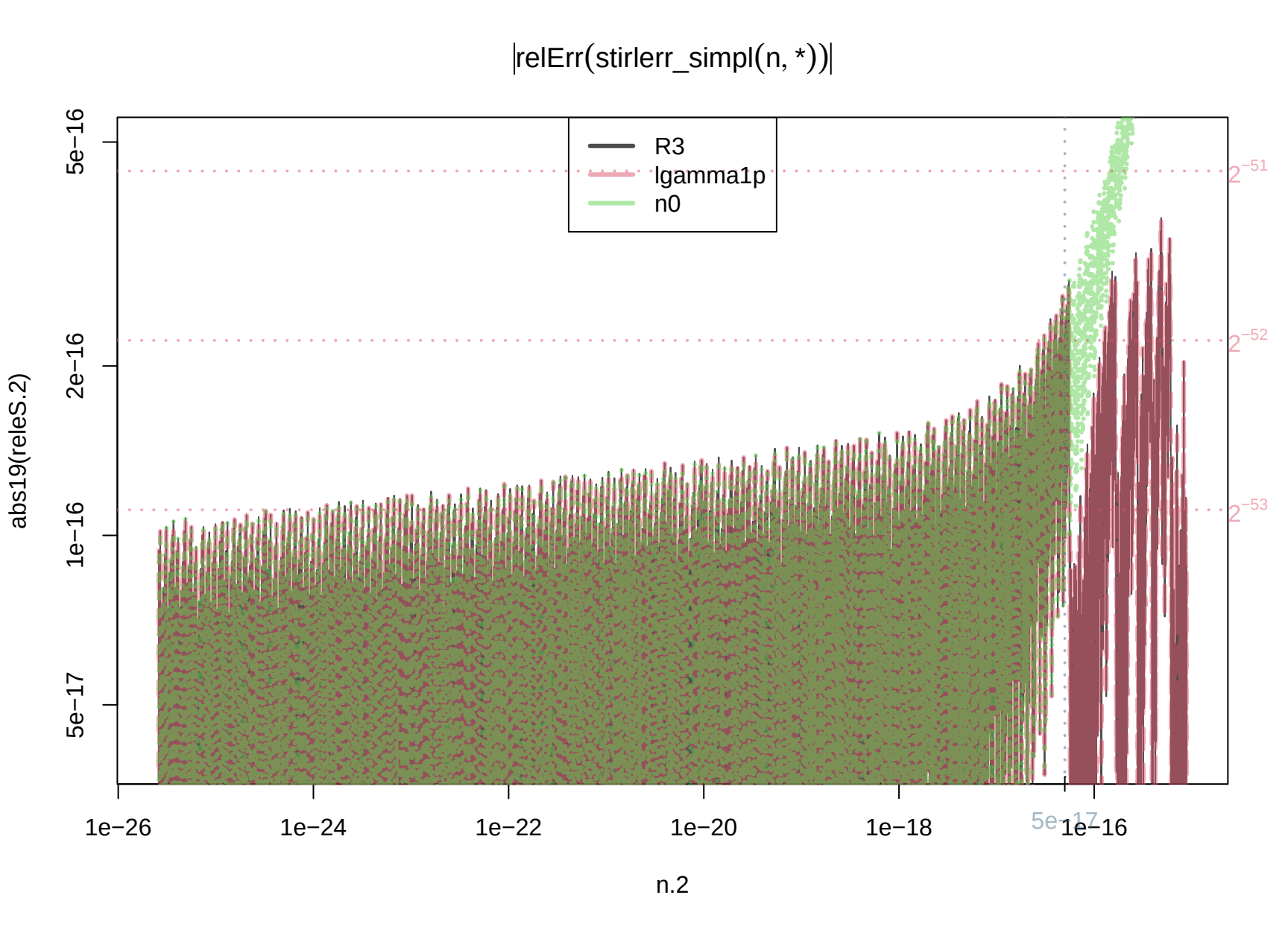

|relative Error|
abs(stirlerr(x, use.halves = FALSE)/stM − 1)
1e−13
1e−14
1e−15
1e−16
1e−17
1e−18
1e−19
0.1
0.2
0.5
1.0
2.0
5.0
x
2^{-50}
2^{-51}
2^{-52}

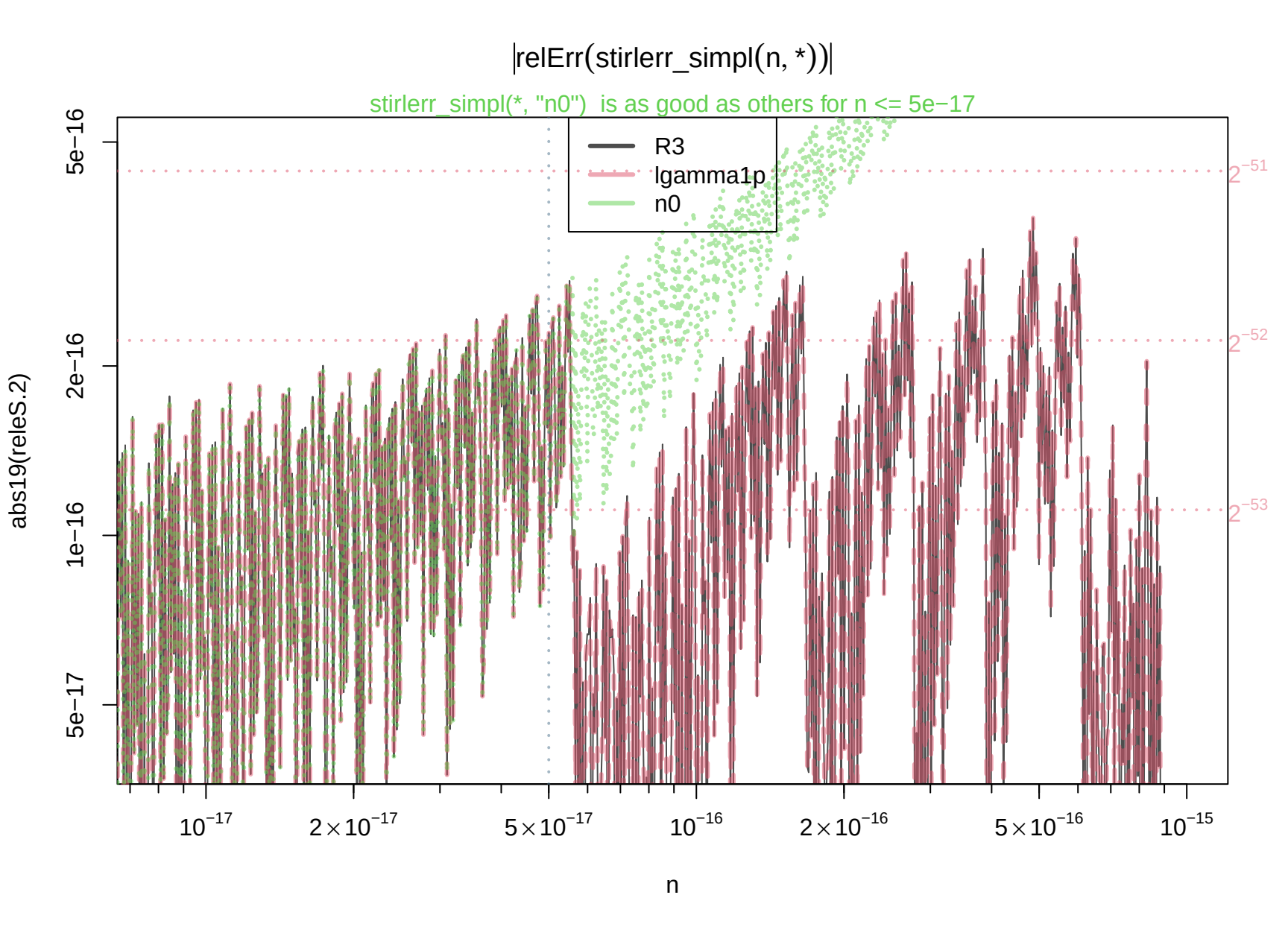

st.n
1e−01
1e−02
1e−03
1e−04
1e−05
1
10
100
1000
10000
n

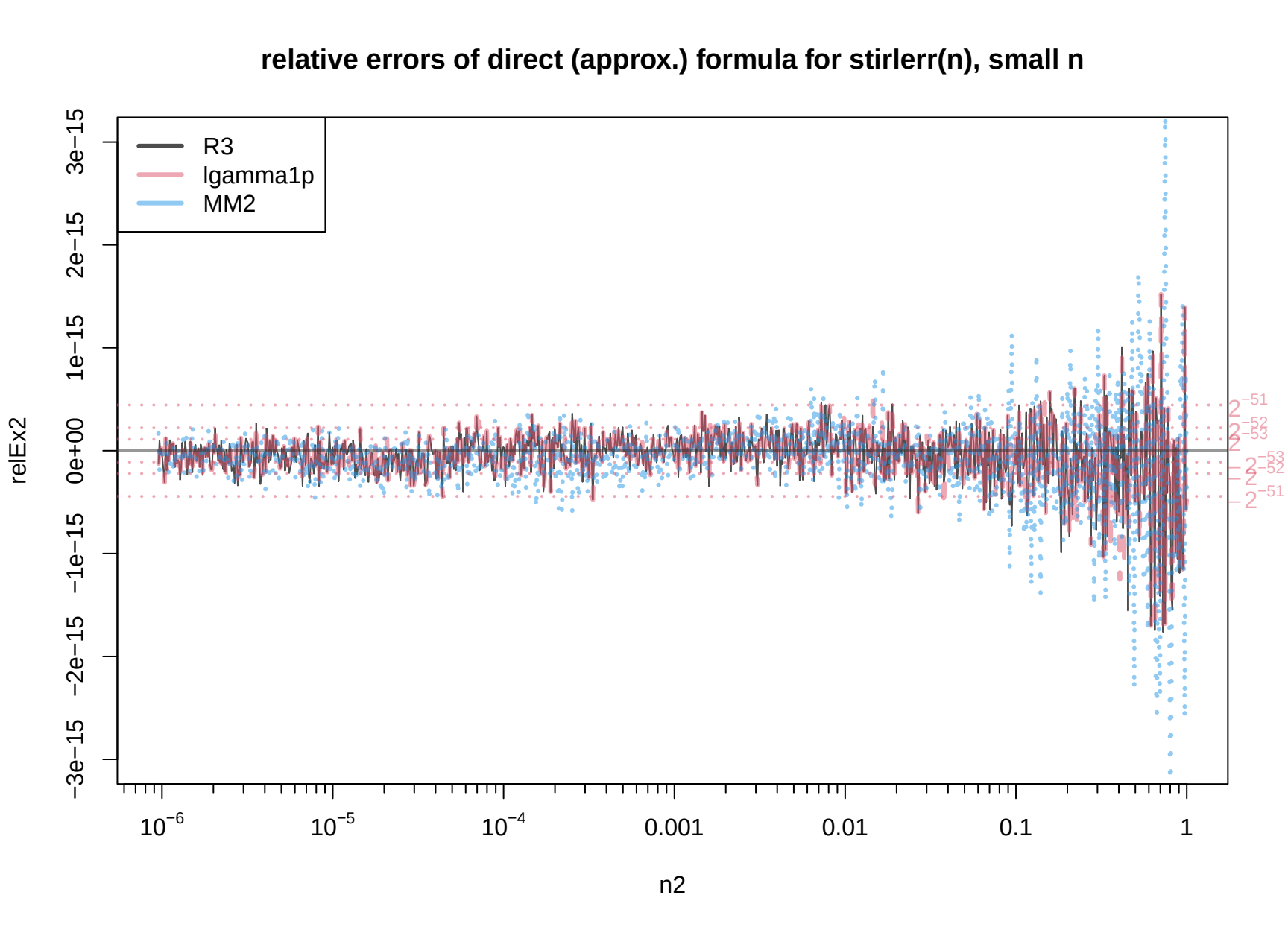

relative errors of direct (approx.) formula for stirlerr(n), small n
really small errors are dominated by small (< 2^−53) errors of log(n)
R3
lgamma1p
MM2
n0
relEx
4e−16
2e−16
0e+00
−2e−16
−4e−16
2^−51
2^−52
2^−53
−2^−53
−2^−52
−2^−51
1e−307
1e−244
1e−181
1e−118
1e−55
1e+08
n

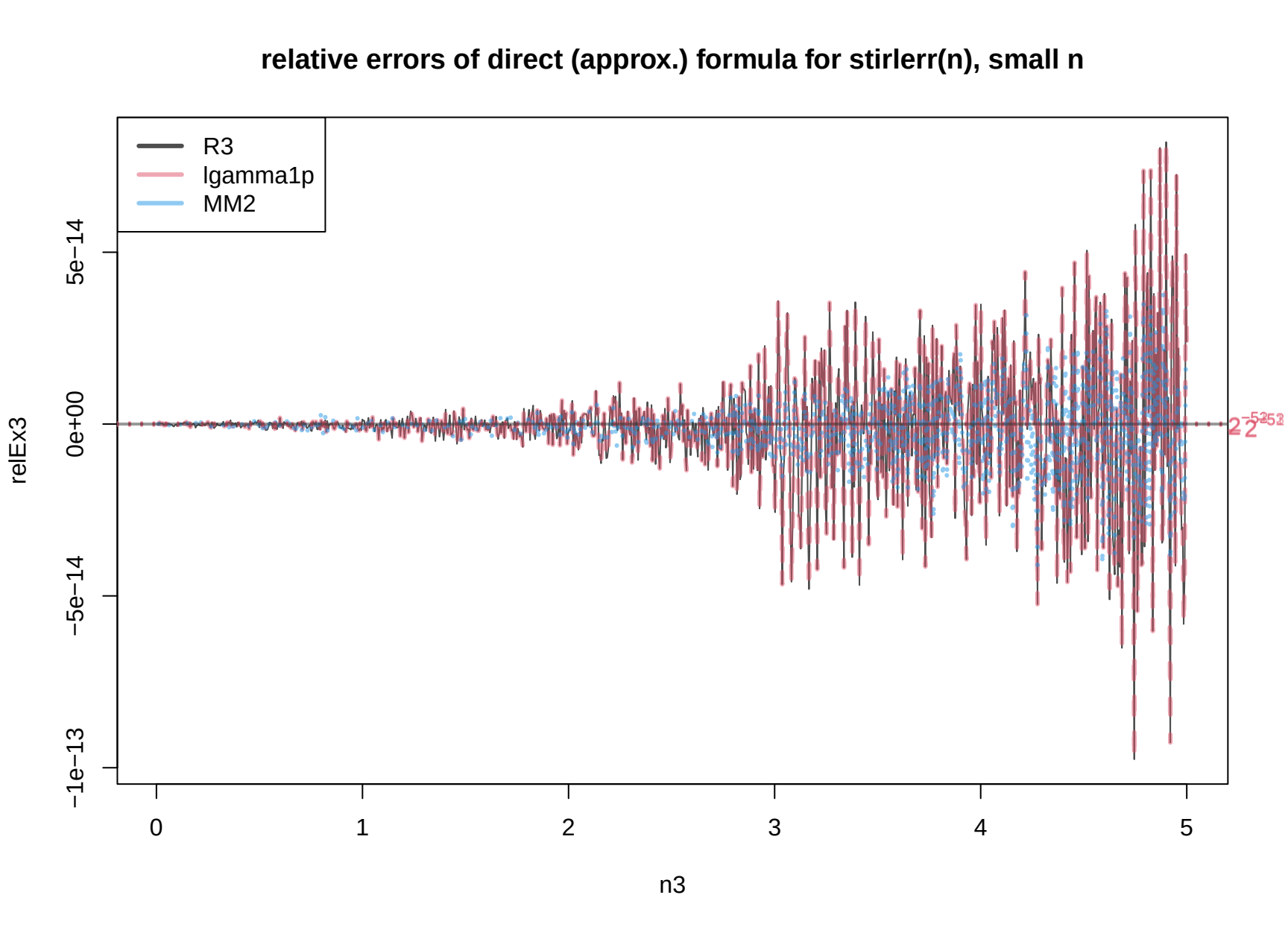

relative errors of direct (approx.) formula for stirlerr(n), small n
R3
lgamma1p
MM2
n0
relEx.
4e−16
2e−16
0e+00
−2e−16
−4e−16
2^−51
2^−52
2^−53
−2^−53
−2^−52
−2^−51
1e−125
1e−100
1e−75
1e−50
1e−25
1e+00
n.

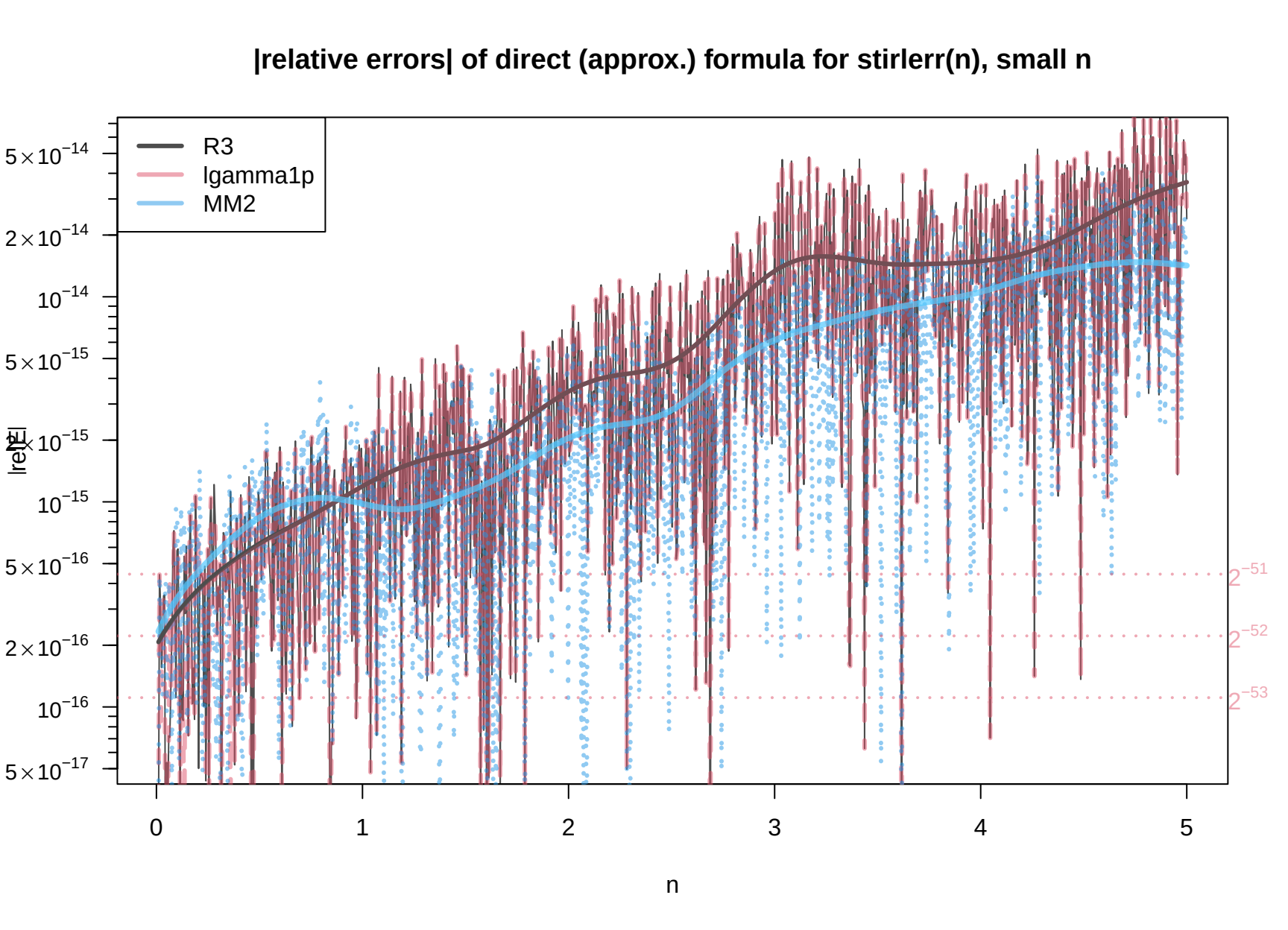

|relErr(stirlerr_simpl(n, *))|
R3
lgamma1p
MM2
n0
5e−16
2e−16
1e−16
5e−17
abs19(relEx.)
2^−51
2^−52
2^−53
1e−125
1e−100
1e−75
1e−50
1e−25
1e+00
n.

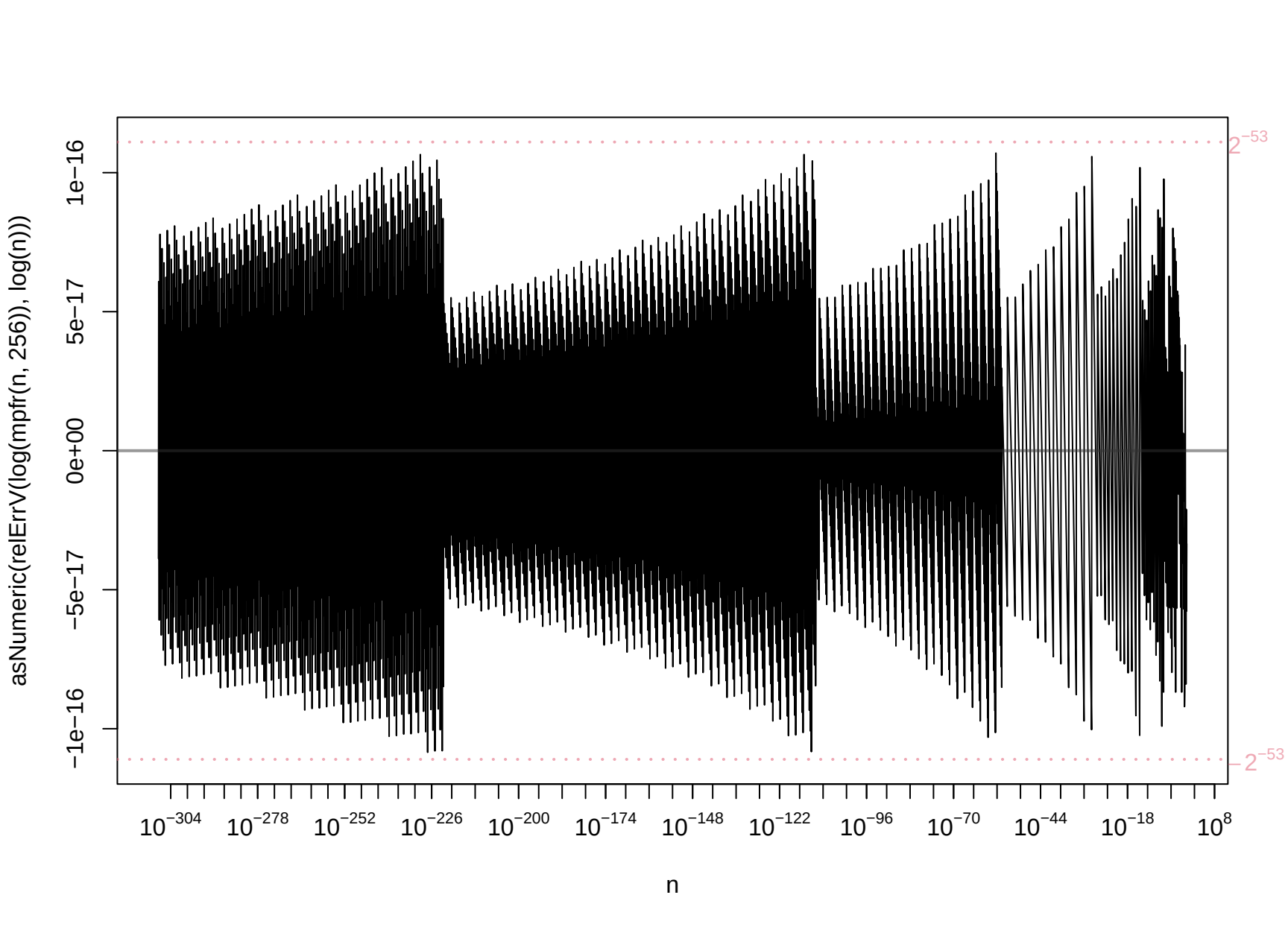

|relErr(stirlerr_simpl(n, *))|
R3
lgamma1p
n0
5e−16
2e−16
1e−16
5e−17
abs19(releS.2)
2^−51
2^−52
2^−53
1e−26
1e−24
1e−22
1e−20
1e−18
1e−16
5e−17
n.2

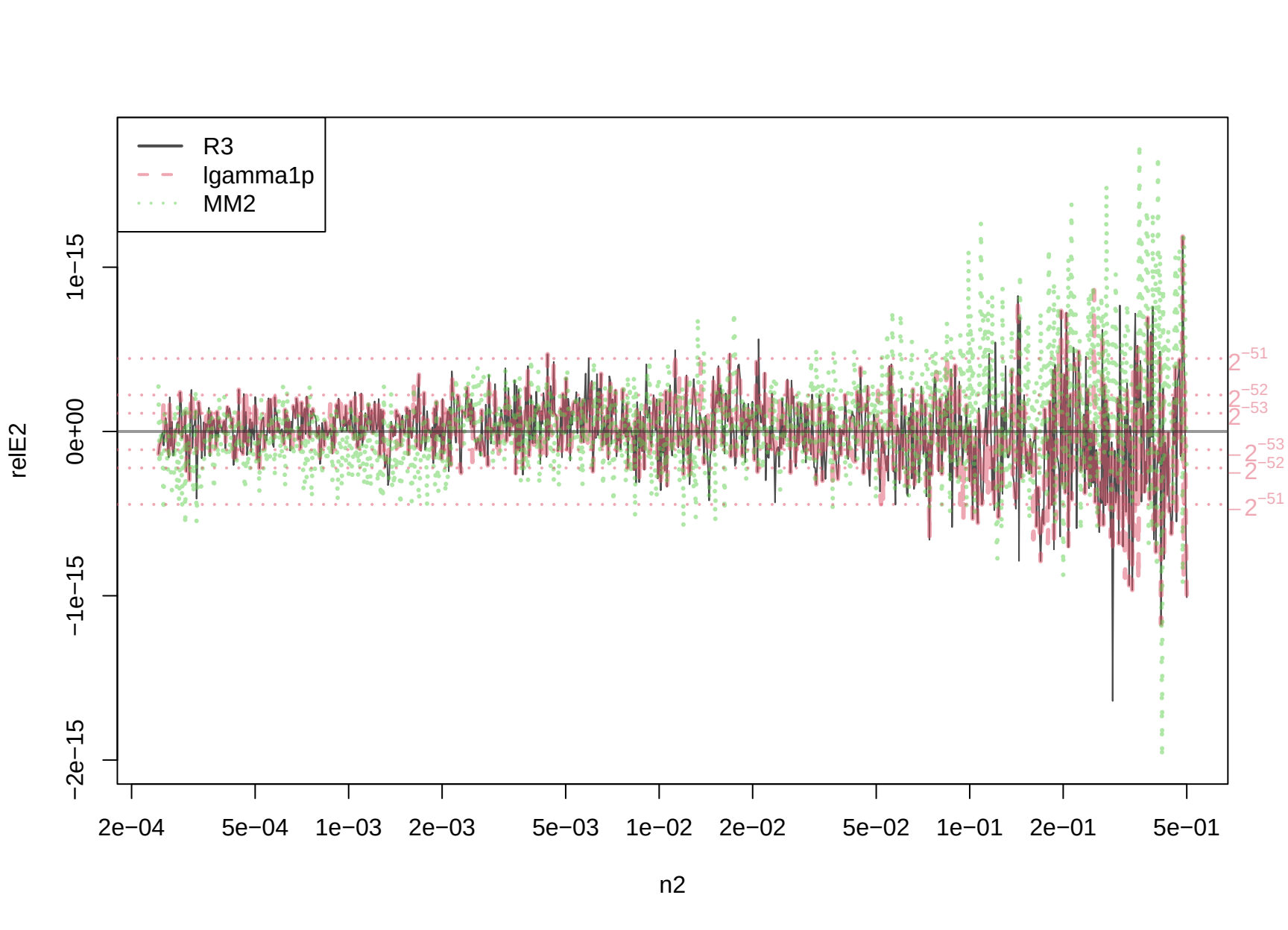

|relErr(stirlerr_simpl(n, *))|
stirlerr_simpl(*, "n0") is as good as others for n <= 5e−17
R3
lgamma1p
n0
5e−16
2e−16
1e−16
5e−17
abs19(releS.2)
2^{-51}
2^{-52}
2^{-53}
10^{-17}
2×10^{-17}
5×10^{-17}
10^{-16}
2×10^{-16}
5×10^{-16}
10^{-15}
n

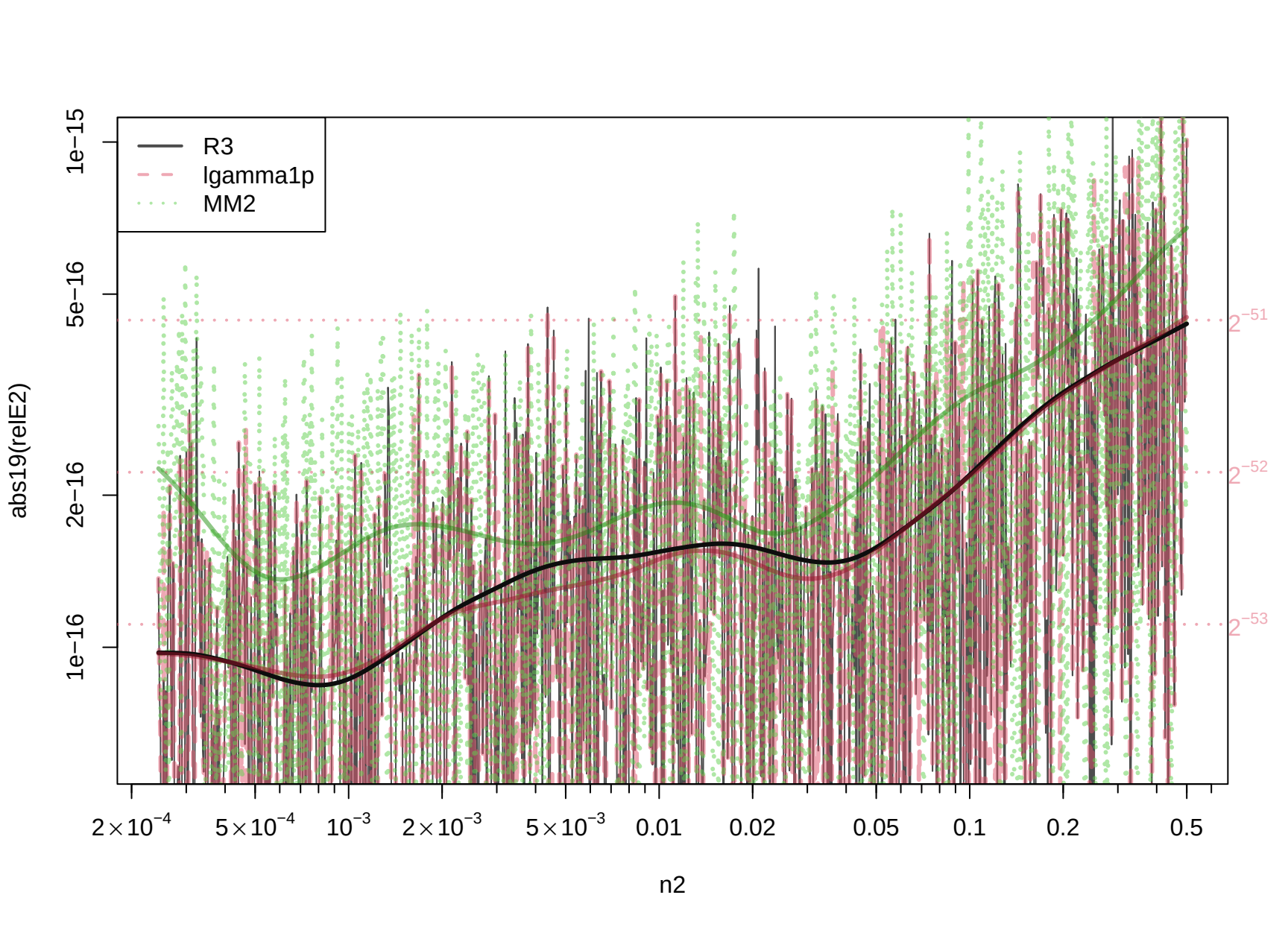

relative errors of direct (approx.) formula for stirlerr(n), small n
R3
lgamma1p
MM2
relEx2
3e−15
2e−15
1e−15
0e+00
−1e−15
−2e−15
−3e−15
2^{-51}
2^{-52}
2^{-53}
-2^{-53}
-2^{-52}
-2^{-51}
10^{-6}
10^{-5}
10^{-4}
0.001
0.01
0.1
1
n2

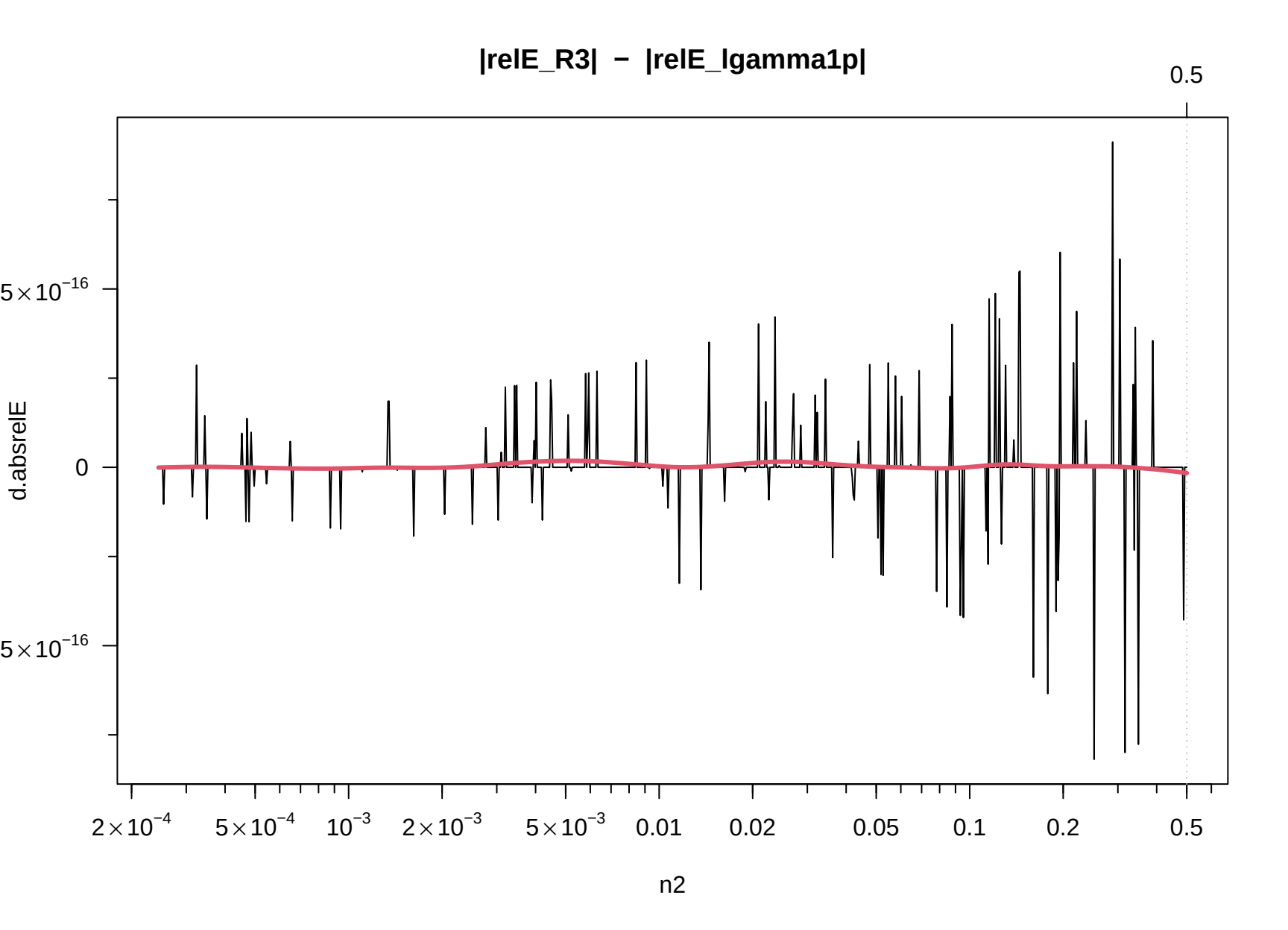

relative errors of direct (approx.) formula for stirlerr(n), small n
R3
lgamma1p
MM2
relEx3
5e−14
0e+00
−5e−14
−1e−13
0
1
2
3
4
5
n3

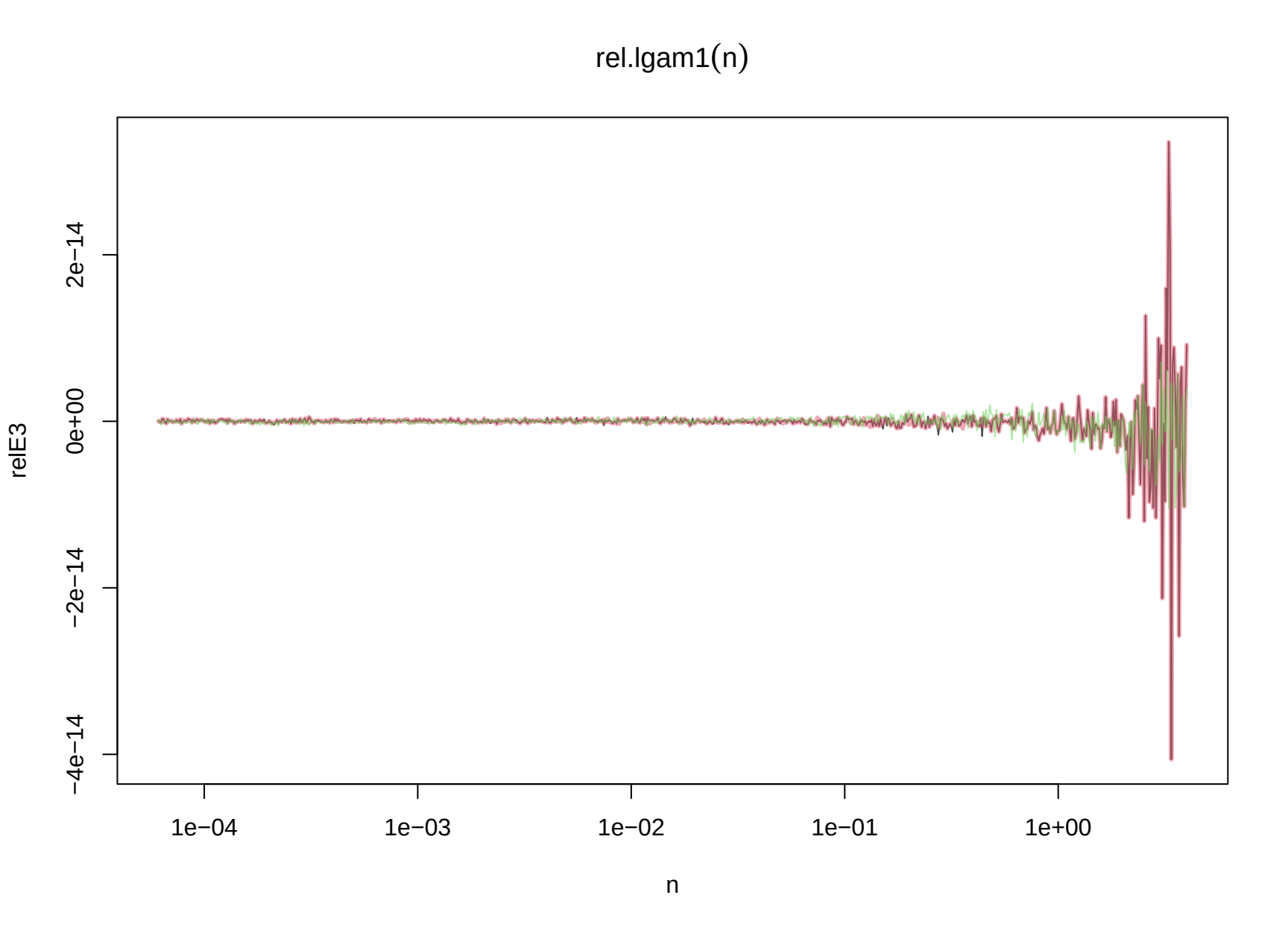

|relative errors| of direct (approx.) formula for stirlerr(n), small n
R3
lgamma1p
MM2
5×10^−14
2×10^−14
10^−14
5×10^−15
2×10^−15
10^−15
5×10^−16
2×10^−16
10^−16
5×10^−17
|rel E|
2^−51
2^−52
2^−53
0
1
2
3
4
5
n

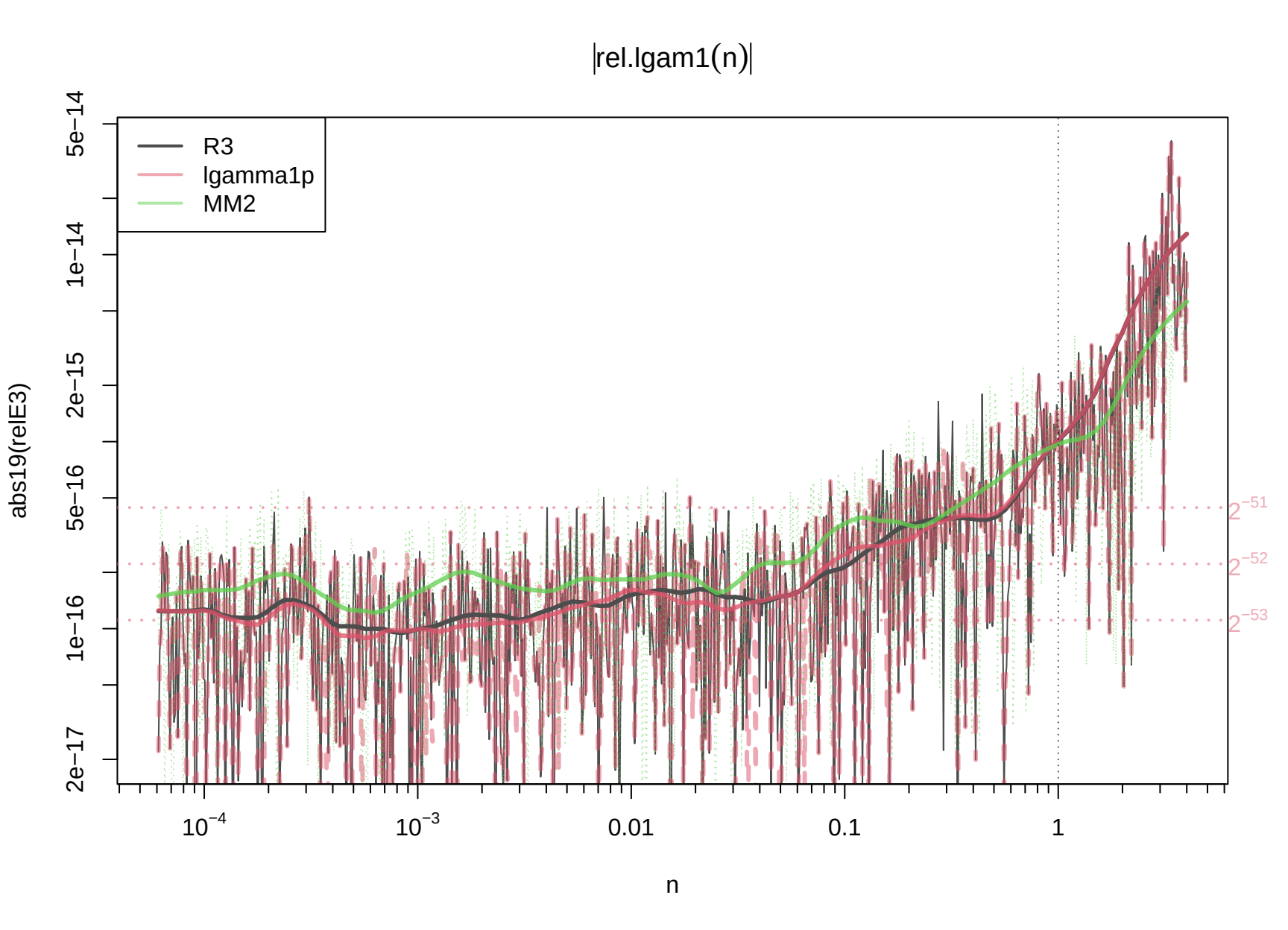

asNumeric(relErrV(log(mpfr(n, 256)), log(n)))
1e−16
5e−17
0e+00
−5e−17
−1e−16
2^−53
−2^−53
10^−304
10^−278
10^−252
10^−226
10^−200
10^−174
10^−148
10^−122
10^−96
10^−70
10^−44
10^−18
10^8
n

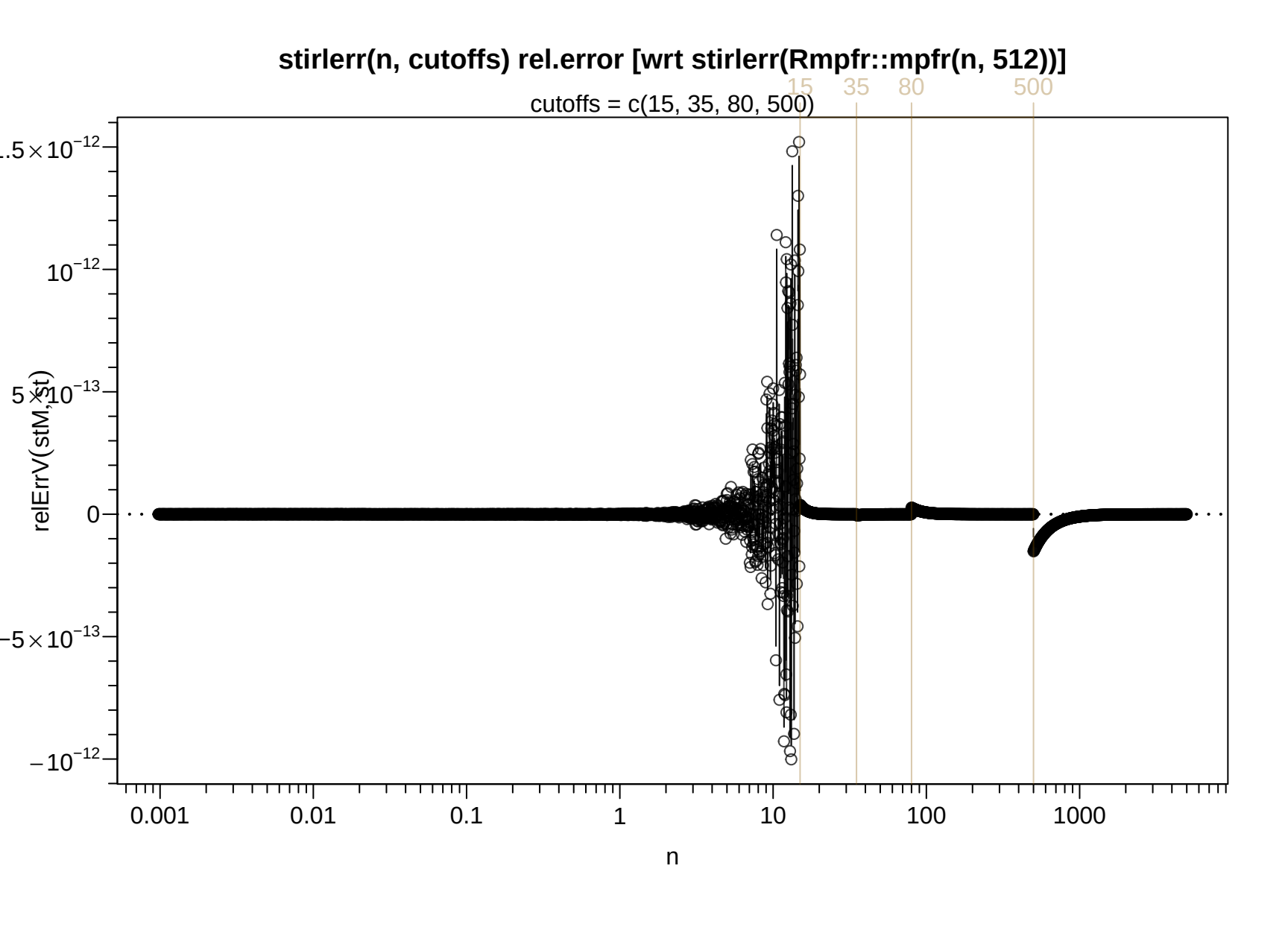

R3
lgamma1p
MM2
relE2
1e−15
0e+00
−1e−15
−2e−15
2e−04
5e−04
1e−03
2e−03
5e−03
1e−02
2e−02
5e−02
1e−01
2e−01
5e−01
n2
2^{-51}
2^{-52}
2^{-53}
-2^{-53}
-2^{-52}
-2^{-51}

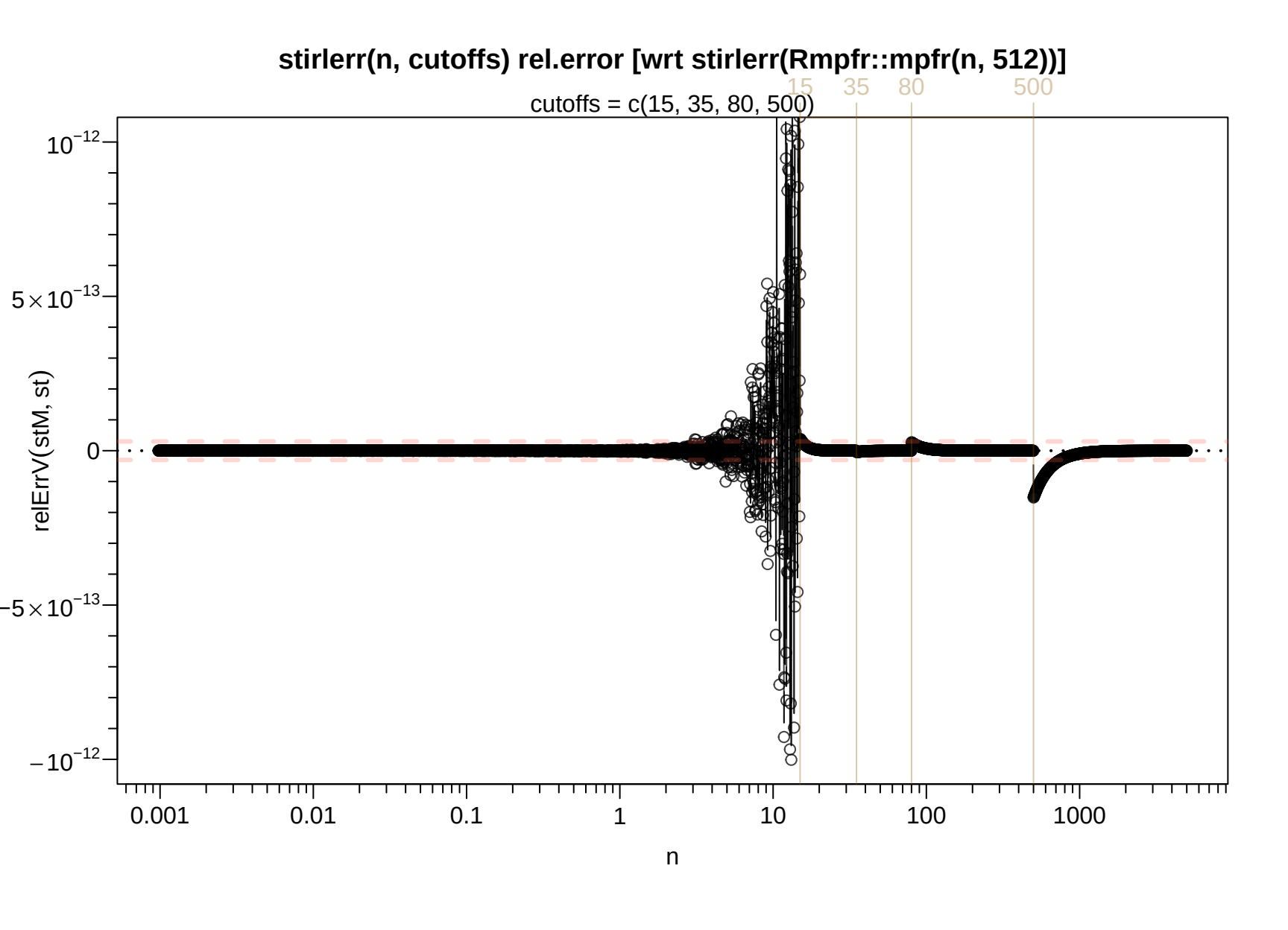

R3
lgamma1p
MM2
abs19(relE2)
1e−15
5e−16
2e−16
1e−16
2^{-51}
2^{-52}
2^{-53}
2×10^{-4}
5×10^{-4}
10^{-3}
2×10^{-3}
5×10^{-3}
0.01
0.02
0.05
0.1
0.2
0.5
n2


|relE_R3| − |relE_lgamma1p|
0.5
5×10−16
0
5×10−16
d.absrelE
2×10−4
5×10−4
10−3
2×10−3
5×10−3
0.01
0.02
0.05
0.1
0.2
0.5
n2


rel.lgam1(n)
relE3
2e−14
0e+00
−2e−14
−4e−14
1e−04
1e−03
1e−02
1e−01
1e+00
n


|rel.lgam1(n)|
R3
lgamma1p
MM2
abs19(relE3)
5e−14
1e−14
2e−15
5e−16
1e−16
2e−17
2^{-51}
2^{-52}
2^{-53}
10^{-4}
10^{-3}
0.01
0.1
1
n


stirlerr(n, cutoffs) rel.error [wrt stirlerr(Rmpfr::mpfr(n, 512))]
cutoffs = c(15, 35, 80, 500)
15
35
80
500
relErrV(stM, st)
n
0.001
0.01
0.1
1
10
100
1000
0
10^{-12}
5×10^{-13}
-5×10^{-13}
-10^{-12}


stirlerr(n, cutoffs) rel.error [wrt stirlerr(Rmpfr::mpfr(n, 512))]
cutoffs = c(15, 35, 80, 500)
15
35
80
500
relErrV(stM, st)
10^{-12}
5×10^{-13}
0
-5×10^{-13}
-10^{-12}
0.001
0.01
0.1
1
10
100
1000
n