Homework 2

Yiqi Tang

January 26, 2018

In HW2, we created several figures, first to examine error as a function of significant digits in estimating π, then, to look at the objective functions aParab13_2, aParab13_8, and wildN, and the errors associated with finding their respective global minimums. The figures below show the results.

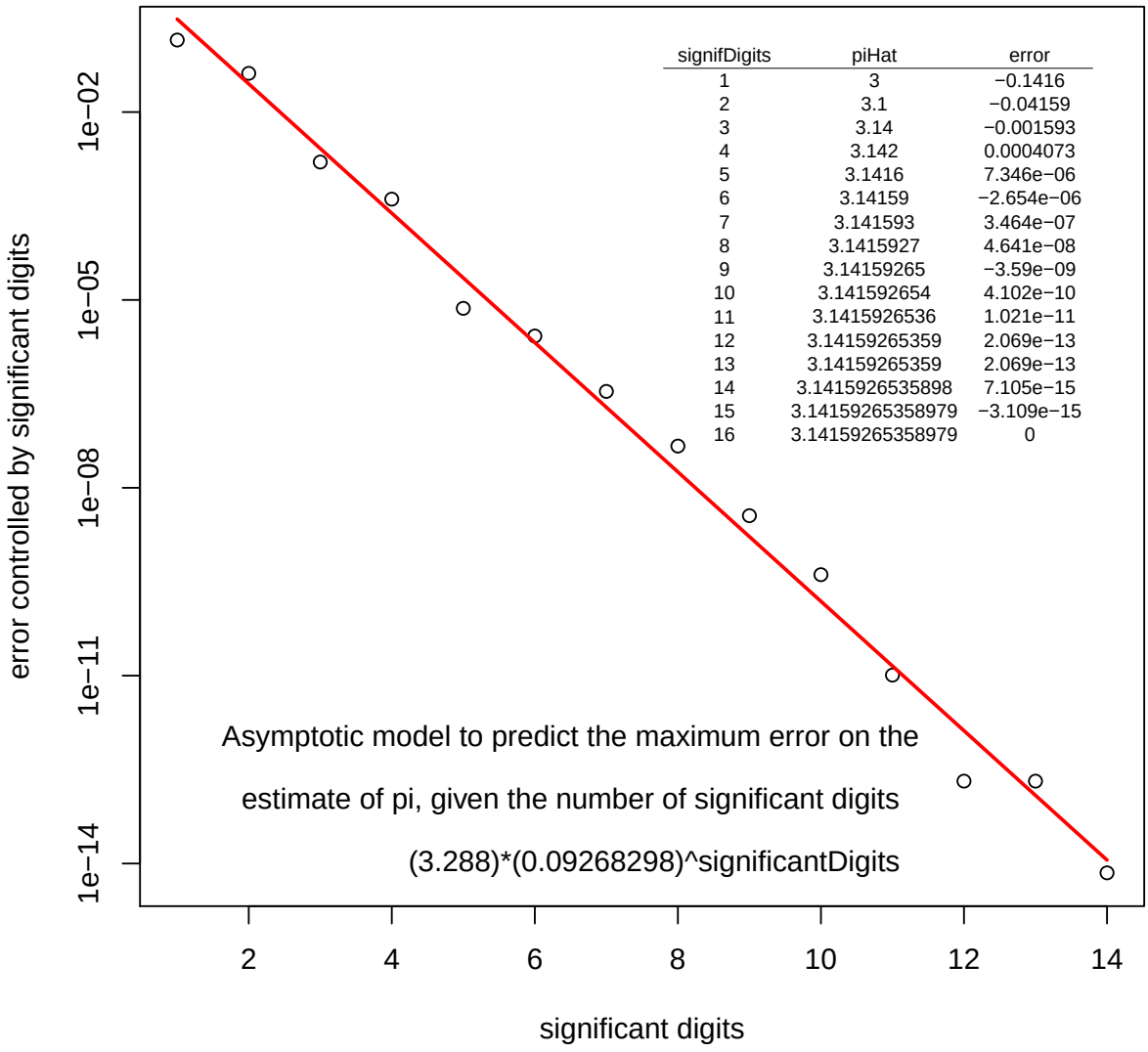


Figure 1: Error as a Function of Significant Digits When Estimating the True Value of Pi

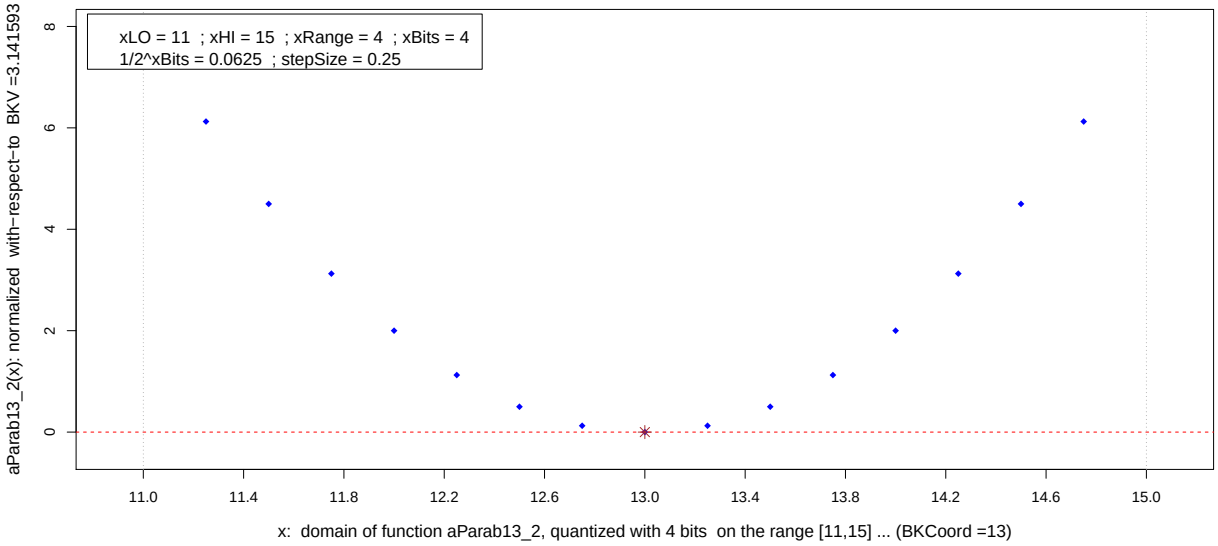


Figure 2: Function aParab13_2 Normalized With Respect To BKV

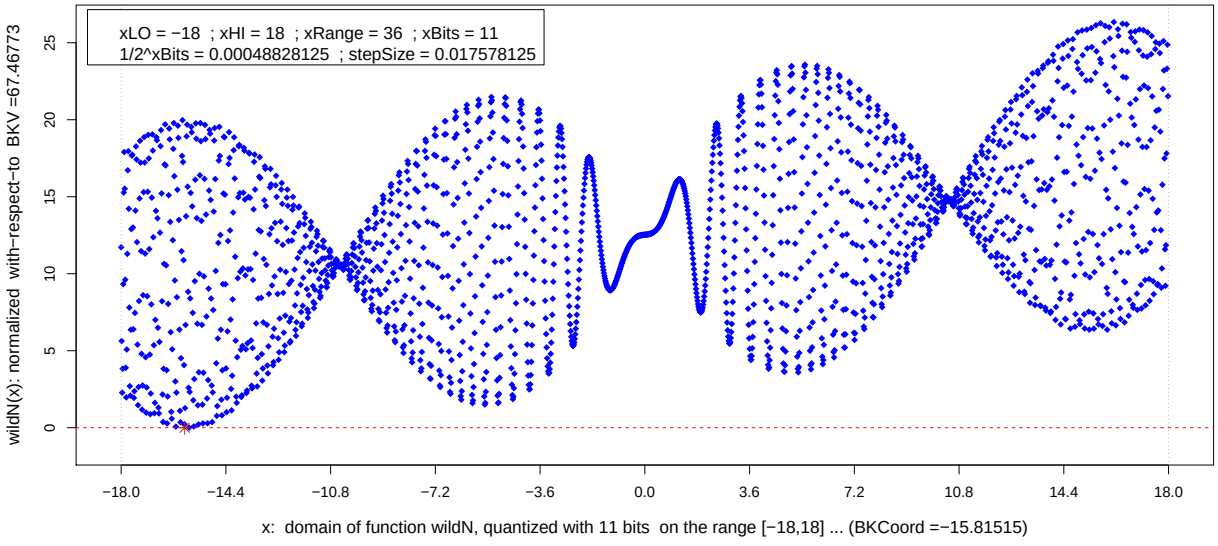
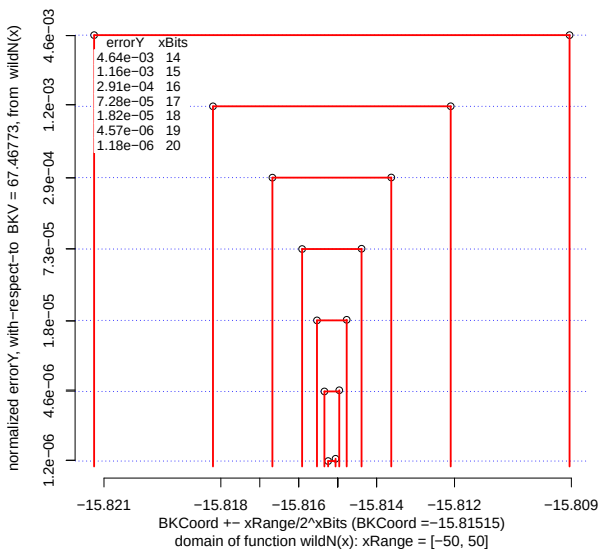
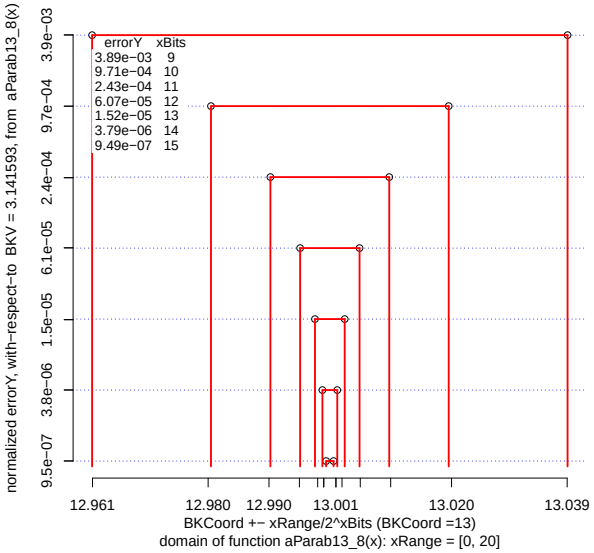


Figure 3: Function wildN Normalized With Respect To BKV



(a) Normalized Error of Function wildN



(b) Normalized Error of Function aParab13_8

Figure 4: Errors of the Two Objective Functions

```
<hash> containing 3 key-value pair(s).
  wildN.BKV : 67.46773
  wildN.isValueOnly : FALSE
  wildN.tolY : 0.005

seedInit   = 2657
solver     = DEoptim
OFname     = wildN
nPar       = 1
nDim       = 1
lowerBnd   = -50
upperBnd   = 50
popSize    = 64
iterLmt    = 200
iterCnt    = 7
tolY       = 5.000e-03
errorY     = 4.983e-03
isCensored = FALSE
BKV        = 67.46773
BKVcomb    = 67.46773
BKcoord    = -15.81515
valueBest  = 0
coordBest  = -15.35568

***** summary of DEoptim object *****
best member   :  -15.3556778890043
```

```
best value    :  0
after         :  7 generations
fn evaluated  :  16 times
**********************************
```