Untitled

Abstract

It is hard to calculate distribution function of N(0,1).

$$\Phi(t) = \int_{-\infty}^{t} \frac{1}{\sqrt{2\pi}} e^{-y^2/2} dy$$

Instead, we can use Monte Carlo methods to estimate its value:

$$\hat{\Phi}(t) = \frac{1}{n} \sum_{i=1}^{n} I(X_i \le t)$$

In this experiment, we calculate when

```
t \in 0.0, 0.67, 0.84, 1.28, 1.65, 2.32, 2.58, 3.09, 3.72n times (n \in 10^2, 10^3, 10^4)
```

Code

I use rnorm to get a random number "a" according to Normal Distribution. The proportion of a which is smaller than t is similar to the number we want. Repeat the experiment 100 times and get tables and box plots of the bias per experiment.

```
f=function(x)1/sqrt(2*pi)*exp(-x^2/2)
for(i in 1:100){
T=matrix(0,9,4,dimnames=list(c("0.0","0.67","0.84","1.28","1.65","2.32","2.58","3.09","3.72"),
                               c("10^2","10^3","10^4","true")))
\#n=10^2 t=0
n=10^2
t=0
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a \le t)
  \{b=1\}
  else
    \{b=0\}
T[1,1]=T[1,1]+b
T[1,1]=T[1,1]/n
\#n=10^3 t=0
n=10<sup>3</sup>
t=0
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
```

```
\{b=1\}
  else
    \{b=0\}
T[1,2]=T[1,2]+b
T[1,2]=T[1,2]/n
\#n=10^4 t=0
n=10<sup>4</sup>
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[1,3]=T[1,3]+b
T[1,3]=T[1,3]/n
#true
T[1,4]=integrate(f,Inf,t)$value
#n=10^2 t=0.67
n=10<sup>2</sup>
t=0.67
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[2,1]=T[2,1]+b
T[2,1]=T[2,1]/n
#n=10^3 t=0.67
n=10<sup>3</sup>
t=0.67
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[2,2]=T[2,2]+b
T[2,2]=T[2,2]/n
#n=10<sup>4</sup> t=0.67
n=10<sup>4</sup>
t=0.67
for(value in 1:n)
```

```
{a <- rnorm(1, mean=0, sd=1)
if(a \le t)
  \{b=1\}
  else
    \{b=0\}
T[2,3]=T[2,3]+b
}
T[2,3]=T[2,3]/n
#true
T[2,4]=integrate(f,Inf,t)$value
#n=10^2 t=0.84
n=10<sup>2</sup>
t=0.84
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a \le t)
  \{b=1\}
  else
    \{b=0\}
T[3,1]=T[3,1]+b
T[3,1]=T[3,1]/n
#n=10^3 t=0.84
n=10<sup>3</sup>
t=0.84
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[3,2]=T[3,2]+b
T[3,2]=T[3,2]/n
#n=10^4 t=0.84
n=10<sup>4</sup>
t=0.84
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[3,3]=T[3,3]+b
T[3,3]=T[3,3]/n
#true
T[3,4]=integrate(f,Inf,t)$value
```

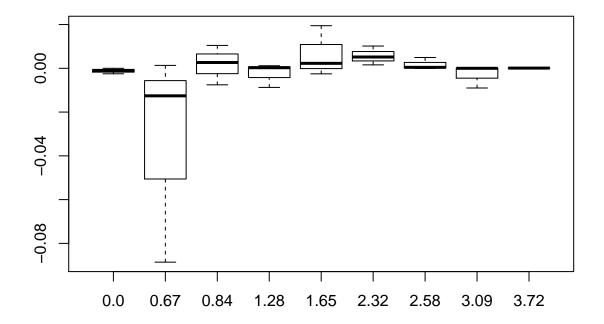
```
#n=10^2 t=1.28
n=10^2
t=1.28
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[4,1]=T[4,1]+b
T[4,1]=T[4,1]/n
#n=10^3 t=1.28
n=10<sup>3</sup>
t=1.28
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[4,2]=T[4,2]+b
T[4,2]=T[4,2]/n
#n=10<sup>2</sup>/<sub>4</sub> t=1.28
n=10<sup>4</sup>
t=1.28
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[4,3]=T[4,3]+b
T[4,3]=T[4,3]/n
#true
T[4,4]=integrate(f,Inf,t)$value
#n=10^2 t=1.65
n=10<sup>2</sup>
t=1.65
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[5,1]=T[5,1]+b
}
```

```
T[5,1]=T[5,1]/n
#n=10^3 t=1.65
n=10<sup>3</sup>
t=1.65
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[5,2]=T[5,2]+b
T[5,2]=T[5,2]/n
#n=10<sup>4</sup> t=1.65
n=10<sup>4</sup>
t=1.65
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a \le t)
  \{b=1\}
  else
    \{b=0\}
T[5,3]=T[5,3]+b
T[5,3]=T[5,3]/n
#true
T[5,4]=integrate(f, Inf,t)$value
#n=10^2 t=2.32
n=10<sup>2</sup>
t=2.32
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[6,1]=T[6,1]+b
T[6,1]=T[6,1]/n
#n=10^3 t=2.32
n=10<sup>3</sup>
t=2.32
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
```

```
T[6,2]=T[6,2]+b
T[6,2]=T[6,2]/n
#n=10^4 t=2.32
n=10^4
t=2.32
for(value in 1:n)
 {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[6,3]=T[6,3]+b
T[6,3]=T[6,3]/n
#true
T[6,4]=integrate(f, Inf,t)$value
#n=10^2 t=2.58
n=10^2
t=2.58
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[7,1]=T[7,1]+b
T[7,1]=T[7,1]/n
#n=10^3 t=2.58
n=10<sup>3</sup>
t=2.58
for(value in 1:n)
 {a <- rnorm(1, mean=0, sd=1)
if(a \le t)
  \{b=1\}
  else
    \{b=0\}
T[7,2]=T[7,2]+b
T[7,2]=T[7,2]/n
#n=10^4 t=2.58
n=10<sup>4</sup>
t=2.58
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
```

```
else
    \{b=0\}
T[7,3]=T[7,3]+b
T[7,3]=T[7,3]/n
#true
T[7,4]=integrate(f, Inf,t)$value
#n=10^2 t=3.09
n=10<sup>2</sup>
t=3.09
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[8,1]=T[8,1]+b
T[8,1]=T[8,1]/n
#n=10^3 t=3.09
n=10<sup>3</sup>
t=3.09
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[8,2]=T[8,2]+b
T[8,2]=T[8,2]/n
#n=10^4 t=3.09
n=10<sup>4</sup>
t=3.09
for(value in 1:n)
 {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[8,3]=T[8,3]+b
}
T[8,3]=T[8,3]/n
#true
T[8,4]=integrate(f, Inf,t)$value
#n=10^2 t=3.72
n=10<sup>2</sup>
```

```
t=3.72
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[9,1]=T[9,1]+b
T[9,1]=T[9,1]/n
#n=10^3 t=3.72
n=10<sup>3</sup>
t=3.72
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  \{b=1\}
  else
    \{b=0\}
T[9,2]=T[9,2]+b
T[9,2]=T[9,2]/n
#n=10^4 t=3.72
n=10<sup>4</sup>
t=3.72
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a \le t)
  \{b=1\}
  else
    \{b=0\}
T[9,3]=T[9,3]+b
T[9,3]=T[9,3]/n
#true
T[9,4]=integrate(f, Inf,t)$value
print(paste(" experiment",i))
print(T)
boxplot(t(T[,1:3]-T[,4]))
}
## [1] " experiment 1"
##
        10^2 10^3 10^4
## 0.0 0.50 0.499 0.4975 0.5000000
## 0.67 0.66 0.736 0.7499 0.7485711
## 0.84 0.81 0.792 0.8022 0.7995458
## 1.28 0.90 0.891 0.9009 0.8997274
## 1.65 0.97 0.948 0.9528 0.9505285
## 2.32 1.00 0.995 0.9914 0.9898296
## 2.58 1.00 0.995 0.9955 0.9950600
```



```
## [1] " experiment 2"

## 0.0 0.53 0.510 0.5065 0.5000000

## 0.67 0.76 0.759 0.7409 0.7485711

## 0.84 0.82 0.810 0.7986 0.7995458

## 1.28 0.86 0.911 0.9027 0.8997274

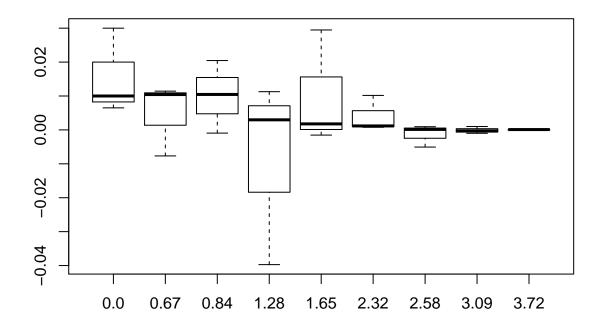
## 1.65 0.98 0.949 0.9523 0.9505285

## 2.32 1.00 0.991 0.9906 0.9898296

## 2.58 0.99 0.996 0.9952 0.9950600

## 3.09 1.00 0.998 0.9987 0.9989992

## 3.72 1.00 1.000 0.9998 0.9999004
```



```
## [1] " experiment 3"

## 10^2 10^3 10^4 true

## 0.0 0.52 0.519 0.5023 0.5000000

## 0.67 0.69 0.739 0.7440 0.7485711

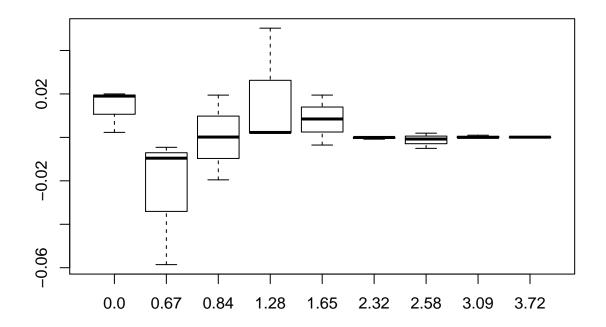
## 1.28 0.95 0.902 0.9018 0.8997274

## 1.65 0.97 0.959 0.9470 0.9505285

## 2.32 0.99 0.989 0.9898 0.9898296

## 2.58 0.99 0.997 0.9943 0.9950600

## 3.09 1.00 0.999 0.9987 0.9999004
```



```
## [1] " experiment 4"

## 0.0 0.41 0.518 0.5040 0.5000000

## 0.67 0.75 0.747 0.7587 0.7485711

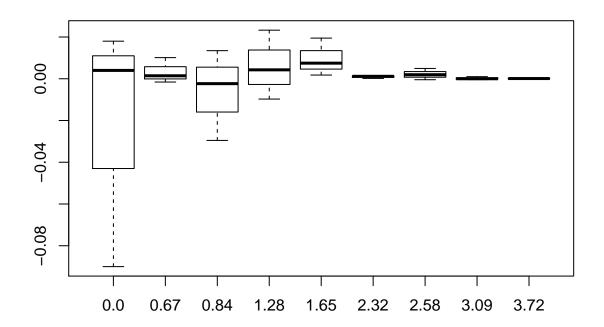
## 1.28 0.89 0.923 0.9040 0.8997274

## 1.65 0.97 0.958 0.9523 0.9505285

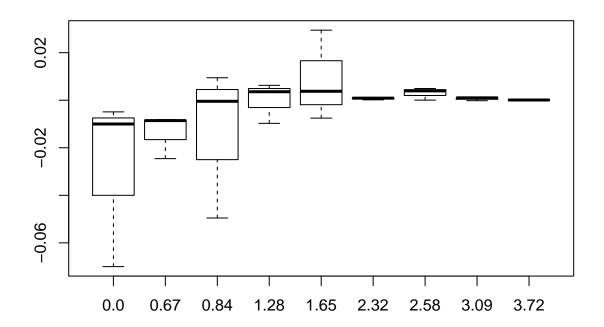
## 2.32 0.99 0.991 0.9914 0.9898296

## 2.58 1.00 0.997 0.9946 0.9950600

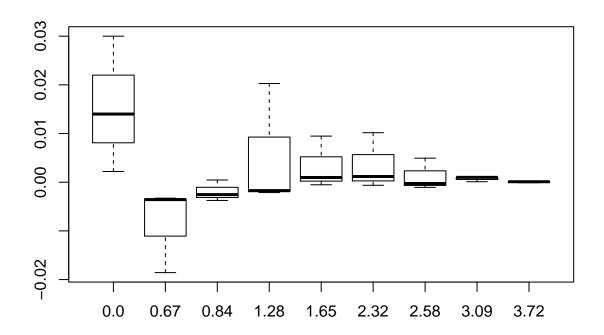
## 3.09 1.00 0.999 0.9986 0.9999004
```



```
## [1] " experiment 5" true
## 0.0 0.43 0.490 0.4951 0.5000000
## 0.67 0.74 0.724 0.7404 0.7485711
## 1.28 0.89 0.906 0.9033 0.8997274
## 1.65 0.98 0.943 0.9543 0.9505285
## 2.32 0.99 0.991 0.9907 0.9898296
## 2.58 1.00 0.999 0.9951 0.9950600
## 3.09 1.00 1.000 0.9988 0.9999004
```



```
## [1] " experiment 6" true
## 0.0 0.53 0.514 0.5022 0.5000000
## 0.67 0.73 0.745 0.7453 0.7485711
## 0.84 0.80 0.797 0.7958 0.7995458
## 1.28 0.92 0.898 0.8976 0.8997274
## 1.65 0.96 0.950 0.9515 0.9505285
## 2.32 1.00 0.991 0.9892 0.9898296
## 2.58 1.00 0.994 0.9948 0.9950600
## 3.09 1.00 1.000 0.9991 0.9989992
## 3.72 1.00 1.000 0.9998 0.9999004
```



```
## [1] " experiment 7"

## 0.0 0.46 0.499 0.5107 0.5000000

## 0.67 0.71 0.740 0.7492 0.7485711

## 0.84 0.80 0.792 0.7978 0.7995458

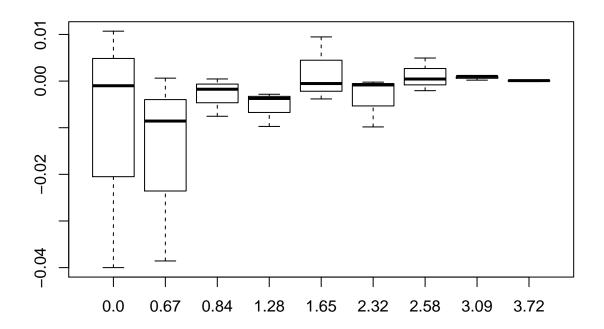
## 1.28 0.89 0.896 0.8969 0.8997274

## 1.65 0.96 0.950 0.9467 0.9505285

## 2.32 0.98 0.989 0.9896 0.9898296

## 2.58 1.00 0.993 0.9955 0.9950600

## 3.09 1.00 1.000 0.9992 0.9999004
```



```
## [1] " experiment 8" true

## 0.0 0.46 0.468 0.5059 0.5000000

## 0.67 0.74 0.765 0.7519 0.7485711

## 0.84 0.76 0.806 0.7947 0.7995458

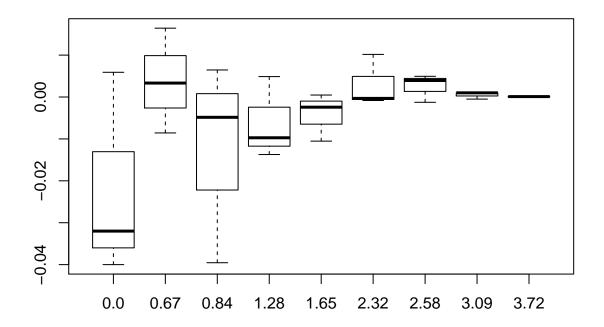
## 1.28 0.89 0.886 0.9046 0.8997274

## 1.65 0.94 0.951 0.9481 0.9505285

## 2.32 1.00 0.989 0.9895 0.9898296

## 2.58 1.00 0.999 0.9938 0.9950600

## 3.09 1.00 1.000 0.9995 0.9999004
```



```
## [1] " experiment 9"

## 10^2 10^3 10^4 true

## 0.0 0.48 0.503 0.4952 0.5000000

## 0.67 0.73 0.743 0.7550 0.7485711

## 0.84 0.83 0.819 0.7991 0.7995458

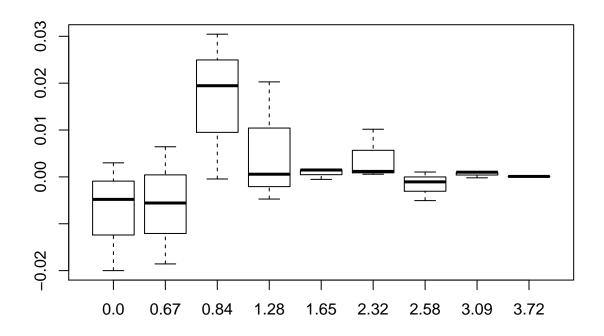
## 1.28 0.92 0.895 0.9003 0.8997274

## 1.65 0.95 0.952 0.9520 0.9505285

## 2.32 1.00 0.991 0.9904 0.9898296

## 2.58 0.99 0.994 0.9961 0.9950600

## 3.09 1.00 1.000 0.9988 0.9999004
```



```
## [1] " experiment 10"

## 0.0 0.49 0.469 0.4976 0.5000000

## 0.67 0.79 0.750 0.7495 0.7485711

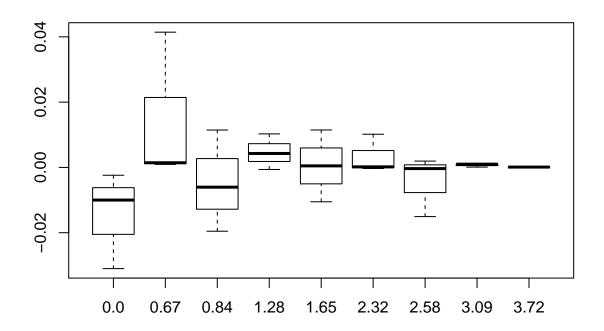
## 1.28 0.91 0.904 0.8991 0.8997274

## 1.65 0.94 0.962 0.9510 0.9505285

## 2.32 1.00 0.990 0.9895 0.9898296

## 2.58 0.98 0.997 0.9947 0.9950600

## 3.09 1.00 1.000 0.9991 0.9999004
```



```
## [1] " experiment 11"

## 0.0 0.54 0.509 0.5027 0.5000000

## 0.67 0.80 0.764 0.7479 0.7485711

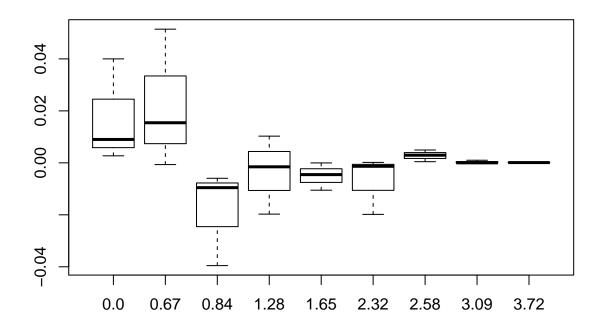
## 1.28 0.88 0.910 0.8982 0.8997274

## 1.65 0.94 0.946 0.9505 0.9505285

## 2.32 0.97 0.990 0.9885 0.9898296

## 2.58 1.00 0.998 0.9955 0.9950600

## 3.09 1.00 0.999 0.9990 0.999904
```



```
## [1] " experiment 12"

## 0.0 0.56 0.490 0.5059 0.5000000

## 0.67 0.77 0.765 0.7458 0.7485711

## 1.28 0.89 0.895 0.8991 0.8997274

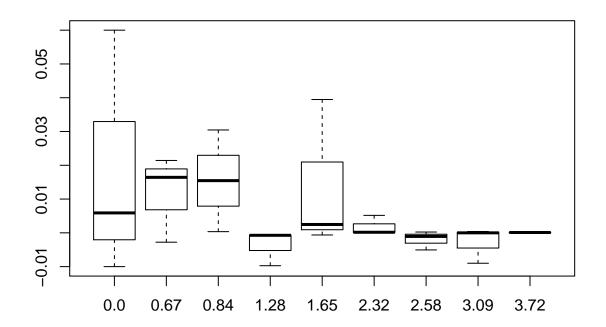
## 1.65 0.99 0.953 0.9499 0.9505285

## 2.32 0.99 0.995 0.9899 0.9898296

## 2.58 0.99 0.994 0.9953 0.9950600

## 3.09 0.99 0.999 0.9994 0.9989992

## 3.72 1.00 1.000 0.9999 0.9999004
```



```
## [1] " experiment 13"

## 0.0 0.52 0.494 0.4954 0.5000000

## 0.67 0.77 0.766 0.7470 0.7485711

## 1.28 0.81 0.800 0.7977 0.7995458

## 1.28 0.97 0.899 0.8993 0.8997274

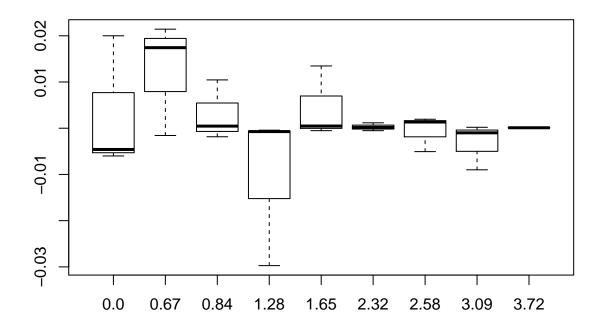
## 1.65 0.95 0.964 0.9510 0.9505285

## 2.32 0.99 0.991 0.9893 0.9898296

## 2.58 0.99 0.997 0.9964 0.9950600

## 3.09 0.99 0.998 0.9992 0.9989992

## 3.72 1.00 1.000 1.0000 0.9999004
```



```
## [1] " experiment 14"

## 0.0 0.57 0.481 0.4908 0.5000000

## 0.67 0.78 0.754 0.7500 0.7485711

## 0.84 0.81 0.816 0.7964 0.7995458

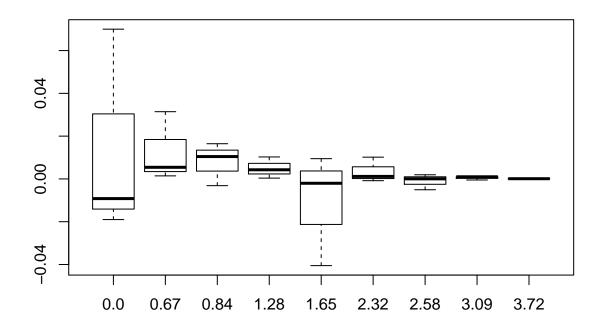
## 1.28 0.91 0.904 0.9001 0.8997274

## 1.65 0.91 0.960 0.9485 0.9505285

## 2.32 1.00 0.991 0.9890 0.9898296

## 2.58 0.99 0.997 0.9951 0.9950600

## 3.09 1.00 1.000 0.9985 0.9999004
```



```
## [1] " experiment 15"

## 0.0 0.51 0.503 0.4989 0.5000000

## 0.67 0.72 0.744 0.7432 0.7485711

## 0.84 0.83 0.818 0.7999 0.7995458

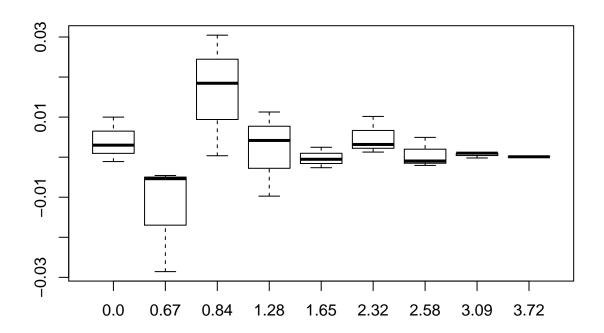
## 1.28 0.89 0.911 0.9039 0.8997274

## 1.65 0.95 0.953 0.9479 0.9505285

## 2.32 1.00 0.993 0.9911 0.9898296

## 2.58 1.00 0.993 0.9941 0.9950600

## 3.09 1.00 1.000 0.9988 0.9999004
```



```
## [1] " experiment 16"

## 0.0 0.59 0.520 0.4951 0.5000000

## 0.67 0.74 0.760 0.7476 0.7485711

## 1.28 0.94 0.904 0.8960 0.8997274

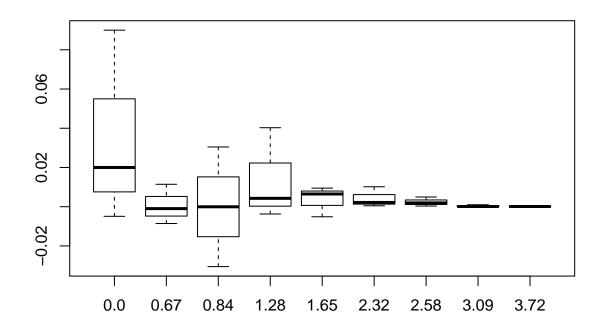
## 1.65 0.96 0.957 0.9454 0.9505285

## 2.32 1.00 0.992 0.9903 0.9898296

## 2.58 1.00 0.997 0.9954 0.9950600

## 3.09 1.00 0.999 0.9991 0.9989992

## 3.72 1.00 1.000 0.9999 0.9999004
```



```
## [1] " experiment 17"

## 0.0 0.57 0.482 0.4965 0.5000000

## 0.67 0.69 0.761 0.7415 0.7485711

## 0.84 0.81 0.786 0.7941 0.7995458

## 1.28 0.89 0.899 0.9014 0.8997274

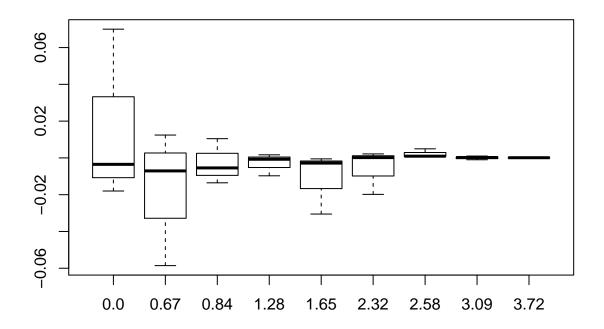
## 1.65 0.92 0.950 0.9477 0.9505285

## 2.32 0.97 0.990 0.9920 0.9898296

## 2.58 1.00 0.996 0.9958 0.9950600

## 3.09 1.00 0.998 0.9992 0.9989992

## 3.72 1.00 1.000 0.9998 0.9999004
```



```
## [1] " experiment 18"

## 0.0 0.47 0.503 0.4908 0.5000000

## 0.67 0.77 0.751 0.7508 0.7485711

## 0.84 0.83 0.818 0.7948 0.7995458

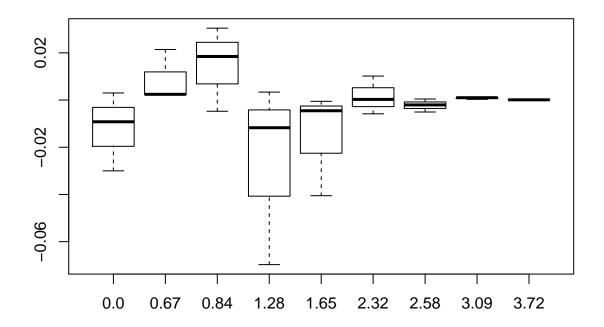
## 1.28 0.83 0.888 0.9031 0.8997274

## 1.65 0.91 0.950 0.9460 0.9505285

## 2.32 1.00 0.984 0.9901 0.9898296

## 2.58 0.99 0.993 0.9955 0.9950600

## 3.09 1.00 1.000 0.9993 0.9999004
```



```
## [1] " experiment 19"

## 0.0 0.51 0.505 0.5100 0.5000000

## 0.67 0.74 0.744 0.7439 0.7485711

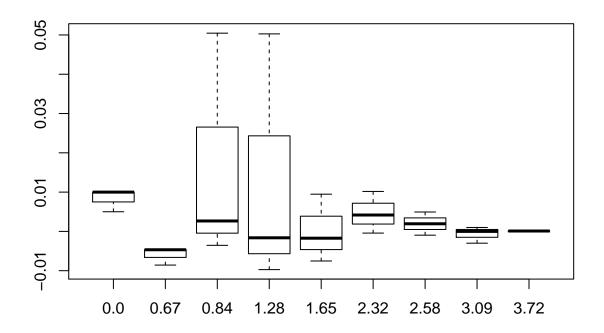
## 1.28 0.95 0.890 0.8922 0.7995458

## 1.65 0.96 0.943 0.948 0.9505285

## 2.32 1.00 0.994 0.9894 0.9898296

## 2.58 1.00 0.997 0.9941 0.9950600

## 3.09 1.00 0.996 0.9990 0.9999004
```



```
## [1] " experiment 20"

## 0.0 0.49 0.476 0.4892 0.5000000

## 0.67 0.74 0.755 0.7509 0.7485711

## 1.28 0.86 0.891 0.9008 0.8997274

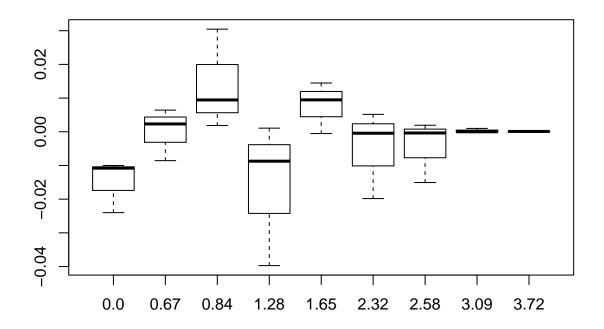
## 1.65 0.96 0.965 0.9500 0.9505285

## 2.32 0.97 0.995 0.9894 0.9898296

## 2.58 0.98 0.997 0.9947 0.9950600

## 3.09 1.00 0.999 0.9989 0.998992

## 3.72 1.00 1.000 0.9997 0.9999004
```



```
## [1] " experiment 21"

## 0.0 0.46 0.510 0.5018 0.5000000

## 0.67 0.75 0.767 0.7509 0.7485711

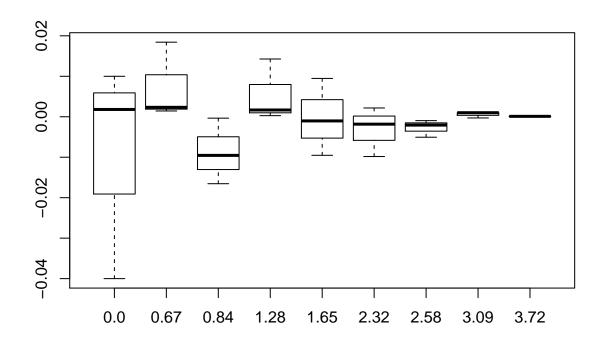
## 1.28 0.90 0.914 0.9014 0.8997274

## 1.65 0.96 0.941 0.9495 0.9505285

## 2.32 0.98 0.988 0.9920 0.9898296

## 2.58 0.99 0.993 0.9941 0.9950600

## 3.09 1.00 1.000 0.9987 0.9999004
```



```
## [1] " experiment 22"

## 0.0 0.51 0.516 0.5042 0.5000000

## 0.67 0.70 0.750 0.7562 0.7485711

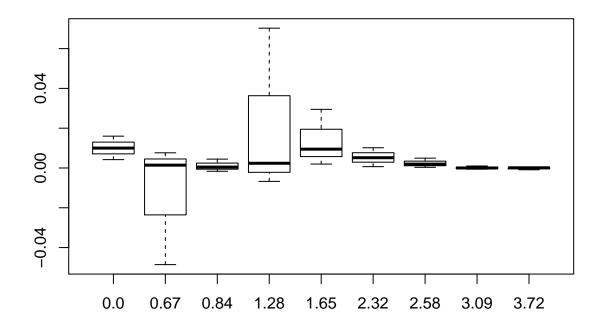
## 1.28 0.97 0.893 0.9021 0.8997274

## 1.65 0.98 0.960 0.9525 0.9505285

## 2.32 1.00 0.995 0.9905 0.9898296

## 2.58 1.00 0.997 0.9954 0.9950600

## 3.09 1.00 0.999 0.9984 0.9999004
```



```
## [1] " experiment 23"

## 10^2 10^3 10^4 true

## 0.0 0.55 0.473 0.5050 0.5000000

## 0.67 0.73 0.736 0.7468 0.7485711

## 0.84 0.86 0.803 0.8024 0.7995458

## 1.28 0.86 0.905 0.8953 0.8997274

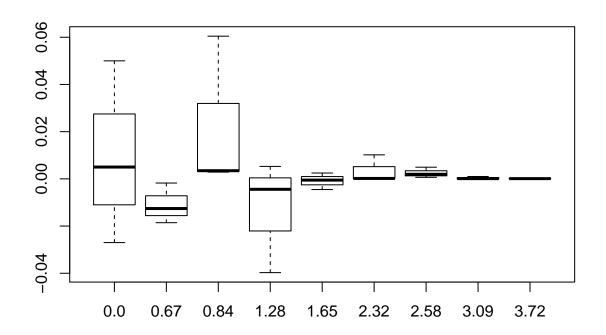
## 1.65 0.95 0.946 0.9530 0.9505285

## 2.32 1.00 0.990 0.9900 0.9898296

## 2.58 1.00 0.997 0.9957 0.9950600

## 3.09 1.00 0.999 0.9991 0.9989992

## 3.72 1.00 1.000 0.9999 0.9999004
```



```
## [1] " experiment 24"

## 0.0 0.47 0.529 0.5072 0.5000000

## 0.67 0.72 0.752 0.7404 0.7485711

## 0.84 0.80 0.791 0.8061 0.7995458

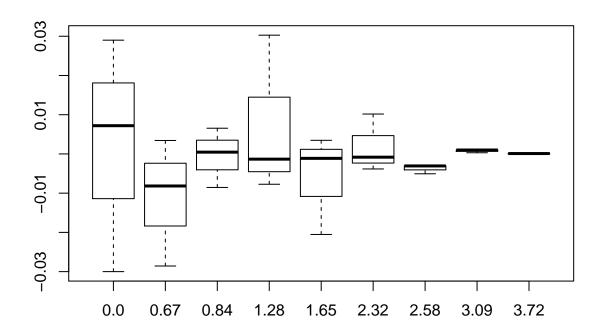
## 1.28 0.93 0.892 0.8984 0.8997274

## 1.65 0.93 0.954 0.9494 0.9505285

## 2.32 1.00 0.986 0.9890 0.9898296

## 2.58 0.99 0.992 0.9921 0.9950600

## 3.09 1.00 1.000 0.9993 0.9999004
```



```
## [1] " experiment 25"

## 0.0 0.51 0.491 0.4983 0.5000000

## 0.67 0.73 0.735 0.7505 0.7485711

## 0.84 0.77 0.814 0.7986 0.7995458

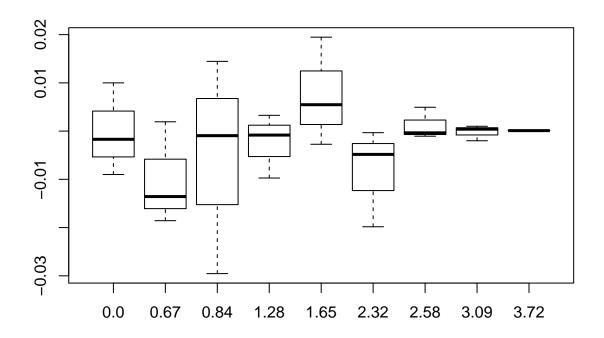
## 1.28 0.89 0.903 0.8989 0.8997274

## 1.65 0.97 0.956 0.9478 0.9505285

## 2.32 0.97 0.985 0.9895 0.9898296

## 2.58 1.00 0.994 0.9947 0.9950600

## 3.09 1.00 0.997 0.9994 0.9999004
```



```
## [1] " experiment 26"

## 0.0 0.52 0.488 0.5000 0.5000000

## 0.67 0.70 0.733 0.7461 0.7485711

## 0.84 0.80 0.793 0.7979 0.7995458

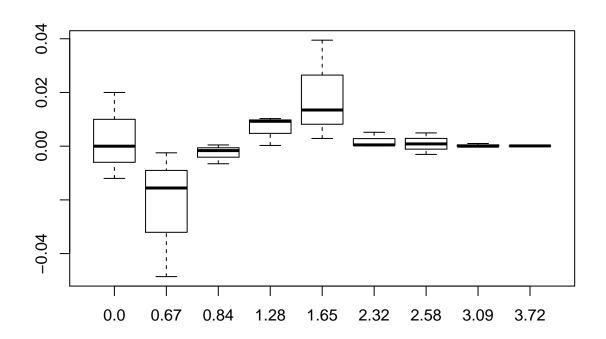
## 1.28 0.91 0.909 0.9000 0.8997274

## 1.65 0.99 0.964 0.9534 0.9505285

## 2.32 0.99 0.995 0.9903 0.9898296

## 2.58 1.00 0.992 0.9959 0.9950600

## 3.09 1.00 0.999 0.9990 0.999904
```



```
## [1] " experiment 27"

## 0.0 0.48 0.479 0.4966 0.5000000

## 0.67 0.78 0.752 0.7520 0.7485711

## 0.84 0.77 0.800 0.8011 0.7995458

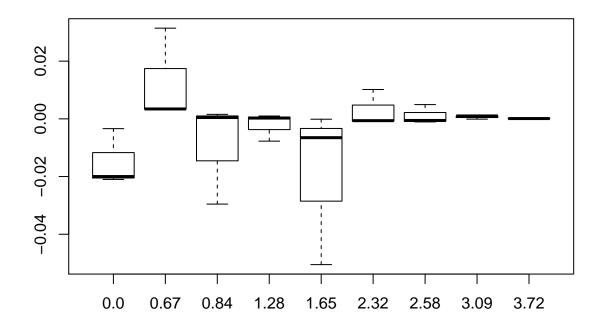
## 1.28 0.90 0.892 0.9007 0.8997274

## 1.65 0.90 0.944 0.9504 0.9505285

## 2.32 1.00 0.989 0.9892 0.9898296

## 2.58 1.00 0.994 0.9945 0.9950600

## 3.09 1.00 1.000 0.9989 0.9999004
```



```
## [1] " experiment 28"

## 0.0 0.57 0.492 0.4962 0.5000000

## 0.67 0.75 0.748 0.7434 0.7485711

## 0.84 0.80 0.780 0.7994 0.7995458

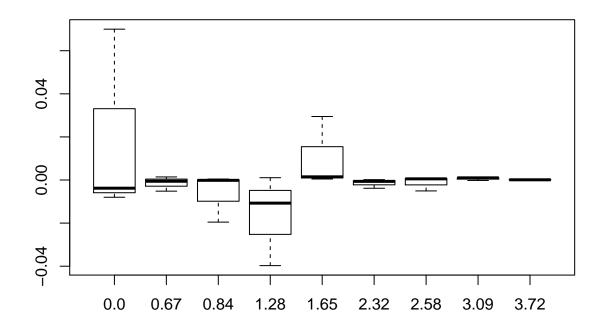
## 1.28 0.86 0.889 0.908 0.8997274

## 1.65 0.98 0.952 0.9510 0.9505285

## 2.32 0.99 0.986 0.9892 0.9898296

## 2.58 0.99 0.996 0.9956 0.9950600

## 3.09 1.00 1.000 0.9988 0.9999004
```



```
## [1] " experiment 29"

## 0.0 0.57 0.514 0.4947 0.5000000

## 0.67 0.80 0.757 0.7536 0.7485711

## 0.84 0.77 0.800 0.8019 0.7995458

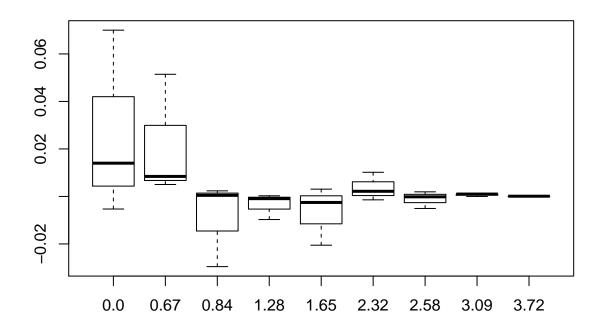
## 1.28 0.90 0.890 0.8988 0.8997274

## 1.65 0.93 0.948 0.9536 0.9505285

## 2.32 1.00 0.992 0.9884 0.9898296

## 2.58 0.99 0.997 0.9949 0.9950600

## 3.09 1.00 1.000 0.9990 0.9999004
```



```
## [1] " experiment 30"

## 0.0 0.63 0.488 0.5014 0.5000000

## 0.67 0.66 0.760 0.7446 0.7485711

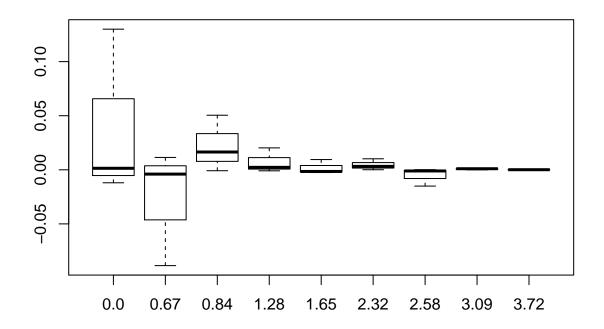
## 1.28 0.92 0.902 0.8988 0.8997274

## 1.65 0.96 0.948 0.9490 0.9505285

## 2.32 1.00 0.993 0.9899 0.9898296

## 2.58 0.98 0.994 0.9952 0.9950600

## 3.09 1.00 1.000 0.9990 0.9999004
```



```
## [1] " experiment 31"

## 0.0 0.51 0.478 0.5041 0.5000000

## 0.67 0.72 0.743 0.7541 0.7485711

## 0.84 0.79 0.810 0.8034 0.7995458

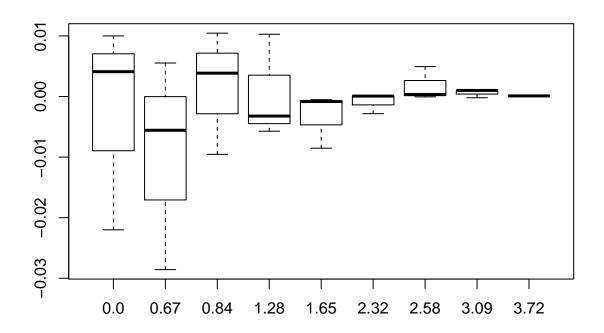
## 1.28 0.91 0.894 0.8965 0.8997274

## 1.65 0.95 0.942 0.9497 0.9505285

## 2.32 0.99 0.987 0.9899 0.9898296

## 2.58 1.00 0.995 0.9954 0.9950600

## 3.09 1.00 1.000 0.9988 0.9999004
```



```
## [1] " experiment 32"

## 0.0 0.50 0.523 0.5039 0.5000000

## 0.67 0.81 0.733 0.7465 0.7485711

## 0.84 0.77 0.811 0.8055 0.7995458

## 1.28 0.93 0.895 0.9005 0.8997274

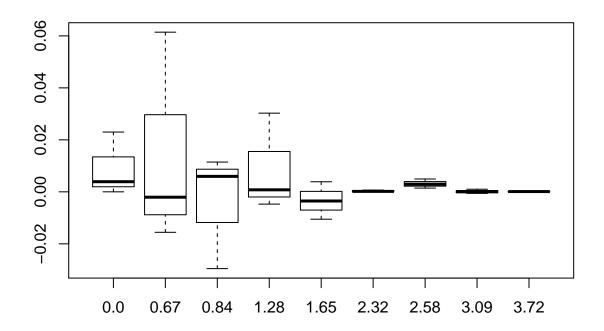
## 1.65 0.94 0.947 0.9544 0.9505285

## 2.32 0.99 0.990 0.9905 0.9898296

## 2.58 1.00 0.998 0.9965 0.9950600

## 3.09 1.00 0.999 0.9984 0.9989992

## 3.72 1.00 1.000 0.9999 0.9999004
```



```
## [1] " experiment 33"

## 10^2 10^3 10^4 true

## 0.0 0.54 0.476 0.5080 0.5000000

## 0.67 0.68 0.739 0.7484 0.7485711

## 0.84 0.72 0.793 0.7941 0.7995458

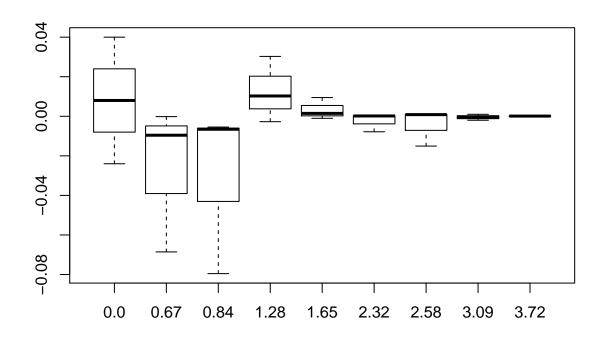
## 1.28 0.93 0.910 0.8970 0.8997274

## 1.65 0.96 0.952 0.9495 0.9505285

## 2.32 0.99 0.982 0.9903 0.9898296

## 2.58 0.98 0.996 0.9959 0.9950600

## 3.09 1.00 0.997 0.9986 0.9999004
```



```
## [1] " experiment 34"

## 0.0 0.59 0.505 0.4996 0.5000000

## 0.67 0.70 0.729 0.7411 0.7485711

## 0.84 0.85 0.801 0.8027 0.7995458

## 1.28 0.90 0.898 0.9040 0.8997274

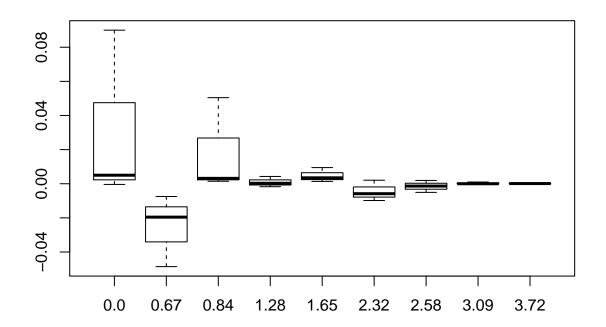
## 1.65 0.96 0.954 0.9519 0.9505285

## 2.32 0.98 0.984 0.9919 0.9898296

## 2.58 0.99 0.997 0.9937 0.9950600

## 3.09 1.00 0.999 0.9989 0.998992

## 3.72 1.00 1.000 0.9999 0.9999004
```



```
## [1] " experiment 35"

## 10^2 10^3 10^4 true

## 0.0 0.52 0.484 0.4956 0.5000000

## 0.67 0.85 0.759 0.7454 0.7485711

## 0.84 0.79 0.783 0.8032 0.7995458

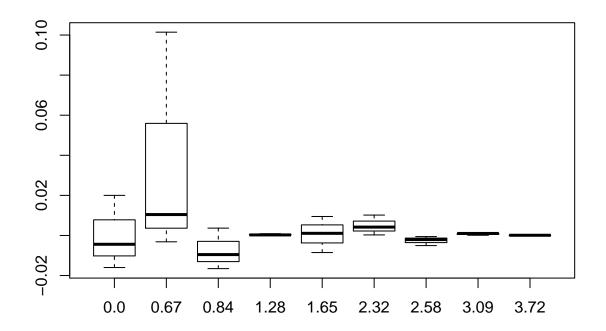
## 1.28 0.90 0.900 0.9006 0.8997274

## 1.65 0.96 0.942 0.9516 0.9505285

## 2.32 1.00 0.994 0.9901 0.9898296

## 2.58 0.99 0.993 0.9945 0.9950600

## 3.09 1.00 1.000 0.9991 0.9999004
```



```
## [1] " experiment 36"

## 0.0 0.49 0.502 0.5031 0.5000000

## 0.67 0.75 0.766 0.7485 0.7485711

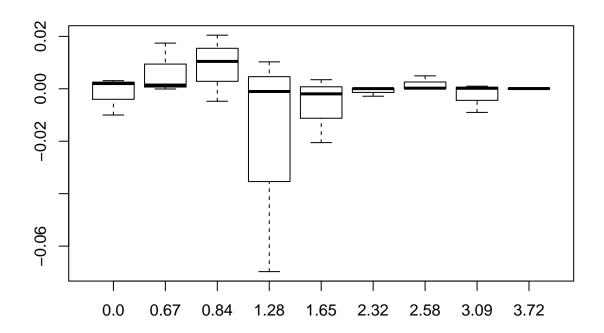
## 1.28 0.83 0.910 0.8987 0.8997274

## 1.65 0.93 0.954 0.9486 0.9505285

## 2.32 0.99 0.987 0.9899 0.9898296

## 2.58 1.00 0.995 0.9953 0.9950600

## 3.09 0.99 1.000 0.9992 0.9999004
```



```
## [1] " experiment 37"

## 0.0 0.56 0.495 0.4907 0.5000000

## 0.67 0.76 0.731 0.7485 0.7485711

## 0.84 0.81 0.819 0.8018 0.7995458

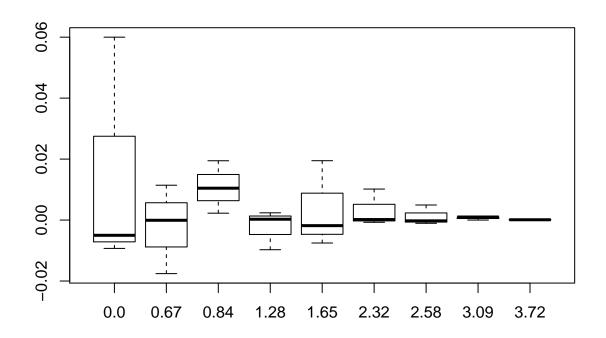
## 1.28 0.90 0.890 0.9021 0.8997274

## 1.65 0.97 0.943 0.9487 0.9505285

## 2.32 1.00 0.990 0.9891 0.9898296

## 2.58 1.00 0.994 0.9948 0.9950600

## 3.09 1.00 1.000 0.9990 0.9999004
```



```
## [1] " experiment 38"

## 0.0 0.51 0.497 0.4968 0.5000000

## 0.67 0.78 0.764 0.7540 0.7485711

## 0.84 0.83 0.795 0.7974 0.7995458

## 1.28 0.91 0.902 0.9023 0.8997274

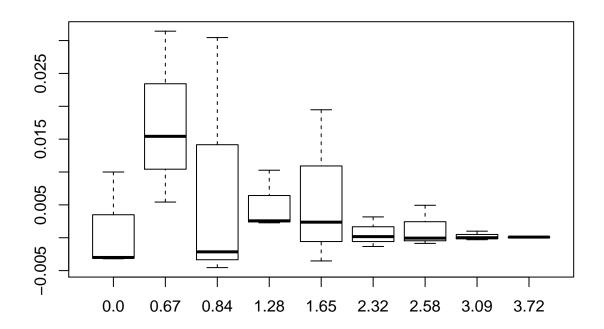
## 1.65 0.97 0.947 0.9529 0.9505285

## 2.32 0.99 0.993 0.9885 0.9898296

## 2.58 1.00 0.995 0.9942 0.9950600

## 3.09 1.00 0.999 0.9987 0.998992

## 3.72 1.00 1.000 0.9999 0.9999004
```



```
## [1] " experiment 39"

## 0.0 0.57 0.499 0.4999 0.5000000

## 0.67 0.68 0.783 0.7465 0.7485711

## 0.84 0.71 0.814 0.7958 0.7995458

## 1.28 0.88 0.897 0.8974 0.8997274

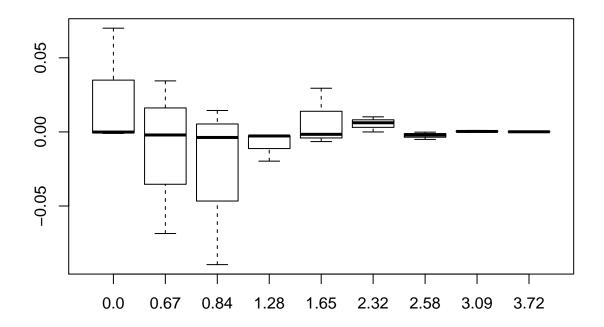
## 1.65 0.98 0.944 0.9489 0.9505285

## 2.32 1.00 0.996 0.9898 0.9898296

## 2.58 0.99 0.993 0.9949 0.9950600

## 3.09 1.00 0.999 0.993 0.9989992

## 3.72 1.00 1.000 1.0000 0.9999004
```



```
## [1] " experiment 40"

## 0.0 0.54 0.464 0.4965 0.5000000

## 0.67 0.74 0.761 0.7518 0.7485711

## 0.84 0.78 0.819 0.7963 0.7995458

## 1.28 0.88 0.914 0.9042 0.8997274

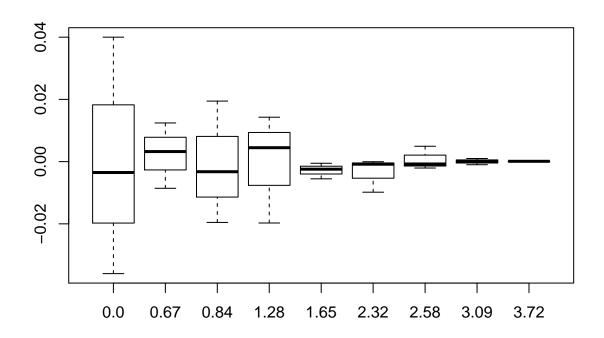
## 1.65 0.95 0.945 0.9481 0.9505285

## 2.32 0.98 0.989 0.9898 0.9898296

## 2.58 1.00 0.993 0.9943 0.9950600

## 3.09 1.00 0.998 0.9991 0.9989992

## 3.72 1.00 1.000 1.0000 0.9999004
```



```
## [1] " experiment 41"

## 0.0 0.53 0.523 0.4984 0.5000000

## 0.67 0.71 0.758 0.7507 0.7485711

## 0.84 0.82 0.821 0.8050 0.7995458

## 1.28 0.90 0.895 0.9018 0.8997274

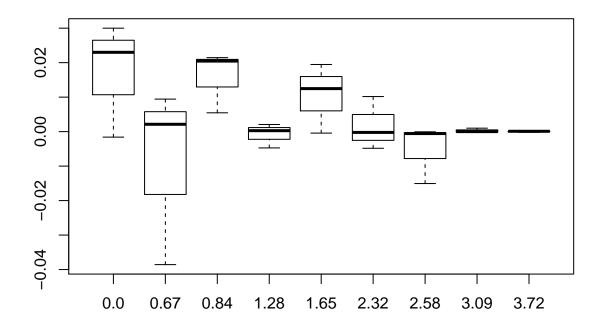
## 1.65 0.97 0.963 0.9501 0.9505285

## 2.32 1.00 0.985 0.9896 0.9898296

## 2.58 0.98 0.995 0.9945 0.9950600

## 3.09 1.00 0.999 0.9988 0.998992

## 3.72 1.00 1.000 0.9997 0.9999004
```



```
## [1] " experiment 42"

## 0.0 0.49 0.515 0.5179 0.5000000

## 0.67 0.65 0.744 0.7507 0.7485711

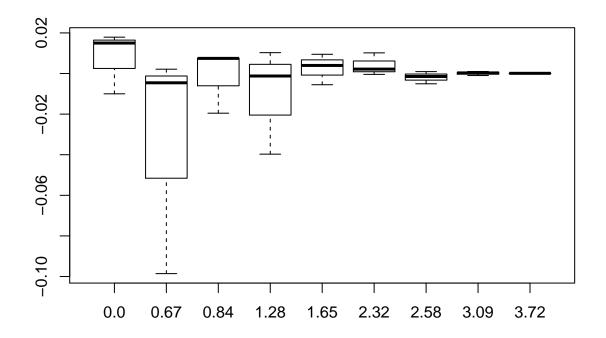
## 1.28 0.86 0.910 0.8985 0.8997274

## 1.65 0.96 0.945 0.9545 0.9505285

## 2.32 1.00 0.992 0.9894 0.9898296

## 2.58 0.99 0.996 0.9936 0.9950600

## 3.09 1.00 0.998 0.993 0.9999004
```



```
## [1] " experiment 43"

## 0.0 0.51 0.520 0.5063 0.5000000

## 0.67 0.71 0.734 0.7505 0.7485711

## 0.84 0.80 0.809 0.8024 0.7995458

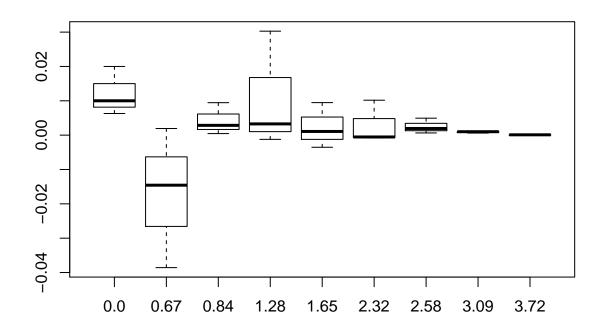
## 1.28 0.93 0.903 0.8985 0.8997274

## 1.65 0.96 0.947 0.9516 0.9505285

## 2.32 1.00 0.989 0.9893 0.9898296

## 2.58 1.00 0.997 0.9957 0.9950600

## 3.09 1.00 1.000 0.9996 0.9999004
```



```
## [1] " experiment 44"

## 0.0 0.60 0.502 0.5023 0.5000000

## 0.67 0.80 0.760 0.7479 0.7485711

## 0.84 0.84 0.807 0.7972 0.7995458

## 1.28 0.92 0.912 0.9044 0.8997274

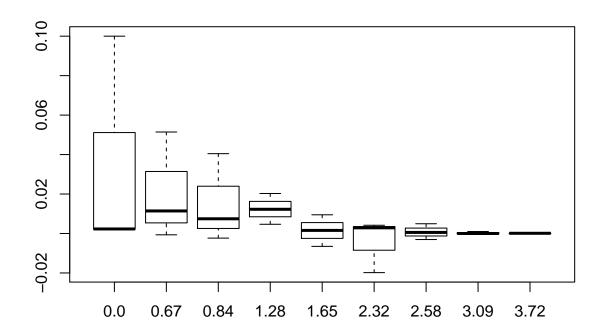
## 1.65 0.96 0.944 0.9521 0.9505285

## 2.32 0.97 0.994 0.9927 0.9898296

## 2.58 1.00 0.992 0.9956 0.9950600

## 3.09 1.00 0.999 0.9986 0.9989992

## 3.72 1.00 1.000 1.0000 0.9999004
```



```
## [1] " experiment 45"

## 0.0 0.50 0.521 0.5020 0.5000000

## 0.67 0.76 0.758 0.7518 0.7485711

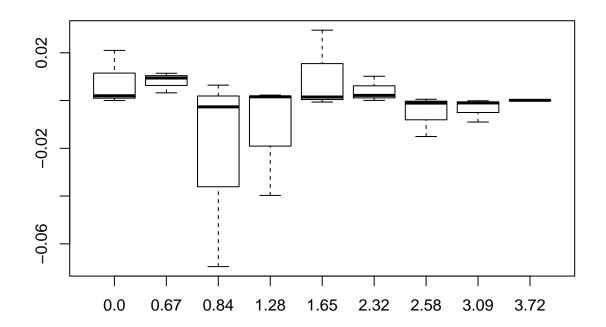
## 1.28 0.86 0.902 0.9013 0.8997274

## 1.65 0.98 0.952 0.9499 0.9505285

## 2.32 1.00 0.992 0.9899 0.9898296

## 2.58 0.98 0.994 0.9956 0.9950600

## 3.09 0.99 0.998 0.9989 0.9999004
```



```
## [1] " experiment 46"

## 0.0 0.55 0.499 0.5071 0.5000000

## 0.67 0.77 0.749 0.7434 0.7485711

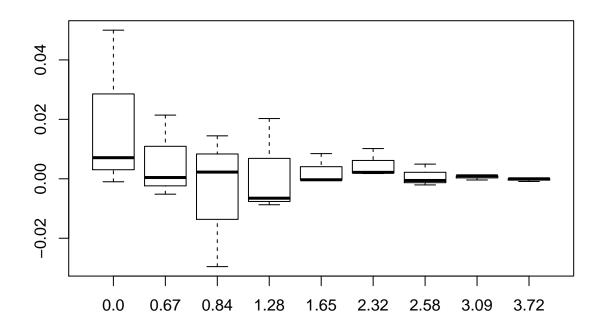
## 1.28 0.92 0.891 0.8932 0.8997274

## 1.65 0.95 0.959 0.9502 0.9505285

## 2.32 1.00 0.992 0.9916 0.9898296

## 2.58 1.00 0.993 0.9945 0.9950600

## 3.09 1.00 1.000 0.9986 0.9999004
```



```
## [1] " experiment 47"

## 10^2 10^3 10^4 true

## 0.0 0.58 0.507 0.5028 0.5000000

## 0.67 0.71 0.755 0.7518 0.7485711

## 0.84 0.77 0.798 0.8031 0.7995458

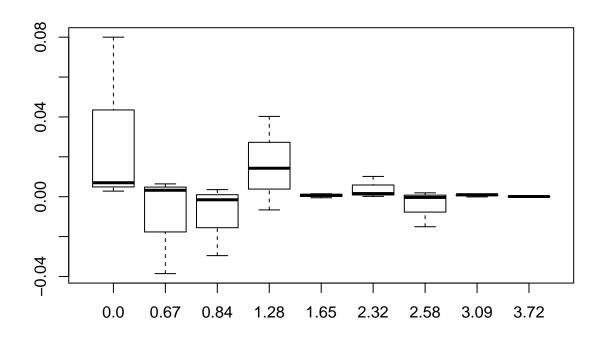
## 1.28 0.94 0.914 0.8931 0.8997274

## 1.65 0.95 0.952 0.9513 0.9505285

## 2.32 1.00 0.990 0.9914 0.9898296

## 2.58 0.98 0.997 0.9947 0.9950600

## 3.09 1.00 1.000 0.9989 0.9999004
```



```
## [1] " experiment 48"

## 0.0 0.44 0.505 0.4974 0.5000000

## 0.67 0.77 0.746 0.7455 0.7485711

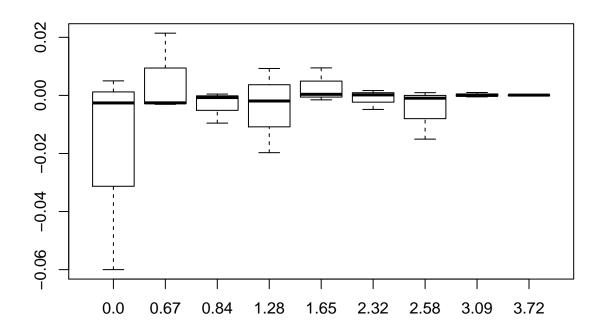
## 1.28 0.88 0.909 0.8978 0.8997274

## 1.65 0.96 0.949 0.9509 0.9505285

## 2.32 0.99 0.985 0.9915 0.9898296

## 2.58 0.98 0.996 0.9941 0.9950600

## 3.09 1.00 0.999 0.9985 0.9999004
```



```
## [1] " experiment 49"

## 0.0 0.48 0.498 0.4951 0.5000000

## 0.67 0.74 0.745 0.7441 0.7485711

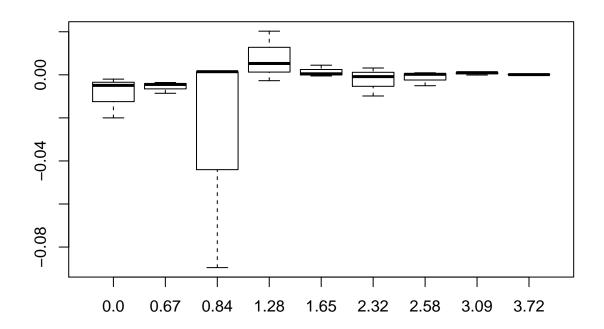
## 1.28 0.92 0.905 0.8970 0.8997274

## 1.65 0.95 0.955 0.9510 0.9505285

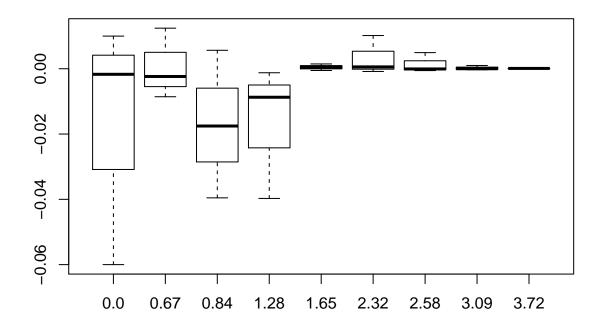
## 2.32 0.98 0.993 0.9890 0.9898296

## 2.58 0.99 0.996 0.9953 0.9950600

## 3.09 1.00 1.000 0.9989 0.9999004
```



```
## [1] " experiment 50" true
## 0.0 0.44 0.510 0.4983 0.5000000
## 0.67 0.74 0.761 0.7462 0.7485711
## 1.28 0.86 0.891 0.8985 0.8997274
## 1.65 0.95 0.952 0.9510 0.9505285
## 2.32 1.00 0.989 0.9904 0.9898296
## 2.58 1.00 0.995 0.9945 0.9950600
## 3.09 1.00 0.999 0.9987 0.9989992
## 3.72 1.00 1.000 0.9999 0.9999004
```



```
## [1] " experiment 51"

## 0.0 0.52 0.524 0.5014 0.5000000

## 0.67 0.76 0.759 0.7549 0.7485711

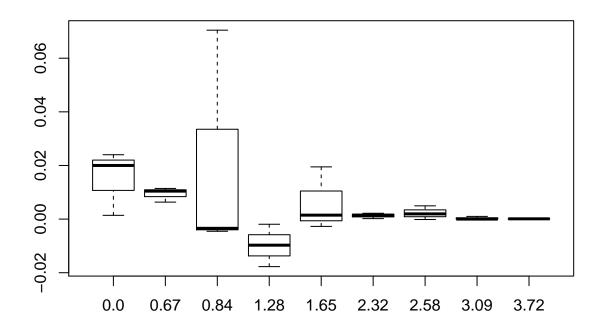
## 1.28 0.89 0.892 0.8978 0.8997274

## 1.65 0.97 0.952 0.9478 0.9505285

## 2.32 0.99 0.992 0.9913 0.9898296

## 2.58 1.00 0.997 0.9949 0.9950600

## 3.09 1.00 0.999 0.9990 0.999904
```



```
## [1] " experiment 52"

## 0.0 0.55 0.520 0.5070 0.5000000

## 0.67 0.80 0.740 0.7481 0.7485711

## 0.84 0.74 0.805 0.7962 0.7995458

## 1.28 0.92 0.894 0.9019 0.8997274

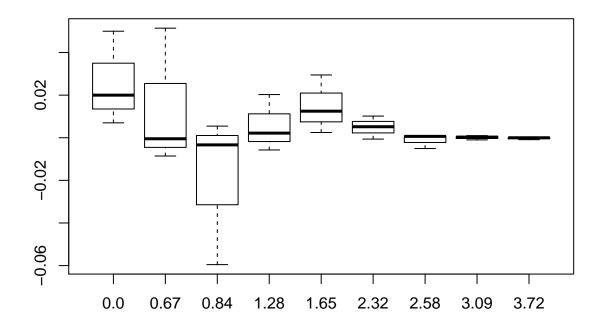
## 1.65 0.98 0.963 0.9530 0.9505285

## 2.32 1.00 0.995 0.9892 0.9898296

## 2.58 0.99 0.996 0.9957 0.9950600

## 3.09 1.00 0.998 0.9993 0.9989992

## 3.72 1.00 0.999 0.9999 0.9999004
```



```
## [1] " experiment 53"

## 10^2 10^3 10^4 true

## 0.0 0.46 0.478 0.5010 0.5000000

## 0.67 0.81 0.725 0.7476 0.7485711

## 0.84 0.80 0.810 0.8078 0.7995458

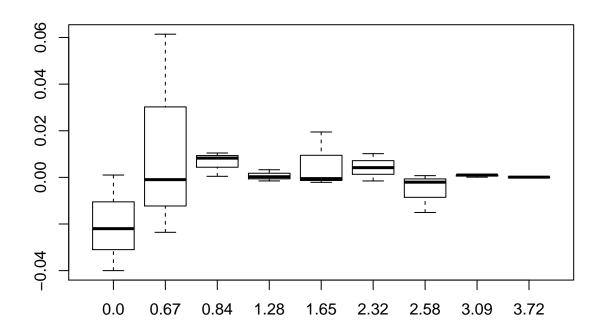
## 1.28 0.90 0.903 0.8982 0.8997274

## 1.65 0.97 0.950 0.9484 0.9505285

## 2.32 1.00 0.994 0.9883 0.9898296

## 2.58 0.98 0.993 0.9958 0.9950600

## 3.09 1.00 1.000 0.9991 0.9999004
```



```
## [1] " experiment 54"

## 0.0 0.51 0.534 0.4932 0.5000000

## 0.67 0.82 0.738 0.7413 0.7485711

## 0.84 0.81 0.800 0.8053 0.7995458

## 1.28 0.90 0.872 0.9051 0.8997274

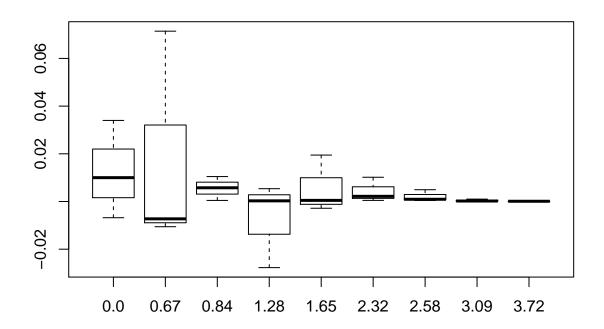
## 1.65 0.97 0.951 0.9477 0.9505285

## 2.32 1.00 0.992 0.9903 0.9898296

## 2.58 1.00 0.996 0.9955 0.9950600

## 3.09 1.00 0.999 0.9992 0.9989992

## 3.72 1.00 1.000 1.0000 0.9999004
```



```
## [1] " experiment 55"

## 10^2 10^3 10^4 true

## 0.0 0.51 0.492 0.4920 0.5000000

## 0.67 0.72 0.736 0.7461 0.7485711

## 0.84 0.86 0.795 0.7987 0.7995458

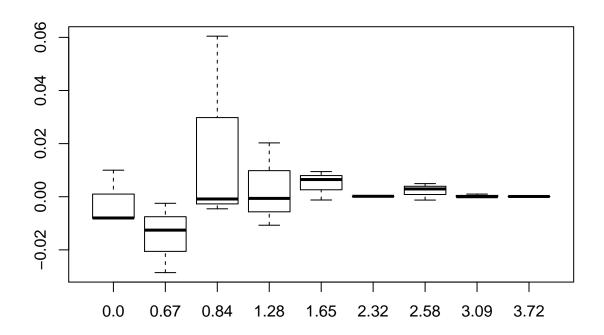
## 1.28 0.92 0.889 0.8991 0.8997274

## 1.65 0.96 0.957 0.9493 0.9505285

## 2.32 0.99 0.990 0.9899 0.9898296

## 2.58 1.00 0.998 0.9938 0.9950600

## 3.09 1.00 0.999 0.9990 0.999904
```



```
## [1] " experiment 56"

## 0.0 0.55 0.497 0.5060 0.5000000

## 0.67 0.75 0.737 0.7445 0.7485711

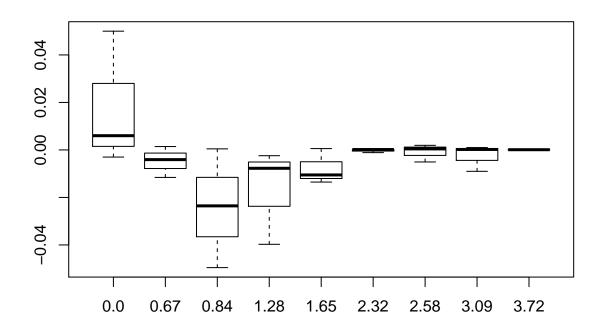
## 1.28 0.86 0.892 0.8973 0.8997274

## 1.65 0.94 0.937 0.9511 0.9505285

## 2.32 0.99 0.990 0.9887 0.9898296

## 2.58 0.99 0.997 0.9955 0.9950600

## 3.09 0.99 1.000 0.9992 0.9999004
```



```
## [1] " experiment 57"

## 0.0 0.46 0.472 0.5009 0.5000000

## 0.67 0.68 0.706 0.7498 0.7485711

## 1.28 0.84 0.889 0.9066 0.8997274

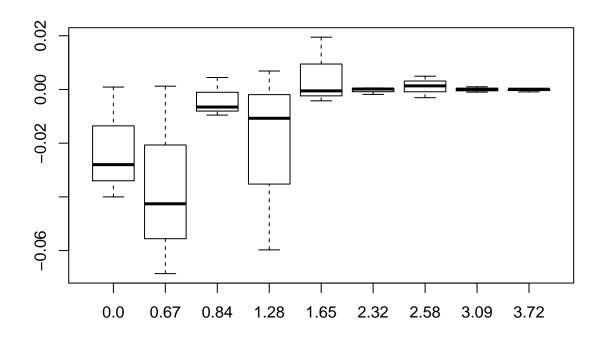
## 1.65 0.97 0.950 0.9463 0.9505285

## 2.32 0.99 0.988 0.904 0.9898296

## 2.58 1.00 0.992 0.9964 0.9950600

## 3.09 1.00 0.998 0.990 0.9989992

## 3.72 1.00 0.999 1.0000 0.9999004
```



```
## [1] " experiment 58"

## 0.0 0.50 0.511 0.5037 0.5000000

## 0.67 0.74 0.736 0.7465 0.7485711

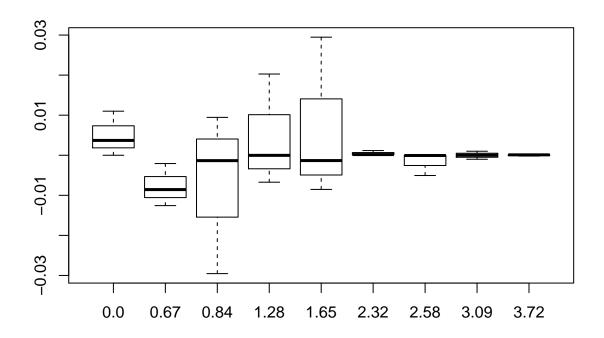
## 1.28 0.92 0.893 0.8997 0.8997274

## 1.65 0.98 0.942 0.9492 0.9505285

## 2.32 0.99 0.991 0.9900 0.9898296

## 2.58 0.99 0.995 0.9951 0.9950600

## 3.09 1.00 0.998 0.997 0.9999004
```



```
## [1] " experiment 59"

## 0.0 0.48 0.510 0.5021 0.5000000

## 0.67 0.77 0.768 0.7476 0.7485711

## 1.28 0.84 0.895 0.9022 0.8997274

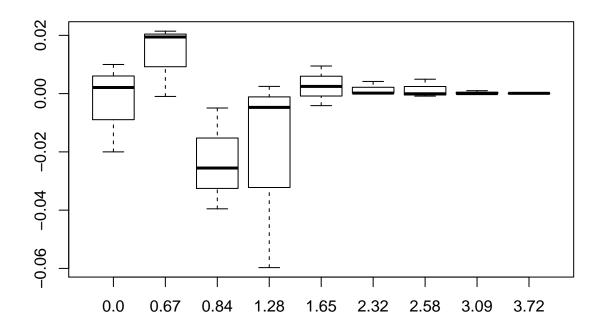
## 1.65 0.96 0.953 0.9464 0.9505285

## 2.32 0.99 0.994 0.9900 0.9898296

## 2.58 1.00 0.995 0.9942 0.9950600

## 3.09 1.00 0.999 0.9989 0.9989992

## 3.72 1.00 1.000 1.0000 0.9999004
```



```
## [1] " experiment 60"

## 0.0 0.48 0.507 0.4997 0.5000000

## 0.67 0.67 0.762 0.7484 0.7485711

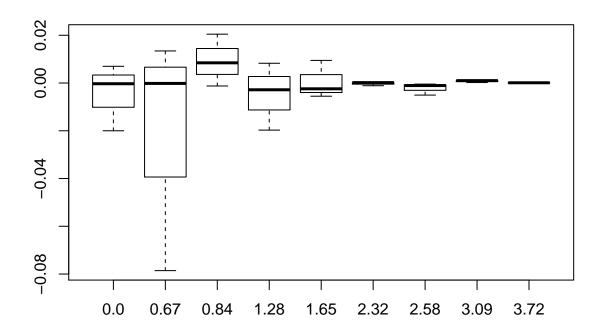
## 1.28 0.80 0.908 0.7983 0.7995458

## 1.65 0.96 0.945 0.9481 0.9505285

## 2.32 0.99 0.990 0.9887 0.9898296

## 2.58 0.99 0.994 0.9946 0.9950600

## 3.09 1.00 1.000 0.9992 0.9999004
```



```
## [1] " experiment 61"

## 0.0 0.50 0.496 0.4984 0.5000000

## 0.67 0.69 0.756 0.7507 0.7485711

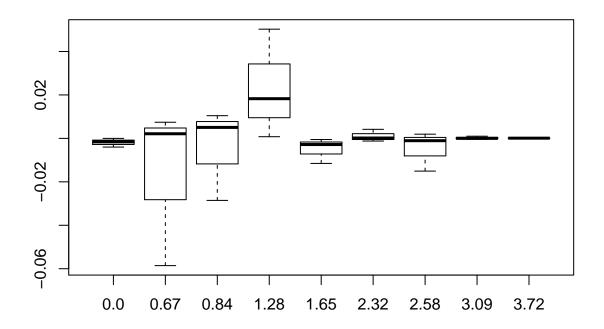
## 1.28 0.95 0.918 0.9005 0.8997274

## 1.65 0.95 0.939 0.9477 0.9505285

## 2.32 0.99 0.994 0.9886 0.9898296

## 2.58 0.98 0.997 0.9940 0.9950600

## 3.09 1.00 0.999 0.9986 0.9999004
```



```
## [1] " experiment 62"

## 0.0 0.55 0.487 0.4956 0.5000000

## 0.67 0.74 0.743 0.7497 0.7485711

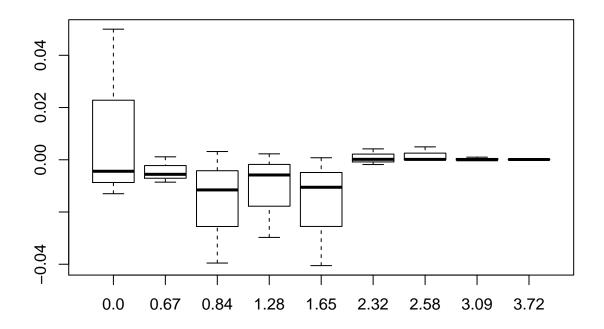
## 1.28 0.87 0.902 0.8939 0.8997274

## 1.65 0.91 0.940 0.9513 0.9505285

## 2.32 0.99 0.994 0.9880 0.9898296

## 2.58 1.00 0.995 0.9952 0.9950600

## 3.09 1.00 0.999 0.9988 0.9999004
```



```
## [1] " experiment 63"

## 0.0 0.44 0.521 0.4904 0.5000000

## 0.67 0.72 0.743 0.7472 0.7485711

## 0.84 0.90 0.815 0.8039 0.7995458

## 1.28 0.91 0.898 0.8967 0.8997274

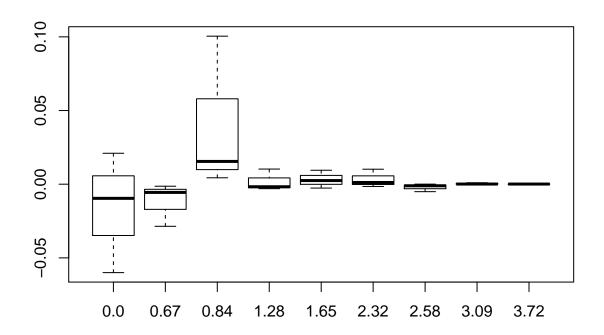
## 1.65 0.96 0.953 0.9479 0.9505285

## 2.32 1.00 0.991 0.9883 0.9898296

## 2.58 0.99 0.994 0.9951 0.9950600

## 3.09 1.00 0.999 0.9991 0.9989992

## 3.72 1.00 1.000 0.9997 0.9999004
```



```
## [1] " experiment 64"

## 0.0 0.57 0.483 0.5056 0.5000000

## 0.67 0.71 0.745 0.7454 0.7485711

## 0.84 0.80 0.818 0.7987 0.7995458

## 1.28 0.97 0.889 0.9009 0.8997274

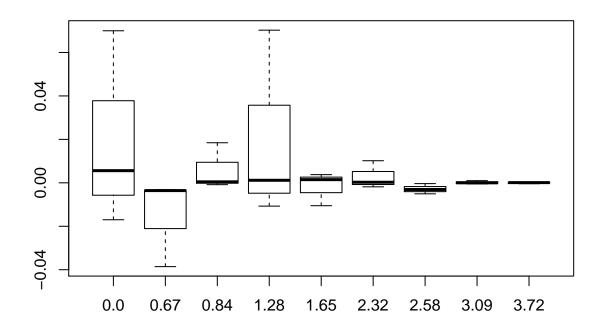
## 1.65 0.94 0.952 0.9543 0.9505285

## 2.32 1.00 0.988 0.901 0.9898296

## 2.58 0.99 0.992 0.9947 0.9950600

## 3.09 1.00 0.999 0.9985 0.9989992

## 3.72 1.00 1.000 0.9995 0.9999004
```



```
## [1] " experiment 65"

## 0.0 0.47 0.495 0.5027 0.5000000

## 0.67 0.80 0.759 0.7455 0.7485711

## 0.84 0.74 0.783 0.7990 0.7995458

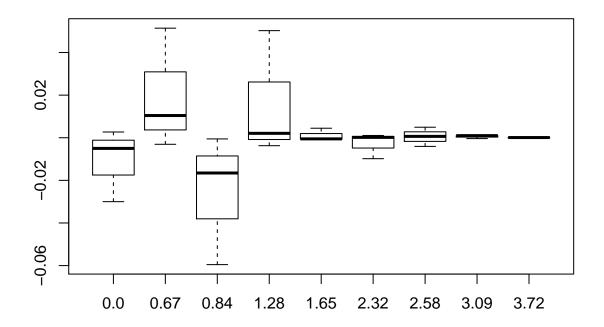
## 1.28 0.95 0.896 0.9018 0.8997274

## 1.65 0.95 0.955 0.9498 0.9505285

## 2.32 0.98 0.990 0.9909 0.9898296

## 2.58 1.00 0.991 0.9957 0.9950600

## 3.09 1.00 1.000 0.9986 0.9999004
```



```
## [1] " experiment 66"

## 0.0 0.50 0.487 0.5005 0.5000000

## 0.67 0.76 0.746 0.7440 0.7485711

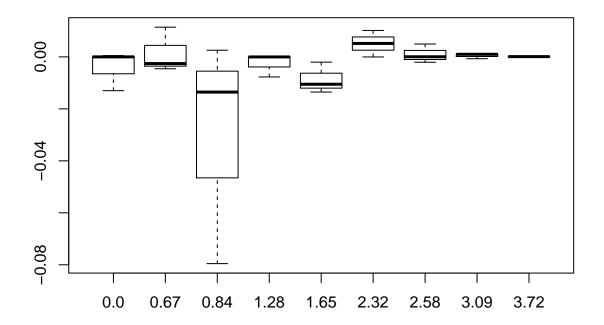
## 1.28 0.90 0.892 0.8997 0.8997274

## 1.65 0.94 0.937 0.9485 0.9505285

## 2.32 1.00 0.995 0.9898 0.9898296

## 2.58 1.00 0.993 0.9951 0.9950600

## 3.09 1.00 1.000 0.993 0.9999004
```



```
## [1] " experiment 67"

## 0.0 0.53 0.493 0.4935 0.5000000

## 0.67 0.76 0.737 0.7458 0.7485711

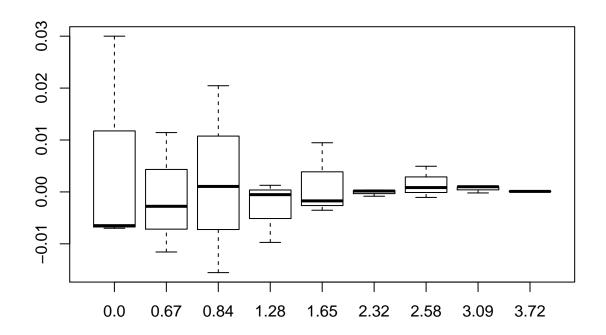
## 1.28 0.89 0.901 0.8992 0.8997274

## 1.65 0.96 0.947 0.9488 0.9505285

## 2.32 0.99 0.989 0.9902 0.9898296

## 2.58 1.00 0.994 0.9959 0.9950600

## 3.09 1.00 1.000 0.9988 0.999004
```



```
## [1] " experiment 68"

## 0.0 0.55 0.477 0.5030 0.5000000

## 0.67 0.76 0.732 0.7468 0.7485711

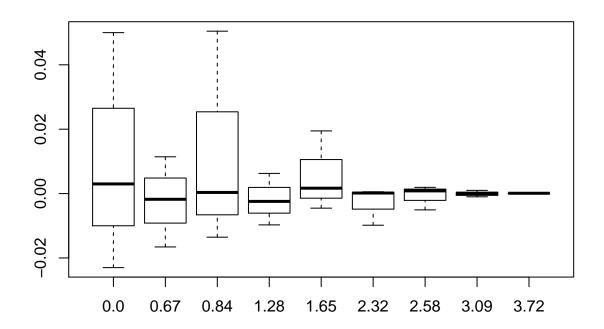
## 1.28 0.89 0.906 0.8973 0.8997274

## 1.65 0.97 0.946 0.9522 0.9505285

## 2.32 0.98 0.990 0.9904 0.9898296

## 2.58 0.99 0.997 0.9959 0.9950600

## 3.09 1.00 0.998 0.9999 0.9999004
```



```
## [1] " experiment 69"

## 0.0 0.50 0.500 0.5025 0.5000000

## 0.67 0.74 0.756 0.7426 0.7485711

## 0.84 0.79 0.789 0.7979 0.7995458

## 1.28 0.88 0.894 0.9027 0.8997274

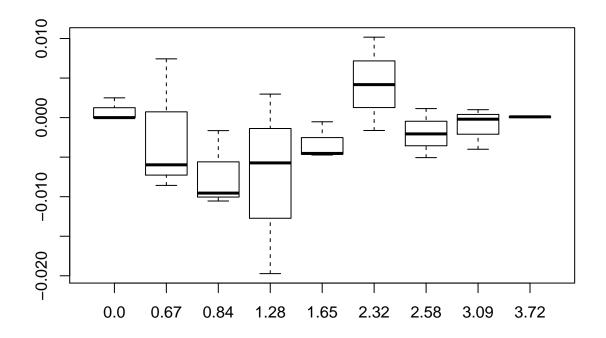
## 1.65 0.95 0.946 0.9458 0.9505285

## 2.32 1.00 0.994 0.9882 0.9898296

## 2.58 0.99 0.993 0.9962 0.9950600

## 3.09 1.00 0.995 0.9988 0.998992

## 3.72 1.00 1.000 0.9999 0.9999004
```



```
## [1] " experiment 70"

## 0.0 0.49 0.525 0.4983 0.5000000

## 0.67 0.66 0.758 0.7450 0.7485711

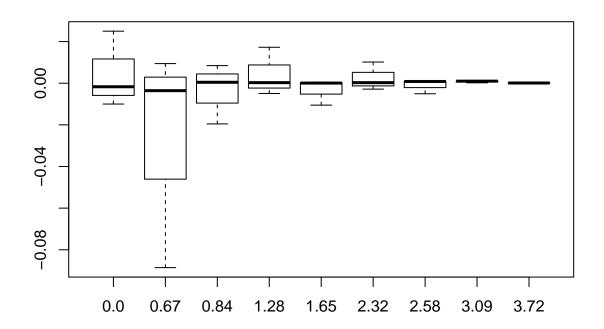
## 1.28 0.90 0.917 0.8948 0.8997274

## 1.65 0.94 0.951 0.9506 0.9505285

## 2.32 1.00 0.987 0.9901 0.9898296

## 2.58 0.99 0.996 0.9959 0.9950600

## 3.09 1.00 1.000 0.9992 0.9999004
```



```
## [1] " experiment 71"

## 0.0 0.52 0.504 0.4985 0.5000000

## 0.67 0.78 0.745 0.7576 0.7485711

## 0.84 0.74 0.816 0.7942 0.7995458

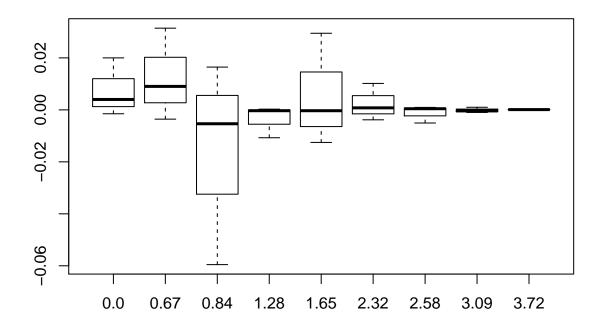
## 1.28 0.90 0.889 0.8994 0.8997274

## 1.65 0.98 0.938 0.9502 0.9505285

## 2.32 1.00 0.986 0.9906 0.9898296

## 2.58 0.99 0.996 0.9955 0.9950600

## 3.09 1.00 0.998 0.9986 0.999904
```



```
## [1] " experiment 72"

## 0.0 0.45 0.510 0.4967 0.5000000

## 0.67 0.70 0.772 0.7513 0.7485711

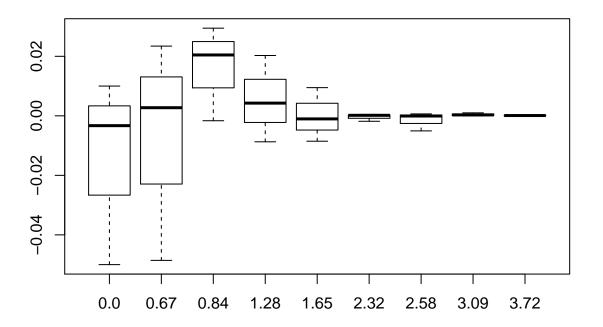
## 1.28 0.92 0.829 0.7979 0.7995458

## 1.65 0.96 0.942 0.9495 0.9505285

## 2.32 0.99 0.988 0.9903 0.9898296

## 2.58 0.99 0.995 0.9957 0.9950600

## 3.09 1.00 0.999 0.9993 0.9999004
```



```
## [1] " experiment 73"

## 10^2 10^3 10^4 true

## 0.0 0.43 0.510 0.5022 0.5000000

## 0.67 0.77 0.755 0.7460 0.7485711

## 0.84 0.80 0.781 0.7988 0.7995458

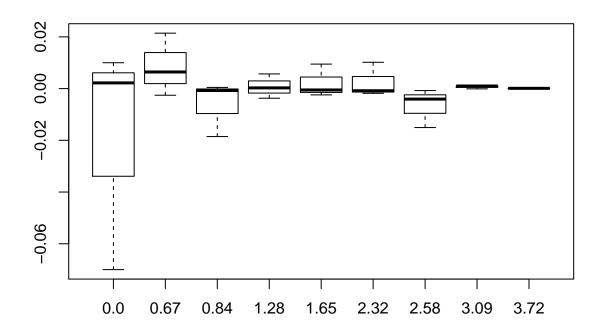
## 1.28 0.90 0.896 0.9054 0.8997274

## 1.65 0.95 0.960 0.9481 0.9505285

## 2.32 1.00 0.989 0.9880 0.9898296

## 2.58 0.98 0.991 0.9943 0.9950600

## 3.09 1.00 1.000 0.9989 0.9999004
```



```
## [1] " experiment 74"

## 0.0 0.51 0.504 0.5042 0.5000000

## 0.67 0.77 0.739 0.7496 0.7485711

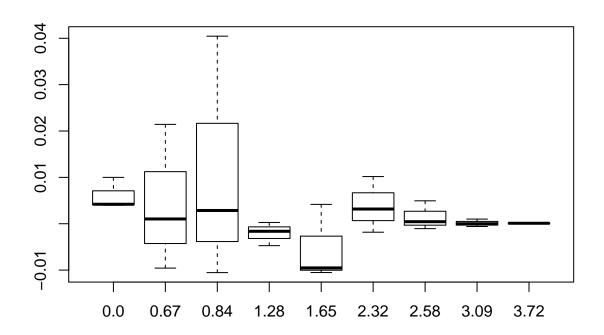
## 1.28 0.90 0.895 0.8924 0.7995458

## 1.65 0.94 0.941 0.9547 0.9505285

## 2.32 1.00 0.993 0.9880 0.9898296

## 2.58 1.00 0.994 0.9955 0.9950600

## 3.09 1.00 0.999 0.9984 0.9999004
```



```
## [1] " experiment 75"

## 0.0 0.55 0.508 0.4996 0.5000000

## 0.67 0.80 0.764 0.7509 0.7485711

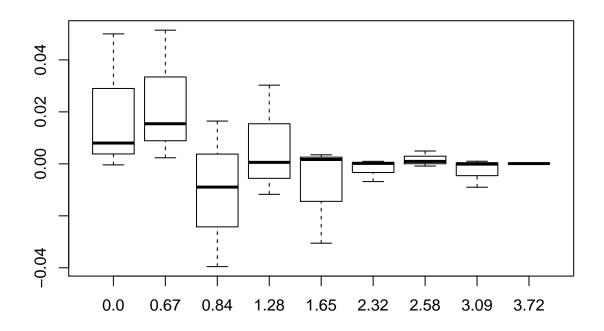
## 1.28 0.93 0.888 0.9003 0.8997274

## 1.65 0.92 0.954 0.9522 0.9505285

## 2.32 0.99 0.983 0.908 0.9898296

## 2.58 1.00 0.996 0.9942 0.9950600

## 3.09 0.99 1.000 0.9989 0.9999004
```



```
## [1] " experiment 76"

## 0.0 0.50 0.502 0.5026 0.5000000

## 0.67 0.77 0.750 0.7403 0.7485711

## 0.84 0.80 0.810 0.8023 0.7995458

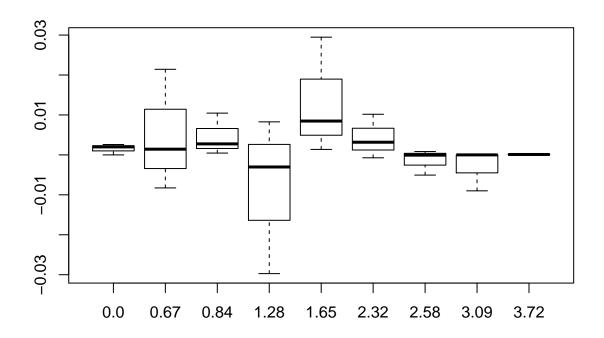
## 1.28 0.87 0.908 0.8967 0.8997274

## 1.65 0.98 0.959 0.9519 0.9505285

## 2.32 1.00 0.993 0.9891 0.9898296

## 2.58 0.99 0.995 0.9959 0.9950600

## 3.09 0.99 0.999 0.9990 0.999904
```



```
## [1] " experiment 77"

## 0.0 0.42 0.485 0.5050 0.5000000

## 0.67 0.78 0.735 0.7499 0.7485711

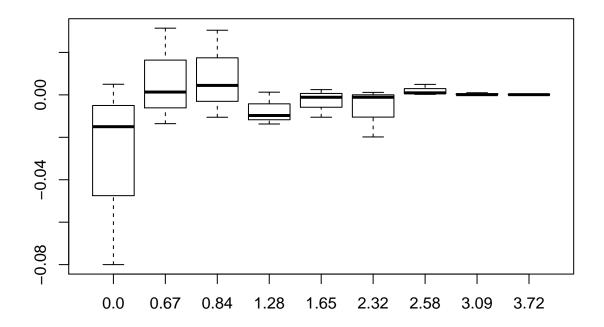
## 1.28 0.83 0.789 0.8040 0.7995458

## 1.65 0.94 0.953 0.9494 0.9505285

## 2.32 0.97 0.991 0.9887 0.9898296

## 2.58 1.00 0.996 0.9953 0.9950600

## 3.09 1.00 0.999 0.9991 0.9999004
```



```
## [1] " experiment 78"

## 0.0 0.55 0.504 0.4975 0.5000000

## 0.67 0.83 0.781 0.7473 0.7485711

## 0.84 0.78 0.820 0.8017 0.7995458

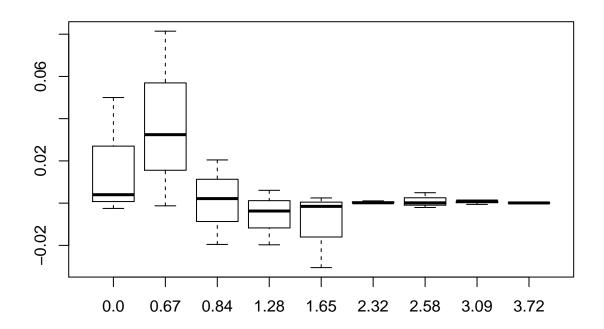
## 1.28 0.88 0.896 0.9058 0.8997274

## 1.65 0.92 0.949 0.9530 0.9505285

## 2.32 0.99 0.990 0.9909 0.9898296

## 2.58 1.00 0.993 0.9952 0.9950600

## 3.09 1.00 1.000 0.9984 0.9999004
```



```
## [1] " experiment 79"

## 0.0 0.45 0.518 0.5027 0.5000000

## 0.67 0.73 0.748 0.7552 0.7485711

## 0.84 0.79 0.786 0.8020 0.7995458

## 1.28 0.86 0.904 0.9031 0.8997274

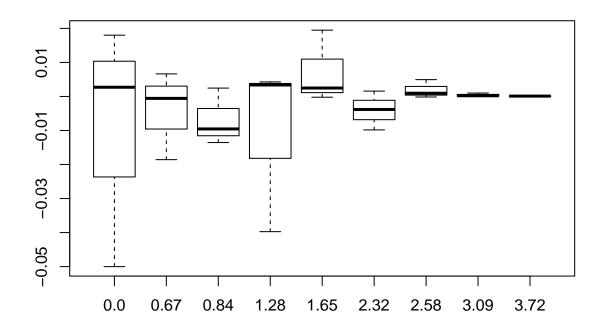
## 1.65 0.97 0.953 0.9503 0.9505285

## 2.32 0.98 0.986 0.9914 0.9898296

## 2.58 1.00 0.996 0.9949 0.9950600

## 3.09 1.00 0.999 0.9992 0.9989992

## 3.72 1.00 1.000 1.0000 0.9999004
```



```
## [1] " experiment 80"

## 0.0 0.57 0.502 0.5035 0.5000000

## 0.67 0.74 0.740 0.7427 0.7485711

## 0.84 0.80 0.808 0.8020 0.7995458

## 1.28 0.84 0.898 0.9035 0.8997274

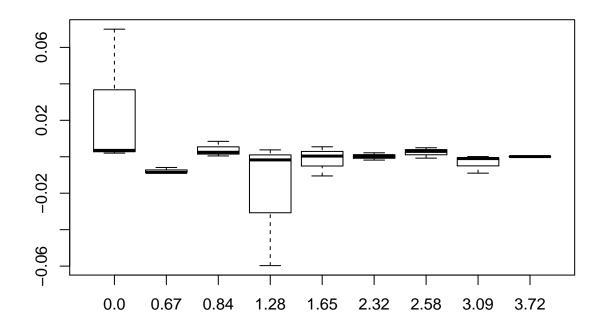
## 1.65 0.94 0.956 0.9509 0.9505285

## 2.32 0.99 0.992 0.9880 0.9898296

## 2.58 1.00 0.998 0.9943 0.9950600

## 3.09 0.99 0.998 0.9991 0.9989992

## 3.72 1.00 1.000 0.9998 0.9999004
```



```
## [1] " experiment 81"

## 0.0 0.51 0.500 0.5003 0.5000000

## 0.67 0.75 0.743 0.7509 0.7485711

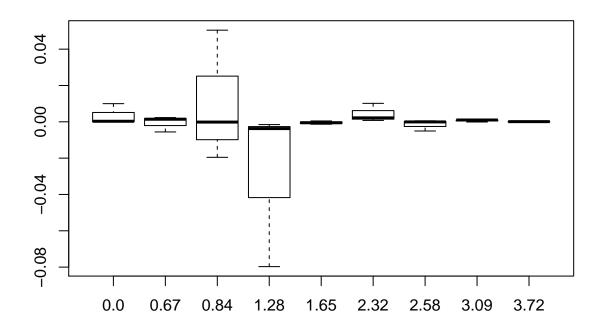
## 1.28 0.82 0.896 0.8982 0.8997274

## 1.65 0.95 0.951 0.9492 0.9505285

## 2.32 1.00 0.992 0.996 0.9898296

## 2.58 0.99 0.995 0.9956 0.9950600

## 3.09 1.00 1.000 0.9989 0.9999004
```



```
## [1] " experiment 82"

## 0.0 0.50 0.492 0.4956 0.5000000

## 0.67 0.70 0.769 0.7471 0.7485711

## 0.84 0.82 0.815 0.8034 0.7995458

## 1.28 0.88 0.895 0.9008 0.8997274

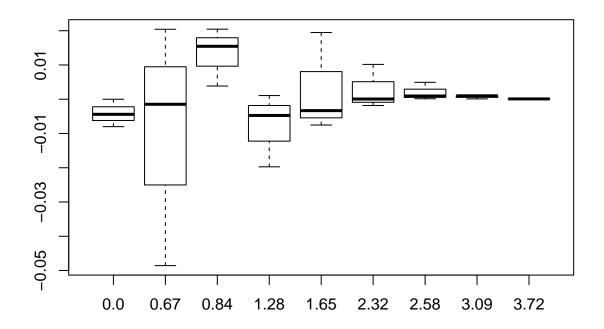
## 1.65 0.97 0.943 0.9472 0.9505285

## 2.32 1.00 0.988 0.9899 0.9898296

## 2.58 1.00 0.996 0.9952 0.9950600

## 3.09 1.00 1.000 0.9991 0.9989992

## 3.72 1.00 1.000 0.9991 0.9999004
```



```
## [1] " experiment 83"

## 10^2 10^3 10^4 true

## 0.0 0.46 0.489 0.4987 0.5000000

## 0.67 0.75 0.757 0.7443 0.7485711

## 0.84 0.82 0.805 0.8033 0.7995458

## 1.28 0.83 0.903 0.9071 0.8997274

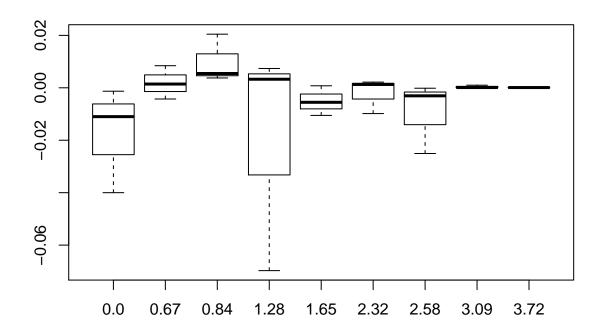
## 1.65 0.94 0.945 0.9513 0.9505285

## 2.32 0.98 0.992 0.9911 0.9898296

## 2.58 0.97 0.992 0.9949 0.9950600

## 3.09 1.00 0.999 0.9991 0.9989992

## 3.72 1.00 1.000 0.9999 0.9999004
```



```
## [1] " experiment 84"

## 0.0 0.43 0.496 0.4937 0.5000000

## 0.67 0.73 0.737 0.7458 0.7485711

## 0.84 0.86 0.808 0.8010 0.7995458

## 1.28 0.86 0.904 0.8908 0.8997274

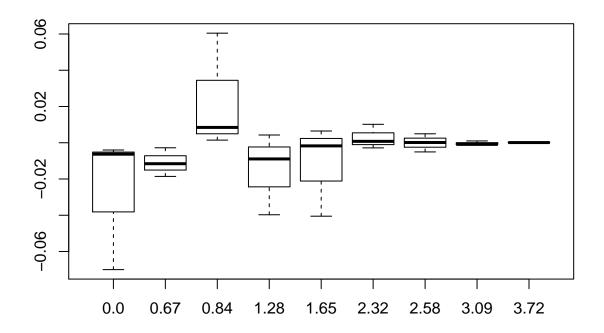
## 1.65 0.91 0.957 0.9488 0.9505285

## 2.32 1.00 0.987 0.9906 0.9898296

## 2.58 0.99 1.000 0.9952 0.9950600

## 3.09 1.00 0.998 0.9981 0.998992

## 3.72 1.00 1.000 0.9999 0.9999004
```



```
## [1] " experiment 85"

## 0.0 0.54 0.512 0.5116 0.5000000

## 0.67 0.75 0.733 0.7452 0.7485711

## 0.84 0.77 0.790 0.8070 0.7995458

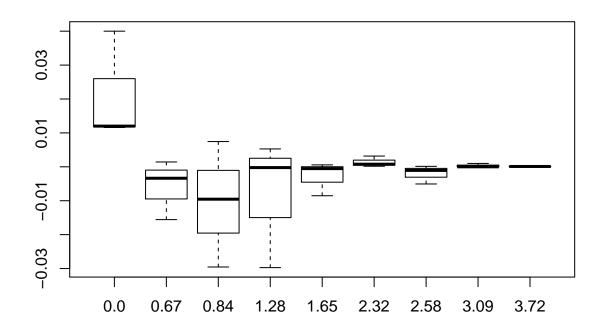
## 1.28 0.87 0.905 0.8995 0.8997274

## 1.65 0.95 0.942 0.9511 0.9505285

## 2.32 0.99 0.993 0.9906 0.9898296

## 2.58 0.99 0.994 0.9952 0.9950600

## 3.09 1.00 0.999 0.9990 0.999904
```



```
## [1] " experiment 86"

## 0.0 0.57 0.527 0.4879 0.5000000

## 0.67 0.79 0.750 0.7457 0.7485711

## 0.84 0.79 0.787 0.7906 0.7995458

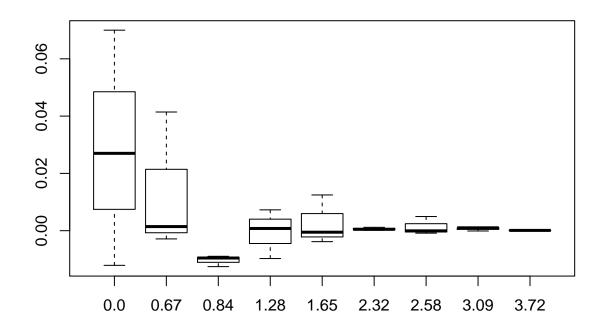
## 1.28 0.89 0.907 0.9005 0.8997274

## 1.65 0.95 0.963 0.9467 0.9505285

## 2.32 0.99 0.991 0.9903 0.9898296

## 2.58 1.00 0.995 0.9942 0.9950600

## 3.09 1.00 1.000 0.9989 0.9999004
```



```
## [1] " experiment 87"

## 0.0 0.45 0.506 0.5002 0.5000000

## 0.67 0.77 0.759 0.7485 0.7485711

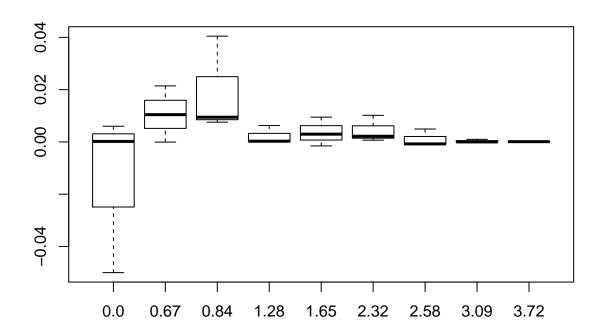
## 1.28 0.90 0.906 0.8997 0.8997274

## 1.65 0.96 0.949 0.9535 0.9505285

## 2.32 1.00 0.992 0.9905 0.9898296

## 2.58 1.00 0.994 0.9943 0.9950600

## 3.09 1.00 0.999 0.9990 0.999904
```



```
## [1] " experiment 88"

## 0.0 0.53 0.482 0.5081 0.5000000

## 0.67 0.75 0.758 0.7486 0.7485711

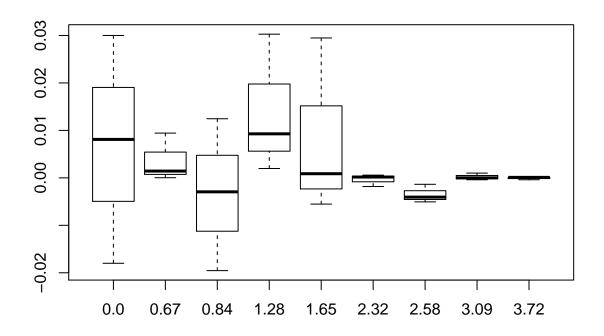
## 1.28 0.93 0.909 0.9017 0.8997274

## 1.65 0.98 0.945 0.9514 0.9505285

## 2.32 0.99 0.988 0.9904 0.988296

## 2.58 0.99 0.991 0.9937 0.9950600

## 3.09 1.00 0.999 0.9956 0.9999004
```



```
## [1] " experiment 89"

## 0.0 0.44 0.507 0.5035 0.5000000

## 0.67 0.75 0.754 0.7502 0.7485711

## 0.84 0.81 0.804 0.8003 0.7995458

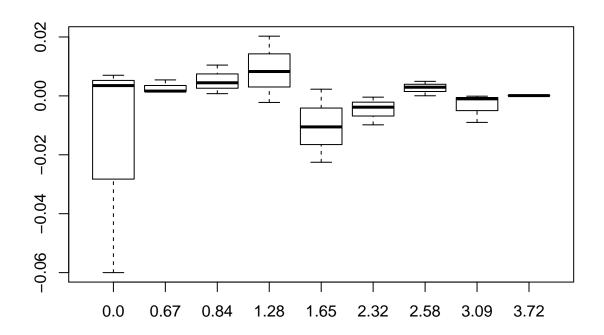
## 1.28 0.92 0.908 0.8975 0.8997274

## 1.65 0.94 0.928 0.9528 0.9505285

## 2.32 0.98 0.986 0.9894 0.9898296

## 2.58 1.00 0.998 0.9981 0.99809004

## 3.72 1.00 1.000 0.9999 0.9999004
```



```
## [1] " experiment 90"

## 0.0 0.56 0.522 0.4970 0.5000000

## 0.67 0.78 0.747 0.7499 0.7485711

## 0.84 0.81 0.809 0.8015 0.7995458

## 1.28 0.84 0.900 0.9011 0.8997274

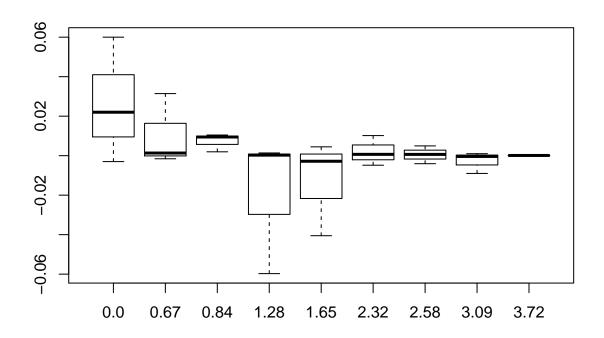
## 1.65 0.91 0.955 0.9477 0.9505285

## 2.32 1.00 0.985 0.9905 0.9898296

## 2.58 1.00 0.991 0.9957 0.9950600

## 3.09 0.99 1.000 0.9986 0.9989992

## 3.72 1.00 1.000 0.9999 0.9999004
```



```
## [1] " experiment 91"

## 0.0 0.51 0.515 0.5000 0.5000000

## 0.67 0.77 0.749 0.7463 0.7485711

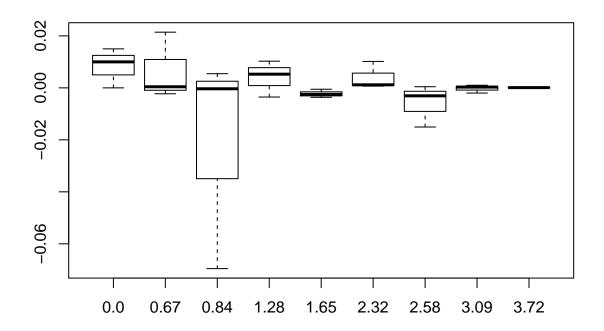
## 1.28 0.91 0.905 0.8962 0.8997274

## 1.65 0.95 0.948 0.9469 0.9505285

## 2.32 1.00 0.991 0.995 0.9898296

## 2.58 0.98 0.992 0.9955 0.9950600

## 3.09 1.00 0.997 0.9993 0.9999004
```



```
## [1] " experiment 92"

## 0.0 0.52 0.467 0.5024 0.5000000

## 0.67 0.75 0.739 0.7421 0.7485711

## 0.84 0.80 0.786 0.8024 0.7995458

## 1.28 0.89 0.903 0.904 0.8997274

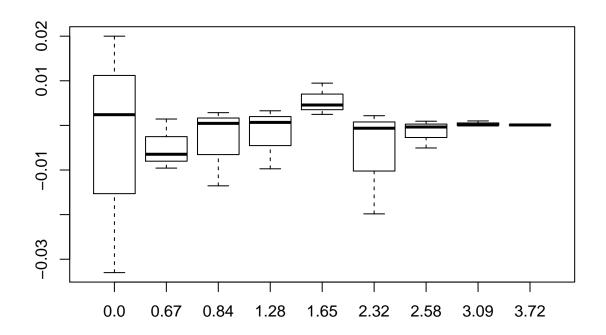
## 1.65 0.96 0.953 0.9551 0.9505285

## 2.32 0.97 0.992 0.9892 0.9898296

## 2.58 0.99 0.996 0.9947 0.9950600

## 3.09 1.00 0.999 0.9991 0.9989992

## 3.72 1.00 1.000 1.0000 0.9999004
```



```
## [1] " experiment 93"

## 0.0 0.44 0.507 0.4986 0.5000000

## 0.67 0.77 0.750 0.7461 0.7485711

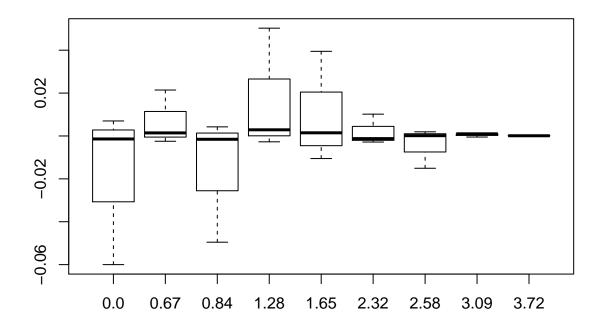
## 1.68 0.99 0.897 0.9026 0.8997274

## 1.65 0.99 0.940 0.9520 0.9505285

## 2.32 1.00 0.987 0.986 0.9898296

## 3.09 1.00 1.000 0.9985 0.9989992

## 3.72 1.00 1.000 0.9985 0.9999004
```



```
## [1] " experiment 94"

## 0.0 0.51 0.519 0.5015 0.5000000

## 0.67 0.72 0.760 0.7484 0.7485711

## 0.84 0.78 0.799 0.7975 0.7995458

## 1.28 0.84 0.895 0.8984 0.8997274

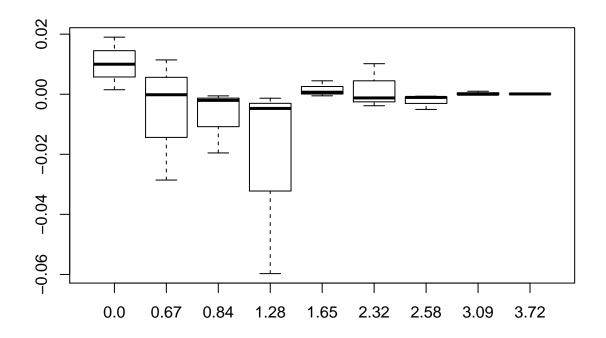
## 1.65 0.95 0.955 0.9512 0.9505285

## 2.32 1.00 0.986 0.9886 0.9898296

## 2.58 0.99 0.994 0.9944 0.9950600

## 3.09 1.00 0.999 0.9988 0.9989992

## 3.72 1.00 1.000 1.0000 0.9999004
```



```
## [1] " experiment 95"

## 0.0 0.51 0.499 0.5071 0.5000000

## 0.67 0.67 0.740 0.7440 0.7485711

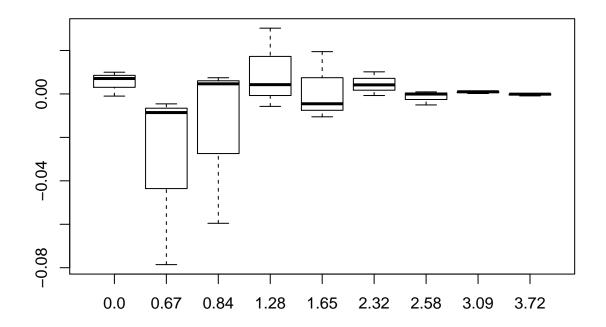
## 1.28 0.93 0.894 0.9040 0.8997274

## 1.65 0.97 0.940 0.9460 0.9505285

## 2.32 1.00 0.994 0.9891 0.9898296

## 2.58 0.99 0.996 0.9950 0.9950600

## 3.09 1.00 0.999 0.9998 0.999904
```



```
## [1] " experiment 96"

## 0.0 0.59 0.501 0.4914 0.5000000

## 0.67 0.67 0.737 0.7456 0.7485711

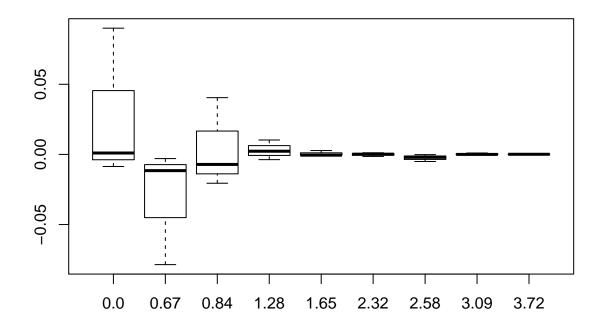
## 1.28 0.91 0.902 0.8960 0.8997274

## 1.65 0.95 0.950 0.9533 0.9505285

## 2.32 0.99 0.991 0.9884 0.9898296

## 2.58 0.99 0.993 0.9949 0.9950600

## 3.09 1.00 0.999 0.9988 0.9999004
```



```
## [1] " experiment 97"

## 0.0 0.51 0.481 0.4947 0.5000000

## 0.67 0.74 0.738 0.7548 0.7485711

## 0.84 0.77 0.815 0.8019 0.7995458

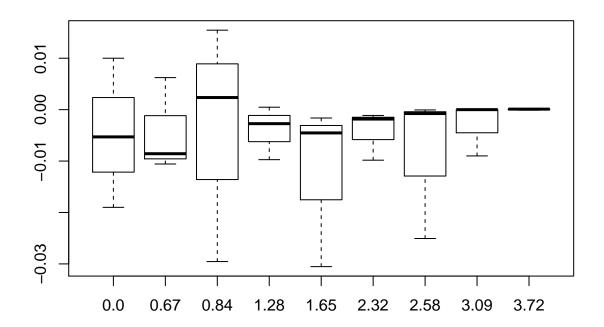
## 1.28 0.89 0.897 0.9002 0.8997274

## 1.65 0.92 0.946 0.9489 0.9505285

## 2.32 0.98 0.988 0.987 0.9898296

## 2.58 0.97 0.995 0.9943 0.9950600

## 3.09 0.99 0.999 0.9990 0.999904
```



```
## [1] " experiment 98"

## 0.0 0.46 0.516 0.5023 0.5000000

## 0.67 0.75 0.743 0.7461 0.7485711

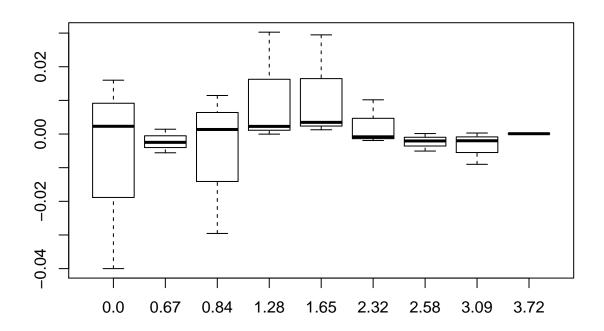
## 1.28 0.93 0.902 0.8997 0.8997274

## 1.65 0.98 0.954 0.9518 0.9505285

## 2.32 1.00 0.989 0.9879 0.9898296

## 2.58 0.99 0.993 0.9952 0.9950600

## 3.09 0.99 0.997 0.9993 0.9999004
```



```
## [1] " experiment 99"

## 0.0 0.46 0.496 0.5063 0.5000000

## 0.67 0.77 0.756 0.7458 0.7485711

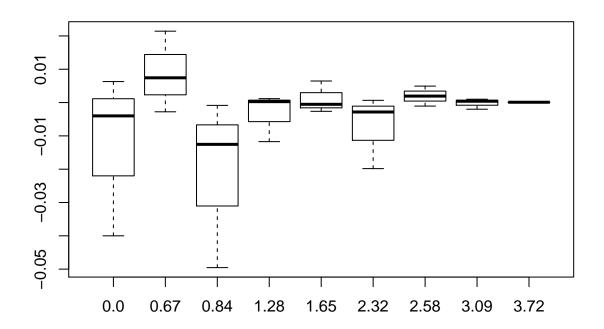
## 1.28 0.90 0.888 0.9009 0.8997274

## 1.65 0.95 0.957 0.9479 0.9505285

## 2.32 0.97 0.987 0.9905 0.9898296

## 2.58 1.00 0.997 0.9940 0.9950600

## 3.09 1.00 0.997 0.9984 0.9999004
```



```
## [1] " experiment 100"

## 0.0 0.50 0.492 0.4972 0.5000000

## 0.67 0.78 0.763 0.7463 0.7485711

## 1.28 0.94 0.910 0.8997 0.8997274

## 1.65 0.96 0.958 0.9492 0.9505285

## 2.32 0.99 0.992 0.9881 0.9898296

## 2.58 0.99 0.994 0.9959 0.9950600

## 3.09 1.00 0.999 0.9996 0.9999004
```

