Normal Distribution Report

```
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<=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=10^3
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=10^4
t=0
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
f<-function(x)1/sqrt(2*pi)*exp(-x^2/2)
T[1,4]=integrate(f,Inf,t)$value

#n=10^2 t=0.67
n=10^2
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=10^3
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=10^4 t=0.67
n=10^4
t=0.67
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  {b=1}
  else
    {b=0}
T[2,3]=T[2,3]+b
}
T[2,3]=T[2,3]/n

#true
f<-function(x)1/sqrt(2*pi)*exp(-x^2/2)
T[2,4]=integrate(f,Inf,t)$value

#n=10^2 t=0.84
n=10^2
t=0.84
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  {b=1}
  else
    {b=0}
T[3,1]=T[3,1]+b
}
T[3,1]=T[3,1]/n

#n=10^3 t=0.84
n=10^3
```

```
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=10^4
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
f<-function(x)1/sqrt(2*pi)*exp(-x^2/2)
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=10^3
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=10^4 t=1.28
n=10^4
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
f<-function(x)1/sqrt(2*pi)*exp(-x^2/2)
T[4,4]=integrate(f,Inf,t)$value

#n=10^2 t=1.65
n=10^2
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=10^3
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=10^4 t=1.65
n=10^4
t=1.65
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  {b=1}
  else
    {b=0}
T[5,3]=T[5,3]+b
```

```
}
T[5,3]=T[5,3]/n

#true
f<-function(x)1/sqrt(2*pi)*exp(-x^2/2)
T[5,4]=integrate(f,Inf,t)$value

#n=10^2 t=2.32
n=10^2
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=10^3
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
f<-function(x)1/sqrt(2*pi)*exp(-x^2/2)
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=10^3
t=2.58
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  {b=1}
  else
    {b=0}
T[7,2]=T[7,2]+b
}
T[7,2]=T[7,2]/n

#n=10^4 t=2.58
n=10^4
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
f<-function(x)1/sqrt(2*pi)*exp(-x^2/2)
T[7,4]=integrate(f,Inf,t)$value

#n=10^2 t=3.09
n=10^2
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
```

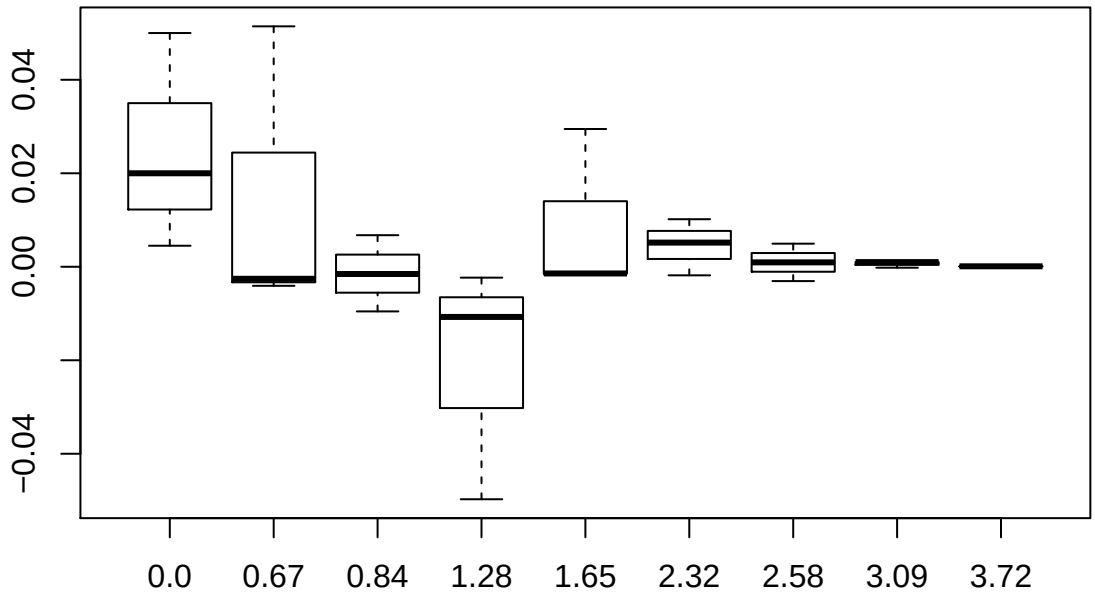
```r
#n=10^3 t=3.09
n=10^3
t=3.09
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  {b=1}
  else
    {b=0}
T[8,2]=T[8,2]+b
}
T[8,2]=T[8,2]/n

#n=10^4 t=3.09
n=10^4
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
f<-function(x)1/sqrt(2*pi)*exp(-x^2/2)
T[8,4]=integrate(f,Inf,t)$value

#n=10^2 t=3.72
n=10^2
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=10^3
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=10^4
t=3.72
for(value in 1:n)
  {a <- rnorm(1, mean=0, sd=1)
if(a<=t)
  {b=1}
  else
    {b=0}
T[9,3]=T[9,3]+b
}
T[9,3]=T[9,3]/n

#true
f<-function(x)1/sqrt(2*pi)*exp(-x^2/2)
T[9,4]=integrate(f,Inf,t)$value

print(T)
```

```
##      10^2  10^3   10^4      true
## 0.0  0.55 0.520 0.5045 0.5000000
## 0.67 0.80 0.746 0.7445 0.7485711
## 0.84 0.79 0.798 0.8063 0.7995458
## 1.28 0.85 0.889 0.8974 0.8997274
## 1.65 0.98 0.949 0.9491 0.9505285
## 2.32 1.00 0.995 0.9880 0.9898296
## 2.58 1.00 0.992 0.9960 0.9950600
## 3.09 1.00 1.000 0.9988 0.9989992
## 3.72 1.00 1.000 0.9999 0.9999004
```

Including Plots

plots:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.