Power and Type I error Rate

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```
## [1] 10
## [1] 20
## [1] 30
## [1] 40
## [1] 50
## [1] 100
```

power of SW test

```
##         exp  unif     t chisq gamma
## 10   0.565 0.072 0.262 0.189 0.214
## 20   0.938 0.186 0.481 0.420 0.477
## 30   0.996 0.399 0.637 0.630 0.703
## 40   1.000 0.635 0.746 0.781 0.848
## 50   1.000 0.824 0.826 0.883 0.931
## 100 1.000 1.000 0.975 0.998 1.000
```

Type I error

```
##        norm   exp  unif     t chisq gamma
## 10   0.048 0.038 0.051 0.040 0.044 0.045
## 20   0.050 0.044 0.050 0.044 0.049 0.048
## 30   0.050 0.048 0.050 0.046 0.049 0.049
## 40   0.050 0.049 0.051 0.047 0.049 0.050
## 50   0.051 0.049 0.051 0.047 0.050 0.050
## 100 0.050 0.049 0.051 0.047 0.050 0.050
```

inflation of Type I error

```
##         exp  unif      t  chisq  gamma
## 10   -0.010 0.003 -0.008 -0.004 -0.003
## 20   -0.006 0.000 -0.006 -0.001 -0.002
## 30   -0.002 0.000 -0.004 -0.001 -0.001
## 40   -0.001 0.001 -0.003 -0.001  0.000
## 50   -0.002 0.000 -0.004 -0.001 -0.001
## 100 -0.001 0.001 -0.003  0.000  0.000
```
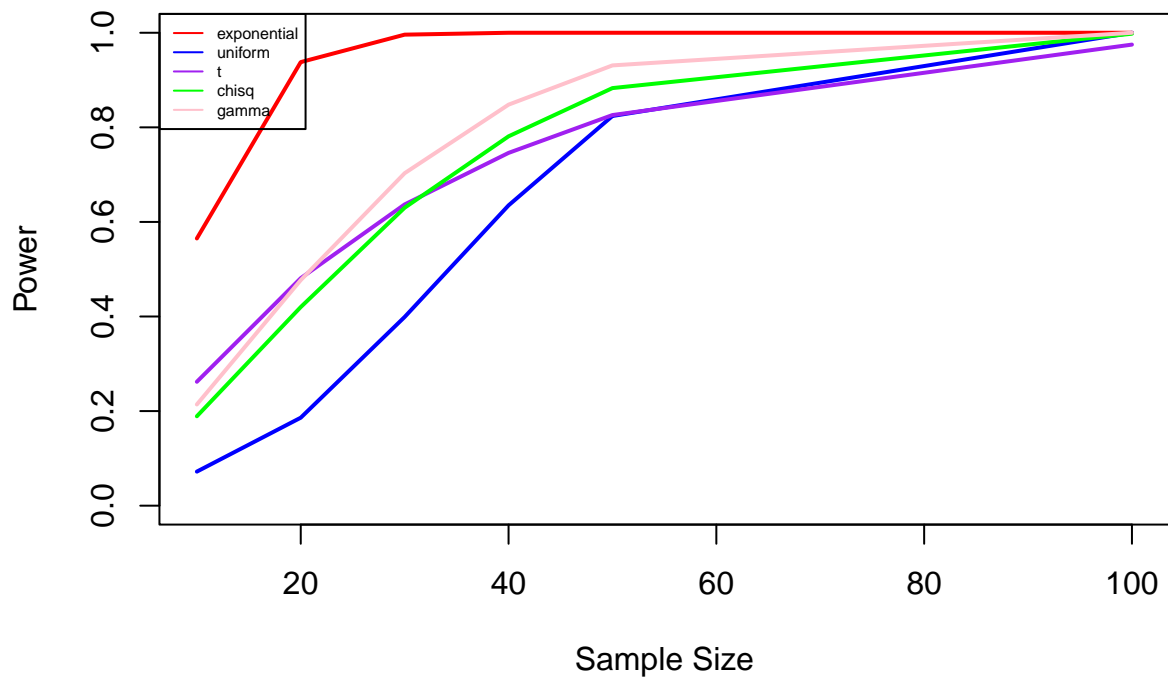
power of t test

```
##       norm   exp  unif     t chisq gamma
## 10   0.181 0.217 0.173 0.245 0.191 0.045
## 20   0.337 0.371 0.327 0.422 0.348 0.048
## 30   0.477 0.505 0.472 0.557 0.485 0.049
## 40   0.598 0.614 0.594 0.664 0.602 0.050
```

```
## 50   0.696 0.706 0.694 0.746 0.701 0.050
## 100 0.941 0.936 0.940 0.936 0.940 0.050
```
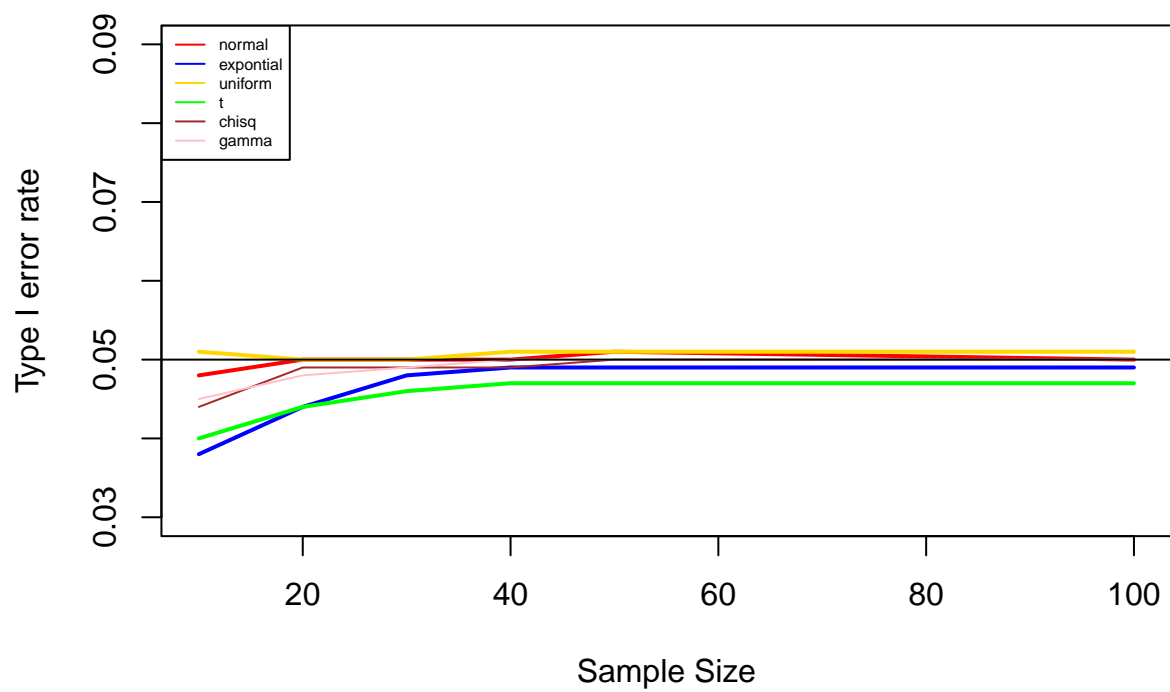
powerloss of t test

```
##        exp  unif      t  chisq gamma
## 10  -0.036 0.008 -0.064 -0.010 0.136
## 20  -0.034 0.010 -0.085 -0.011 0.289
## 30  -0.028 0.005 -0.080 -0.008 0.428
## 40  -0.016 0.004 -0.066 -0.004 0.548
## 50  -0.010 0.002 -0.050 -0.005 0.646
## 100  0.005 0.001  0.005  0.001 0.891
```

Power SW test.

Type I error of t test

Power of t test

Legend:
- normal (red)
- expontial (blue)
- uniform (yellow)
- t (green)
- chisq (brown)
- gamma (pink)

X-axis: Sample Size
Y-axis: Power