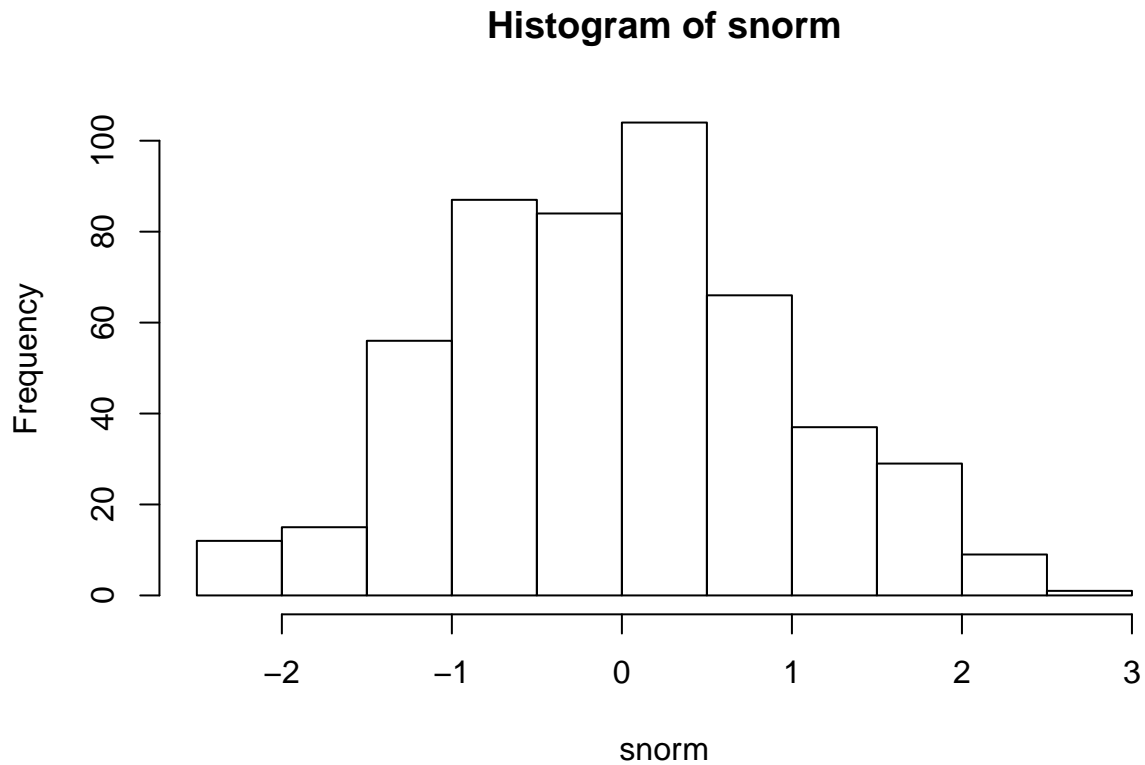


GA4_rreport.R

yuliy

Mon Jan 29 13:40:42 2018

```
#Problem 1:  
#Part a.  
snorm<-rnorm((100*5), mean=0, sd=1)  
hist(snorm)
```



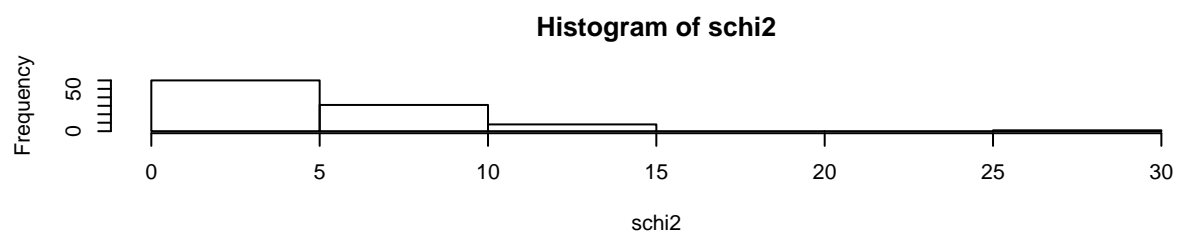
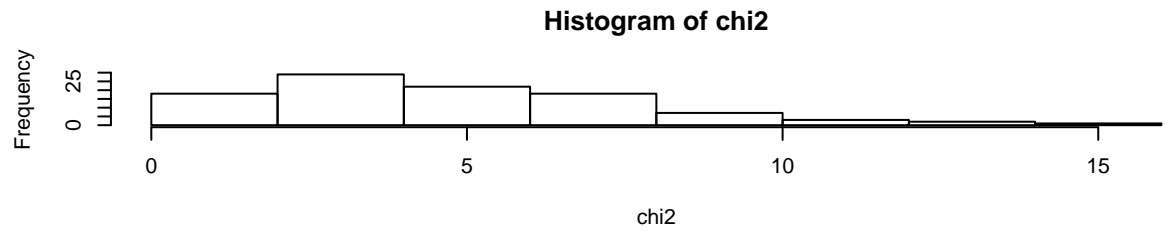
```
matrixnorm<-matrix(snorm, nrow=100, ncol=5)  
chi2<-rowSums(matrixnorm^2)  
schi2<-rchisq(100, df=5, ncp=0)  
par(mfrow=c(3,1))  
hist(chi2)  
hist(schi2)  
quantile(chi2, probs=0.05)
```

```
##          5%  
## 0.9452132
```

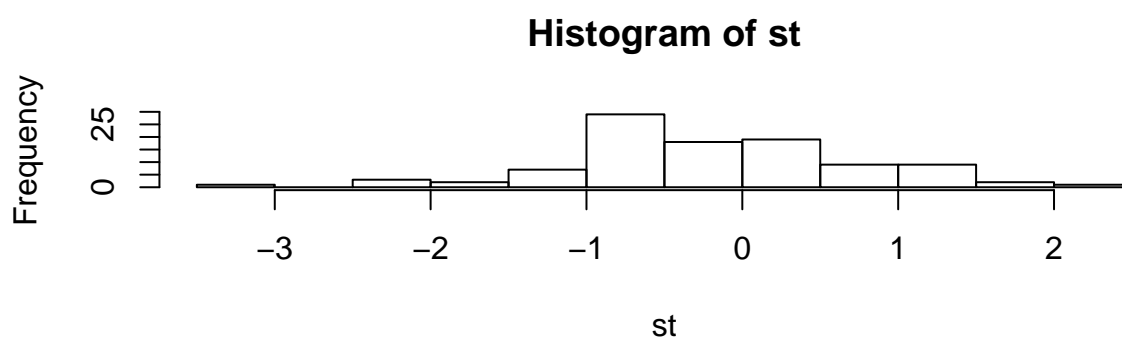
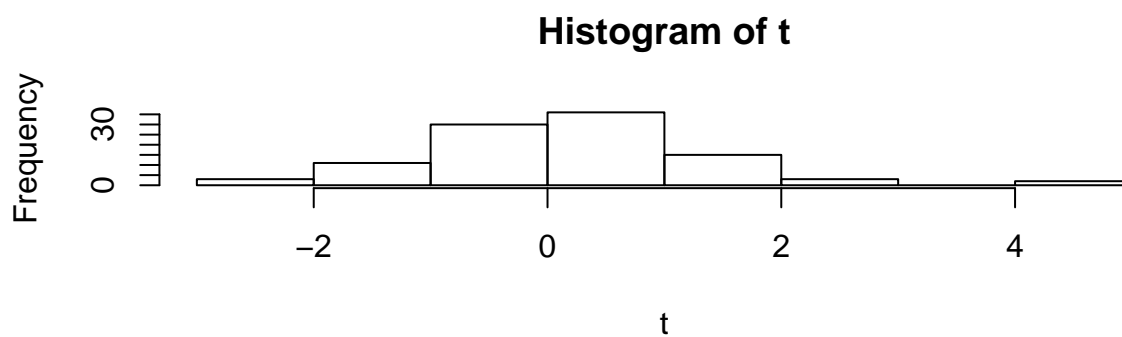
```
qchisq(p=0.05, df=5,ncp=0)
```

```
## [1] 1.145476
```

```
#Part b.  
t<-matrixnorm[,1]/sqrt(schi2/5)  
st<-rt(100, df=5, ncp=0)  
par(mfrow=c(2,1))
```



```
hist(t)  
hist(st)
```



```
quantile(t, probs=0.05)
```

```
##          5%
## -1.882724
```

```
qt(p=0.05, df=5, ncp=0)
```

```
## [1] -2.015048
```

```
#Part c.
```

```
schi2_1<-rchisq(100, df=1, ncp=0)
```

```
schi2_5<-rchisq(100, df=5, ncp=0)
```

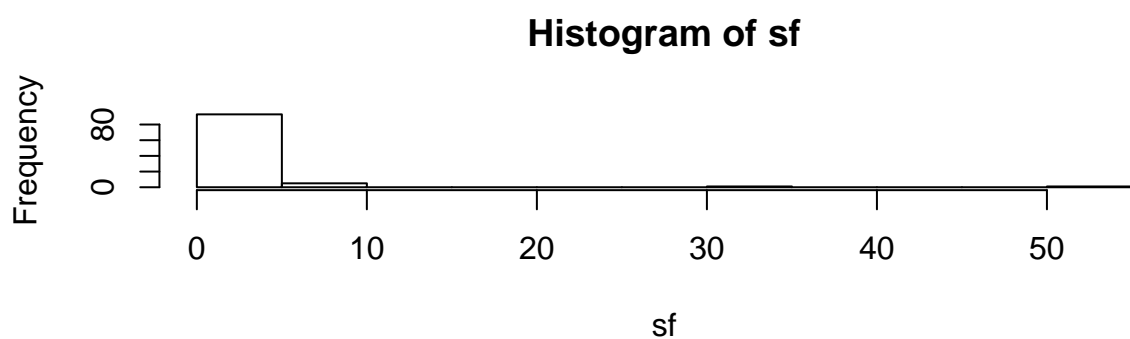
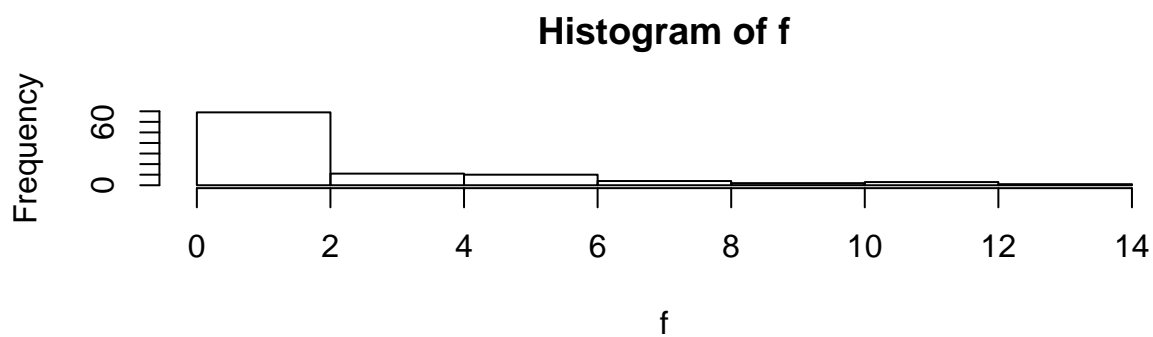
```
f<-schi2_1/(schi2_5/5)
```

```
sf<-rf(100, df1=1, df2=5, ncp=0)
```

```
par(mfrow=c(2, 1))
```

```
hist(f)
```

```
hist(sf)
```



```
quantile(f, probs=0.05)
```

```
##          5%
## 0.05101572
```

```
qf(0.05, df1=1, df2=5)
```

```
## [1] 0.004344768
```

```
#Problem 2:
```

```
#Part a.
```

```
n<-50
```

```
sexp<-rexp((100*n), rate=.2)
```

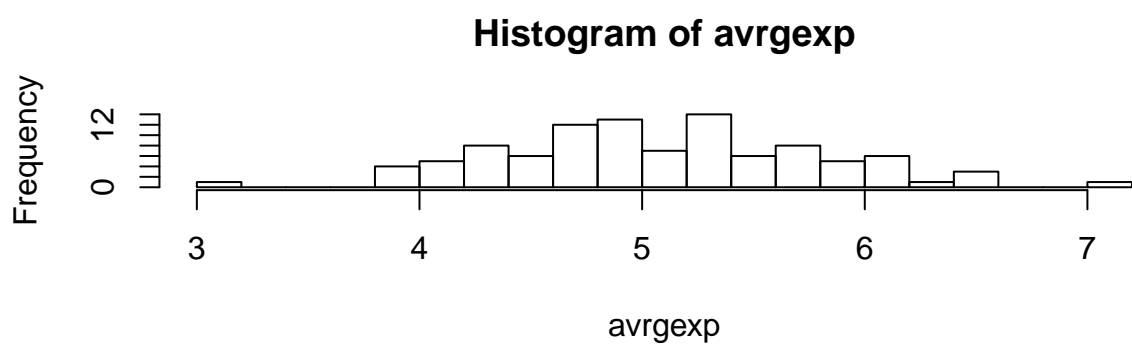
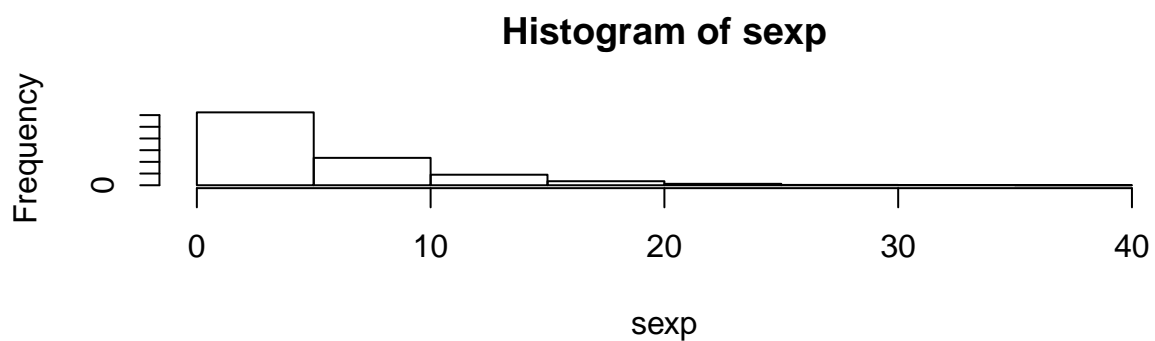
```
matrixexp<-matrix(sexp, nrow=100, ncol=n)
```

```
avrgexp<-rowSums(matrixexp)/n
```

```
par(mfrow=c(2,1))
```

```
hist(sexp)
```

```
hist(avrgexp, breaks=20)
```



```
#Part b.
n<-60
sgamma<-rgamma((100*n), shape=5, scale=5)
matrixgamma<-matrix(sgamma, nrow=100, ncol=n)
avrggamma<-rowSums(matrixgamma)/n
par(mfrow=c(2,1))
hist(sgamma)
hist(avrggamma, breaks=20)
```

