scritptest1.R

maru

Mon Oct 23 09:14:50 2017

```
########################################
## Ejercicio delgadas y obesas
########################################

delgadas<-c(6.02, 7.4, 7.88, 8.39, 8.7, 8.76, 9.09, 9.27,  9.3, 9.8, 9.84, 10.03, 10.27)

obe<- scan(text='8.42  9.16    9.69   10.21 10.4   10.48   10.93   11.14   11.14   11.81')


mean(delgadas)
```

```
## [1] 8.826923
```

```
mean(obe)
```

```
## [1] 10.338
```

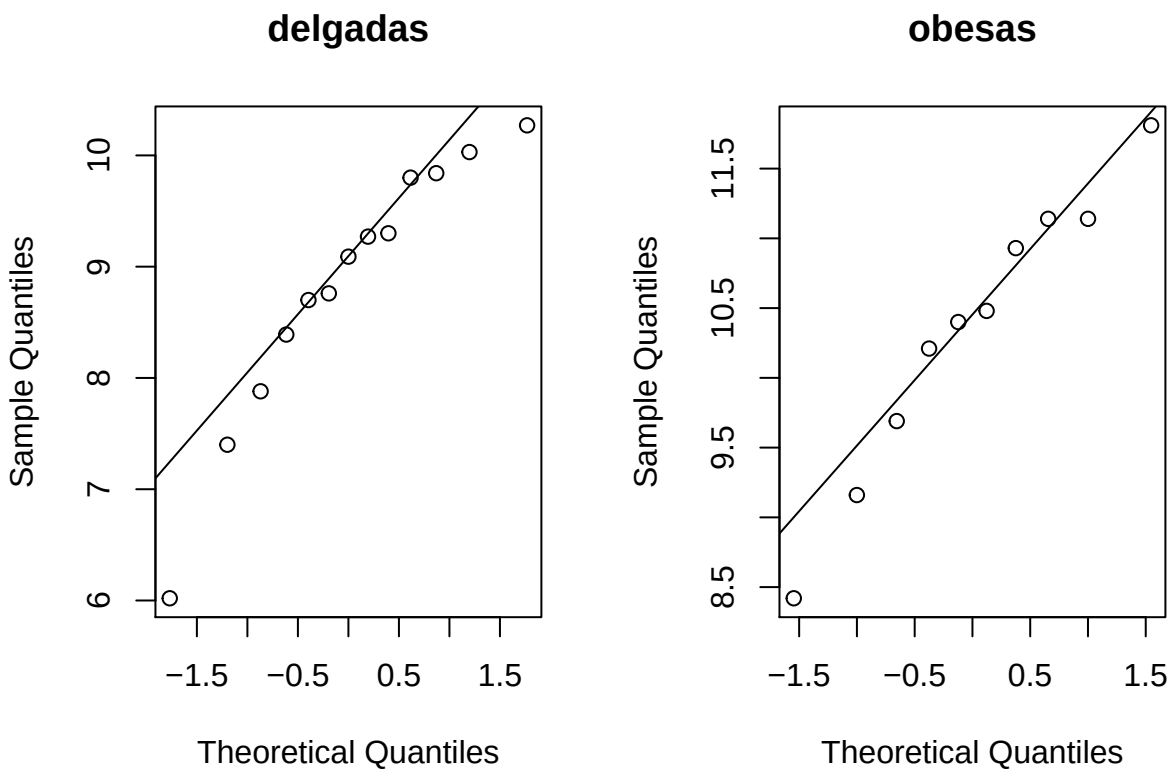
```
var(delgadas)
```

```
## [1] 1.417956
```

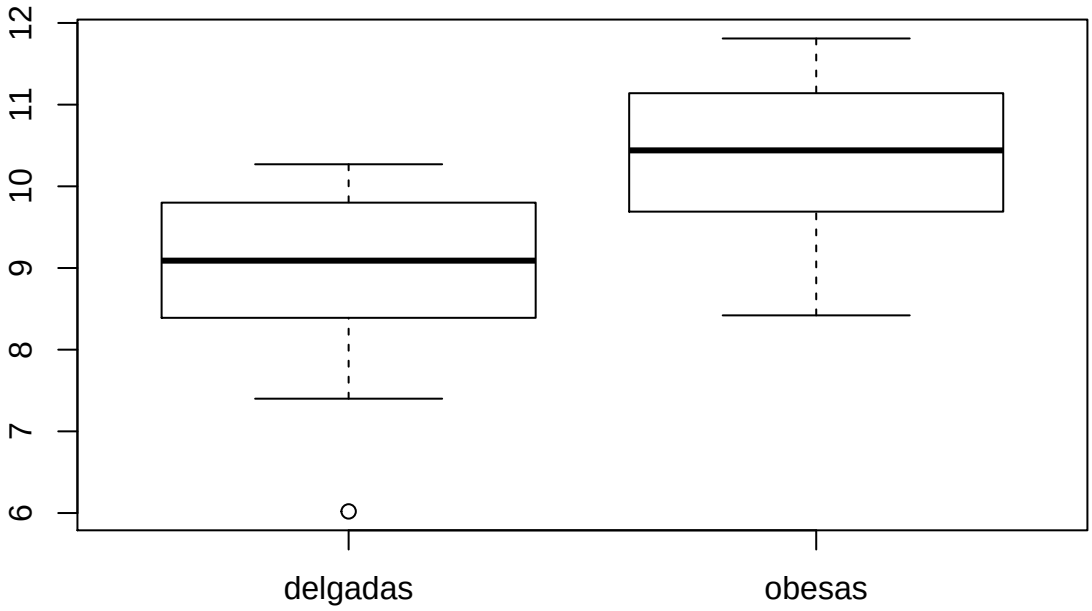
```
var(obe)
```

```
## [1] 1.036707
```

```
par(mfrow=c(1,2))
qqnorm(delgadas,main="delgadas")
 qqline(delgadas)
 qqnorm(obe,main="obesas")
 qqline(obe)
```




```
par(mfrow=c(1,1))
boxplot(delgadas,obe,names=c("delgadas","obesas"))
```




```
############################################################
#primera posibilidad: test de Welch, que no asume igualdad de varianzas
############################################################

S1c<-var(delgadas)
S2c<-var(obe)
```

```r
estadistico<-(mean(delgadas)-mean(obe))/sqrt(S1c/13+S2c/10)
estadistico
```

```
## [1] -3.276104
```

```r
  num<-(S1c/13+S2c/10)^2
denom<-((S1c/13)^2)/12+((S2c/10)^2)/9
grados.libertad<-num/denom
grados.libertad
```

```
## [1] 20.70833
```

```r
#pvalor
2*pt(-3.276,df=20)
```

```
## [1] 0.003778772
```

```r
# instruccion para que el R haga todo!
t.test(delgadas,obe,var.equal=FALSE)
```

```
##
##  Welch Two Sample t-test
##
## data:  delgadas and obe
## t = -3.2761, df = 20.708, p-value = 0.003654
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  -2.4711056 -0.5510483
## sample estimates:
## mean of x mean of y
##  8.826923 10.338000
```

```r
# segunda posibilidad: Primero testear igualdad de varianzas.
# Si pasa este test, testear igualdad de medias con el test que
# asume varianzas iguales
###################################
# Test para igualdad de varianzas
###################################
estadistico<-S1c/S2c
estadistico
```

```
## [1] 1.367751
```

```r
#Con que nivel hacemos este test? Tomemos alfa=0.20
qf(0.90,12,9)
```

```
## [1] 2.378885
```

```r
qf(0.90,9,12)
```

```
## [1] 2.213525
```

```r
1/2.213525
```

```
## [1] 0.4517681
```

```r
#comprobemos
qf(0.10,12,9)
```

```
## [1] 0.4517682
```

```r
#pvalor
(1-pf(estadistico,12,9))*2
```

```
## [1] 0.6486028
```

```r
#con que valor lo comparamos?
var.test(delgadas,obe,conf.level=0.80)
```

```
##
##  F test to compare two variances
##
## data:  delgadas and obe
## F = 1.3678, num df = 12, denom df = 9, p-value = 0.6486
## alternative hypothesis: true ratio of variances is not equal to 1
## 80 percent confidence interval:
##  0.5749546 3.0275500
## sample estimates:
## ratio of variances
##           1.367751
```

```r
###################################
# Test para igualdad de medias, asumiendo igualdad de varianzas
###################################
spcuad<-(S1c*12+S2c*9)/(12+9)
spcuad
```

```
## [1] 1.254564
```

```r
estadistico<-(mean(delgadas)-mean(obe))/sqrt(spcuad*(1/13+1/10))
estadistico
```

```
## [1] -3.207362
```

```r
#pvalor
2*pt(-3.2074,df=12+9)
```

```
## [1] 0.004230238
```

```r
t.test(delgadas,obe,var.equal=TRUE)
```

```
##
##  Two Sample t-test
##
## data:  delgadas and obe
## t = -3.2074, df = 21, p-value = 0.004231
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  -2.4908405 -0.5313133
## sample estimates:
## mean of x mean of y
##  8.826923 10.338000
```

```r
#####################################################
# Ejercicio CGP
#####################################################
estadistico<-(112/130-0.92)/sqrt(0.92*0.08/130)
estadistico
```

```
## [1] -2.456988
```

```r
#pvalor
pnorm(estadistico)
```

```
## [1] 0.007005371
```

```r
#para obtener lo mismo que a mano
prop.test(x=112,n=130,p=0.92,alternative="less",correct=FALSE)
```

```
##
##  1-sample proportions test without continuity correction
##
## data:  112 out of 130, null probability 0.92
## X-squared = 6.0368, df = 1, p-value = 0.007005
## alternative hypothesis: true p is less than 0.92
## 95 percent confidence interval:
##  0.000000 0.904031
## sample estimates:
##         p
## 0.8615385
```

```r
#nos da el estadistico al cuadrado
sqrt(6.0368)
```

```
## [1] 2.45699
```

```r
prop.test(x=112,n=130,p=0.92,alternative="less") #es mejor, hace la correccion por continuidad
```

```
##
##  1-sample proportions test with continuity correction
##
## data:  112 out of 130, null probability 0.92
## X-squared = 5.2686, df = 1, p-value = 0.01086
## alternative hypothesis: true p is less than 0.92
## 95 percent confidence interval:
##  0.0000000 0.9072356
## sample estimates:
##         p
## 0.8615385
```

```r
qnorm(0.024)
```

```
## [1] -1.977368
```

```r
#######################################################
# ejemplo de telas
#######################################################
x<-scan(text = '7.2 4.3 5.8 6.5 4.9 6.8 6.3 7.0 6.5 6.2')

y<-scan(text = '5.1 4.1 5.5 4.1 5.0 5.1 5.3 7.3 4.8 5.8')

mean(x)
```

```
## [1] 6.15
```

```r
mean(y)
```

```
## [1] 5.21
```

```r
qt(0.95,df=9)
```

```
## [1] 1.833113
```

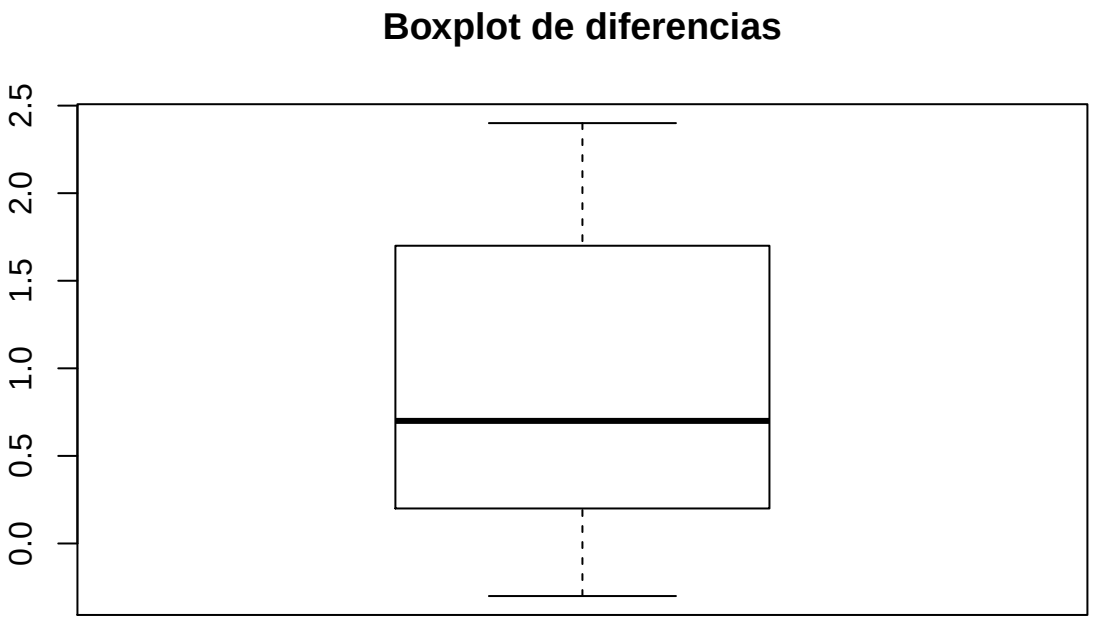
```r
dife<-(x-y)
dife
```

```
##  [1]  2.1  0.2  0.3  2.4 -0.1  1.7  1.0 -0.3  1.7  0.4
```

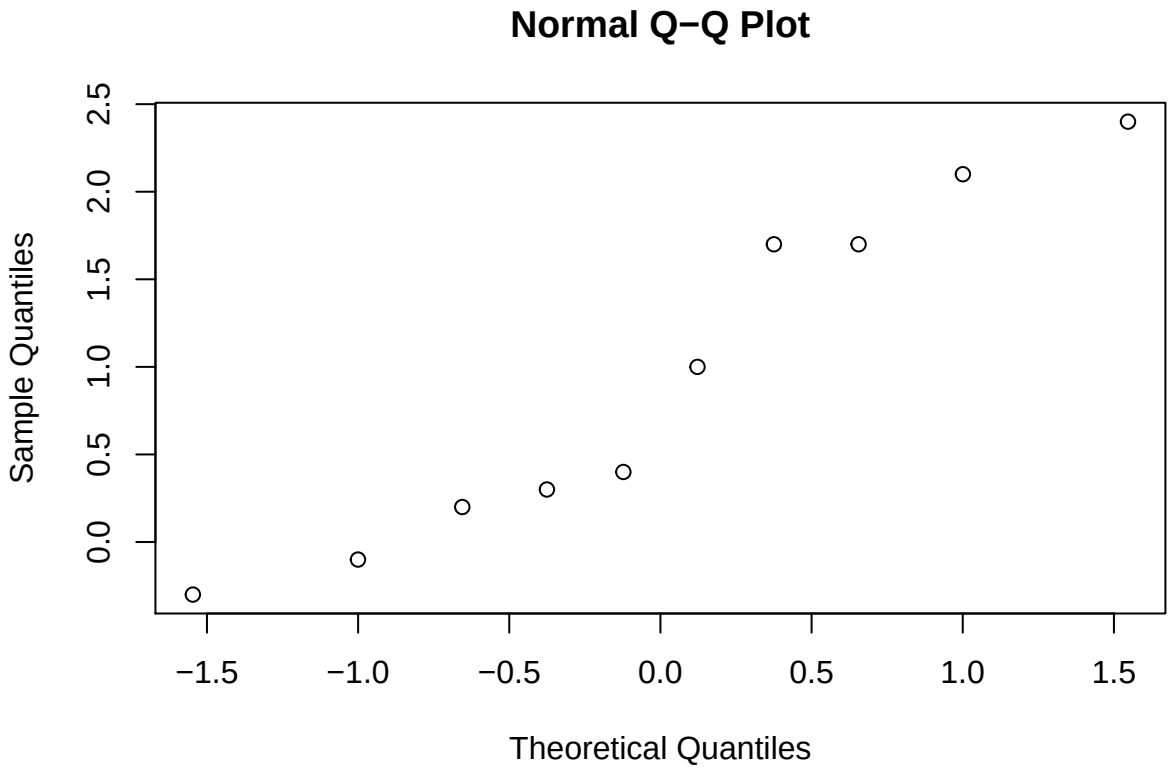
```r
var(dife)
```

```
## [1] 0.9448889
```

```r
boxplot(dife,main="Boxplot de diferencias")
```




```r
qqnorm(dife)
```




```r
n<-length(dife)
estadistico<-(mean(x)-mean(y))/sqrt(var(dife)/n)
estadistico
```

```
## [1] 3.058
```

```
#pvalor
1-pt(3.058,df=9)
```

```
## [1] 0.006807792
```

```
#ambas instrucciones dan lo mismo
t.test(x,y,mu=0,alternative="two.sided",paired=T)
```

```
##
##  Paired t-test
##
## data:  x and y
## t = 3.058, df = 9, p-value = 0.01362
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
##  0.2446345 1.6353655
## sample estimates:
## mean of the differences
##                    0.94
```

```
t.test(dife,mu=0,alternative="two.sided")
```

```
##
##  One Sample t-test
##
## data:  dife
## t = 3.058, df = 9, p-value = 0.01362
## alternative hypothesis: true mean is not equal to 0
## 95 percent confidence interval:
##  0.2446345 1.6353655
## sample estimates:
## mean of x
##      0.94
```