Assignment3.R

trist

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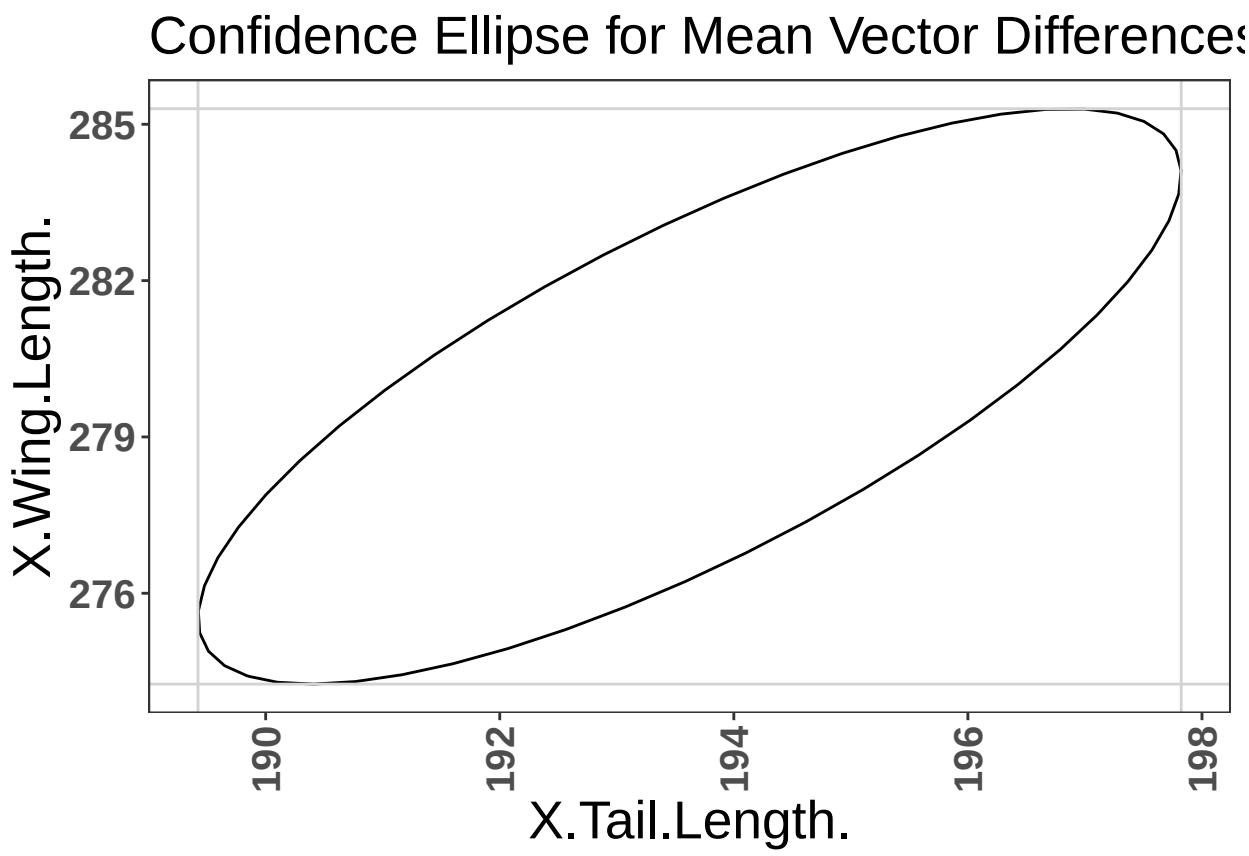
```
library(mvdalab)
```

```
## Warning: package 'mvdalab' was built under R version 4.0.3
```

```
d=read.table("C:\\Users\\trist\\Desktop\\Fall 2020\\Multivariate Analysis\\Assignment3\\T5-12.dat")
names(d) = c("Tail Length","Wing Length")
xbar <- colMeans(d)
MVcis(d,segments = 51, level = .95, Vars2Plot = c(1,2))
```




```
##                    [,1]     [,2]
## X.Tail.Length. 189.4217 197.8227
## X.Wing.Length. 274.2564 285.2992
```

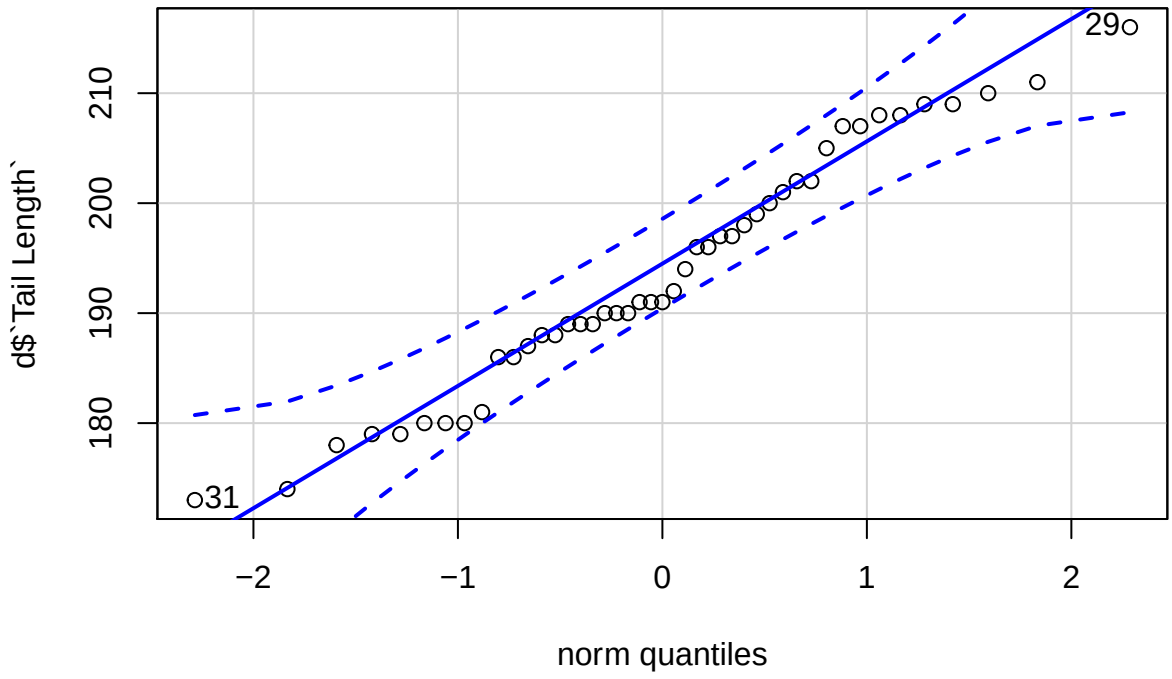
```
S <- var(d)
#page 233 Bonferonni
LowerCITail = xbar[1] - qt(0.95,length(d)-1)*sqrt(S[1,1]/length(d))
UpperCITail = xbar[1] + qt(0.95,length(d)-1)*sqrt(S[1,1]/length(d))

LowerCIWing = xbar[2] - qt(0.95,length(d)-1)*sqrt(S[2,2]/length(d))
UpperCIWing = xbar[2] + qt(0.95,length(d)-1)*sqrt(S[2,2]/length(d))

library("car")
```

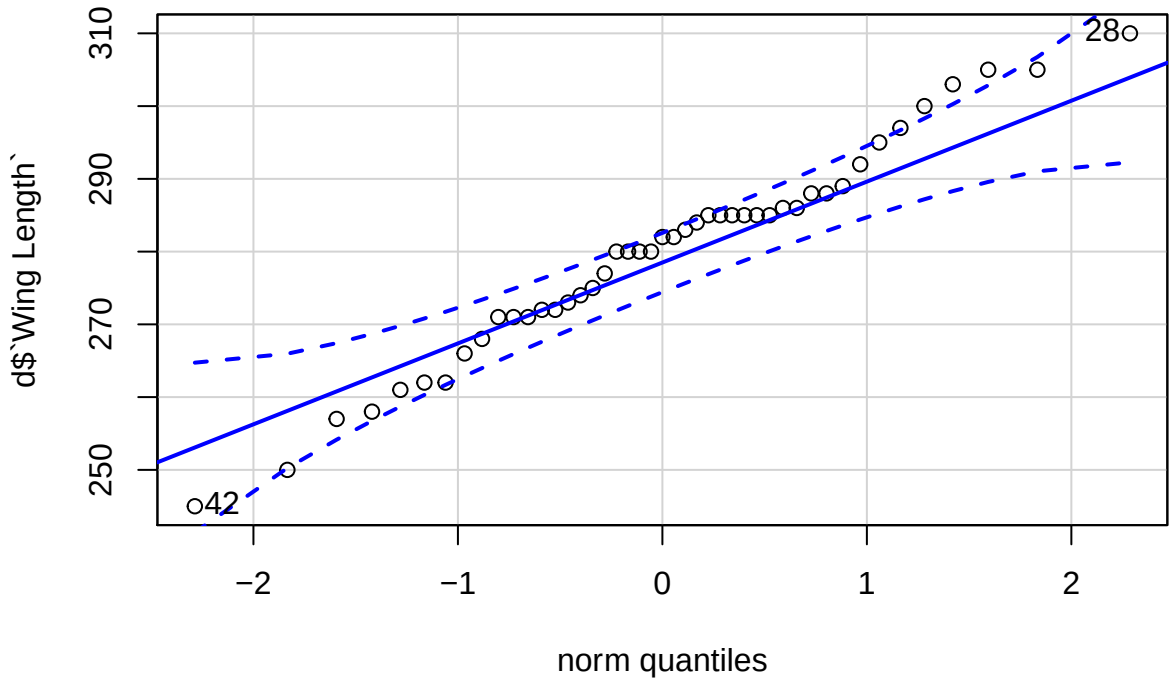
```
## Loading required package: carData
```

```
qqPlot(d$`Tail Length`)
```




```
## [1] 29 31
```

```
qqPlot(d$`Wing Length`)
```




```
## [1] 42 28
```

```
# 5.29
d2 <- read.table("C:\\Users\\trist\\Desktop\\Fall 2020\\Multivariate Analysis\\Assignment3\\T5-14.dat")
d2 <- head(d2,30)
mu0 <- c(0,0,0,0,0,0)
S <- var(d2)
xbar <- colMeans(d2)
T2 <- 30*t(xbar-mu0)%*%solve(S)%*%(xbar-mu0)
# distribution is (n-1)*p/(n-p)F(p,n-p)
alpha <- (30-1)*6/(30-6)*qf(0.95,6,30-6)
```