

Box-Cox Transformation

Load MASS

```
Data <- read.table(file.choose(), header=T)
```

```
qqnorm(Data$Data)
qqline(Data$Data)
shapiro.test(Data$Data)
```

The data is from a log-normal distribution.

```
qqnorm(log(Data$Data))
qqline(log(Data$Data))
shapiro.test(log(Data$Data))
```

However, we can also transform the data using a Box-Cox Transformation

```
Box <- boxcox(Data$Data ~ 1, seq(-6,6,0.1))
Cox <- data.frame(Box$x, Box$y)
Cox2 <- Cox[with(Cox, order(-Cox$Box.y)),]
```

```
Cox2[1,]
```

```
lambda <-Cox2[1,"Box.x"]
lambda
```

```
tData <- (Data$Data^lambda-1)/lambda
```

```
qqnorm(tData)
qqline(tData)
shapiro.test(tData)
```