Boxcox

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Não consegui rodar com o pacote AID

```
df<-read.csv("CT_teste_ONE_WAY.csv", sep=";", h=T)
df[,"Acum_CT"]<-as.numeric(gsub(",", ".", gsub("\\.", "", df$Acum_CT)))
head(df)
```

```
##   Lagoas  Acum_CT
## 1  LRF_1 843.7824
## 2  LRF_1 988.4850
## 3  LRF_1 849.1123
## 4  LRF_1 752.8445
## 5  LRF_1 817.5562
## 6  LRF_1 878.5074
```

```
library(AID)
```

```
## Registered S3 method overwritten by 'quantmod':
##   method             from
##   as.zoo.data.frame  zoo
```

```
library(onewaytests)
```

```
describe(Acum_CT ~ Lagoas, data = df)
```

```
##           n      Mean    Std.Dev    Median        Min       Max       25th
## IMB_1 14   14.38754   1.824835  14.46500  10.706880  18.22665  14.088957
## IMB_2 12   14.08900   3.815238  14.03000   7.468203  23.47664  13.602280
## IMB_3  9   11.29284   4.260470  10.20337   6.487547  20.27926   9.029605
## ITP_1 12  186.83864  23.184336 188.51515 143.184000 217.87390 169.367750
## ITP_2 14  209.66855  91.297259 191.79055 117.341600 465.69190 148.047725
## ITP_3 23  266.24336  45.319857 261.67340 168.503200 347.97400 233.512350
## LRF_1 14  898.97435  67.415410 908.43040 752.844500 998.24460 856.461075
## LRF_2 24  663.21514  72.321650 653.82815 508.944900 795.72050 616.812550
## LRF_3 29  505.65860  63.355535 512.27230 383.018200 599.61500 459.098000
## MAC_1  8  149.86250   7.741897 152.50000 137.700000 156.80000 148.425000
## MAC_2  9  186.50000  20.284230 189.10000 160.900000 212.10000 168.600000
## MAC_3 14  203.55000  44.507644 194.40000 161.600000 307.50000 182.125000
##            75th    Skewness Kurtosis NA
```

```
## IMB_1  15.04929 -0.05449314 3.462269  0
## IMB_2  14.39750  0.79142053 4.727916  0
## IMB_3  13.18960  0.92358269 3.209374  0
## ITP_1 204.90420 -0.27644237 2.029554  0
## ITP_2 222.74887  1.68487627 5.447588  0
## ITP_3 297.24605 -0.13304558 2.441150  0
## LRF_1 936.25097 -0.50341078 2.783577  0
## LRF_2 714.66210  0.12838244 2.517275  0
## LRF_3 562.04950 -0.30836276 1.907927  0
## MAC_1 153.92500 -0.94242209 2.204270  0
## MAC_2 207.10000 -0.01986892 1.532127  0
## MAC_3 199.37500  1.68699963 4.500614  0
```

```
homog.test(Acum_CT ~ Lagoas, data = df, method = "Bartlett")
```

```
##
##   Bartlett's Homogeneity Test (alpha = 0.05)
## -----------------------------------------------
##   data : Acum_CT and Lagoas
##
##   statistic  : 207.9767
##   parameter  : 11
##   p.value    : 1.640727e-38
##
##   Result     : Variances are not homogeneous.
## -----------------------------------------------
```

```
#out <- boxcoxfr(df$Acum_CT, as.factor(df$Lagoas), lambda = seq(-10, 10, 1/10), tau=0.001)
```

TESTE COM O PACOTE MASS

```
library(MASS)
out2<-boxcox(Acum_CT~Lagoas, data=df, lambda=seq(-2, 2, length = 100))
```
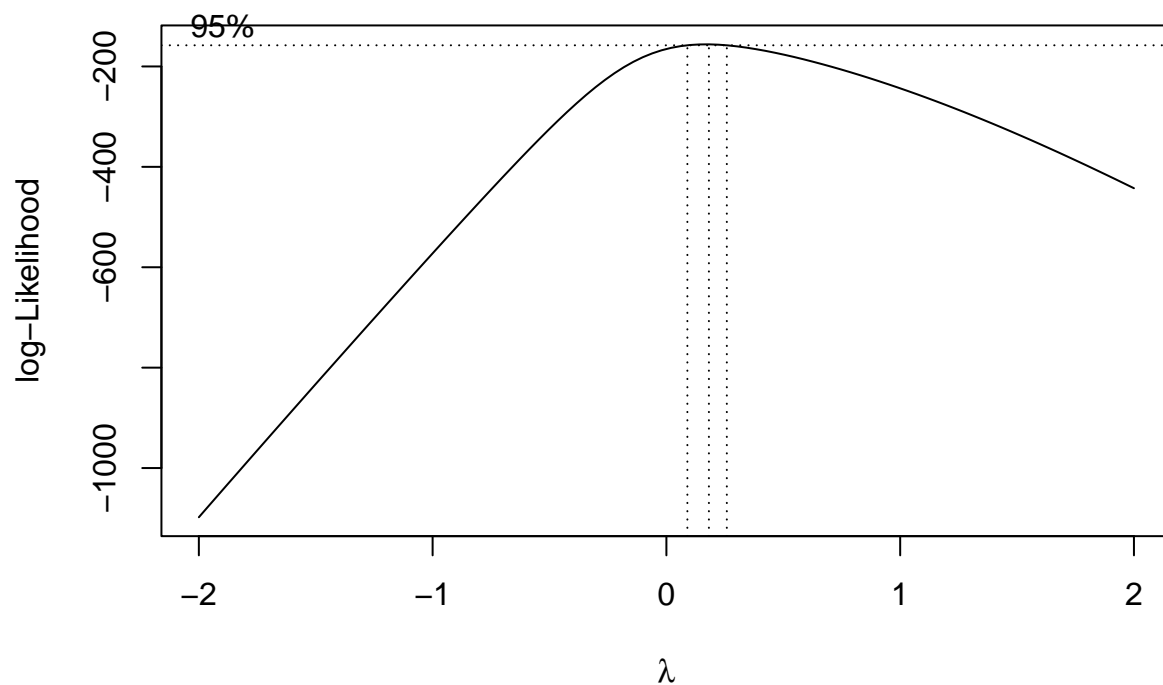
#out2

TESTE COM O PACOTE caret

```
library(caret)
```

```
## Carregando pacotes exigidos: ggplot2
```

```
## Carregando pacotes exigidos: lattice
```

```
library(GFD)

bc<-BoxCoxTrans(df$Acum_CT)

shapiro.test(predict(bc, df$Acum_CT))
```

```
##
##  Shapiro-Wilk normality test
##
## data:  predict(bc, df$Acum_CT)
## W = 0.93286, p-value = 1.802e-07
```

```
anova(aov(predict(bc, df$Acum_CT)~df$Lagoas))
```

```
## Analysis of Variance Table
##
## Response: predict(bc, df$Acum_CT)
##             Df  Sum Sq Mean Sq F value    Pr(>F)
## df$Lagoas   11 16659.1 1514.47  640.12 < 2.2e-16 ***
## Residuals  170   402.2    2.37
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
GFD(predict(bc, df$Acum_CT)~df$Lagoas)
```

```
## Call:
## predict(bc, df$Acum_CT) ~ df$Lagoas
##
## Wald-Type Statistic (WTS):
## Test statistic              df       p-value    p-value WTPS
##       22263.88           11.00          0.00            0.00
##
## ANOVA-Type Statistic (ATS):
## Test statistic             df1             df2         p-value
##     722.405275        4.067107       54.200997        0.000000
```

#TESTE COM O PACOTE FPP

```
library(fpp)
```

```
## Carregando pacotes exigidos: forecast
```

```
## Carregando pacotes exigidos: fma
```

```
##
## Attaching package: 'fma'
```

```
## The following objects are masked from 'package:MASS':
##
##     cement, housing, petrol
```

```
## Carregando pacotes exigidos: expsmooth
```

```
## Carregando pacotes exigidos: lmtest
```

```
## Carregando pacotes exigidos: zoo
```

```
##
## Attaching package: 'zoo'
```

```
## The following objects are masked from 'package:base':
##
##     as.Date, as.Date.numeric
```

```
## Carregando pacotes exigidos: tseries
```

```
lambda <- BoxCox.lambda(df$Acum_CT, method="loglik", lower=-2, upper=2)
boxcox_trans <- BoxCox(df$Acum_CT, lambda)
shapiro.test((df$Acum_CT))
```

```
##
##  Shapiro-Wilk normality test
##
## data:  (df$Acum_CT)
## W = 0.90854, p-value = 3.382e-09
```

```
shapiro.test(boxcox_trans)
```

```
##
##  Shapiro-Wilk normality test
##
## data:  boxcox_trans
## W = 0.93806, p-value = 4.695e-07
```

```
anova(aov(predict(bc, df$Acum_CT)~df$Lagoas))
```

```
## Analysis of Variance Table
##
## Response: predict(bc, df$Acum_CT)
##             Df  Sum Sq Mean Sq F value    Pr(>F)
## df$Lagoas   11 16659.1 1514.47  640.12 < 2.2e-16 ***
## Residuals  170   402.2    2.37
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
GFD(predict(bc, df$Acum_CT)~df$Lagoas)
```

```
## Call:
## predict(bc, df$Acum_CT) ~ df$Lagoas
##
## Wald-Type Statistic (WTS):
## Test statistic           df        p-value    p-value WTPS
##      22263.88         11.00           0.00            0.00
##
## ANOVA-Type Statistic (ATS):
## Test statistic          df1            df2         p-value
##     722.405275     4.067107      54.200997        0.000000
```