I have a question on box cox transformation.

```
> library(e1071)
> library(mlbench)
> library(caret)
> data(Glass)
> skewValues <- apply(Glass[,1:9], 2, skewness)
> skewValues

        RI          Na          Mg          Al          Si           K          Ca
 1.6027151   0.4478343  -1.1364523   0.8946104  -0.7202392   6.4600889   2.0184463
        Ba          Fe
 3.3686800   1.7298107
```

Based on the skewness, Ba and Fe are both skewed. So I decided to use box-coxTrans/preProcess to transform them.

```
> BC = apply(Glass[,-10],2, BoxCoxTrans)
> BC[c(6,8,9)]

$K
Box-Cox Transformation

214 data points used to estimate Lambda

Input data summary:
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
 0.0000  0.1225  0.5550  0.4971  0.6100  6.2100

Lambda could not be estimated; no transformation is applied


$Ba
Box-Cox Transformation

214 data points used to estimate Lambda

Input data summary:
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  0.000   0.000   0.000   0.175   0.000   3.150

Lambda could not be estimated; no transformation is applied


$Fe
Box-Cox Transformation
```

```
214 data points used to estimate Lambda

Input data summary:
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
0.00000 0.00000 0.00000 0.05701 0.10000 0.51000


Lambda could not be estimated; no transformation is applied
```

However, for K, Ba and Fe, the output shows that lamda cannot be estimated, thus no transformation is applied. Why is this the case?

When I use preProcess, there are only 5 variables being transformed.

```
> boxcoxValues = preProcess(Glass[,-10],method = "BoxCox")
> # transform variables
> GlassBC = predict(boxcoxValues, Glass[,-10])
> # check if skewness is resolved
> skewValues2 <- apply(GlassBC, 2, skewness)
> skewValues2

        RI          Na          Mg          Al          Si           K
 1.56566039  0.03384644 -1.13645228  0.09105899 -0.65090568  6.46008890
        Ca          Ba          Fe
-0.19395573  3.36867997  1.72981071

>
```

Variables like K, Ba, Fe are not transformed with BoxCox. Why?