

# Reordering boxplots

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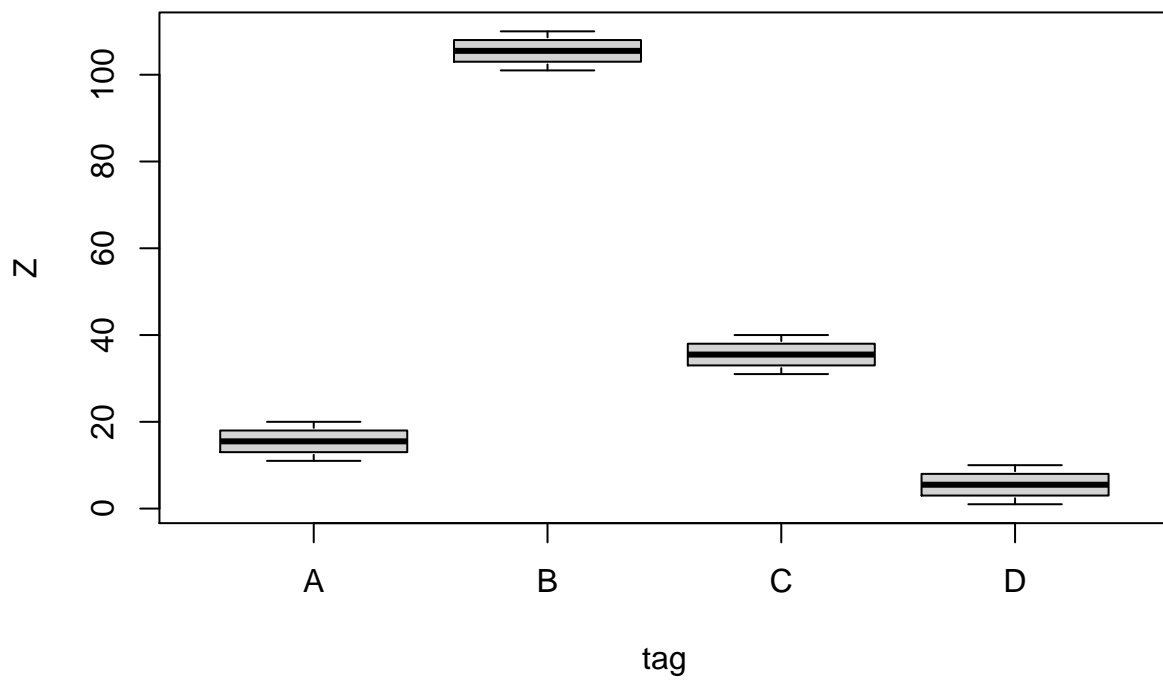
First create a data frame with several categories as factors.

```
Z<- c(1:20, 31:40, 101:110)
tag<- rep( c("D","A","C","B"), rep(10,4))
df<- data.frame( Z=Z,tag= factor(tag))
head( df)
```

```
##   Z tag
## 1 1   D
## 2 2   D
## 3 3   D
## 4 4   D
## 5 5   D
## 6 6   D
```

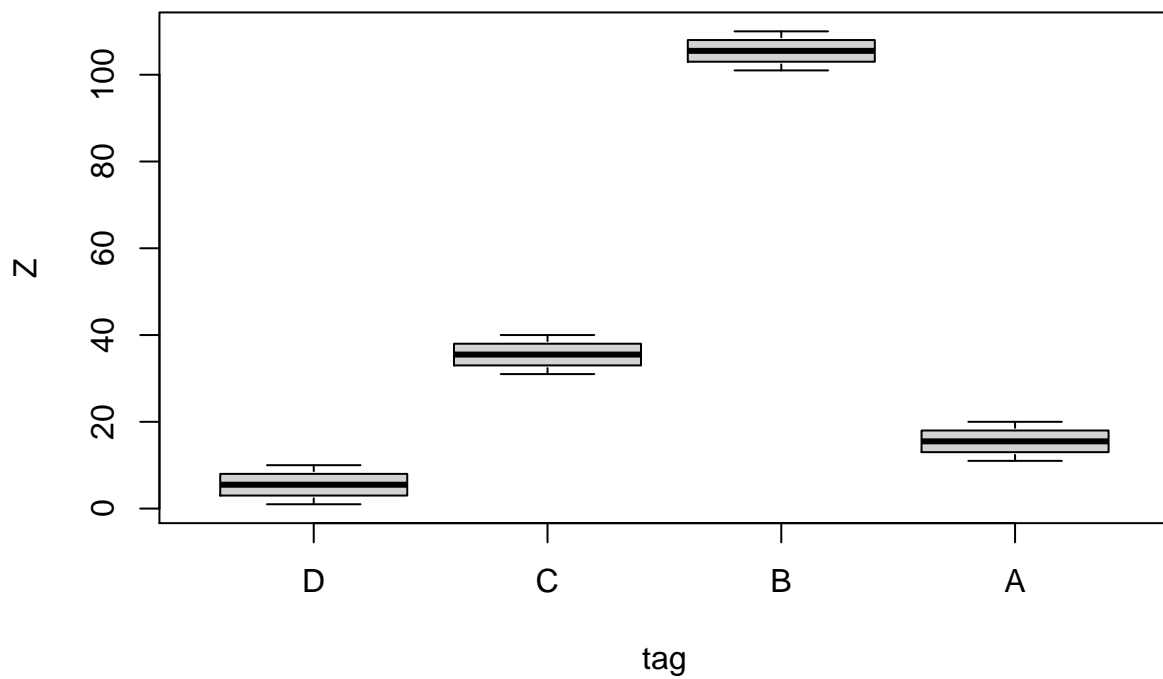
Here a boxplot of data grouped by the factor. This is the default order based on sorting the names (A through D)

```
boxplot( Z~ tag, data = df)
```



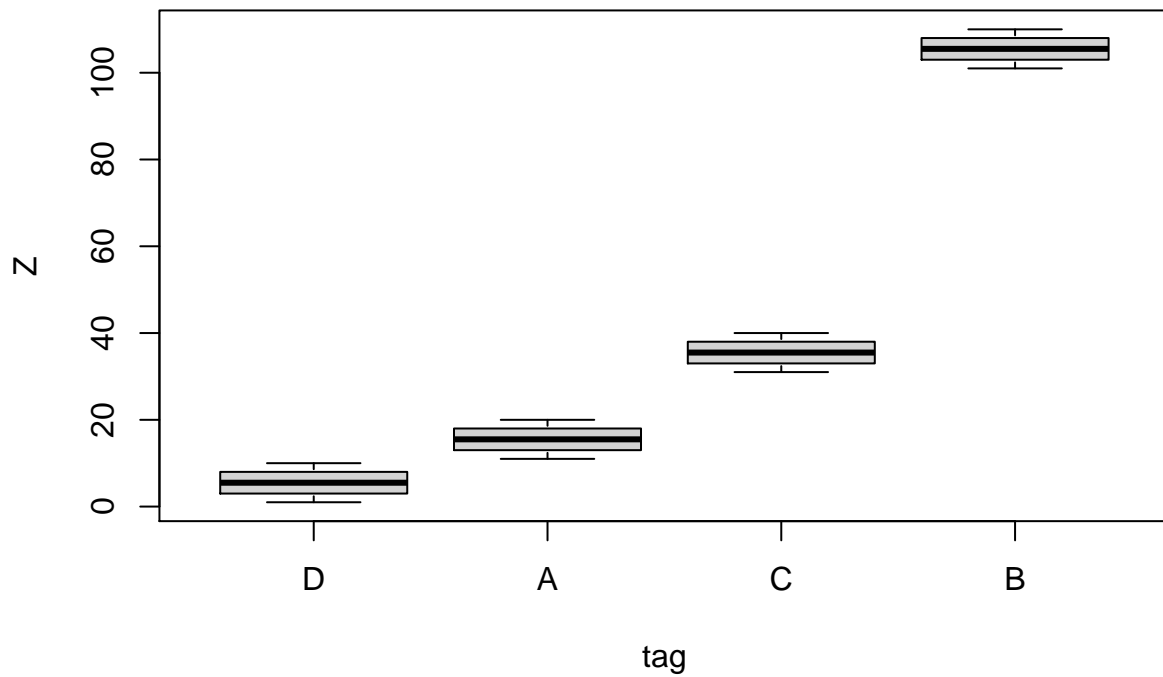
Now reorder in reverse order ( D through A)

```
boxplot( Z~ tag, data = df, at=4:1)
```



How about ordering by the size of the mean? Here we need to get the ranks of the groups based on the mean value.

```
groupMeans<- tapply( Z, tag, mean, data=df)
index<- rank( groupMeans)
boxplot( Z~ tag, data = df, at=index)
```



Sometimes in ordering by a numeric value it is useful to just locate the boxplots by those values. Here we just plot the boxplots at there mean values. This saves a step in ranking and creates a different horizontal axis and so the box width needs to be adjusted to the x axis limits. I added the axis on top to avoid collision with the group labels and increased the range based on the data to accommodate the first box.

```
groupMeans<- tapply( Z, tag, mean, data=df)
boxplot( Z~ tag, data = df,
        at=groupMeans,
        boxwex=8, xlim=range(df$Z) )
axis(3)
```

