Árvores de Regressão

Danilo A C Souto

12/4/2020

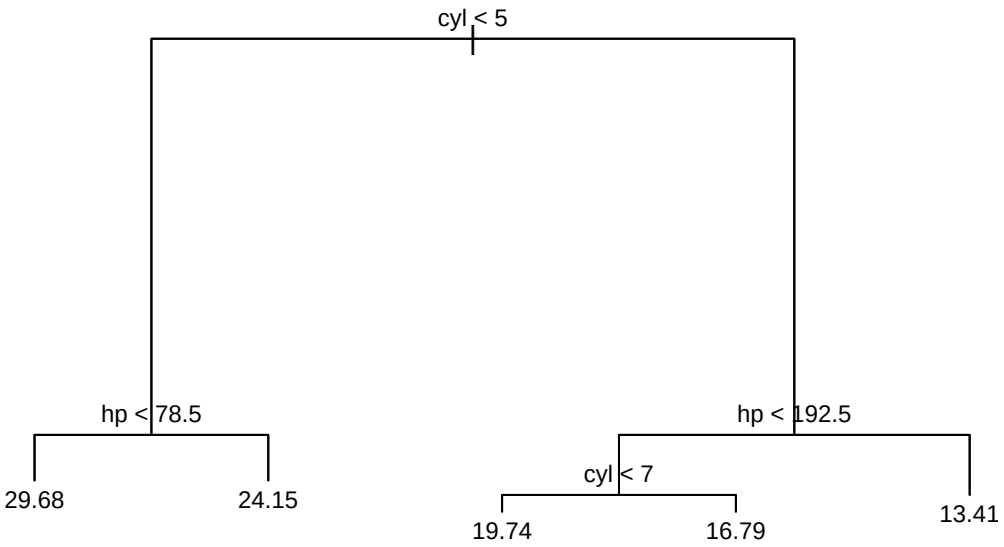
Árvore de Regressão

```
#install.packages("tree")
library(tree)
```

```
 ?tree
```

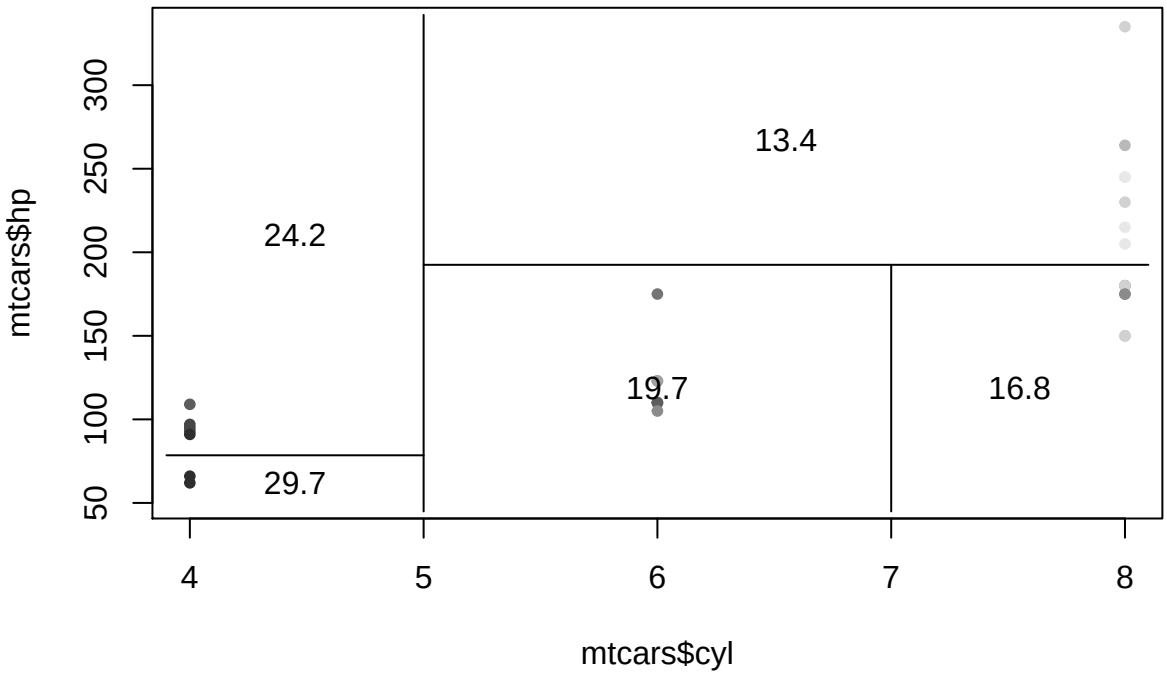
```
## Help on topic 'tree' was found in the following packages:
##
##   Package               Library
##   tree                  /Library/Frameworks/R.framework/Versions/4.0/Resources/library
##   xfun                  /Library/Frameworks/R.framework/Versions/4.0/Resources/library
##
##
## Using the first match ...
```

```
arvore <- tree(mpg ~ cyl + hp, data=mtcars)
plot(arvore)
text(arvore, cex=.75)
```




```
rendimento <- quantile(mtcars$mpg, 0:10/10)
cortes     <- cut(mtcars$mpg, rendimento, include.lowest=TRUE)

plot(mtcars$cyl, mtcars$hp, col=grey(10:2/11)[cortes], pch=20)
partition.tree(arvore, ordvars=c("cyl","hp"), add=TRUE)
```



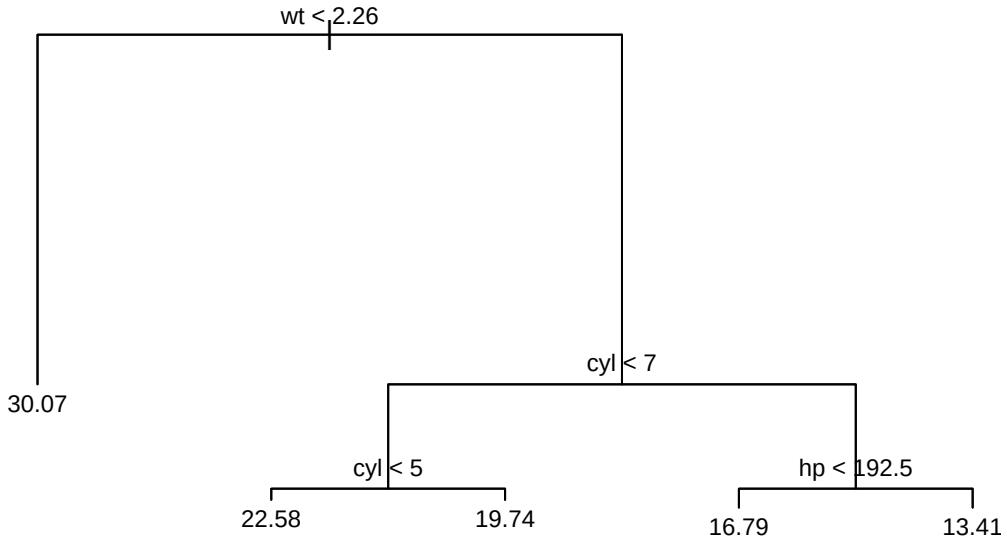

```
summary(arvore)
```

```
##
## Regression tree:
## tree(formula = mpg ~ cyl + hp, data = mtcars)
## Number of terminal nodes:  5
## Residual mean deviance:  6.595 = 178.1 / 27
## Distribution of residuals:
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
## -5.28000 -1.60000 -0.07857  0.00000  1.60400  6.25000
```

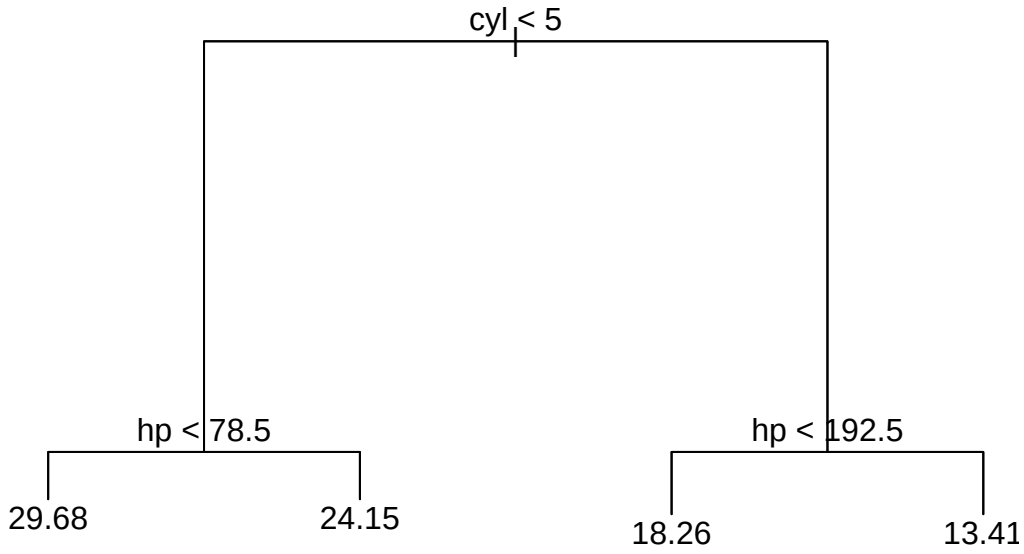
```
predict(arvore, newdata = data.frame(cyl=8,hp=190))
```

```
##        1
## 16.78571
```

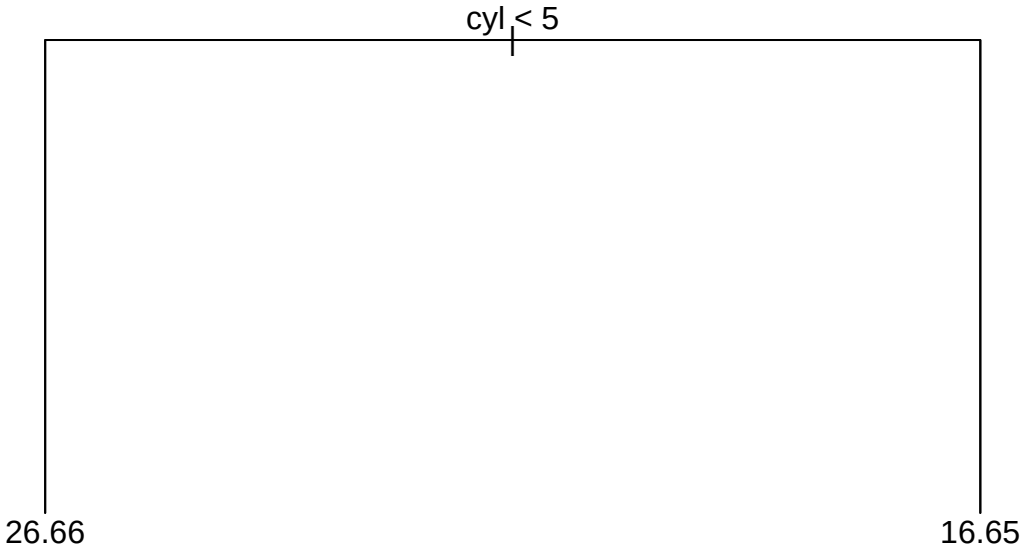
```
arvore2 <- tree(mpg ~ cyl + hp + wt + gear, data=mtcars)
plot(arvore2)
text(arvore2, cex=.75)
```




```
poda <- prune.tree(arvore, best=4)
plot(poda)
text(poda)
```




```
poda <- prune.tree(arvore, best=2)
plot(poda)
text(poda)
```


cyl < 5
26.66
16.65