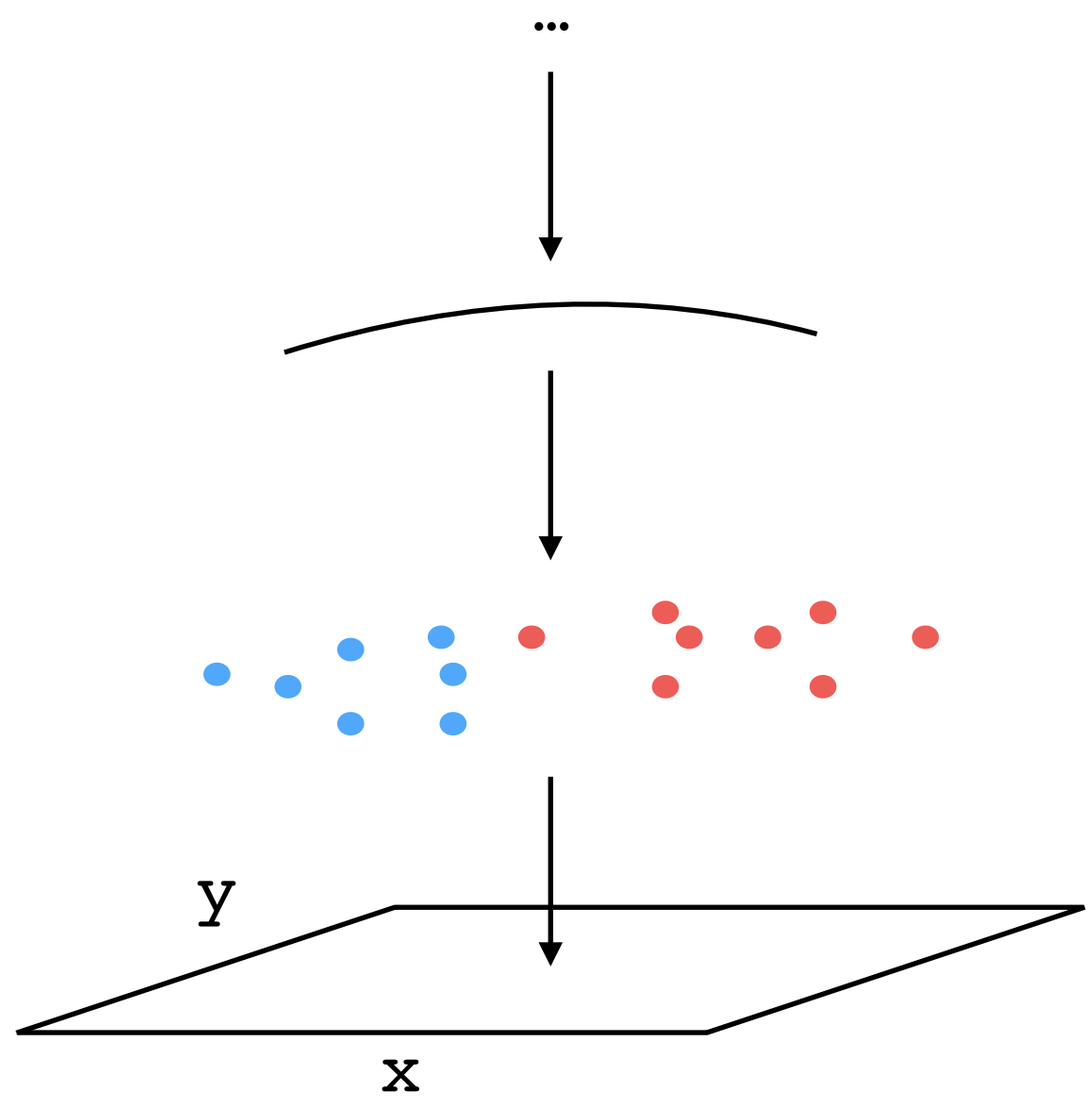
More about `ggplot2`

Lab 2
1/24/18

Layers in ggplot

```
...
+
        geom_line()
+
  geom_point(aes(color=z))
+
ggplot(data, aes(x=x, y=y))
```

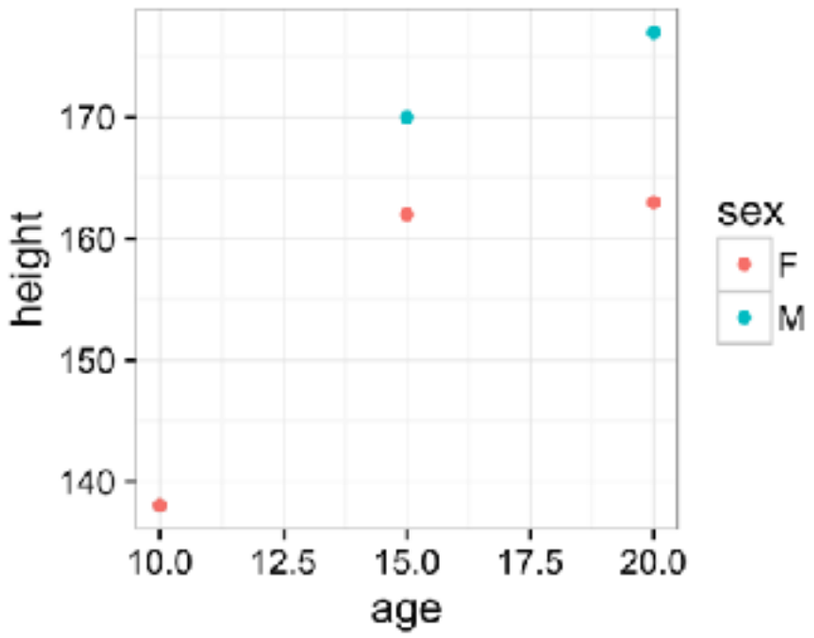


In real life we make plots differently

```
ggplot(data, aes(x=age,
y=height, color=sex)) +
      geom_point()
```

In class

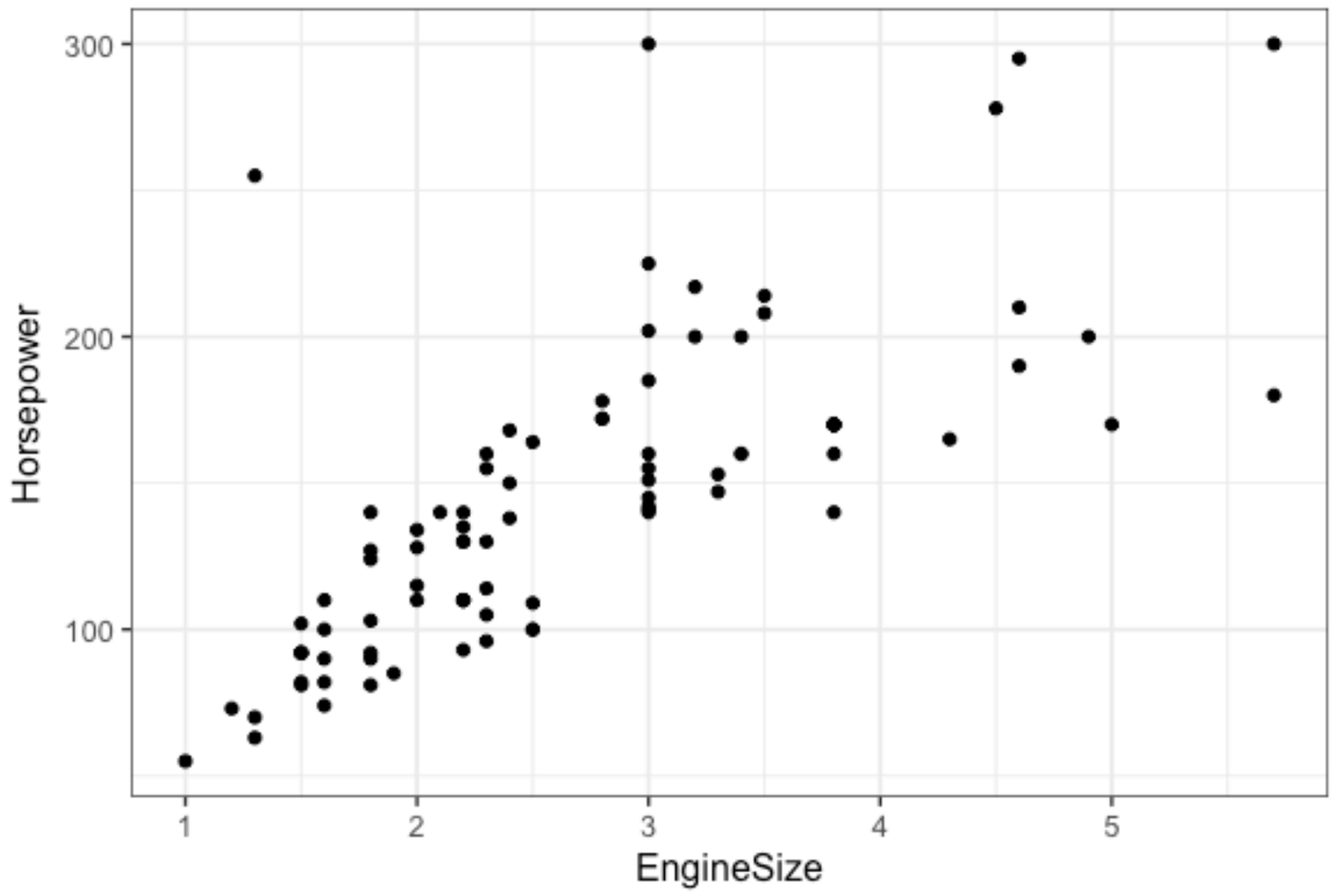
In real life



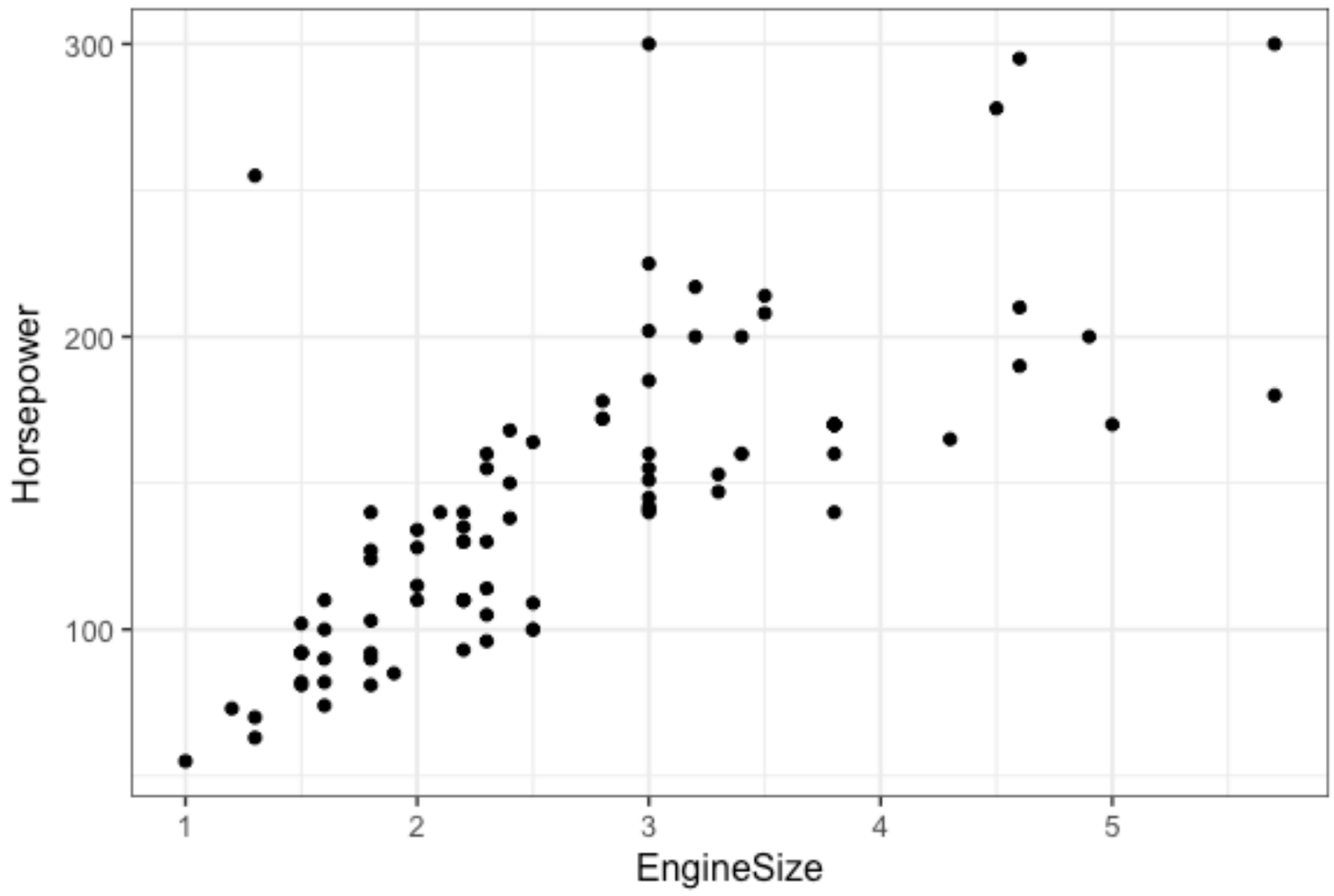
We want to visualize data in the data set `Cars93`

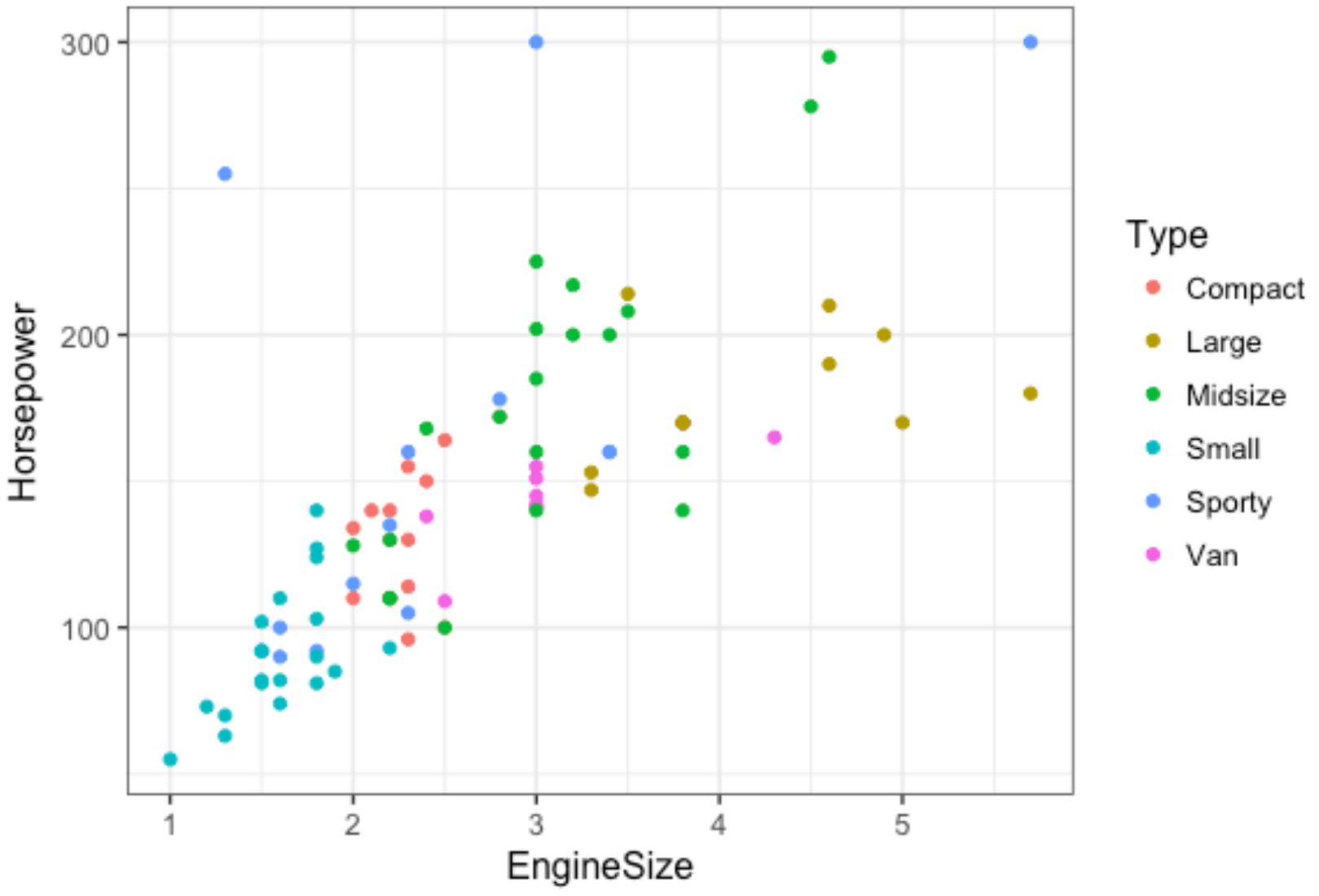
Console ~/Desktop/projects/

```
> head(Cars93)
  Manufacturer   Model    Type Min.Price Price Max.Price MPG.city MPG.highway
1        Acura Integra   Small      12.9  15.9      18.8       25           31
2        Acura  Legend Midsize      29.2  33.9      38.7       18           25
3         Audi      90 Compact      25.9  29.1      32.3       20           26
4         Audi     100 Midsize      30.8  37.7      44.6       19           26
5          BMW    535i Midsize      23.7  30.0      36.2       22           30
6        Buick Century Midsize      14.2  15.7      17.3       22           31
             AirBags DriveTrain Cylinders EngineSize Horsepower  RPM Rev.per.mile
1               None      Front         4        1.8        140 6300         2890
2 Driver & Passenger      Front         6        3.2        200 5500         2335
3        Driver only      Front         6        2.8        172 5500         2280
4 Driver & Passenger      Front         6        2.8        172 5500         2535
5        Driver only       Rear         4        3.5        208 5700         2545
6        Driver only      Front         4        2.2        110 5200         2565
  Man.trans.avail Fuel.tank.capacity Passengers Length Wheelbase Width Turn.circle
1             Yes                13.2          5    177       102    68          37
2             Yes                18.0          5    195       115    71          38
3             Yes                16.9          5    180       102    67          37
4             Yes                21.1          6    193       106    70          37
5             Yes                21.1          4    186       109    69          39
6              No                16.4          6    189       105    69          41
  Rear.seat.room Luggage.room Weight  Origin          Make
1           26.5           11   2705 non-USA Acura Integra
2           30.0           15   3560 non-USA  Acura Legend
3           28.0           14   3375 non-USA       Audi 90
4           31.0           17   3405 non-USA      Audi 100
5           27.0           13   3640 non-USA      BMW 535i
6           28.0           16   2880     USA Buick Century
```

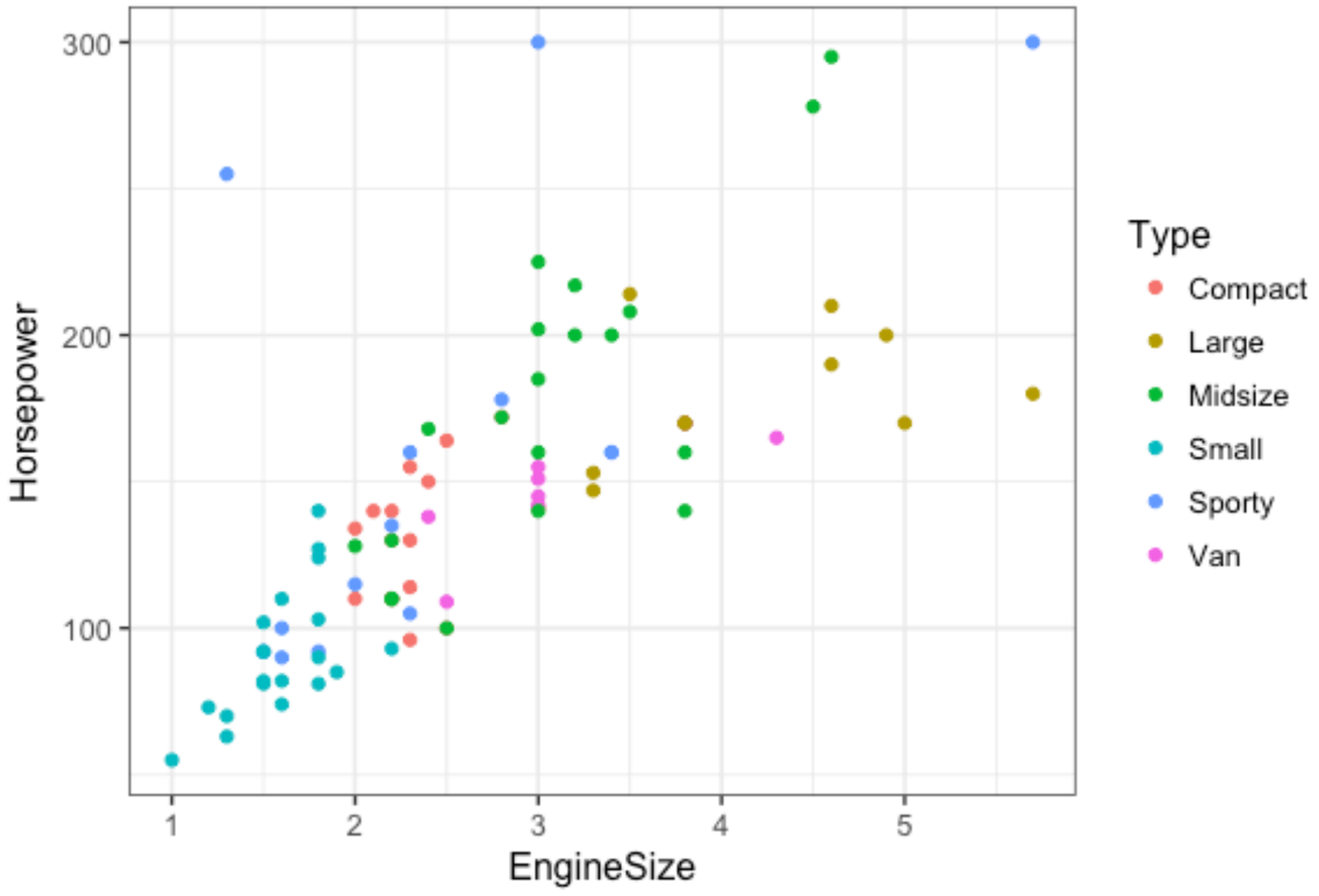

300
200
100
Horsepower
1
2
3
4
5
EngineSize

```
ggplot(Cars93, aes(x=EngineSize, y=Horsepower))
    + geom_point()
```

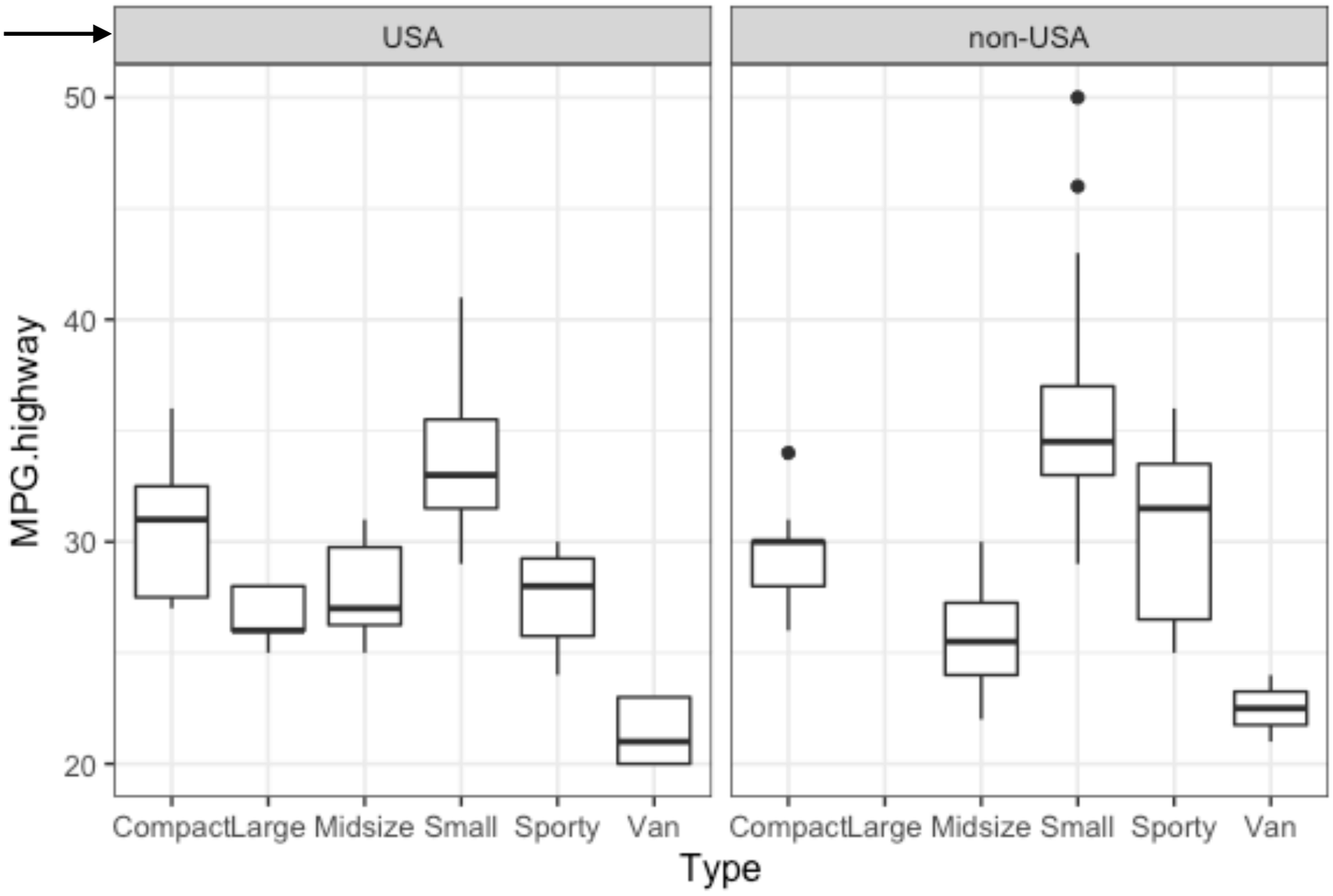



300
200
100
Horsepower
1
2
3
4
5
EngineSize
Type
Compact
Large
Midsize
Small
Sporty
Van

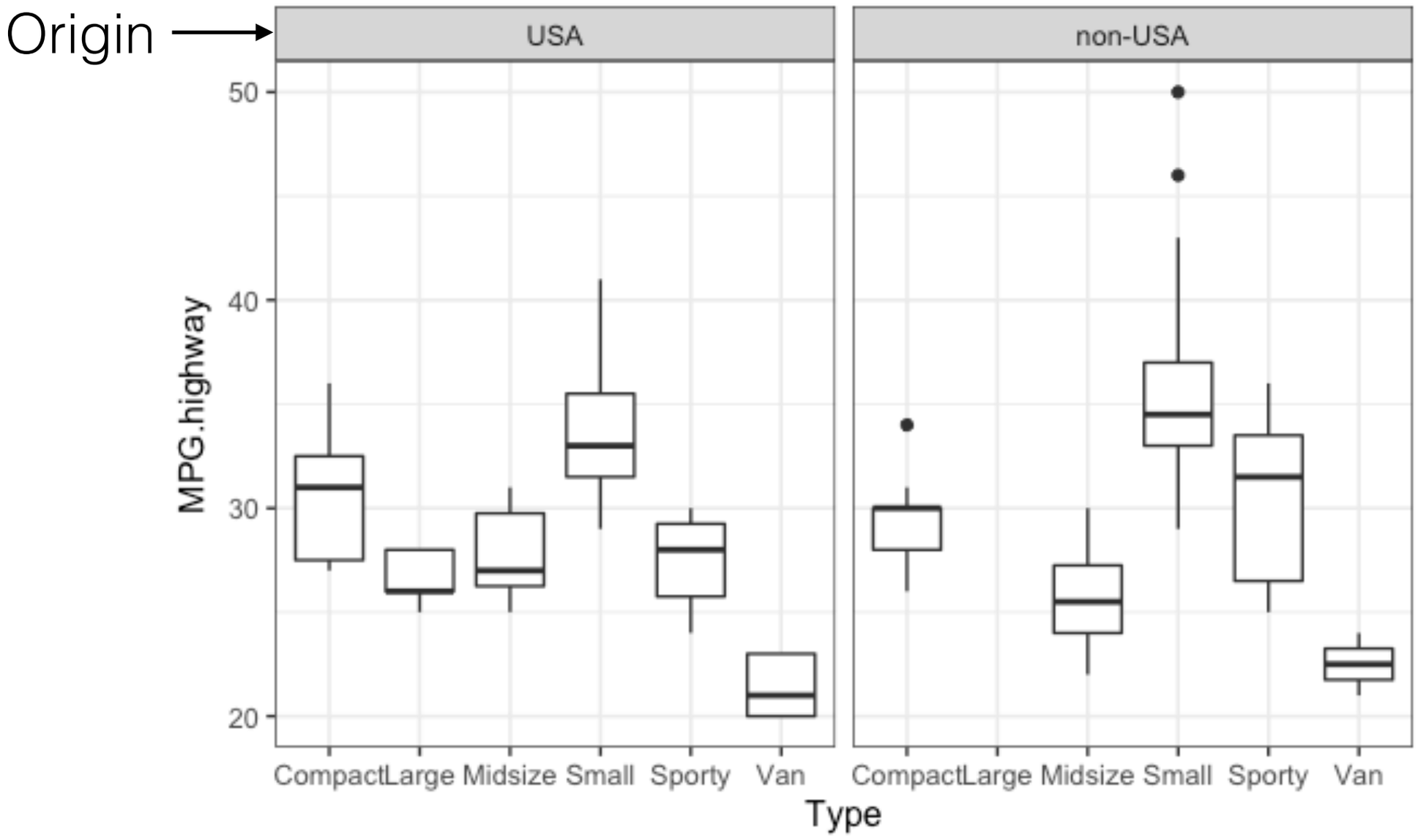
```
ggplot(Cars93,aes(x=EngineSize,y=Horsepower,
        color=Type)) + geom_point()
```



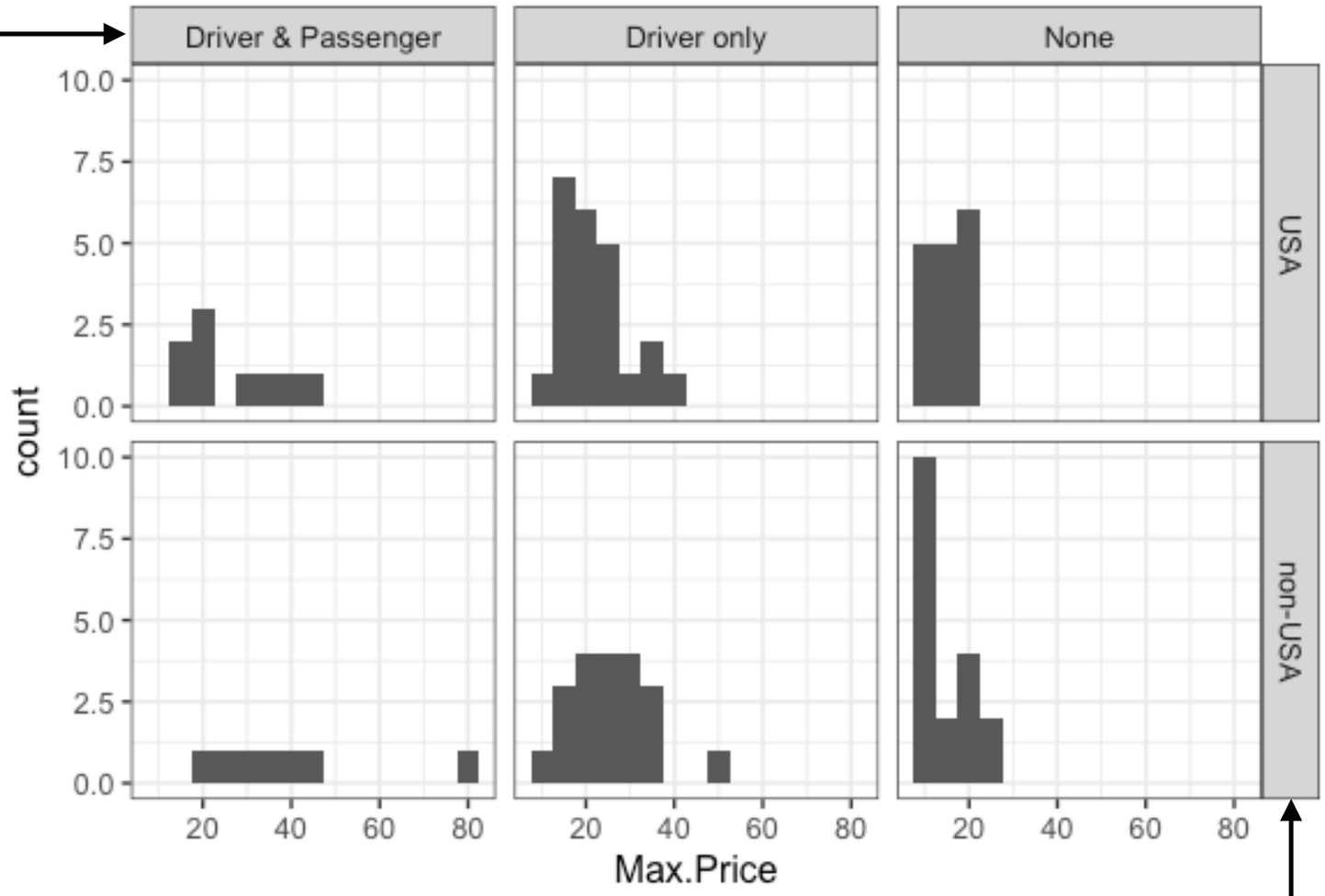
Origin →


USA
non-USA
50
40
30
20
MPG.highway
Compact
Large
Midsize
Small
Sporty
Van
Type

```
ggplot(Cars93,aes(x=Type,y=MPG.highway)) +
   geom_boxplot() + facet_wrap(~Origin)
```

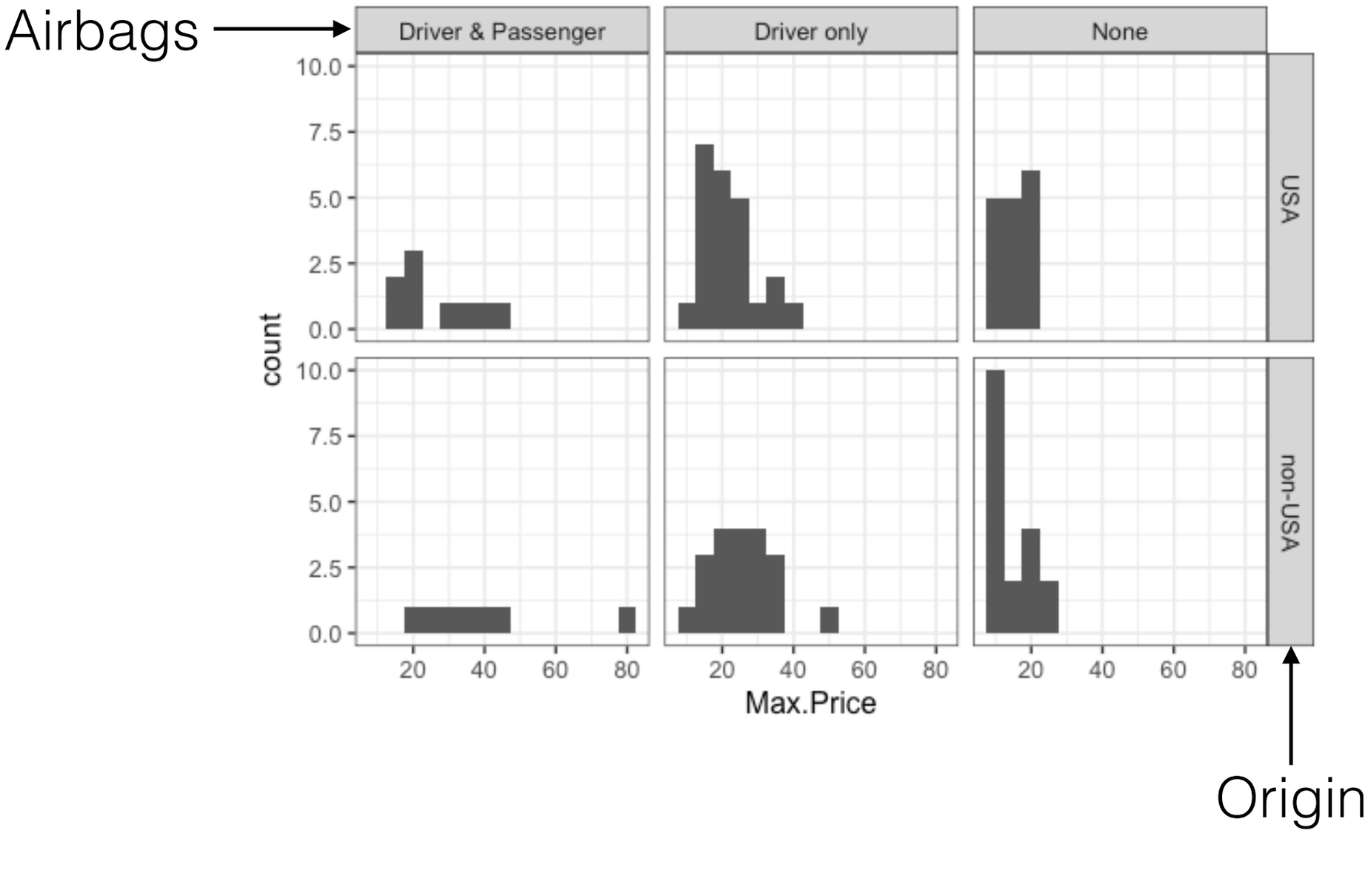


Airbags →



Origin

```
ggplot(Cars93,aes(x=Max.Price))+
  geom_histogram(binwidth=5)+
  facet_grid(Origin~AirBags)
```



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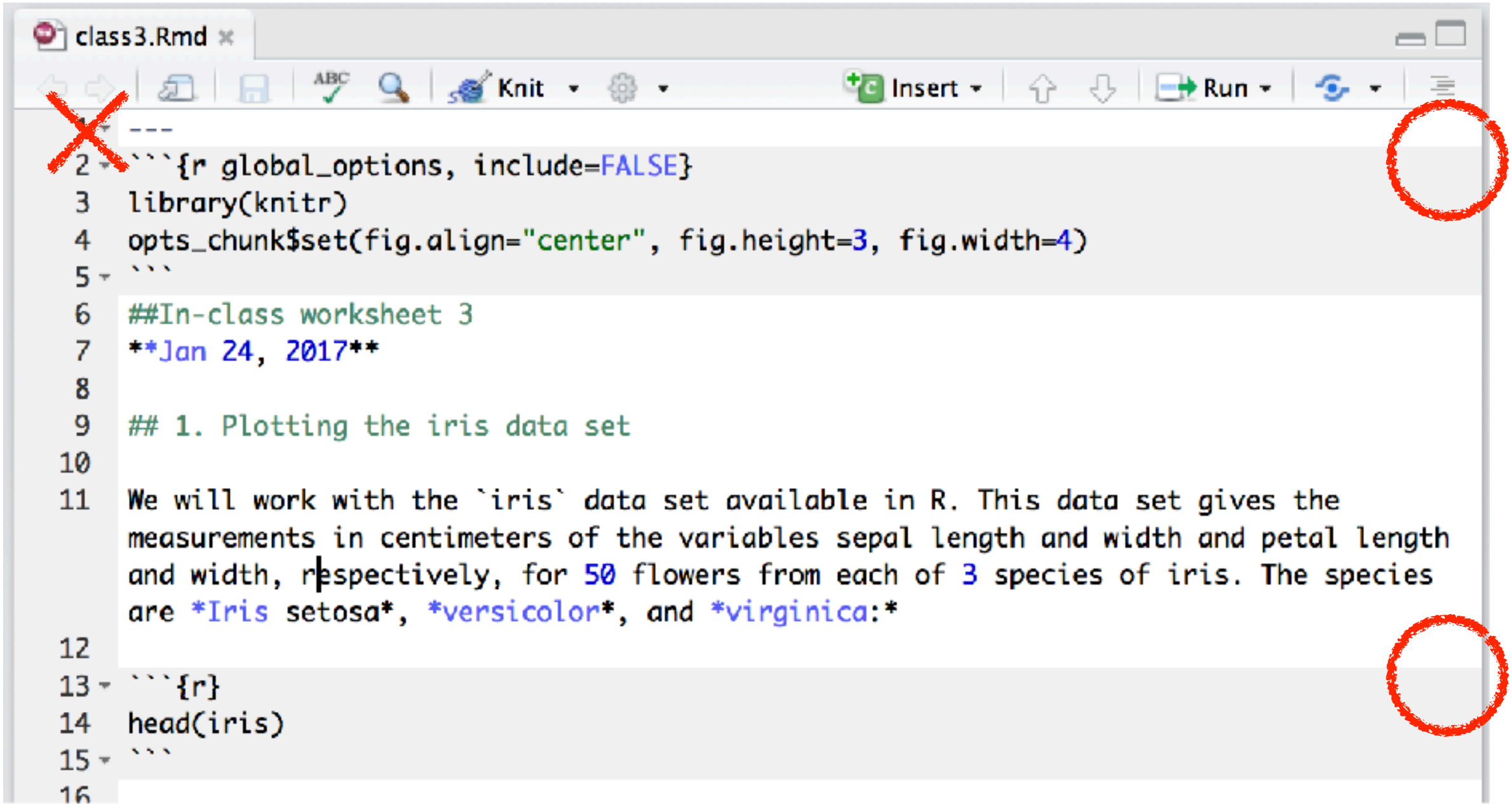

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