Exercícios Cap 03

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Capitulo 3

Inicialização

```
library(tidyverse)
library(magrittr)  # mais pipes, como %<>%
```

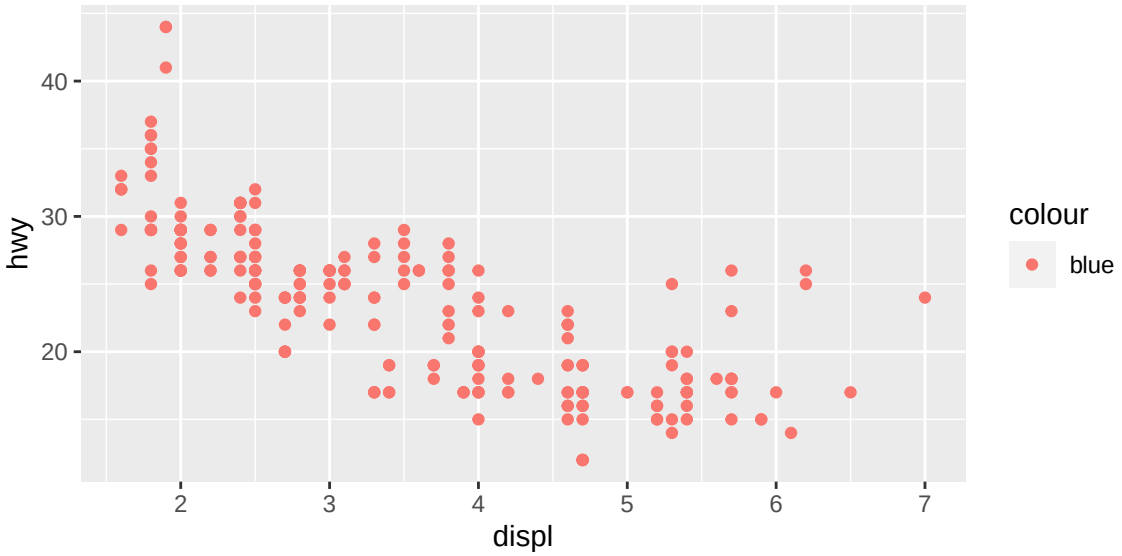
Exercícios

3.3 Aesthetic mappings

3.3.1

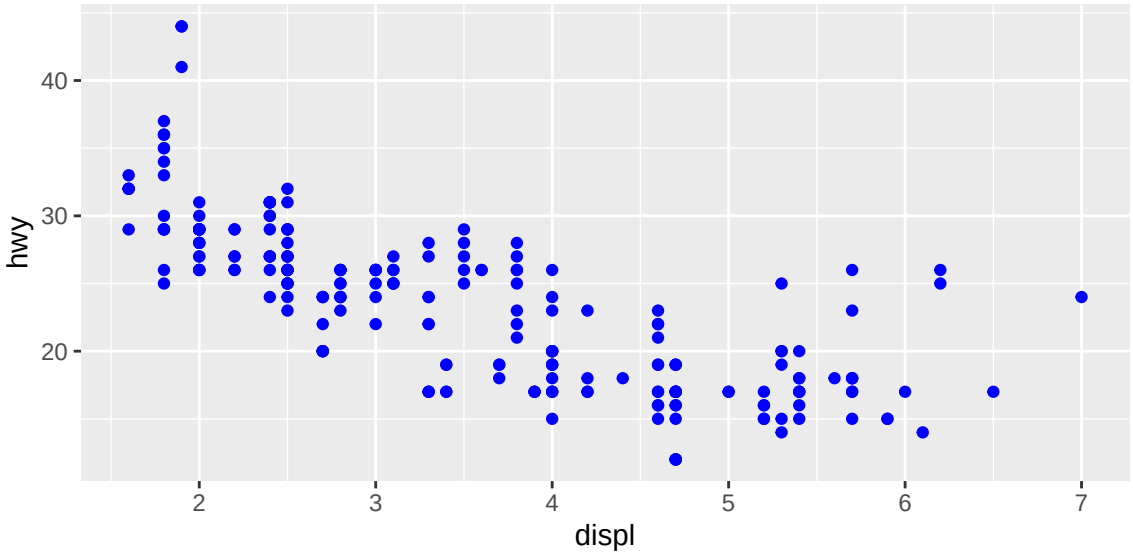
What's gone wrong with this code? Why are the points not blue?

```
ggplot(data = mpg) +
  geom_point(mapping = aes(x = displ, y = hwy, color = "blue"))
```



Pois o blue, como não está variando de acordo com os grupos, mas sim tem a intenção de colorir todos os pontos deveria estar fora do parenteses aes, como o seguinte:

```
ggplot(data = mpg) +
  geom_point(mapping = aes(x = displ, y = hwy), color = "blue")
```



3.3.2

Which variables in mpg are categorical? Which variables are continuous? (Hint: type ?mpg to read the documentation for the dataset). How can you see this information when you run mpg?

```
# ?mpg
mpg
```

```
## # A tibble: 234 x 11
##    manufacturer model    displ  year   cyl trans   drv     cty   hwy fl    class
##    <chr>        <chr>    <dbl> <int> <int> <chr>   <chr> <int> <int> <chr> <chr>
##  1 audi         a4         1.8  1999     4 auto(l~ f        18    29 p     comp~
##  2 audi         a4         1.8  1999     4 manual~ f        21    29 p     comp~
##  3 audi         a4         2    2008     4 manual~ f        20    31 p     comp~
##  4 audi         a4         2    2008     4 auto(a~ f        21    30 p     comp~
##  5 audi         a4         2.8  1999     6 auto(l~ f        16    26 p     comp~
##  6 audi         a4         2.8  1999     6 manual~ f        18    26 p     comp~
##  7 audi         a4         3.1  2008     6 auto(a~ f        18    27 p     comp~
##  8 audi         a4 quat~   1.8  1999     4 manual~ 4        18    26 p     comp~
##  9 audi         a4 quat~   1.8  1999     4 auto(l~ 4        16    25 p     comp~
## 10 audi         a4 quat~   2    2008     4 manual~ 4        20    28 p     comp~
## # ... with 224 more rows
```

3.3.3

Map a continuous variable to color, size, and shape. How do these aesthetics behave differently for categorical vs. continuous variables?

3.3.4

What happens if you map the same variable to multiple aesthetics?

3.3.5

What does the stroke aesthetic do? What shapes does it work with? (Hint: use ?geom_point)

3.3.6

What happens if you map an aesthetic to something other than a variable name, like aes(colour = displ < 5)? Note, you'll also need to specify x and y.

3.5 Facets

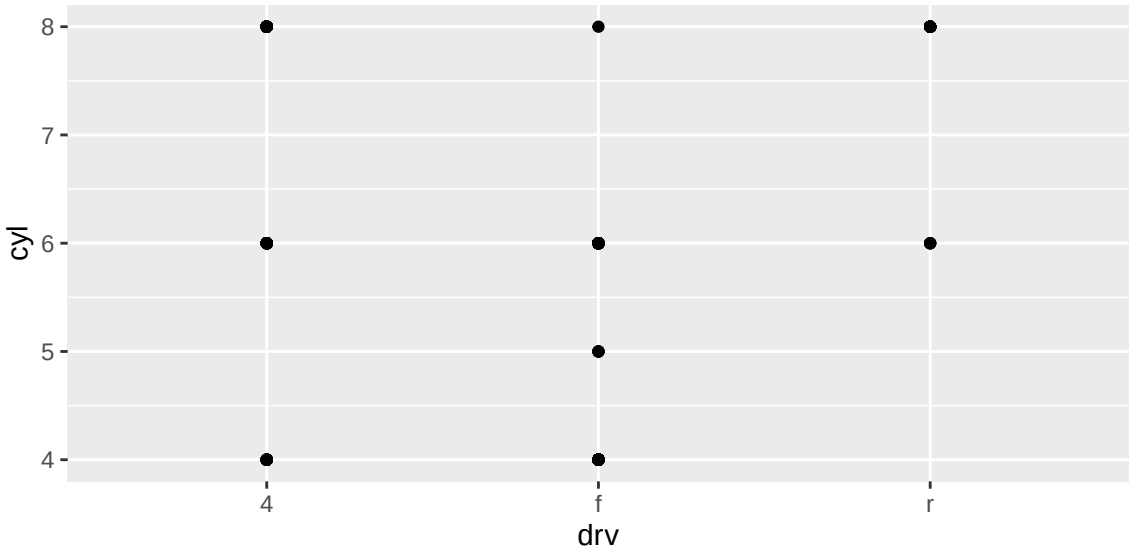
3.5.1

What happens if you facet on a continuous variable?

3.5.2

What do the empty cells in plot with facet_grid(drv ~ cyl) mean? How do they relate to this plot?

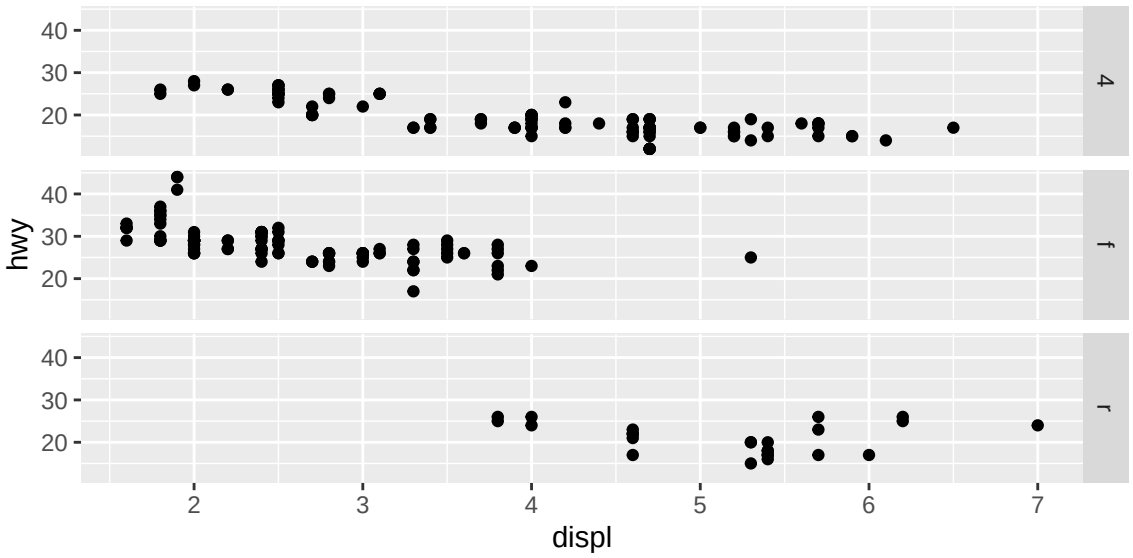
```
ggplot(data = mpg) +
  geom_point(mapping = aes(x = drv, y = cyl))
```



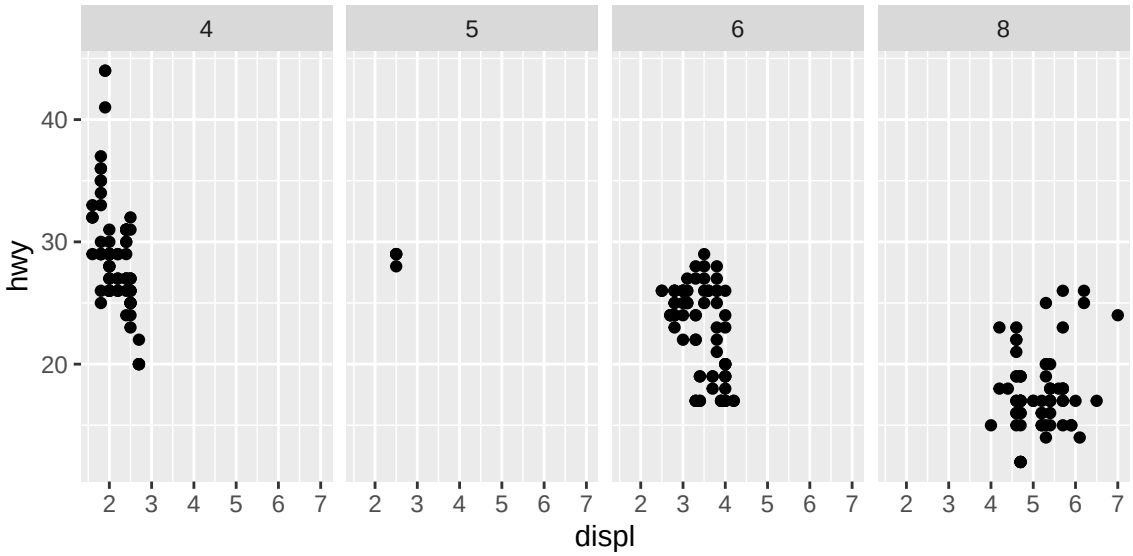
3.5.3

What plots does the following code make? What does . do?

```
ggplot(data = mpg) +
  geom_point(mapping = aes(x = displ, y = hwy)) +
  facet_grid(drv ~ .)
```



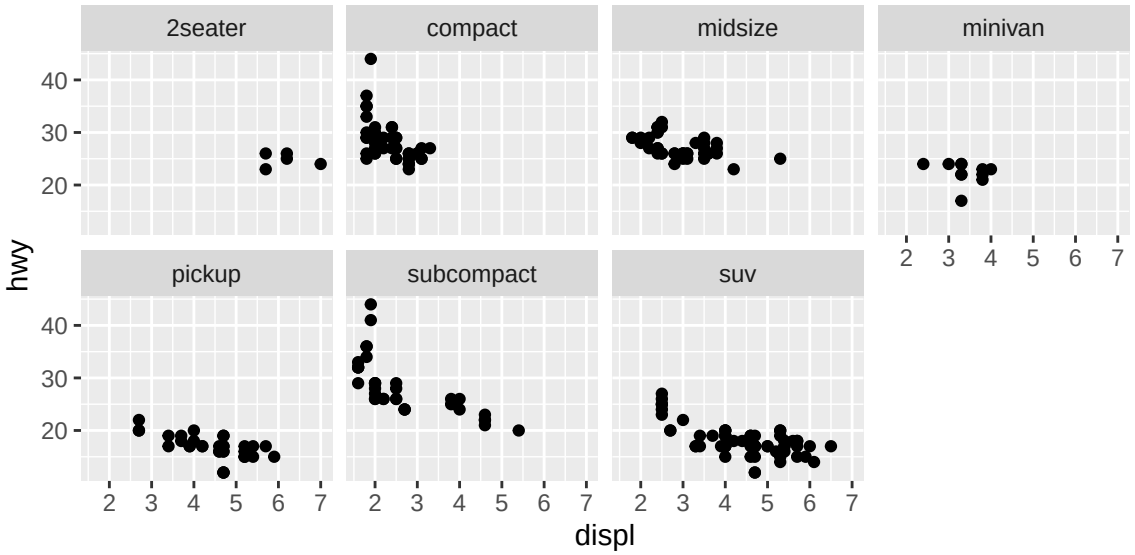

```
ggplot(data = mpg) +
  geom_point(mapping = aes(x = displ, y = hwy)) +
  facet_grid(. ~ cyl)
```



3.5.4

Take the first faceted plot in this section:

```
ggplot(data = mpg) +
  geom_point(mapping = aes(x = displ, y = hwy)) +
  facet_wrap(~ class, nrow = 2)
```



3.5.5

What are the advantages to using faceting instead of the colour aesthetic? What are the disadvantages? How might the balance change if you had a larger dataset?

3.5.6

Read ?facet_wrap. What does nrow do? What does ncol do? What other options control the layout of the individual panels? Why doesn't facet_grid() have nrow and ncol arguments?

3.5.7

When using facet_grid() you should usually put the variable with more unique levels in the columns. Why?

3.6 Geometric objects

3.6.1

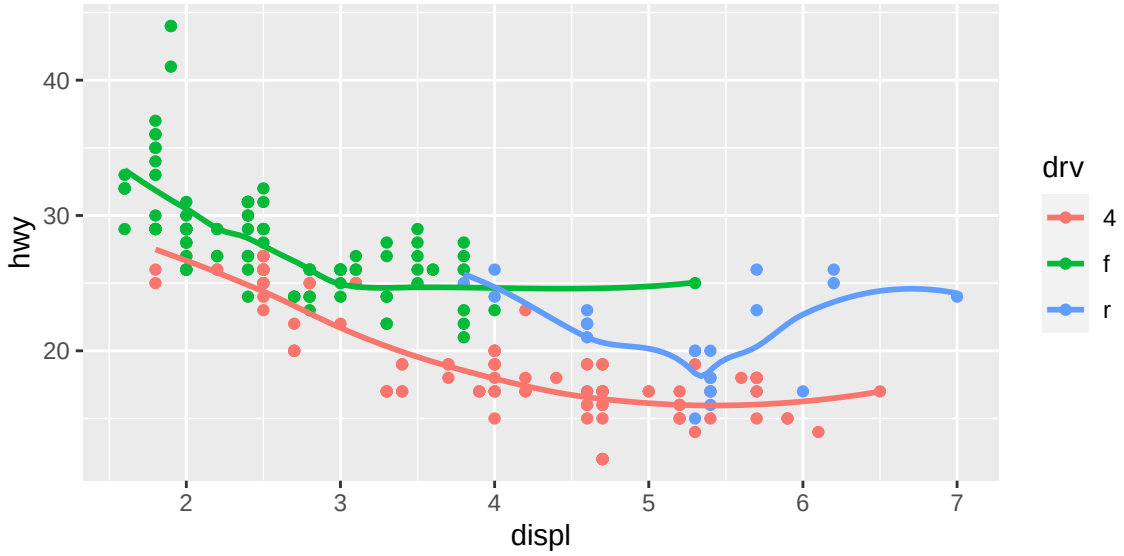
What geom would you use to draw a line chart? A boxplot? A histogram? An area chart?

3.6.2

Run this code in your head and predict what the output will look like. Then, run the code in R and check your predictions.

```
ggplot(data = mpg, mapping = aes(x = displ, y = hwy, color = drv)) +
  geom_point() +
  geom_smooth(se = FALSE)
```

```
## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```



3.6.3

What does show.legend = FALSE do? What happens if you remove it? Why do you think I used it earlier in the chapter?

3.6.4

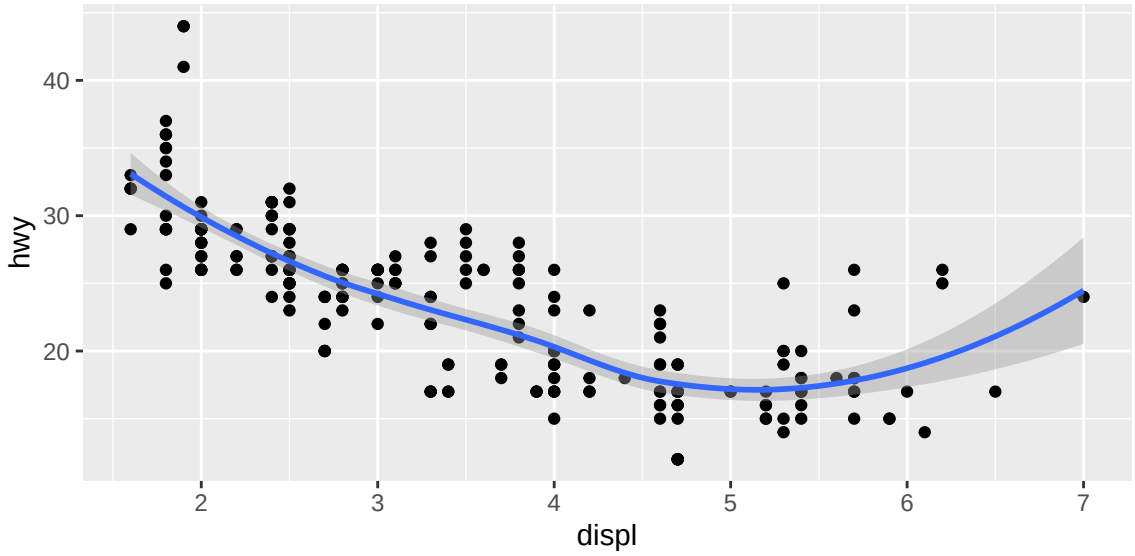
What does the se argument to geom_smooth() do?

3.6.5

Will these two graphs look different? Why/why not?

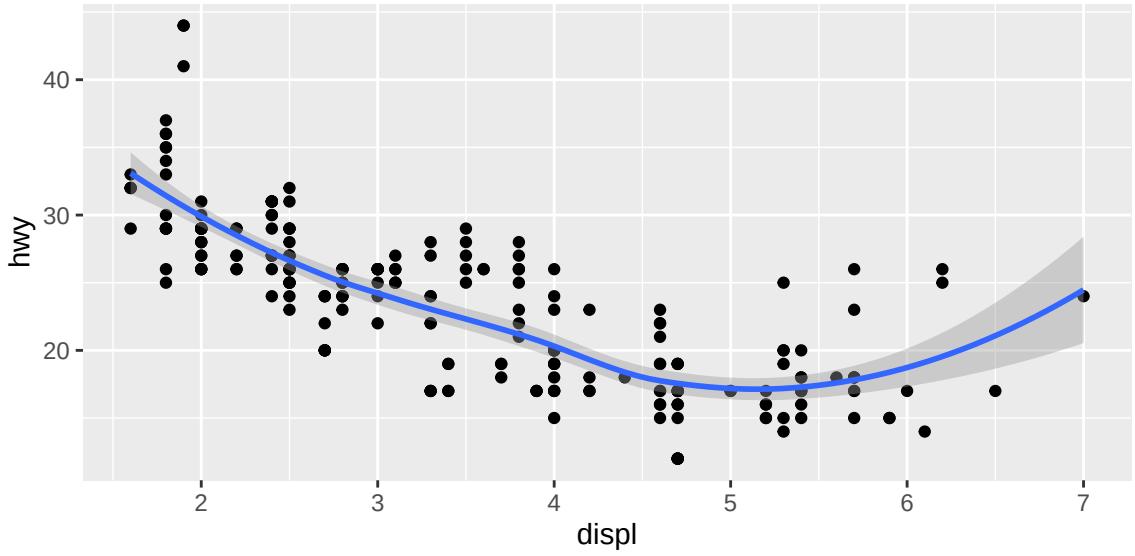
```
ggplot(data = mpg, mapping = aes(x = displ, y = hwy)) +
  geom_point() +
  geom_smooth()
```

```
## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```




```
ggplot() +
  geom_point(data = mpg, mapping = aes(x = displ, y = hwy)) +
  geom_smooth(data = mpg, mapping = aes(x = displ, y = hwy))
```

```
## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```



3.6.6

Recreate the R code necessary to generate the following graphs.

3.7 Statistical Transformations

3.7.1

What is the default geom associated with stat_summary()? How could you rewrite the previous plot to use that geom function instead of the stat function?

3.7.2

What does geom_col() do? How is it different to geom_bar()?

3.7.3

Most geoms and stats come in pairs that are almost always used in concert. Read through the documentation and make a list of all the pairs. What do they have in common?

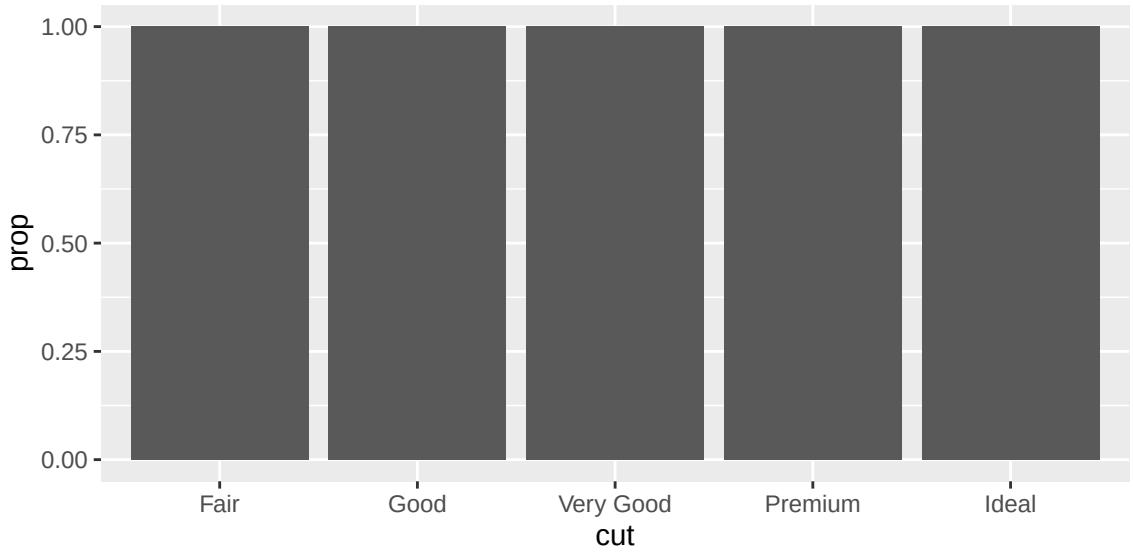
3.7.4

What variables does stat_smooth() compute? What parameters control its behaviour?

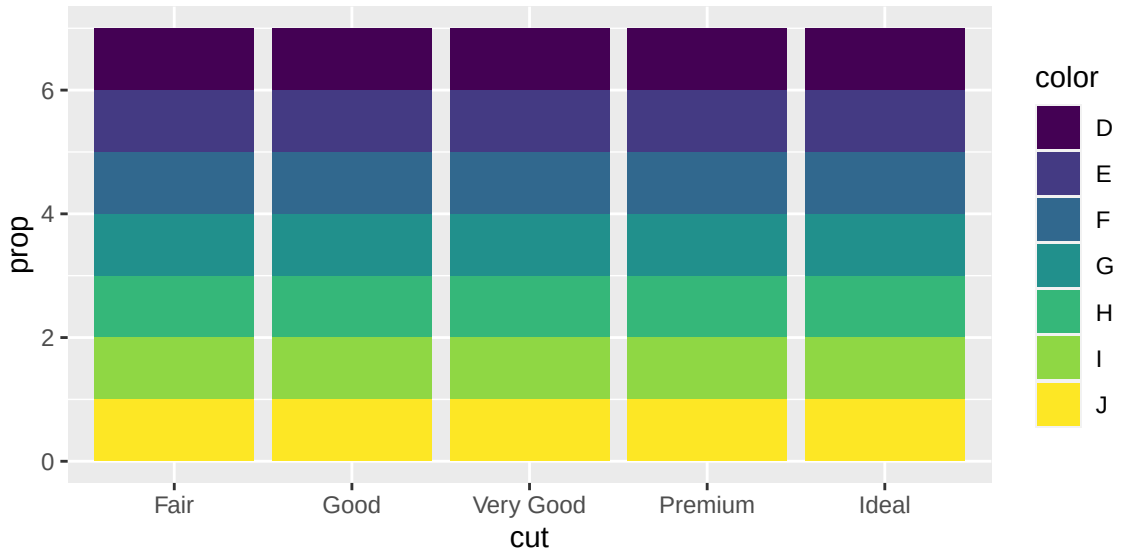
3.7.5

In our proportion bar chart, we need to set group = 1. Why? In other words what is the problem with these two graphs?

```
ggplot(data = diamonds) +
  geom_bar(mapping = aes(x = cut, y = ..prop..))
```




```
ggplot(data = diamonds) +
  geom_bar(mapping = aes(x = cut, fill = color, y = ..prop..))
```

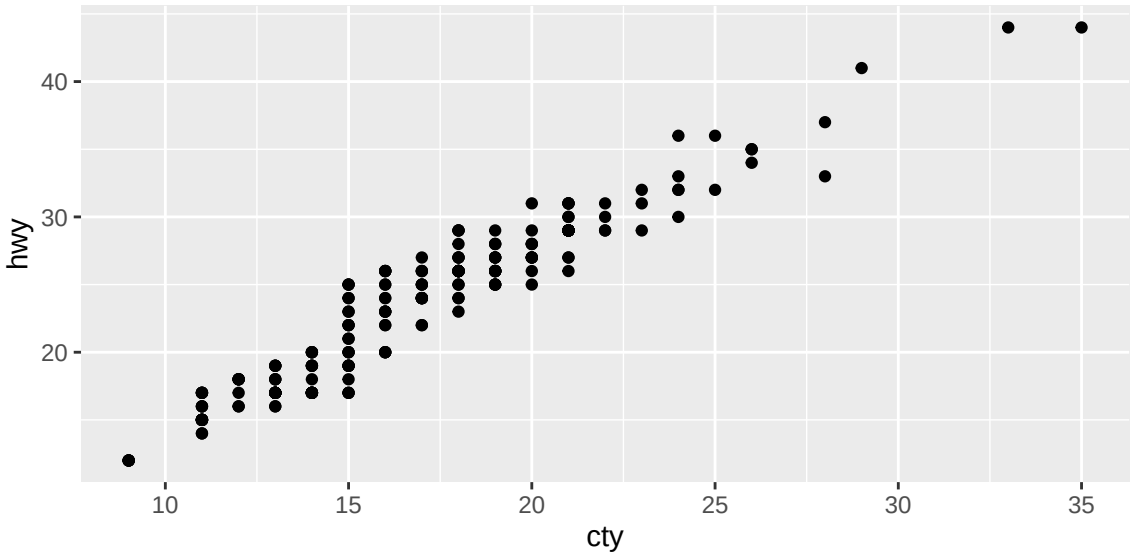

prop
6
4
2
0
Fair
Good
Very Good
Premium
Ideal
cut
color
D
E
F
G
H
I
J

3.8 Position sdjustments

3.8.1

What is the problem with this plot? How could you improve it?

```
ggplot(data = mpg, mapping = aes(x = cty, y = hwy)) +
  geom_point()
```



3.8.2

What parameters to geom_jitter() control the amount of jittering?

3.8.3

Compare and contrast geom_jitter() with geom_count().

3.8.4

What's the default position adjustment for geom_boxplot()? Create a visualisation of the mpg dataset that demonstrates it.

3.9 Coordinate Systems

3.9.1

Turn a stacked bar chart into a pie chart using coord_polar().

3.9.2

What does labs() do? Read the documentation.

3.9.3

What's the difference between coord_quickmap() and coord_map()?

3.9.4

What does the plot below tell you about the relationship between city and highway mpg? Why is coord_fixed() important? What does geom_abline() do?

```
ggplot(data = mpg, mapping = aes(x = cty, y = hwy)) +
  geom_point() +
  geom_abline() +
  coord_fixed()
```