

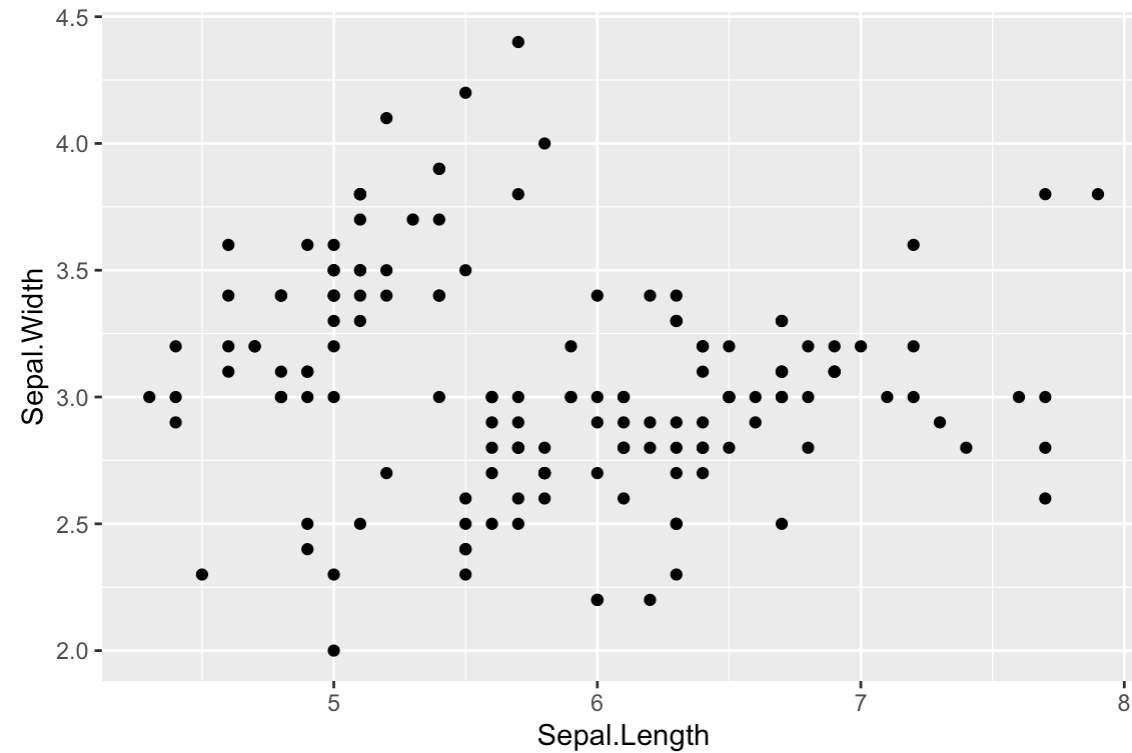
Faceting

Agenda

- Basic faceting in `ggplot2`
- When to free scales
- Getting data in the right form
- Plotting one variable per panel
- Design decisions with multiple variables

Without faceting

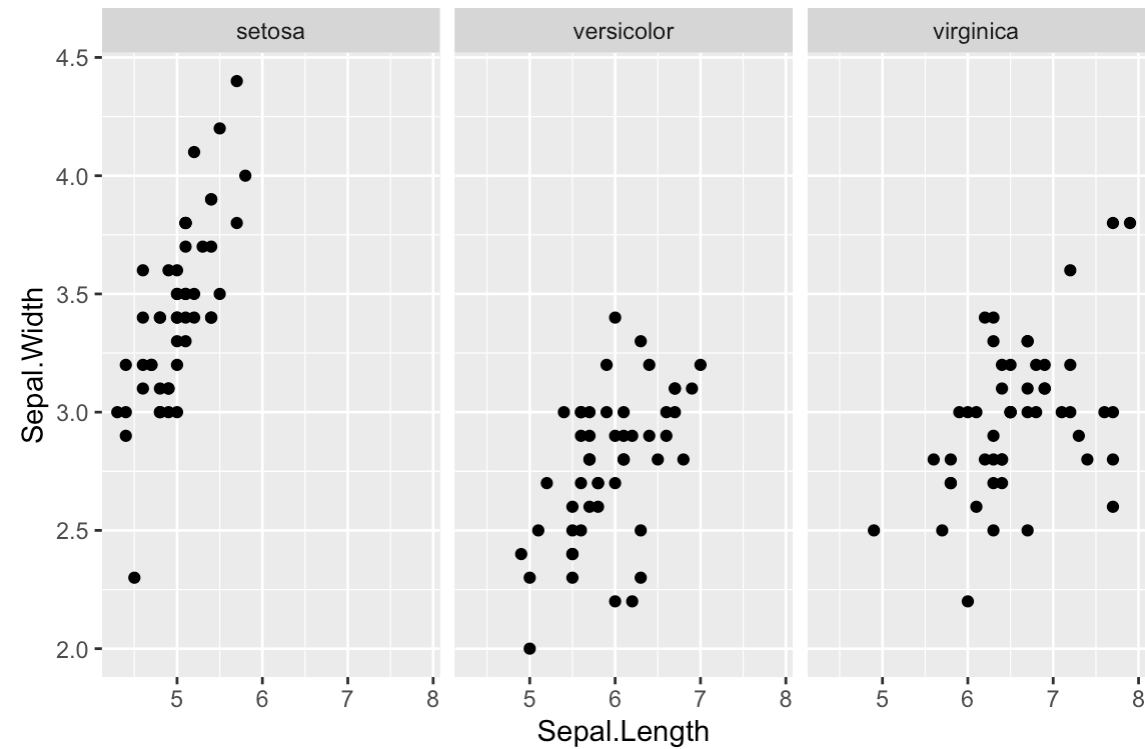
```
1 library(tidyverse)
2 g <- ggplot(iris, aes(Sepal.Length, Sepal.Width)) +
3   geom_point()
4 g
```



Facet on one variable with `facet_wrap()`

facet “on” Species

```
1 g +  
2 facet_wrap(~Species)
```



Faceting in ggplot2

Each panel represents one categorical group / levels of a factor (type can be factor or character or integer)

```
1 glimpse(iris)
```

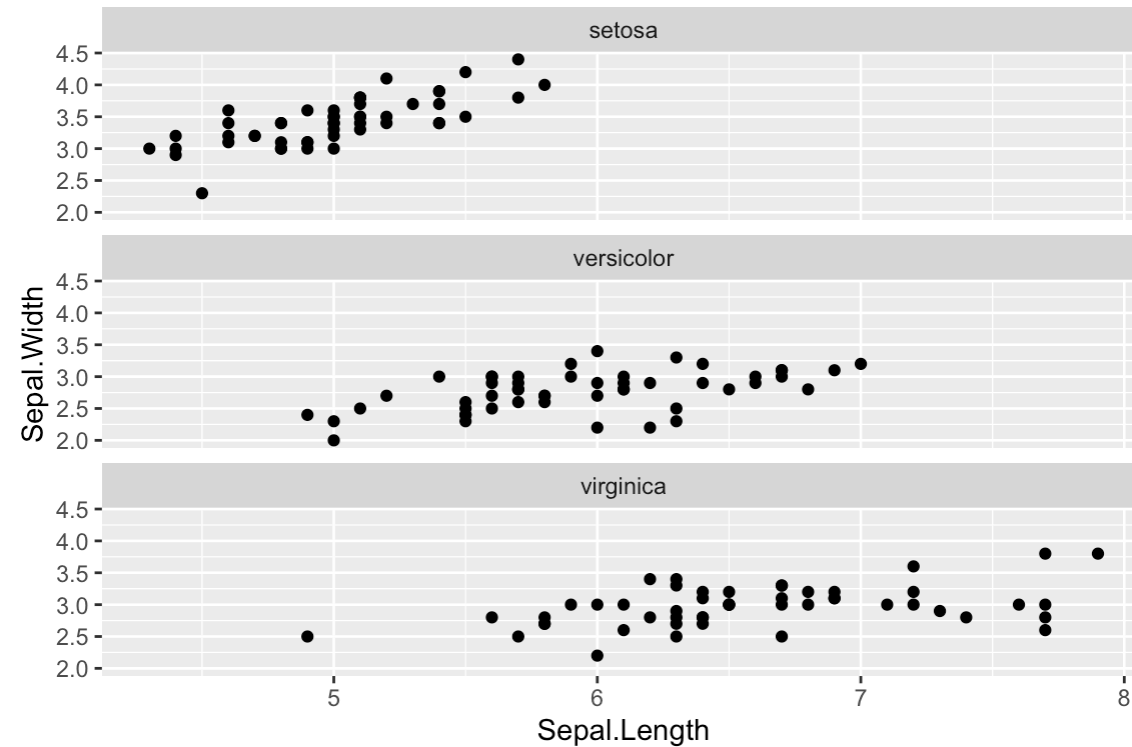
Rows: 150

Columns: 5

```
$ Sepal.Length <dbl> 5.1, 4.9, 4.7, 4.6, 5.0, 5.4, 4.6, 5.0, 4.4, 4.9, 5.4, 4....  
$ Sepal.Width  <dbl> 3.5, 3.0, 3.2, 3.1, 3.6, 3.9, 3.4, 3.4, 2.9, 3.1, 3.7, 3....  
$ Petal.Length  <dbl> 1.4, 1.4, 1.3, 1.5, 1.4, 1.7, 1.4, 1.5, 1.4, 1.5, 1.5, 1....  
$ Petal.Width   <dbl> 0.2, 0.2, 0.2, 0.2, 0.2, 0.4, 0.3, 0.2, 0.2, 0.1, 0.2, 0....  
$ Species       <fct> setosa, setosa, setosa, setosa, setosa, setosa, setosa, setosa, s...
```

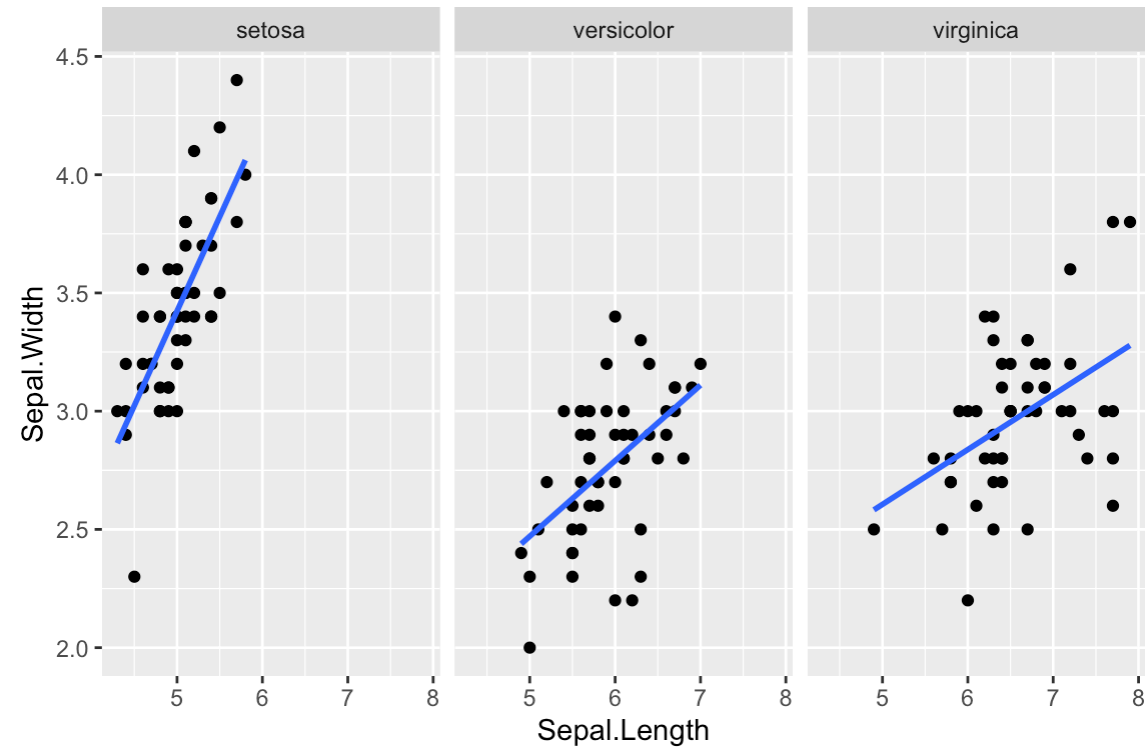
Change the layout with `nrow`, `ncol`

```
1 g +  
2   facet_wrap(~Species, ncol = 1)
```



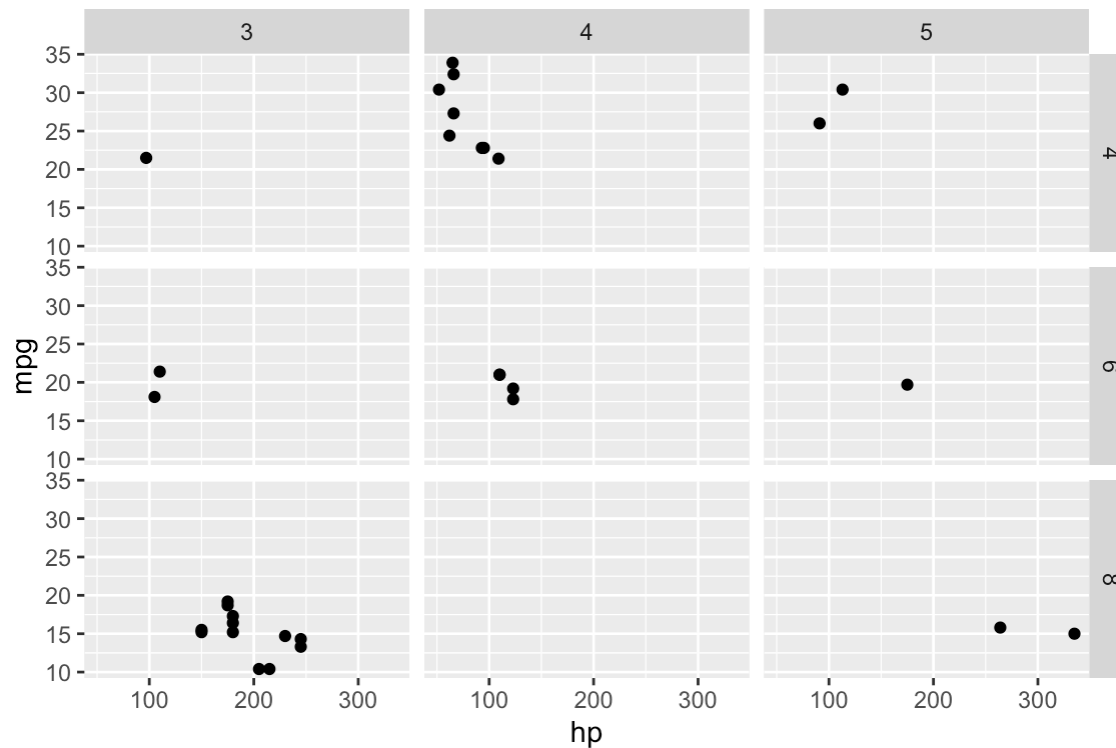
Add regression lines

```
1 g +  
2   geom_smooth(method = "lm", se = FALSE) +  
3   facet_wrap(~Species)
```



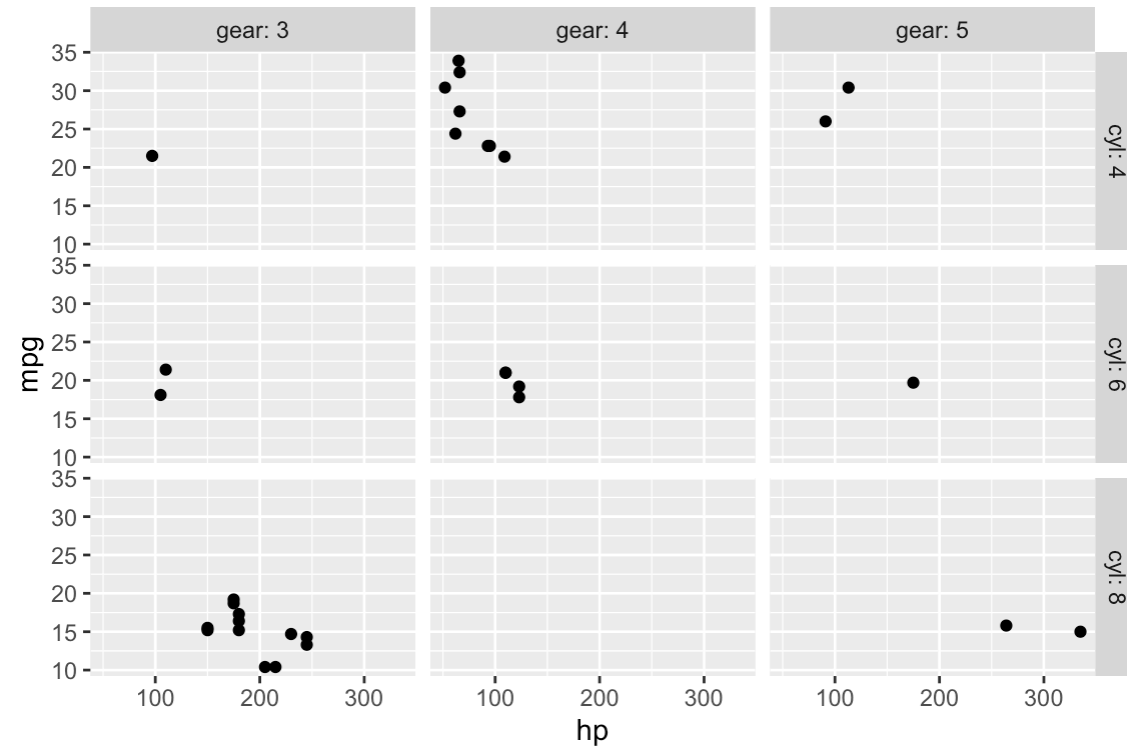
Facet on two (categorical) variables with `facet_grid()`

```
1 ggplot(mtcars, aes(hp,mpg)) +  
2   geom_point() +  
3   facet_grid(cyl~gear)
```



Label variables (in addition to factor levels)

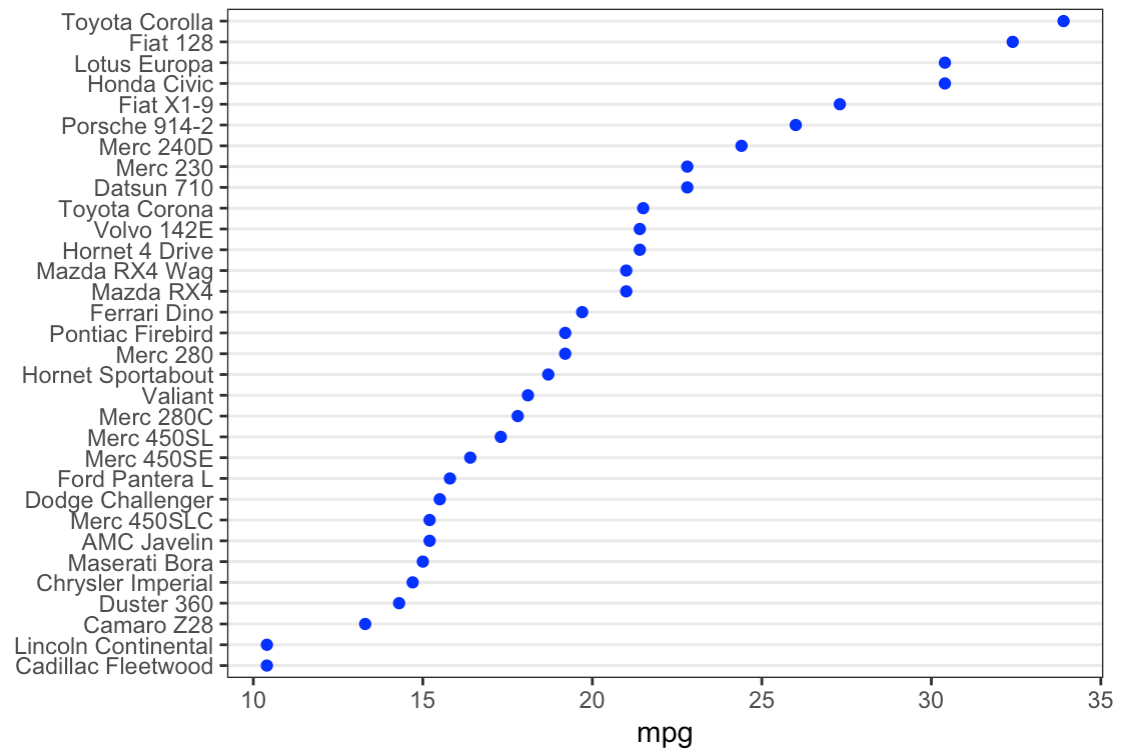
```
1 ggplot(mtcars, aes(hp, mpg)) +  
2   geom_point() +  
3   facet_grid(cyl~gear, labeller = label_both)
```



Cleveland dot plots

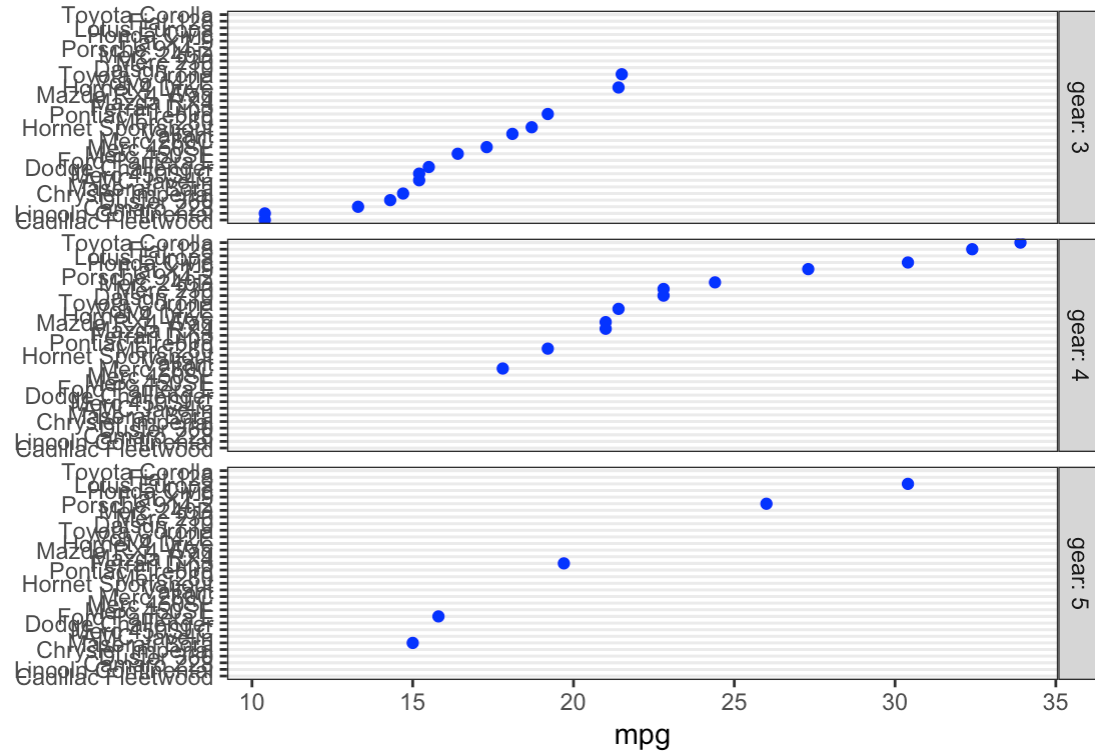
Note that y-axis is discrete

```
1 g <- mtcars |>
2   rownames_to_column("car") |>
3   ggplot(aes(mpg, reorder(car, mpg))) +
4   geom_point(color = "blue") +
5   ylab("") +
6   theme_bw() +
7   theme(panel.grid.major.x = element_blank(),
8         panel.grid.minor.x = element_blank())
9 g
```



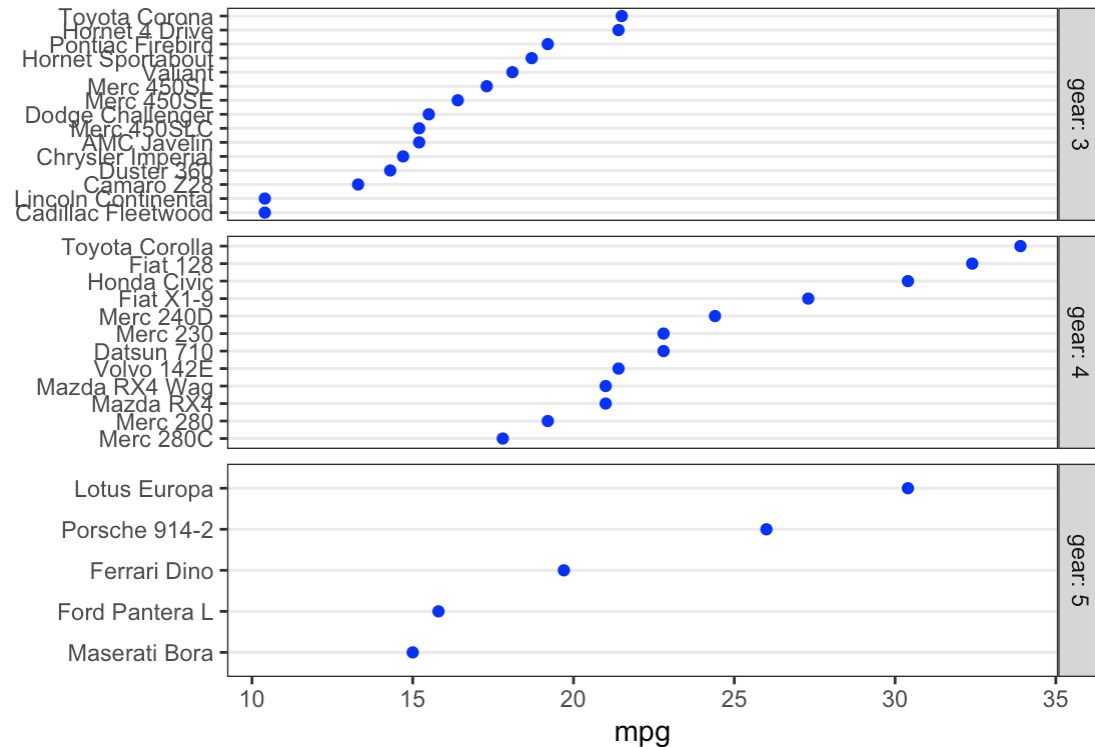
Facet by gear

```
1 g +  
2 facet_grid(gear ~ ., labeller = label_both)
```



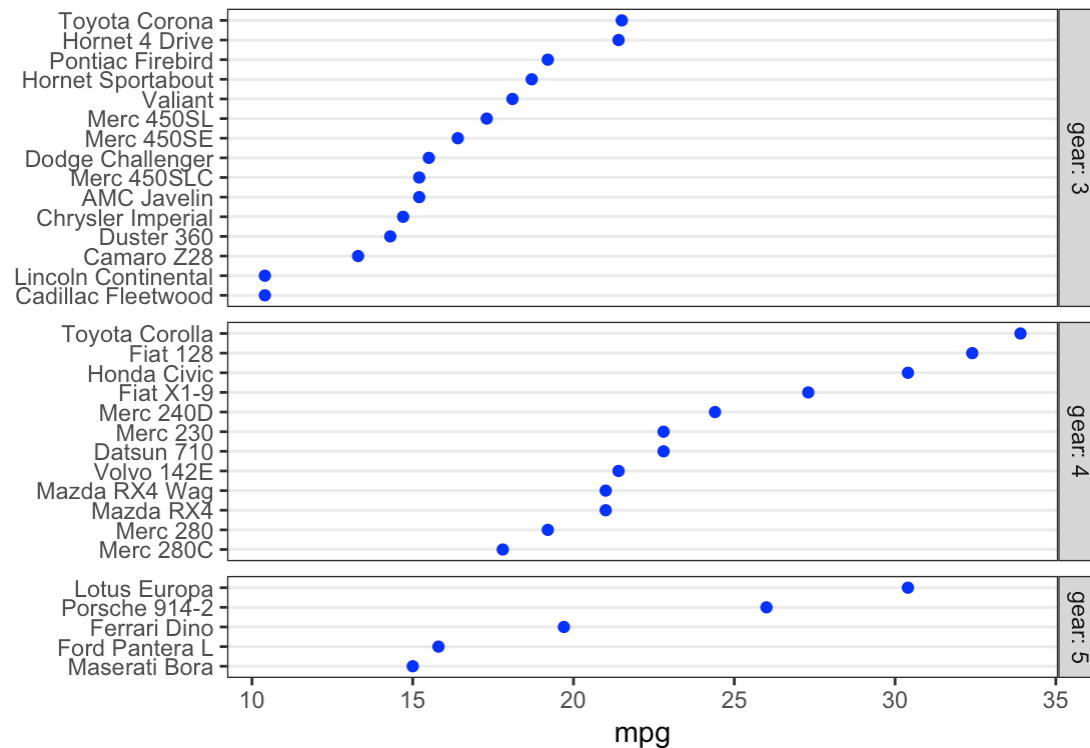
“Free” the y scale with `scales = "free_y"`

```
1 g +  
2   facet_grid(gear ~ ., labeller = label_both,  
3             scales = "free_y")
```



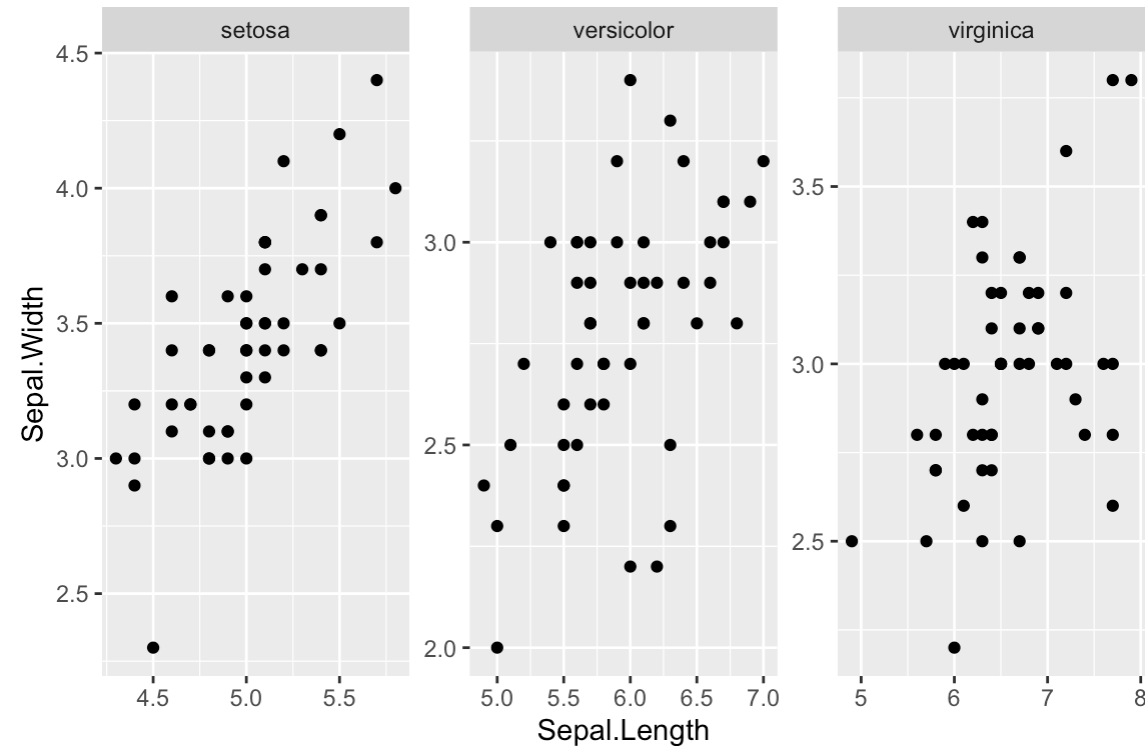
Change panel heights with space = "free_y"

```
1 g +  
2   facet_grid(gear ~ ., labeller = label_both,  
3             scales = "free_y", space = "free_y")
```



In general, do not “free” numerical scales

```
1 ggplot(iris, aes(Sepal.Length, Sepal.Width)) +  
2   geom_point() +  
3   facet_wrap(~Species, scales = "free")
```



In general, do not “free” numerical scales

```
1 ggplot(iris, aes(Sepal.Length, Sepal.Width)) +  
2   geom_point() +  
3   facet_wrap(~Species)
```

