# LAB de ggplot

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```
# Cargamos librería
library(tidyverse)
```

```
## Registered S3 methods overwritten by 'ggplot2':
##   method         from
##   [.quosures     rlang
##   c.quosures     rlang
##   print.quosures rlang
```

```
## Registered S3 method overwritten by 'rvest':
##   method            from
##   read_xml.response xml2
```

```
## -- Attaching packages --------------------------------- tidyverse 1.2.1 --
```

```
## v ggplot2 3.1.1     v purrr   0.3.2
## v tibble  2.1.1     v dplyr   0.8.3
## v tidyr   1.0.0     v stringr 1.4.0
## v readr   1.3.1     v forcats 0.4.0
```

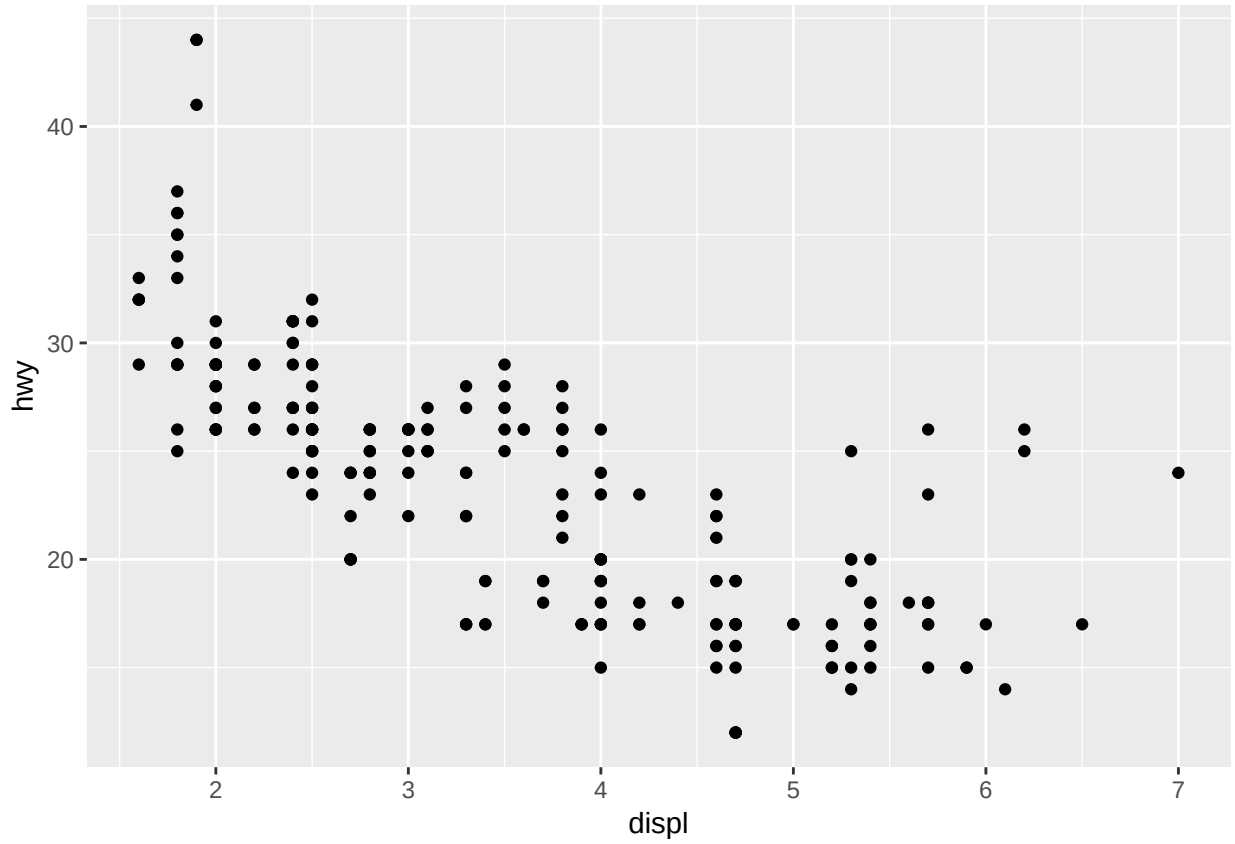
```
## -- Conflicts ------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
# Cargamos los datos
ggplot2::mpg
```

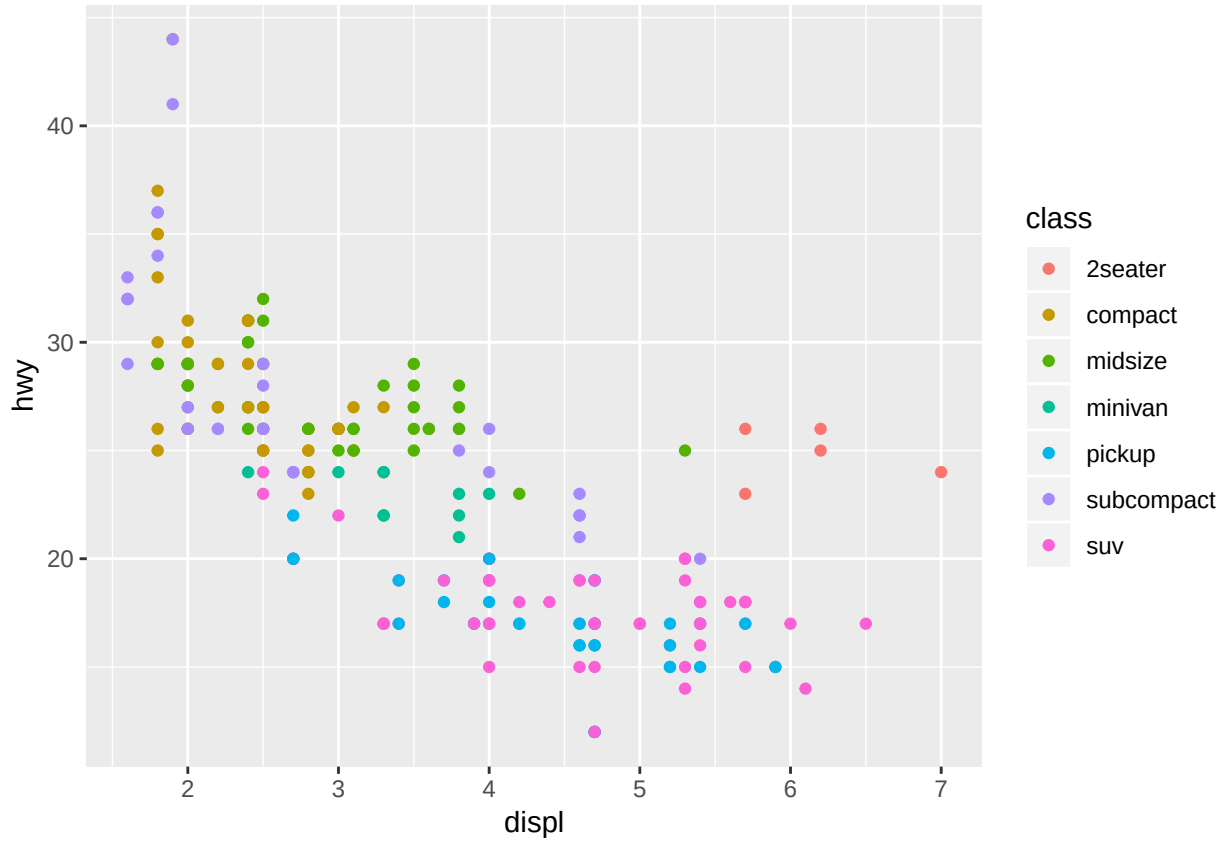
```
## # A tibble: 234 x 11
##    manufacturer model displ  year   cyl trans drv     cty   hwy fl    class
##    <chr>        <chr> <dbl> <int> <int> <chr> <chr> <int> <int> <chr> <chr>
##  1 audi         a4      1.8  1999     4 auto~ f        18    29 p     comp~
##  2 audi         a4      1.8  1999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

```r
# Creamos un gráfico con ggplot

# DATOS
ggplot(data = mpg) +
  # GEOMETRIAS (funciones de estética)
  geom_point(mapping = aes(x = displ, y = hwy))
```

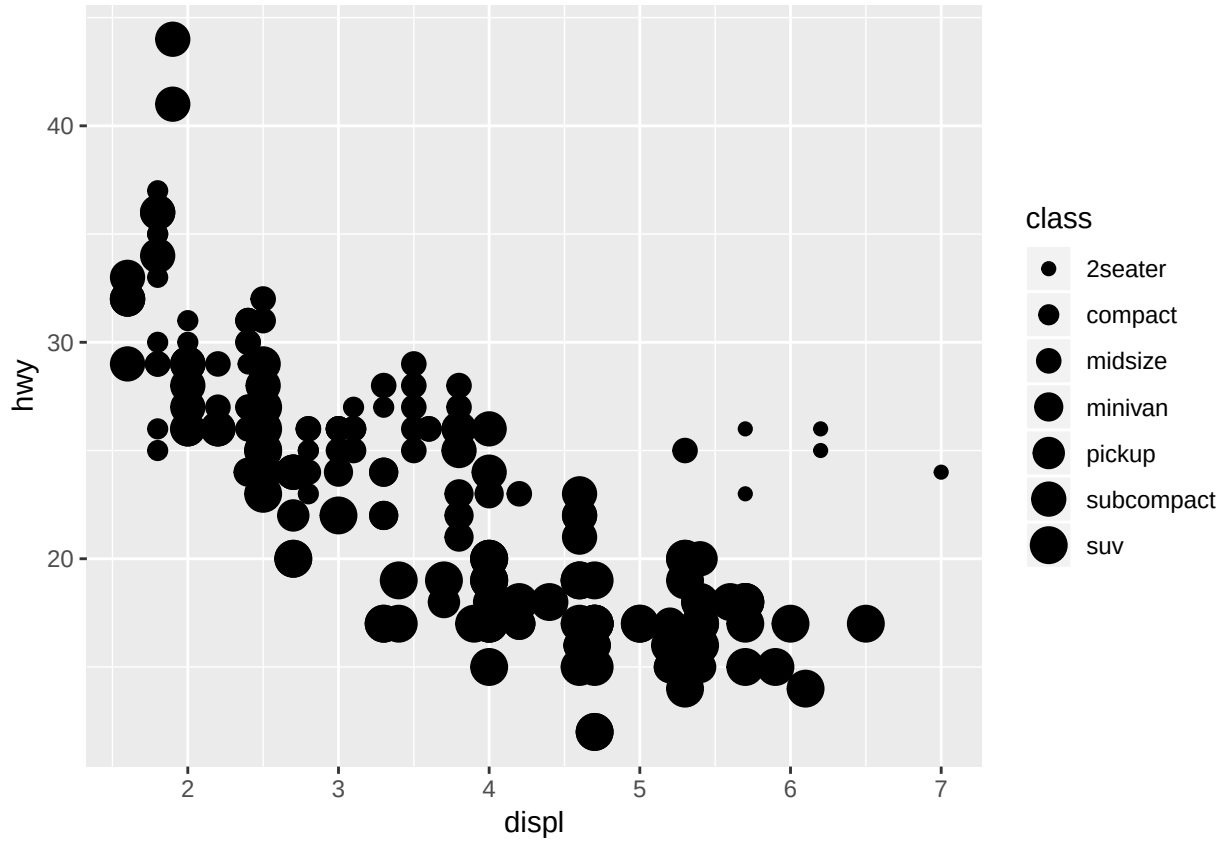



```r
# Diferenciamos por color cada clase de coche
ggplot(data = mpg) +
  geom_point(mapping = aes(x = displ, y = hwy, color = class))
```



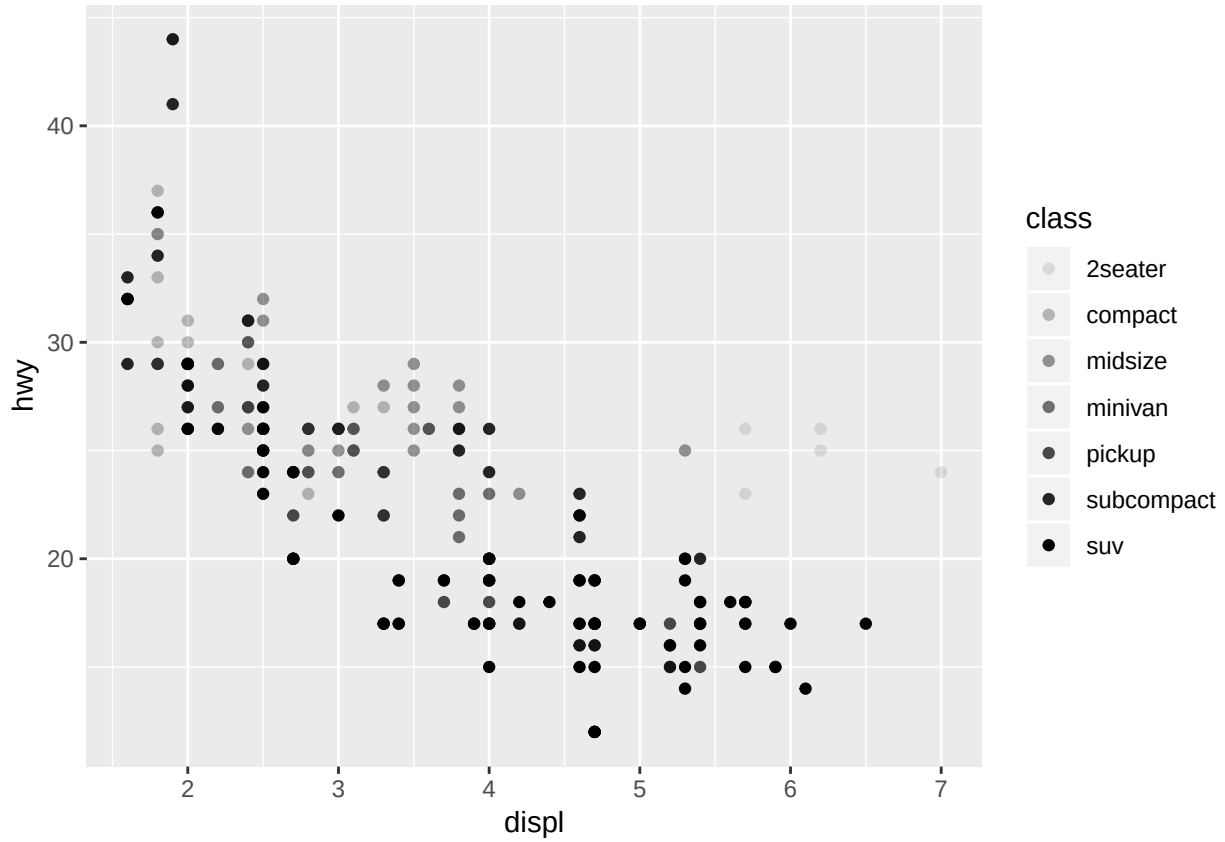

```
# Diferenciamos el tamaño de cada clase con el atributo size
ggplot(data = mpg) +
  geom_point(mapping = aes(x = displ, y = hwy, size=class))
```

```
## Warning: Using size for a discrete variable is not advised.
```




```
# ALPHA es la gradación de color por clase
ggplot(data = mpg) +
  geom_point(mapping = aes(x = displ, y = hwy, alpha = class))
```

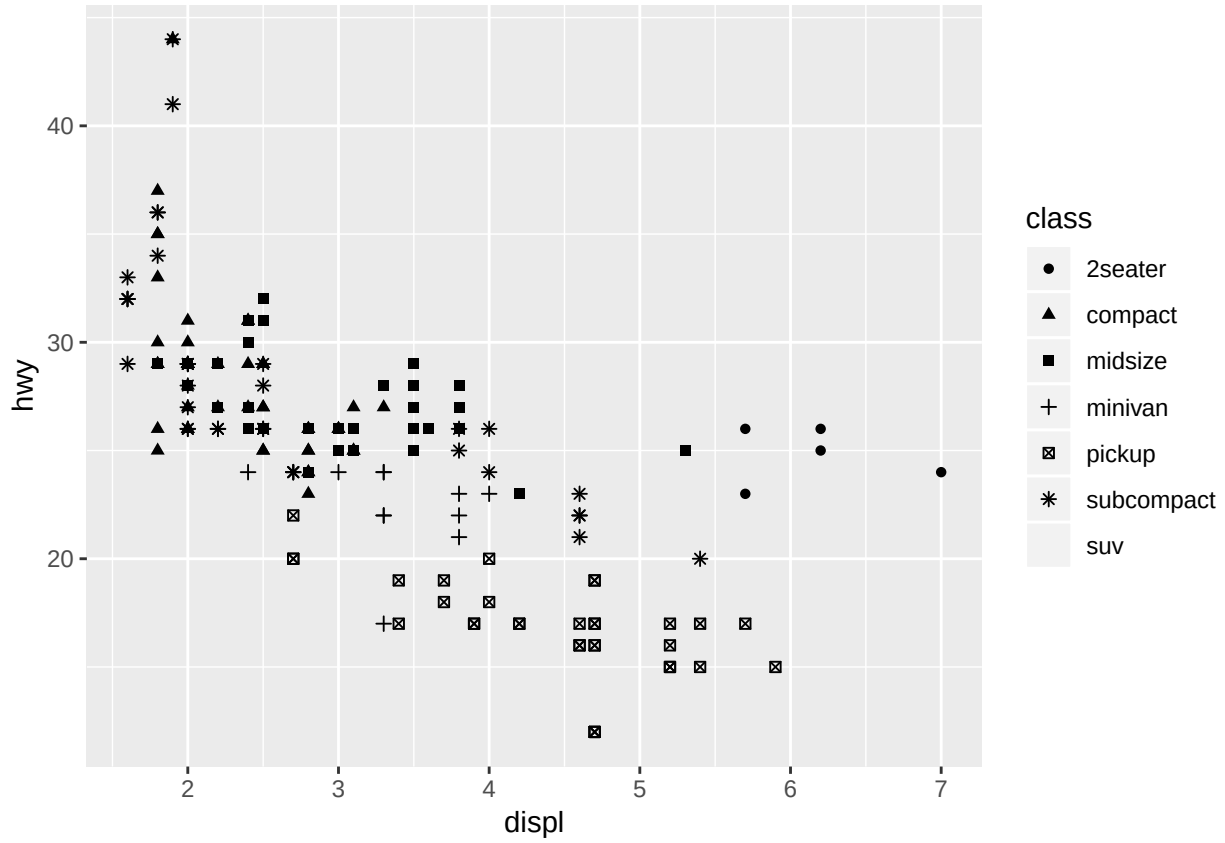
```
## Warning: Using alpha for a discrete variable is not advised.
```




```
# SHAPE es el tipo de punto por clase
ggplot(data = mpg) +
  geom_point(mapping = aes(x = displ, y = hwy, shape = class))
```

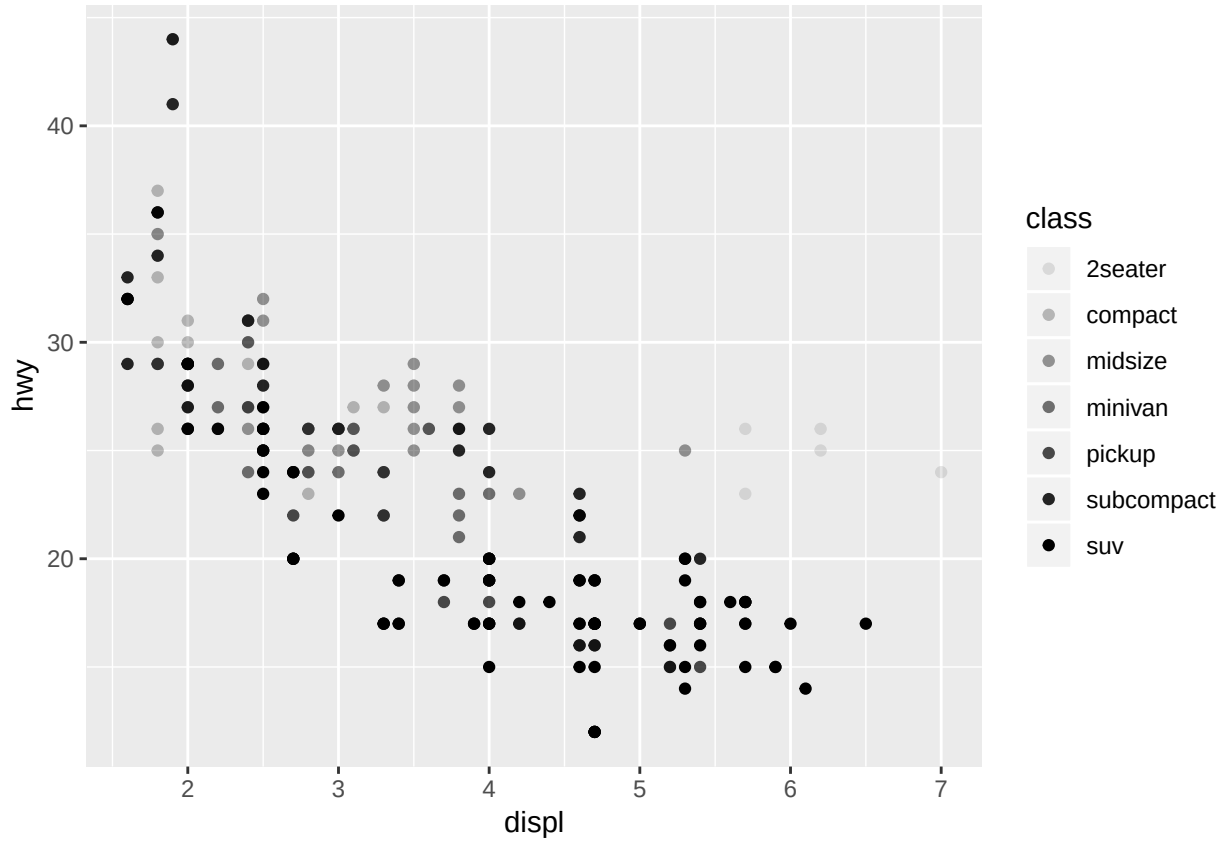
```
## Warning: The shape palette can deal with a maximum of 6 discrete values
## because more than 6 becomes difficult to discriminate; you have 7.
## Consider specifying shapes manually if you must have them.
```

```
## Warning: Removed 62 rows containing missing values (geom_point).
```




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

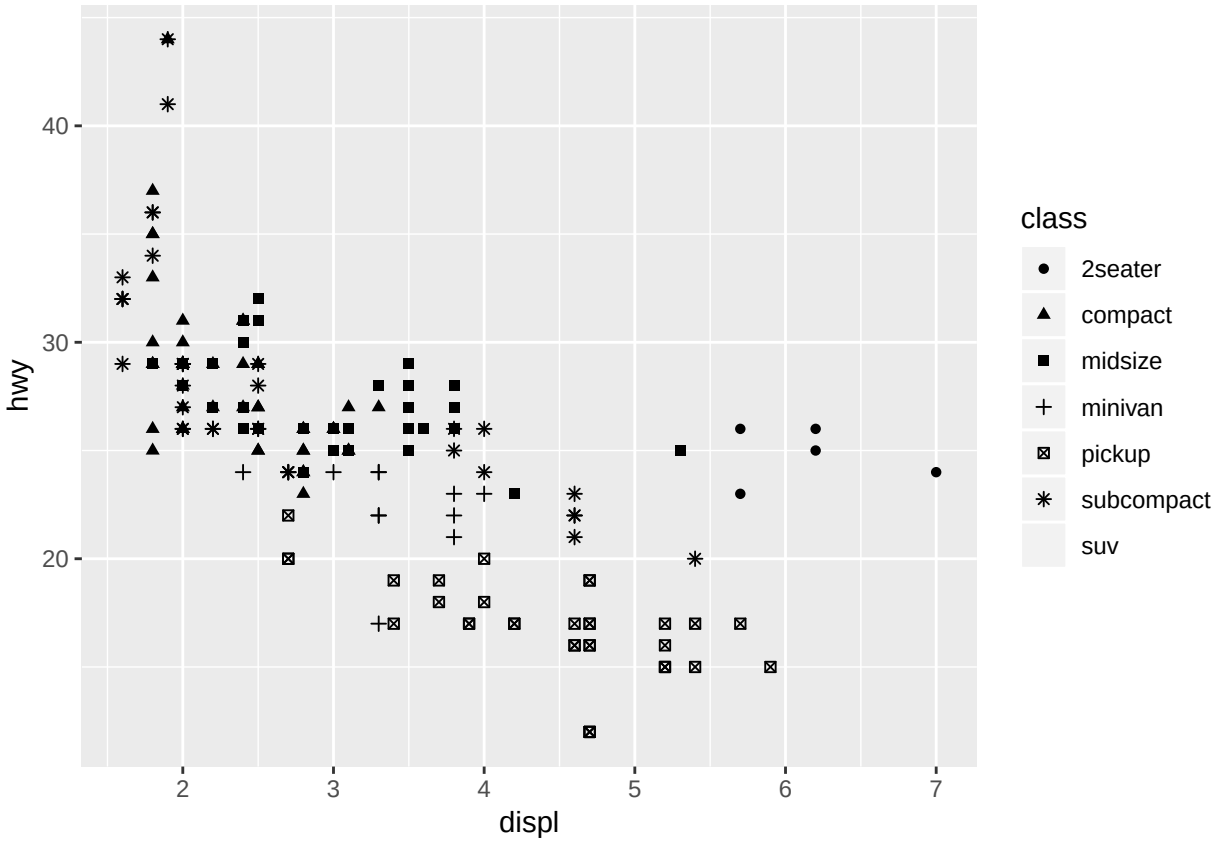
```
## Warning: Using alpha for a discrete variable is not advised.
```



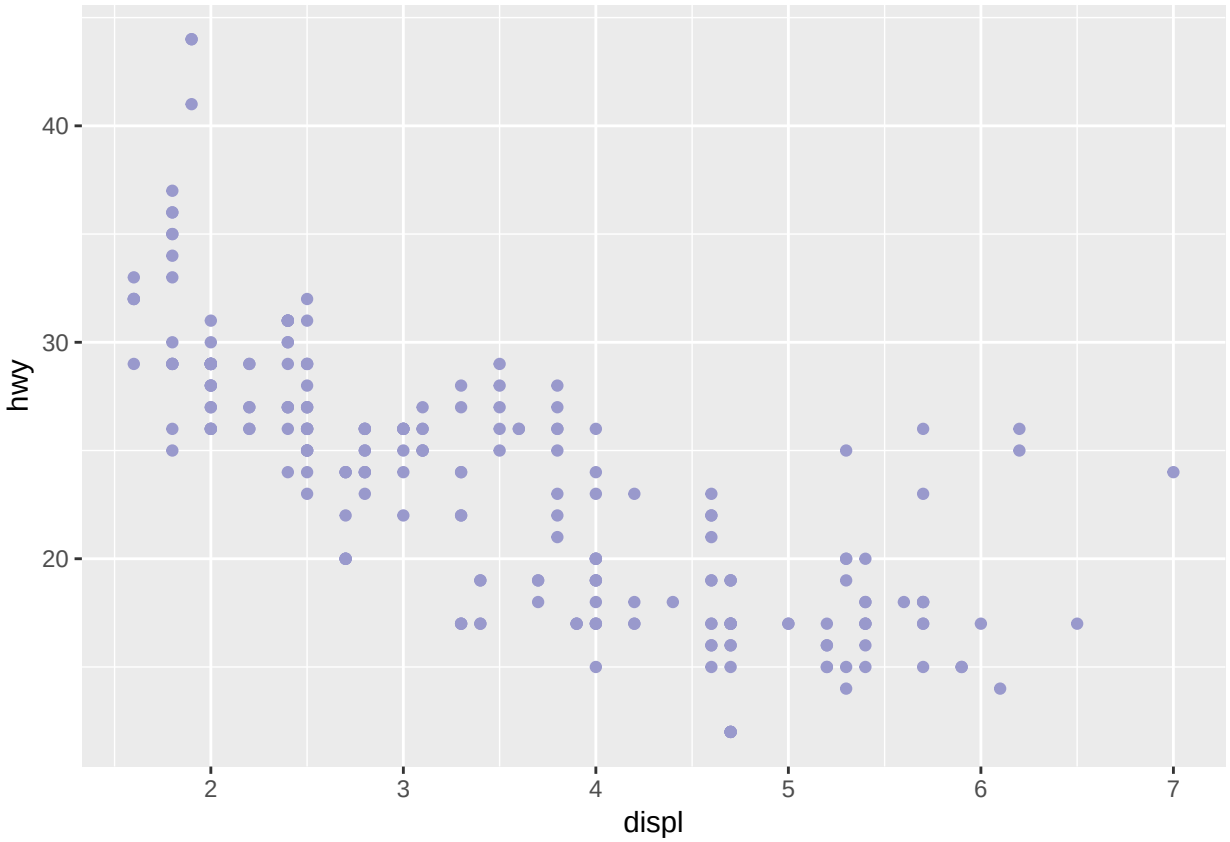

```
ggplot(data = mpg) +
  geom_point(mapping = aes(x = displ, y = hwy, shape = class))
```

```
## Warning: The shape palette can deal with a maximum of 6 discrete values
## because more than 6 becomes difficult to discriminate; you have 7.
## Consider specifying shapes manually if you must have them.

## Warning: Removed 62 rows containing missing values (geom_point).
```



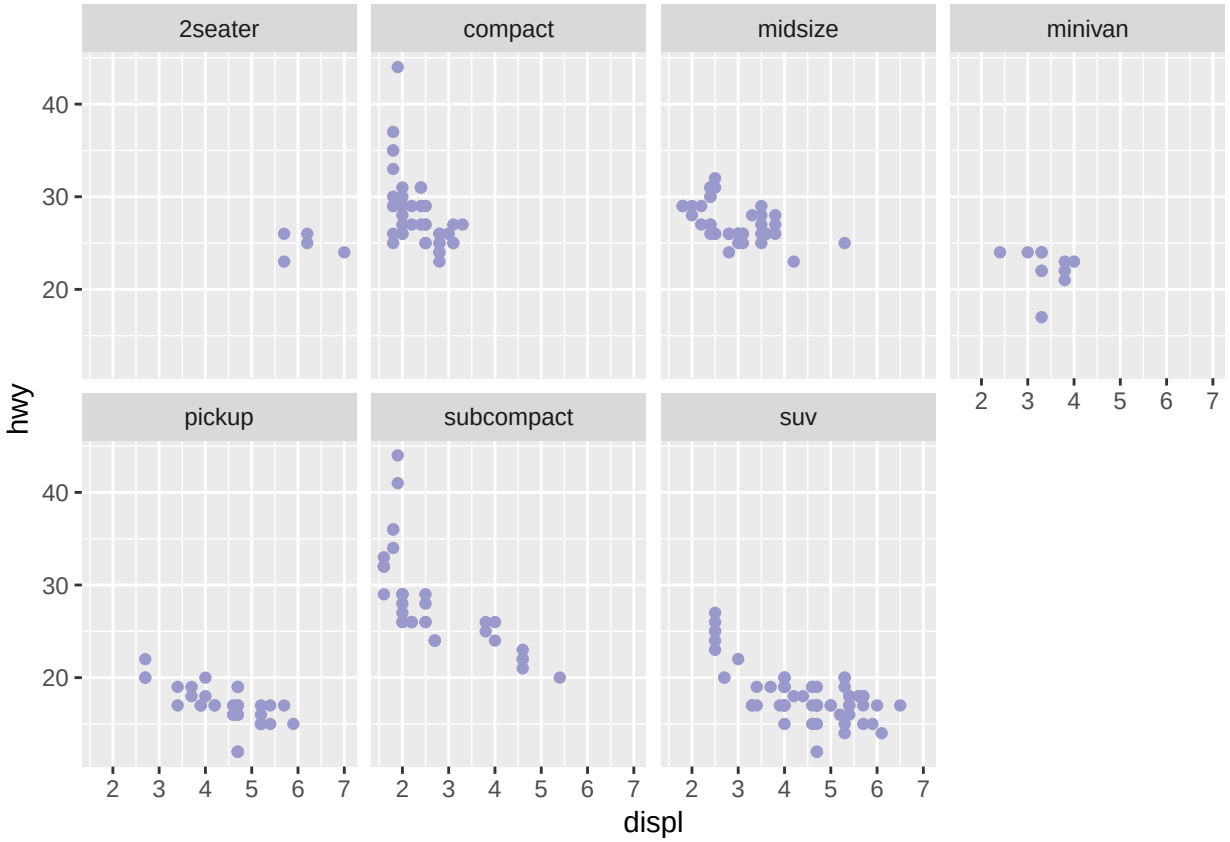

```
# asignamos la escala de colores (por paleta, hexadecimal...combinaciones ColorBrewer)
ggplot(data = mpg) +
  geom_point(mapping = aes(x = displ, y = hwy), color = "#9999CC")
```




Palette de colores: http://www.cookbook-r.com/Graphs/Colors_(ggplot2)/

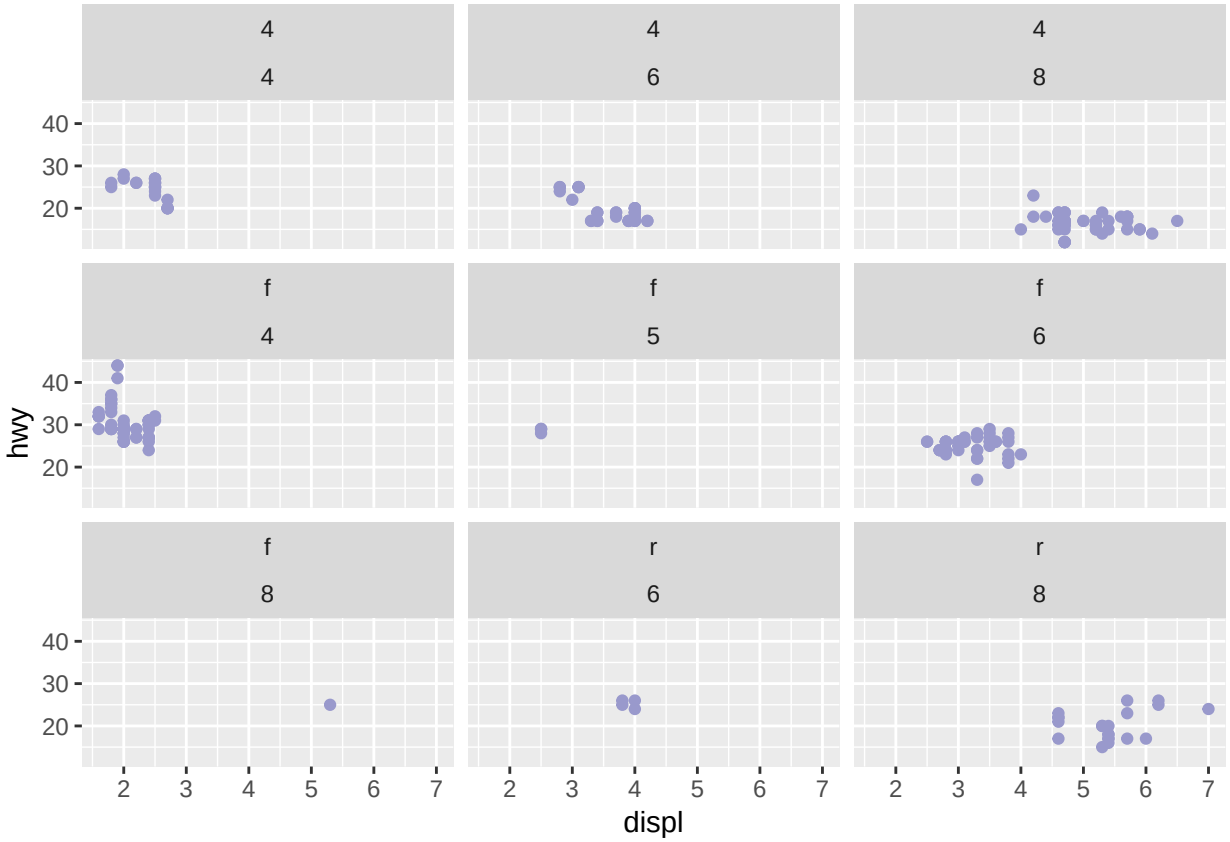
https://ggplot2.tidyverse.org/reference/scale_brewer.html#palettes

```
# creamos una matriz con facet_wrap para distribuir las variables o elementos
ggplot(data = mpg) +
  geom_point(mapping = aes(x = displ, y = hwy), color = "#9999CC") +
  facet_wrap(~ class, nrow = 2)
```



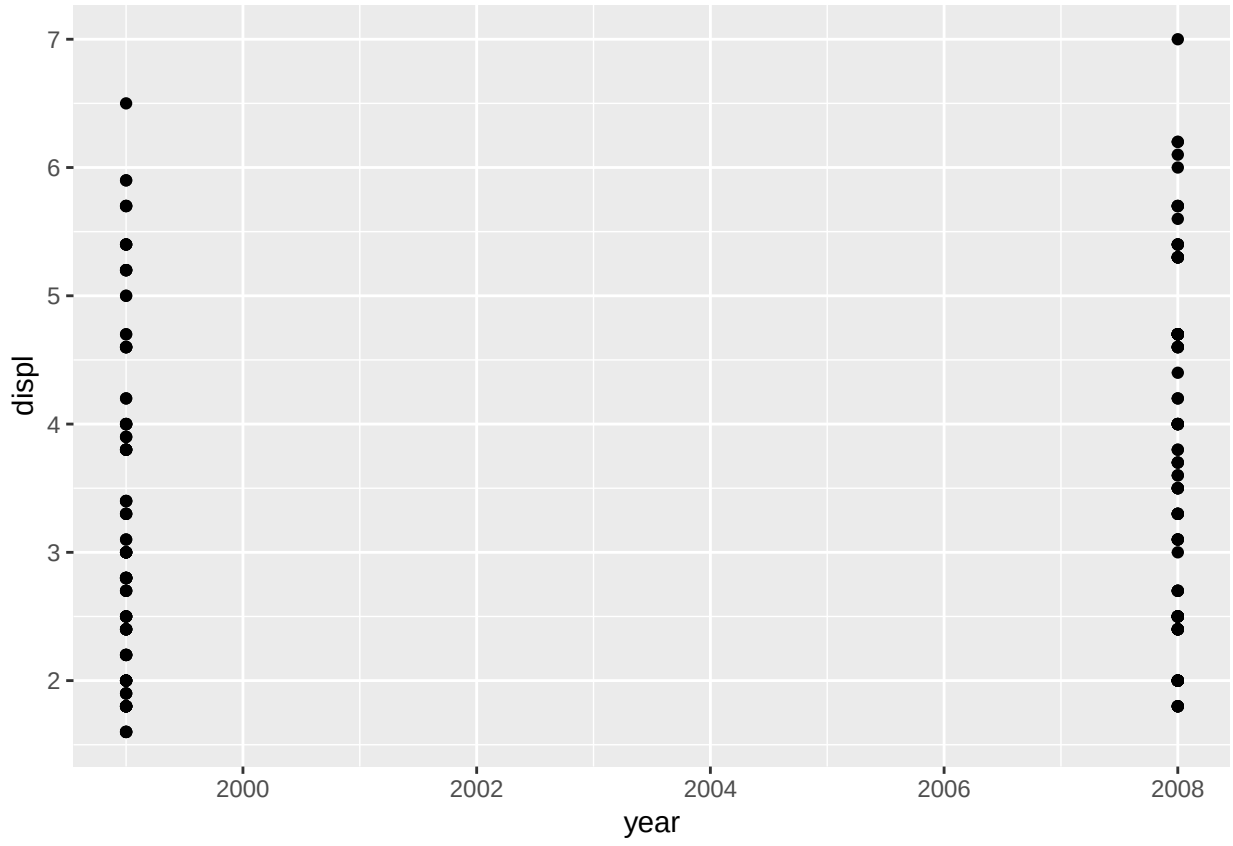

```
# creamos una matriz con todos los atributos excepto ~ class
```

```
# colocamos en la matriz los elementos de los atributos drv y cyl
ggplot(data = mpg) +
  geom_point(mapping = aes(x = displ, y = hwy), color = "#9999CC") +
  facet_wrap(drv ~ cyl)
```

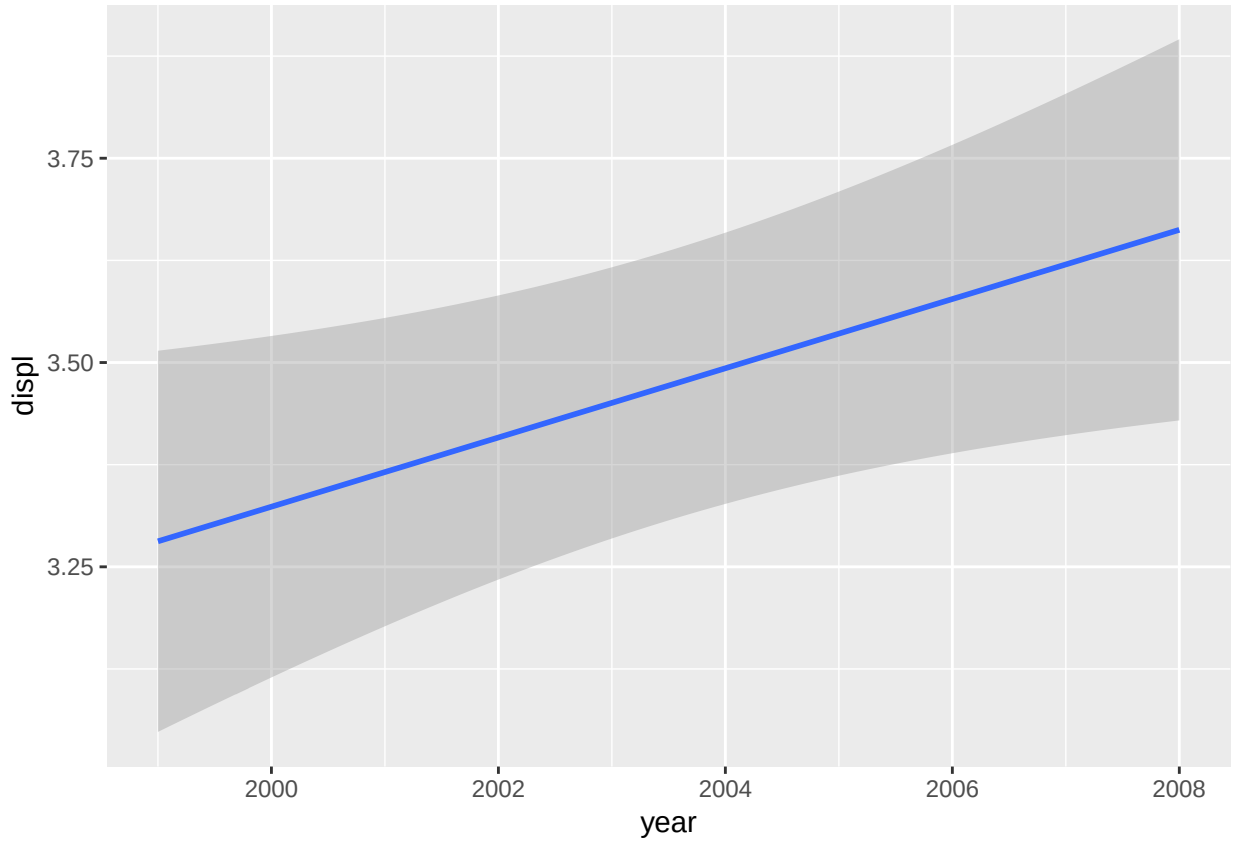



### Objetos gráficos

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

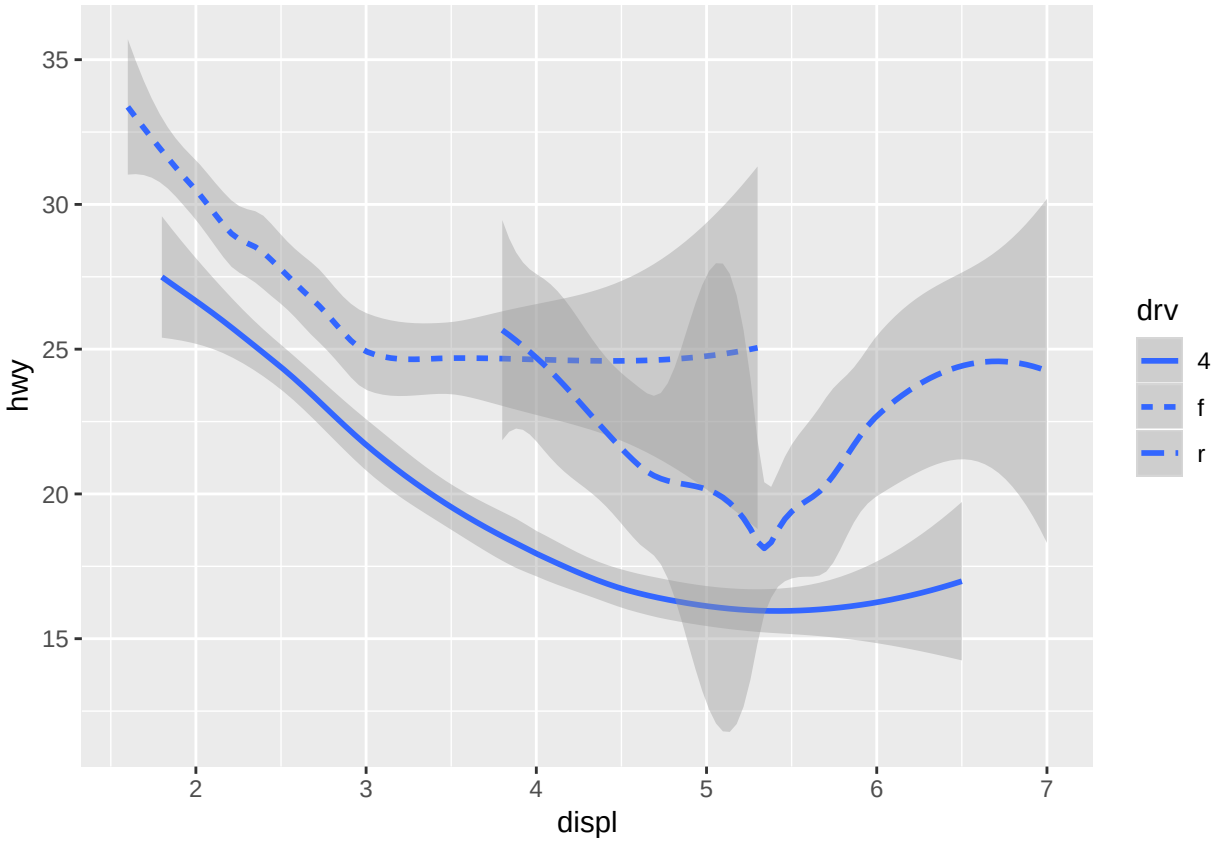



```
ggplot(data = mpg) +
  geom_smooth(mapping = aes(x = year, y = displ), method = "lm")
```

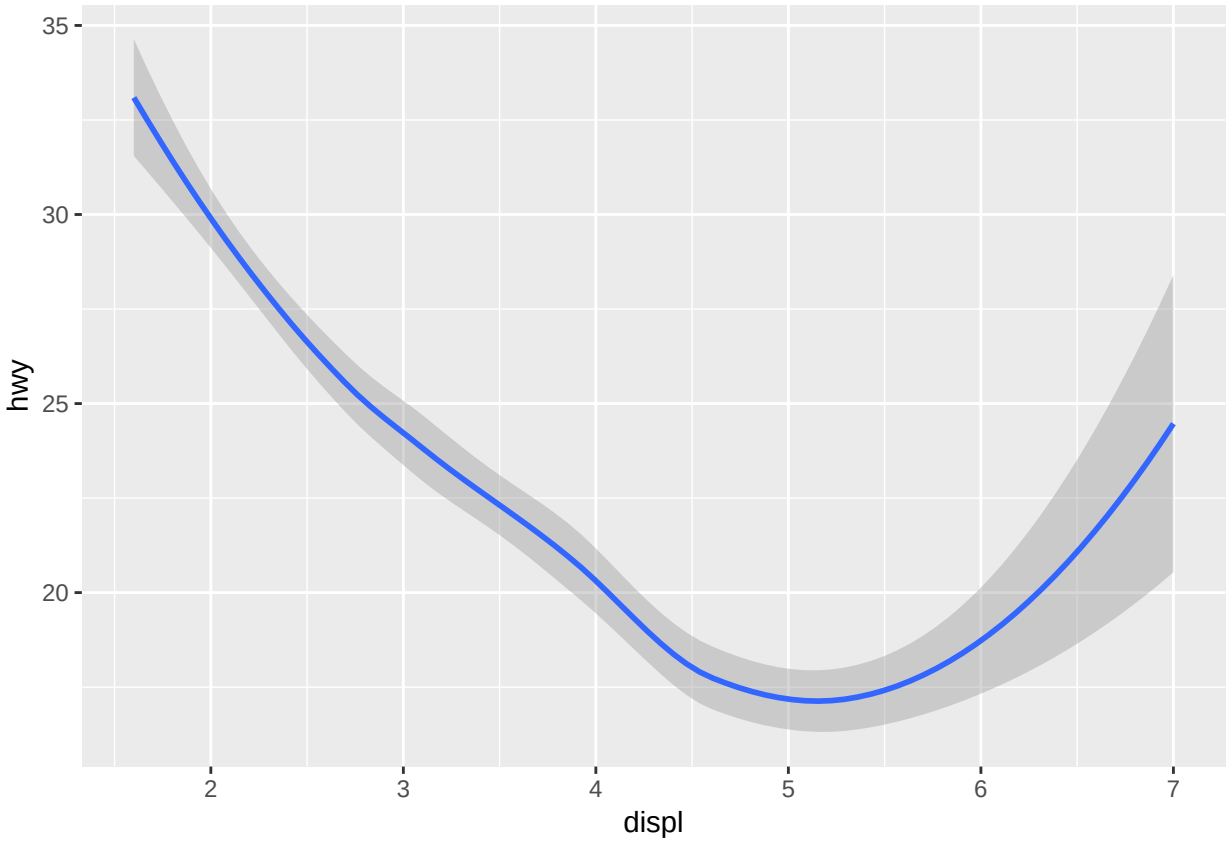



```
ggplot(data = mpg) +
  geom_smooth(mapping = aes(x = displ, y = hwy, linetype = drv))
```

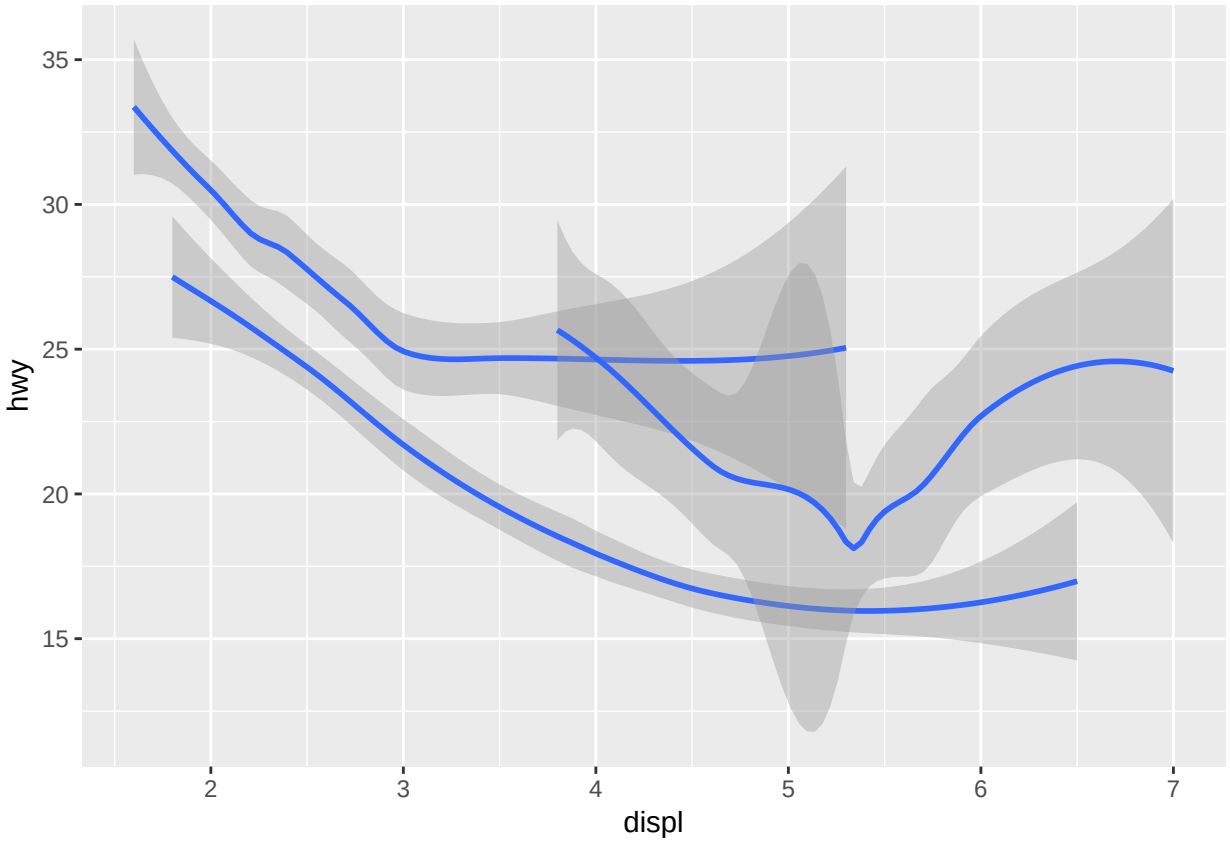
```
## `geom_smooth()` using method = 'loess' and formula 'y ~ x'
```




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

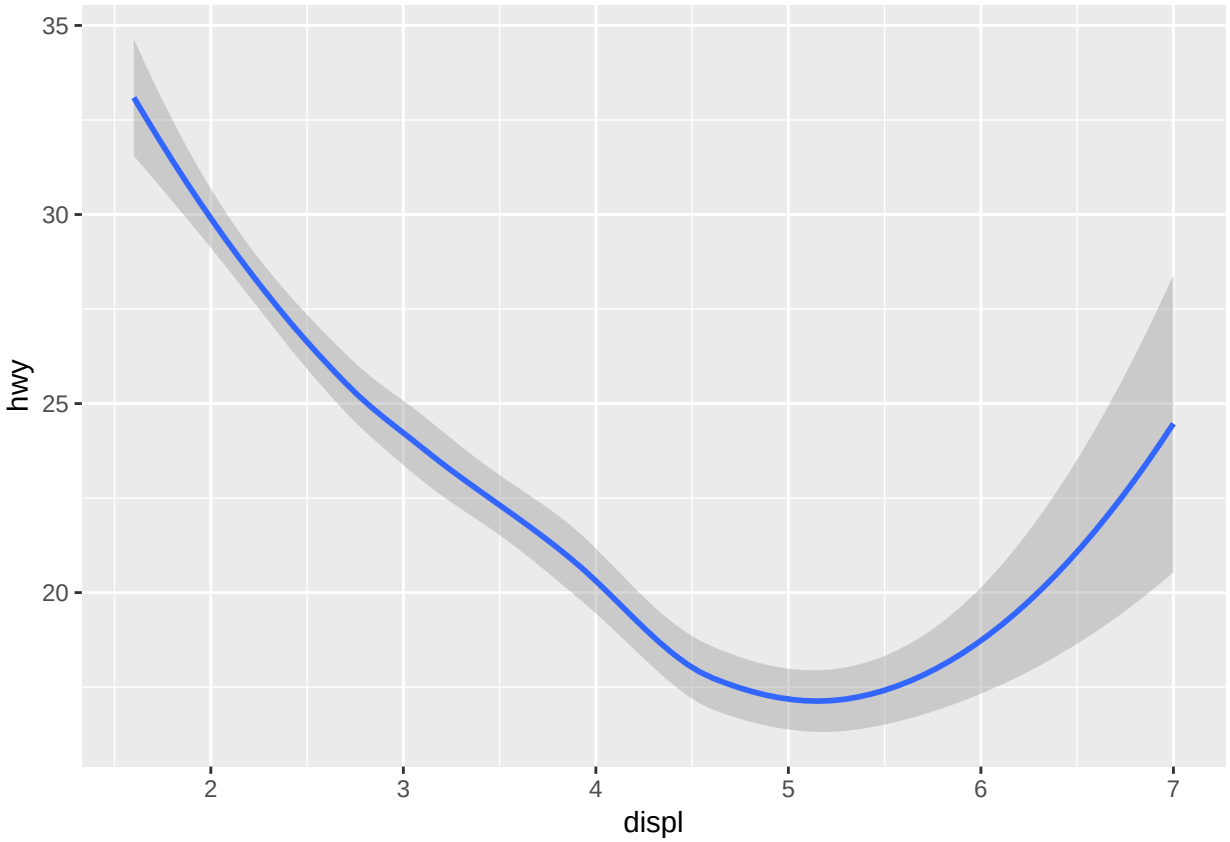



```
ggplot(data = mpg) +
  geom_smooth(mapping = aes(x = displ, y = hwy, group = drv), method = 'loess')
```




```
ggplot(data = mpg) +
  geom_smooth(mapping = aes(x = displ, y = hwy), show.legend = T)
```

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


35
30
25
20
hwy
2
3
4
5
6
7
displ