Themes

Session 5

PMAP 8921: Data Visualization with R
Andrew Young School of Policy Studies
Summer 2025

Plan for today

CRAP and ggplot

The anatomy of a ggplot theme

CRAP and ggplot

Universal principles

Contrast

Repetition

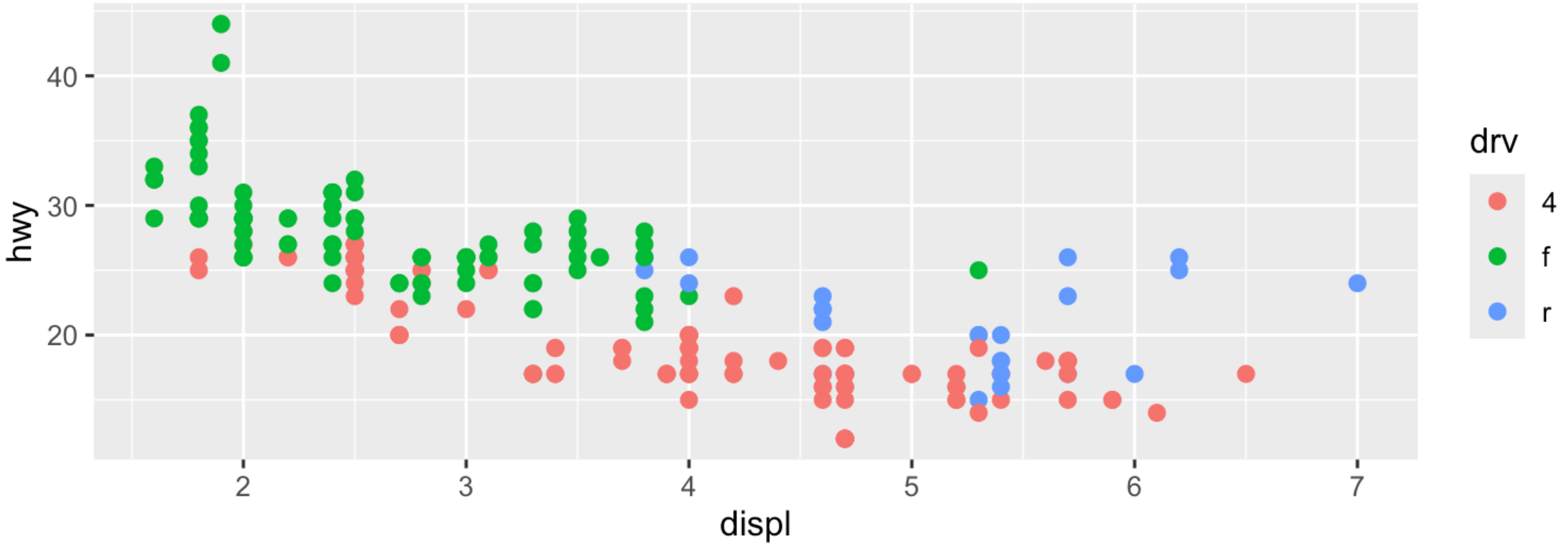
Alignment

Proximity

These design principles apply everywhere!

Graphic design, art, music, architecture... and graphs!

Is that gray background okay?



It adds contrast! Some people just don't like it 🤷

Applying CRAP to ggplot

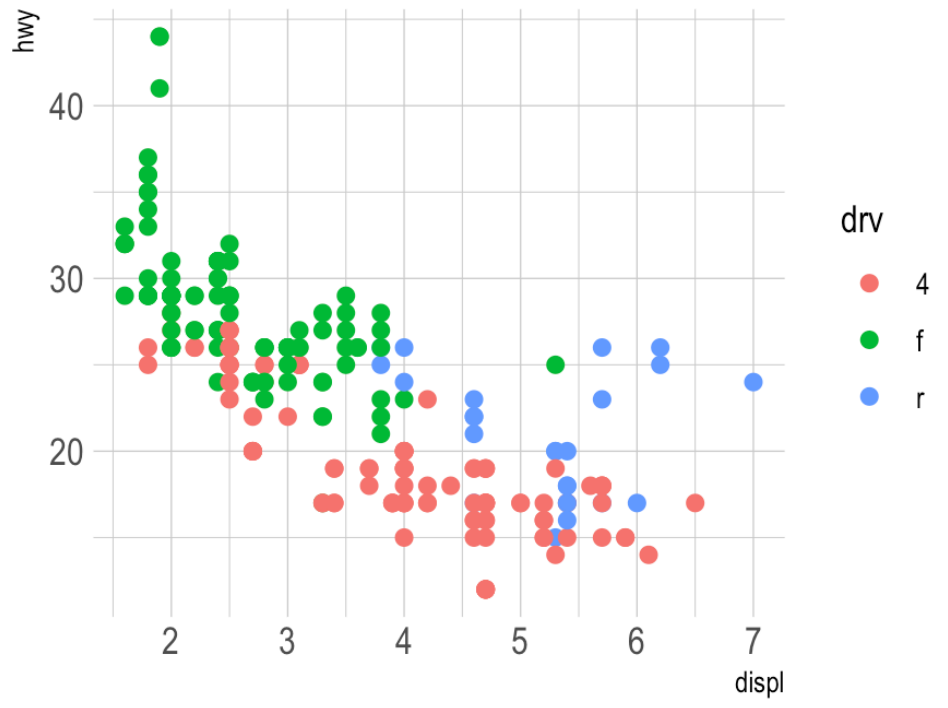
We can follow CRAP principles to make big improvements to our plots

Claus Wilke's chapter covers lots of these graph-specific principles

We can apply these principles to ggplot plots

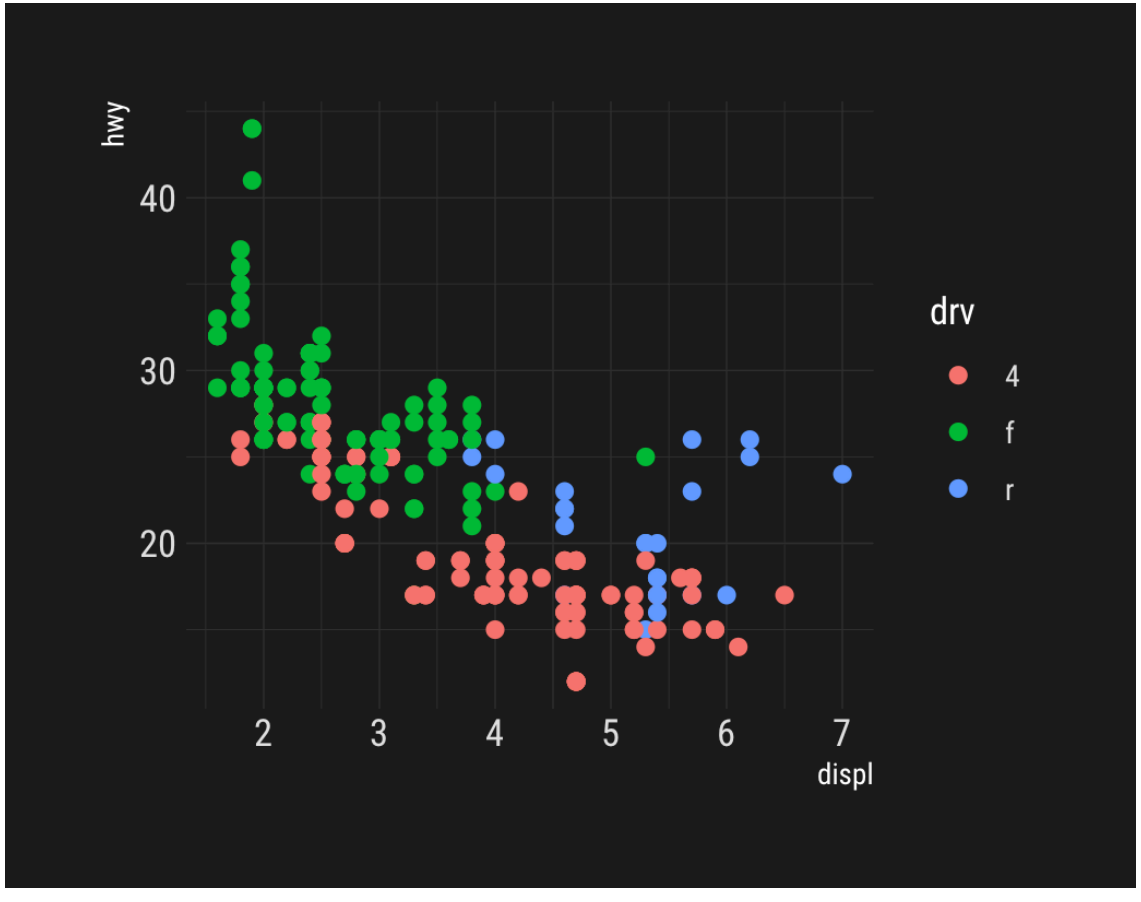
Like this!

```
library(hrbrthemes)

ggplot(mpg, aes(x = displ, y = hwy,
                color = drv)) +
  geom_point(size = 2) +
  theme_ipsum()
```



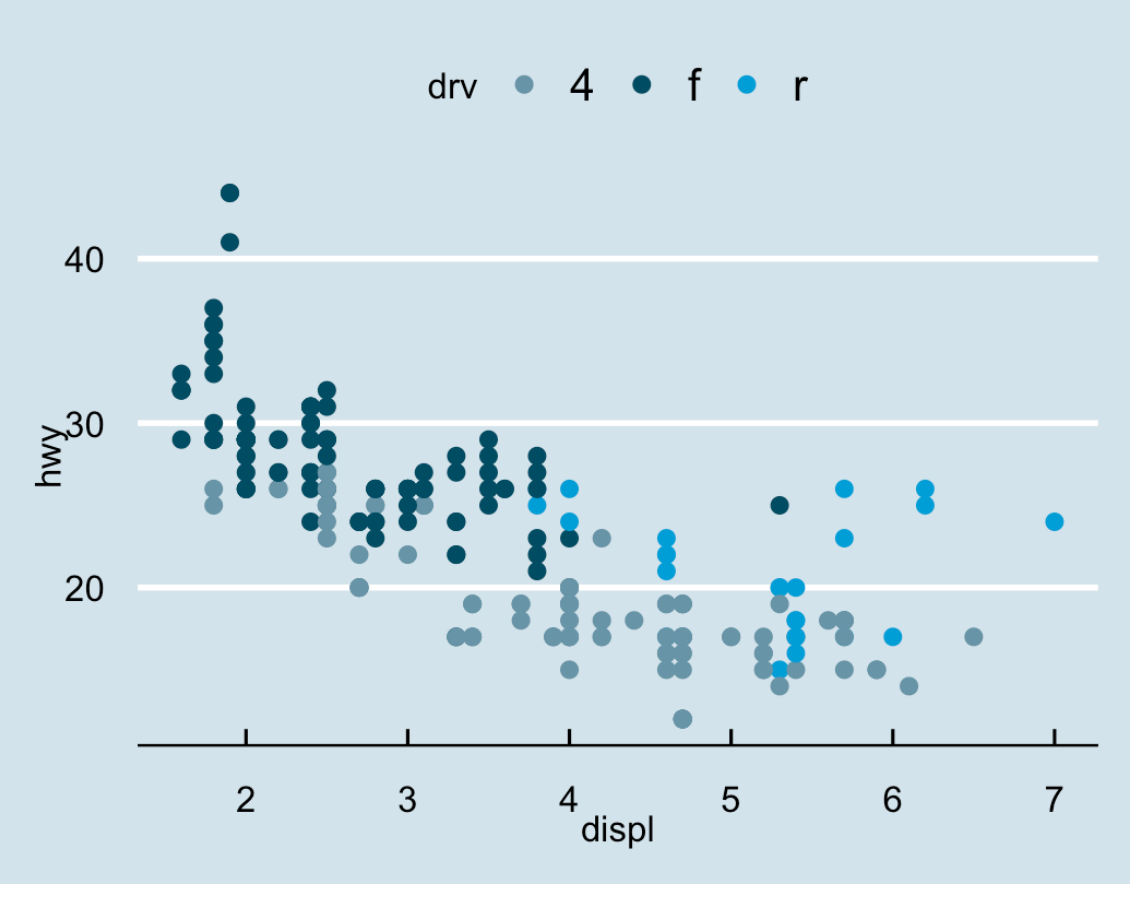
And this!

```
library(hrbrthemes)

ggplot(mpg, aes(x = displ, y = hwy,
                color = drv)) +
  geom_point(size = 2) +
  theme_modern_rc()
```



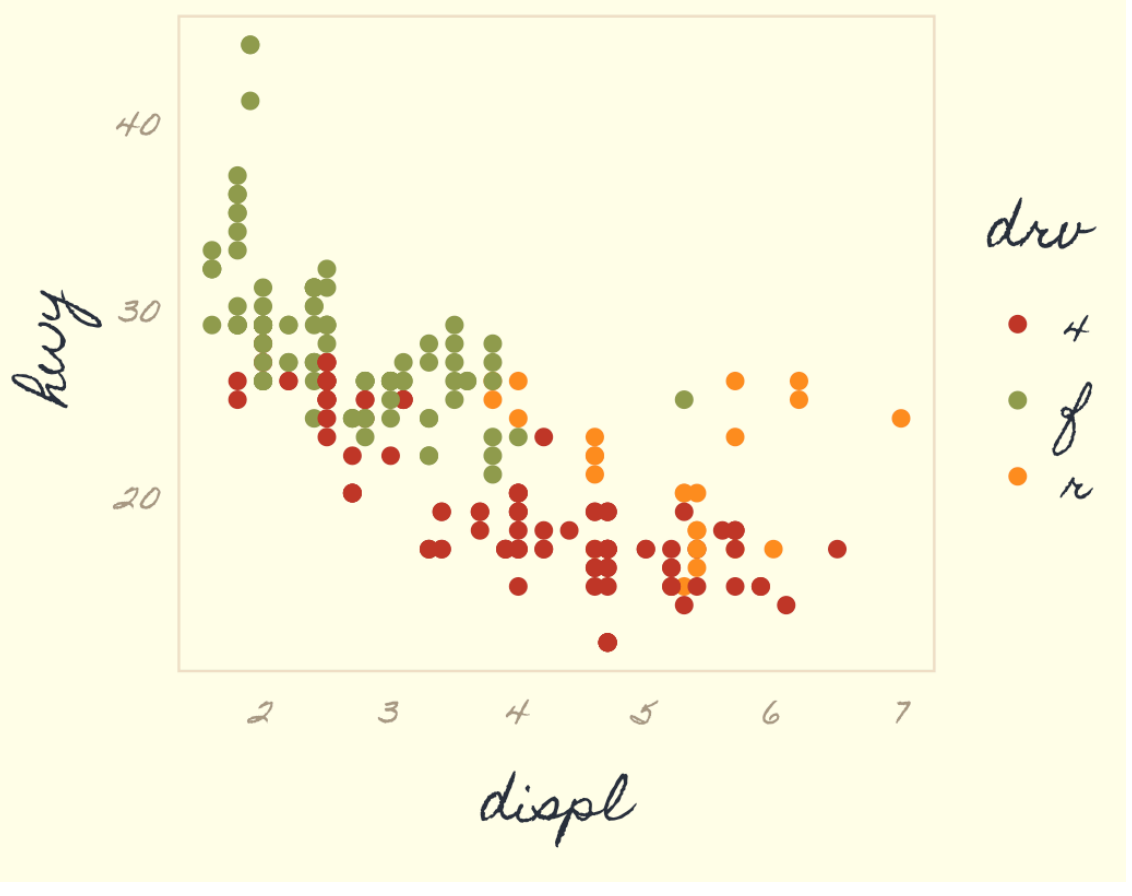
Or this!

```
library(ggthemes)

ggplot(mpg, aes(x = displ, y = hwy,
                color = drv)) +
  geom_point(size = 2) +
  scale_color_economist() +
  theme_economist()
```



And even this!

```
library(ggpomological)

ggplot(mpg, aes(x = displ, y = hwy,
                color = drv)) +
  geom_point(size = 2) +
  scale_color_pomological() +
  theme_pomological_fancy()
```

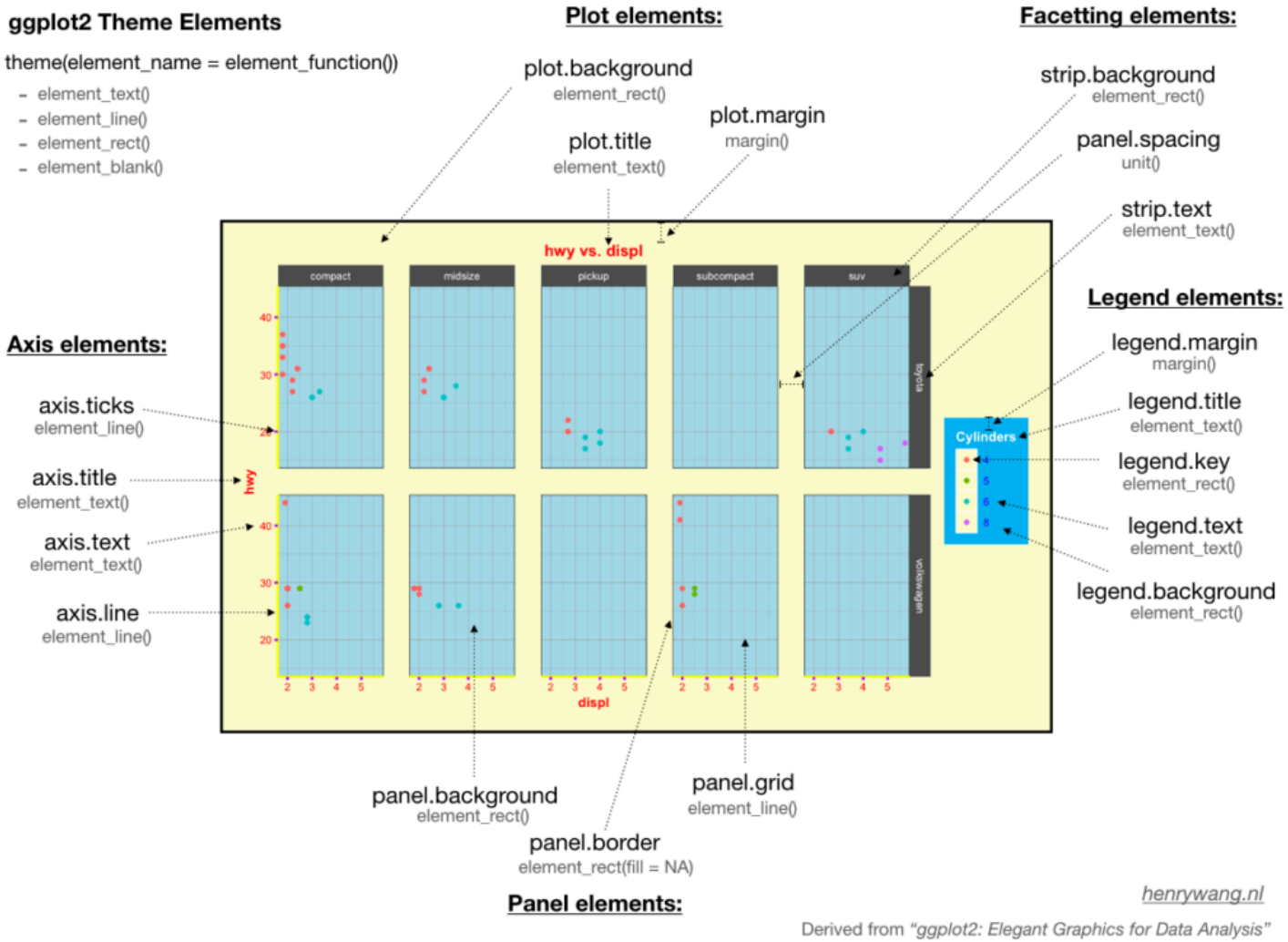


One magic, powerful function

```
theme()
```

The anatomy of a `ggplot()` theme

Theme system



Theme elements

Each element in the plot can be targeted

Plot title = `plot.title`

Grid lines = `panel.grid`

Legend background = `legend.background`

Theme functions

Use special functions to manipulate specific elements

Text-based things = `element_text()`

Rectangular things (backgrounds) = `element_rect()`

Line-based things (axis lines, grid lines) = `element_line()`

Disable element completely = `element_blank()`

How to learn `theme()`

The `theme()` function has **94 possible arguments(!!!)**

You can get hyper-specific with things like

`axis.ticks.length.x.bottom`

The only way to learn how to use `theme()` is to use it and tinker with it

How to learn `theme()`

I cannot show you everything

That's why we have the lesson, example, and exercise!