Exploratory Analysis Overview

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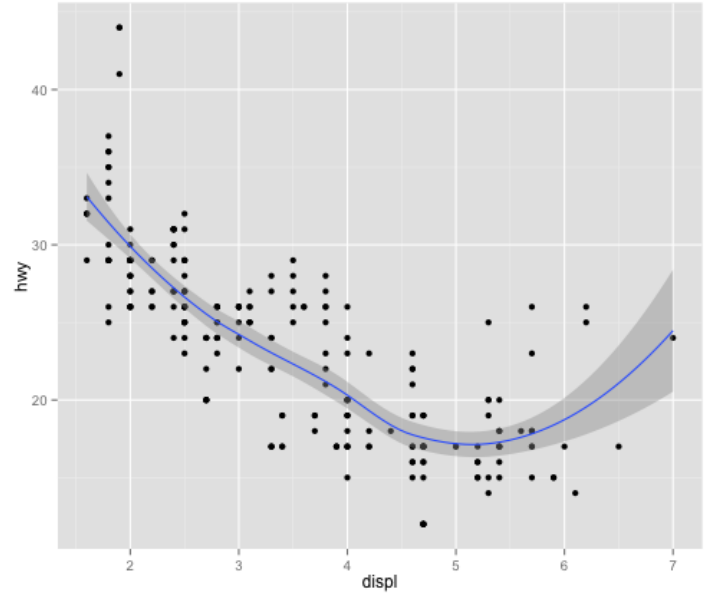
Exploratory Analysis Content

- Principles of Analytic Graphics
- Exploratory graphs
- Plotting Systems in R
  - base
  - lattice
  - ggplot2
- Hierarchical clustering
- K-Means clustering
- Dimension reduction

Adding a geom

```
qplot(displ, hwy, data = mpg, geom = c("point", "smooth"))
```



Principles of Analytic Graphics

- Principle 1: Show comparisons
- Principle 2: Show causality, mechanism, explanation
- Principle 3: Show multivariate data
- Principle 4: Integrate multiple modes of evidence
- Principle 5: Describe and document the evidence
- Principle 6: Content is king

K-means clustering - example

```
set.seed(1234)
par(mar = c(0, 0, 0, 0))
x <- rnorm(12, mean = rep(1:3, each = 4), sd = 0.2)
y <- rnorm(12, mean = rep(c(1, 2, 1), each = 4), sd = 0.2)
plot(x, y, col = "blue", pch = 19, cex = 2)
text(x + 0.05, y + 0.05, labels = as.character(1:12))
```