Fitting Models

- Model grammar, formula
- Linear models
- Diagnostics

Grammar

- `lm(formula, data, weight, subset, na.action)`
- `formula`
  - `y ~ x1 + x2 + x3`
Output

- coefficients, residuals, fitted.values
- analysis of variance table

Diagnosing the fit

- Deviance: residual sum of squares
- Akaike Information Criterion (AIC)
- Residual plots, residual vs fitted
Stepwise fitting

- `step()`
- `dropterm()`

Final Model?

\[ \hat{tip} = 0.92 + 0.104 \times \text{bill} \]

44% variation in tip is explained by bill
Other variables are not important.
Your turn

• Load the mtcars data: `data(mtcars)`
• Do your best to find a good model for mpg!