

Fitting Models

- Model grammar, formula
- Linear models
- Diagnostics

Grammar

- `lm(formula, data, weight, subset, na.action)`
- formula
 - $y \sim x_1 + x_2 + x_3$

Output

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

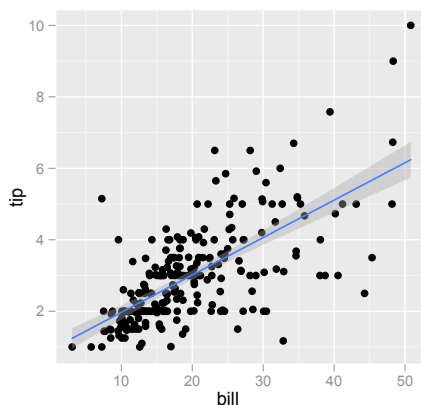
Diagnosing the fit

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

Stepwise fitting

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

Final Model?



$$\hat{tip} = 0.92 + 0.104 \times bill$$

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!

