ggplot

An implementation of the
Grammar of Graphics in R

(A new way of making graphics in R)

Overview

- Components of a graphic
- Types of graphics, and how to create them
- Comparison with lattice and base graphics
- Future work
- How to get it

What is a graphic?

- A mapping from data to aesthetic properties of graphical objects
- Data + scales + grobs (+ facetting)
- Can easily describe any standard plot

- The Grammar of Graphics. Leland Wilkinson. Springer, 2005.

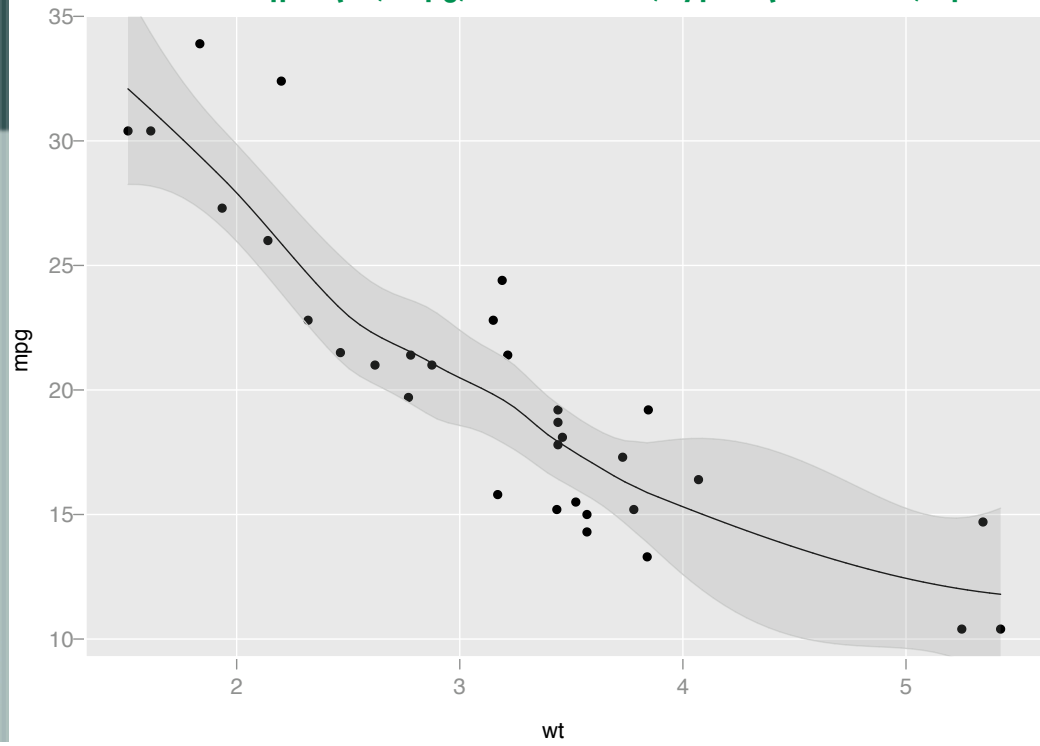
What am I?

- x position is a linear scaling of x variable
- same for y variable
- graphical object: points
- extensions: size, colours

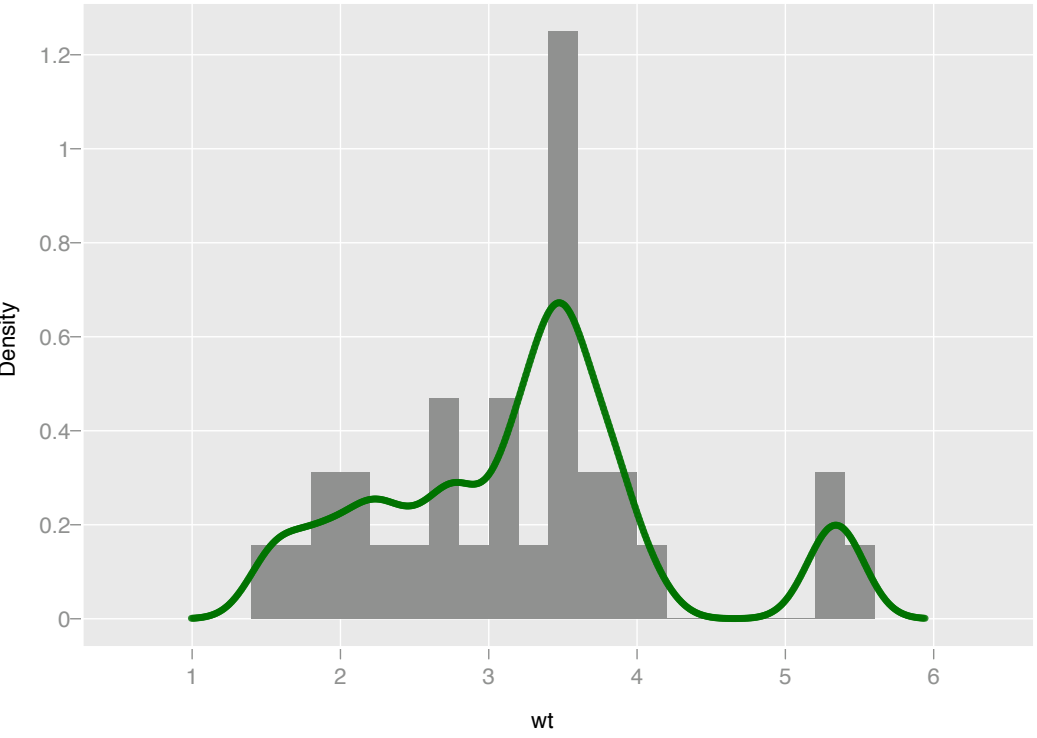
Components

- Grobs: lines, points, bars, area, rectangles, polygons, text, paths, tiles, ribbons, contours, density plot, quantile regression, smooths, histogram, hexagon binning, jittered points, box and whisker plots, groups
- Scales: colour, fill, size, glyph, line type, transformed
- Facetting: rows ~ columns

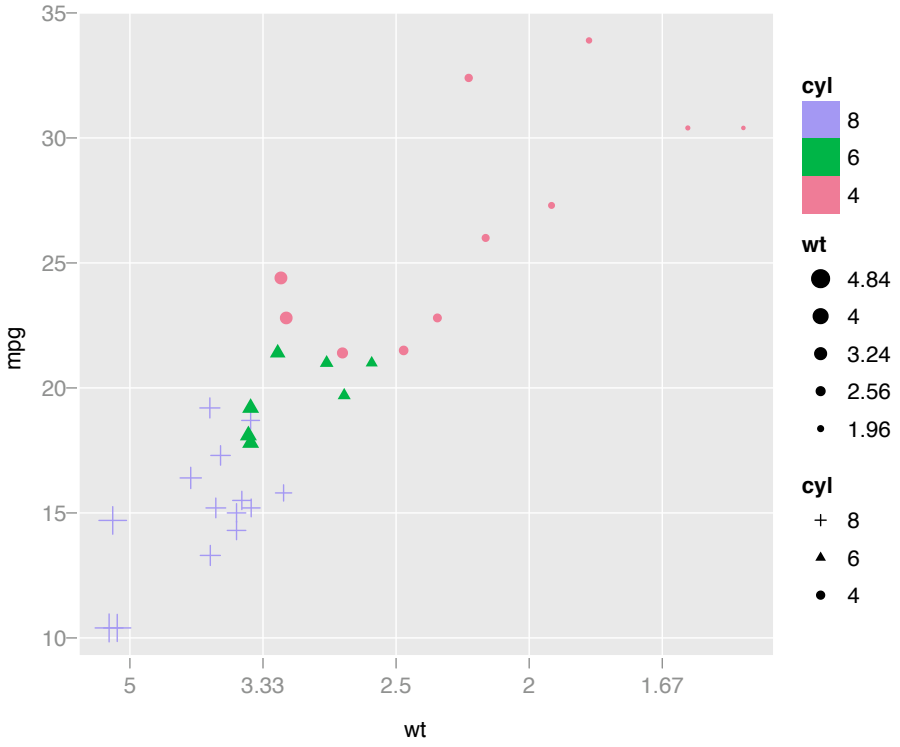
qplot(wt, mpg, data=mtcars, type=c("smooth", "point"))



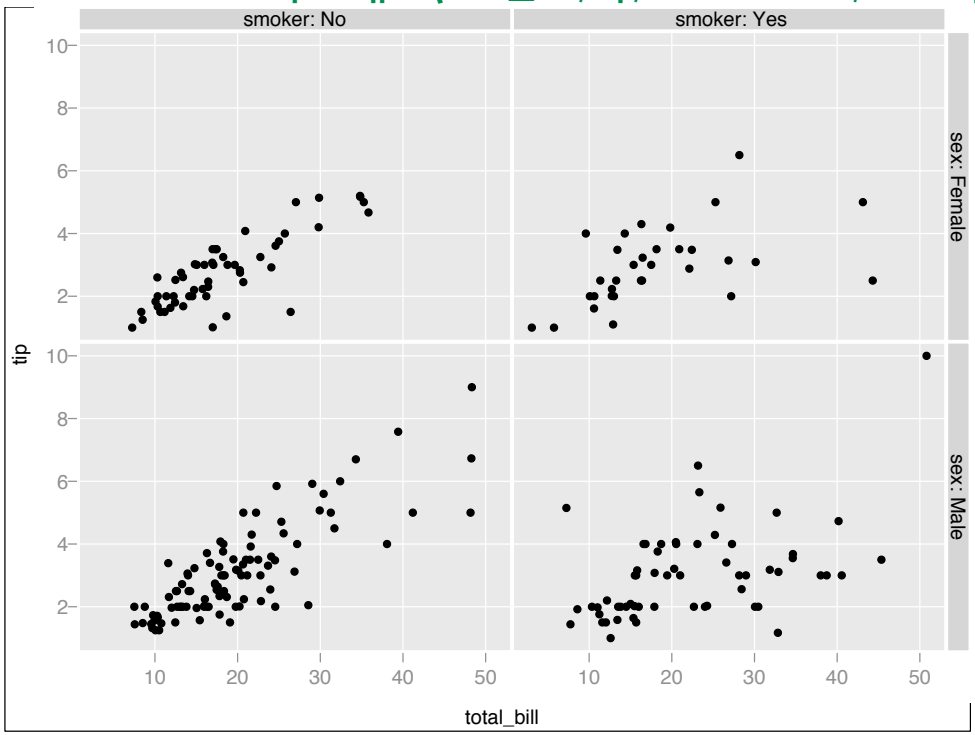
qplot(x=wt, data=mtcars, type=c("histogram", "density"))



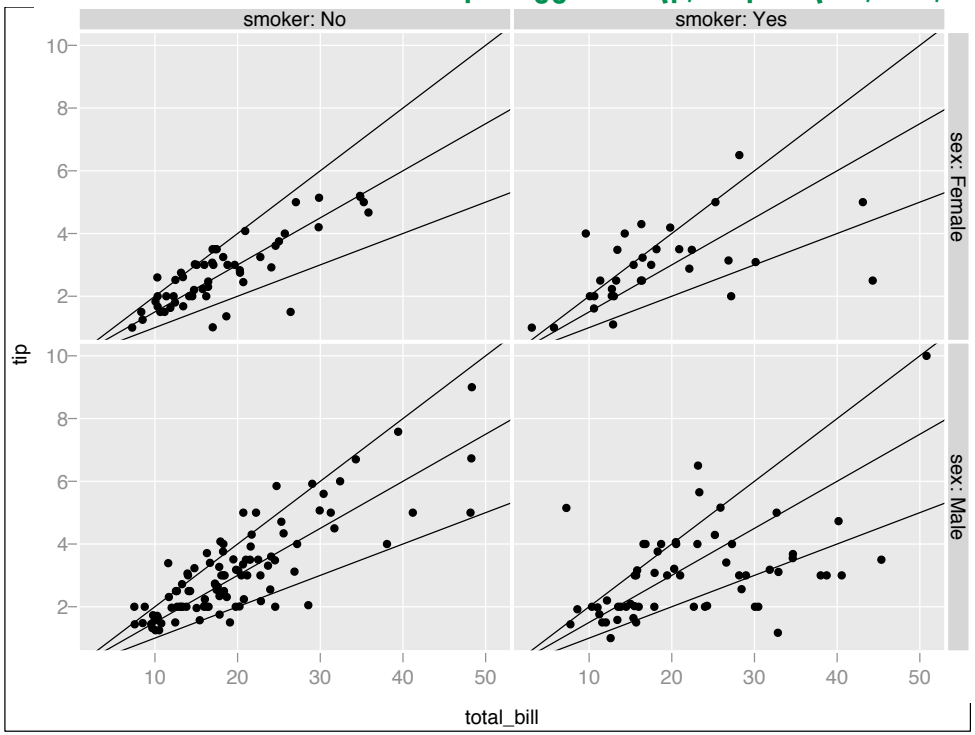
qplot(wt, mpg, data=mtcars, col=cyl, size=wt, glyph=cyl)



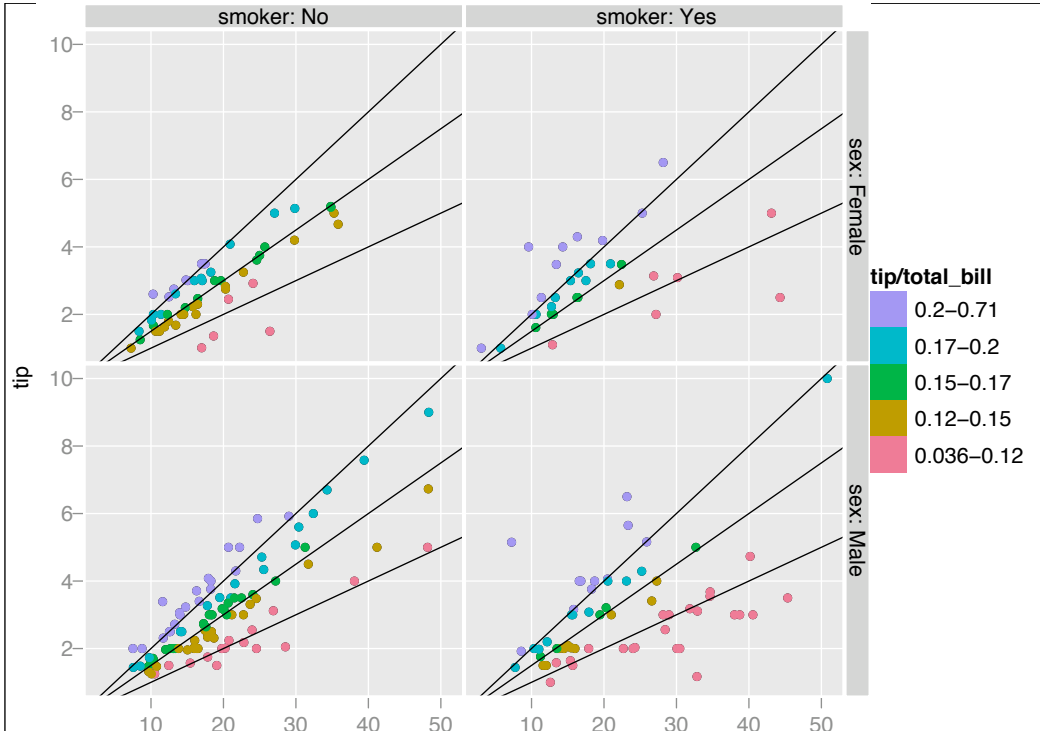
p <- qplot(total_bill, tip, sex ~ smoker, data=tips)



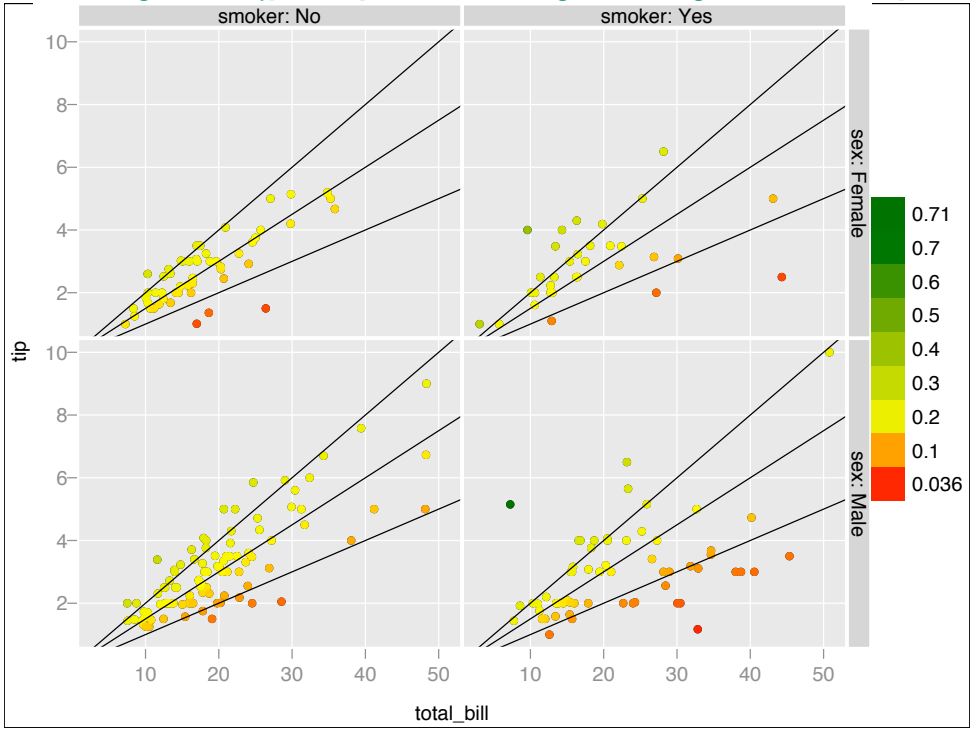
p <- ggabline(p, slope=c(0.1,0.15,0.2))



p <- ggpoint(p, aes=list(colour=tip/total_bill))



scgradient(p, midpoint=0.15, high="darkgreen", mid="yellow")



Comparison

	Base	Lattice	ggplot
Automatic legends	✘	✘/✔	✔
Easy conditioning	✘	✔	✔
Easy to use multiple data sources	✔	✘	✔
Build up plot piece by piece	✔	✘	✔
Easy to extend	✘	✘	✔
Consistent functions	✘	✘	✔
Attractive defaults	✘	✘	✔
Non-Cartesian coordinate systems	✔	✔	✘

The future

- Non Euclidean/Cartesian geometries
- Extend to interactive and dynamic graphics (my thesis)

http://had.co.nz/ggplot

Or just google for ggplot