











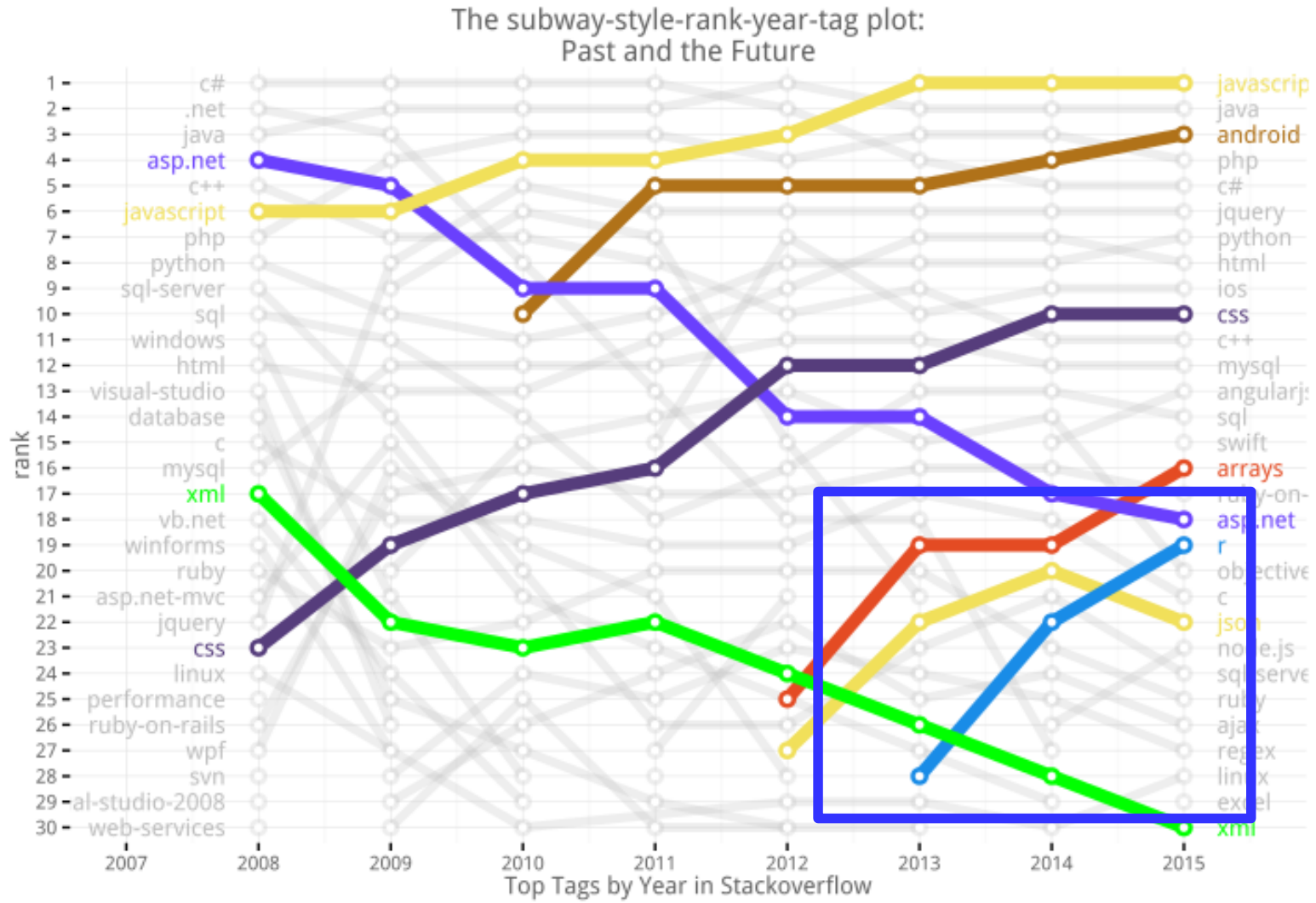
# An intro to the R tidyverse: dplyr,ggplot2, and some Twitter conference data visualization

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# R, bolstered by interest in data-science, has grown

Language Rank	Types	Spectrum Ranking
1. C		100.0
2. Java		98.1
3. Python		98.0
4. C++		95.9
5. R		87.9
6. C#		86.7
7. PHP		82.8
8. JavaScript		82.2
9. Ruby		74.5
10. Go		71.9

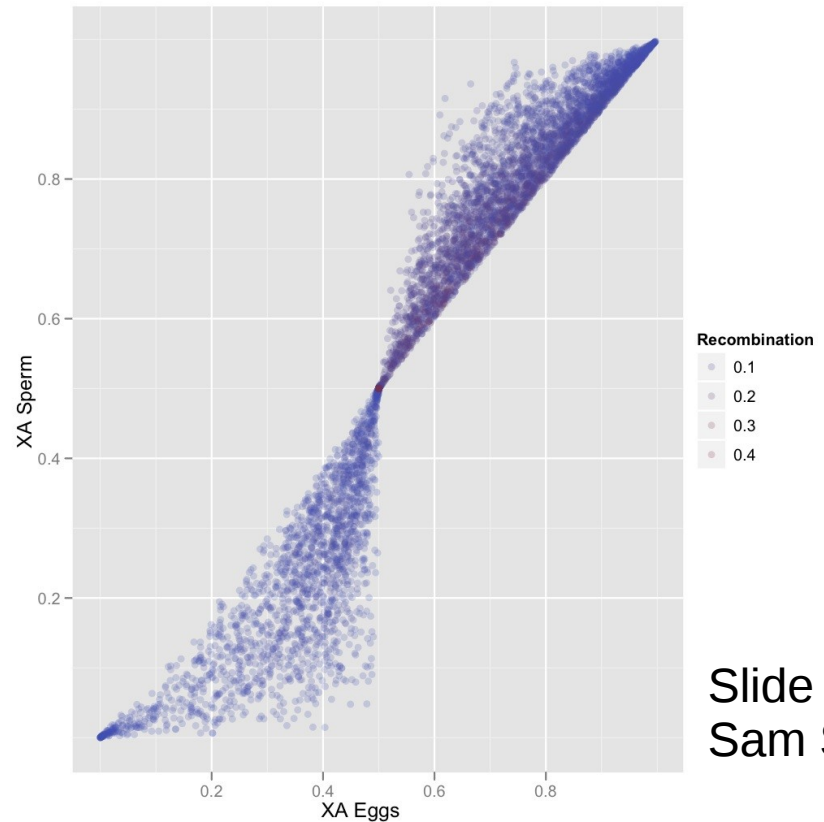
# R gets on the subway



# Why [R]?

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- Advanced techniques
- A powerful research tool
- Repeatable code
- Price
- PRICE
- PRICE



Slide by  
Sam Scarpino

# R Cran – core binaries & host of the zillions of libraries for specialized stats and visualizations



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## The Comprehensive R Archive Network

### Download and Install R

Precompiled binary distributions of the base system and contributed packages, **Windows and Mac** users most likely want one of these versions of R:

- [Download R for Linux](#)
- [Download R for \(Mac\) OS X](#)
- [Download R for Windows](#)

R is part of many Linux distributions, you should check with your Linux package management system in addition to the link above.

### Source Code for all Platforms

Windows and Mac users most likely want to download the precompiled binaries listed in the upper box, not the source code. The sources have to be compiled before you can use them. If you do not know what this means, you probably do not want to do it!

- The latest release (Tuesday 2016-06-21, Bug in Your Hair) [R-3.3.1.tar.gz](#), read [what's new](#) in the latest version.
- Sources of [R alpha and beta releases](#) (daily snapshots, created only in time periods before a planned release).
- Daily snapshots of current patched and development versions are [available here](#). Please read about [new features and bug fixes](#) before filing corresponding feature requests or bug reports.
- Source code of older versions of R is [available here](#).
- Contributed extension [packages](#)

### Questions About R

- If you have questions about R like how to download and install the software, or what the license terms are, please read our [answers to frequently asked questions](#) before you send an email.

# RStudio

- <http://rstudio.org/>

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The screenshot displays the RStudio environment with the following components:

- Source Editor:** Contains R code for installing ggplot2, loading the diamonds dataset, and creating a faceted scatter plot of Price vs. Carat, colored by clarity.
- Console:** Shows the output of the summary function for the diamonds dataset and the execution of the plotting commands.
- History:** Lists the executed R commands and their timestamps.
- Plots:** Displays a scatter plot titled "Diamond Pricing" with Price on the x-axis and Carat on the y-axis. Points are colored by clarity, with a legend on the right showing categories: I1, SI2, SI1, VS2, VS1, VVS2, VVS1, and IF.

```
install.packages("ggplot2")
library(ggplot2)

View(diamonds)
summary(diamonds)
summary(diamonds$price)

qplot(price, carat, data = diamonds)

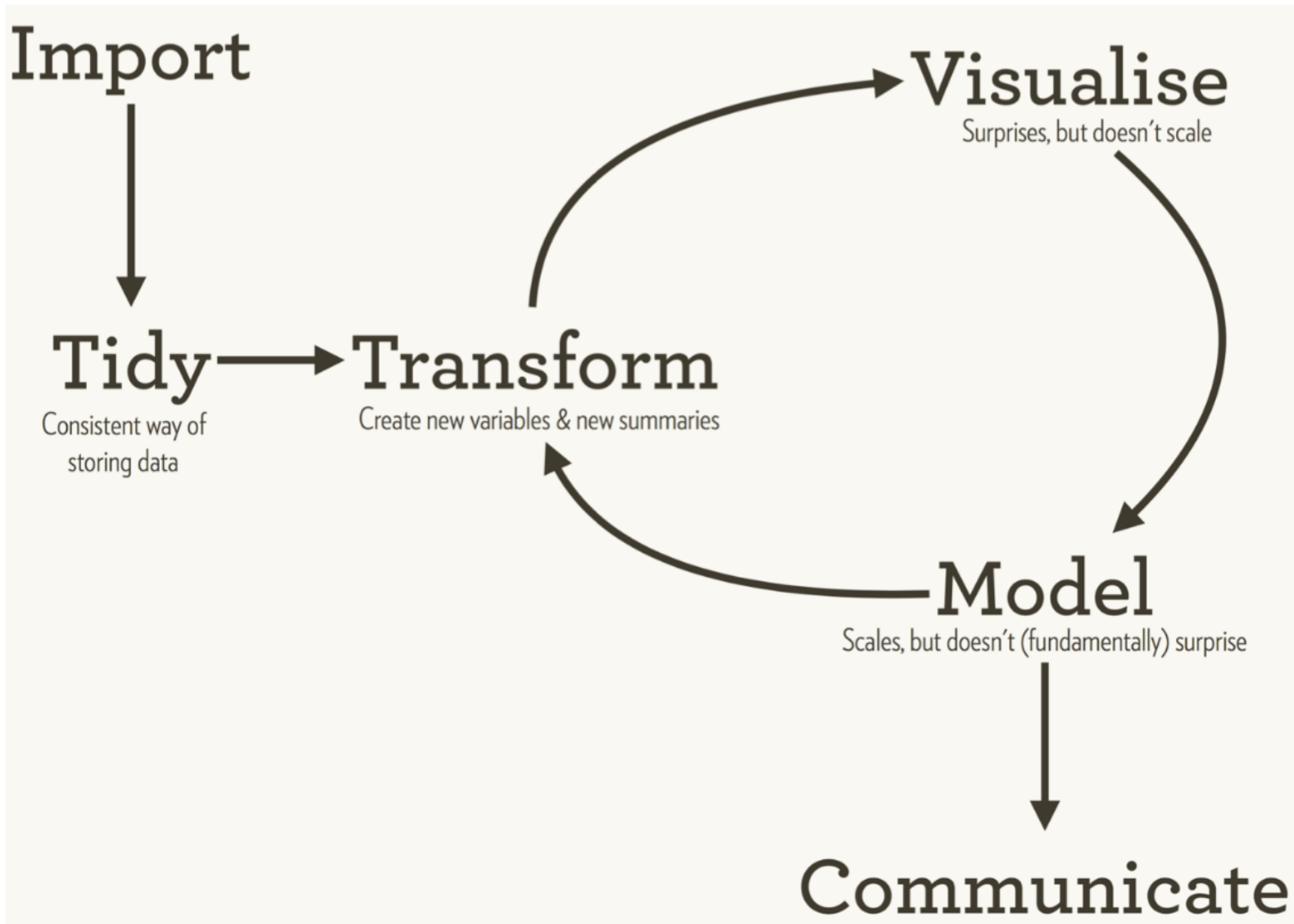
qplot(price, carat, data = diamonds, color=clarity,
      xlab = "Price", ylab = "Carat",
      main = "Diamond Pricing") +
  opts(plot.title = theme_text(size = 22))
```

	x	y	z
Min.	0.000	0.000	0.000
1st Qu.	4.710	4.720	2.910
Median	5.700	5.710	3.530
Mean	5.731	5.735	3.539
3rd Qu.	6.540	6.540	4.040
Max.	10.740	58.900	31.800

```
> summary(diamonds$price)
  Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  326    950    2401    3933    5324   18820

> qplot(price, carat, data = diamonds)
> qplot(price, carat, data = diamonds, color = clarity, xlab =
"Price", ylab = "Carat", main = "Diamond Pricing") +
  opts(plot.title = theme_text(size = 22))
>
```

# Statistical analysis cycle (Wickham)



# Twitter Mining with R

- Key libraries
  - `twitter`, `streamR` to download from twitter
    - `ROAuth` to actually get authorized to use your account
    - `twitter` is fine for short term things, but for large, sustained analyses use `streamR` (downloading 100k stream of `#rio2016`, etc)
      - `Twitter` is limited to 1 week window of twitter search API
  - `Tidyttext`, `wordcloud`, `lubridate`, `ggraph`
    - Breaking down tweets into words and doing sentiment analysis, in a “tidy” fashion
    - `Lubridate` for date parsing (it is a nightmare in R)
    - `Ggraph` -plot networks with `ggplot`



# Resources

- <http://r4ds.had.co.nz/>
- <http://docs.ggplot2.org/current/>
- The ggplot2 book (v2 is out)!
- <https://github.com/hadley/ggplot2-book>
- #rstats on twitter is great, not huge egos, helpful
- Stack overflow