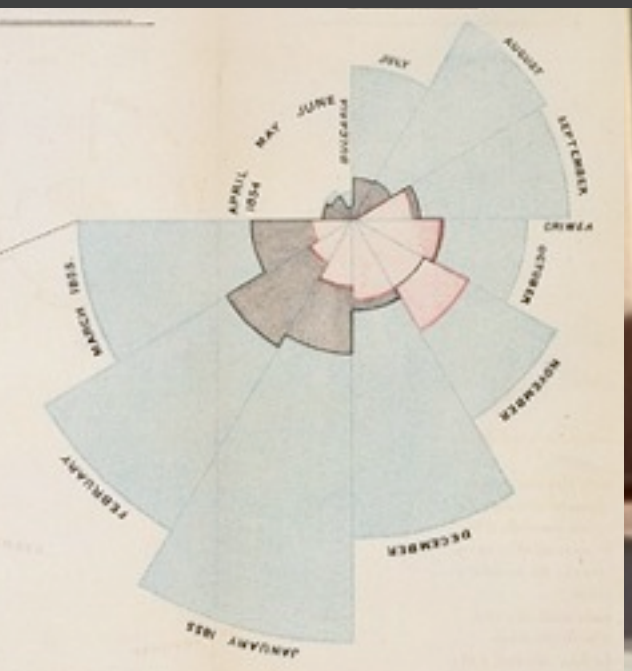
CSE512 :: 18 Feb 2014

Design Critiques



Jeffrey Heer University of Washington

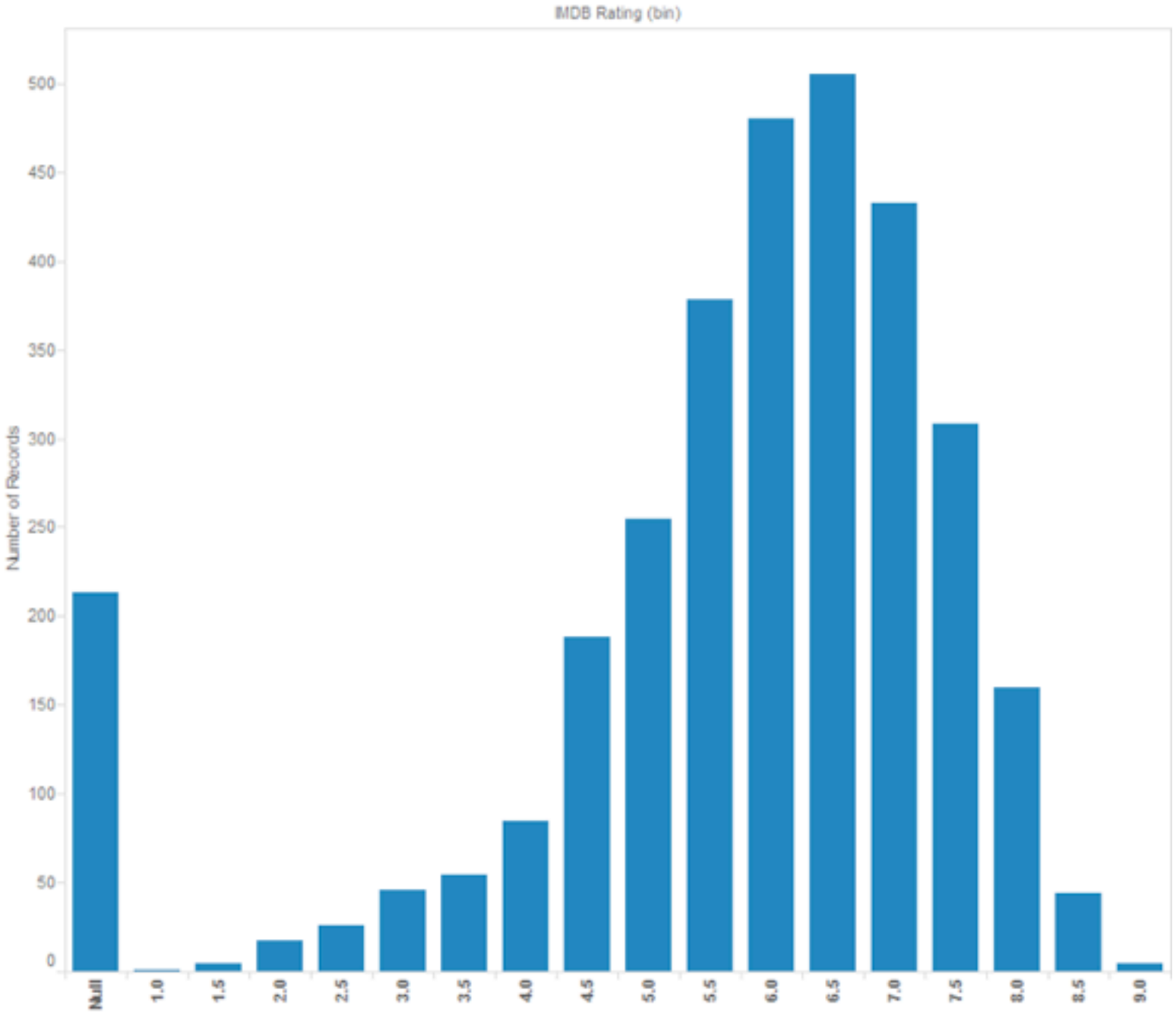
A2 Review

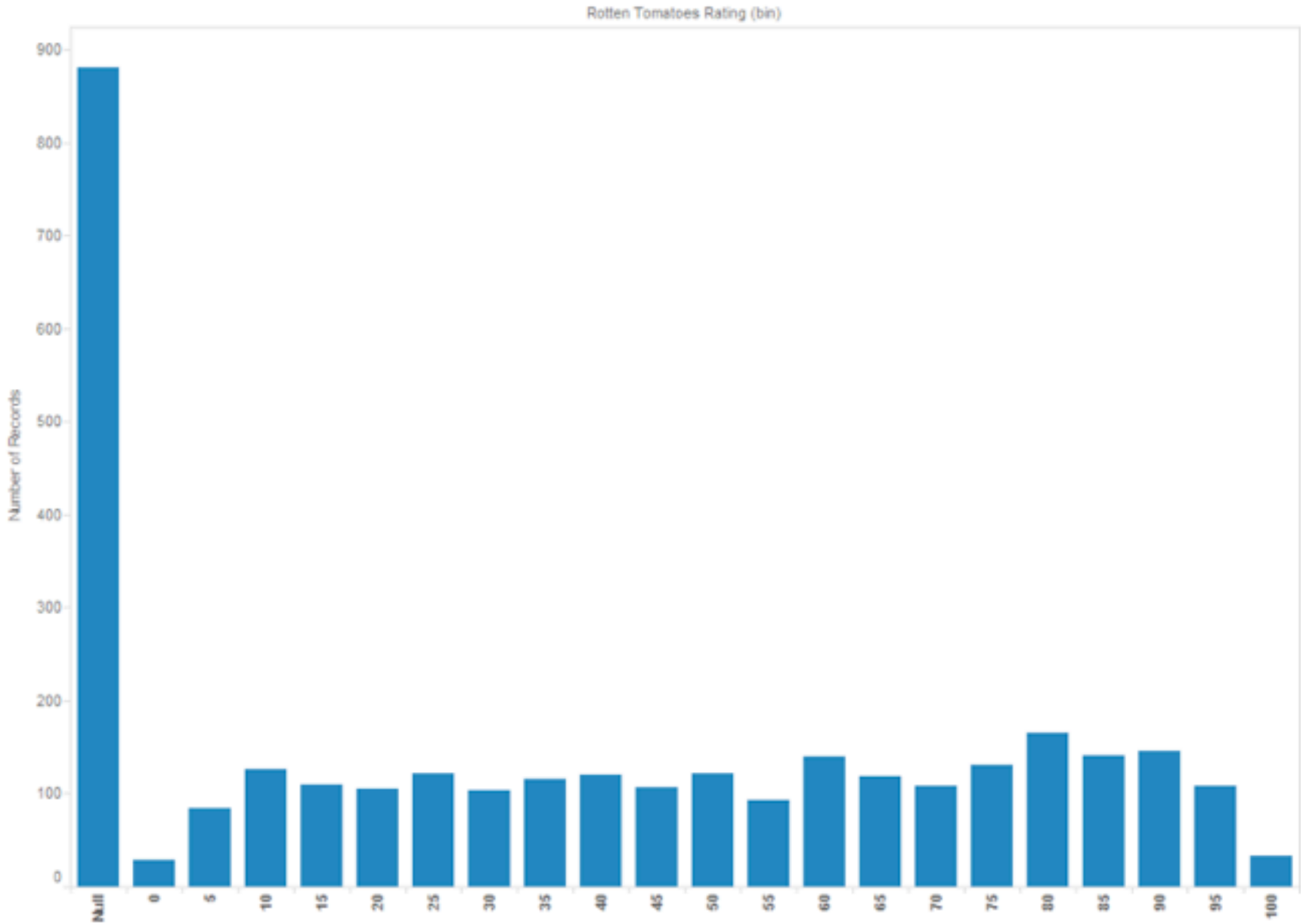
Example:
Motion Pictures Data

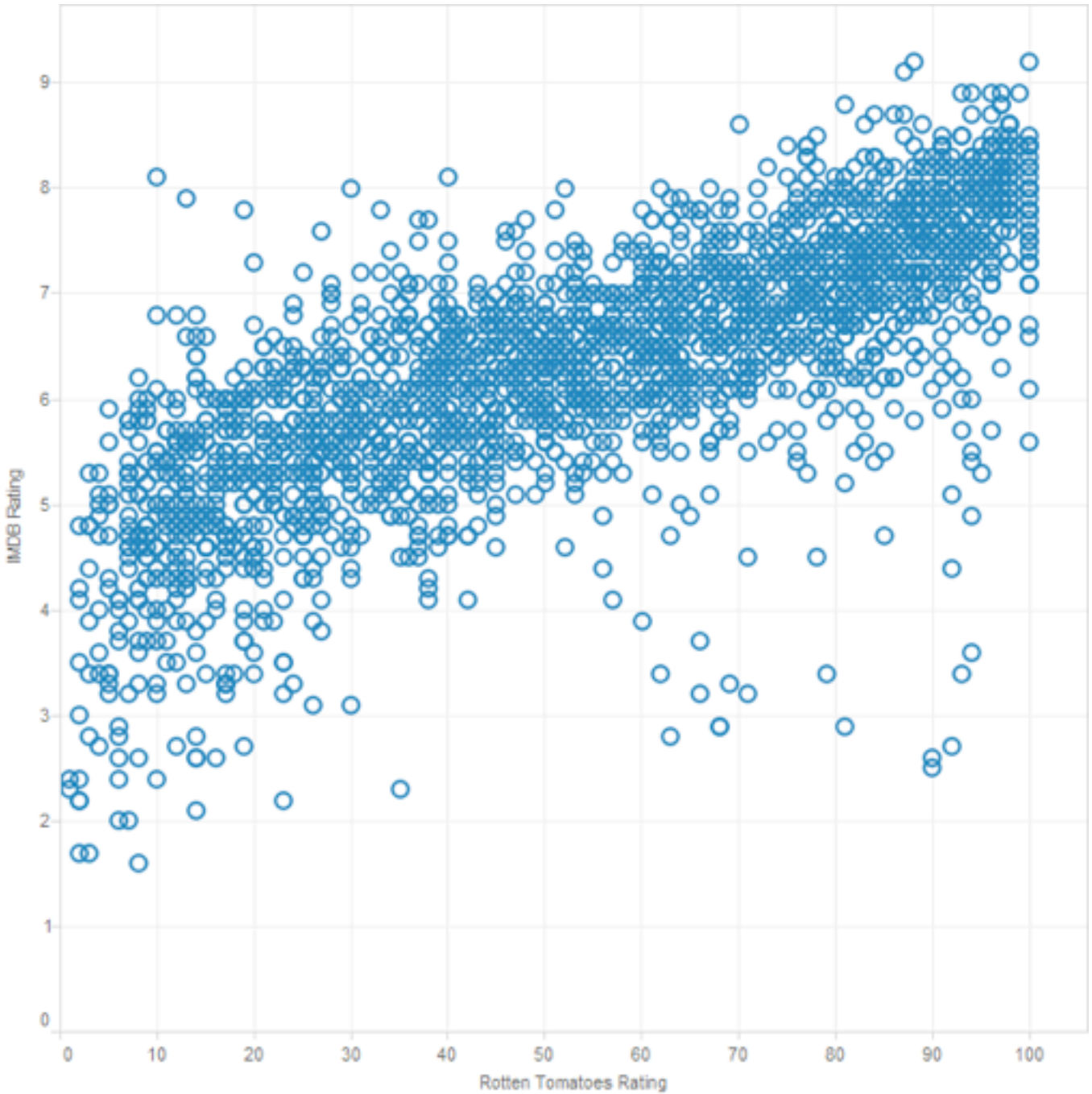
Motion Pictures Data

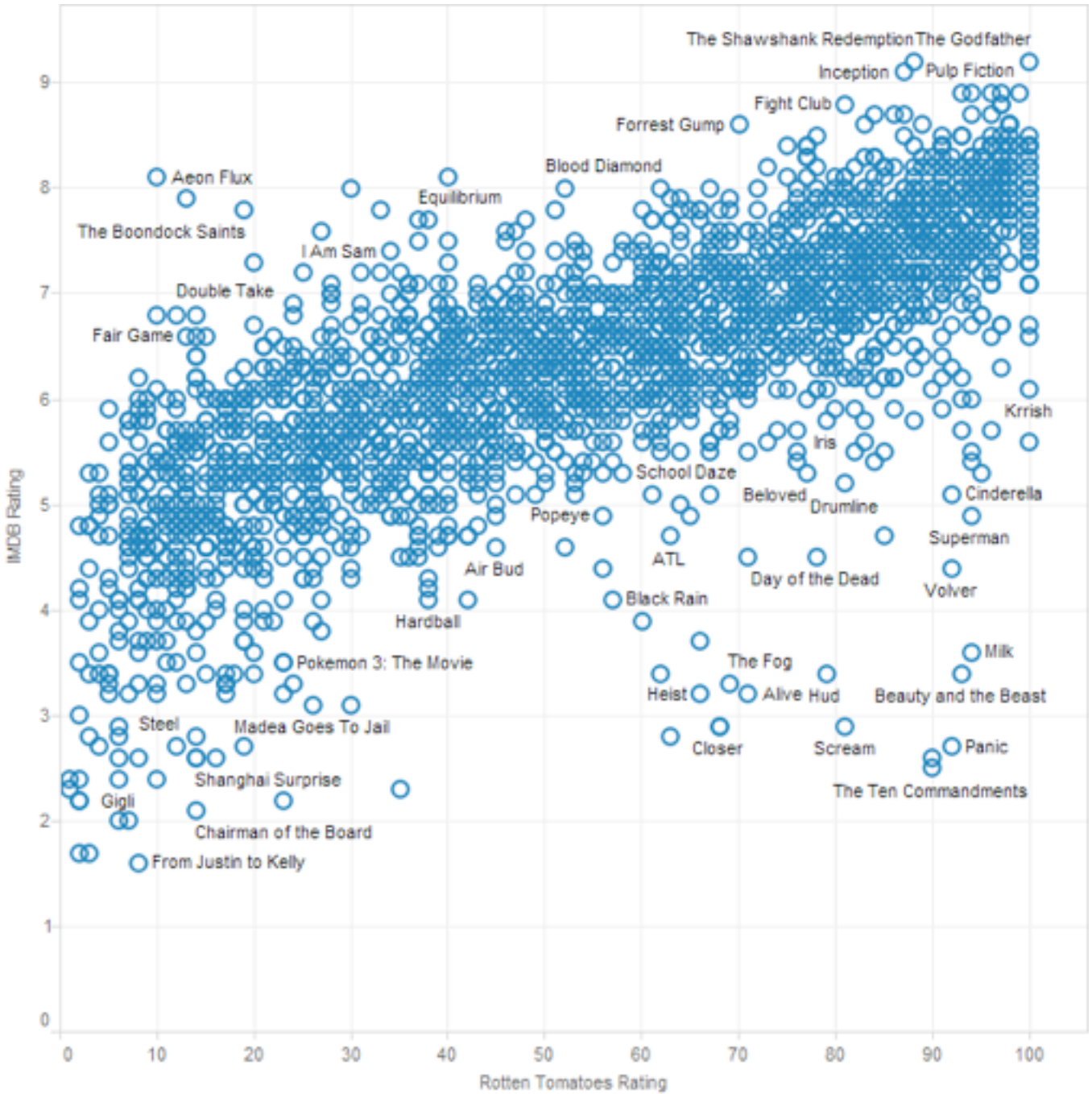
Title	String
IMDB Rating	Number
Rotten Tomatoes Rating	Number
MPAA Rating	String
Release Date	Date
Worldwide Gross	Number

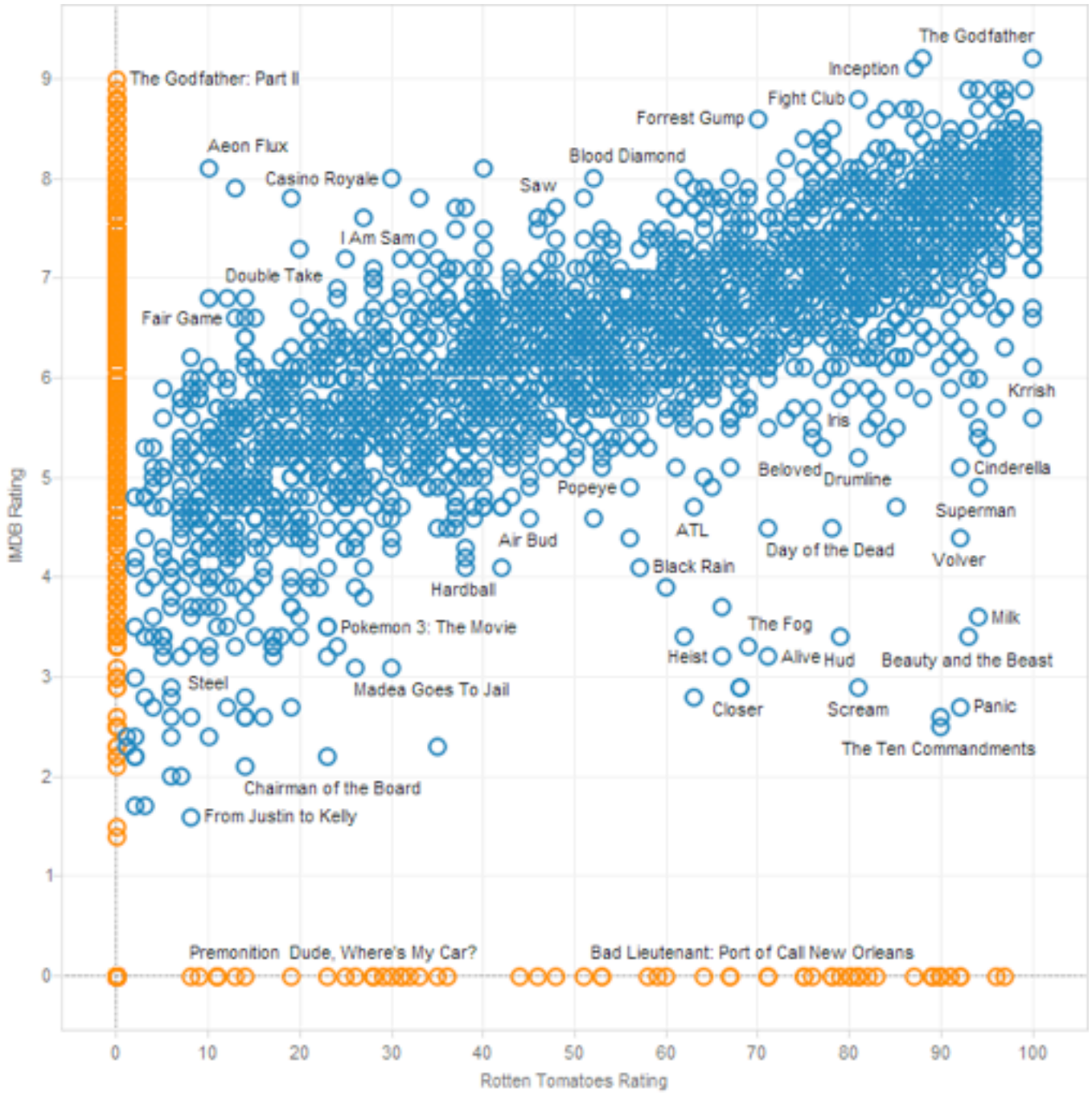
Integrated data from IMDB, Rotten Tomatoes and The Numbers, joined on film title.

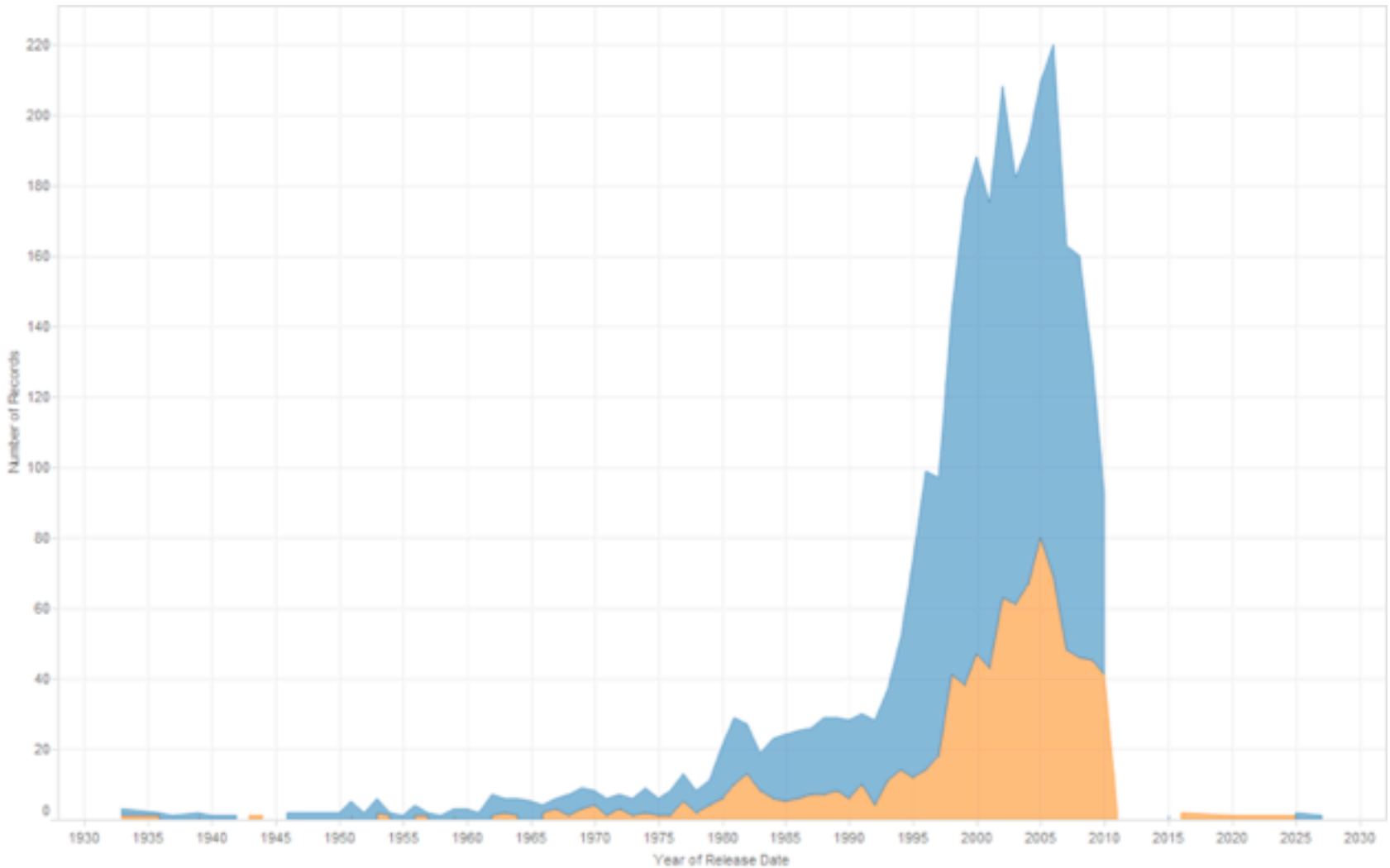

IMDB Rating (bin)
Number of Records
500
450
400
350
300
250
200
150
100
50
0
Null
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0


Rotten Tomatoes Rating (bin)
Number of Records
900
800
700
600
500
400
300
200
100
0
Null
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100


IMDB Rating
0
1
2
3
4
5
6
7
8
9
0
10
20
30
40
50
60
70
80
90
100
Rotten Tomatoes Rating

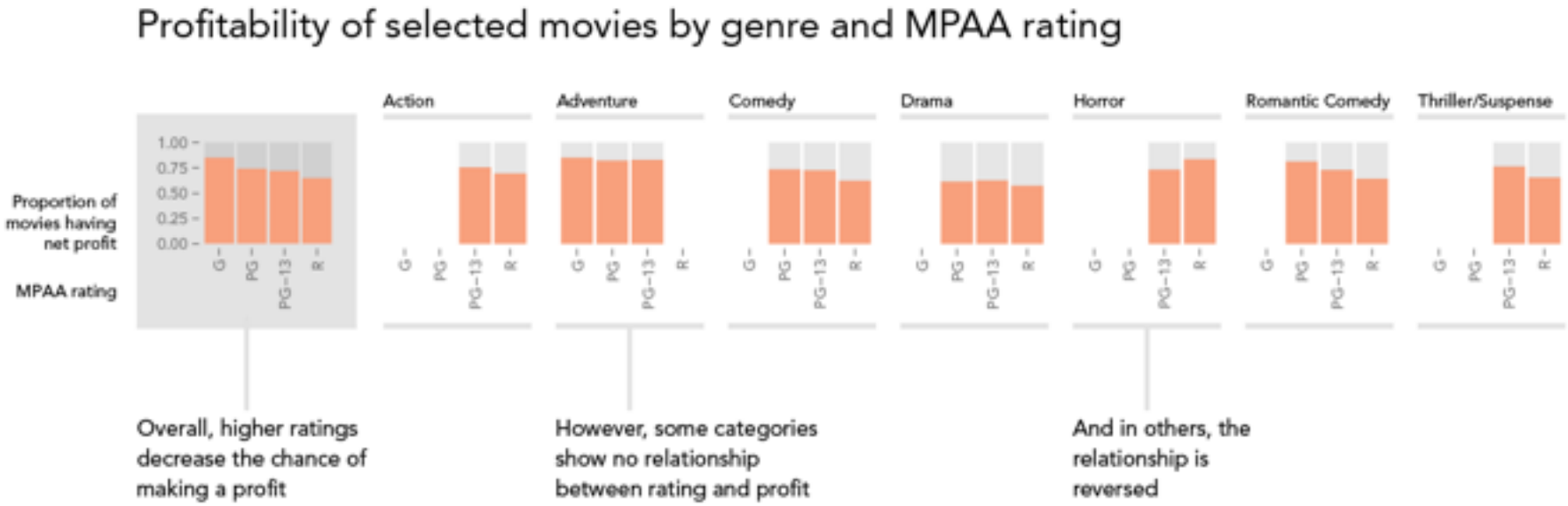

The Shawshank Redemption
The Godfather
Inception
Pulp Fiction
Fight Club
Forrest Gump
Blood Diamond
Aeon Flux
Equilibrium
The Boondock Saints
I Am Sam
Double Take
Fair Game
Krrish
Iris
School Daze
Beloved
Drumline
Cinderella
Popeye
Superman
ATL
Air Bud
Day of the Dead
Volver
Black Rain
Hardball
Milk
Pokemon 3: The Movie
The Fog
Heist
Alive
Hud
Beauty and the Beast
Steel
Madea Goes To Jail
Closer
Scream
Panic
Shanghai Surprise
The Ten Commandments
Gigli
Chairman of the Board
From Justin to Kelly
IMDB Rating
Rotten Tomatoes Rating
0
1
2
3
4
5
6
7
8
9
0
10
20
30
40
50
60
70
80
90
100


The Godfather
Inception
Fight Club
Forrest Gump
Blood Diamond
Saw
Casino Royale
Aeon Flux
The Godfather: Part II
I Am Sam
Double Take
Fair Game
Krrish
Iris
Beloved
Drumline
Cinderella
Popeye
Superman
ATL
Air Bud
Day of the Dead
Volver
Black Rain
Hardball
Pokemon 3: The Movie
The Fog
Milk
Heist
Alive
Hud
Beauty and the Beast
Steel
Madea Goes To Jail
Closer
Scream
Panic
The Ten Commandments
Chairman of the Board
From Justin to Kelly
Premonition
Dude, Where's My Car?
Bad Lieutenant: Port of Call New Orleans
IMDB Rating
Rotten Tomatoes Rating
0
1
2
3
4
5
6
7
8
9
0
10
20
30
40
50
60
70
80
90
100

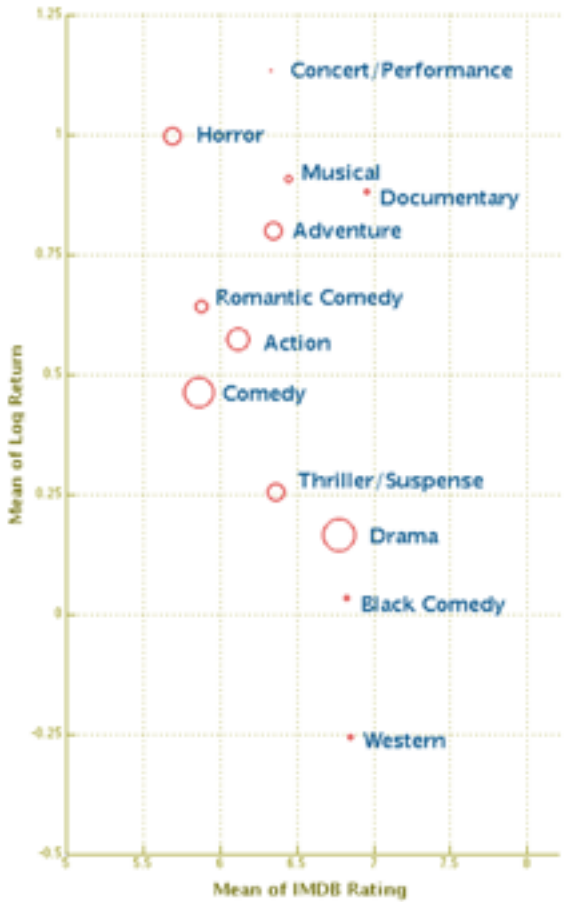

Number of Records
0
20
40
60
80
100
120
140
160
180
200
220
1930
1935
1940
1945
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
2030
Year of Release Date

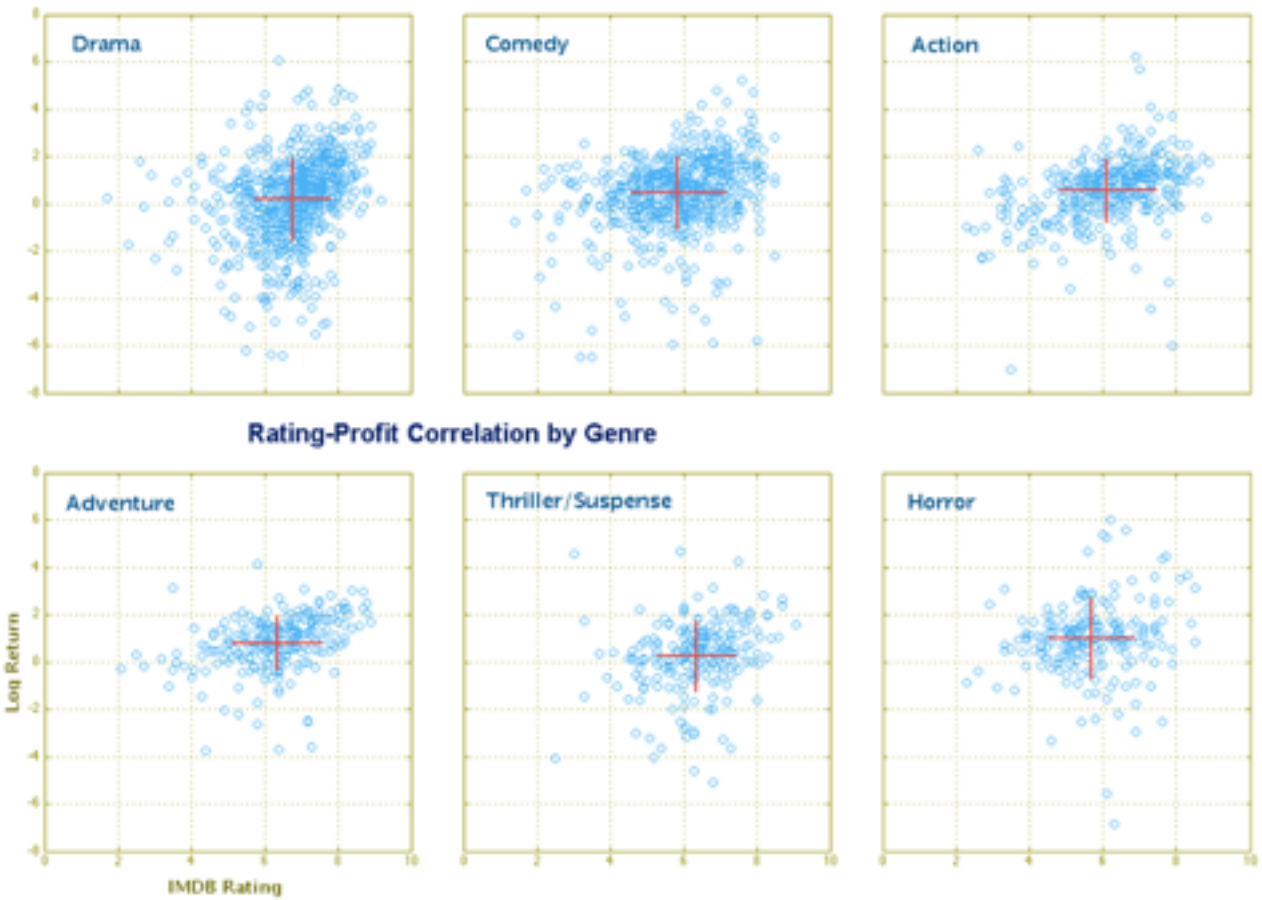
Assignment 2 Rubric

1. Clear questions and applicable data set
2. Data set, acquisition, and transformation described
3. Visual exploration process description
4. Depth of analysis
5. Design of final visualization
   * Instructive image (does it answer the question?)
   * Appropriate caption and description
   * Expressiveness / Effectiveness of visualization


Profitability of selected movies by genre and MPAA rating
Proportion of movies having net profit
MPAA rating
1.00
0.75
0.50
0.25
0.00
G
PG
PG–13
R
Action
Adventure
Comedy
Drama
Horror
Romantic Comedy
Thriller/Suspense
Overall, higher ratings decrease the chance of making a profit
However, some categories show no relationship between rating and profit
And in others, the relationship is reversed

Matthew Kay


Concert/Performance
Horror
Musical
Documentary
Adventure
Romantic Comedy
Action
Comedy
Thriller/Suspense
Drama
Black Comedy
Western
Mean of Log Return
Mean of IMDB Rating


Drama
Comedy
Action
Rating-Profit Correlation by Genre
Adventure
Thriller/Suspense
Horror
Log Return
IMDB Rating

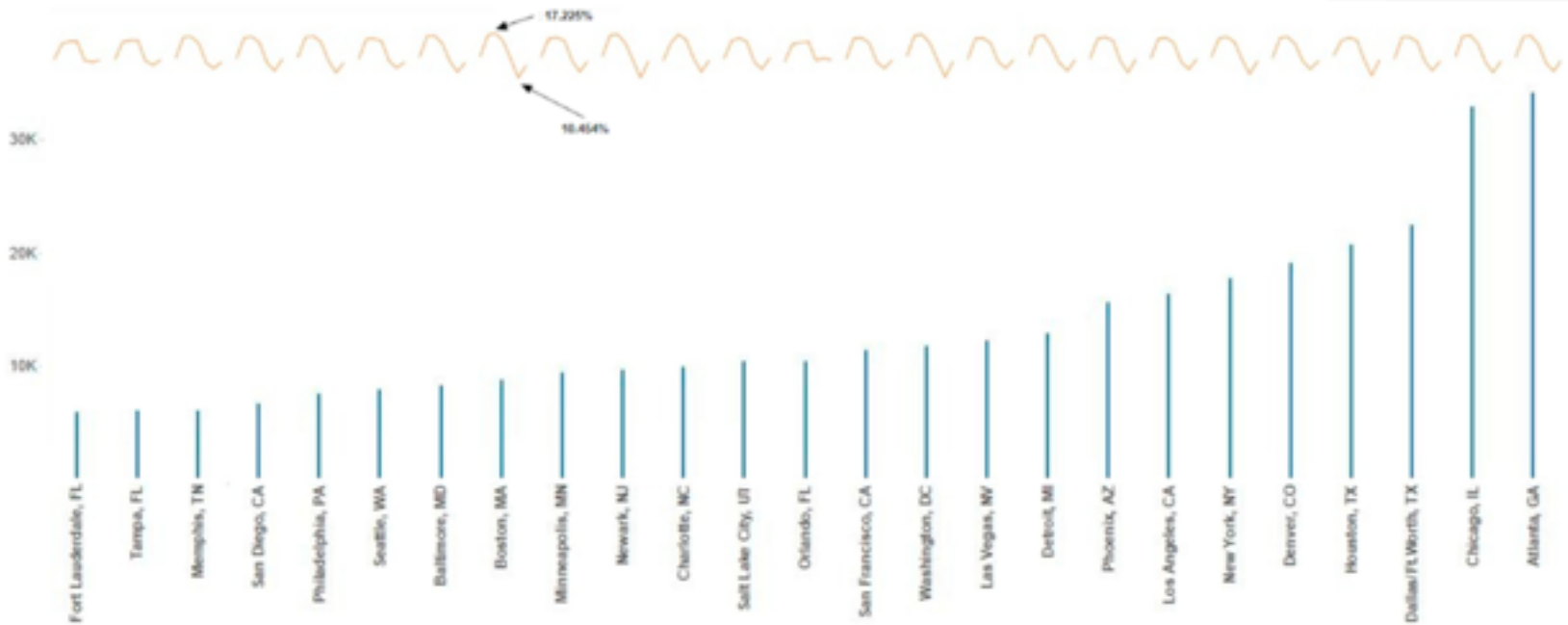
Luheng He

Weekly Flight Distributions for 25 U.S. Cities

The image at left shows the percentage of all U.S. flights taken on each day of the week during December 2009.

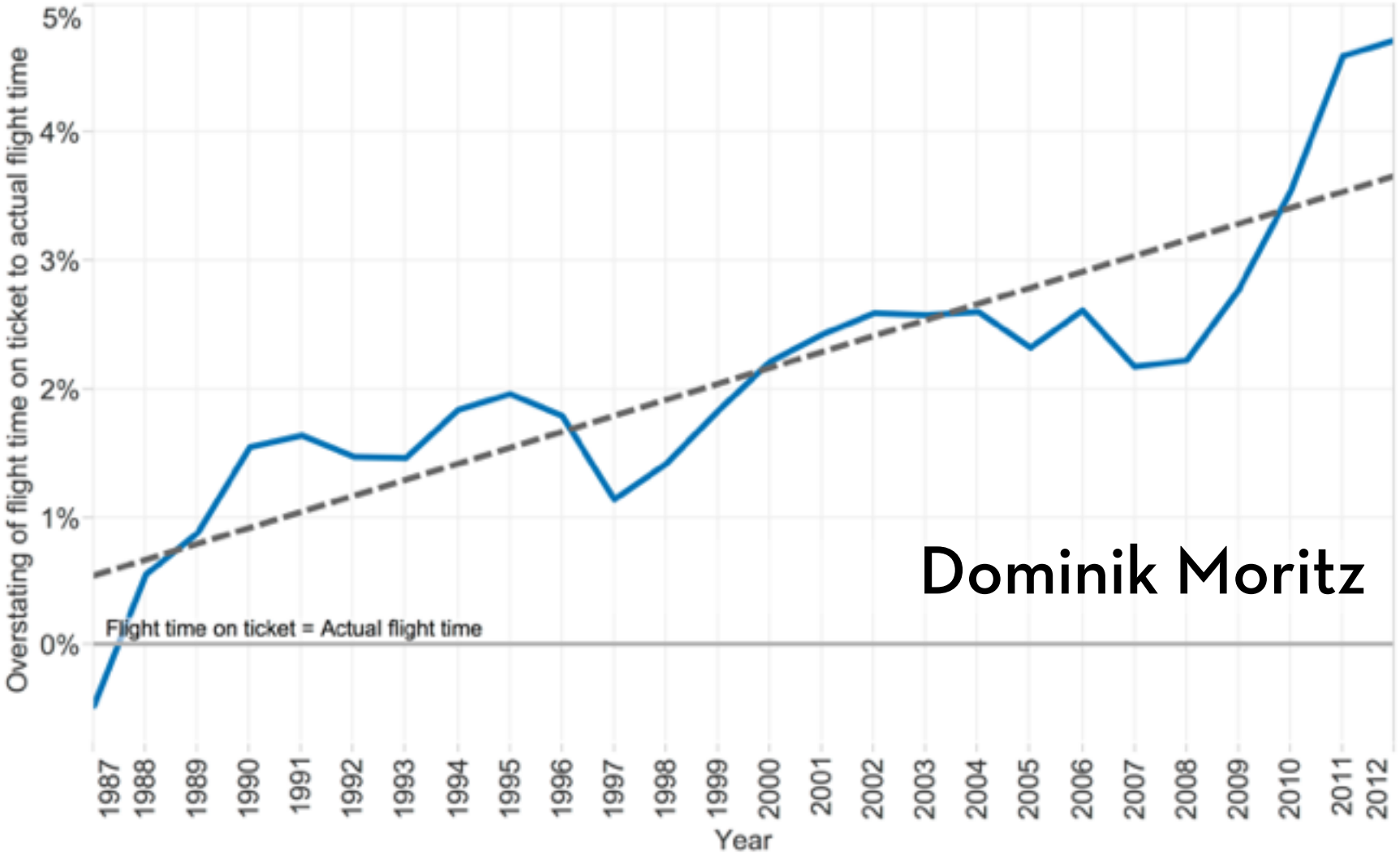
The image below shows the total count of flights taken into and out of the top 25 most-flown cities in the U.S., along with a weekly distribution of flights for each, for December 2009.

What can we conclude? Well... there were more Mondays, Tuesdays, and Wednesdays in December 2009 than Fridays, Saturdays, or Sundays. D'oh! The image at right displays this same information in a more familiar form.

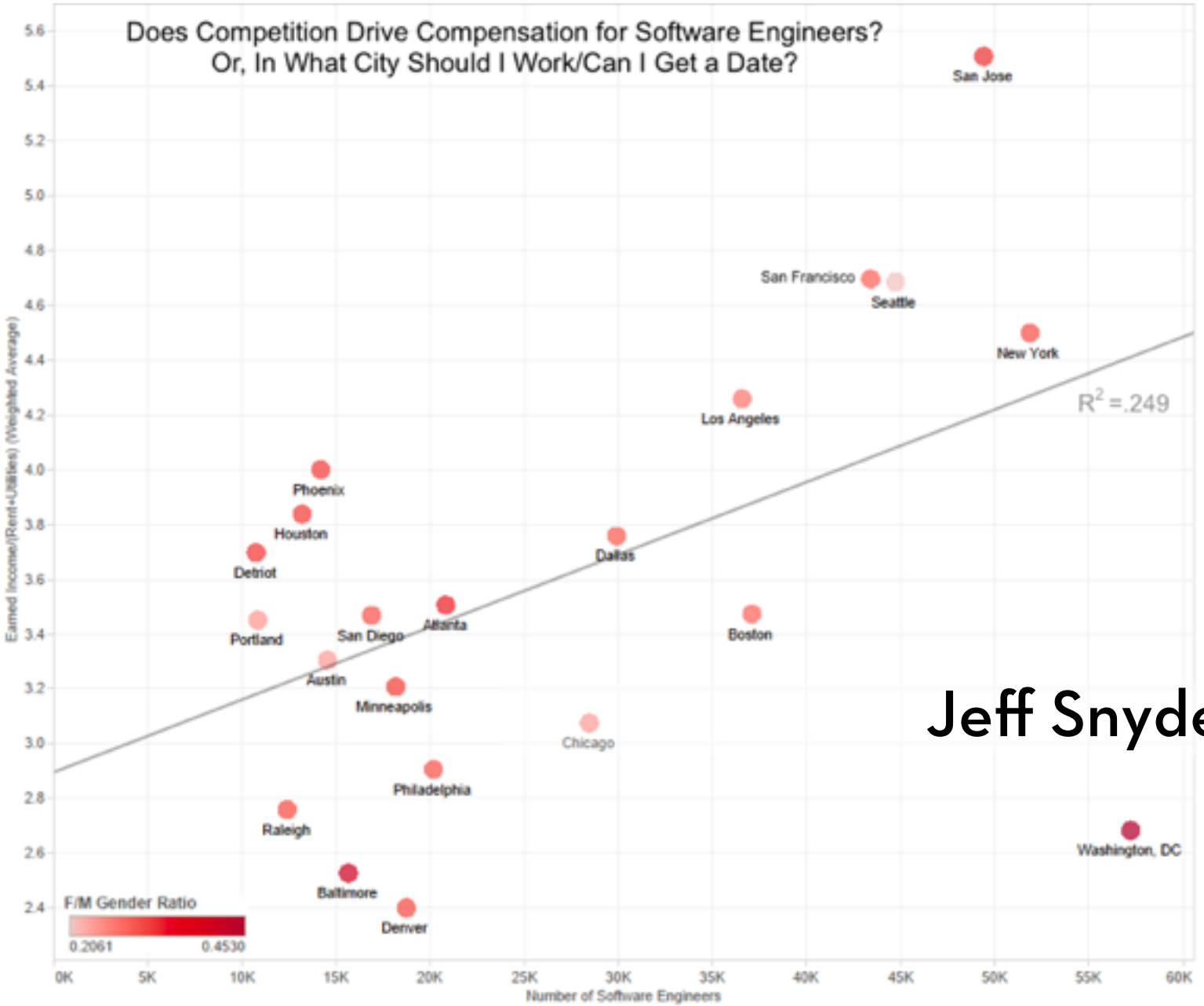


Lucia Williams

Do Airlines tell you that your Flight takes longer than it actually does?



This graph shows the ratio of the flight time as given on the ticket or the Internet to the actual flight time. In other words, how much longer is the flight time given by the airline. There is a clear trend of overestimating flight time in order to avoid the flight to be classified as delayed to avoid getting a lower ranking in the on-time statistics. The averages are calculated for each year including 2 previous years (as measured in December) to smoothen the line.

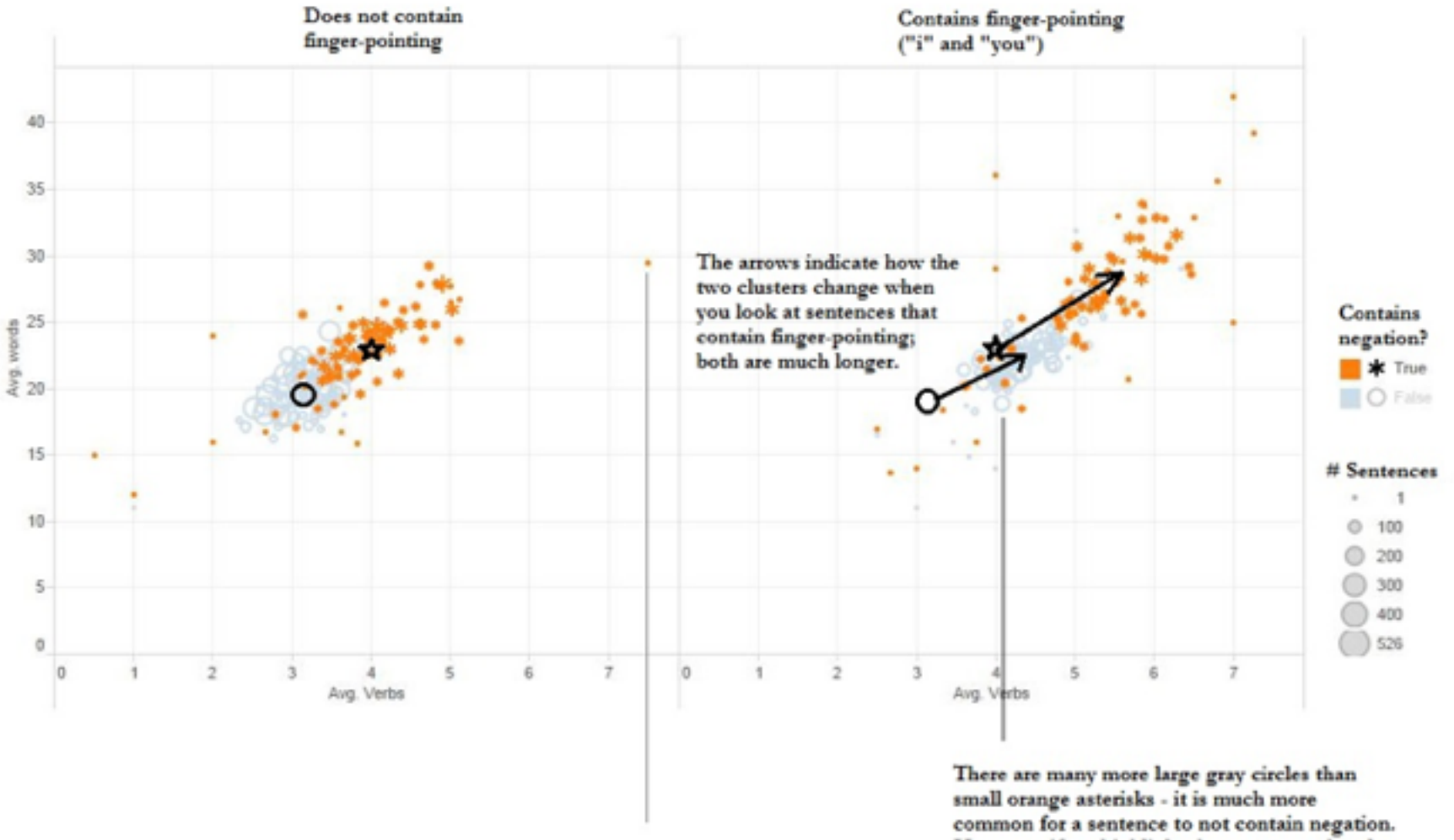

Does Competition Drive Compensation for Software Engineers?
Or, In What City Should I Work/Can I Get a Date?
Earned Income/(Rent+Utilities) (Weighted Average)
Number of Software Engineers
R^2 = .249
San Jose
San Francisco
Seattle
New York
Los Angeles
Dallas
Boston
Phoenix
Houston
Detriot
Portland
San Diego
Atlanta
Austin
Minneapolis
Chicago
Philadelphia
Raleigh
Baltimore
Denver
Washington, DC
F/M Gender Ratio
0.2061
0.4530
5.6
5.4
5.2
5.0
4.8
4.6
4.4
4.2
4.0
3.8
3.6
3.4
3.2
3.0
2.8
2.6
2.4
0K
5K
10K
15K
20K
25K
30K
35K
40K
45K
50K
55K
60K

Jeff Snyder

Negation and finger-pointing together is associated with longer, more verbose sentences on Wiki Talk pages

Below, we have aggregated 20k sentences extracted from 80 wikipedia articles on a wide variety of topics, ranging from politically divisive issues and pop culture.

Katie Kuksenok



Text data scraped from Wiki Talk pages contains a lot of noise. For example, this sentence with mostly verbs and few words is more likely to have been misalebelled as a result of slang or errors, and therefore less reliable than the points with more typical word-to-verb ratios.

There are many more large gray circles than small orange asterisks - it is much more common for a sentence to not contain negation. However, if we highlight the sentences that do contain negation, we can more clearly see how separate they are from the gray mass of other datapoints.

Final Project

Final Project

Design a new visualization system or technique
Many options: new system, interaction technique, design study
4-6 page paper in conference paper format
2 Presentations: in-class report & final poster session

Schedule
Project Proposal: **Tuesday, Feb 18** *(end of day)*
In-Class Presentation: **Thursday, Feb 27** *(slides due 2/26 5pm)*
Poster Presentation: **Thursday, Mar 13** *(5-8pm)*
Final Papers: **Thursday, Mar 20** *(7am)*

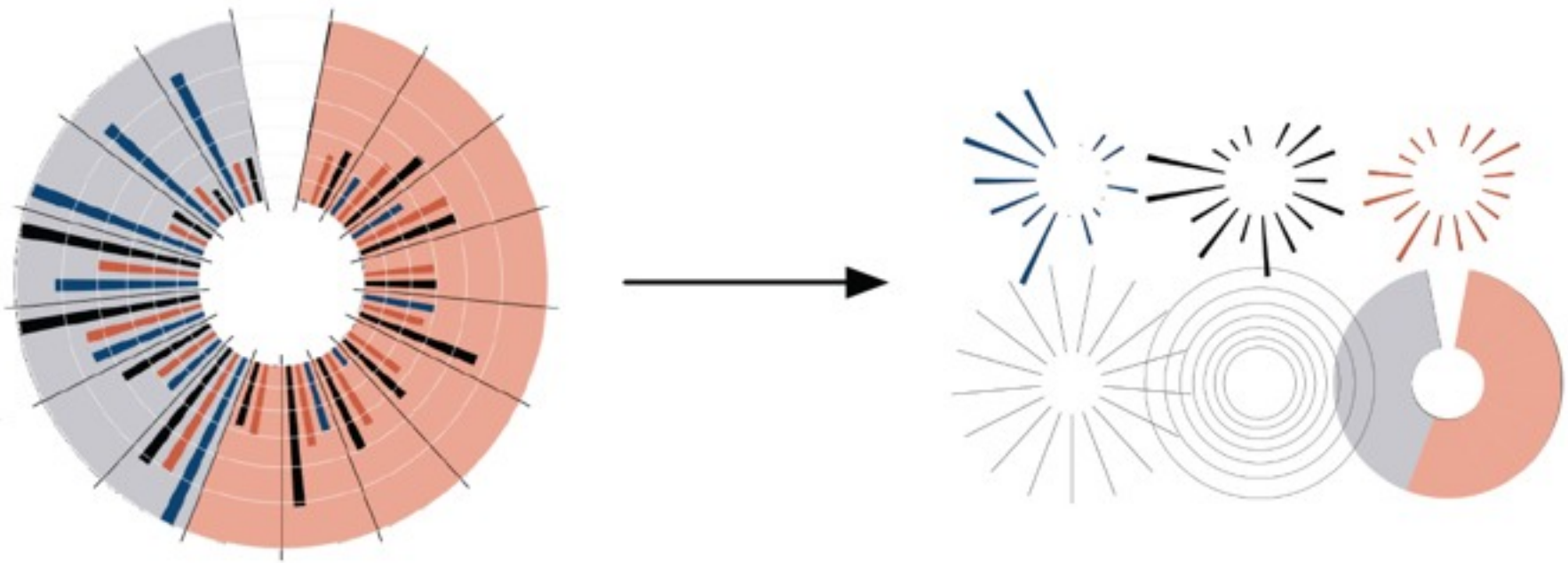
Logistics
Groups up to **4** people, graded individually
Clearly report responsibilities of each member

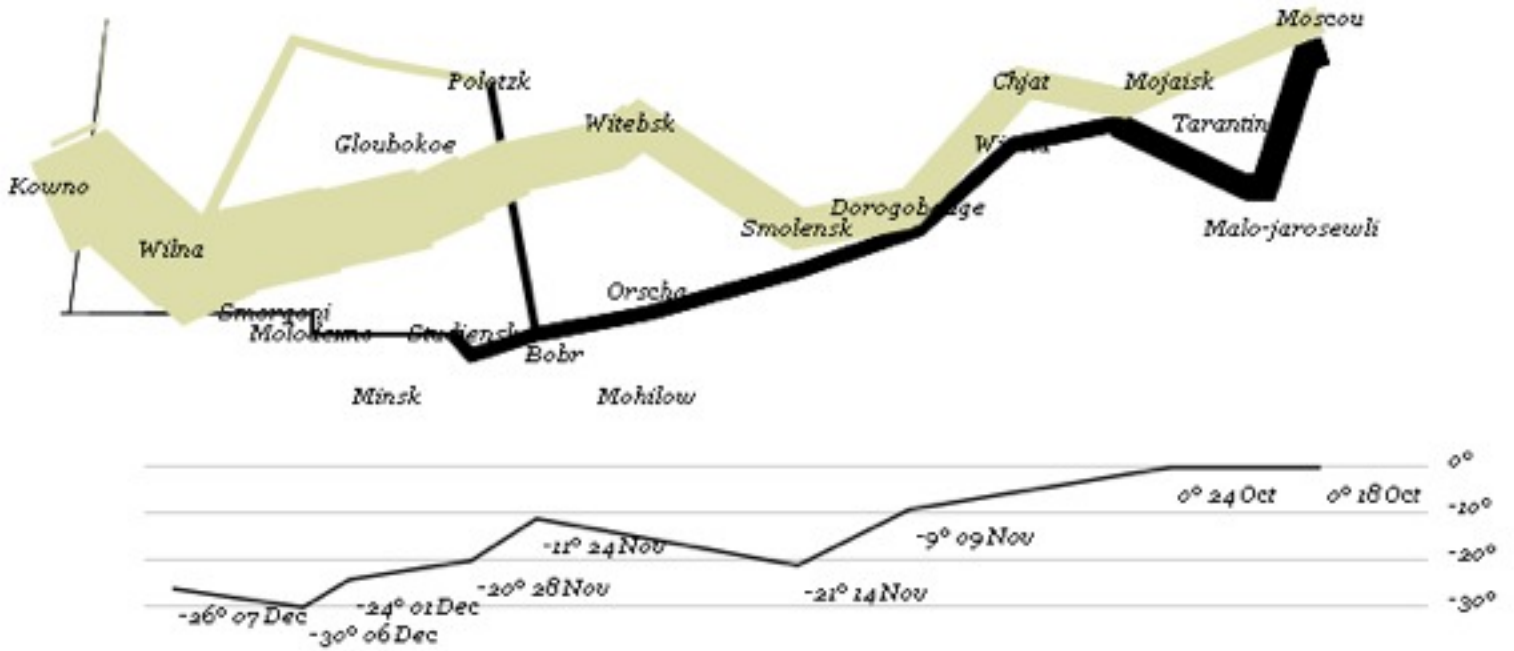
RunMonster

Troy Brant & Steve Marmon

Protovis: A Graphical Toolkit for Visualization

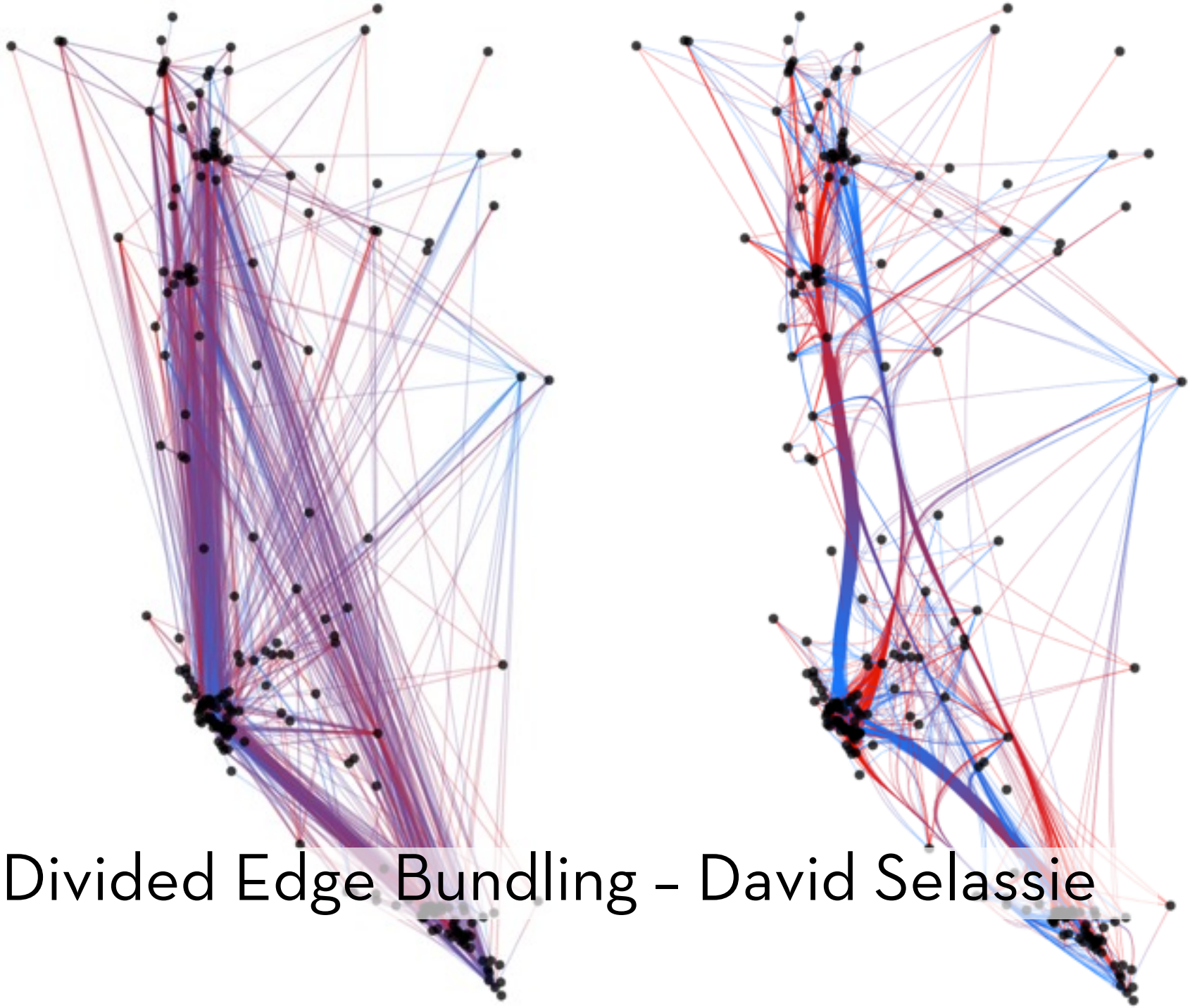
Mike Bostock






```
var army = pd.nest(napoleon.army, "dir", "group“);
var vis = new pv.Panel();

var lines = vis.add(pv.Panel).data(army);
lines.add(pv.Line)
  .data(function() army[this.idx])
  .left(lon).top(lat).size(function(d) d.size/8000)
  .strokeStyle(function() color[army[paneIndex][0].dir]);

vis.add(pv.Label).data(napoleon.cities)
  .left(lon).top(lat)
  .text(function(d) d.city).font("italic 10px Georgia")
  .textAlign("center").textBaseline("middle");
```

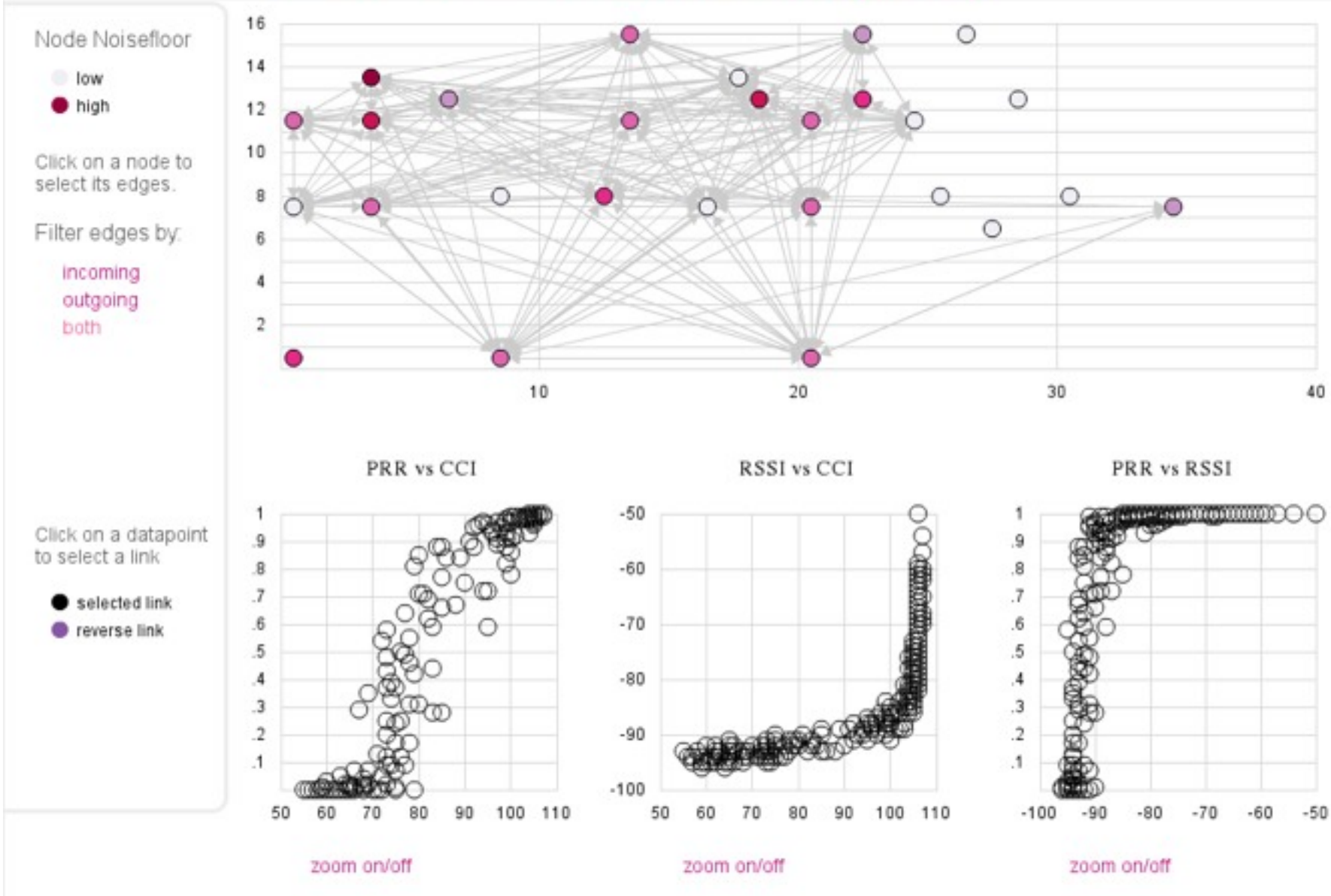
```
vis.add(pv.Rule).data([0,-10,-20,-30])
  .top(function(d) 300 - 2*d - 0.5).left(200).right(150)
  .lineWidth(1).strokeStyle("#ccc")
  .anchor("right").add(pv.Label)
    .font("italic 10px Georgia")
    .text(function(d) d+"°").textBaseline("center");

vis.add(pv.Line).data(napoleon.temp)
  .left(lon).top(tmp) .strokeStyle("#0")
 .add(pv.Label)
  .top(function(d) 5 + tmp(d))
  .text(function(d) d.temp+"° "+d.date.substr(0,6))
  .textBaseline("top").font("italic 10px Georgia");
```



Divided Edge Bundling – David Selassie

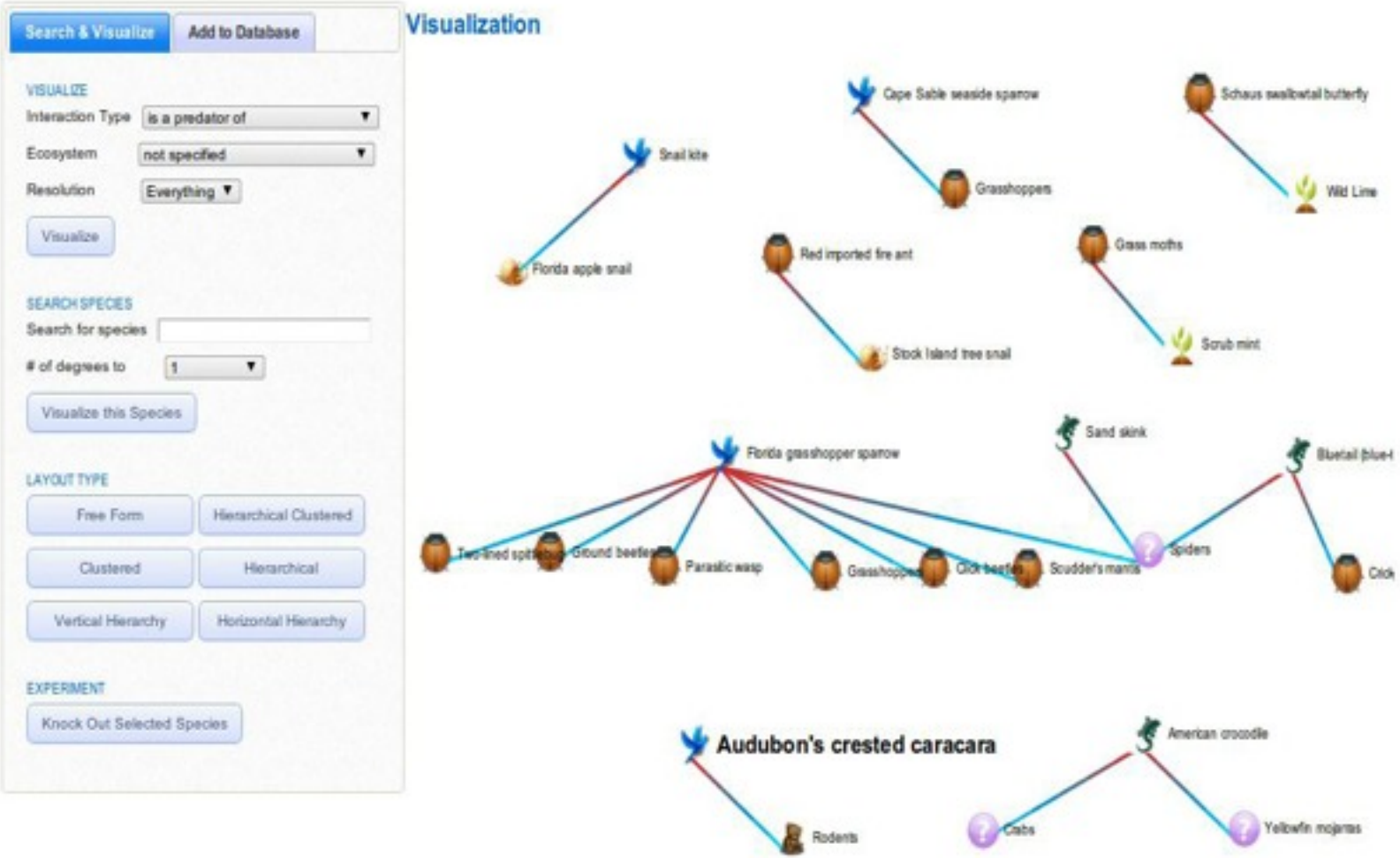
Visualizing the Republic of Letters

Daniel Chang, Yuankai Ge, Shiwei Song



Stanford **N**etwork **A**nalys**i**s Too**l** – Nick Briggs & Maria Kazandjieva

Species Interactions



Aki Maeda, Andrea Zvinakis, Yanzhu Du

GotHub – Brandon Heller, Eli Marschner, Evan Rosenfeld

Tips for an effective project

Focus on a compelling **real-world problem**
  How will you gauge success?

Consider **multiple design alternatives**
  Prototype quickly (use Tableau, R, Gephi...)

Seek feedback (representative users, peers, ...)
  Even informal usage can provide insights

Choose **appropriate team roles**

Start early!! (and read the suggested paper!)

A3 Design Critiques

Design Critique

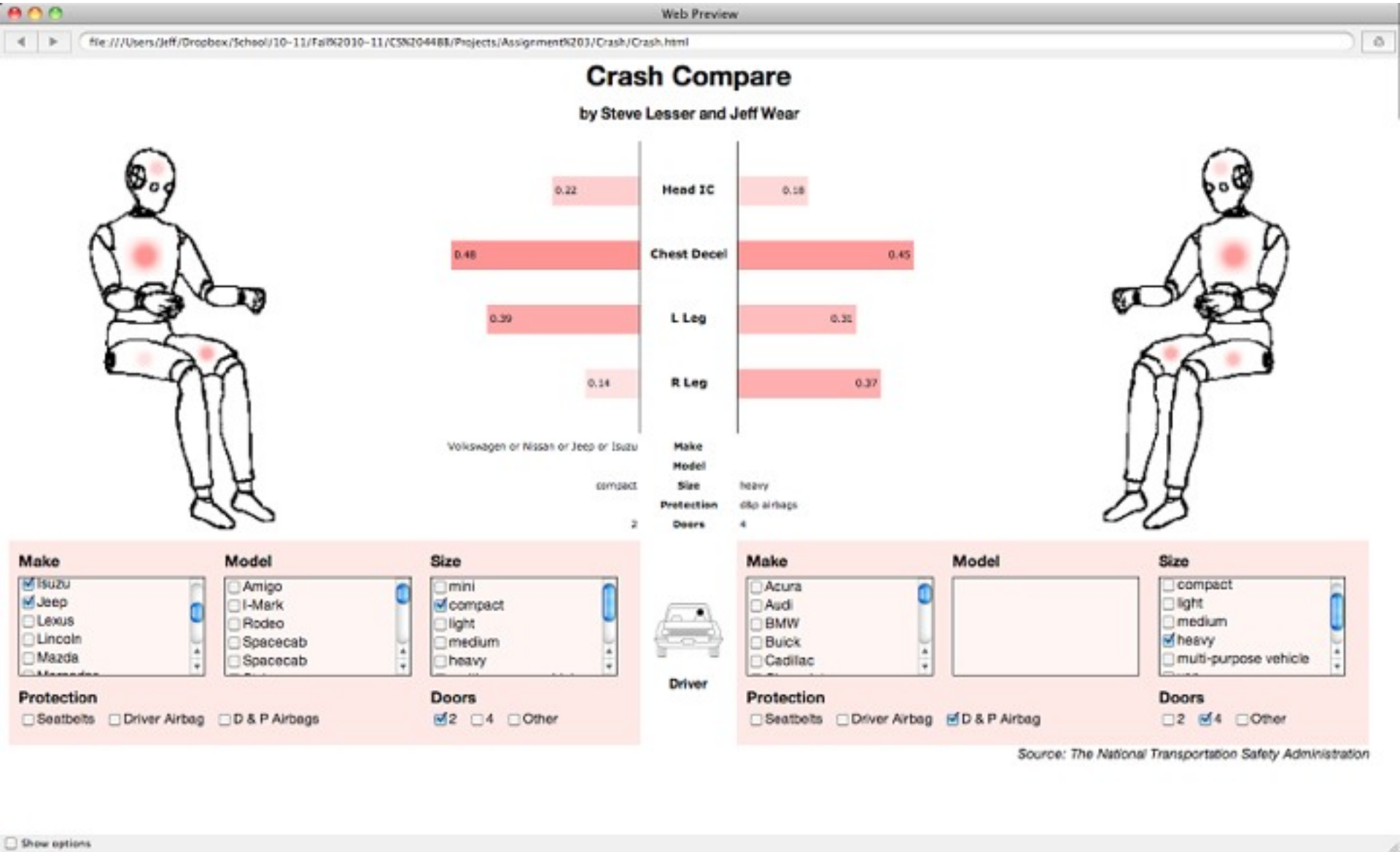
What is the purpose of the visualization?

Does it serve its purpose well?

- Does it convey the data honestly?
- Does it show the appropriate amount of data?
- Are effective visual encodings used?
- Is interaction used to enable effective exploration or examination of the data?

Does it address an important topic?

Is it innovative?

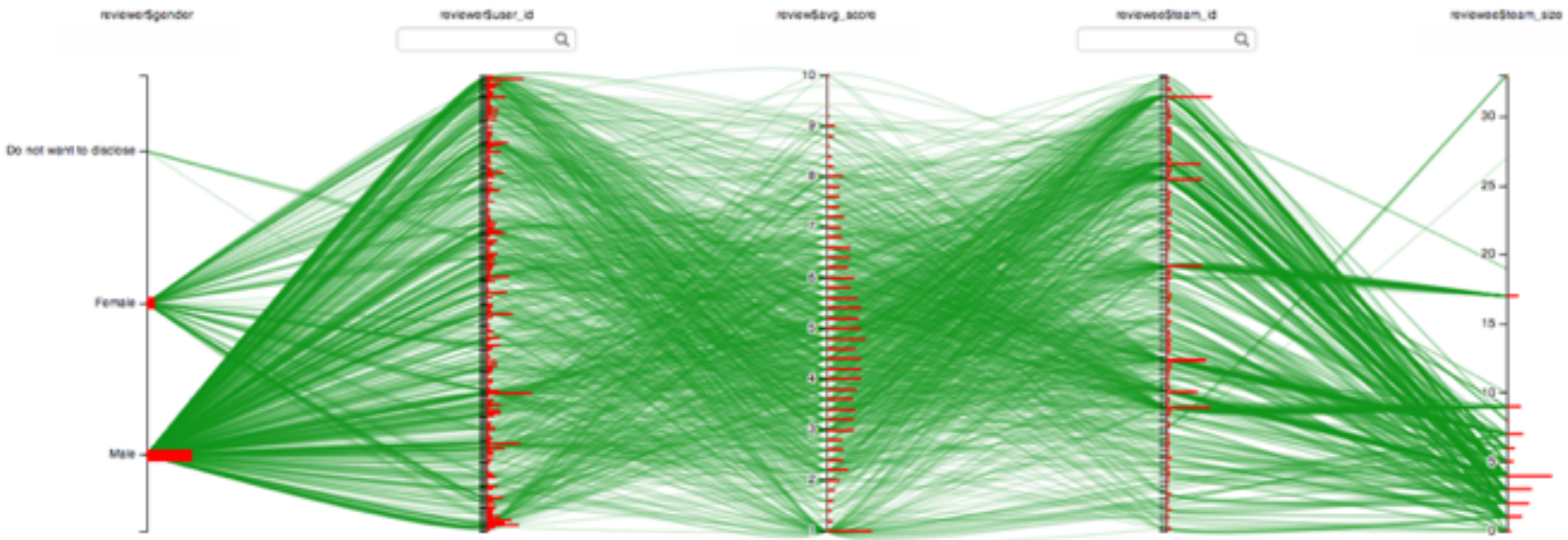

Web Preview
file:///Users/Jeff/Dropbox/School/10-11/Fall%2010-11/CS%204488/Projects/Assignment%203/Crash/Crash.html
Crash Compare
by Steve Lesser and Jeff Wear
0.22
Head IC
0.18
0.48
Chest Decel
0.45
0.39
L Leg
0.31
0.14
R Leg
0.37
Volkswagen or Nissan or Jeep or Isuzu
Make
Model
compact
Size
heavy
Protection
Doors
2
4
Make
Isuzu
Jeep
Lexus
Lincoln
Mazda
Model
Amigo
I-Mark
Rodeo
Spacecab
Spacecab
Size
mini
compact
light
medium
heavy
Protection
Seatbelts
Driver Airbag
D & P Airbags
Doors
2
4
Other
Driver
Make
Acura
Audi
BMW
Buick
Cadillac
Model
Size
compact
light
medium
heavy
multi-purpose vehicle
Protection
Seatbelts
Driver Airbag
D & P Airbag
Doors
2
4
Other
Source: The National Transportation Safety Administration
Show options

Exploring Peer Evaluation on Venture-Lab Spring 2012 | 1. Select Axes | 2. Filter | About | Showing 1206 row(s) (s)

REVIEWER ☐ gpa ☐ academic_major ☐ age_range ☐ location ☑ gender ☐ signin_count ☑ user_id

REVIEW ☑ avg_score ☐ score1 ☐ score2 ☐ score3 ☐ score4 ☐ score5

REVIEWEE ☑ team_id ☑ team_size



reviewer$gpa	reviewer$acad...	reviewer$age_...	reviewer$ocat...	reviewer$gender	reviewer$signi...	reviewer$user_id	review$avg_s...	review$score1	review$score2	review$score3	review$score4	review$score5	reviewee$tea...	reviewee$tea...
NULL	NULL	NULL	NULL	NULL	21	37212	4	4	5	6	4	1	5069	4
NULL	NULL	NULL	NULL	NULL	21	37212	7.4	8	7	7	6	9	5470	17
Does not ...	Science	26-30	Netherlands	Male	124	2230	6.8	7	7	8	7	5	5693	7
Does not ...	Science	26-30	Netherlands	Male	124	2230	2.2	2	1	3	4	1	5836	4
Do not w...	Business	31-35	Spain	Male	80	2648	4.4	4	1	7	9	1	5069	4
3-3.49	Other	21-25	Spain	Female	75	2626	5	5	5	5	5	5	5215	4
3-3.49	Engineering	over 50	United St...	Male	110	19502	3.6	5	5	2	3	3	5215	4
3.5-4.00	Science	36-40	Greece	Male	125	27386	3.6	3	6	5	3	1	5250	3
3-3.49	Engineering	over 50	United St...	Male	110	19502	7	9	5	9	6	6	5693	7

In-Class Critique Exercise

Visit A3 page on class wiki, find your assignment.

Use the visualization, read the submission.

Form a critique: note strengths & opportunities.

Write up your critique, post to wiki.

Next, you will meet in person to discuss.

Brave souls can then volunteer to share visualizations & critiques with the class.

Be respectful & constructive!

Design Critique

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Does it address an important topic?

Is it innovative?