Translating Questions

Data Analysis

Built with blogdown and Hugo. Theme Blackburn.

What statistics should do about big data: problem forward not solution backward

Jeff Leek 2013/05/29

There has been a lot of discussion among statisticians about big data and what statistics should do to get involved. Recently Steve M. and Larry W. took up the same issue on their blog. I have been thinking about this for a while, since I work in genomics, which almost always comes with "big data". It is also one area of big data where statistics and statisticians have played a huge role.

A question that naturally arises is, "why have statisticians been so successful in genomics?" I think a major reason is the phrase I borrowed from Brian C. (who may have borrowed it from Ron B.)

> problem first, not solution backward

One of the reasons that "big data" is even a term is that there is that data are less expensive than they were a few years ago. One example is the dramatic drop in the price of DNA-sequencing. But there are many many more examples. The quantified self movement and Fitbits, Google Books, social network data from Twitter, etc. are all areas where data that cost us a huge amount to collect 10 years ago can now be collected and stored very cheaply.

As statisticians we look for generalizable principles; I would say that you have to zoom pretty far out to generalize from social networks to genomics but here are two:

https://simplystatistics.org/2013/05/29/what-statistics-should-do-about-big-data-problem-forward-not-solution-backward/

A year as told by fitbit

Nick Strayer
Dec 27, 2017 11 min read
visualization wearables time series

I managed to wear a fitbit the entirety of 2017, this is exciting for a few reasons: one I have commitment problems, and two: it's a lot of data that I have to play with. While fitbit's app has some nice pretty graphs, they make it rather hard to actually dump all of your data into something nice like a csv.

Shijing Yao Follow
Senior Machine Learning Scientist @ Airbnb
May 2 · 11 min read

Categorizing Listing Photos at Airbnb

Large-scale deep learning models are changing the way we think about images of homes on our platform.

Authors: *Shijing Yao, Qiang Zhu, Phillippe Siclait*

- When I run more do I lose weight?
- Are customers more likely to click on ads with puppies?
- Do I need to take an umbrella with me when I leave the house today?

- What or who am I trying to understand with data?
- What measurements do I have on those people or objects that help me answer the question?
- How do the data I have limit the type of question I can answer?
- What is the type of data science question we are trying to answer?

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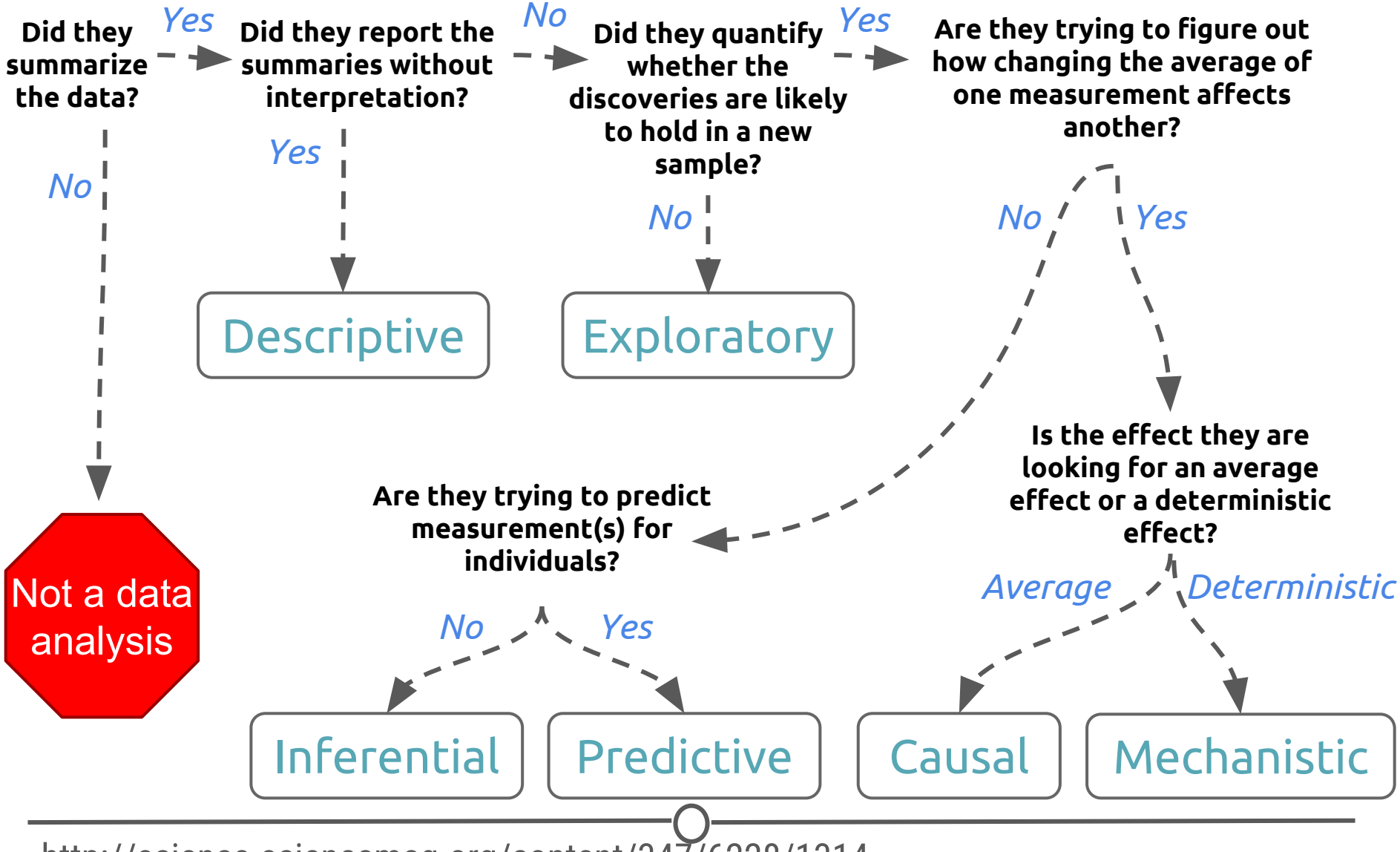

http://science.sciencemag.org/content/347/6228/1314

When I run more do I lose weight?

Type 1: What is the summary of what happened?

- What is the most used mode of transportation for *most Americans*?
- What is the average rainfall in Seattle?
- What is the divorce rate in New York City?

Type 2: What happens to something as a result of something else?

- Does going to college increases earnings?
- What is the effect of sitting under the sun and cancer?
- Do hotter cities suffer from more crime rates?

Type 3: How can we predict something?

- How can we predict prices movements of a specific stock?
- What are the factors that determine a successful student?
- What predicts a product to receive positive reviews on Amazon?


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David Robinson

Chief Data Scientist at DataCamp, works in R and Python.

Email
Twitter
Github
Stack Overflow

Recommended Blogs

- DataCamp
- R Bloggers
- RStudio Blog
- R4Stats

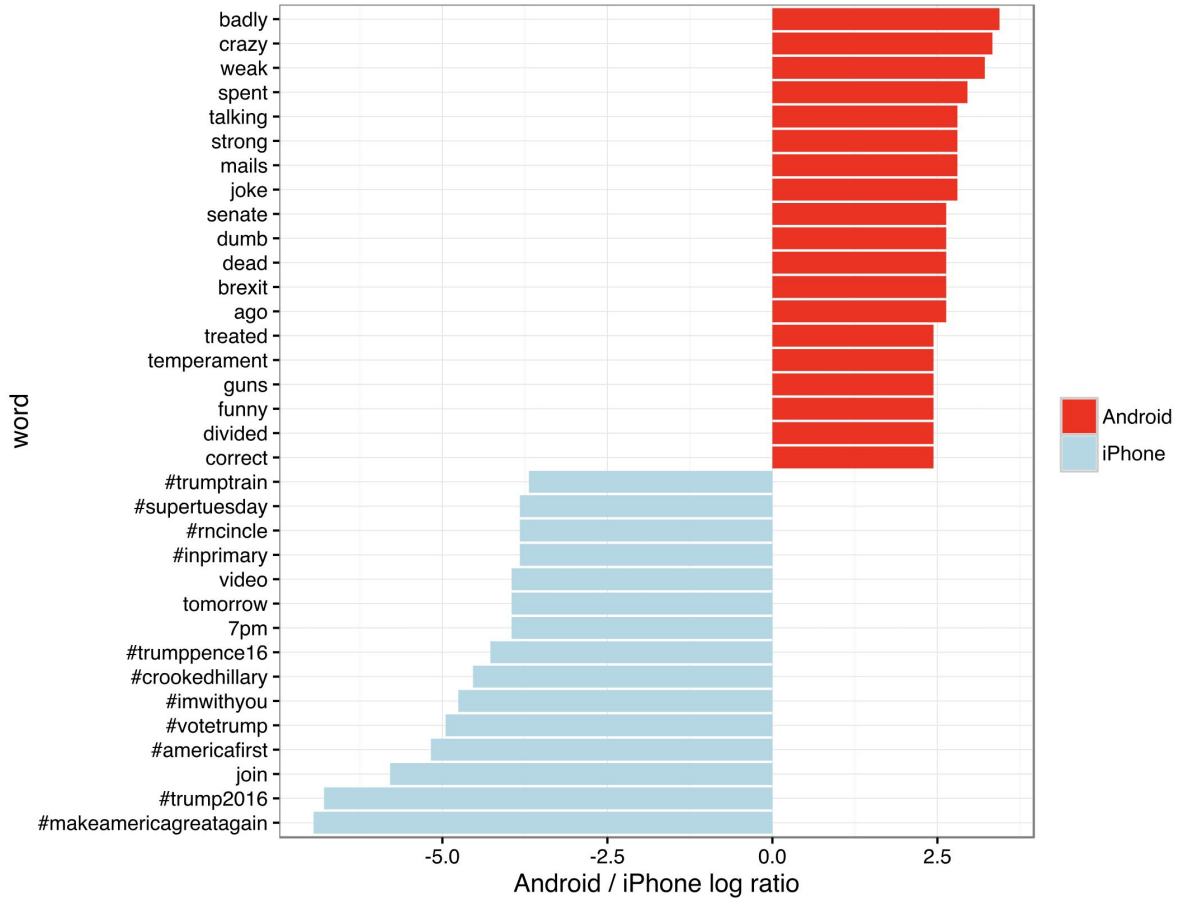
Text analysis of Trump's tweets confirms he writes only the (angrier) Android half

I don't normally post about politics (I'm not particularly savvy about polling, which is where data science has had the largest impact on politics). But this weekend I saw a hypothesis about Donald Trump's twitter account that simply begged to be investigated with data:

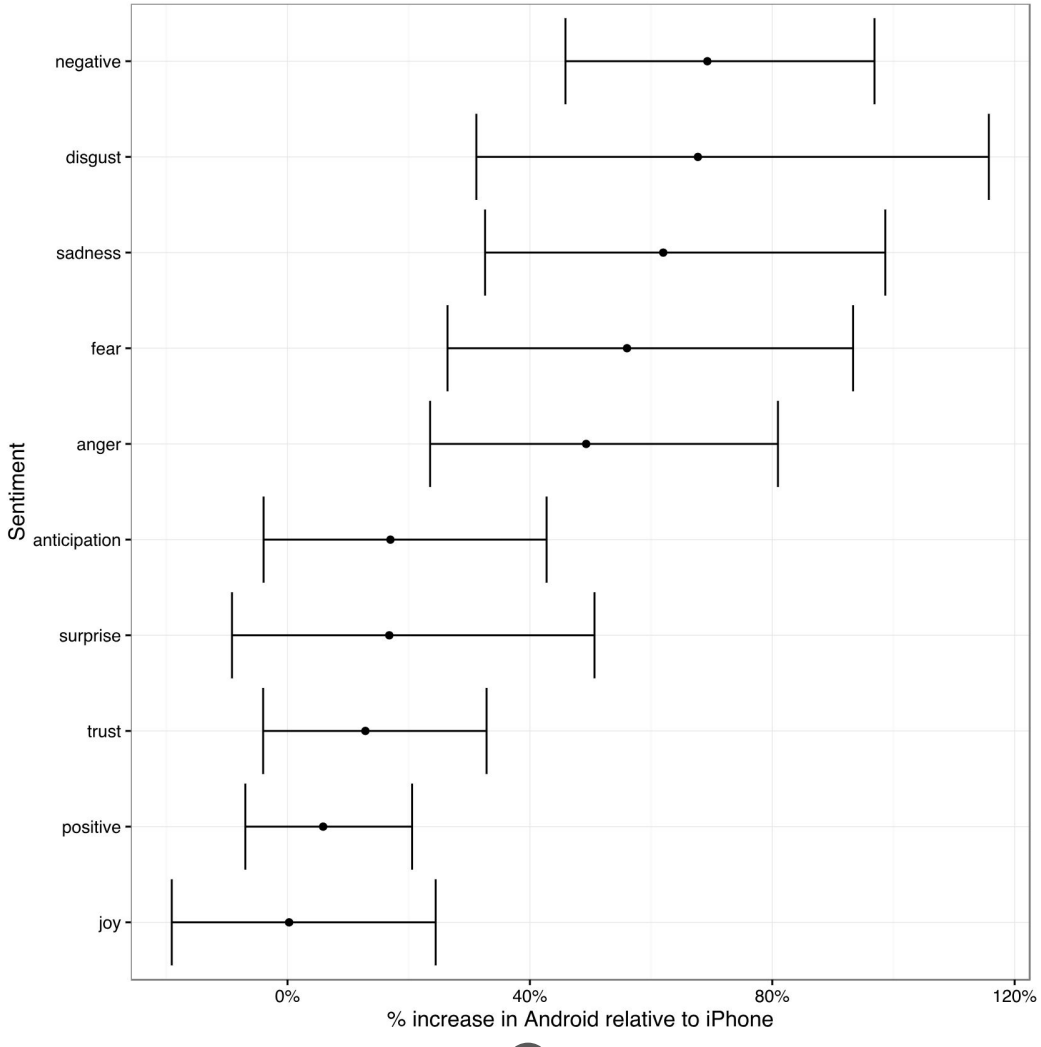
Are the Android and iPhone tweets clearly different?

Are the Android tweets angrier and more negative?

Which are the words most likely to be from Android and most likely from iPhone?



Source: http://varianceexplained.org/r/trump-tweets/



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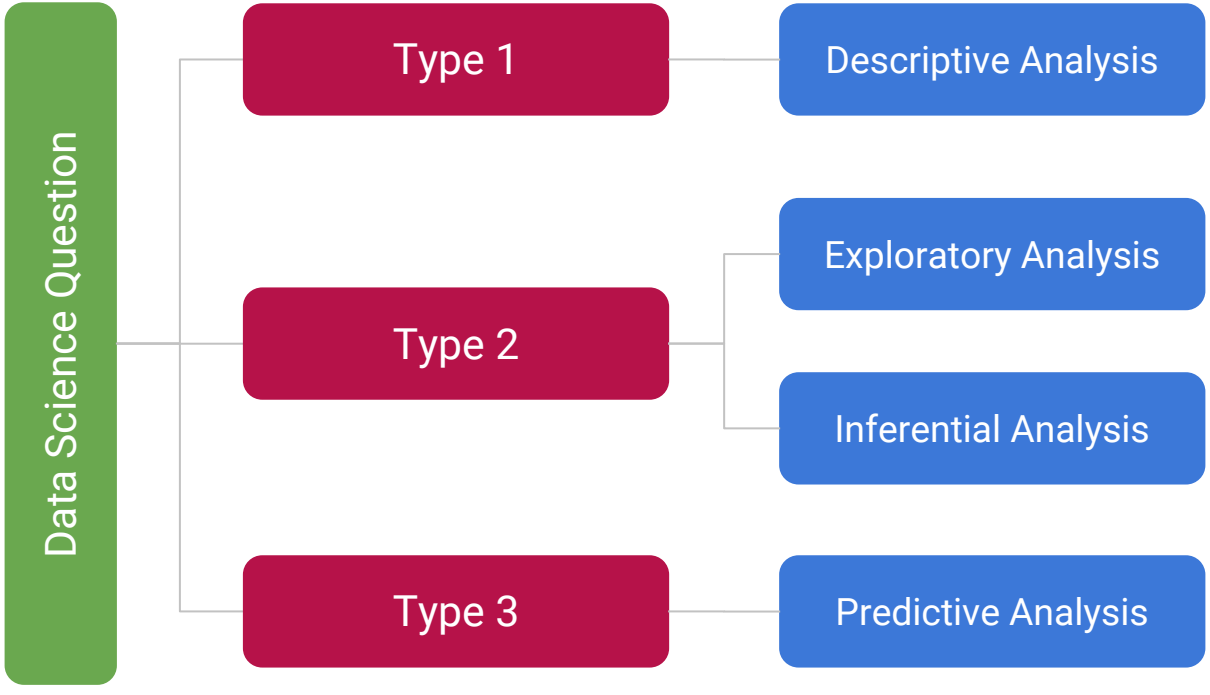
Data Science Question
Type 1
Type 2
Type 3
Descriptive Analysis
Exploratory Analysis
Inferential Analysis
Predictive Analysis