
“It’s Common Sense!”

The Unseen Role of Psychological Theory in Big Social Data Analysis

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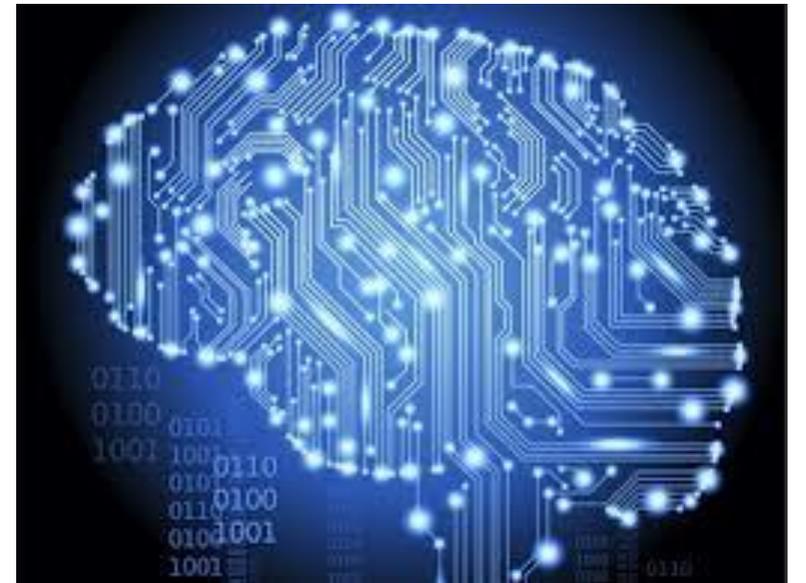
Albany Medical Center - Journal Club, 19 May 2016

MY RESEARCH: DATA SOCIOLOGIST

I study what people do with the new found data from social media and information communication technologies (ICTs).

Range of uses:

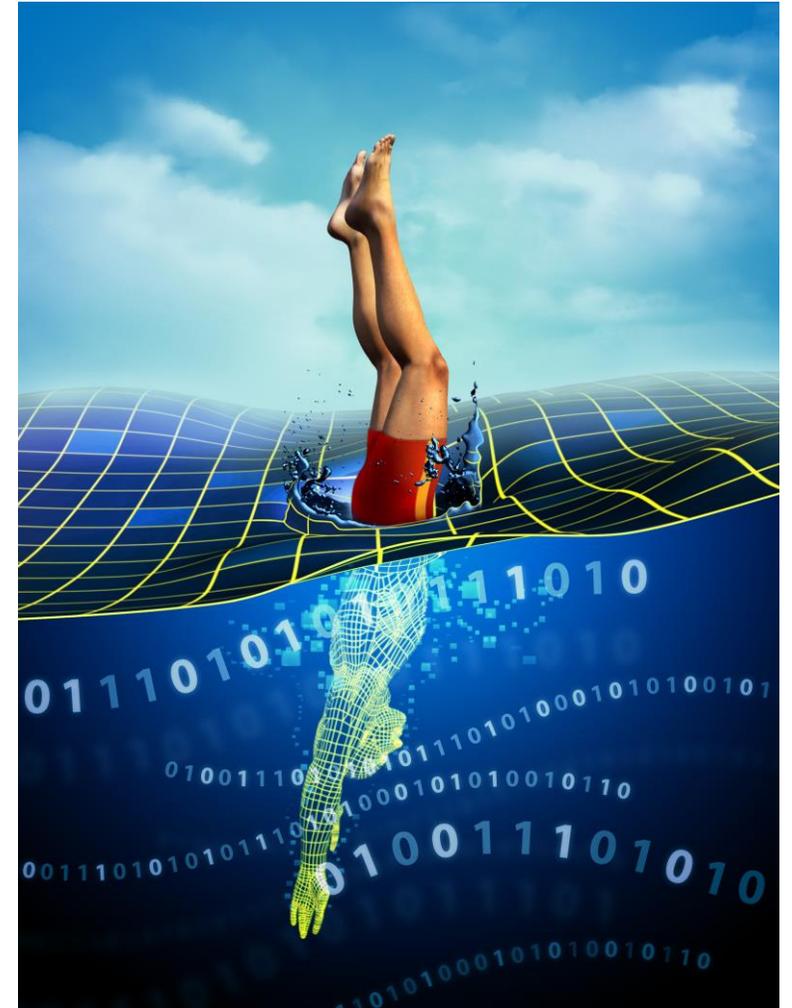
- Small, personalized data – Quantified Self
- Big, generalized data – Big Social Data



Small, Personalized Data

The Hidden Anxieties of the Quantified Self Movement

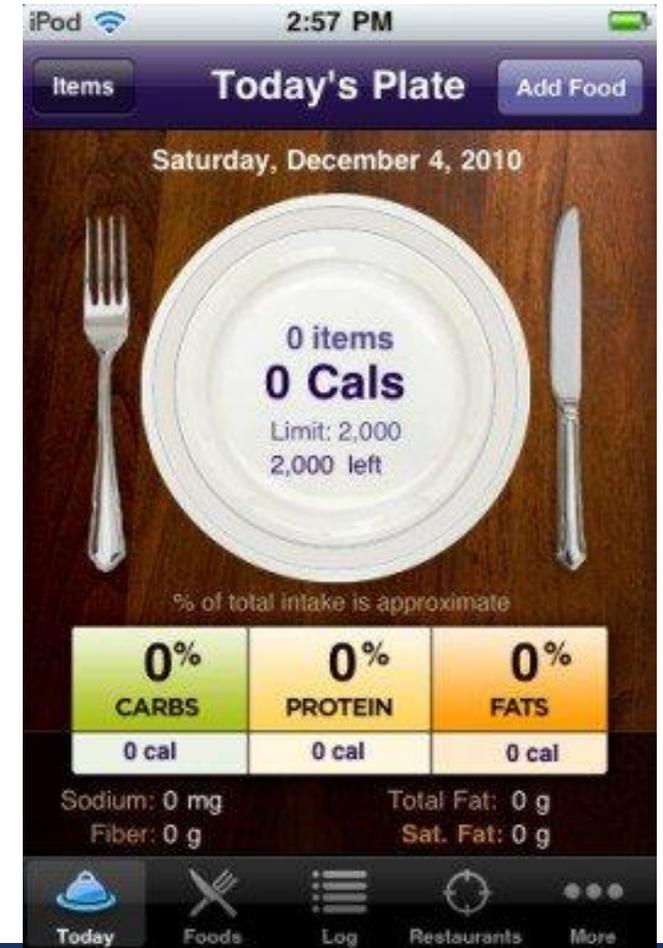
- “I argue that the use of self-monitoring and tracking technologies can create anxiety around the data capturing process. Tracking technologies create an ordering of people and experiences that discourages moments which are not easily quantified.”
- <https://thesocietypages.org/cyborgology/2015/05/05/the-hidden-anxieties-of-the-quantified-self-movement>





DATA CAPTURE

Loss of rich, subjective complexity



DATA CAPTURE

Constriction (“anxieties”) from collecting data

INTERESTING APPLICATIONS OF SMALL DATA

Daily life

- Mood
- Calorie/ Macronutrients
- Sleep
- Movement
- Heart rate

Therapeutic/ Medical

Dr. Deborah Estrin – *Small Data Lab* – Cornell Tech

“Open mHealth works with clinical experts and app and device developers to make digital health data as useful and actionable as possible.”

- Detect depression and post-partum depression
- Track symptoms and supply interventions

What are the potential consequences of using small data applications as part of the therapeutic process?

BIG SOCIAL DATA ANALYSIS

“...examines large amounts of [social media] data to uncover hidden patterns, correlations and other insights”.

Predict

- Stock market performance
- Election outcomes
- Flu outbreaks
- Crime
- Cyberbullying
- Protests and revolutions
- Mood/ feelings
- Discriminatory neighborhoods

- Donations to charity
- Credible/ False information
- Content recommendations
- User preferences
- User's location

Describe

- Information diffusion
- Public Relations performance
- News gathering behaviors

- Information seeking behaviors
- Extremism (political)
- Social support for disabilities

Detect

- Earthquakes
- Traffic-jams
- Allergy sufferers

TWITTER RESEARCH

EXAMPLE: GOOGLE FLU TRENDS

google.org Flu Trends

[Google.org home](#)

[Dengue Trends](#)

Flu Trends

[Home](#)

United States

National

[Download data](#)

[How does this work?](#)

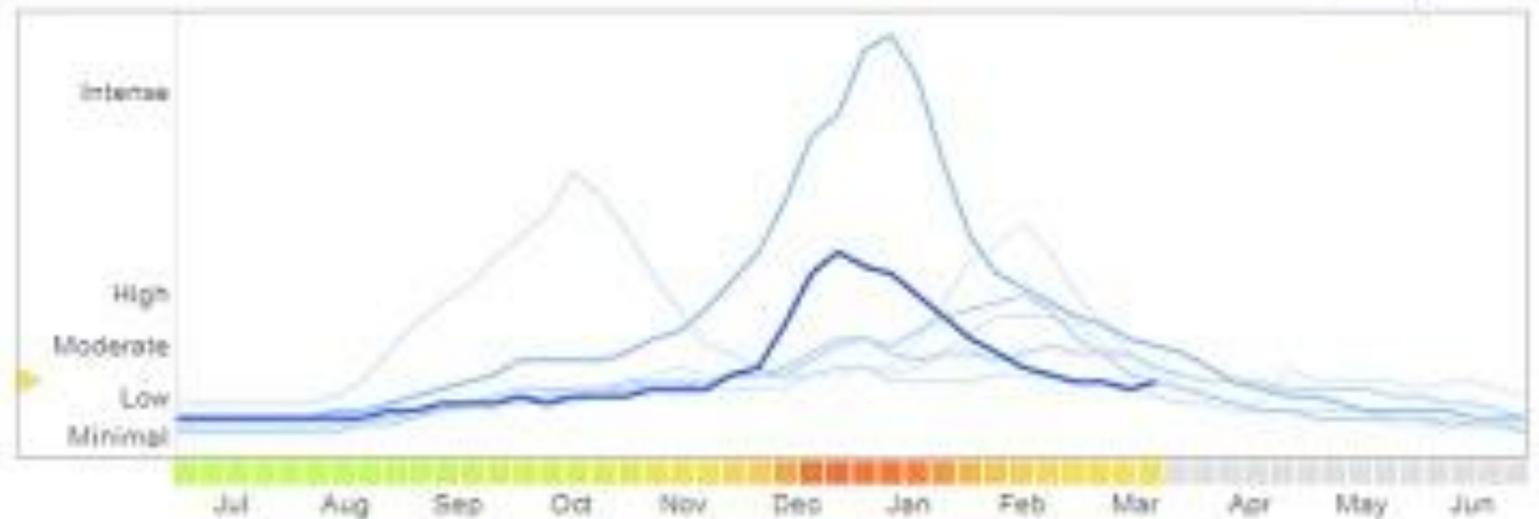
[FAQ](#)

Explore flu trends - United States

We've found that certain search terms are good indicators of flu activity. Google Flu Trends uses aggregated Google search data to estimate flu activity. [Learn more](#)

National

● 2013-2014 ● [Past years](#)



WHAT IS THE NATURE OF SOCIAL MEDIA DATA?

Taken individually

- Identity construction
- Interpersonal communication
- Brand management
- Advertising
- Activism

Taken in aggregate

- Terministic Screen (Burke)

Results are partially a reflection of the researcher's agenda, so big social data analysis should include an understanding of rhetoric.

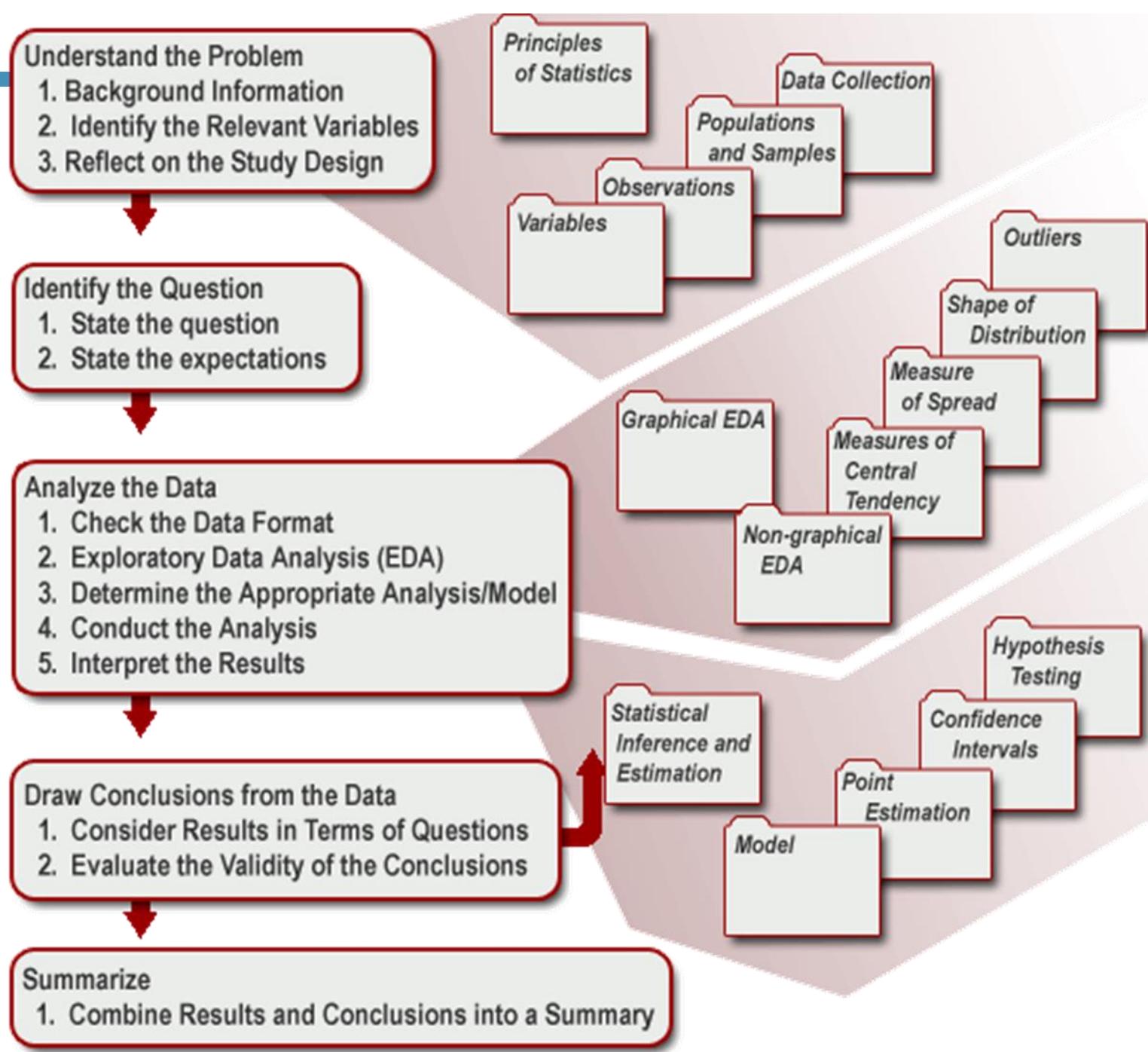


Fundamental changes to research design:

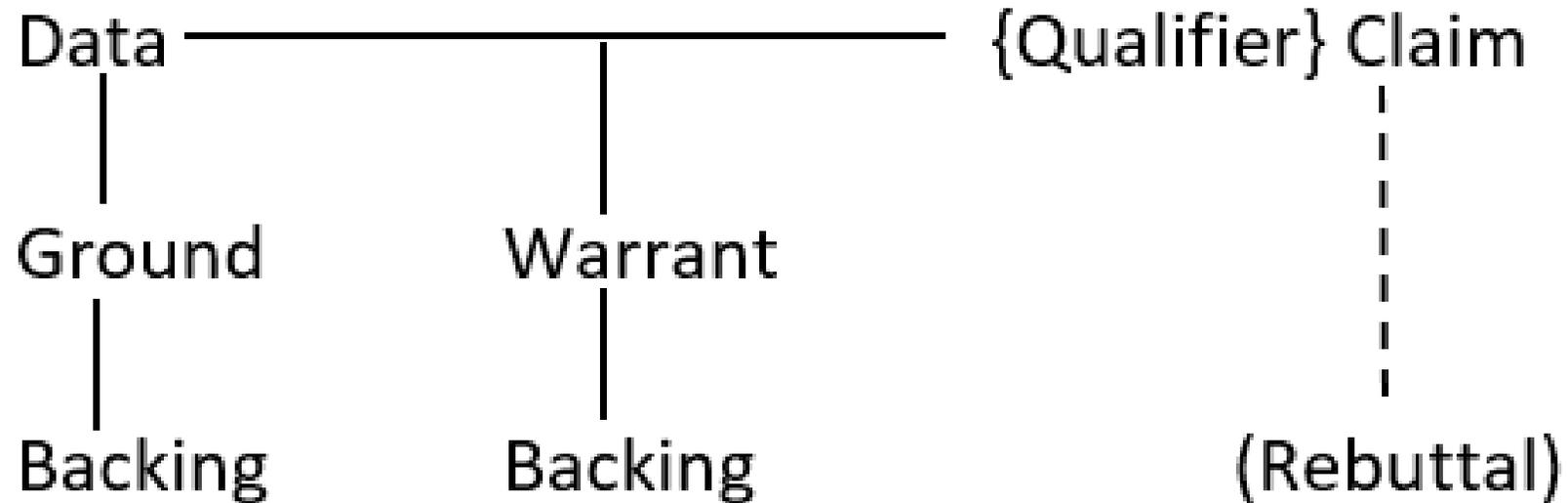
1. Data precede the research questions.

2. Everything is computer mediated.

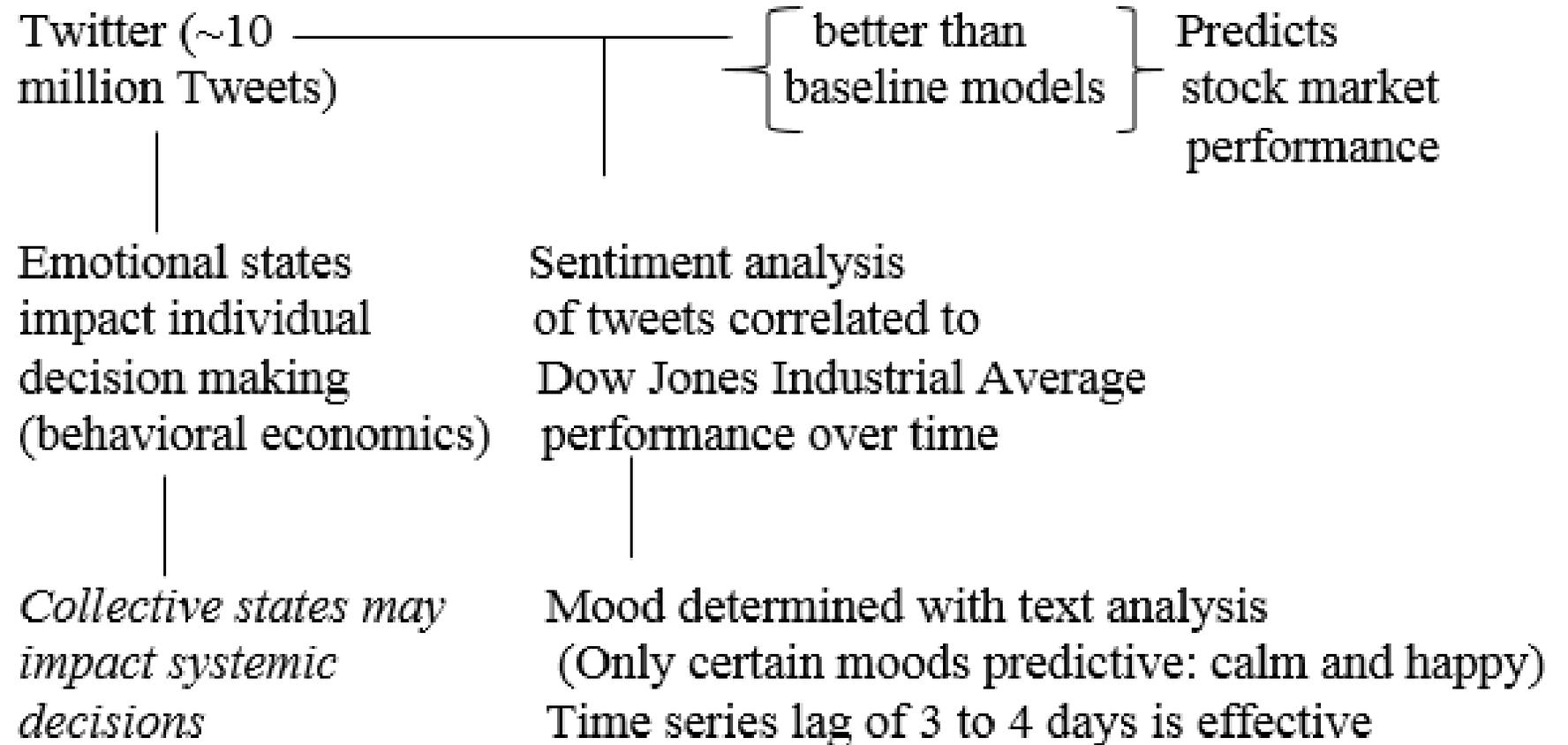
3. Data is collected from for-profit platforms: not “natural” social interactions.



MY FRAMEWORK: RESEARCH DESIGN AS ARGUMENTS



EXAMPLE: “TWITTER MOOD PREDICTS STOCK MARKET”



Where are data scientists getting their ground and backing?

Phrased another way:

- How do they decide on research questions?
- How do they generate an explanation for observed patterns?

Common answers:

- Common sense
- Psychology/ Social Psychology

DEBUNKED THEORY: PHRENOLOGY

Correlate physical appearance to behavioral patterns to infer unknown subjects behavior.

19th Century Phrenology

Measure the human skull to determine intellect and personality.



CONCEPT CREEP: Dr. Haslam

Psychology's technical terms are adapted and applied in new settings without a firm understanding of their clinical significance

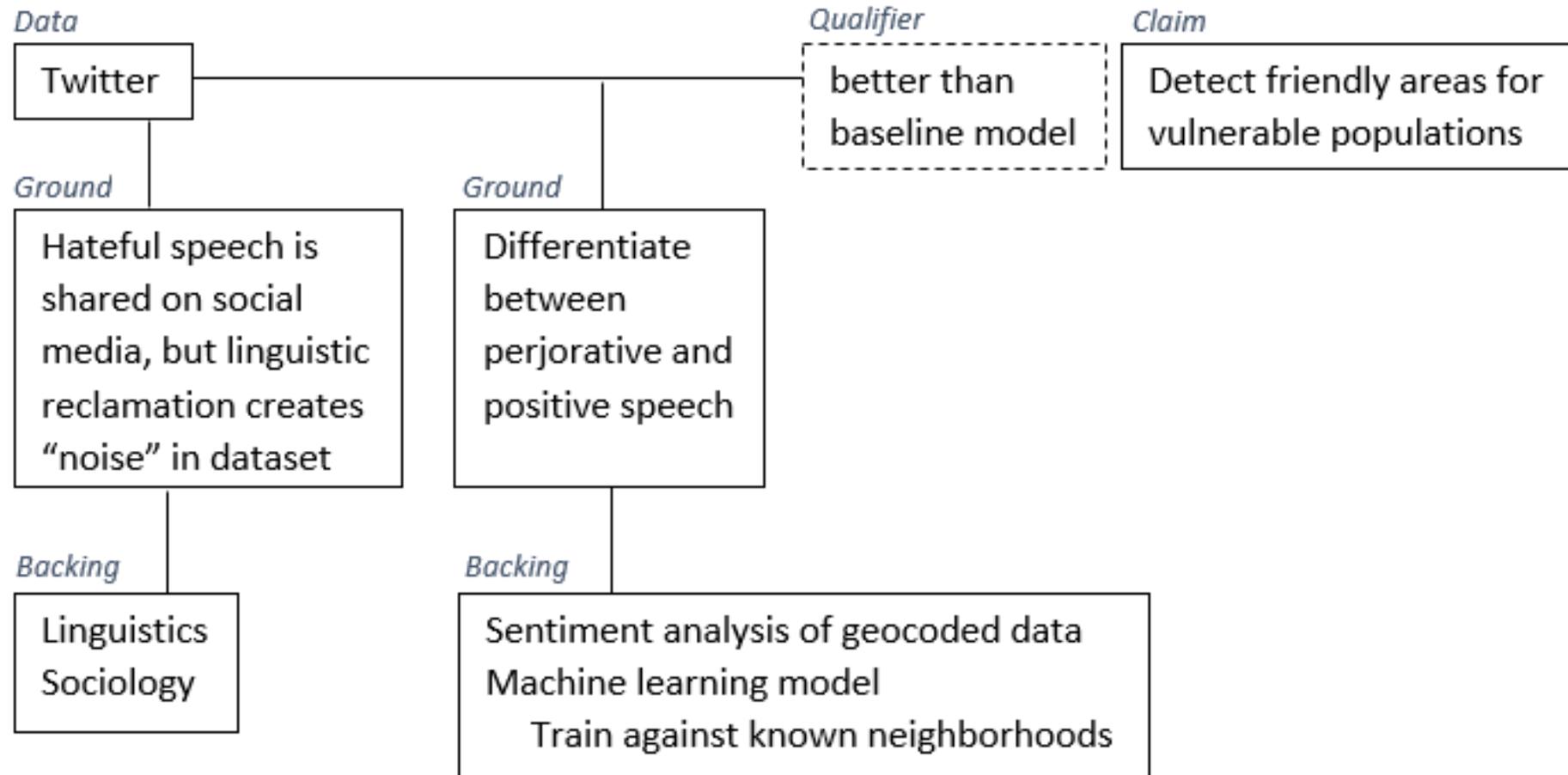
- Horizontal- qualitatively new phenomena
- Vertical- capture quantitatively less extreme phenomena

Big social data: cyberbullying, depression, mood states

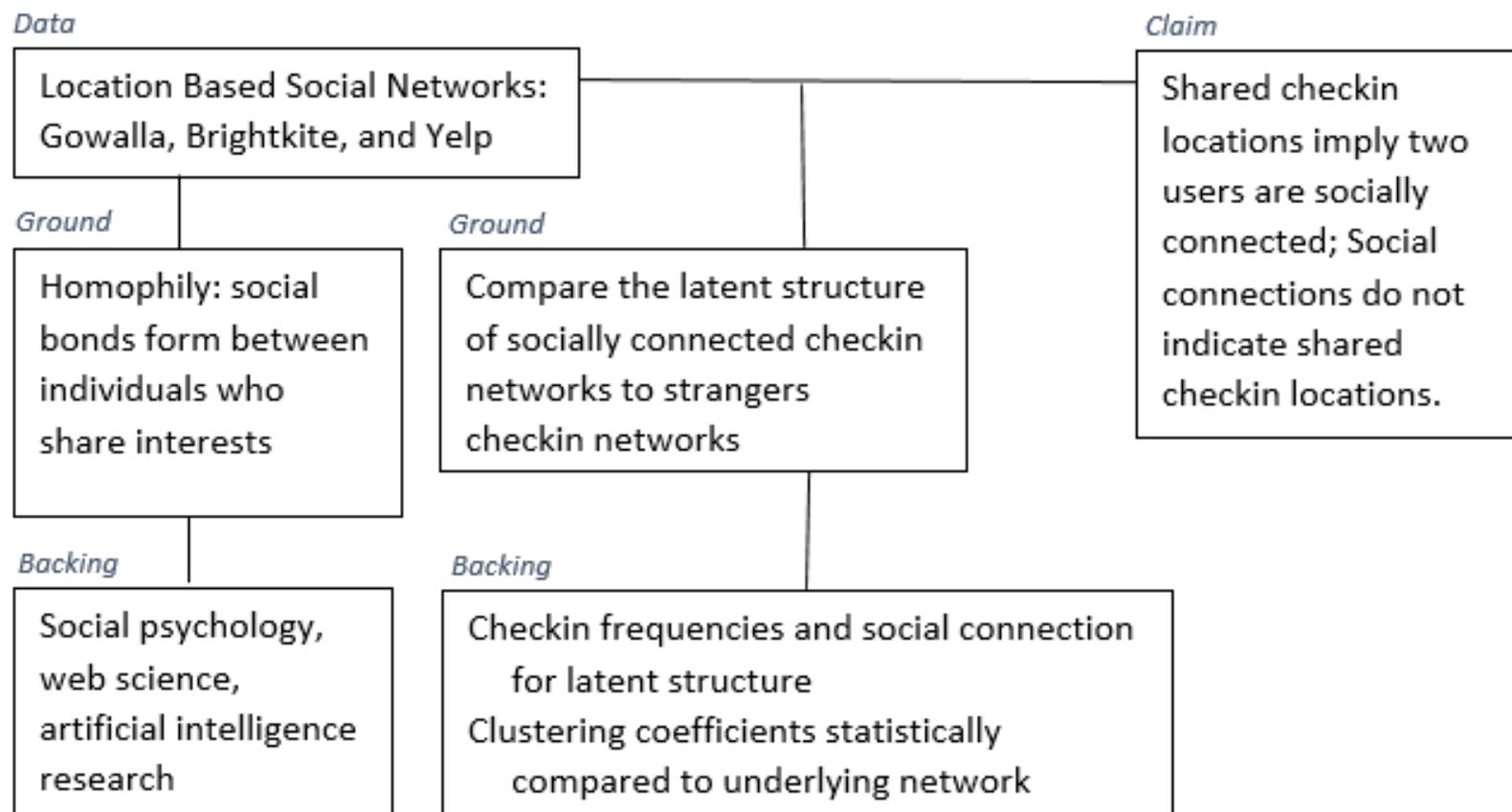
QUESTIONS FOR DISCUSSION

- What should be the future role of psychologists and other behavioral/social scientists in explaining big social data results?
- What are the limits to applying diagnostic categories outside of therapeutic settings: can the technical or clinical concepts be adapted to large-scale analyses?

EXAMPLE: AttitudeBuzz: Using Social Media Data to Localize Complex Attitudes



EXAMPLE: Social Ties and Check-in Sites



EXAMPLE: A Tempest in a Teacup? Analyzing Firestorms on Twitter

