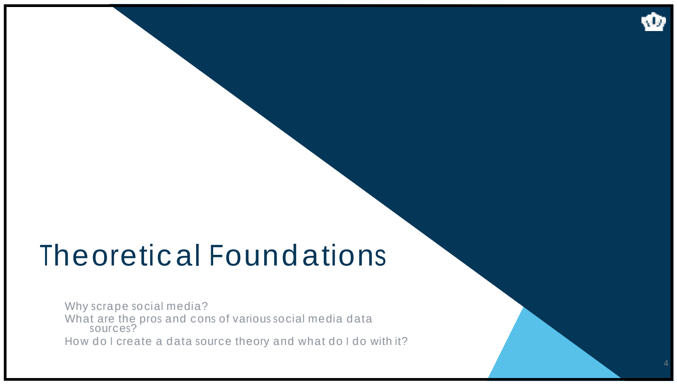
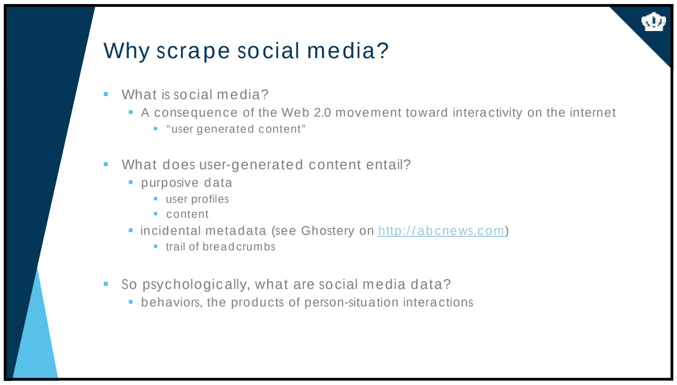


Theoretical Foundations

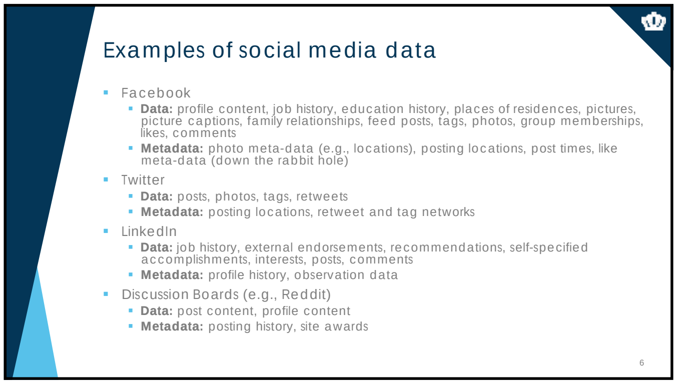
Why scrape social media?
What are the pros and cons of various social media data sources?
How do I create a data source theory and what do I do with it?

4



Why scrape social media?

- What is social media?
  - A consequence of the Web 2.0 movement toward interactivity on the internet
    - "user generated content"
- What does user-generated content entail?
  - purposive data
    - user profiles
    - content
  - incidental metadata (see Ghostery on http://abcnews.com)
    - trail of breadcrumbs
- So psychologically, what are social media data?
  - behaviors, the products of person-situation interactions



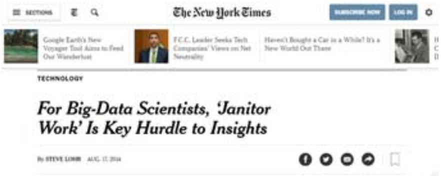
Examples of social media data

- Facebook
  - **Data:** profile content, job history, education history, places of residences, pictures, picture captions, family relationships, feed posts, tags, photos, group memberships, likes, comments
  - **Metadata:** photo meta-data (e.g., locations), posting locations, post times, like meta-data (down the rabbit hole)
- Twitter
  - **Data:** posts, photos, tags, retweets
  - **Metadata:** posting locations, retweet and tag networks
- LinkedIn
  - **Data:** job history, external endorsements, recommendations, self-specified accomplishments, interests, posts, comments
  - **Metadata:** profile history, observation data
- Discussion Boards (e.g., Reddit)
  - **Data:** post content, profile content
  - **Metadata:** posting history, site awards

6

So what can I do with web scraping?

- The first step of “big data science,” data wrangling/munging



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TECHNOLOGY

For Big-Data Scientists, ‘Janitor Work’ Is Key Hurdle to Insights

By STEVE LOHR AUG. 17, 2014

https://www.nytimes.com/2014/08/18/technology/for-big-data-scientists-hurdle-to-insights-is-janitor-work.html

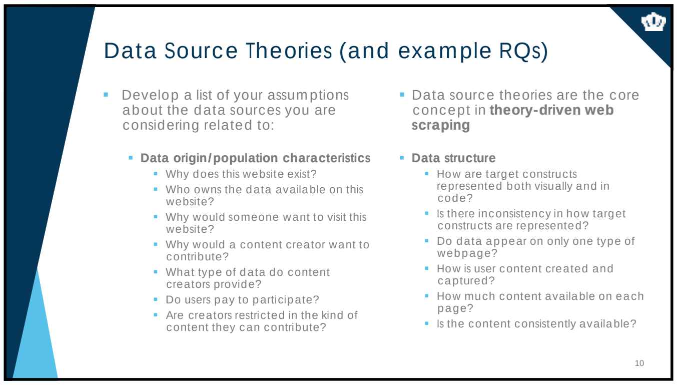
- Can be followed up with any sort of machine learning you want (e.g., OLS regression and Pearson’s correlation, naïve Bayes classifiers)

Who does this generalize to?

- That depends.

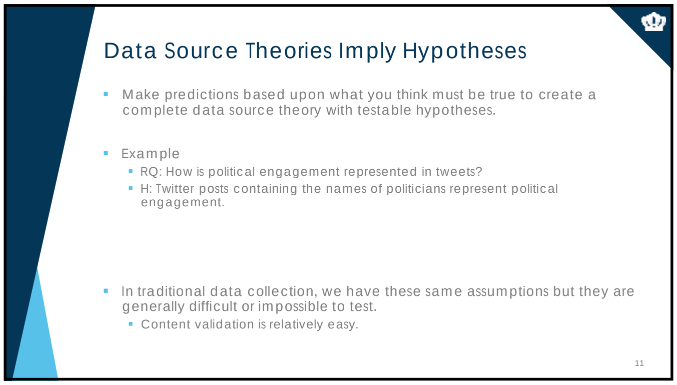
- **Landers, R. N.** & Behrend, T. S. (2015). An inconvenient truth: Arbitrary distinctions between organizations, Mechanical Turk, and other convenience samples. *Industrial and Organizational Psychology, 8,* 142-164.
  - Essentially all samples in I/O psychology are convenience samples, whether academic or practitioner research.
  - The primary questions we need to ask of any convenience sample in relation to generalizability are:
    - Omitted variables bias (endogeneity)
      - Causes of relationships/effects that come from outside our data source
    - Range restriction
      - Constraints on representativeness that comes from outside our data source

Endogeneity



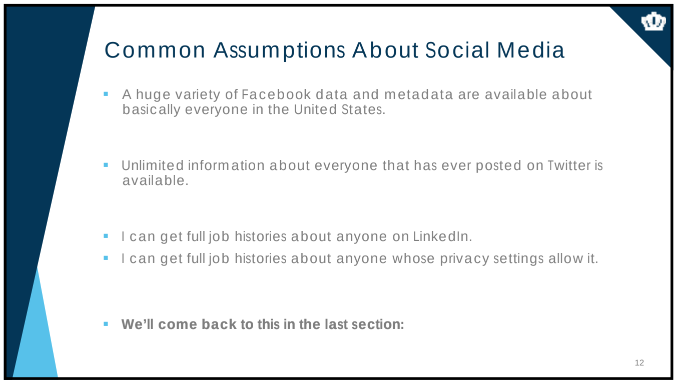
Data Source Theories (and example RQs)

- Develop a list of your assumptions about the data sources you are considering related to:
  - **Data origin/population characteristics**
    - Why does this website exist?
    - Who owns the data available on this website?
    - Why would someone want to visit this website?
    - Why would a content creator want to contribute?
    - What type of data do content creators provide?
    - Do users pay to participate?
    - Are creators restricted in the kind of content they can contribute?
- Data source theories are the core concept in **theory-driven web scraping**
  - **Data structure**
    - How are target constructs represented both visually and in code?
    - Is there inconsistency in how target constructs are represented?
    - Do data appear on only one type of webpage?
    - How is user content created and captured?
    - How much content available on each page?
    - Is the content consistently available?



Data Source Theories Imply Hypotheses

- Make predictions based upon what you think must be true to create a complete data source theory with testable hypotheses.
- Example
  - RQ: How is political engagement represented in tweets?
  - H: Twitter posts containing the names of politicians represent political engagement.
- In traditional data collection, we have these same assumptions but they are generally difficult or impossible to test.
  - Content validation is relatively easy.



Common Assumptions About Social Media

- A huge variety of Facebook data and metadata are available about basically everyone in the United States.
- Unlimited information about everyone that has ever posted on Twitter is available.
- I can get full job histories about anyone on LinkedIn.
- I can get full job histories about anyone whose privacy settings allow it.
- **We'll come back to this in the last section:**