

# Big Data and Privacy

**Gordon Hull**

Director, Center for Professional and Applied Ethics  
Assoc. Prof. of Philosophy and Public Policy



UNC CHARLOTTE  
College of Liberal Arts & Sciences

Center for Professional & Applied Ethics

























# In short:

1. The goal is correlations (not causes) that are predictive enough for whatever task is at hand (when it is causal (e.g., in medicine) it's expressed as risk factors apparently caused by genetic variations)
2. It needs to be sufficiently accurate for task at hand (ex. delivering "relevant" information to Google user)
3. Continuously updated (search for airline tickets twice, you'll see)



# What is Privacy?

- Literature full of definitions
- How about: “rules for how we deal with information flows”
- Big Data creates populations of “relevantly” “similar” people



# Privacy Problems - example



Target was right – she was indeed pregnant...

Here's some potential kinds of problems...



# 1. Big Data makes “consent” meaningless

- Doesn't bind data brokers
- Can combine with other information about you “out there”
- 3<sup>rd</sup> party rule (*U.S. v. Maryland*, 1979)



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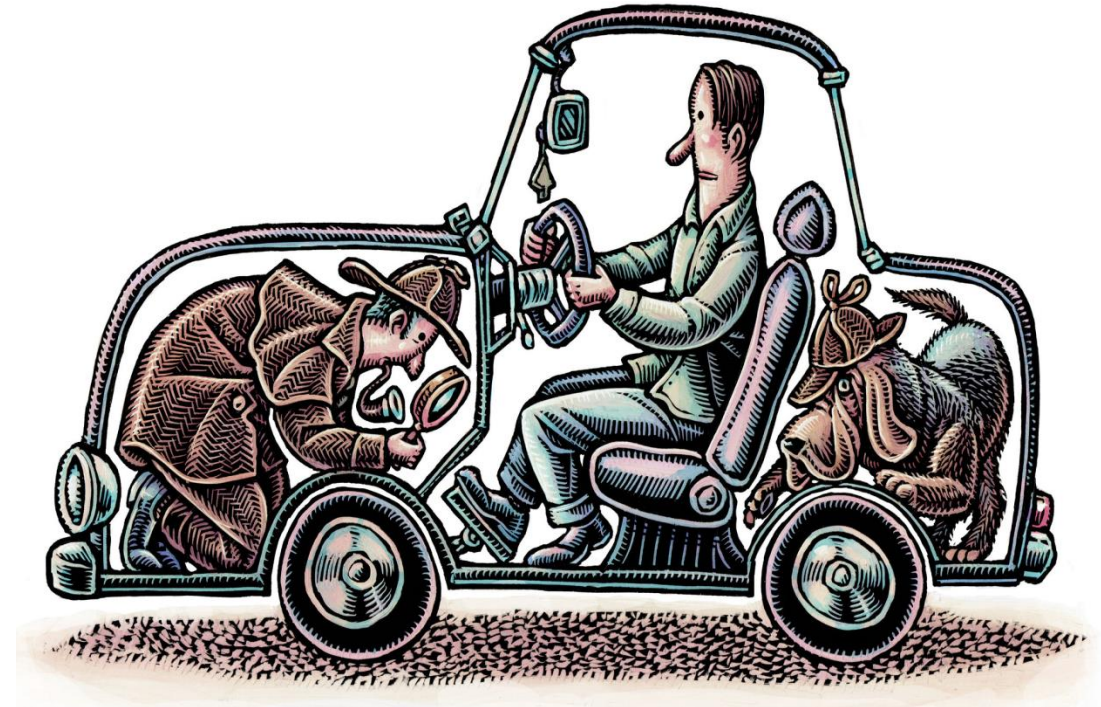
## 2. Spurious correlations/bad grouping

- Same problem as studying “disease clusters:” statistically, these happen, and mean nothing.
- Or, info may just be wrong (FICO scores for those with no actual Wells Fargo accounts)
- And you may not know if the correlation is spurious..



# 3. Downward Ratcheting

-> You might change your driving behavior, too (when, where, etc.)





# 4. Reflecting/Perpetuating Social Prejudice

- Those who downloaded Grindr from Android Market were recommended a sex-offender location app
- If you typed “she invented” in Google, it used to say:
  - “do you mean ‘he invented’”
  - That’s an accurate but unfortunate reflection of history, but...



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# 5. Changes “who” you are

- Not just *more* info – but *different*
- We modify our behavior if we know we’re being recorded - subjectivity needs personal space to develop (you might not read that controversial book)

