Madness of crowds

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Social Network (Soc 204)
Spring 2017
Princeton University

March 6, 2017

Logistics:

- Midterm: Wednesday, March 15 (go over material on Piazza)

Questions?

Drivers of Infectious Disease Dynamics: Childhood Infections in Mexico

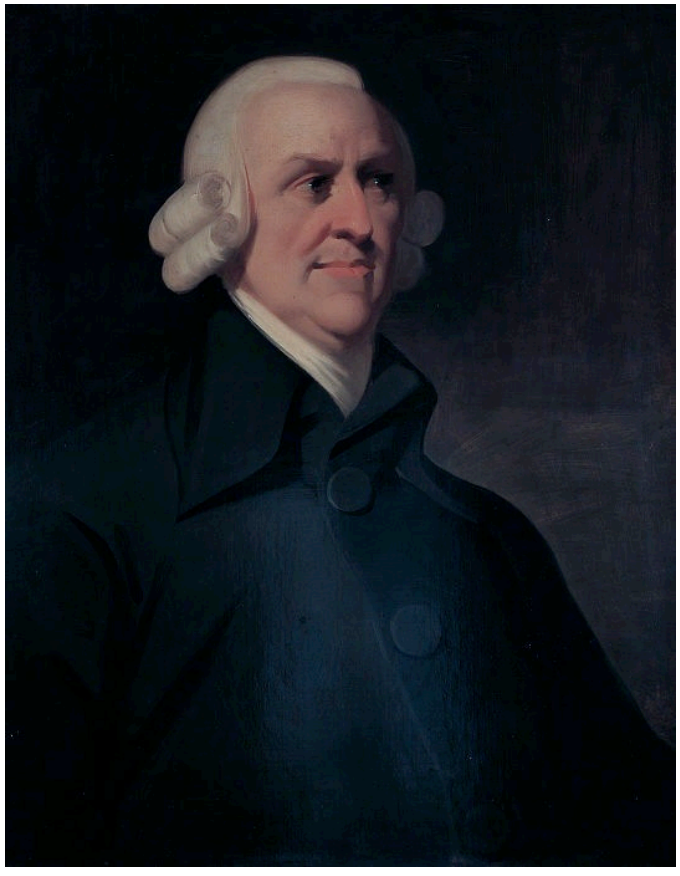
Ayesha Mahmud

March 7, 2017, Noon - 1, 300 Wallace Hall

http://opr.princeton.edu/seminars/spring/2017

Vote:

1. Watts, Chapter 7.
2. Asch, S.E. (1955). Opinions and social pressure. Scientific American, 193(5):31-35.
3. Easley D. and Kleinberg, J. (2010). Networks, Crowds, and Markets: Chapter 16.
4. Tierney, J. (2007). Diet and fat: A severe case of mistaken consensus. New York Times



(a) Adam Smith: Invisible Hand

(b) Garrett Hardin: Tragedy of the Commons

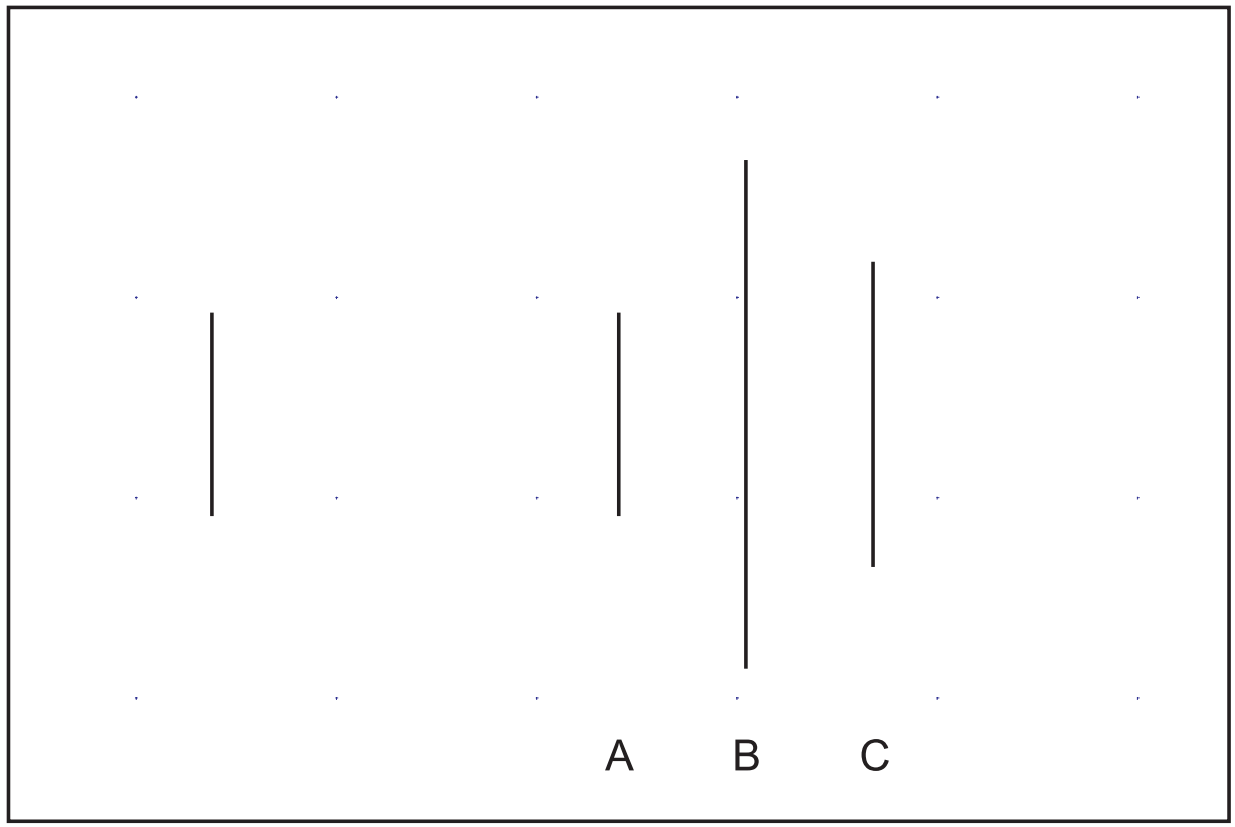
http://commons.wikimedia.org/wiki/File:Adam_Smith_The_Muir_portrait.jpg
http://en.wikipedia.org/wiki/File:Garrett_Hardin.jpg

- interdependence of decision making
- consequences of interdependent decision making for collective outcomes

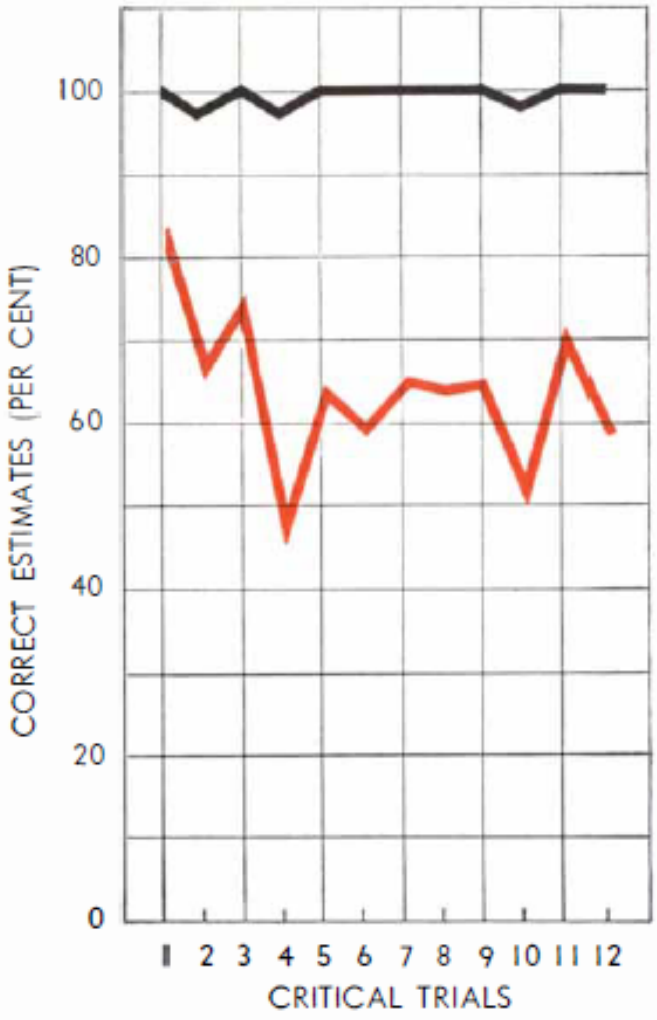
Candy, candy candy

Interdependent individual decisions

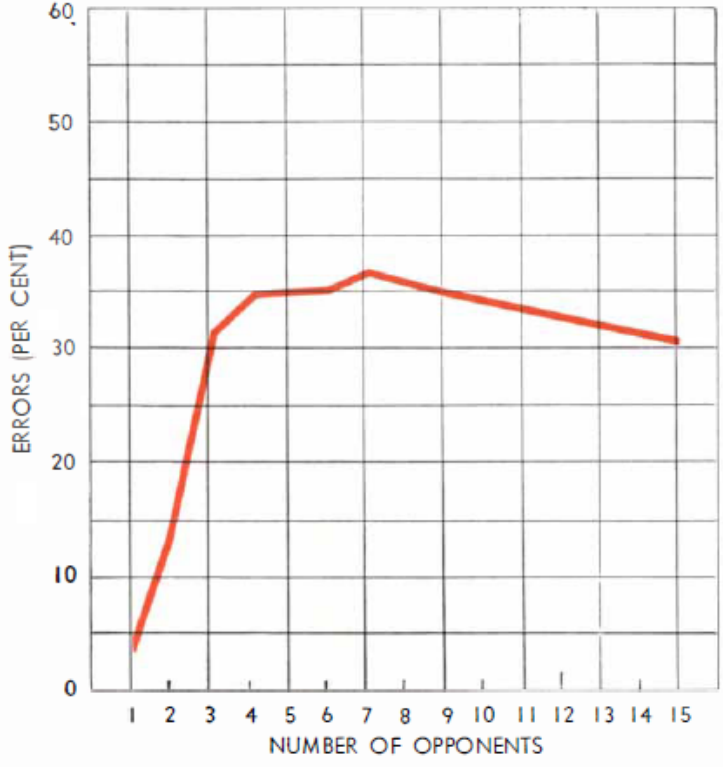
7.1



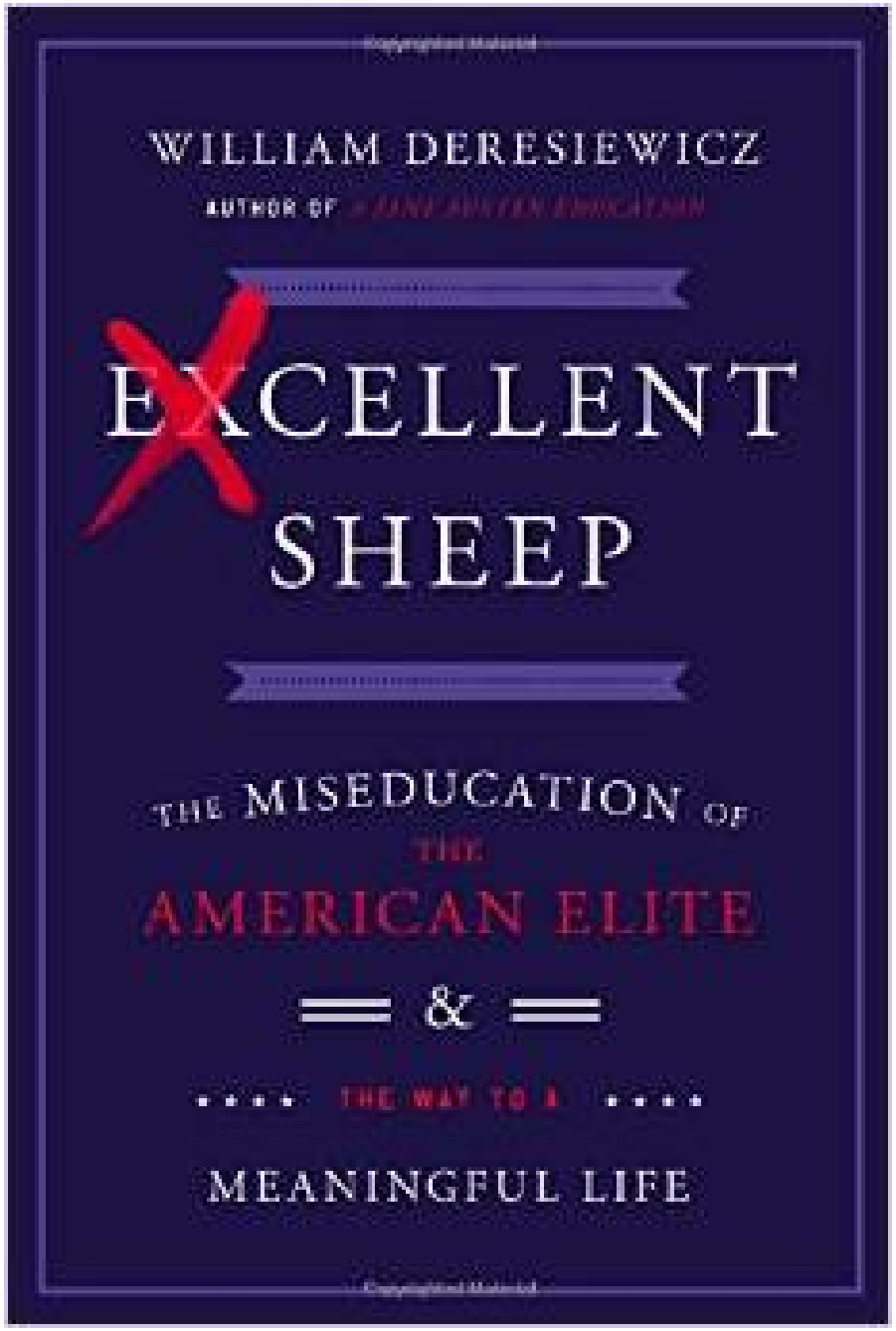
https://www.youtube.com/watch?v=TYIh4MkcfJA



ERROR of 123 subjects, each of whom compared lines in the presence of six to eight opponents, is plotted in the colored curve. The accuracy of judgments not under pressure is indicated in black.



SIZE OF MAJORITY which opposed them had an effect on the subjects. With a single opponent the subject erred only 3.6 per cent of the time; with two opponents he erred 13.6 per cent; three, 31.8 per cent; four, 35.1 per cent; six, 35.2 per cent; seven, 37.1 per cent; nine, 35.1 per cent; 15, 31.2 per cent.


WILLIAM DERESIEWICZ
AUTHOR OF
EXCELLENT
SHEEP
THE MISEDUCATION OF
THE
AMERICAN ELITE
&
THE WAY TO A
MEANINGFUL LIFE

Which kinds of externalities where present in the Asch experiment (think/pair/vote)?

1. information externalities
2. coercive externalities
3. market externalities
4. coordination externalities

Consequences of interdependent individual decisions: Information cascades

	Alice
Private Signal Public Action	

	Alice
Private Signal	shot bad
Public Action	

	Alice
Private Signal	shot bad
Public Action	no shot

	Alice	Bob
Private Signal	shot bad	shot bad
Public Action	no shot	

	Alice	Bob
Private Signal	shot bad	shot bad
Public Action	no shot	no shot

	Alice	Bob	Clarence
Private Signal	shot bad	shot bad	shot good
Public Action	no shot	no shot	

	Alice	Bob	Clarence
Private Signal	shot bad	shot bad	shot good
Public Action	no shot	no shot	no shot

	Alice	Bob	Clarence	David
Private Signal	shot bad	shot bad	shot good	shot good
Public Action	no shot	no shot	no shot	

	Alice	Bob	Clarence	David
Private Signal	shot bad	shot bad	shot good	shot good
Public Action	no shot	no shot	no shot	no shot

	Alice	Bob	Clarence	David	Edgar
Private Signal	shot bad	shot bad	shot good	shot good	shot good
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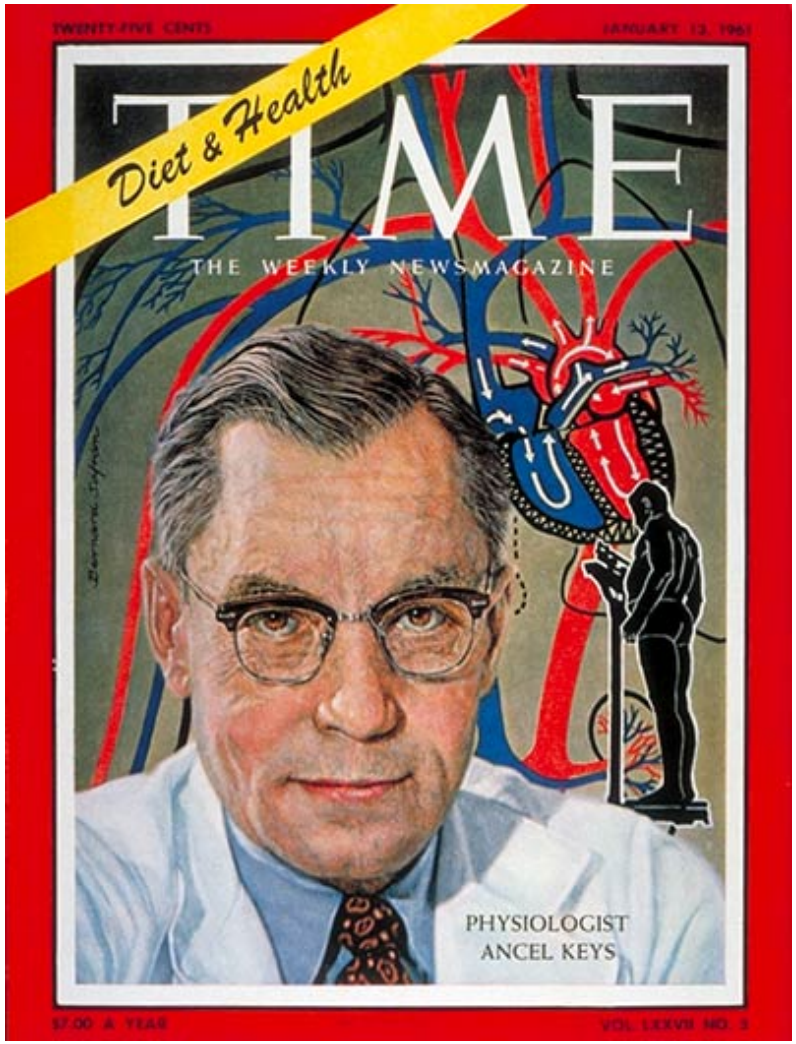
This example highlights some important points about information cascades:

1. cascades can occur pretty easily
2. cascades can lead to non-optimal outcomes
3. can be fragile (maybe)
4. cascades depend on the difference between private signal and public behavior

Could something like this really happen?



Candy results

Summary:

- many decisions are interdependent

Summary:

- many decisions are interdependent
- when there are interdependent decisions, individual rationality can lead to collective irrationality

http://bit.ly/socnet204

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Next class:

- Gladwell, M. (1996). The tipping point. The New Yorker. (Available on Blackboard)
- Watts, Chapter 8.
- Watts, D.J. (2002). A simple model of global cascades on random networks. Proceedings of the National Academy of Sciences. (Warning: this paper has hard math)

Reading notes:

- Note how Watts (2002) considers multiple outcomes of the exact same system.