

# Announcements on April 2

SCONE  
Lab.

## ● Schedule

- 3/28: Moments
  - Read MU Chapter 3
  - **HW: MU Chapter 3: 12, 13, 14, 26**  
**MU Chapter 4: 1, 2, 7, 9, 10, 12**
- 4/02: Moments, MGF
  - Read MU 3.1, 3.2, 4.1
- 4/04: Bounds
  - Read MU Chapter 3 & Chapter 4

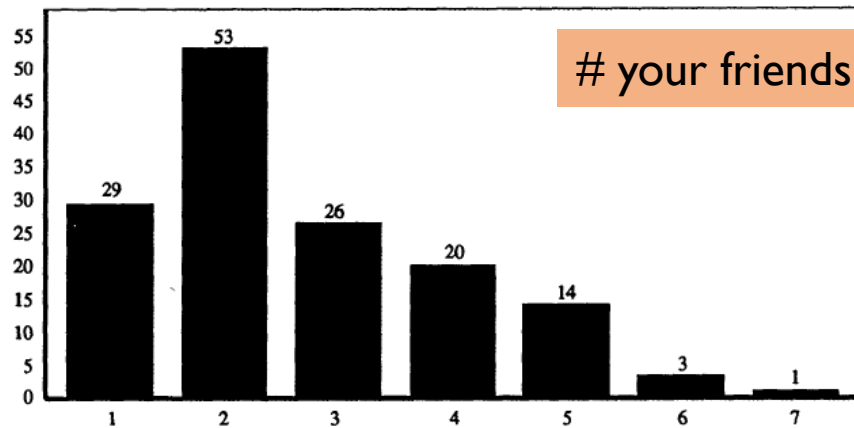
# Think You're Lucky?

- In controllable circumstances or if decisions require reasoning, people tend to over-estimate their abilities in making good decisions
  - Stock investments
  - Guess answers to questions
  - ...
- Contrarily, in the case of out-of-control circumstances, people believe they are extremely unlucky
  - It rains whenever I picnic
  - Buses came late whenever I wait for them
  - The restaurants I visited were always crowded
  - The biggest ass\*\*\*\* you hate most always becomes your boss
  - ...
- Mostly untrue
- The fact is
  - You wait buses longer than the half of the average inter-arrival times
  - Your friends have more friends than you

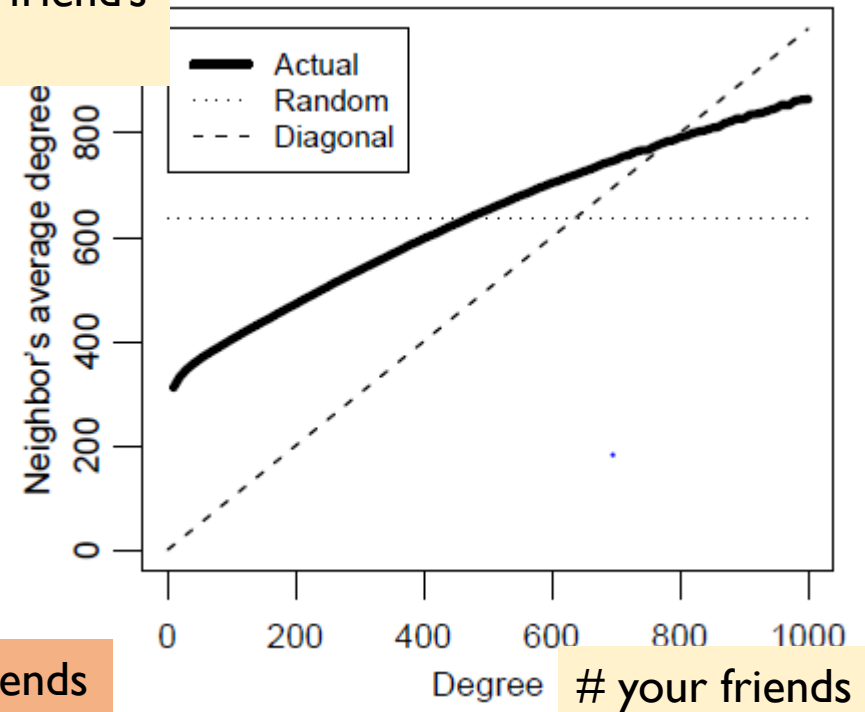
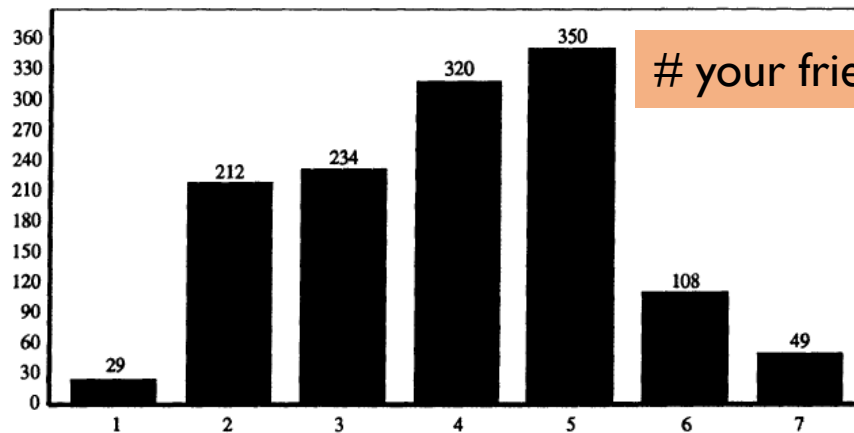
# Think You're Lucky?

- Feld, a sociologist, said that “Your friends have more friends than you”

# your friend's friends



a) The mean is 2.7.



Facebook Data

# Why?

## ● Example: Waiting buses

- Assume that the average bus inter-arrival time is 8 min. but inter-arrival times are either 4 min.(short) or 12 min.(long) with the same prob.

→ You expect waiting of 4 min.



- Passengers arrive at a bus stop uniformly at random
- If one arrives during a short interval, she waits 2 min. on average
- OW, she waits 6 min. on average
- The prob. that one arrives during a short and long interval are  $1/4$  and  $3/4$ , respectively
- → Average waiting =  $2 * 1/4 + 6 * 3/4 = 5 > 4$

## ● Applying the same argument and you can derive that “Your friends have more friends than you”

# Announcements on April 4

SCONE  
Lab.

## ● Schedule

- 4/02: Moments, MGF, Bounds
  - Read MU 3.1, 3.2, 4.1
- 4/04: Bounds
  - Read MU Chapter 3.3, 4.2
- 4/09: QuickSort & Other App., **Quiz**
  - You are allowed to bring one A4 sized reference note (Original, handwritten)
  - Read MU 3.4, 4.2, 4.3
  - **HW: Chapter 3 – 2, 3, 6, 9, 16, 22, 25**  
**Chapter 4 – 1, 2, 3, 5, 6, 9, 12**

# Regression Toward the Mean

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Lab.

- Average heights of Female & Male are 160 & 170, respectively
- Consider a couple whose heights are 170 (wife) and 180 (husband)
- The couple has a girl (or a boy). What do you expect her height?
  - More than 170?
  - More than 160?
  - Less than 160?