Assignment 8: Who knows what?

Sociology 204 (Social Networks)

Matthew J. Salganik

Due: April 15, 2015

Remember to write your name and precept on your assignment and staple it!

Short answer questions

1) Imagine that a new sexually transmitted infection – call it virus A – is discovered here at Princeton, call it virus A. Biologists have discovered that people infected with virus A do not have a spike in their viral load (and hence their infectivity) immediately after infection; rather viral load in patients with virus A is constant over time. How important would concurrency be for understanding and preventing the spread of virus A? [10 points]

a) concurrency is more important for virus A than HIV

b) concurrency is less important for virus A than HIV

c) concurrency is equally important for virus A and HIV

2) The network scale-up method could be used in which settings? [10 points]

a) countries with generalized HIV epidemics only

b) countries with concentrated HIV epidemics only

c) countries with both concentrated and generalized HIV epidemics

3) You have decided to start a new eating club, and this eating club will require future members to be selected by a vote of the current members. Further, in order to create cohesion within your eating club, you would like the outcomes of these votes to be decisive. That is, you want the potential new members to either be voted in or voted out by a wide margin. Again, you do not care if the outcome is fair or just. All you care about is that the voting outcomes are decisive so that when someone enters the club they enter with unanimous or near unanimous support. Given that goal, what voting system would you use? [8 points]

a) voting is sequential and each vote is announced publicly before the next vote is cast

b) voting is simultaneous and no results are announced until all votes are cast

4) Why? [2 points]

5) What is a question or issue that you would like to discuss in precept? [15 points]

Who knows what?

In this assignment we are going to figure out who knows what about you, and by aggregating the data from the whole class, we are going to see what kinds of traits are most hidden and what kinds of traits are over-estimated.

1) Please fill out “self survey” (downloadable from course website). Put the data into Table 1. [5 points]

2) Write down the initials of three Princeton students, one of whom you consider a strong tie, one of whom you consider a medium tie, and one of whom you consider a weak tie. Granovetter defines tie strength as:

“the strength of a tie is a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocity of services which characterize the tie.”

How did you decided who fit into which category? [5 points]

3) Please ask these three people to fill out the “friend survey” (downloadable from course website) about you. If you are shy about asking a weak tie to participate, consider asking someone in this class. Put the data into Table 1 so that another scientist (e.g., your preceptor) can understand it. [10 points]

4) For all traits where you answered yes about yourself, calculate the true positive rate. The true positive rate is: TPR = # of people who said yes about you / 3. For example, imagine that you are born in another country and 2 of the people you interviewed knew that about you. Then your TRP for that question would be 2/3. This is a measure of how visible this trait is for you. Show your work clearly enough that another scientist (e.g., your preceptor) can understand it. [5 points]

5) For all traits where you answered no about yourself**,** calculate the false positive rate. The false positive rate is: FPR = # of people who said yes about you / 3. For example, imagine that you are not born in another country and 2 of the people you interviewed thought that you were. Then your FRP for that question would be 2/3. This is one measure of the inaccurate information that people have about you. Show your work clearly enough that another scientist (e.g., your preceptor) can understand it. [5 points]

6) For all traits, calculate the accuracy of the people you interviewed. Accuracy is: # of correct answers / 3. For example, if you are on the field hockey team and 2 people knew that their accuracy would be 2/3. And, if you did not take Soc 101 in Fall 2014 and 1 person believed that you did not take Soc 101 in Fall 2014, then the accuracy is 1/3**. Notice that you can calculate accuracy for traits you have and traits that you do not have. [5 points]**

7) Combining all groups that you are **not** in, calculate the false positive rate for your weak tie, medium tie, and strong tie. Show your work clearly enough that another scientist (e.g., your preceptor) can understand it. [5 points]

8) Combining all groups that you are in, calculate the true positive rate for your weak tie, medium tie, and strong tie. Show your work clearly enough that another scientist (e.g., your preceptor) can understand it. [5 points]

9) Combining all groups, calculate accuracy of your weak tie, medium tie, and strong tie. Show your work clearly enough that another scientist (e.g., your preceptor) can understand it. [5 points]

10) Did this activity change how you think about the world? If so, how? [5 points]

11) Upload the data from your surveys so that we can aggregate the results. We will post the link on Piazza.

Table 1: Responses to questions used for network scale-up estimator

|  |  |  |
| --- | --- | --- |
| Trait  |  | Beliefs about you |
|  | You | Weak | Medium | Strong |
| Born in another country |  |  |  |  |
| Football team |  |  |  |  |
| Field hockey team |  |  |  |  |
| Women’s lacrosse team |  |  |  |  |
| Men’s lacrosse team |  |  |  |  |
| Senior sociology major |  |  |  |  |
| Senior computer science major |  |  |  |  |
| People have taken SOC 101 in Fall 2014 |  |  |  |  |
| Princeton University Orchestra |  |  |  |  |
| Dating someone from their high school |  |  |  |  |
| Dating someone from Rutgers |  |  |  |  |
| Support policy to eliminate grade deflation |  |  |  |  |
| Support higher taxes to provide universal healthcare in the United States |  |  |  |  |
| Support higher taxes to reduce economic inequality |  |  |  |  |