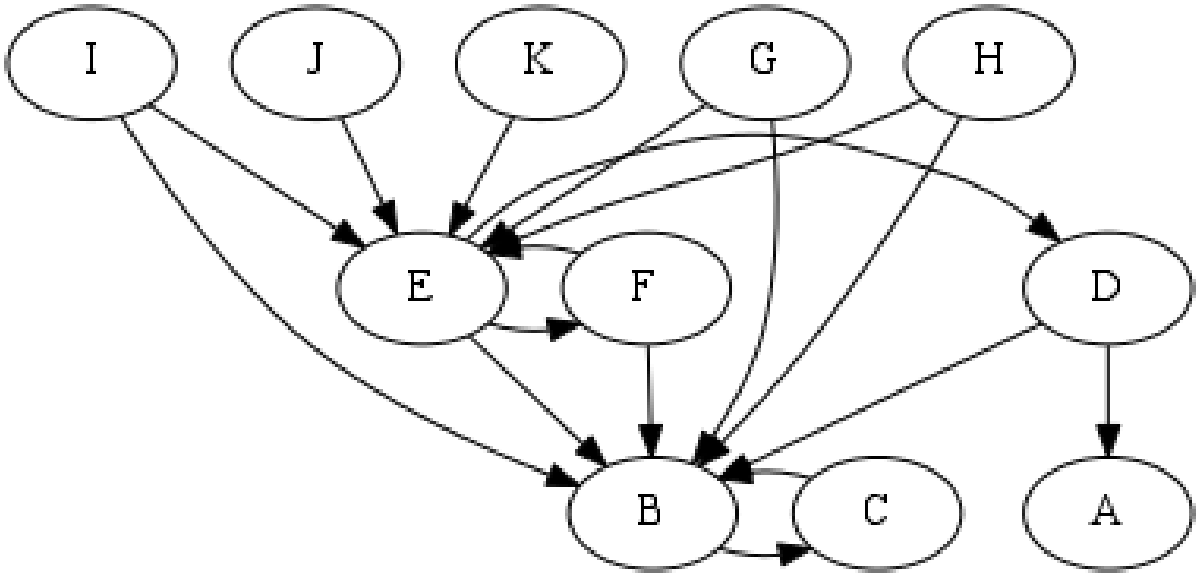
# CPSC 320 Notes, PageRank

October 2, 2017

Imagine the following graph represents the "follows" structure of CS department faculty on Twitter:




Discuss these questions with your neighbour:

- Who's the biggest bigwig (important person) in the group?
- Who's the second biggest bigwig in the group?
- Which one is a bigger bigwig, A or C?
- How should an algorithm decide?

Now, cut out the following handy-dandy randomizers and follow the algorithm on the back of the page:

| A | B | C | D | E | F | G | H | I | J | K | X |
|---|---|---|---|---|---|---|---|---|---|---|---|

1. Repeat until we call time:
   (a) Pick a random person $p$ (among A–K) to start on.
   (b) Put a tick mark next to $p$.
   (c) Choose a random number 1 through 6. (See note below.)
   (d) While your random number is less than 6:
      i. Choose at random among the people $p$ follows. (See second note below.)
      ii. Make the chosen person your new value of $p$.
      iii. Put a tick mark next to $p$ (the new $p$).
      iv. Choose a random number 1 through 6.

Note 1: How should you choose a random number 1 through 6? Well, one of the two of you use your strips of paper to choose people. The other one make the quit decisions by choosing at random among A, B, C, D, E, and X. If you choose X, that's 6. Otherwise, you chose something less than 6.

Note 2: If $p$ doesn't follow anyone, choose the next person at random among all of A–K.

# 1 Challenge Problem

What is the expected number of tick marks you write during a single run of this algorithm (i.e., all the steps beneath "Repeat until Steve calls time")?