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Assignment 8

1. a. Suppose a network exchange theory experiment is run on the graph to the right using the one-exchange rule. Which node or nodes you would expect to make the most money? (i.e. receive the most favorable exchanges)

b. Explain your answer

In the graph it may seem that node A might be the node can make the most money since node E, node F and node G are connected to it, but these nodes have an exclusive node to themselves from which they can trade from. Node F has node C, node E has node B and node G has node D. Since node B, node C and node D do not have any other node to trade from they will have to trade with node E, node F and node G making them powerful compared to node A. Therefore, nodes E, F and G can make the most money.

2. a. Suppose a network exchange theory experiment is run on the graph to the right (i.e. a graph that is a 3-node path), using the one-exchange rule. Now you, playing the role of a fourth node X, are told to attach by a single edge to one of the nodes in the network. How should you attach to the network to put in as powerful a position as possible, where power will be determined by the result of a network exchange theory experiment run on the resulting 4-node network?

b. Explain your answer

I feel that the most powerful position to put node X will be adjacent to either node E or node F , because doing so it will make it exclusive to that specific node, node X will have no other option to trade from other than node E or node F. If the node X is attached to node A then node A has the option to trade from 2 other node making it a weak position.

3. The graphs below represent the outcomes of a network exchange theory experiment. For each, determine whether the outcome is stable or unstable, and explain your answer.

a. We can see for the graph itself that it is stable cause all the values of A and B , B and C , C and D all add up to either greater than or equal to 1. Node A cannot offer anything better to B, B gaining anything more or A losing anything and the same goes to all the adjacent nodes. That's why it is stable.

b. The outcome of the graph is not stable. Node B and node C have a sum of less than 1. Node C will always try to offer more to B compared to node A because its value is 0, and at the same time A will offer a better split to B. This makes the graph unstable.

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4. The stem graph below represents the outcome of a network exchange theory experiment in which the participants have outside options. In this experiment, A bargained with B and C bargained with D. Use the Nash Bargaining Solution equations to show that this is a balanced outcome. Show your work.

Nash Bargaining Solution for A and B

S = 1- (0 + 1/2) = ½

For A's outside option= 0 + (1/2)/2 =1/4

For B's outside option= 1/2 + 1/4 =3/4

Nash Bargaining Solution is ¼ and ¾

Therefore, the network is balanced for A and B

Nash Bargaining Solution for C and D

S = 1- (1/4 + 1/4) = ½

For C's outside option= 1/4 + 1/4 =1/2

For D's outside option= 1/4 + 1/4 =1/2

Nash Bargaining Solution is ½ and ½

Therefore, the network is balanced for C and D

From the above calculations and Nash bargaining solution we can see that none of the nodes have a better outside options and that makes the graph balanced.

5. Social media influencers are powerful members of social networks, many attracting millions of followers. In your own words, write a brief essay (200 words) about an influencer or two that you follow, and why you follow them. If you don't follow any influencers, then research an influencer or two and discuss their position and influence on social media.

I follow Drake on social media because of his new songs and albums and even to follow his brand OVO. He is a Canadian rapper, singer, songwriter, record producer, actor, and entrepreneur. He became a worldwide star in a recent few year and is still growing to become a worldwide sensation. I like his songs and his brand as they are a good blend into the recent social media trends and most of the people do listen to his songs and that is really a good conversation starter. Most of his songs are commercial but some of his songs and quotes are good and have a good point of view. His home brand OVO I do buy his merch. He even has a good number of followers on Instagram, Facebook and even twitter. He is very interactive with his audience and even helps them out randomly. Drake has even won 4 Grammy awards and is currently in the top 10 charts worldwide. He promotes a lot of stuff on his social media apps. He has even acted in a new TV shows and small cameo brig screen appearances. He also supports and promotes OVO X TORONTO RAPTORS and OVO X ROOTS.

I also follow Jimmy Fallon; he is a fun guy and really cool to watch his Tonight show with jimmy Fallon. He as actor, entrepreneur, comedian and a guest host for SNL. Really like the light tone of the show and has good sense of humor and social skills. He has an amazing guest list and fun to watch him interact with other stars. I also follow him on Instagram, Facebook and twitter and even on YouTube. I even got a chance to watch him live on one of his shows which started celebrities like Sydney Sweeny and Benedict Cumberbatch. He makes the crowd laughing and makes him guests feel welcome. He has even acted in a few of a TV shows and movies. I follow him on social media because of his dressing sense and the humor and the stars in has on his shows. He also supports a brand of clothing Saint Laurent or Ralph Lauren; he wears them to all of his shows and they sponsor him suits for all of his shows. He even promotes them on his social media, Jimmy has also done a few commercial ads which he promotes such as Capital one and Xfinity.

6. Your company has decided to interview two candidates A and B for a single job. A hiring committee was formed to decide which of the two candidates to hire. Everyone on the committee was interested in making the best possible hire, but after the interviews it was clear that members of the committee had different ideas about which of the two candidates was the best choice. When the committee met to make the final decision, they decided to go around the room and ask each person on the committee to announce which of the two candidates they believed to be the best choice for the company. In fact, everyone on the committee said that candidate A seemed to be the best choice, so the offer was made immediately to candidate A without additional discussion. Now that candidate A has worked for the firm for a while, it is clear that candidate B would have been a better choice.

   a. Your boss has asked you to explain how the committee members could have unanimously supported candidate A when she was reasonably certain that before the committee meeting at least some of the members of the committee thought that B was probably the best choice. Based on the teachings of chapter 16, what can you tell her?

The committee members could have unanimously supported candidate A because of cascading effect. Two of the committee members must have chosen candidate A at the final count and after hearing that all of the other committee members who were going to vote for candidate B might have changed their vote to candidate A because they do not want to waste their vote and because of this reason they might have choose candidate A.

   b. Based on the teachings of chapter 16, can you suggest another procedure that the committee could have used that would have revealed the initially differing opinions about the candidates and which might have avoided the unanimous choice of candidate A and resulted in the actually better choice of candidate B?

One of the solutions the committee member could have followed was having a specific set of rules to follow when selecting the candidate such as does the candidate have proper work ethics, performance, experience these factors could have helped the committee members to decide that candidate B was a better choice. One

more way was to have each of the committee members to have anonyms vote as this could have broken the cascading effect.

7. You have developed a new product which performs the same service as an established product, but your product is much better than the established product. If the number of users of the two products were the same, then each potential purchaser's reservation price for your product would be twice their reservation price for the existing product. The difficulty that you face is that no one wants to use more than one of the two products. Currently, every potential purchaser is using the established product. Your cost of production and your competitor's costs of production are exactly the same and they are equal to the price at which your competitor's product is sold. If all of the potential purchasers switched to your product, the maximum price that you could charge (and still have all of them buy your product) would be twice the current price. So clearly you could make a nice profit if you could attract these potential purchasers. Based on the teachings of Chapter 17, what strategies would you use to try to convince users to switch to your product?

In order to increase my sales of the product and to make use of my product I will first try to lower the prices of my product; I will then ask the big retail stores (Walmart, Target and Best buy) to place my product in their inventory and do a solid marketing and campaigning for my product. I will also reach out the influencers on social media to promote my product cause social media is also a place where I can get the most sales from. All these methods will help to boost my sales and find potential customers and once they have used the product will ask them to spread the word of the product to other people they know and earn a referral bonus.

8. Consider an on-line news site, such as cnn.com, which consists of a front page with links to many different articles. The operators of these sites generally track the popularity of the various articles that get posted. Suppose that the operators of the site are considering changing the front page, so that next to each link is a counter showing how many people have clicked on the link. (e.g., next to each link it might say: "30,480 people have viewed this story," with the number getting updated over time.)

a. What effect do you think this change will have on the behavior of people using the site? Explain your answer.

After adding this new feature, I think it will lure more people to read the new articles which are trending or have the most number of views, if the main page of a site says that there are 30k+ views then people will get attracted and more curious to read the news article. As this new feature will improve the view counts of the news articles which already has more views which applies the Rich-get-Richer effect.

b. Do you expect that adding this feature will cause the popularity distribution of the articles to follow a power-law distribution more closely or less closely, compared to the version of the site before these counters were added? Explain why or why not.

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I do believe that adding this new feature will cause the popularity distribution of the articles to follow a power-law distribution more closely because people will be more curious and excited read the news which has 35k+ views compared to the news which has around 100 views.

9. Consider the network to the right. Suppose that each node starts with the behavior B, and each node has a threshold of q = 1/2 for switching to behavior A.

a. Let g and h form a two-node set S of initial adopters of behavior A. If other nodes follow the threshold rule for choosing behaviors, which nodes will eventually switch to A?
Explain your answer.

Initially all the nodes have the threshold of ½ to switch to behavior A form B, from which nodes g and h are the initial behavior changers. If other nodes follow the behavioral changer way then nodes d and j are the first ones to change the behavior because of the fraction of changing the behavior for both the node is greater than ½. Once both node d and j have changed their behavior, eventually node k will also change its behavior from B to A as the fraction for node k is also greater than ½ , the fraction for nodes I and f is less than ½ the spread stops. Only nodes d ,f and k change their behavior.

b. Find a pair of nodes in the part of the graph outside S that blocks behavior A from spreading to all nodes, starting from S, at threshold q. Explain your answer

Node i and f stop the spread/block of behavior A as they have the fraction less than q which is ½ that's why the diffusion stops.

10. Using several sentences, in general terms, in your own words, explain the effect that a tightly-knit community can have on a cascade.

In a tightly knit community there are people who have the same liking or the same thought process. In such community's information pass is very limited as they do not entertain new information outside of their own community. This majorly affects the cascading effect, which is the flow of information. In such communities the information which is present is only of the community which is aware of and they do not know anything outside of their own culture and community. New ideas and new talks about innovations are never talked about or are entered into their community. As all of the members present in this community have the same thinking brining in new information is also difficult.