

Math 381 HW 4

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This report is going to describe my thoughts after reading Milgram and Travers' paper "An Experimental Study of the Small World Problem" and Karinthy's short essay "Chain Links". Also, some thoughts towards the acquaintance graph from your perspective will also be included.

After reading the paper from Milgram and Travers, I think it is possible to connect any two random people in the world. Regardless of how different the race, nationality, gender, age, and social class are, two-person can be connected through others even though the acquaintance chain may be very long. Unless there is a subgroup that no one in that subgroup knows anyone outside it, which is very unlikely.

When Milgram did the test for the acquaintance chain, he added an additional comparison by using three distinct starting sub-population. It pushes me to think about what kind of starter can make the acquaintance chain as short as possible to find a random target person. I think the first kind of population is the people who share the same hobby or work in the same field with the target person since these people maybe have a direct connection to find the target person or anyone around the target person. And the second kind of population is people who are close to the target person geographically. People who live in the same city or same community also have a greater possibility of knowing the target person, since they are living in the same area. And the third kind of population is people whose number of acquaintances is greater than the most of other people in the population. These people maybe can connect to anyone close to the target person, thus we can reduce the length of the acquaintance chain to find the target person.

However, in the test done by Milgram, the chain mean length for a random sample is 5.7 and 5.4 for the stockholder sample, which is not statistically significant by the Mann-Whitney test. This is different from what I expected since I thought the stockholder sample should have a shorter mean of chain length than the random sample.

Another question I have is how to shorten the length of the acquaintance chain. For all participants in the test, instead of mailing the folder to exactly one person, I think a better way is to mail it to multiple people or all the acquaintance people. And the person who receives the folder can also send it to as many people as they want. Thus I think the acquaintance chain can be shortened since people would have a larger chance to find out another participant who likely knows or is closer to the target person. Under this context, sending a folder may not be a wise choice. A good way to send multiple people at the same time can be done electronically, such as by email or text message.

Now, let's focus on the acquaintances around me. And here is the list of ten acquaintances of my family and friends.

- An owner of a store of the murder mystery game in Beijing, and his business is very successful right now.

- A UW student majoring in psychology from Tianjin, China. She was very busy in the past few months since she was also preparing for GRE at the same time.

- A premed student of an 8-year college in Beijing, who wants to be a doctor in the future because of some family reason.
- A student who graduated from the Hongkong Polytechnic University and is working in the Agricultural Bank of China.
- A student majoring in ECE at Purdue University who works very hard in order to graduate in four years.
- An agent of a run-of-the-mill artist in Beijing. He was the friend of the artist and decided to become the agent of his friend.
- A student majoring in CS from McGill University who is also a game developer. Also, he made a lot of money using his coding skill.
- A friend who became a dad when he was in college, and he was only 22 years old.
- A student majoring in education at Imperial College London who is planning to be a Chinese teacher in the future.
- A student who graduated from Beijing Institute of Graphic Communication and is an owner of a Nail Salon.

Even though it is only one acquaintance away from me, it is very diverse. Some are students, but they are going to college everywhere in the world, from China, the United States to England. And for those who graduated from college, they work in different fields. Some people are working in a company and some people have their own store. It makes me feel like I can know everyone in the world through the people around me. Also, it makes me think that the diameter of the acquaintance graph is large, since all people in the world can be put into the same graph.

What's more, compare to the context of the two essays I mentioned before, which were both written many years ago, nowadays information technology makes people easier to know others. Social media and text messages make zero cost for people to connect with each other, instead of writing letters or making phone calls.

Also, it is very interesting to think about the idea of constructing any chain of connections between these random things from Karinth's essay. Combining with the acquaintance one person away from me, I'm thinking can if I can connect two acquaintances in the list above. For example, if I can introduce the owner of the store of the murder mystery game to the owner of the nail salon, then they can collaborate their business such as doing nails to those customers who are playing the murder mystery game.

In Karinth's essay, he gives an example of how he can connect himself with Selma Lagerlöf, so I think I can give a very similar example of how I can connect with Bill Gates. As a student going to the University of Washington, I know my course instructors and professors. And course instructors know the dean of the department, and the dean knows the president of the UW. And finally, our president knows Bill Gates. Thus, there are only two acquaintances between me and Bill Gates.

Also, Karinth points out that it was possible that there was a time in human history that the American Continent is not yet been discovered, so it was impossible to connect to a priest from one of the Mayan or Aztec tribes. However, I think this phenomenon does not exist anymore. With the development of technology and the human's exploration of the world, there is basically no one is totally excluded from the world. So it is possible that all people in the

world can be connected with the acquaintance graph. Overall, it is nice to read and consider the acquaintance graph from my own perspective, and it also let me realize how many different people I can know through my family and friends, which is very fun and interesting.