Discussion on 21-02-2020 - Network Growth: Growing Attributed Networks through Local Processes

The discussion began with the detailed explanation of the model setup which talks about the behavior of the people and the extent of rationality that people use while behaving in different scenarios. These models try to construct how the models are used to perceive the world. We try to understand through the model setup how people could possibly behave in a rational manner over different scenarios, and check if the initial predictions of people work. This is carried out using some statistical methods or calculations and verifying its outcome.
The discussion also involved the comparison of the models in the paper to the Barabasi model, which is an algorithm for generating random scale-free networks using a preferential attachment mechanism. The BA model includes several natural and human made systems including the Internet, WWW, citation and social networks that have unusual high degree compared to other nodes.
We then talk about random walk models that try to reduce path length while connecting to an existing graph and discuss the example of how google scholar has made a difference with random walks. Whenever we try to search for a particular topic or citation of a paper, it comes up with the recommendations of all the similar papers, either conference-wise or subject wise, while people in the earlier days used to go through a multitude of papers to find the most similar ones. There has been a paradigm shift in the way searches are done in the present days. Can this affect the model? I.e. increase clustering and the distribution of high-degree nodes? Can it possibly create more high-length paths to other parts of the graph than our random-walk model would predict?
Random walks are used for directed graphs. Given an example where A1 attribute count is 4 and A2 attribute count is 4, the outcome is projected as 4*4 = 16. It is assumed that the attributes are independent. In principle it shouldn't work but it does since dealing with multiple attributed in a parsimonious way is a problem. We discussed how we might account for individual and dependent attributes in our homophily-preserving models.
We also discussed the limited data set of this study: it only uses networks of academic papers. How can the model account for undirected graphs and for social network properties like insertions, deletions and updates?
It follows a power law distribution.