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Mathematical Modeling of Social Phenomenon

Summary of Independent Investigation

The rise of the social network *Ello* these past weeks, and seeing the kinds of (hip) friends that joined the network, led me to consider whether they would be as keen about using the network if it didn’t feel as though the community that used it was on the frontier of the arts or new technology. We could thus question whether there is such a thing as “negative feedback effects from network growth” beyond the logistical/operational issues. **That is, can we imagine an online dating site or social network in general that because it becomes too large, loses some of its initial participators due to a change in the perception of the relevance or quality of the average participant?** If so, can we create a model that account for this phenomenon? In order to do my initial probing into this question, I segmented my research into three distinct categories. First, I studied the evolution of some key social networks throughout the last fifteen years and different accounts for why they tend to fail over time. Next I tried to learn more about so-called “exclusive social networks,” which would theoretically be the market’s attempt at controlling the presence of negative feedback effects from network growth. Finally, I looked at how this might apply to online dating specifically and tried to look at some niche dating websites that followed a similar model to the closed non-dating oriented social networks.

**Evolution & Failure of Popular Social Networks**

I thought the most fruitful way to begin my search was to get a better understanding of some of the arguments behind why certain social networks fail. Huffington Post author Amy Lee’s article “Myspace Collapse: How the Social Network Fell Apart” asserts that Facebook ultimately triumphed over Myspace because Facebook offered a newer better way to network with your friends by allowing something “as basic as being able to actually see your real friends versus your anonymous friends.” Similarly, in an article from Psych Central about the failure of social networks, the author suggested that it is only when social networks are small and there are small amounts of people in it (for instance just a few trusted friends) that you can afford to not have to spend as much time on identity management. That is, when social networks are smaller they actual cost less in terms of identity management and so we are likely to spend more time on it that we enjoy (this argument thus wouldn’t account for negative network effects in dating sites\*). Eventually, when social networks become large enough they are bound to fail.

To a certain extent we actually find this to be the case when we observe the evolution of Facebook. According to an article from Time Business, more than 11 million people have fled Facebook since 2011. Both of the aforementioned theories about why large social networks fail are supported by the empirical evidence give by the evolution of Facebook. For instance, many of the students are opting to instead use applications such as “whatsapp” and other chat websites which allow them to only talk to a few friends at once (I saw this firsthand when teaching English at a high school in Spain). However, we can also imagine that it can also be as a consequence of increased costs of identity management. One of the reasons offered for why the kids tend to be leaving is that their parents and older people in general are now active participants of the site. Lastly, I found a blog from the website “alleywatch” which suggests that social networks can actually resemble viruses in the ways in which they bubble up and inflate in terms of participation and then gradually decline.

**Social Networking with the “Elite”**

Next, I wanted to investigate the presence of so-called exclusive social networks. This to a certain extent would indicate that the market was indeed responding to a negative feedback effect from network growth (and trying to control for it). An article from Business Insider entitled “Social Networking with the Elite: indicated that there are several of these so-called social networking sites that maintain a degree of exclusivity. They all follow different models. One website, Reuters Space, uses proprietary data from companies in order to confirm that the participants actually work in the financial sphere in the ways in which they claim. Another, Inmobile is a network of more than 900 executives in the wireless industry (to qualify you have to be a director at a large company, a vice-president at a midsize company or in the C-suite of a startup). Perhaps most interestingly is Diamond Lounge is invite only and then relies on a selection committee that is elected by members on the site. The participants of these websites value the connections that make with stranger much more as the network is much smaller. Many of the executives are glad “Its not a free-for-all.”

**Niche Dating Websites**

Similarly, we find that there are several niche dating websites which attempt to follow a similar model as the social networking with the “elite” websites do. Another article from business insider, entitled “15 Niche Dating Websites” lists a series of online dating sites that are oriented around a specific clientele. Two websites in specific caught my attention. “Beautifulpeople.com” which allows its participants to vote on whether prospective users are beautiful enough to join the site. Another one is “Seeking Arrangement” which sets users up with sugar daddies or sugar mommas with sugar babies, that is older wealthy individuals with younger attractive men and women. Both of these sites have a set of restrictions of who can join and to a certain extent serve as evidence for the presence of negative feedback effects from network growth (as they can’t find these individuals in the general sites.

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