Weighted Networks of Friendship and Animosity in Classrooms Groups

Marcelo del Castillo-Mussot[1], Eric Hernández-Ramírez[2]

(1) Instituto de Física, Universidad Nacional Autónoma de México (UNAM), México City, México,
marcelodlcstll@yahoo.com

(2) Instituto de Investigaciones Económicas, Universidad Nacional Autónoma de México (UNAM), México City, México

It is known that human interactions are, in general, not reciprocal, i.e., there is no "social Newton´s third law", so it is important to study nonreciprocal interaction or asymmetrical propensities in different social environments.

We conducted friendship and animosity surveys in 40 classrooms groups in the Mexico City Metropolitan area with students of different ages and levels. In each group students were asked to rate and order some of their peers in their classroom in two lists. In the first list each student wrote their 5 best friends in order, starting from the best friend, and in the second list they wrote the 5 "worst acquaintances" or "enemies", starting from the worst of them. In this way we constructed 40 networks of interlinked friendship and animosity within each group.

For each person we can sum the total "arrows" or directed links of either friendship or animosity to get useful information. A more complex description is obtained by assigning values to each arrow depending of the position in the survey lists. Then a person can get, for instance, a high value as a friend in two ways. First, if he or she is chosen as a "good average friend" by many peers, or else, he or she is considered to be a "very good friend" by just a few peers.

Some general features were found in almost all networks, such as strong differences between friendship and animosity in the way the links are distributed, since friendship networks are distributed similar to random networks, while animosity networks tend to be more concentrated on fewer persons. That is, animosity links are focused more on less members, which is an interesting fact. It is important to mention that here we analyze these results from the descriptive and statistical point of view, so further work is needed to understand the causes of the general difference in the asymmetrical distribution of friendship and animosity links in the surveyed groups.