

# **Friendship and fairness**

*An analytical utility-model of fairness including the strength of ties*

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**Abstract:** Social network analysis is one of those fields in the social sciences which went through a huge development in the last decade. With the availability of newer tools and methods, in-depth analysis of huge networks became possible resulting in important results at various fields. Despite this advancement, the strength of a tie – a foundation of this theory – is still a hot topic in SNA. This presentation aims to introduce another approach to tie strength, which is based on one of the internal properties of agents manifesting in human interactions – fairness.

In the first section of the presentation a brief review is given on the notion, the models and the experimental methods and results used in fairness research. The most important models in this aspect are the utility based models, so those models are discussed in detail. Some other models are also mentioned to give a deeper insight into behavioral patterns associated with fairness. The introduction of fairness is followed by a short introduction of social network analysis and its uses. The notion of the strength of the ties is discussed generally focusing on various definitions, various research results.

The second section deals with the experimental methods and results of fairness and SNA. In terms of fairness mainly two person games are discussed. These games have already provided a huge amount of data in various settings and revealed interesting relationships between fairness and various aspects of life. Some experimental results of SNA are also shown.

After the introduction of current experimental methods and results, the third section deals with the introduction of the IFN (integrated fairness-network) model. Besides the analytical description and analysis a fundamental explanation is given. Following the analysis the experimental methods used to test model assumptions are shown. These methods only differ in a few points from the experimental methods introduced earlier, but violate some rules of behavioral economics, so their discussion is important.

The last section of the presentation shows some pilot results. In this section not only major results are shown, but individual interactions are also introduced. Note that the evaluation of the experimental results differ significantly from the experiments introduced earlier, so a more thorough discussion is required.