Review of: "Determining Affinity of Social Network using Graph Semirings"

Ranjan Kumar Behera

Potential competing interests: No potential competing interests to declare.

The authors have proposed an algorithm for determining the stability or affinity of connections between different social groups within a complex social network. They have considered Facebook network as the base example. The quality of the paper can be increased by addressing the following points:

1. Discuss the significance of β in figure 2 which connect the two components derived from the original network? How it can be calculated.
2. Novelty of the paper is justified for a single network (Facebook) as considered in the paper. Is your proposed algorithm have similar impact on other real-world social networks?
3. Conclusion and Future scope of the research work is missing.
4. A serious proofreading is necessary tin the paper as a number of typo and grammatical mistakes are there in the paper.
5. The experimental analysis of the proposed algorithm is completely missing. Any comparison with existing algorithms would be appreciable. Numerical analysis comparison may be added if experiment is not possible.
6. The geometrical significance of the proposed algorithm is well explained.
7. Reference part is inadequate. Some of the recent works related to groups or community identification in social network can be referred in the paper. The following references are suggested to refer:

    a. Kumari, A., Behera, R. K., Shukla, A. S., Sahoo, S. P., Misra, S., & Rath, S. K. (2020). Quantifying influential communities in granular social networks using fuzzy theory. In *Computational Science and Its Applications–ICCSA 2020: 20th International Conference, Cagliari, Italy, July 1–4, 2020, Proceedings, Part IV 20* (pp. 906-917). Springer International Publishing.
    b. Lemieux, R., Lajoie, S., & Trainor, N. E. (2013). Affinity-seeking, social loneliness, and social avoidance among Facebook users. *Psychological reports*, *112*(2), 545-552.
    c. Kumari, A., Behera, R. K., Sahoo, B., & Sahoo, S. P. (2022). Prediction of link evolution using community detection in social network. *Computing*, 1-22.