Methods

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Function setup -> graph_from_data_frame()

We used 'directed = False' (this is Undirected network) since Source (main author) and Target (co-authors) are not meaningful.

https://www.jessesadler.com/post/network-analysis-with-r/

Directed and Undirected definition: https://ona-book.org/working.html

Many papers on coauthorship analysis use Undirected network:

1- Azondekon, R., Harper, Z. J., Agossa, F. R., Welzig, C. M., & McRoy, S. (2018). Scientific authorship and collaboration network analysis on malaria research in Benin: papers indexed in the web of science (1996–2016). Global Health Research and Policy, 3(1), 1-11.

2- Han, S. H., Chae, C., & Passmore, D. L. (2019). Social network analysis and social capital in human resource development research: A practical introduction to R use. Human Resource Development Quarterly, 30(2), 219-243.

3- Ho, T. M., Nguyen, H. V., Vuong, T. T., Dam, Q. M., Pham, H. H., & Vuong, Q. H. (2017). Exploring Vietnamese co-authorship patterns in social sciences with basic network measures of 2008-2017 Scopus data. F1000Research, 6.

4- Medina, A. M. (2018). Why do ecologists search for co-authorships? Patterns of co-authorship networks in ecology (1977–2016). Scientometrics, 116(3), 1853-1865.

Find duplicate in a column

duplicated(df$column)

Centrality

Homophily (or assortativity)

Values less than 1 indicate stronger subgroup cohesion than would be expected in a random network (i.e., homophily), and values higher than 1 represent higher than expected rates of collaboration (i.e., heterophily).

We used:

assortativity_nominal(network2004, as.factor(V(network2004)$affiliation))

1- “as.factor” Convert Affiliation in numbers 2- Since continent affiliation is a categorical variable, we should use the corresponding definition of the assortativity coefficient. The assortativity coefficient for categorical properties can be calculated by

assortativity_nominal(network2004, as.factor(V(network2004)$affiliation))

References

https://www.r-bloggers.com/2017/05/network-analysis-of-game-of-thrones-family-ties/

https://www.jstor.org/stable/pdf/26447831.pdf?refreqid=excelsior%3A5e716af69759e46e51fc7561026d4596&ab_segments=&origin=

https://rpubs.com/MarkusLoew/226759

https://rpubs.com/nr2462/845876

https://igraph.org/r/html/latest/