Analysis of large networks

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Abstract

A large network is a network with several thousands (millions, ...) of nodes that can be entirely stored in a computer's memory. Large networks are usually sparse (Dunbar's number). To deal with large networks only subquadratic algorithms are acceptable. Some special types of networks are considered: two-mode networks, miltirelational networks, multimodal networks (collections of linked networks), and temporal networks. These types can be combined. We present some general and efficient approaches and algorithms to deal with large networks: node properties or link weights detecting important parts of network, cores and generalized cores, cuts and islands, short cycle connectivity, multiplication of networks, and illustrate them with examples from applications.

For details see:

- Batagelj V, Doreian P, Ferligoj A, Kejar N: *Understanding Large Temporal Networks and Spatial Networks: Exploration, Pattern Searching, Visualization and Network Evolution.* Wiley, 2014.

- De Nooy W, Mrvar A, Batagelj V: *Exploratory Social Network Analysis with Pajek; Revised and Expanded Edition for Updated Software.* Cambridge UP, 2018.