random multigraph models: statistics

statistics for analysing structural features under multigraph models

measures defined using the distribution of edge multiplicities:

☑ number of loops and non-loops: tendency for within and between vertex category edges
→ homophily/heterophily

☑ tendency for isolated vertices → network diffusion

☑ simple occupancy of edges → simple/complex network*

☑ single ties within vertex category → isolation

☑ tendency for strengthening ties and if overlapping for multiple edge types → multiplexity

* *"if a graph contains loops and/or any pairs of nodes is adjacent via more than one line a graph is complex"* [Wasserman and Faust, 1994]

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approx 95% intervals
$\hat{E} \pm 2\sqrt{\hat{V}}$

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