



statisitandis nigras

✓  $M_1$  and  $M_2$

- tendency for within and between vertex category edges (homophily/heterophily)

✓  $R_0$  and  $R_1$

- $R_0$ : tendency for isolated vertices (network diffusion)
- $R_1$ : simple occupancy of edges

✓  $M_1$  and  $R_1$

- single ties within vertex category (isolation)

✓  $M_2$  and  $R_2$

- simplicity statistics
- single ties within vertex category (isolation)

✓  $R_0 + R_1$  compared to  $R_3 + \dots + R_k$

- tendency for strengthening ties (multiplexity)

✓ interval estimates for  $R_k$

- if overlapping for multiple edge types  $\Rightarrow$  multiplexity

**$\Rightarrow$  to avoid computational difficulties we can use the IEA approximations**

**moments of these statistics can be derived under IEA but not under RSM**

approx 95% intervals

$$\hat{E} \pm 2\sqrt{\hat{V}}$$

# statistics under random multigraph models

✓  $M_1$  and  $M_2$

- tendency for within and between vertex category edges (homophily/heterophily)

✓  $R_0$  and  $R_1$

- $R_0$ : tendency for isolated vertices (network diffusion)
- $R_1$ : simple occupancy of edges

✓  $M_1$  and  $R_1$

- single ties within vertex category (isolation)

✓  $M_2$  and  $R_2$

- simplicity statistics
- single ties within vertex category (isolation)

✓  $R_0 + R_1$  compared to  $R_3 + \dots + R_k$

- tendency for strengthening ties (multiplexity)

✓ interval estimates for  $R_k$

- if overlapping for multiple edge types  $\Rightarrow$  multiplexity

**moments of these statistics can be derived under IEA but not under RSM**

$\Rightarrow$  to avoid computational difficulties we can use the IEA approximations

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

# goodness of fit tests