

Gender and the Social Structure of Collaboration

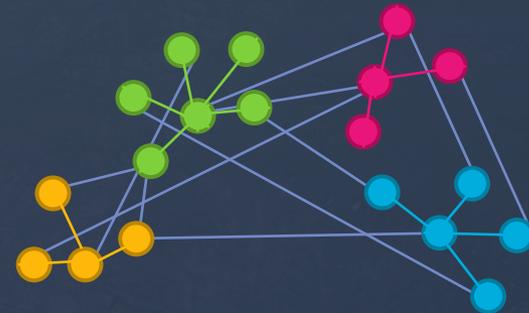
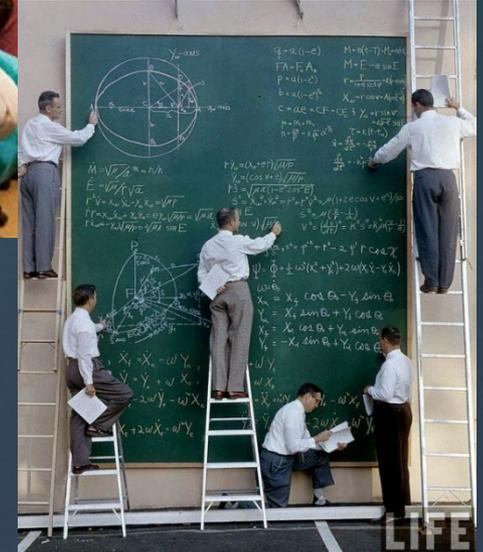
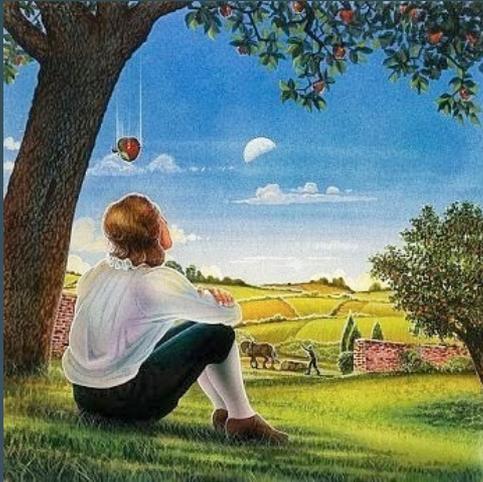
Kjersten Bunker Whittington
Associate Professor of Sociology
Reed College

March 2017

Gender and Collaboration

- ⌘ A story of uneven progress for women
- ⌘ Lack of available data leads to these typical approaches:
 - ⌘ Nation-specific measures and sampling
 - ⌘ Single discipline approaches
 - ⌘ Case-based approaches with smaller sampling range

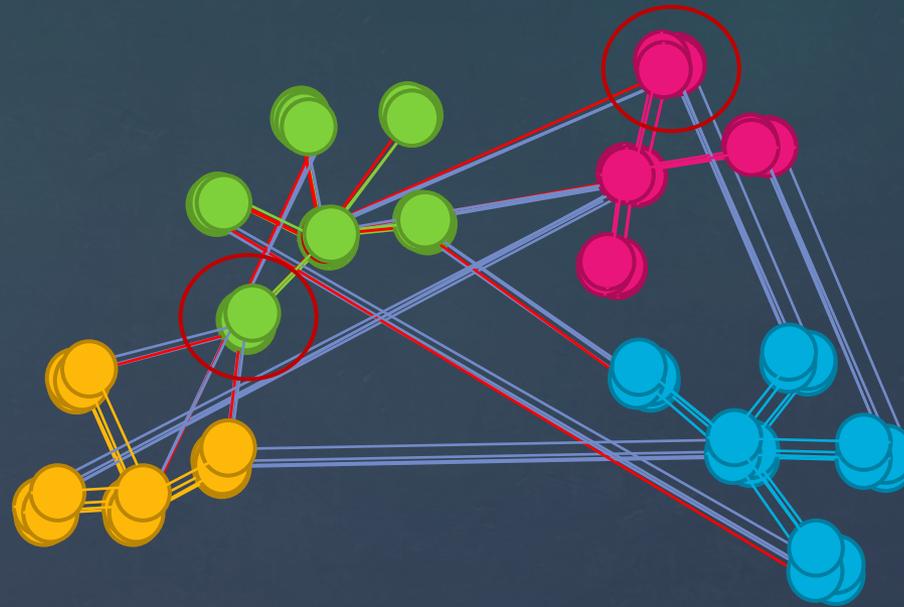
The Social Production of Science



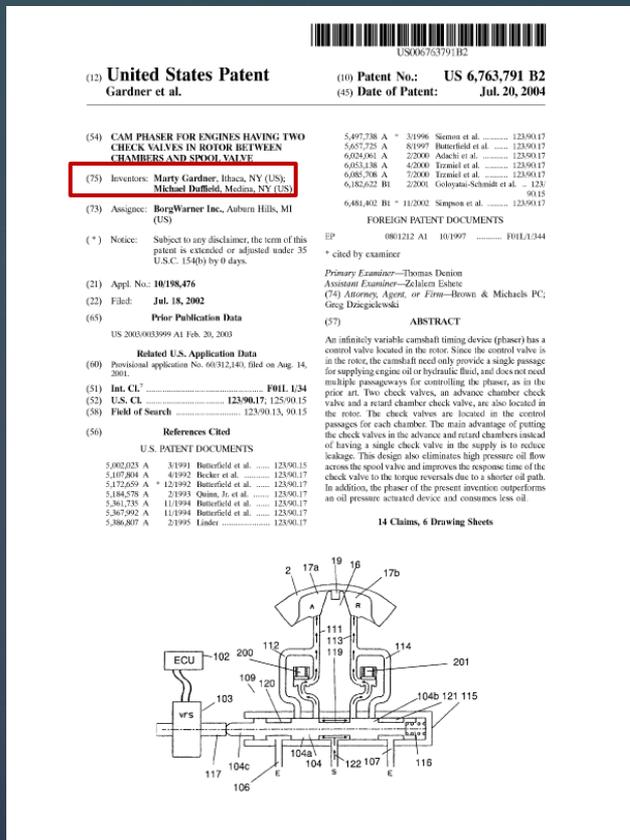
Network mechanisms of collaboration

"In the short run, actors create relations; in the long run, relations create actors."

Padgett and Powell 2012

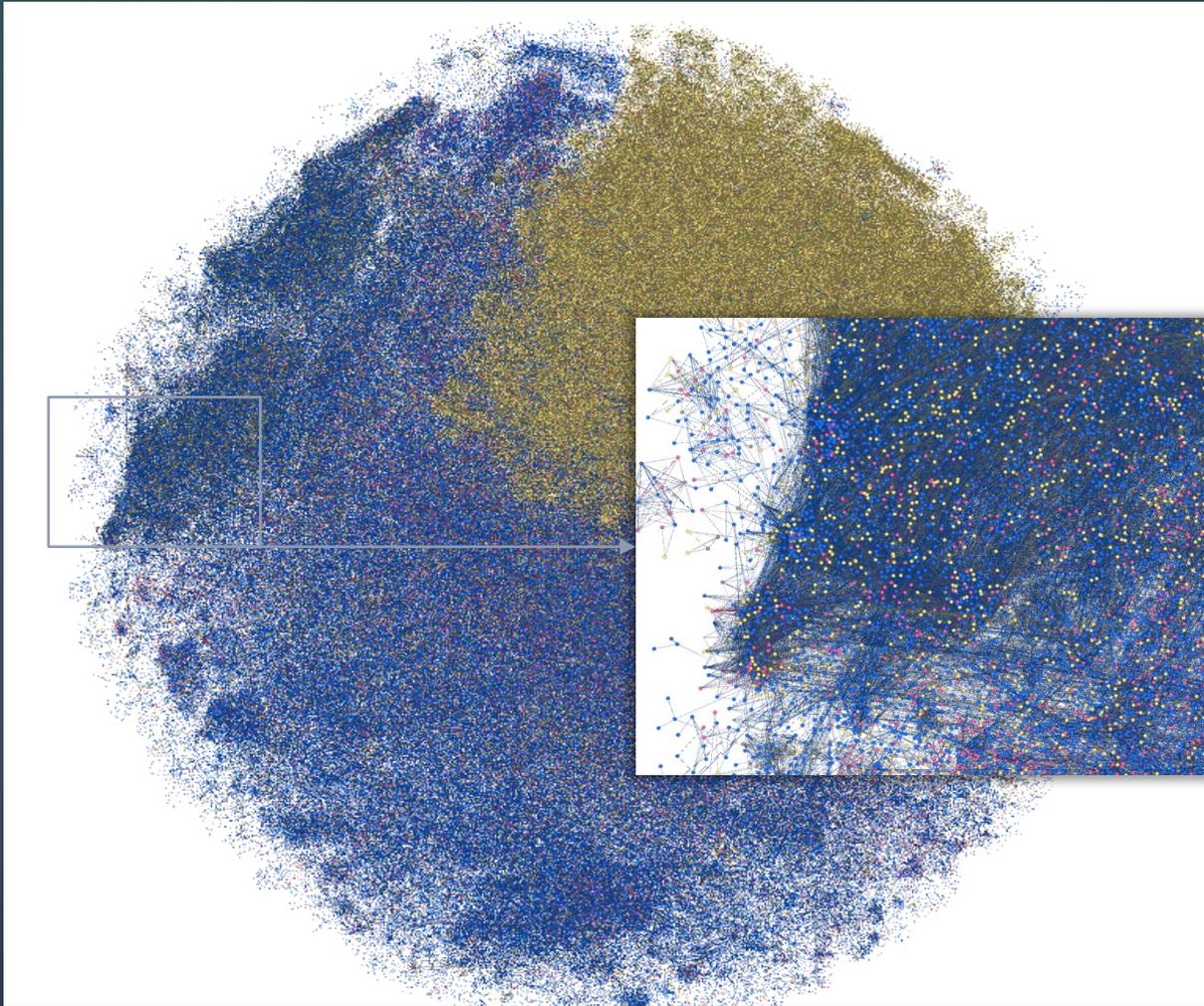


Patenting Collaboration in the Life Sciences



- Data from life science directory Bioscan and USPTO on the global partnerships and patents of life science firms, 1976-2005
- Inventor Affiliations:
 - 50% Chemical and technology related firms
 - 15% Pharmaceutical firms
 - 11% Universities
 - 9% Cross-sector inventors
 - 5% Dedicated biotechnology firms
 - 5% Public research organizations
 - 3% Other firms
 - 2% Government
- N Inventors: 215,639, N Patents: 396,194
- 24% Female

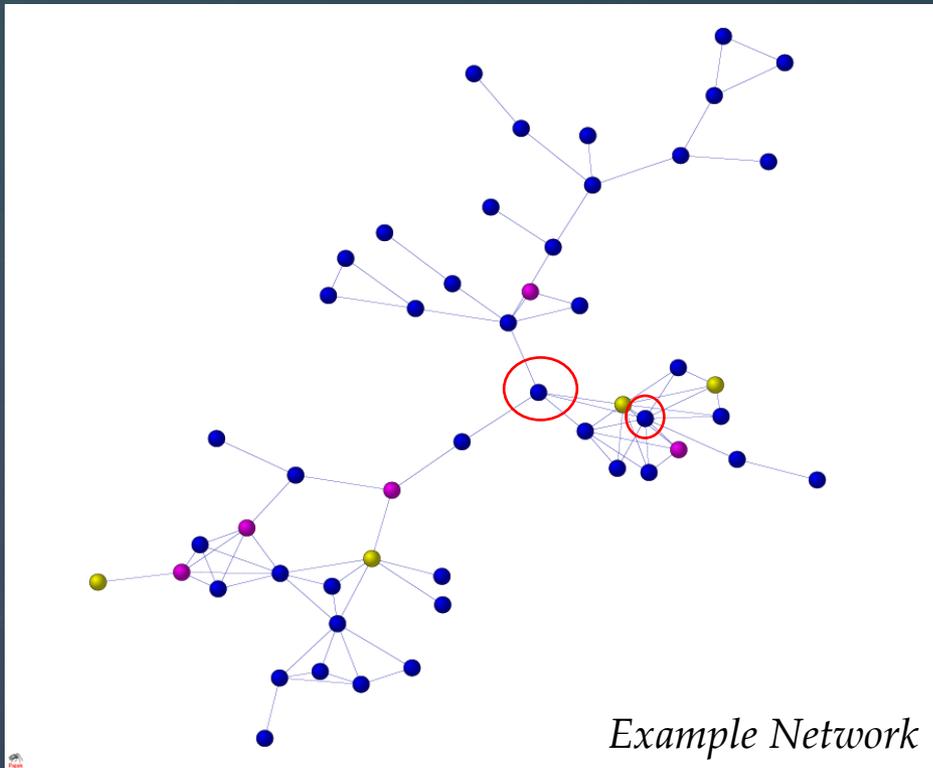
Inventor Collaborations in the Life Sciences 1976-2005, Global Population



Characteristics of women inventors:

- ⌘ Comprise 24% of sample
- ⌘ Are assigned 38% fewer patents than men
- ⌘ Proportion of women inventors is growing over time.
- ⌘ More likely to be one time inventors; are over-represented in lower patenting counts

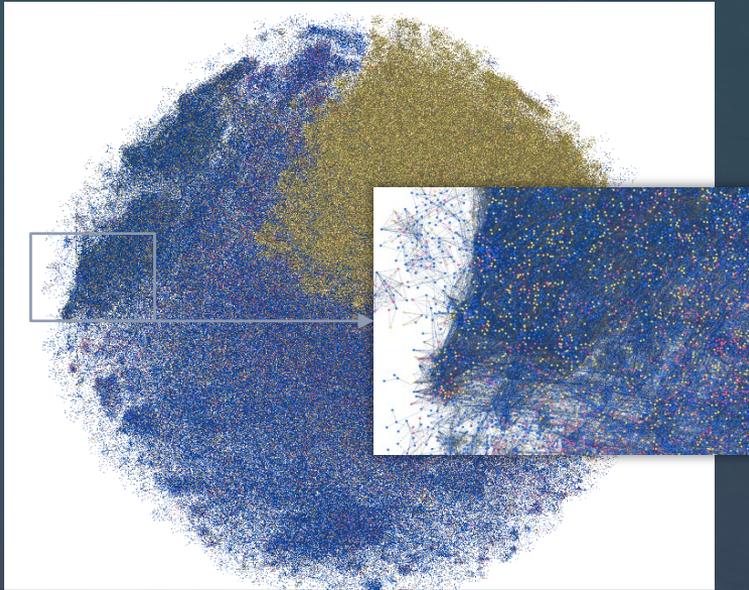
Collaboration Network Mechanics



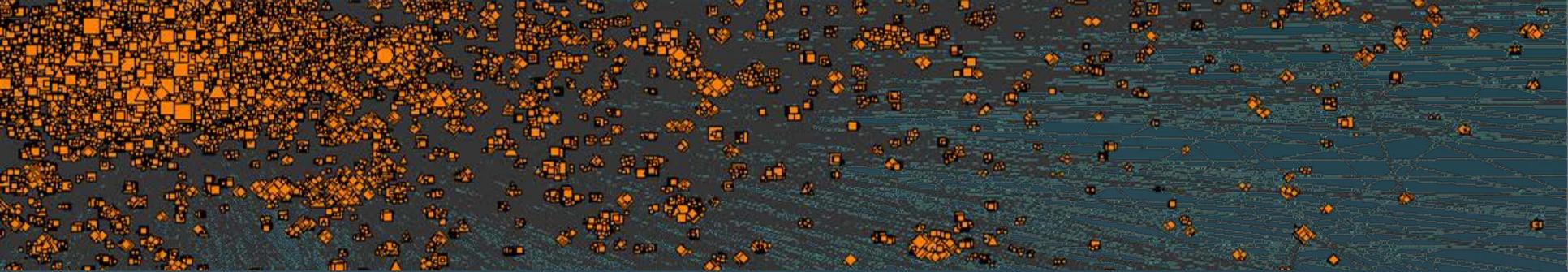
Networks analysis can assess:

- ∅ Closeness to other inventors (direct and indirect collaborators)
- ∅ Strategic locations (ties to those not otherwise connected; short paths to highly central actors)
- ∅ Measures of reachability predict productivity benefits

Network Positioning and Payoff: Uneven Progress



- ⌘ Women have comparable network reach and numbers of ties
- ⌘ Women in fewer strategic positions; their collaborations are more status-asymmetrical.
- ⌘ Tendency towards gender homophily
- ⌘ Network ties are contingent on gender; women see less of a return to their productivity from strategic ties than men



Continuing the conversation....some implications and next steps

- ⌘ Best practices will stem from addressing underlying mechanisms. Data analytics are only as useful as the explanations that stem from their use.
- ⌘ Collaboration encompasses multiple dimensions of intersecting activity (publishing, patenting, involvement in epistemic communities, etc.)
- ⌘ Who is missing from these analyses? How can consideration of multiple identities shed light on marginalization processes?

Thank you!