The assembly of prestige and status in networks

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quick links to papers etc:
- Explore faculty hiring data - http://danlarremore.com/faculty
- Prestige in faculty hiring - http://advances.sciencemag.org/content/1/1/e1400005
- Gender, prestige, productivity in CS hiring - http://www2016.net/proceedings/proceedings/p1169.pdf

- Elly Power - Anthropologist - http://tuvalu.santafe.edu/~epower/Eleanor_Power.html
- Cate De Bacco - Physics - https://www.santafe.edu/people/profile/caterina-de-bacco
- Marion Dumas - Political economy, Human ecology - http://tuvalu.santafe.edu/~marion/
- Liz Hobson - Birds, hierarchies - https://sites.google.com/site/hobsonresearch/
- Mirta Galesic - Psychology - https://sites.google.com/site/mirtagalesic/
- Aaro Clauset - Networks, CS - http://tuvalu.santafe.edu/~aaronc/


GHS
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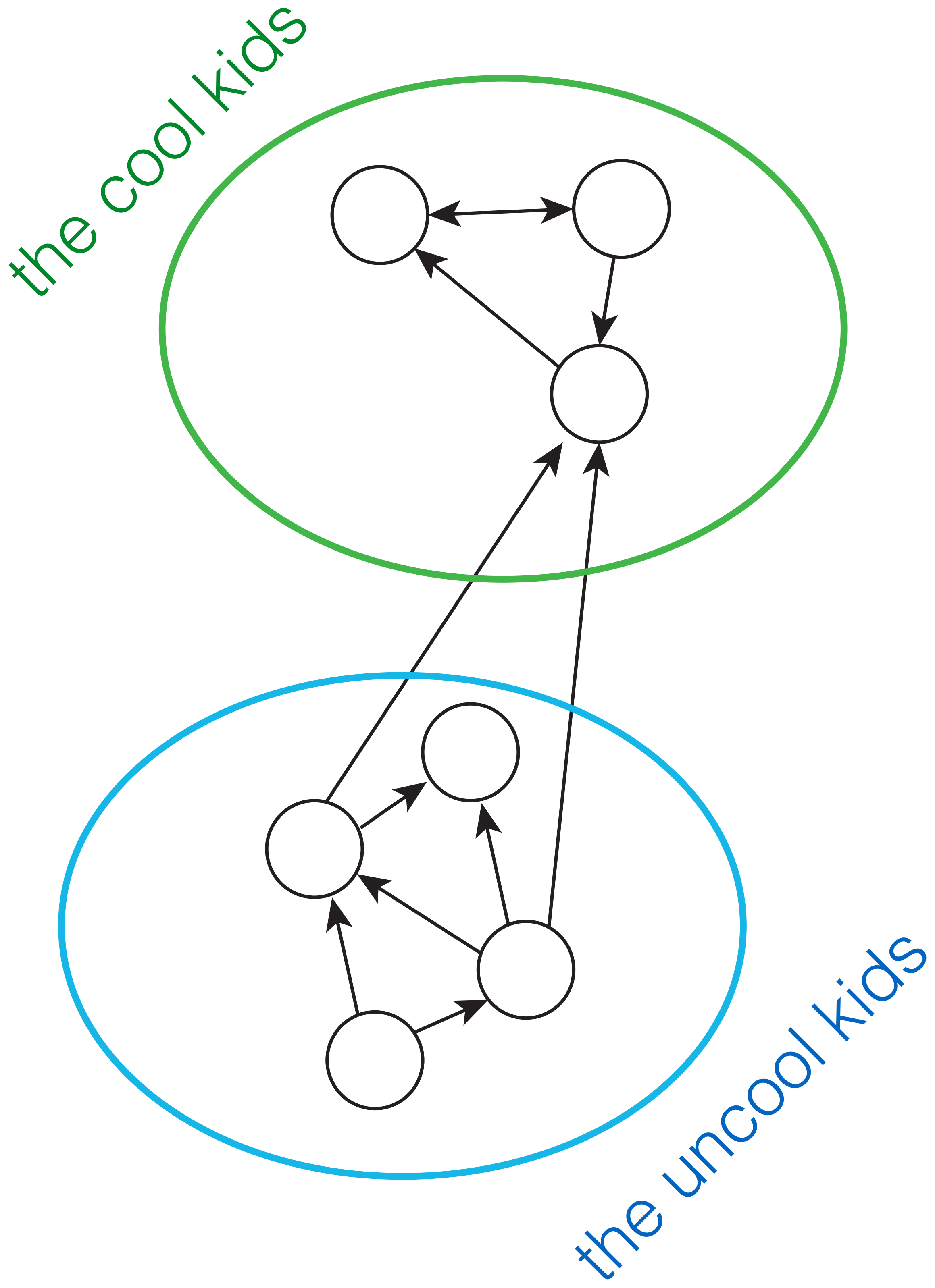
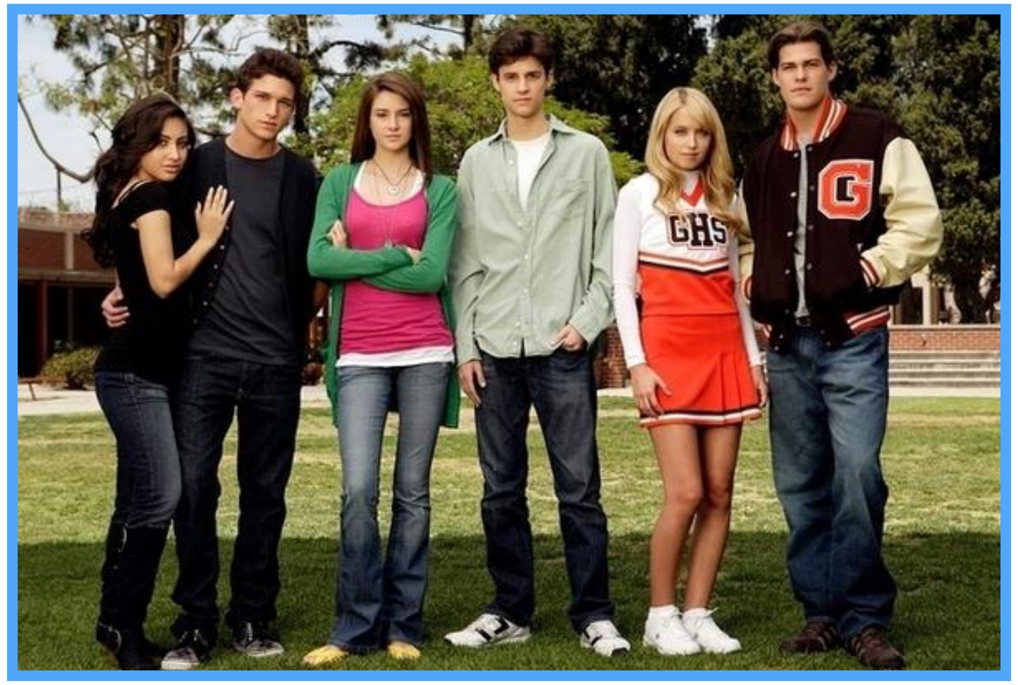
Groups, status, and prestige emerge from our social ties.





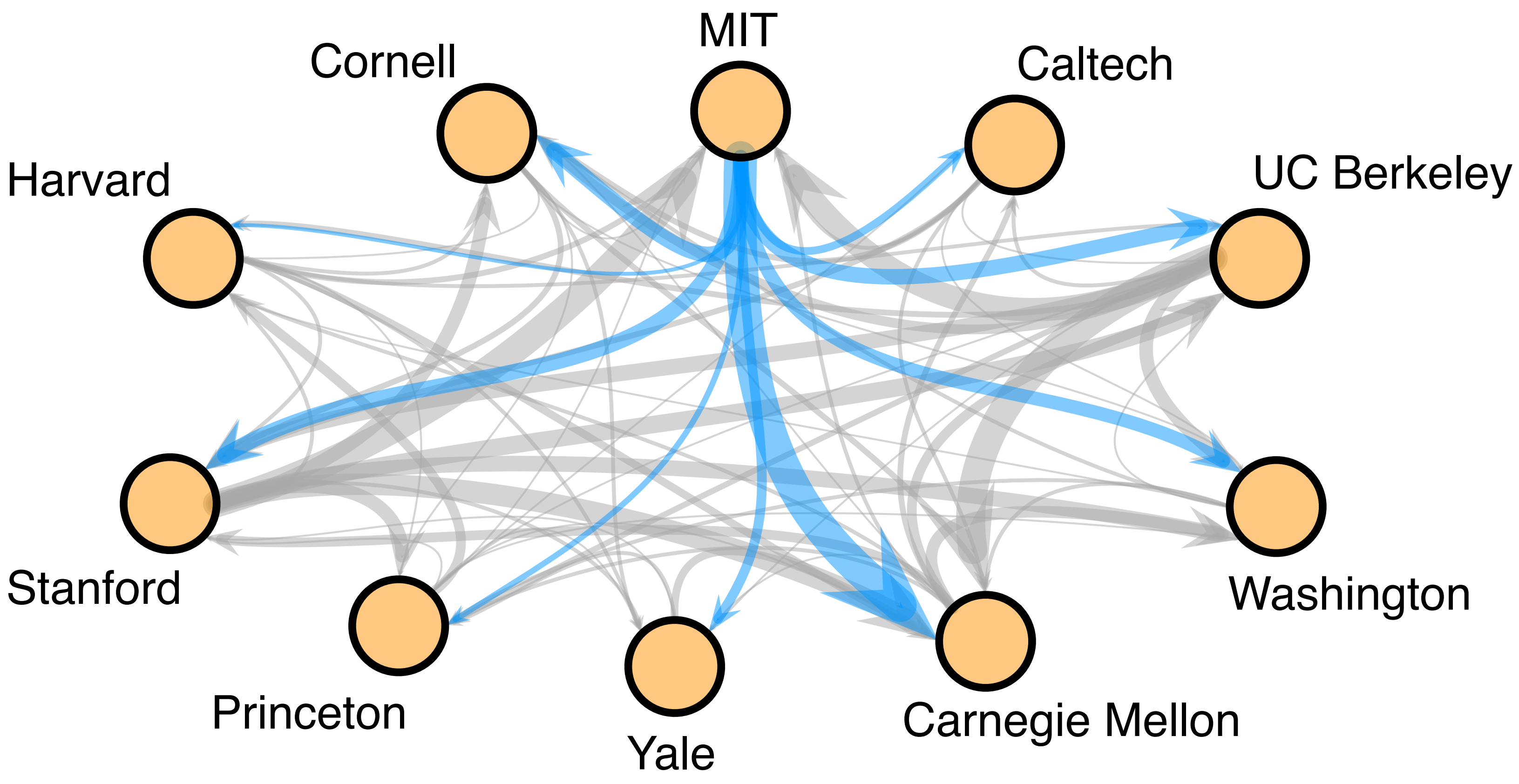
Groups, status, and prestige emerge from our social ties.

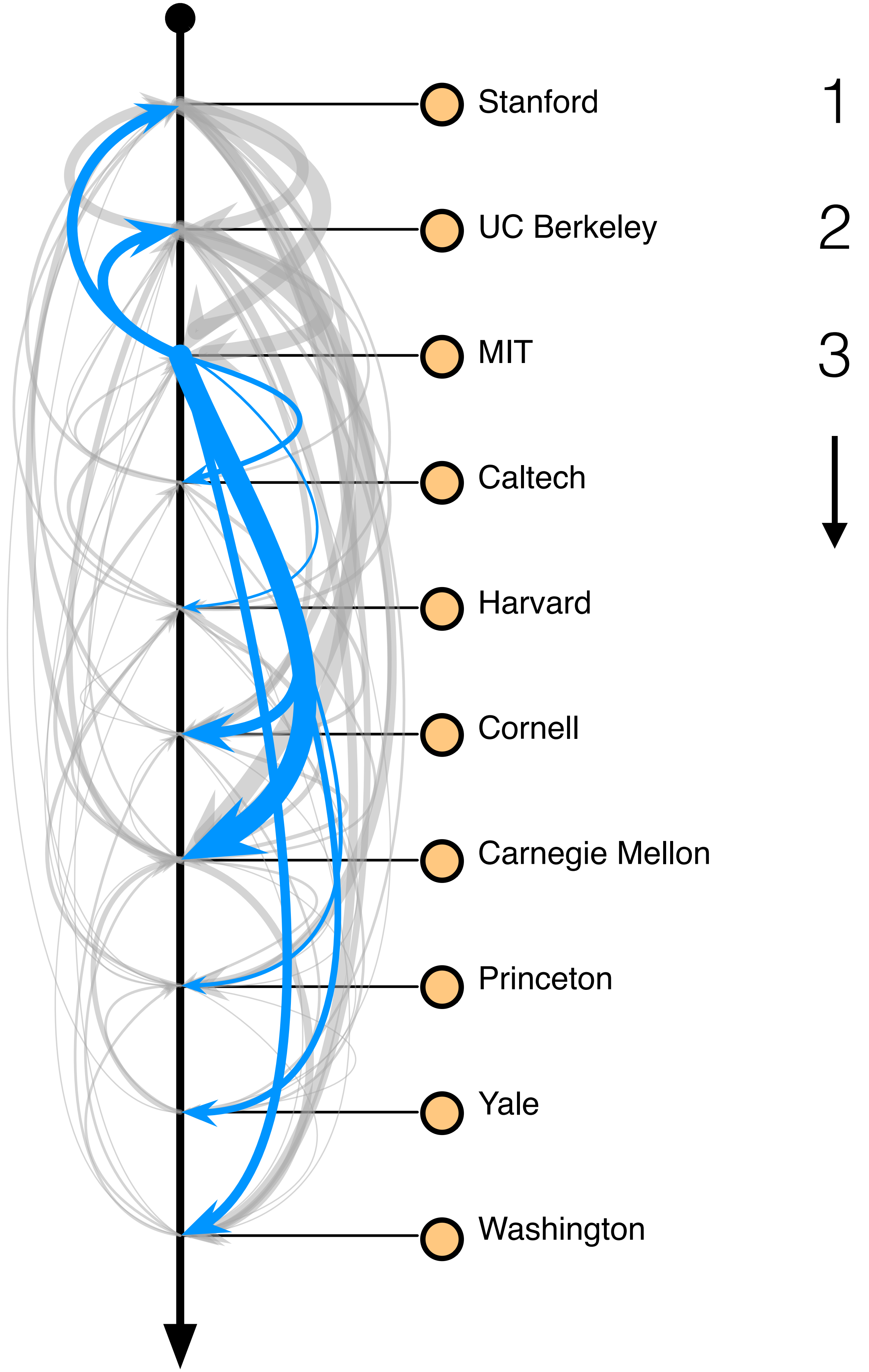
How do these structures **form**?

How can we **automatically identify** them in **noisy data**?

What do they mean for **systems** and **individuals**?

Faculty hiring networks





Faculty hiring networks

systematic

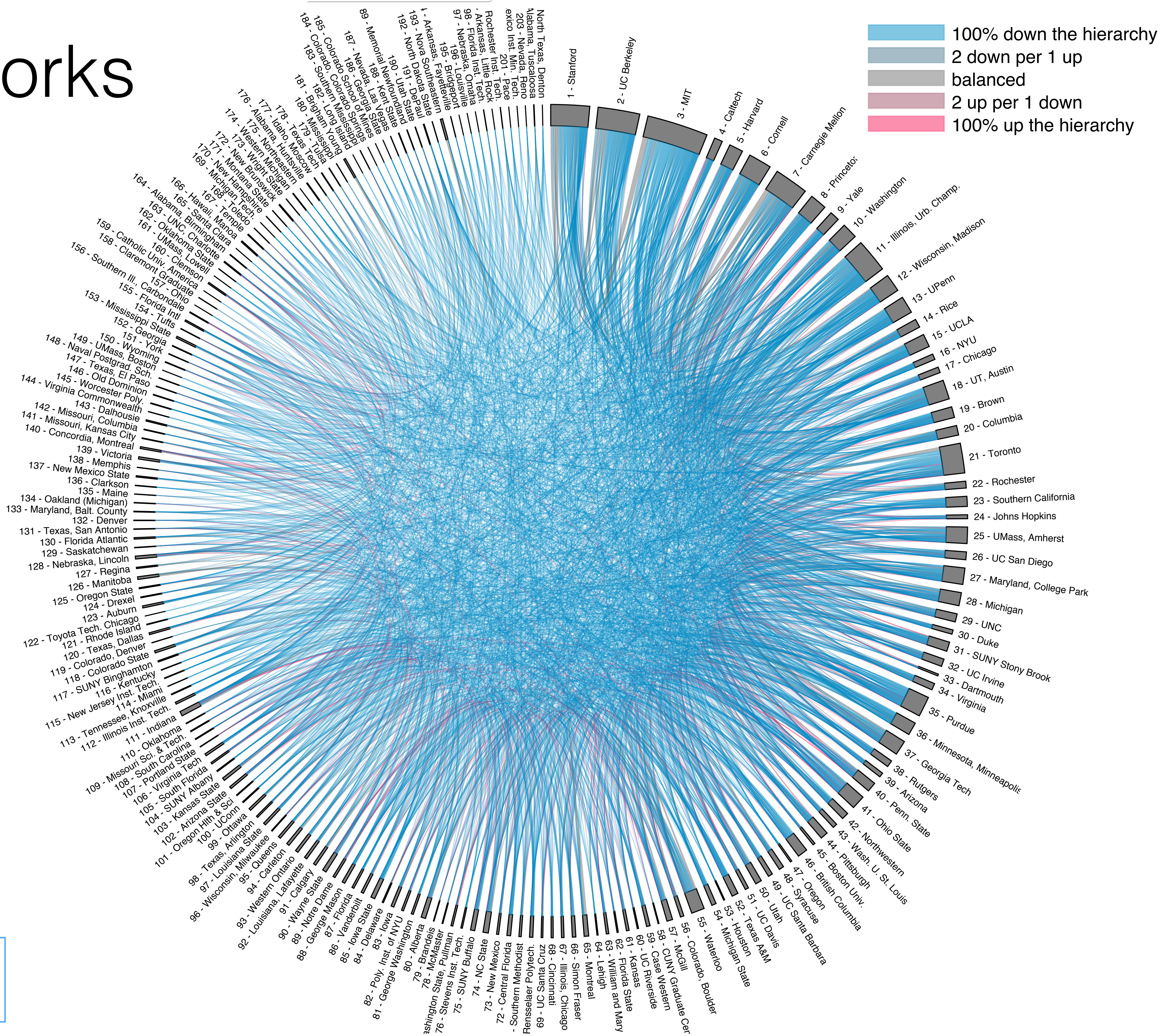
90% of hiring movement
is “down” the hierarchy

steep

< 7% of faculty have PhD
from lower 75% of universities

biased

median change for women
~3 ranks worse than men



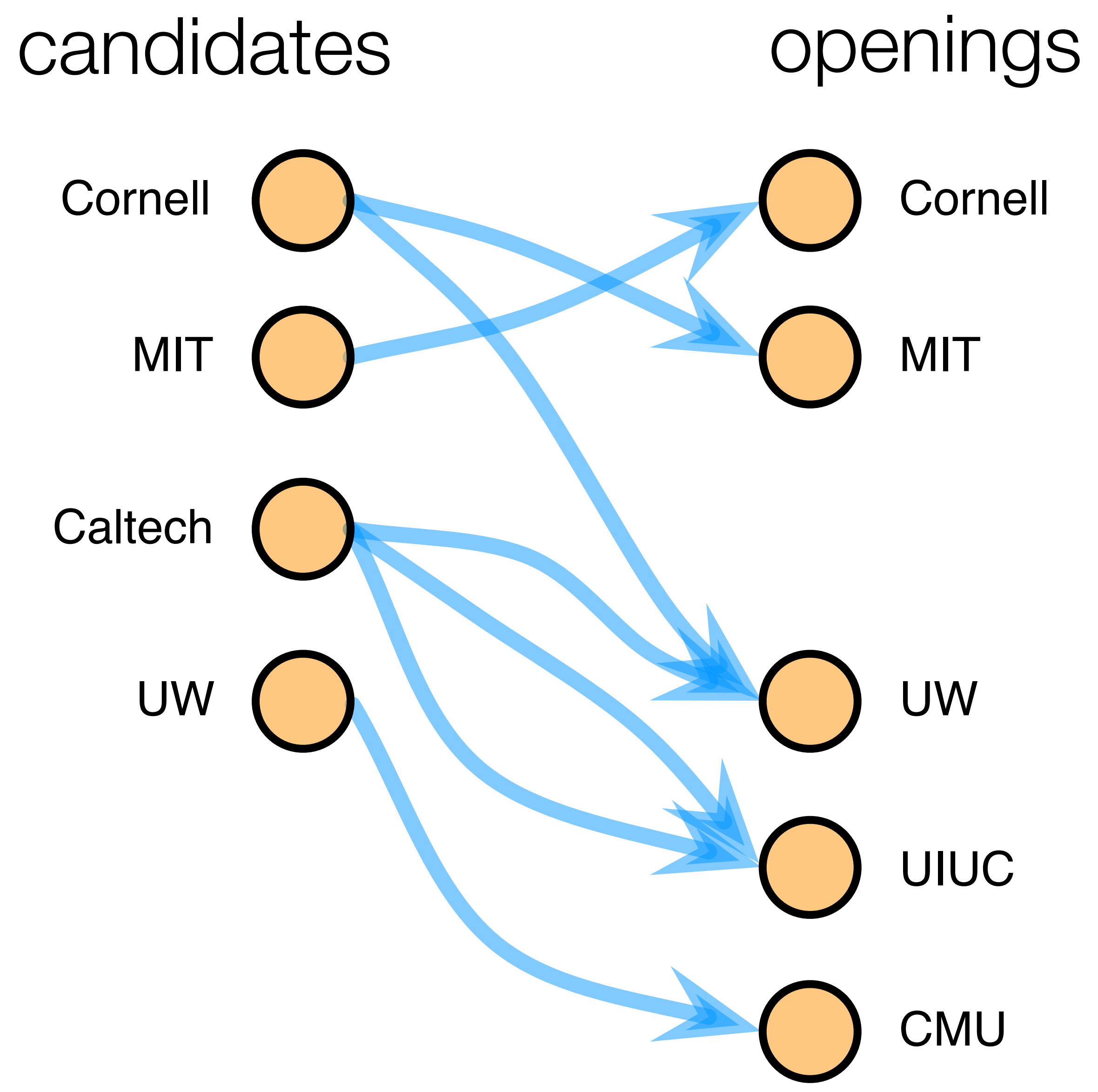
http://danlarremore.com/faculty/
explore data for History, CS, Business

What else explains movement in the market?

Predictive model:

prestige
productivity
postdoc experience

gender
geography



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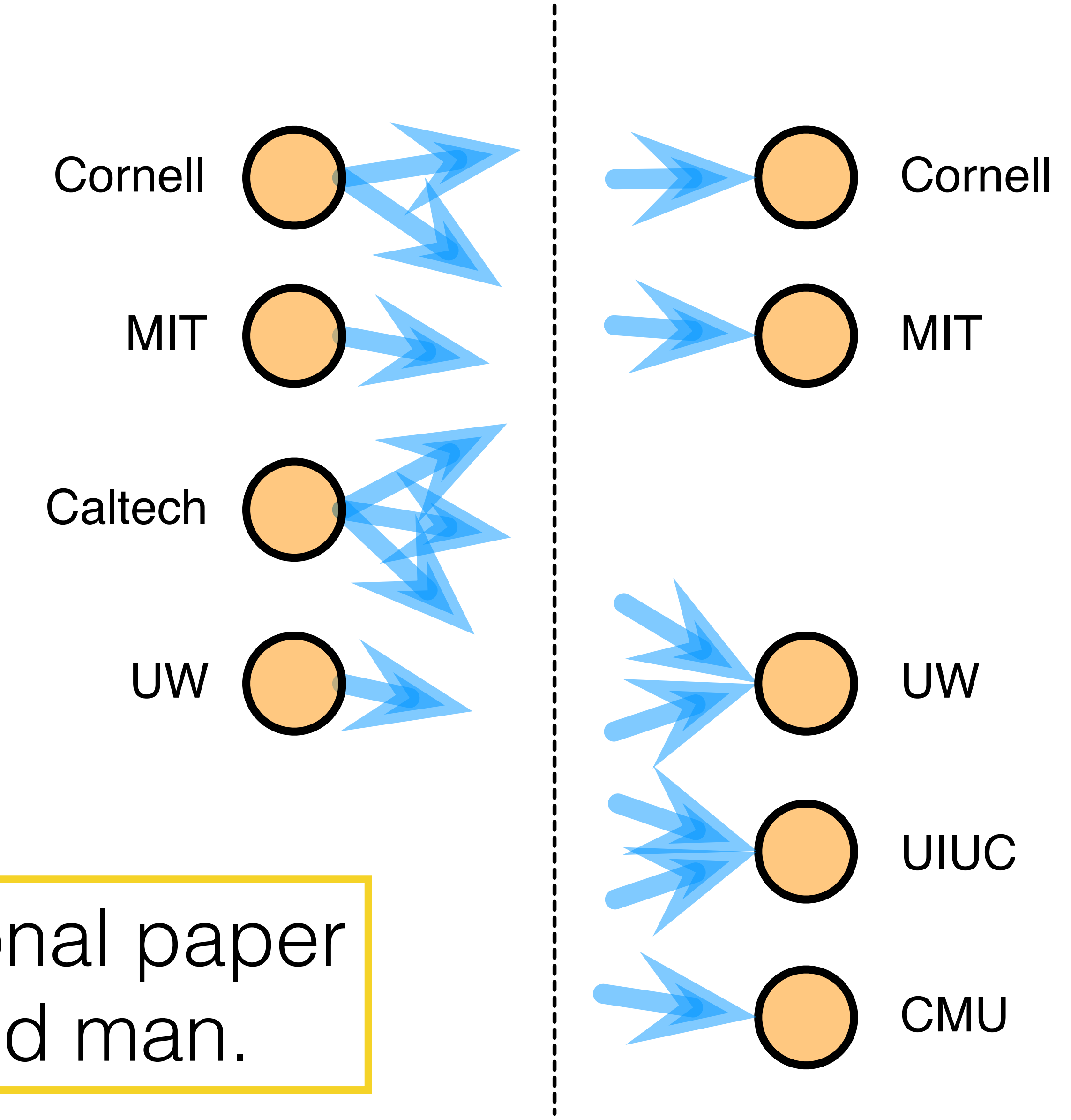
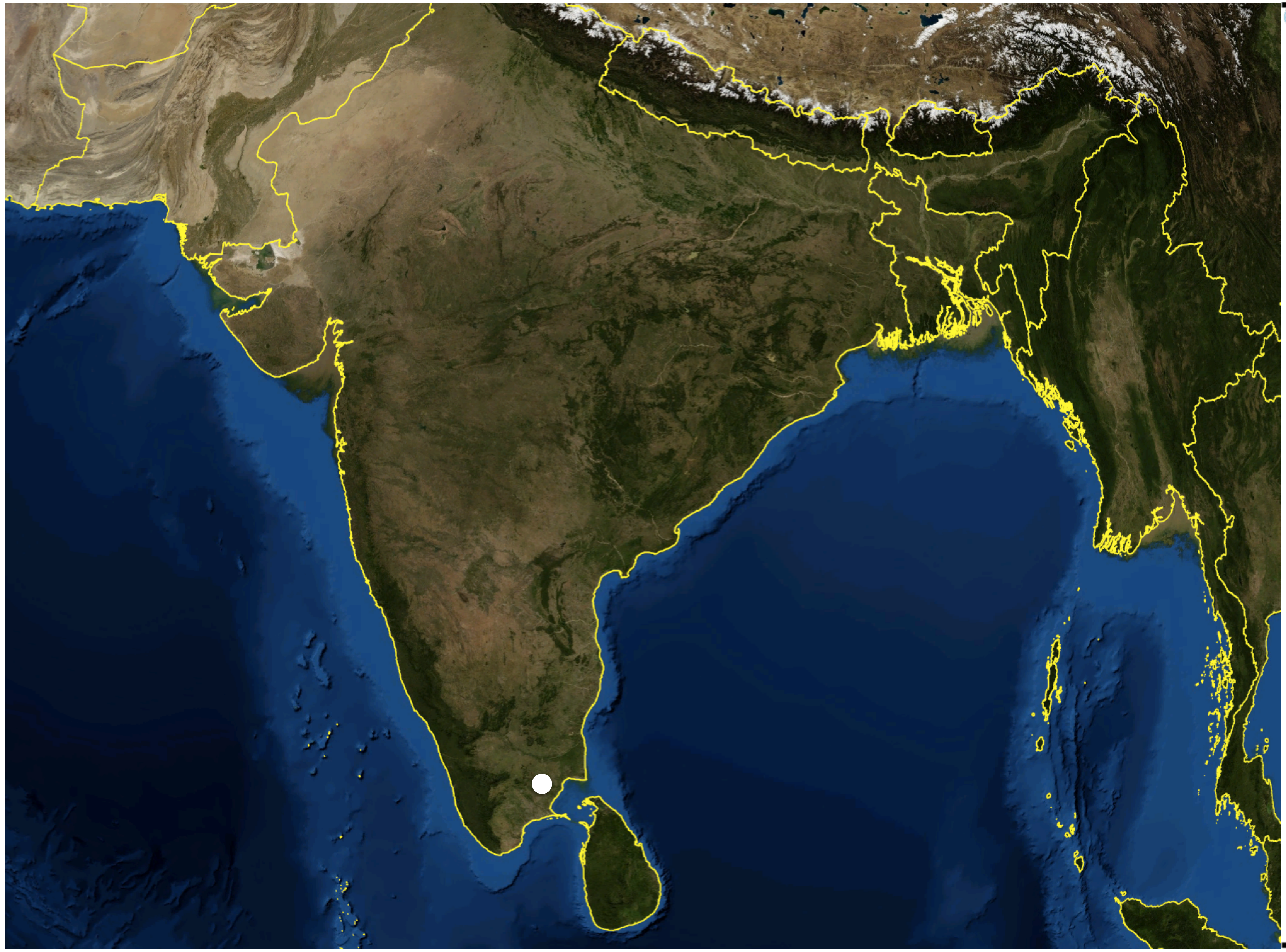
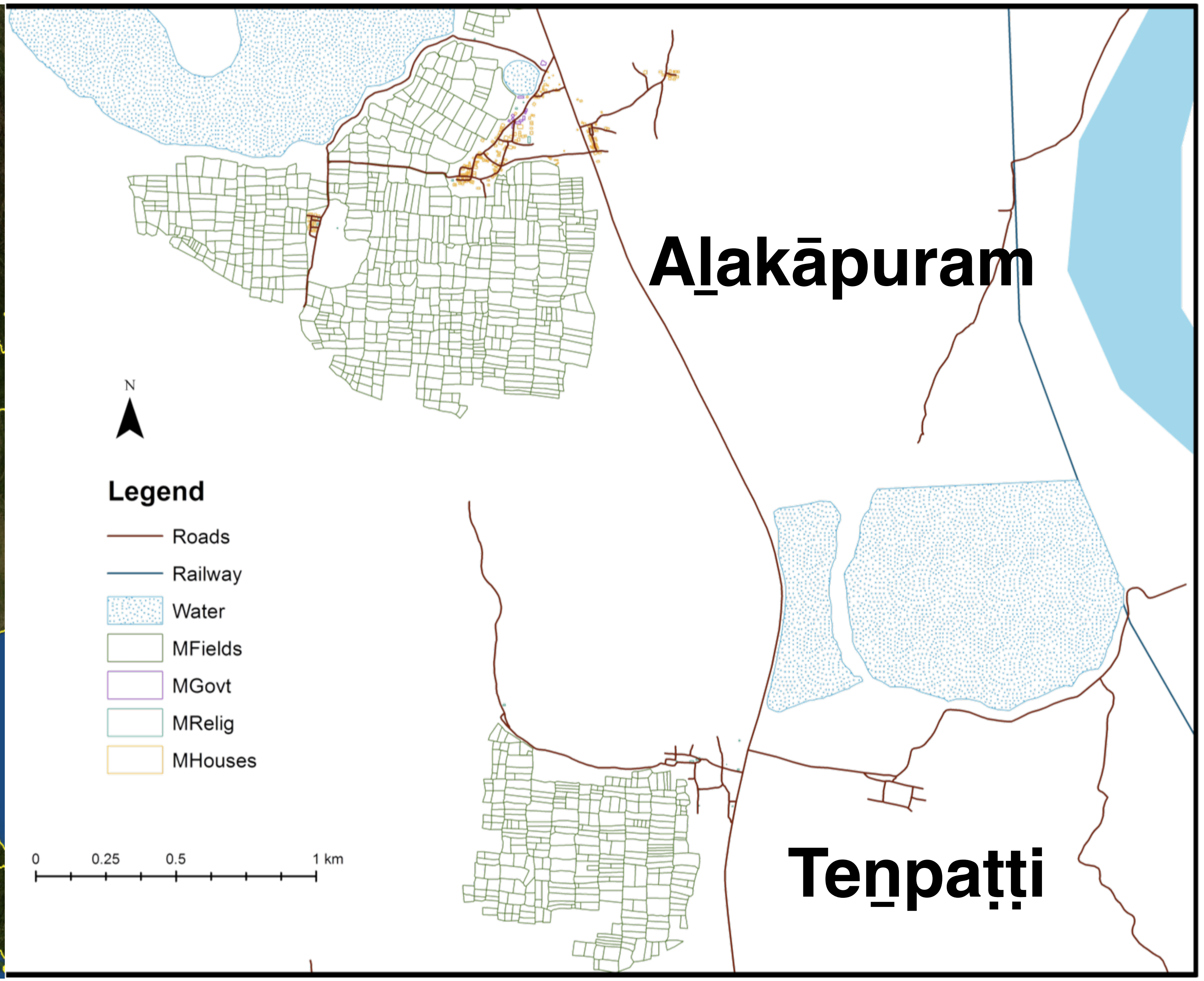


women on the job market must have ~1 additional paper to be placed the same as an equally qualified man.

South Indian networks: Teṉpaṭṭi and Aḻakāpuram





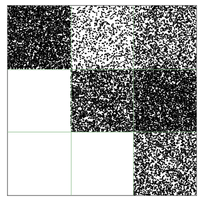
1964 question of Srinavas and Béteille: beyond ethnographic investigations of caste?

Ranked order quality, R

We propose to measure the **quality** of a ranked ordering by R

$$R = \frac{1}{m} \sum_{ij} (A_{ij} - E_{ij}) \, \mathbf{1}_{g_i \le g_j}$$

links

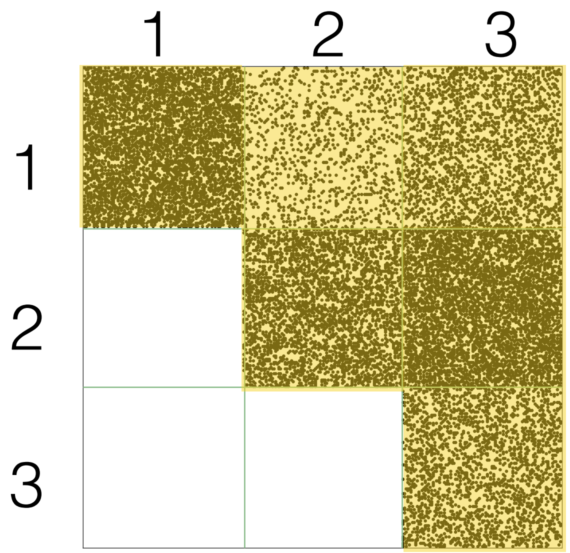


network adjacency matrix

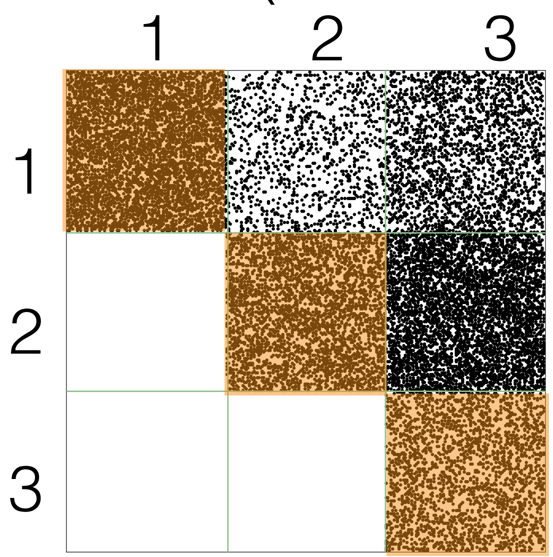
expectation (null model)

indicator

group of i ≤ group of j



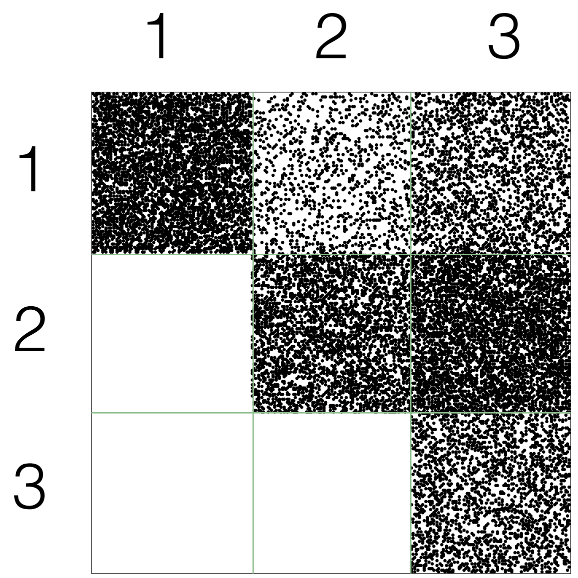
endorsement quality, R



modularity, Q

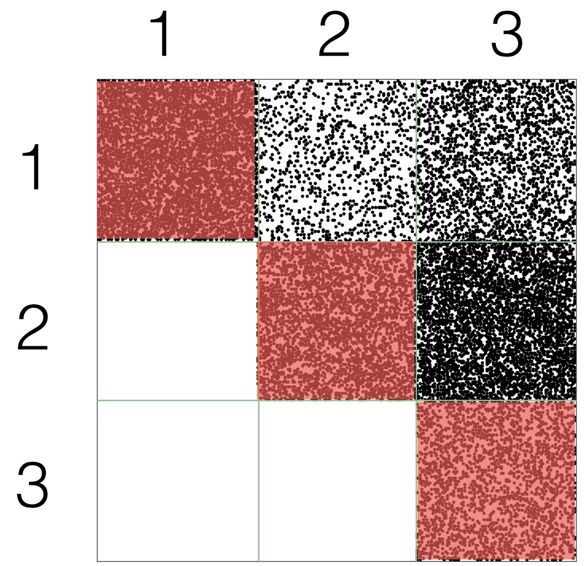
Endorsement vs Dominance

Directed edges
have **meaning.**



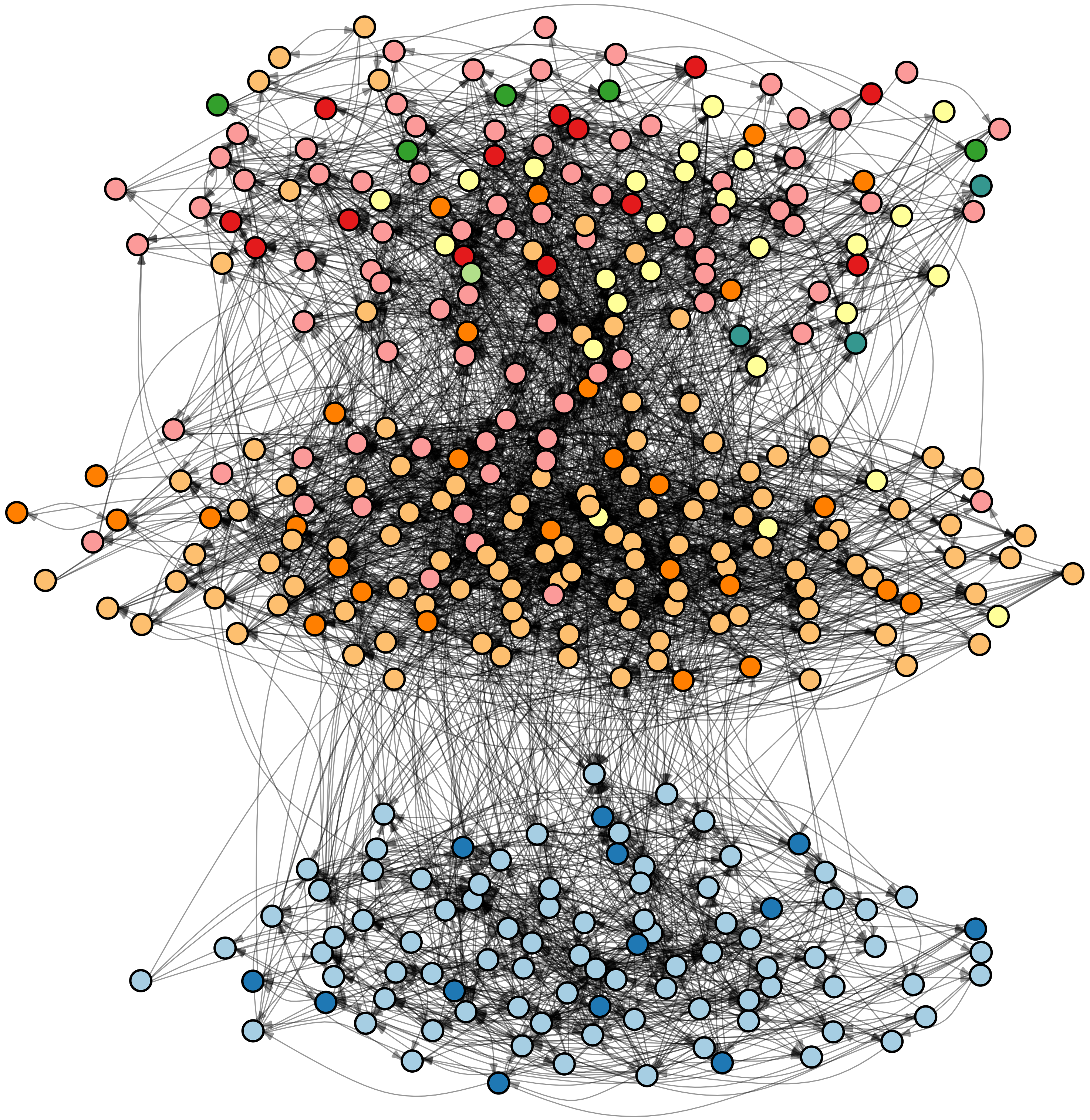
Endorsement

We must encode our beliefs about the
meaning of edges
in the algorithms we use to identify groups.



Dominance

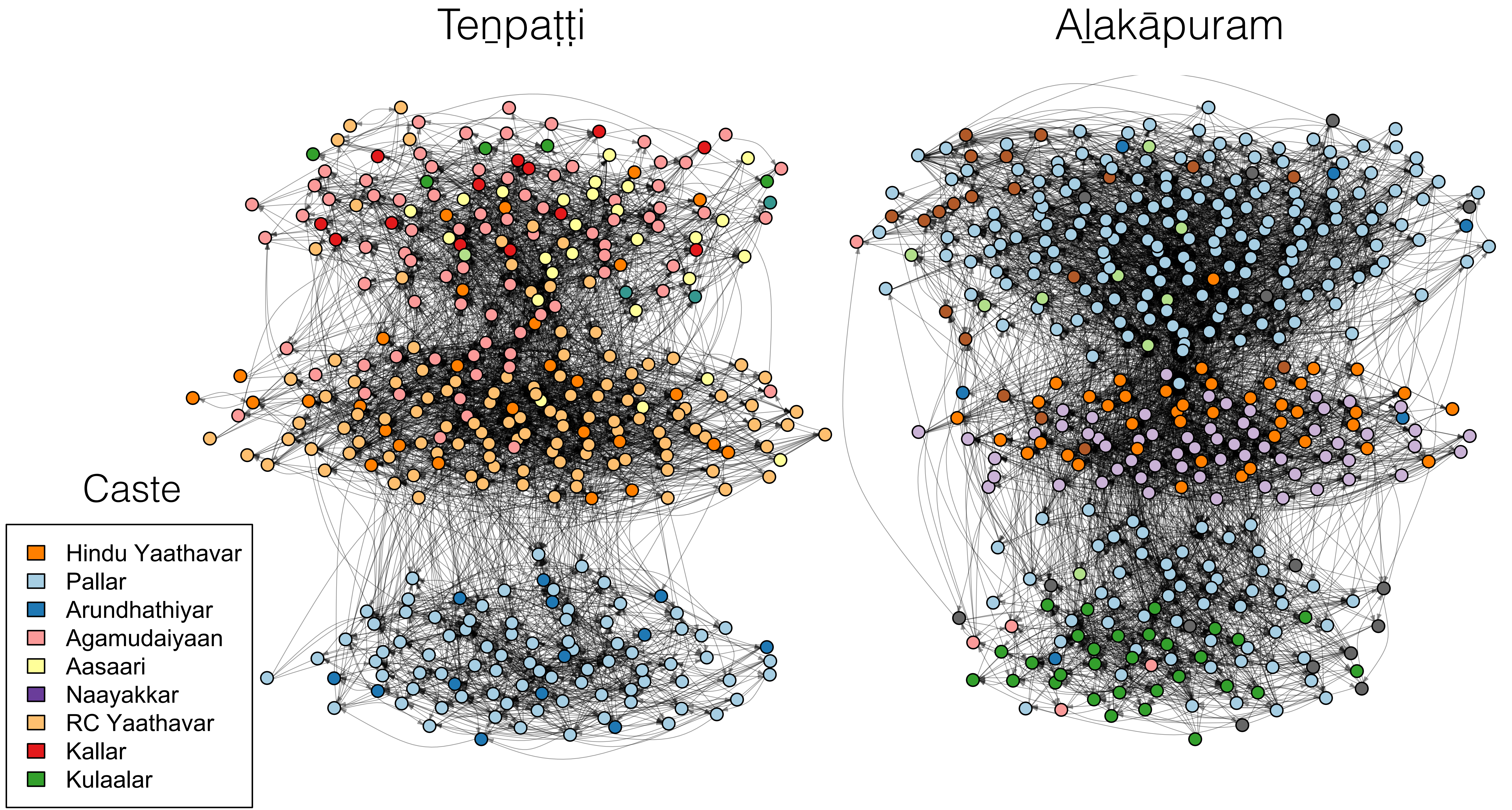
Teṉpaṭṭi



Caste

- Hindu Yaathavar
- Pallar
- Arundhathiyar
- Agamudaiyaan
- Aasaari
- Naayakkar
- RC Yaathavar
- Kallar
- Kulaalar

Scheduled castes—*dalit*
"untouchable"



Teṉpaṭṭi
Aḻakāpuram
Caste
Hindu Yaathavar
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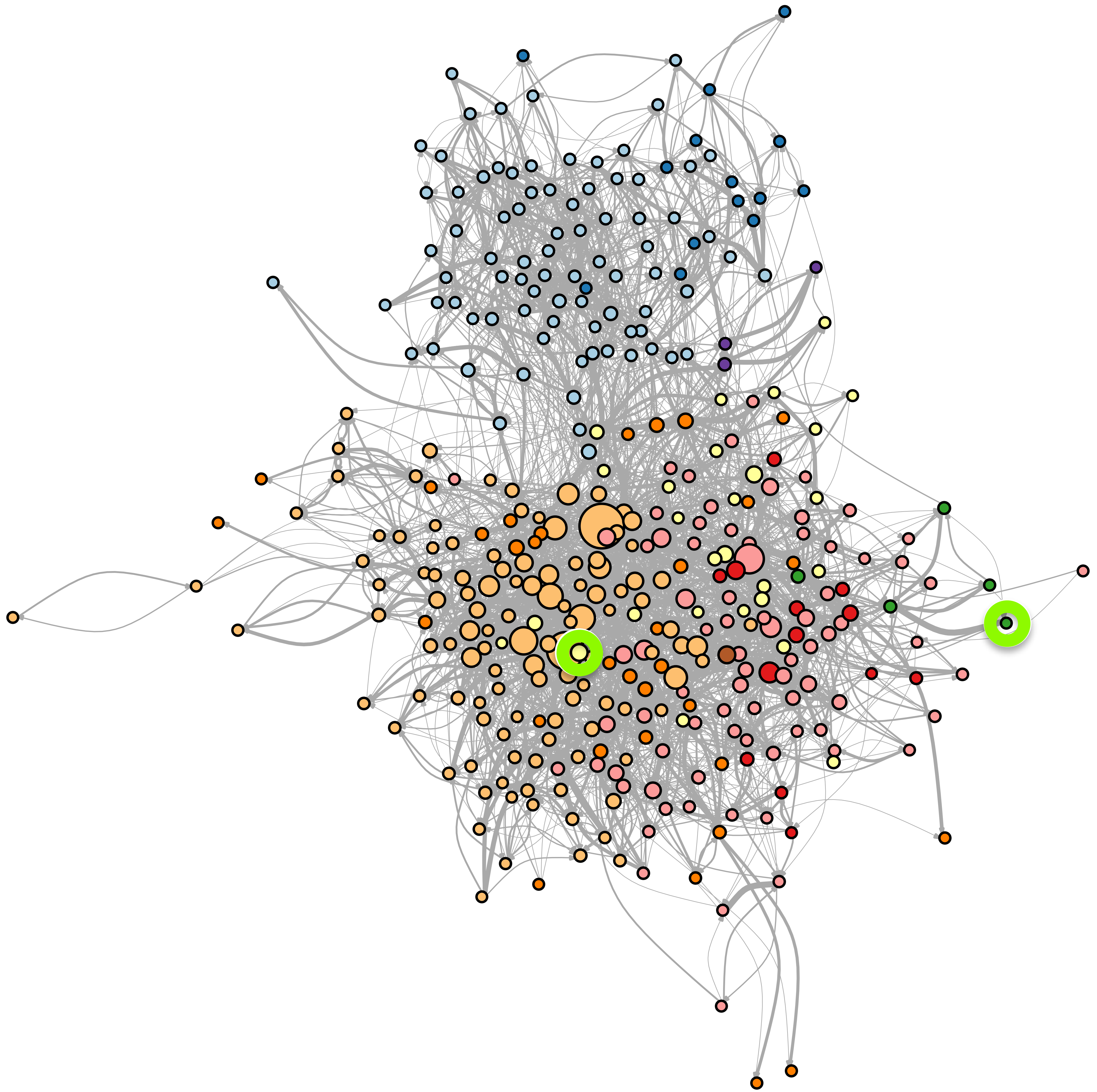

rigorous models of network formation and evolution allow us
to move beyond pictures of networks and the stories we tell about them

Research in progress

Which **systematic patterns** are consistent across academic fields?

Do people have an **accurate perception** of prestige and mobility in real systems?

How do policies & culture affect the **formation & maintenance** of structure?

How can we quantify **social mobility** & dispel **reputational poverty traps**?

Which mechanisms create **linear hierarchies** and **ranked groups**?

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Eleanor Power
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Thank you

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