

# Balancing Systematic and Flexible Exploration of Social Networks

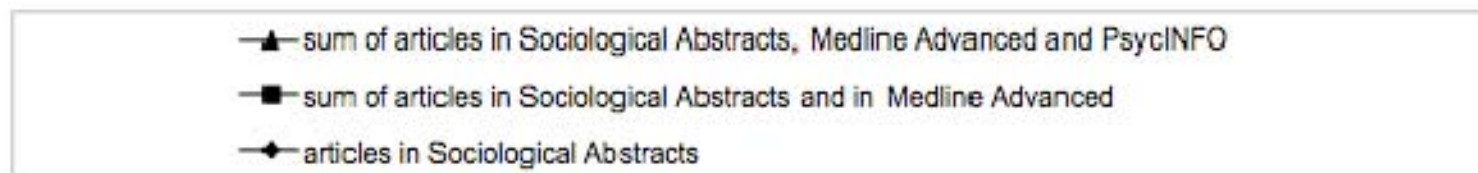
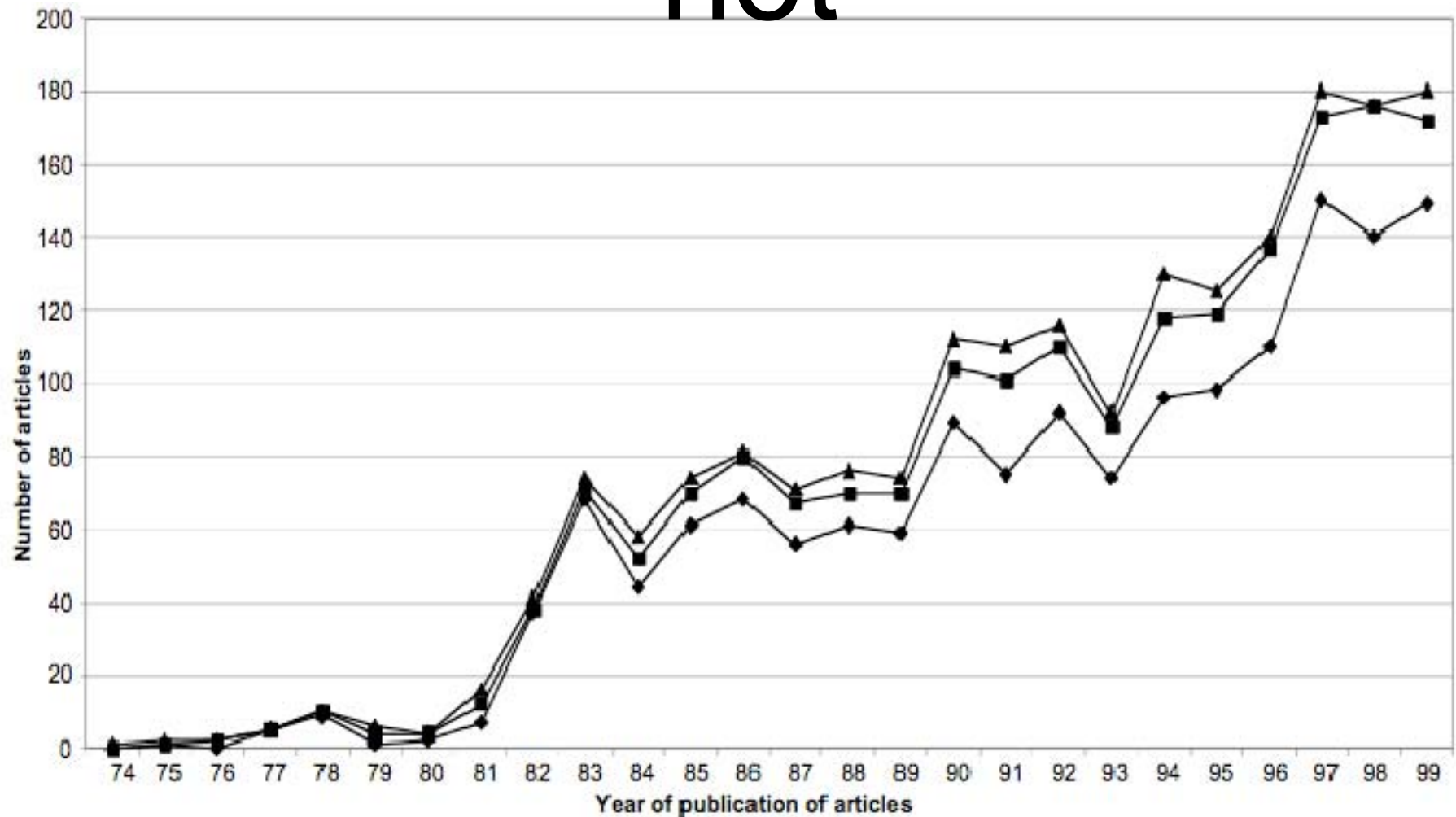
Adam Perer and Ben Shneiderman  
Human-Computer Interaction Lab  
University of Maryland



# Why do people want to analyze social networks?

- Focuses on the importance of relationships among interacting units
- Conceptualize structure as a pattern of relationships
- Witness “flow” of information between individuals and relational ties
- Understand how an individual is influenced by a structural environment

# Social Network Analysis is “hot”



# Why is it difficult to analyze social networks?

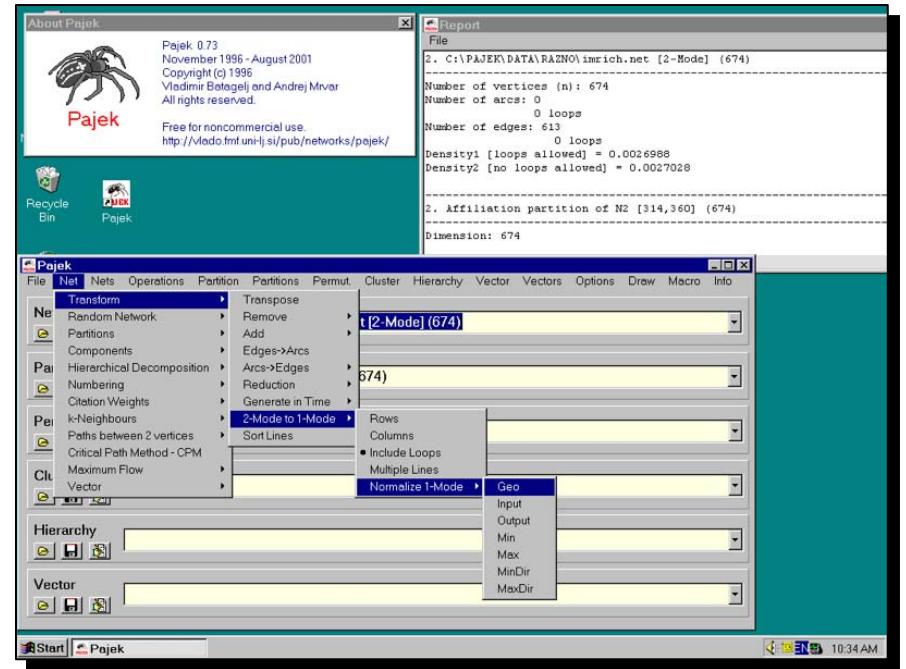
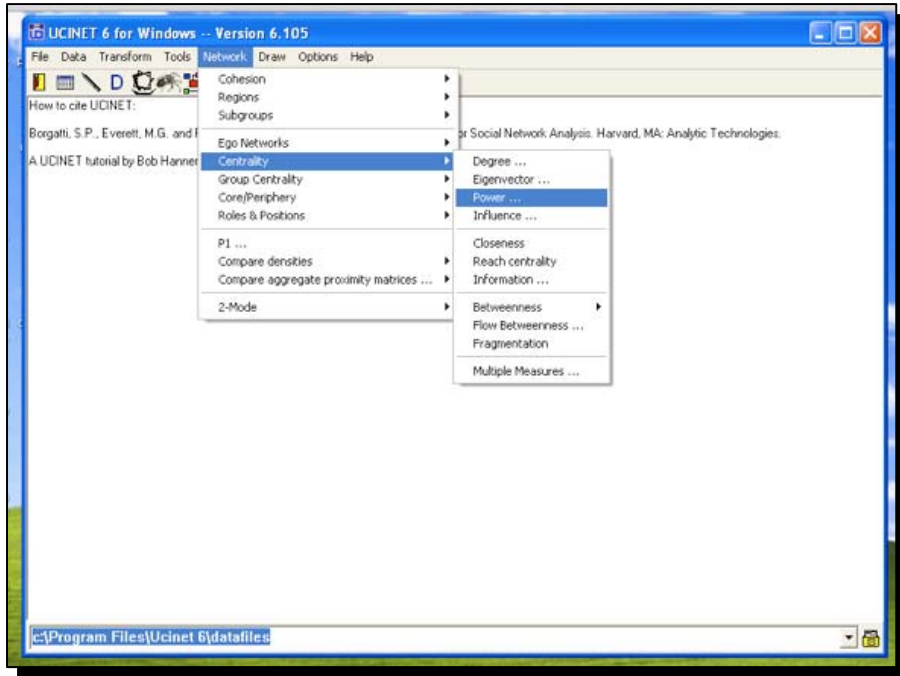
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- Current tools are often a **medley** of statistical methods and overwhelming visual output



# Why is it difficult to analyze social networks?

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- Current tools are often a **medley** of statistical methods and overwhelming visual output

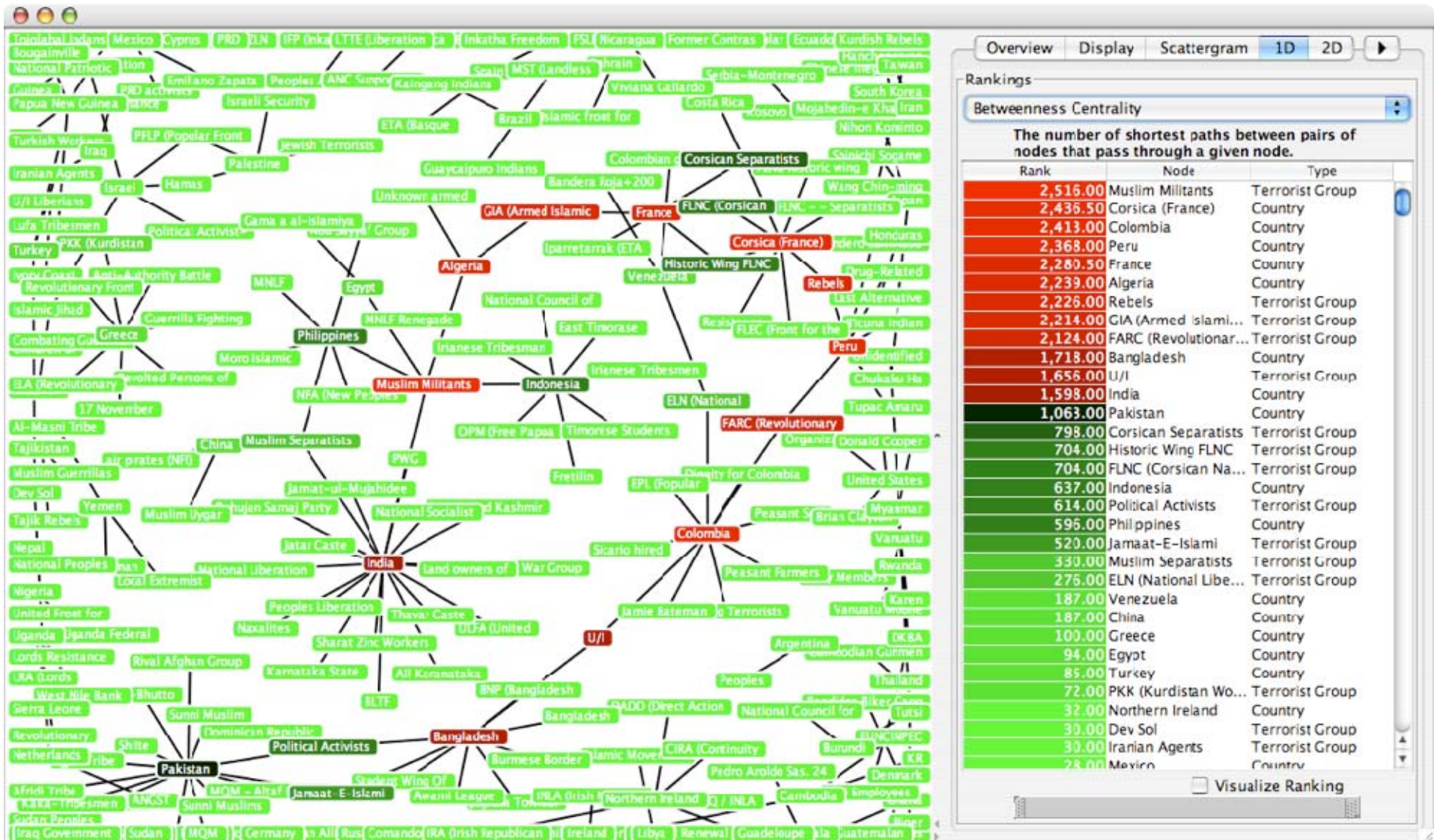
# Current tools



net, pajek, visone, krackplot and many more  
*Interviews suggest these  
tools may leave analysts  
uncertain how to explore in  
an orderly manner*



# SocialAction





# *SocialAction*

- Balances systematic and flexible exploration
  - Strategy beyond opportunism
  - Financial crisis v. disease epidemic
- Uses the rank-by-feature framework

# Rank-by-Feature Framework

- Combines principles of Information Visualization
  - Overviews; coordinated displays; dynamic queries
- **Main idea:** users select a feature. all entities in the network are ranked according to that feature.
- Used successfully in helping users navigate multidimensional data (HCE)

# Motivating Example

- National Consortium for the **S**tudy of **T**errorism **A**nd **R**esponses to **T**errorism (**START**)
- Compiling dataset of all known terrorist attacks (currently 70,000 over 27 years)
- 4-6 analysts over 3-4 months

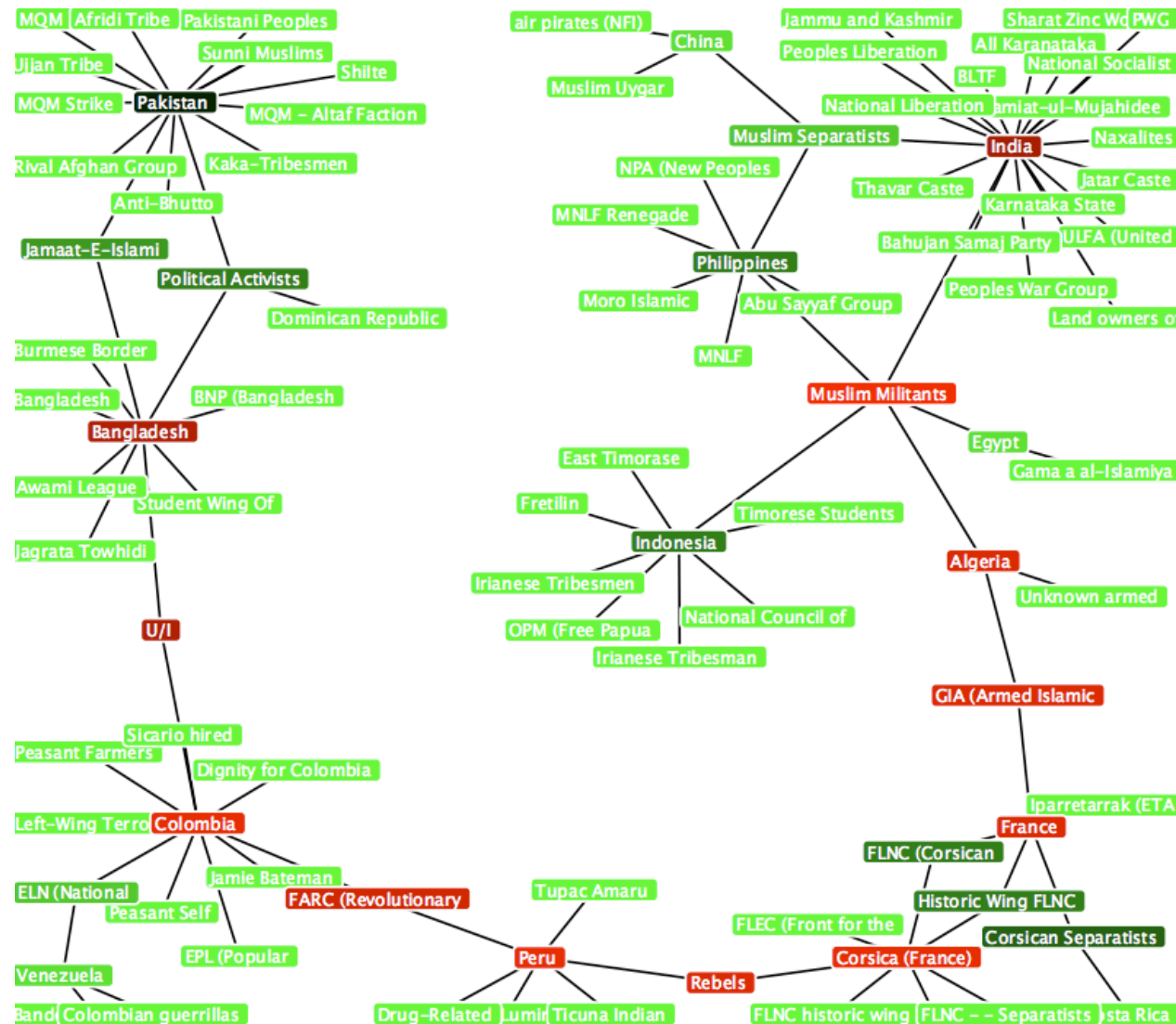
# Ranking Entities

Rankings

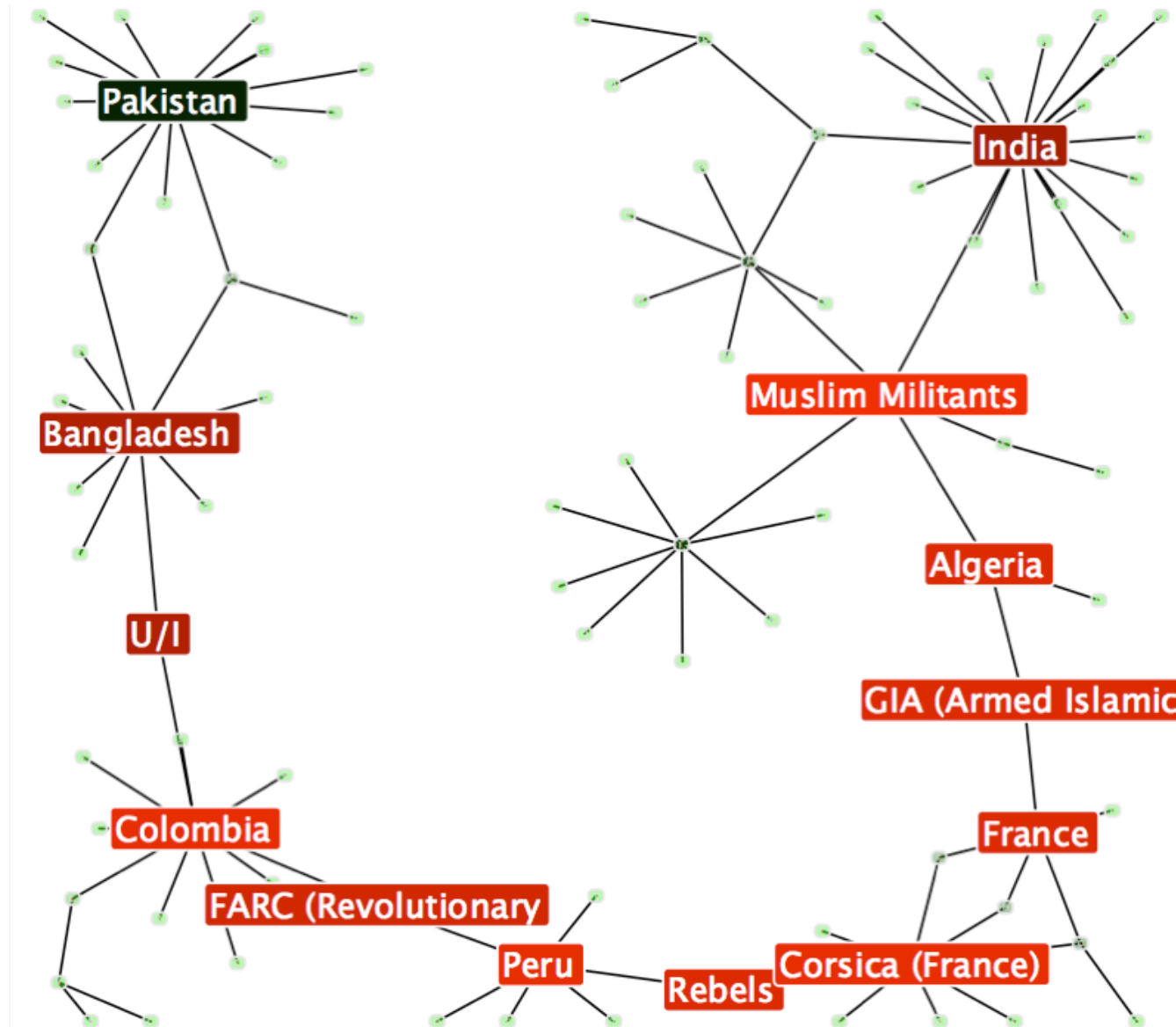
Betweenness Centrality

The number of shortest paths between pairs of nodes that pass through a given node.

Rank	Node	Type
2,516.00	Muslim Militants	Terrorist Group
2,436.50	Corsica (France)	Country
2,413.00	Colombia	Country
2,368.00	Peru	Country
2,280.50	France	Country
2,239.00	Algeria	Country
2,226.00	Rebels	Terrorist Group
2,214.00	GIA (Armed Islamic Group)	Terrorist Group
2,124.00	FARC (Revolutionary Armed F...	Terrorist Group
1,718.00	Bangladesh	Country
1,656.00	U/I	Terrorist Group
1,598.00	India	Country
1,063.00	Pakistan	Country
798.00	Corsican Separatists	Terrorist Group
704.00	FLNC (Corsican National Liber...	Terrorist Group
704.00	Historic Wing FLNC	Terrorist Group
637.00	Indonesia	Country
614.00	Political Activists	Terrorist Group
596.00	Philippines	Country
520.00	Jamaat-E-Islami	Terrorist Group
330.00	Muslim Separatists	Terrorist Group
276.00	ELN (National Liberation Army)	Terrorist Group
187.00	Venezuela	Country
187.00	China	Country
94.00	Egypt	Country
0.00	Dignity for Colombia	Terrorist Group
0.00	Jamie Bateman Canon Front	Terrorist Group
0.00	Jamiat-ul-Mujahideen	Terrorist Group
0.00	Sendero Luminoso	Terrorist Group
0.00	ULFA (United Liberation Front ...	Terrorist Group
0.00	Timorese Students	Terrorist Group
0.00	Sharat Zinc Workers	Terrorist Group

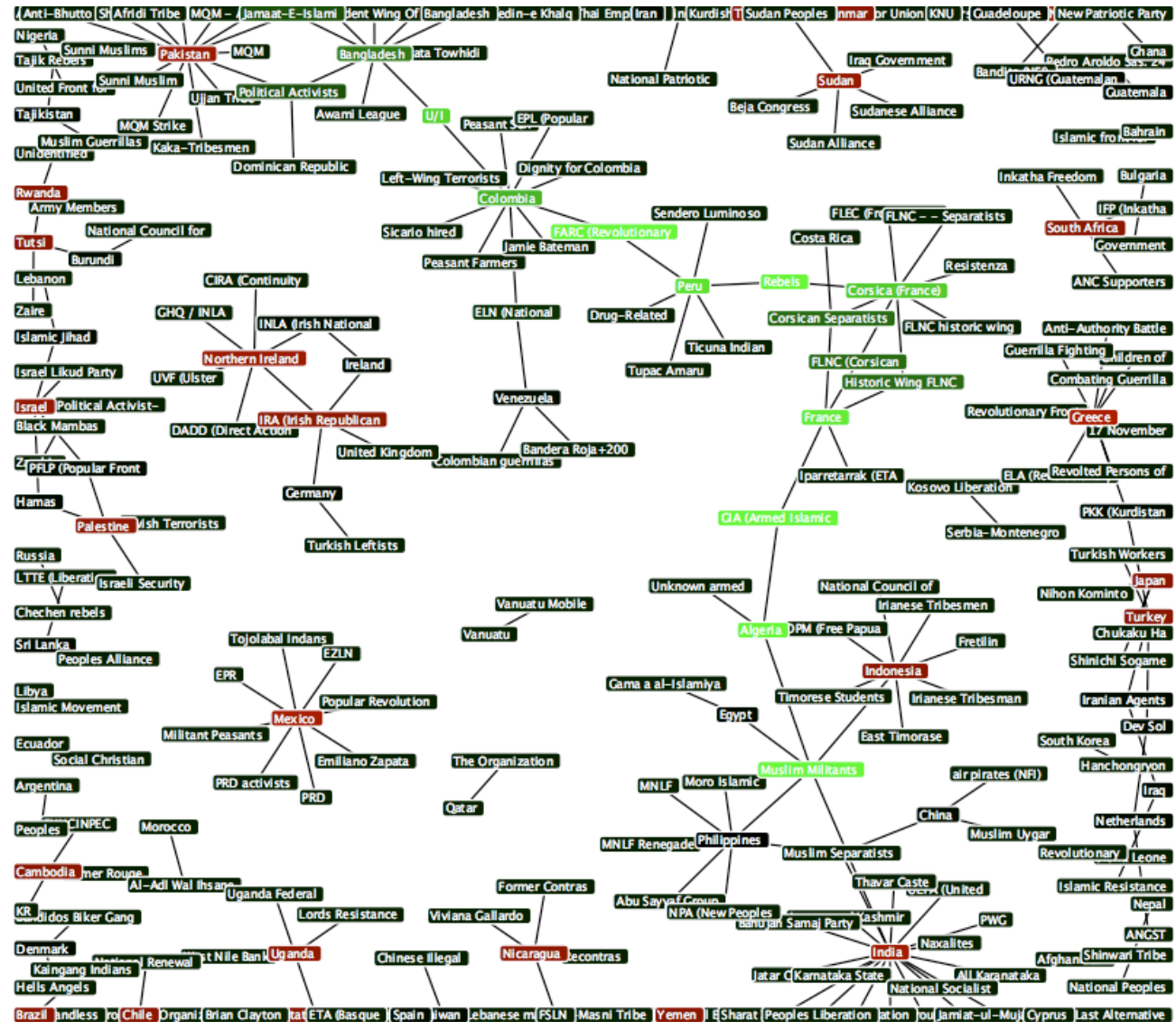
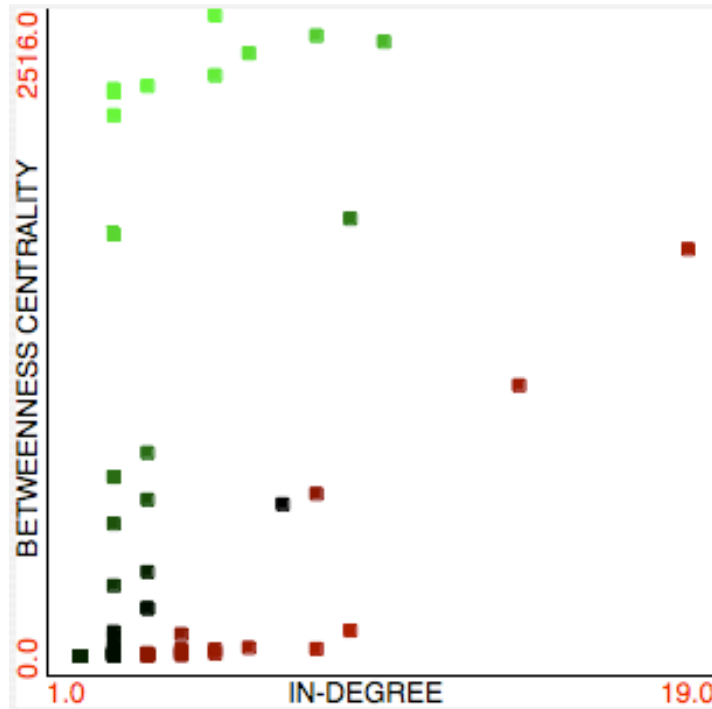


# Filtering

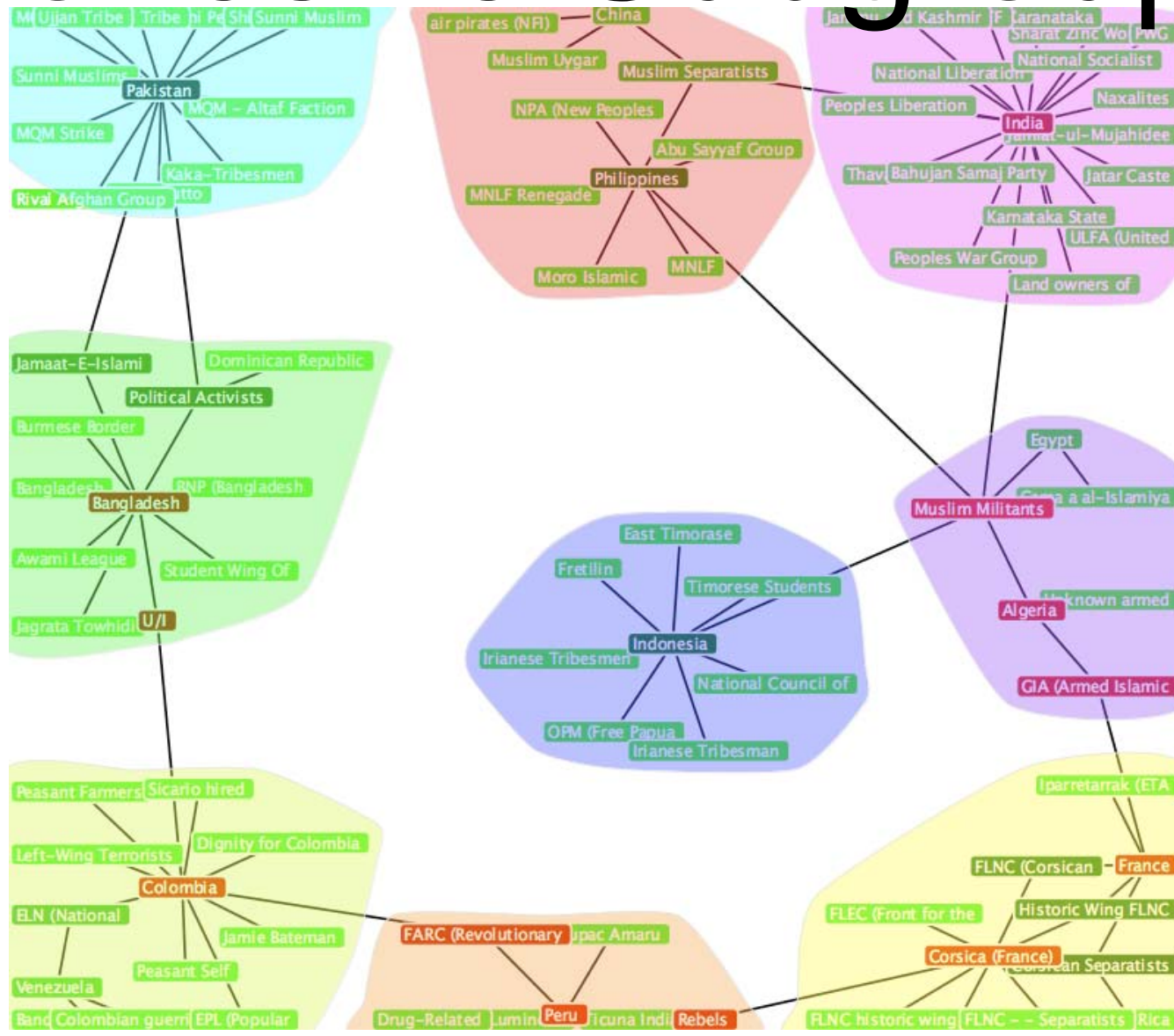




# Ranking by Two Features



# Aggregating Nodes into Cohesive Subgroups



# Future Evaluation

- In the Fall, SocialAction will be integrated into a graduate-level Social Networks course
- Conduct a series of Long-term case studies with sociologists and analysts

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[www.cs.umd.edu/hcil/socialaction/](http://www.cs.umd.edu/hcil/socialaction/)

