

Improving Interactive Exploration of **SOCIAL NETWORKS**

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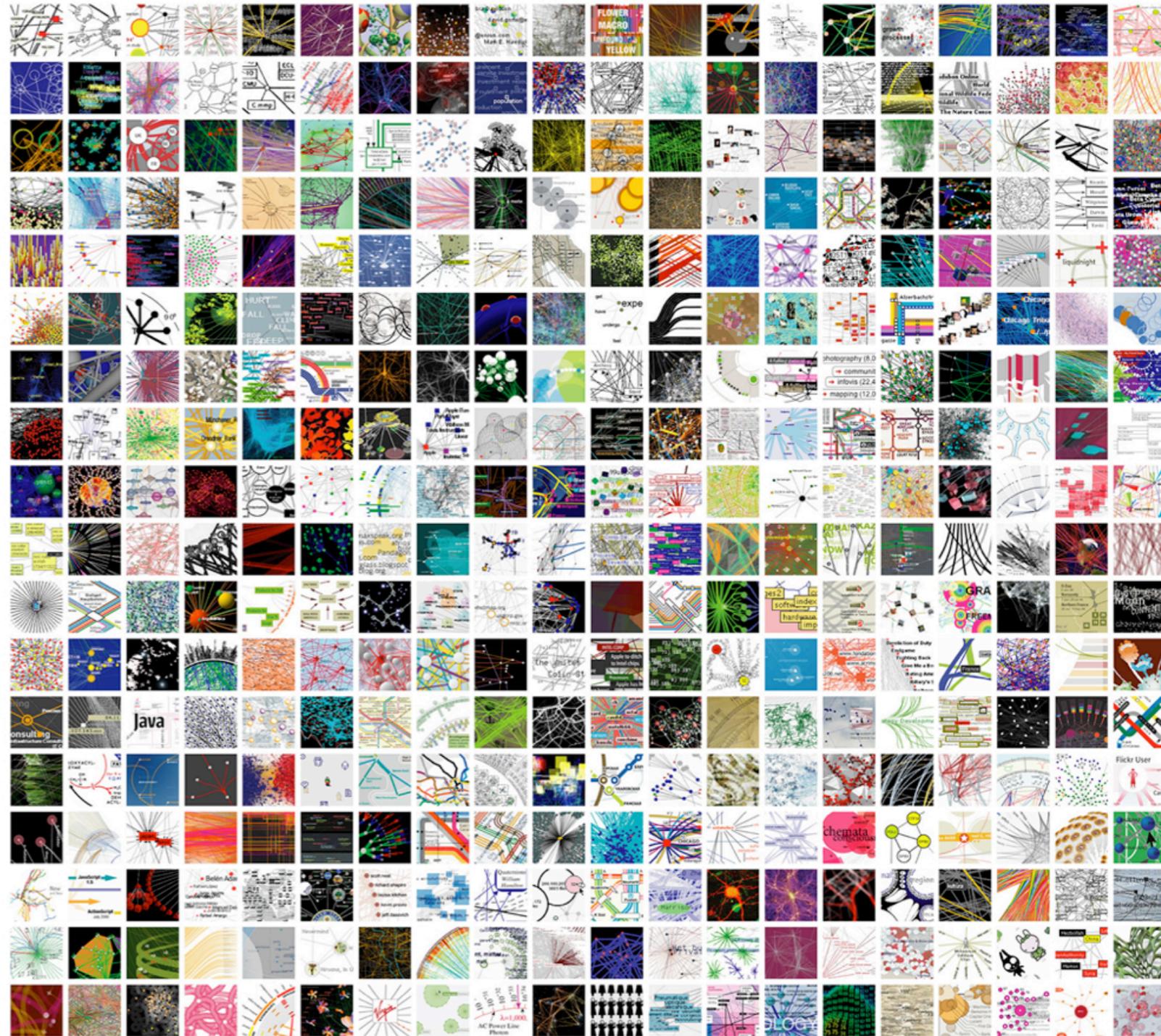
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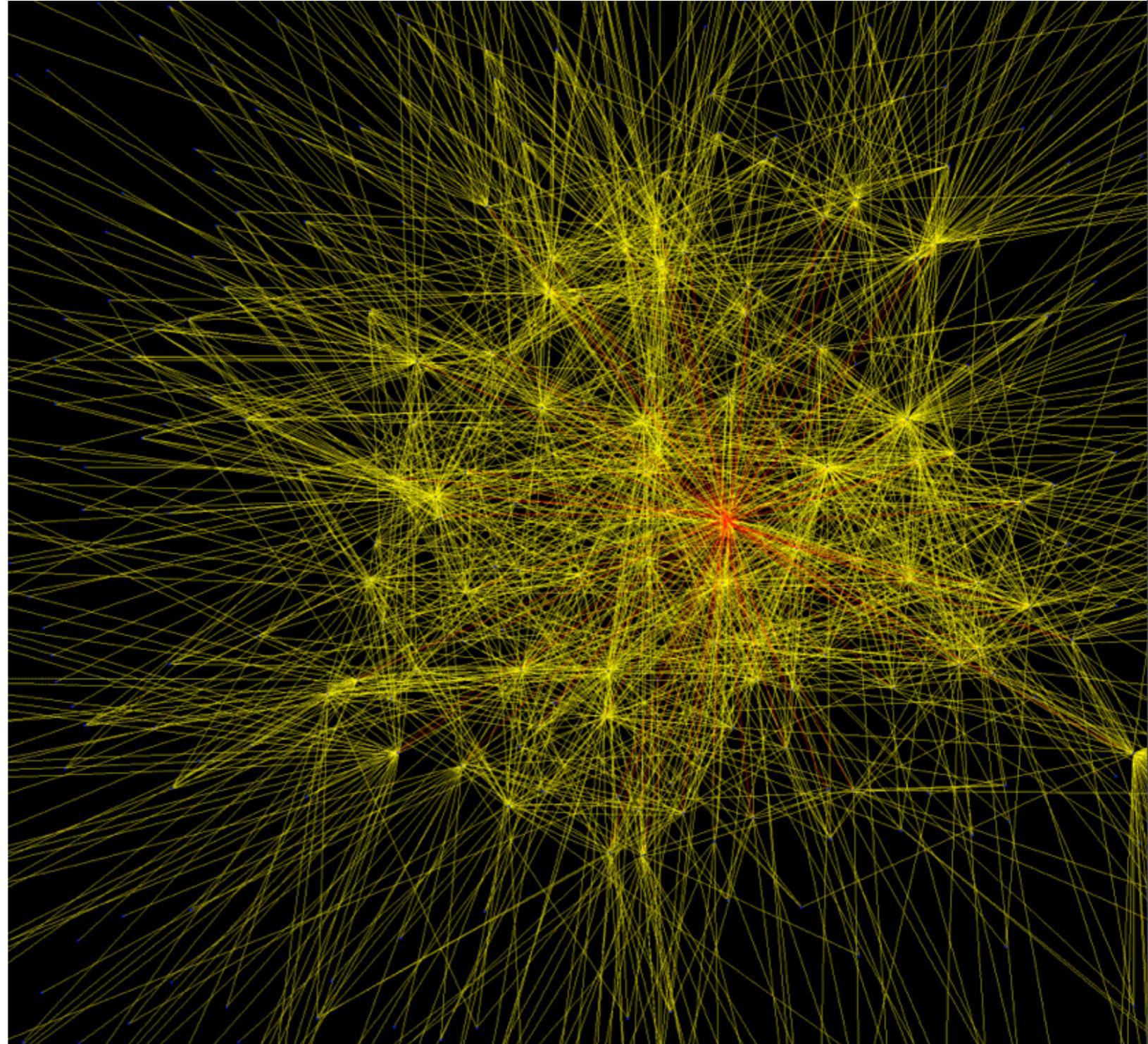
Exploring Networks

- Individual characteristics half the story
- Not just the individuals, but the relationships among them
- Social Network Analysts have distinct tasks



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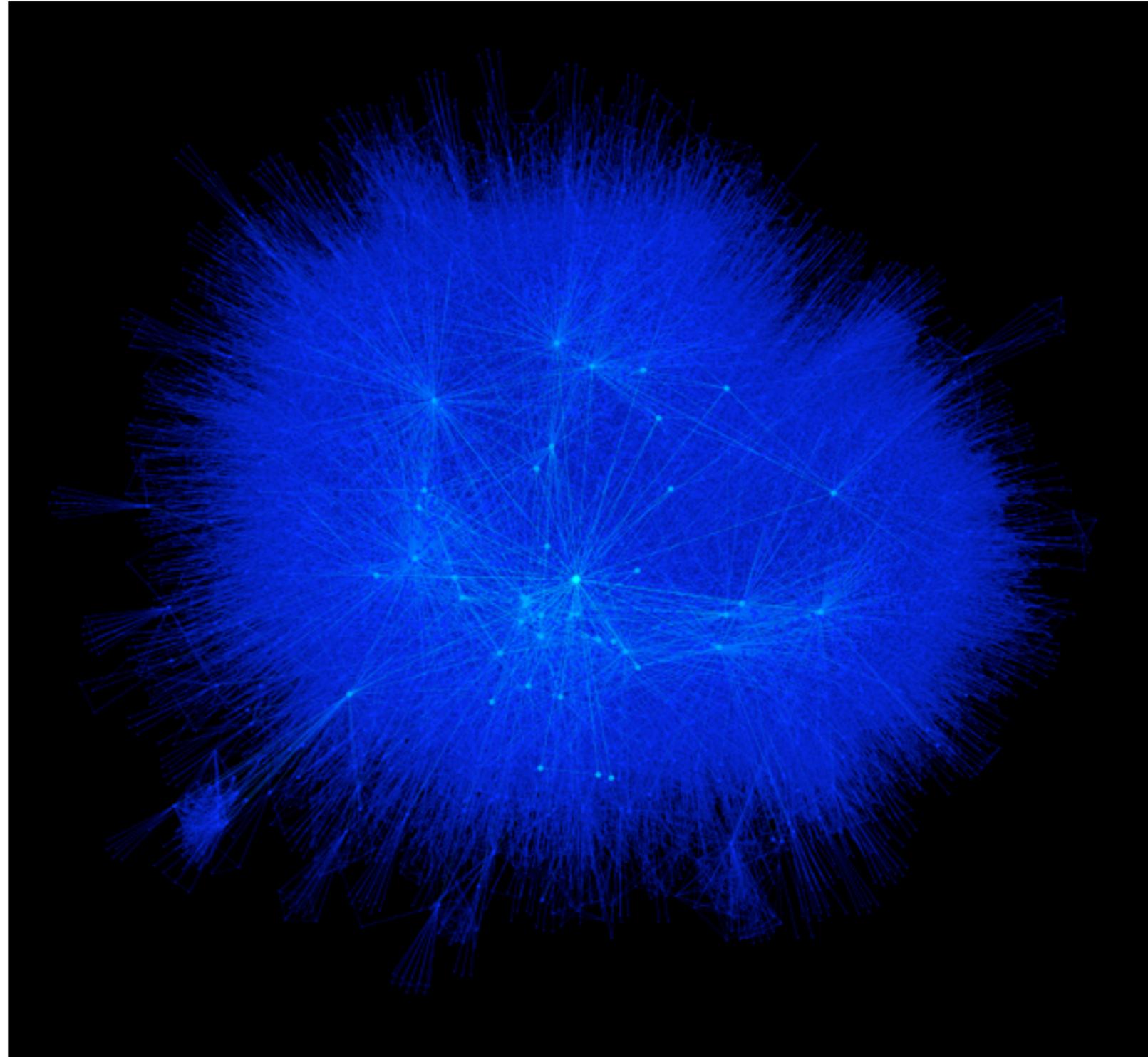
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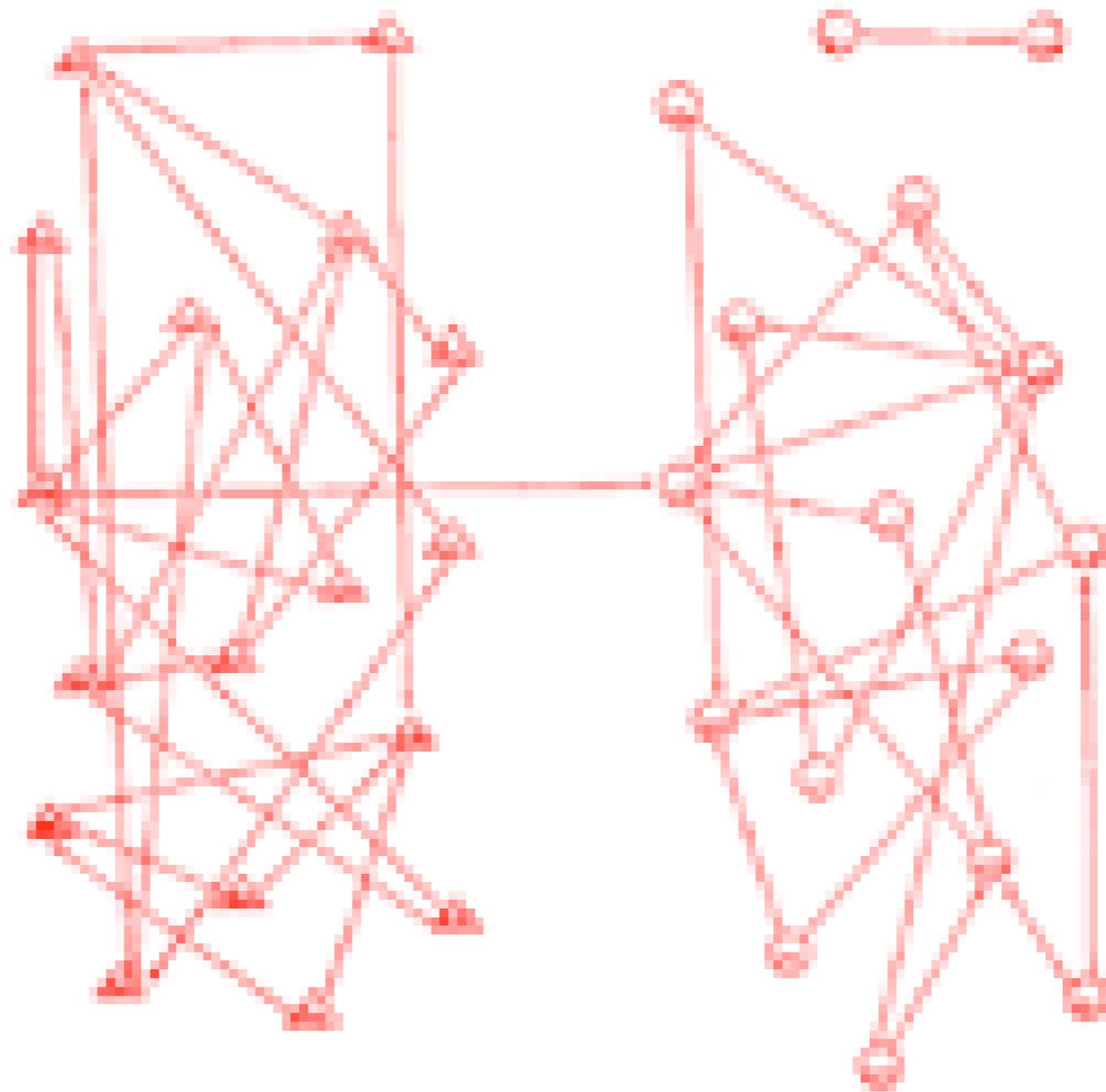


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Social Networks and Visualization



Friendship network from 1930s

Connections

Social Networks Journal

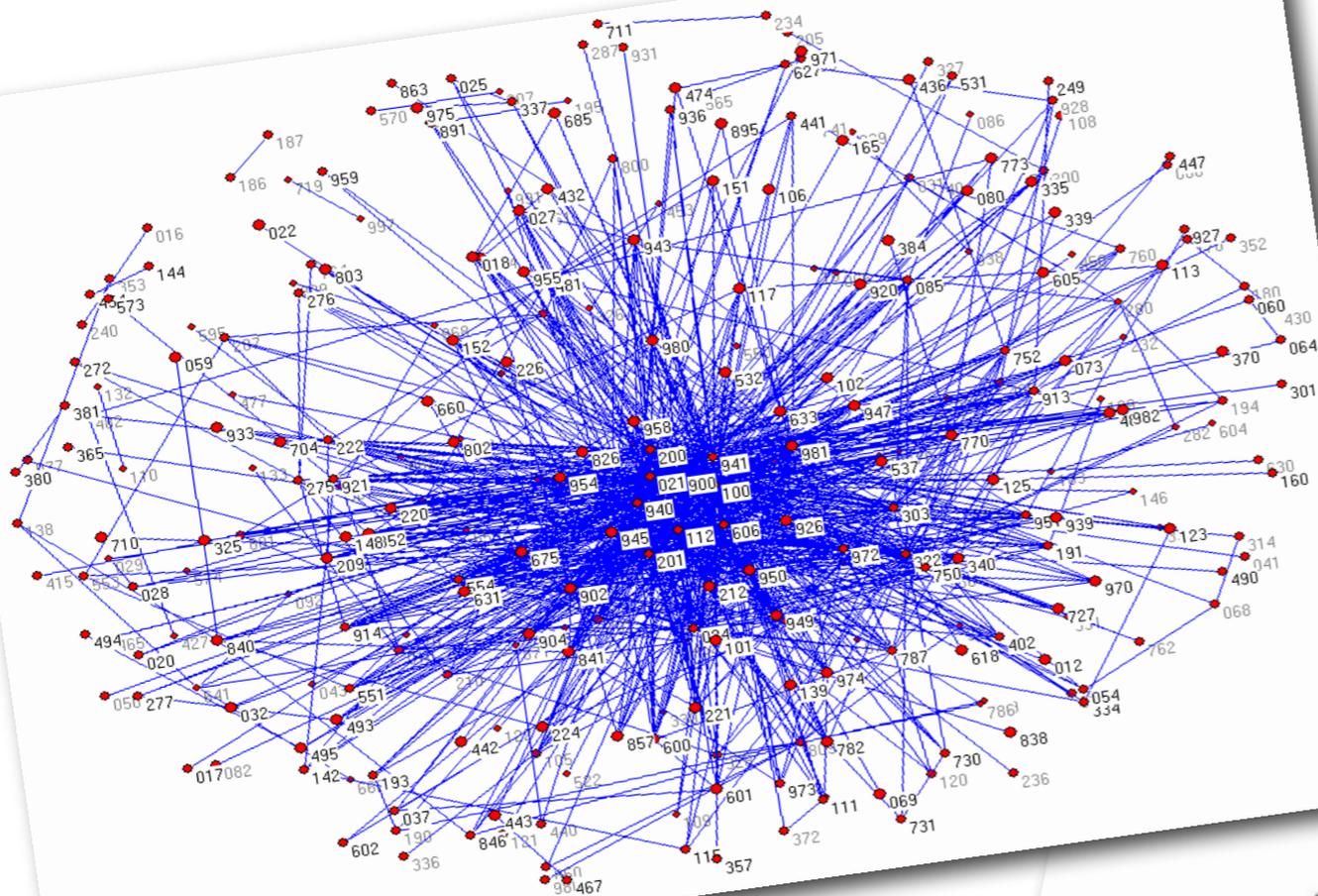


Figure 3. Blog networks based on centralities.

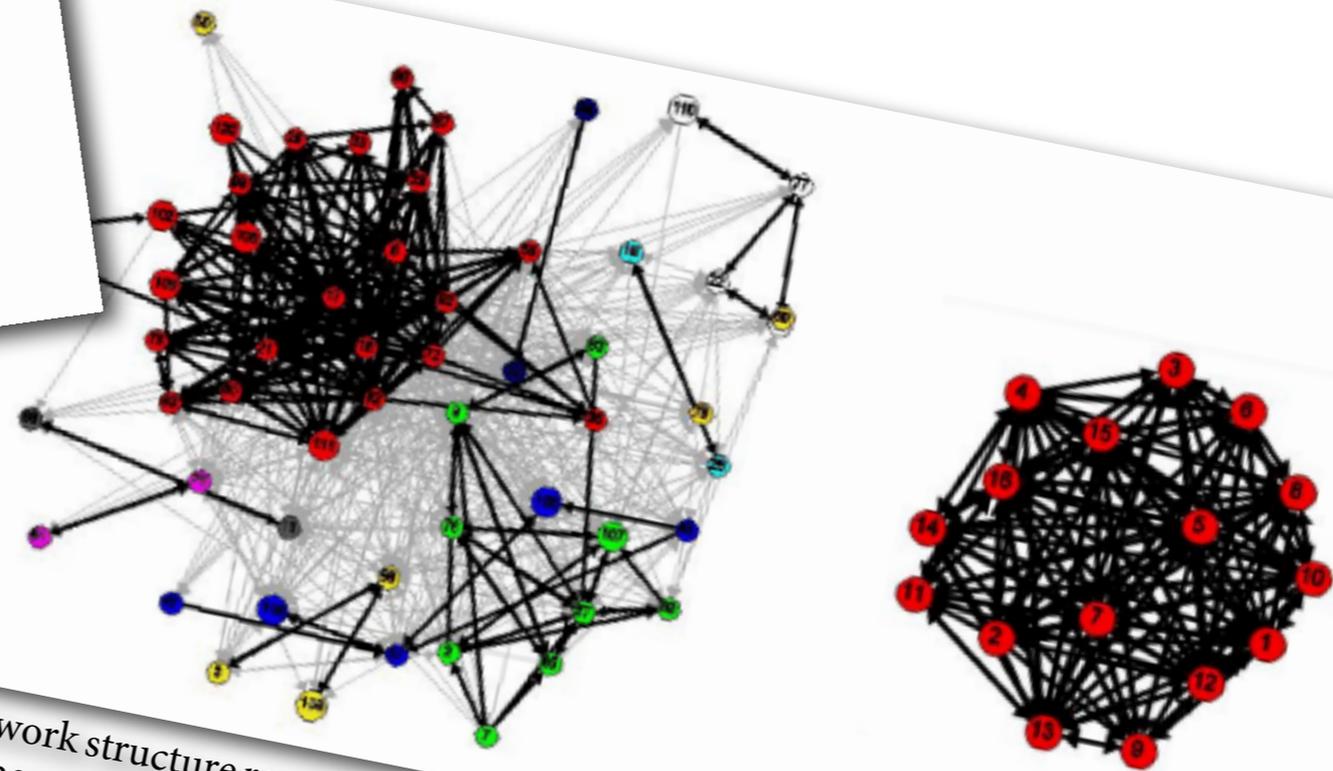


Figure 7 Left: Network structure revealed by Markov clustering based on tie-strength measures (Deve sample, $N_{\text{pairs}} = 3080$). Clusters are coded with colours. Right: Network structure based on tie-strength measures (Test sample, $N_{\text{pairs}} = 240$).

Current SNA Approaches

UCINET and *Pajek*

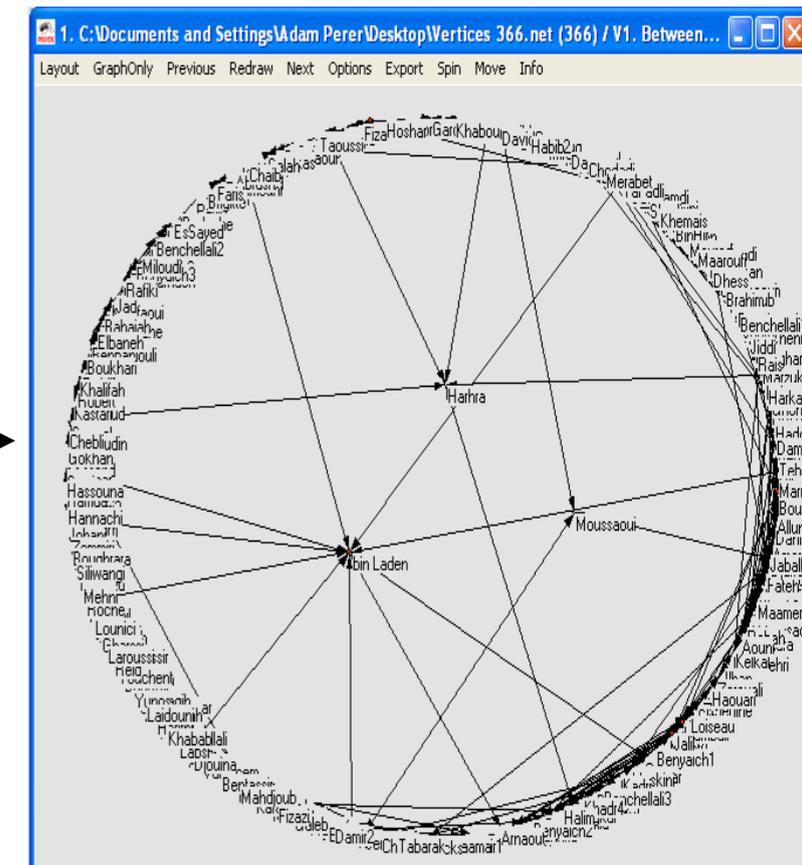


**choose a
metric**

The screenshot shows the 'Viewing Vector' window displaying a list of nodes and their betweenness centrality values. The window title is '1. Betweenness centrality in N1 (366)'. The data is as follows:

Node	Value	Name
1.	0.0004930	- bin Laden
2.	0.0001280	- Zawahiri
3.	0.0000000	- Banshiri
4.	0.0000113	- M Atef
5.	0.0000000	- Sheikh Omar
6.	0.0000000	- Islambuli
7.	0.0000000	- Zubaydah
8.	0.0000000	- Makkavi
9.	0.0000000	- Hawsavi
10.	0.0000000	- Taha
11.	0.0000000	- Qasin
12.	0.0000000	- Rushdi
13.	0.0000000	- Hanza
14.	0.0000000	- KSM
15.	0.0000000	- Fawwaz
16.	0.0000000	- Zarqawi
17.	0.0000000	- Zawahiri2
18.	0.0000000	- Qatada
19.	0.0000000	- Salim
20.	0.0000000	- Fakhiri
21.	0.0000000	- Ujayzah
22.	0.0000000	- Fadl
23.	0.0000000	- Muntasir
24.	0.0000000	- Hage
25.	0.0000000	- Salamah
26.	0.0000000	- Khadr
27.	0.0000000	- Sirri
28.	0.0000000	- Ghayth
29.	0.0000000	- Kamel
30.	0.0000000	- Shihatah
31.	0.0000000	- Bari
32.	0.0000000	- Jamal
33.	0.0000000	- Aydarus
34.	0.0000000	- Attar
35.	0.0000000	- Najjar
36.	0.0000000	- SbinLaden

**generate
statistics**

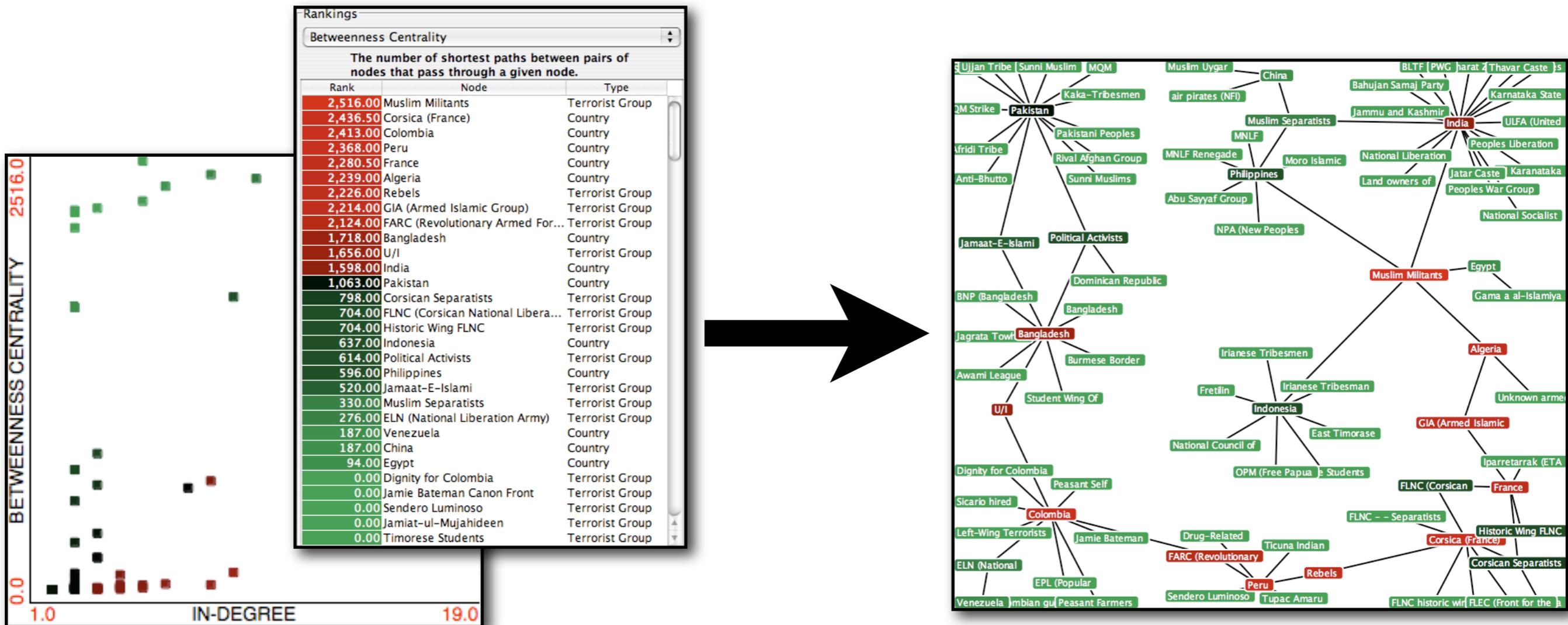


**then
visualize**

Goals of *SocialAction*

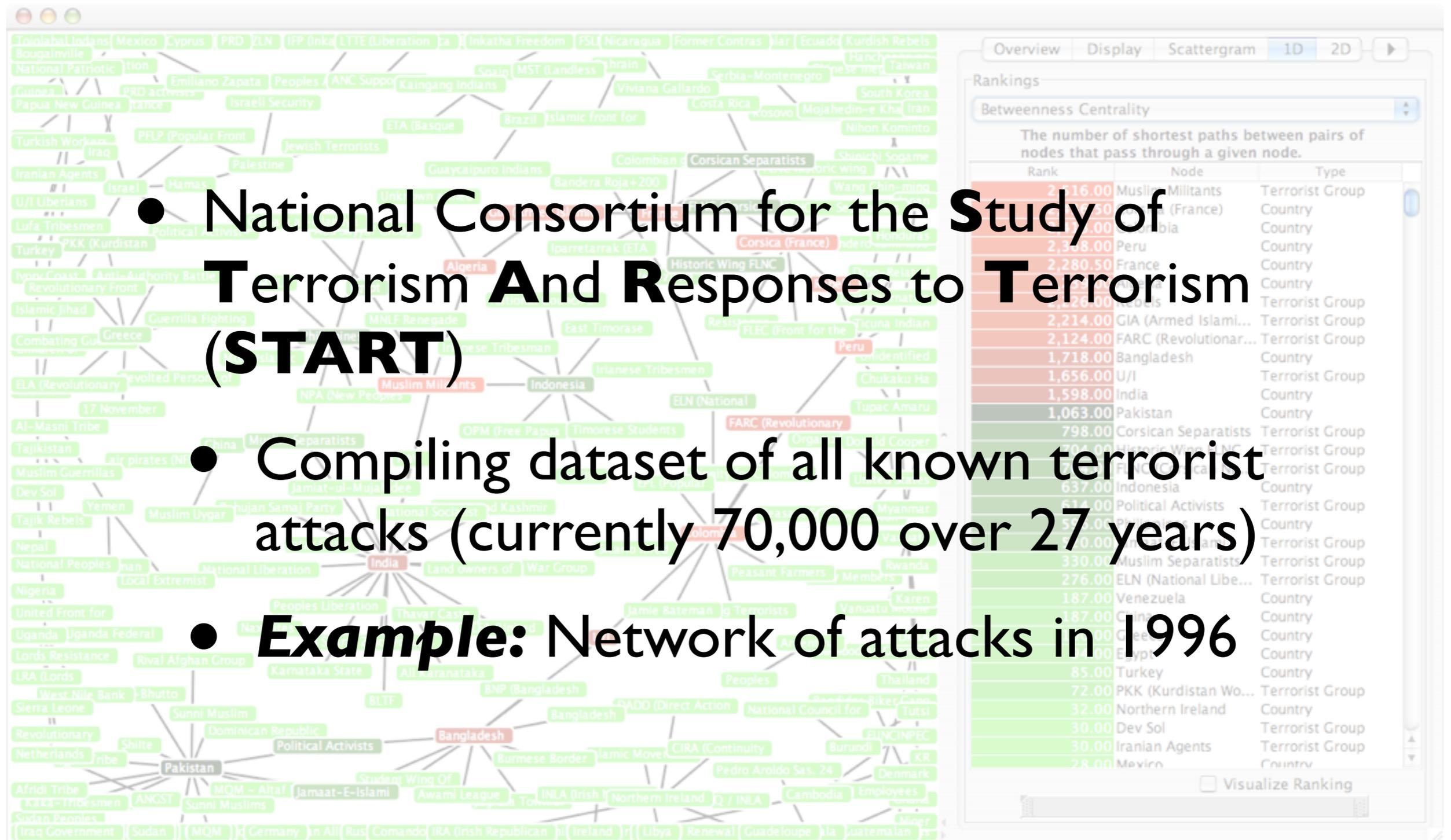
- Replace cumbersome opportunistic exploration with systematic & flexible approaches
- Replace cascading menus & typed parameters with dynamic queries & coordinated windows
- Provide task-relevant displays to reveal relationships

Design of SocialAction



- Coordinates statistical views with network views
- Integrates tabular rankings & scatterplots with node-link diagrams
- Enables users to dynamically partition networks

Demo of *SocialAction* 1.0

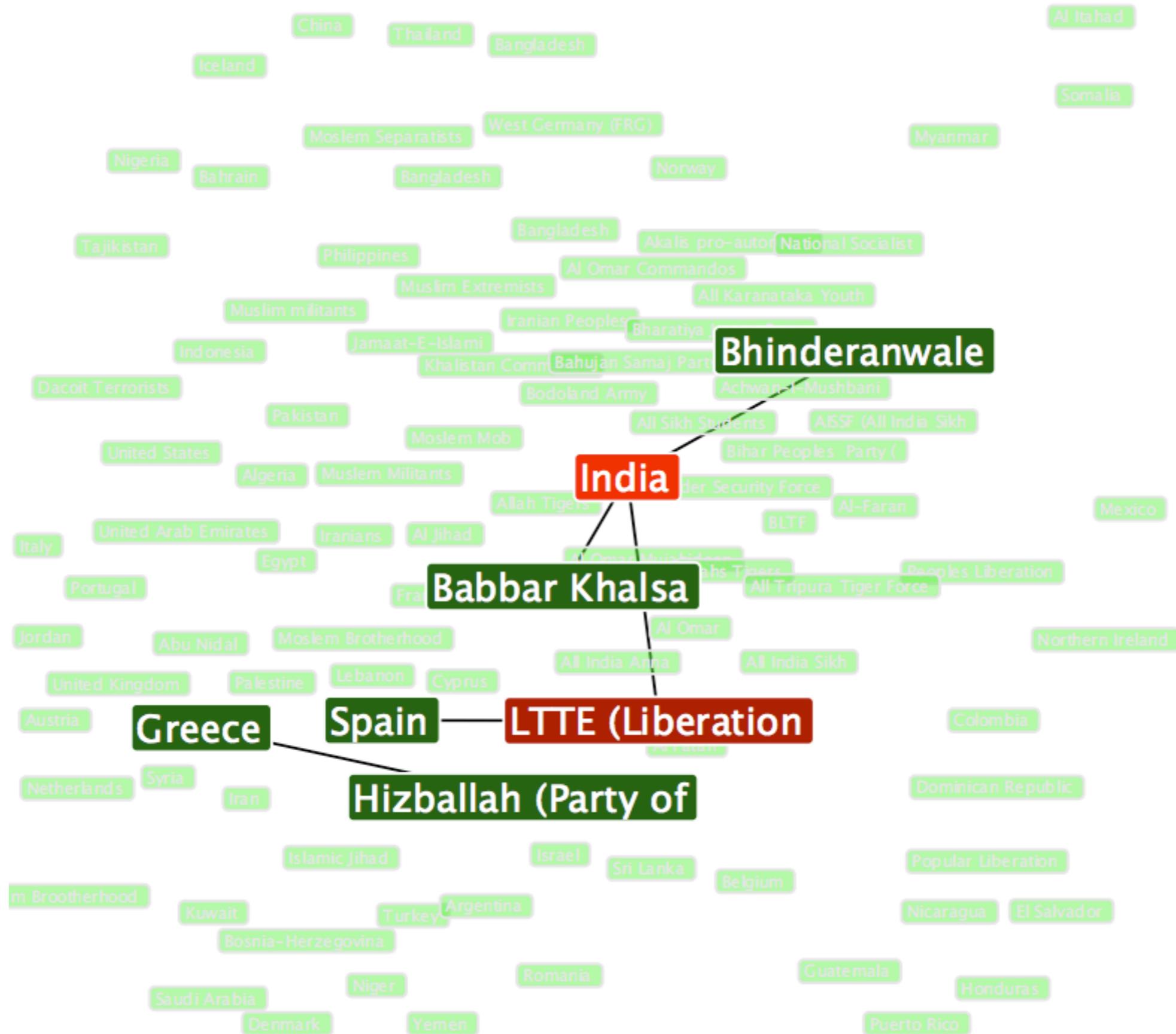


- National Consortium for the Study of Terrorism And Responses to Terrorism (START)

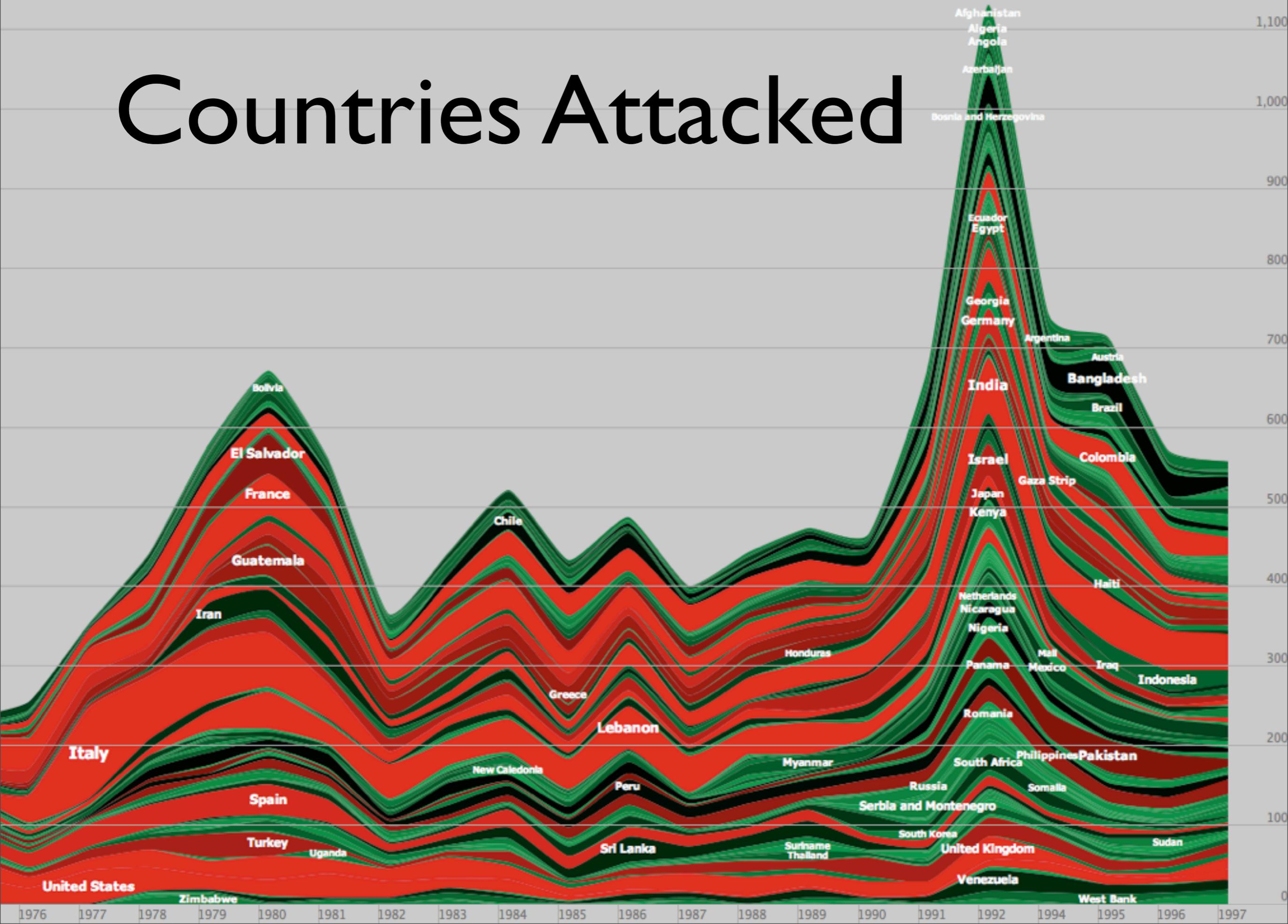
- Compiling dataset of all known terrorist attacks (currently 70,000 over 27 years)

- **Example:** Network of attacks in 1996

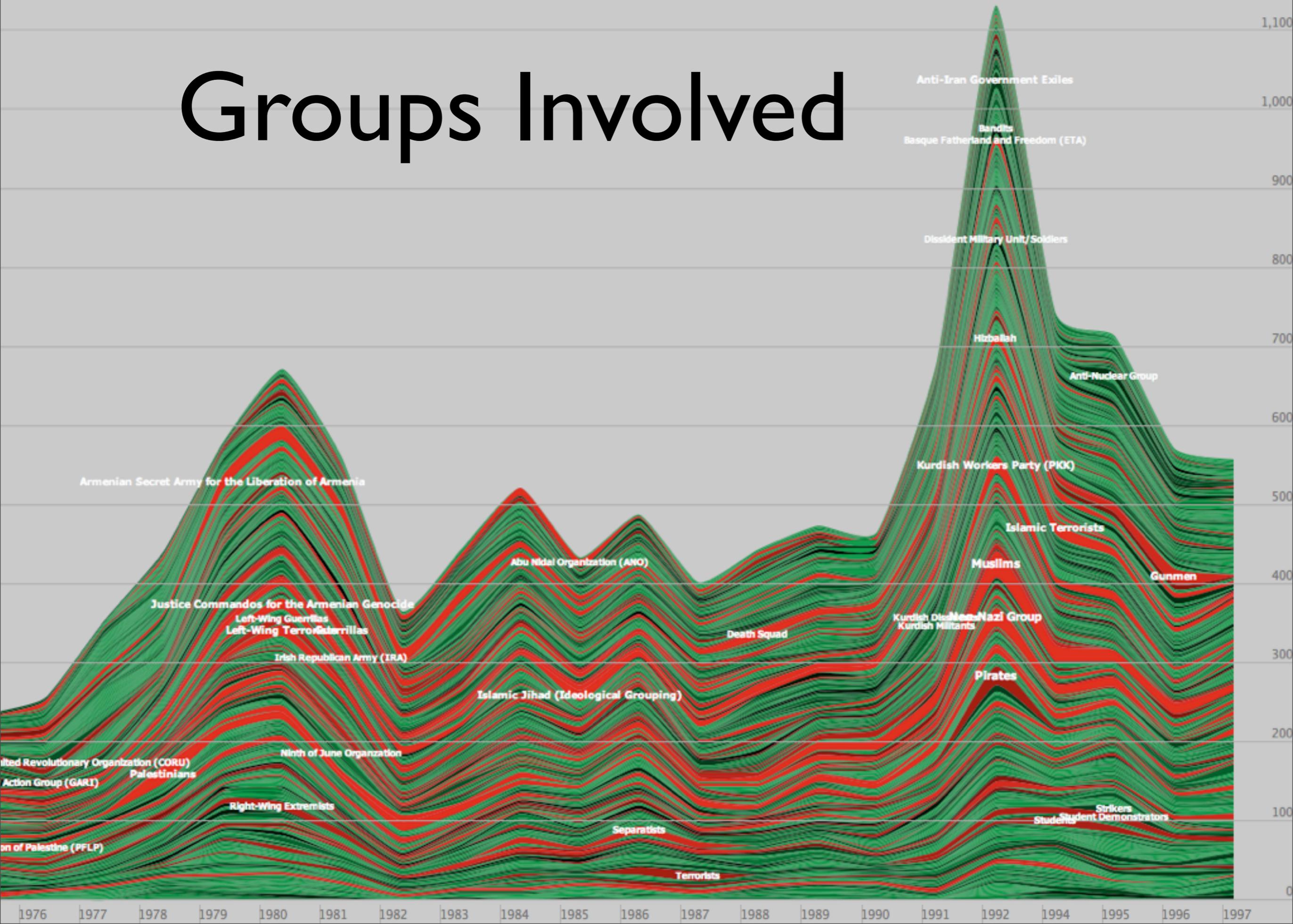
Links active in 1988



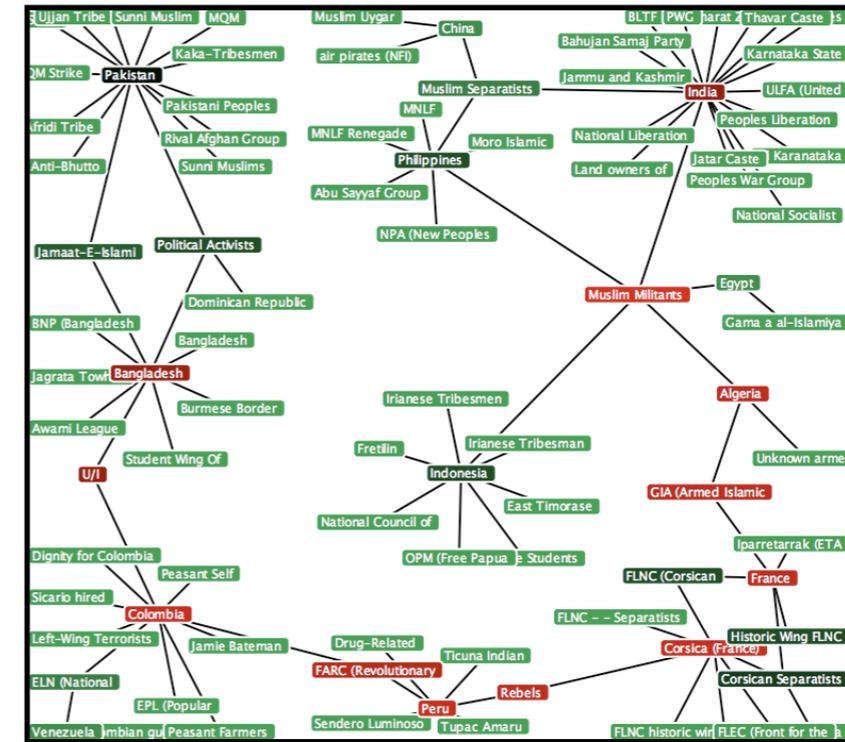
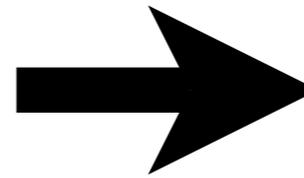
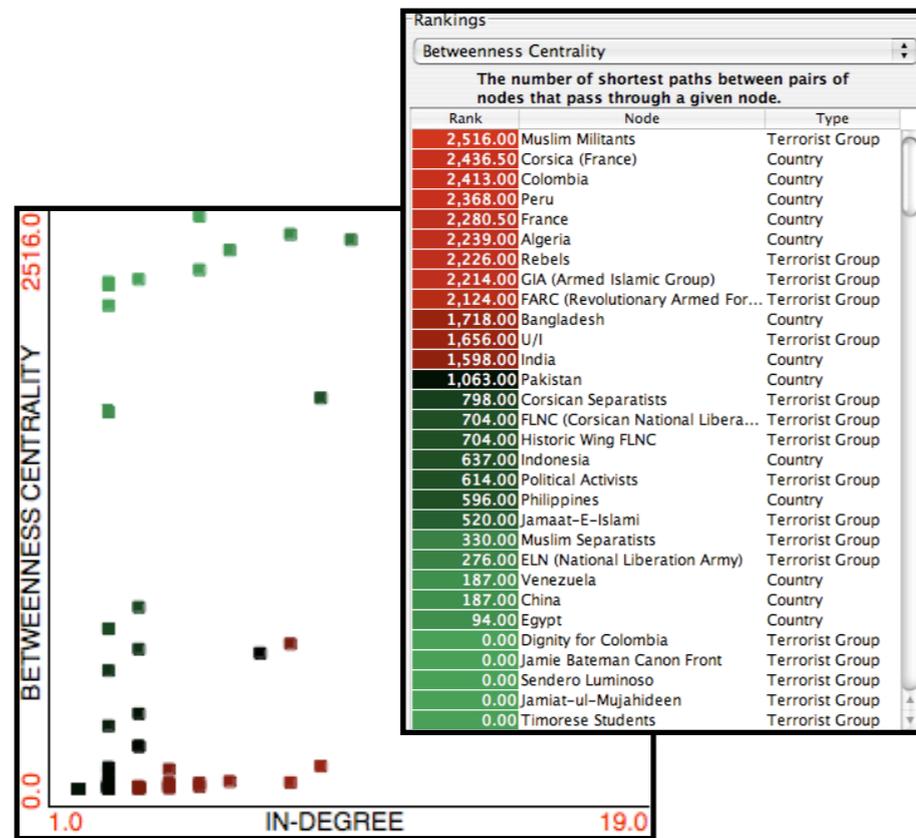
Countries Attacked



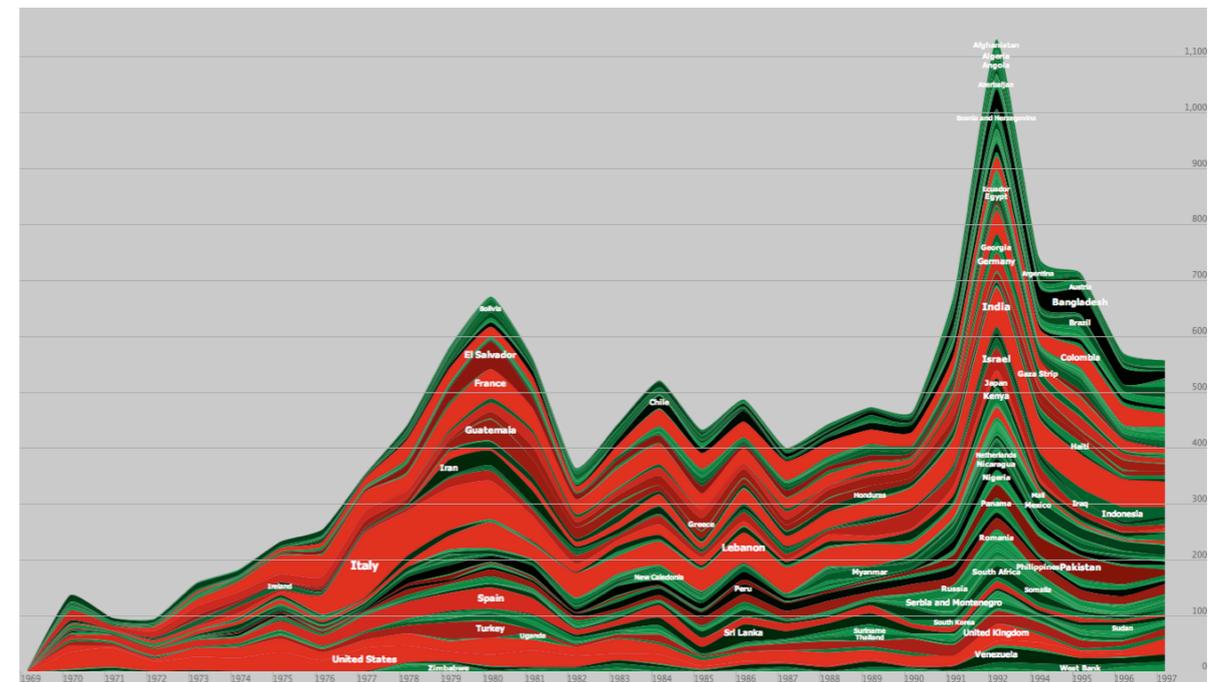
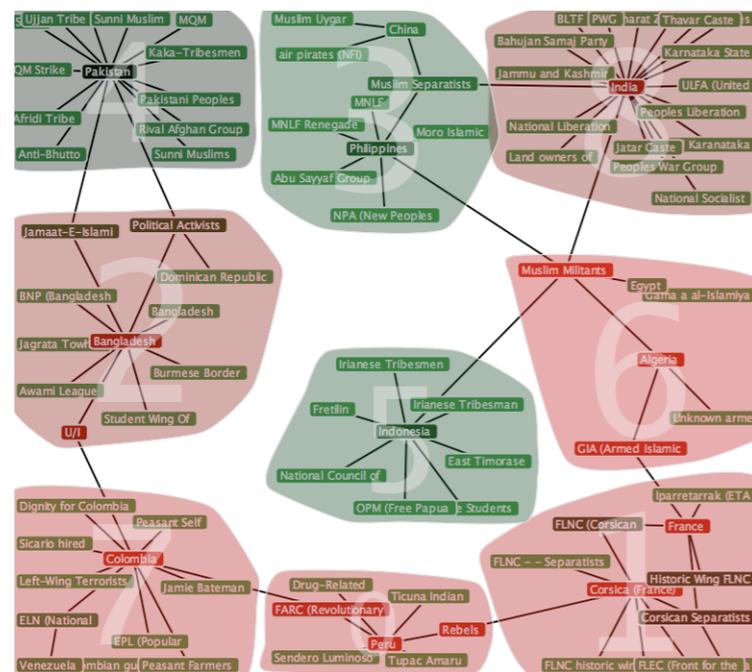
Groups Involved



SocialAction



Coordinated views & rankings



Partition

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Helping Users Make Sense of Social Networks: A Workshop

June 1, 2007, University of Maryland

Featured Keynote Speaker:

Marc Smith

Senior Research Sociologist, Community Technologies Group, Microsoft Research

Noshir Contractor

Director, Science of Networks in Communities Group, Univ. of Illinois-UC

Nathalie Henry

Ph.D. Student, In Situ, INRIA France

Bruce Hoppe

Founder of Connective Associates, Boston University

Gueorgi Kossinets

Postdoctoral Researcher, Institute for the Social Sciences, Cornell University.

Adam Perer

Ph.D. Candidate, Human-Computer Interaction Lab, University of Maryland

Ben Shneiderman

Professor, Human-Computer Interaction Lab, University of Maryland

Frank van Ham

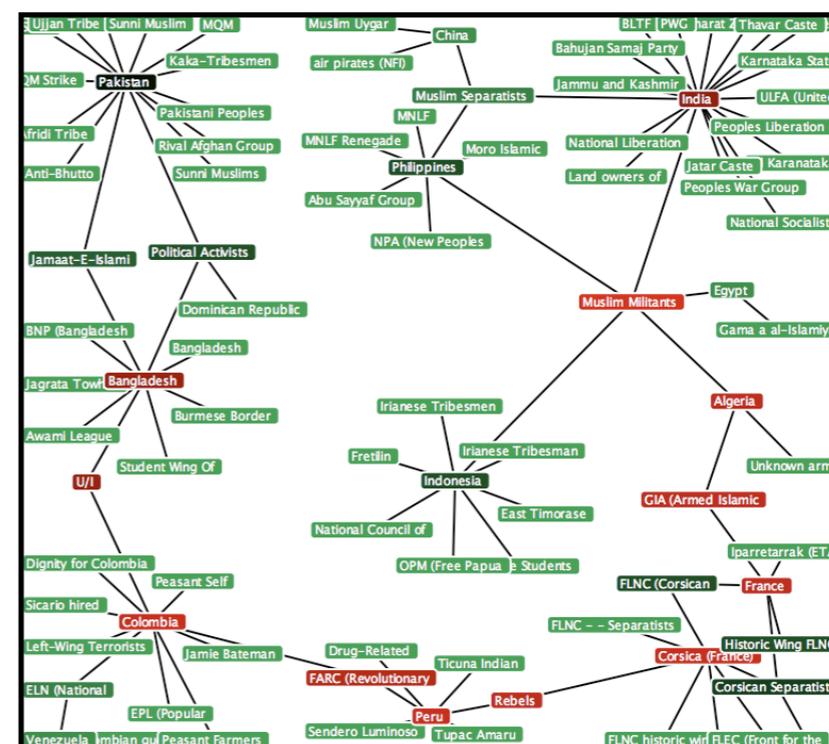
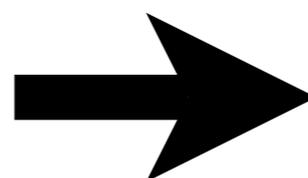
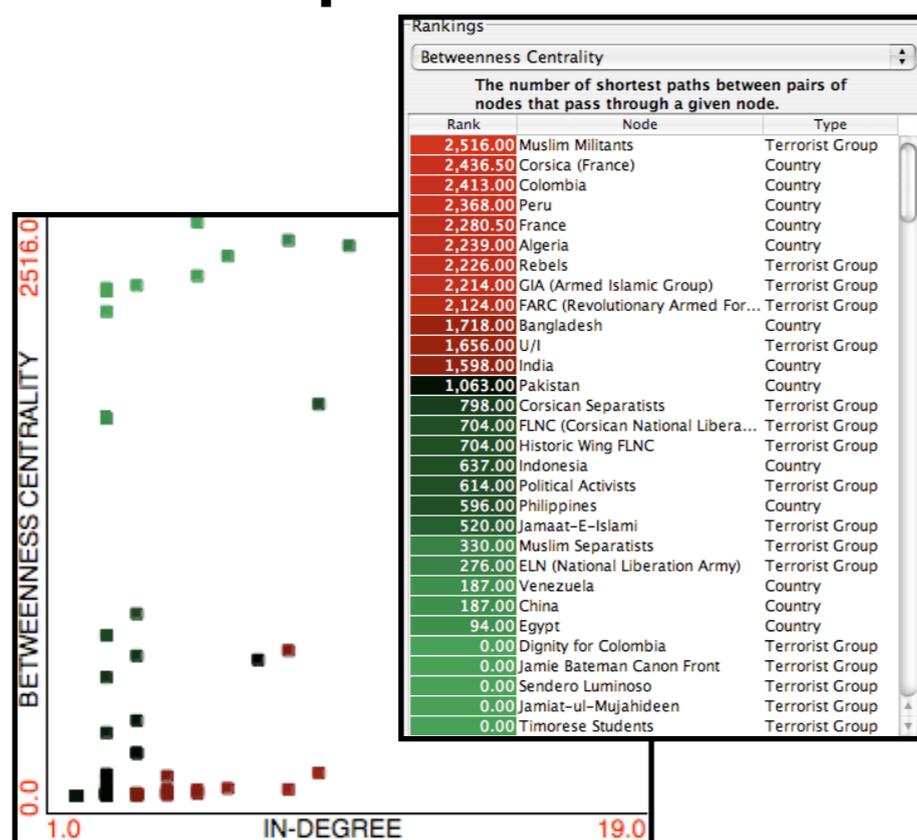
Researcher, Visual Communications Lab, IBM Research

<http://www.cs.umd.edu/hcil/sna-workshop/>

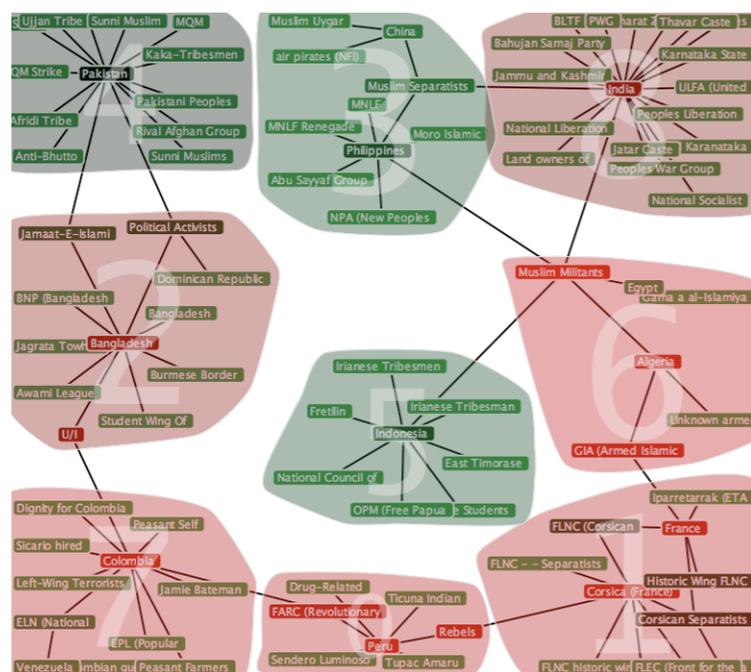


SocialAction

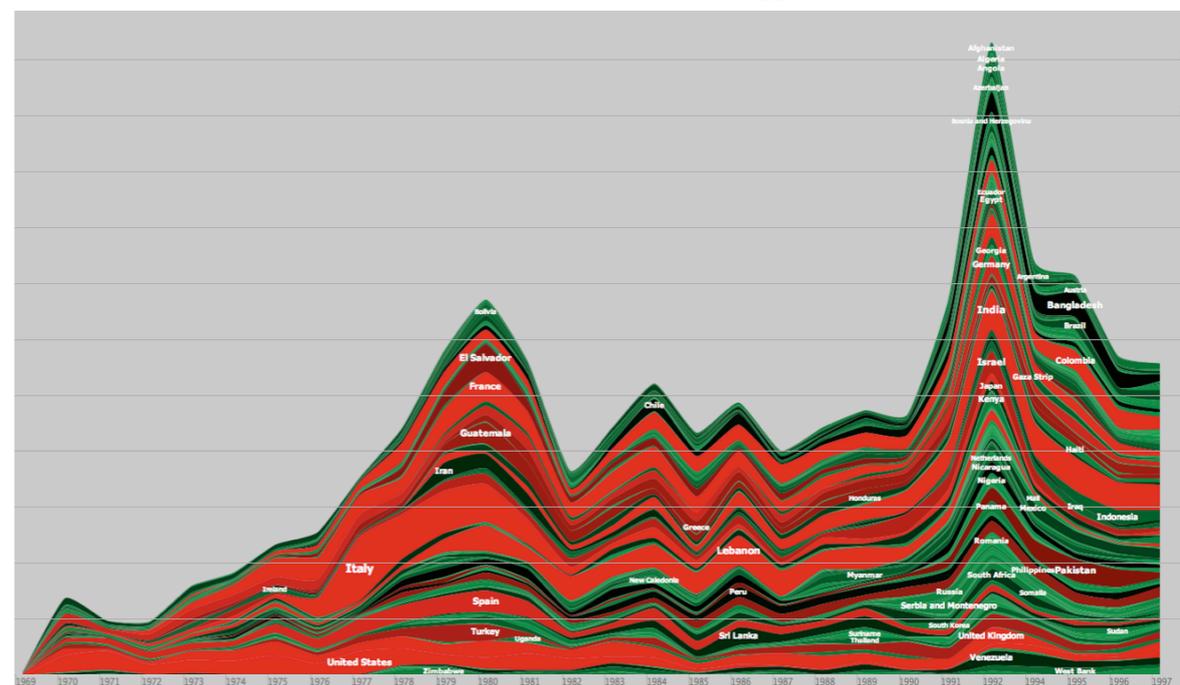
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