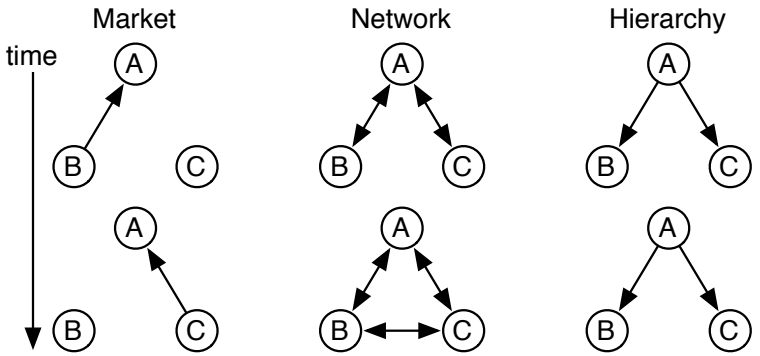
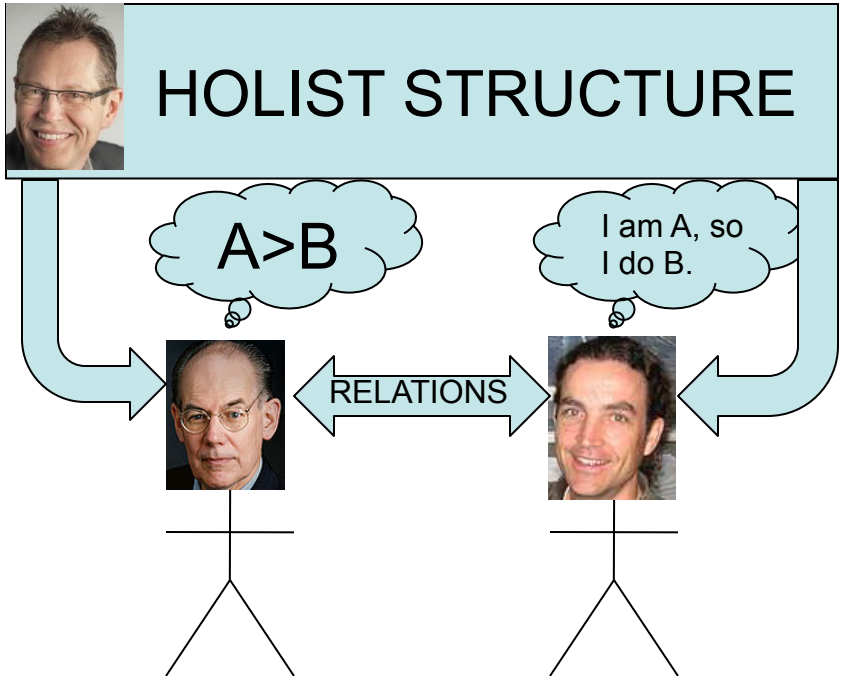
Network Analysis (NA) in IR

- "Networks" in IR (not NA)
  - TANs, CTAs, Networked Governance
  - Hierarchies/Networks/ Markets
- Networks as Relational Structures (NA)
  - Individualist Explanations
  - Holist Explanations
  - Relationalist Explanations

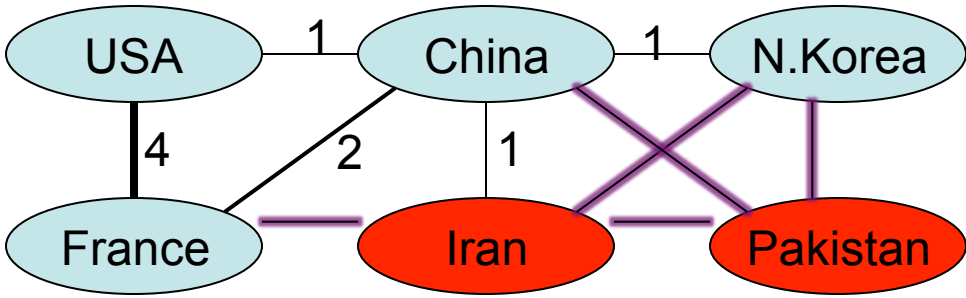
Figure 1: Market, Network, or Hierarchy?
Market transactions are asymmetrical (supply meets demand) and change over time; network transactions are more symmetrical and are repeated; hierarchical transactions are top-down (demand causes supply) and stable





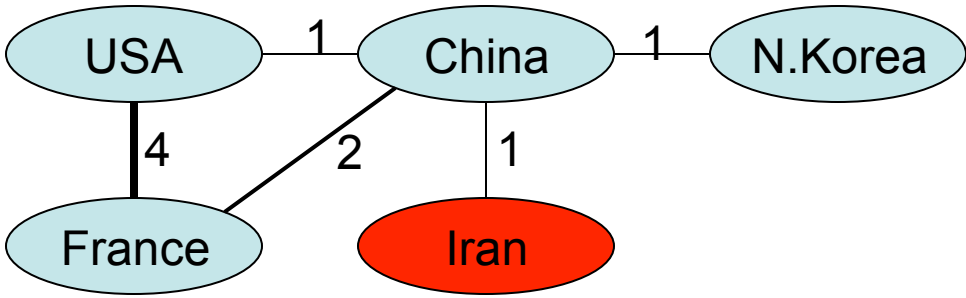
Network Analysis in ~~5~~ 8 Minutes

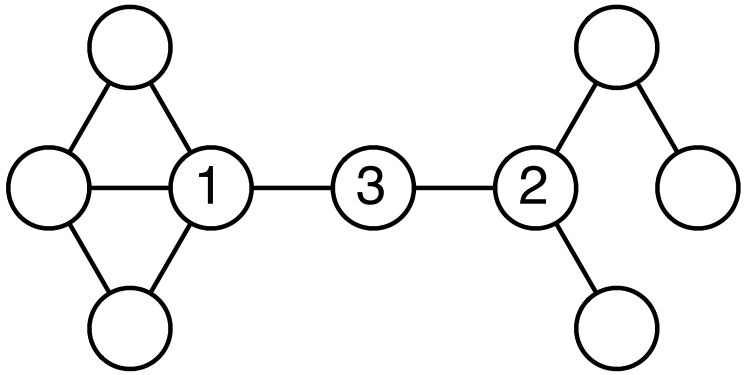
- Tools to Define and Measure Networks
  - Ties, Nodes
  - Centrality (next slide)
  - Subgroups
- Theories of Tie Creation
  - Tie-based
    - Structural Balance
    - Structural Equivalence
    - Preferred Attachment
  - Node-based
    - Homophily
    - Heterophily



Network Effects

- Network Theory: Effects of Structure
  - Individual Level: Social Capital
  - Interaction Level: Social Power (Centrality)
    - Access (Degree)
    - Brokerage (Betweenness)
    - Efficiency (Closeness)
  - Group Level: Conflict and Cooperation
  - Network Level: Efficiency and Robustness

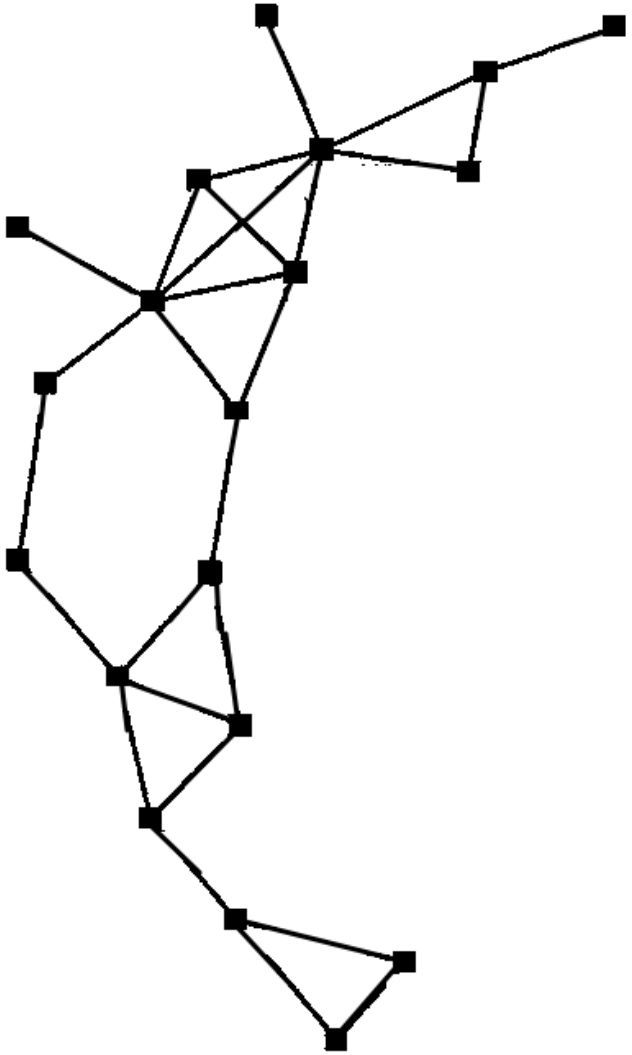




Node	1	2	3
Degree	4	3	2
Betweenness	15.5	17.0	16.0
Closeness	0.50	0.50	0.53

Discussion Questions

- Identify the four subgroups in the graph to the right.
- Where would you cut the network on the right in order to disrupt its operations?
- What kind of centrality was most important for the 9/11 hijackers' network?
- What differences are there between criminal enterprises and terrorist groups?
- How might these differences be reflected in their network structures?



9-11 Hijackers Network

(Krebs 2002 p.46)

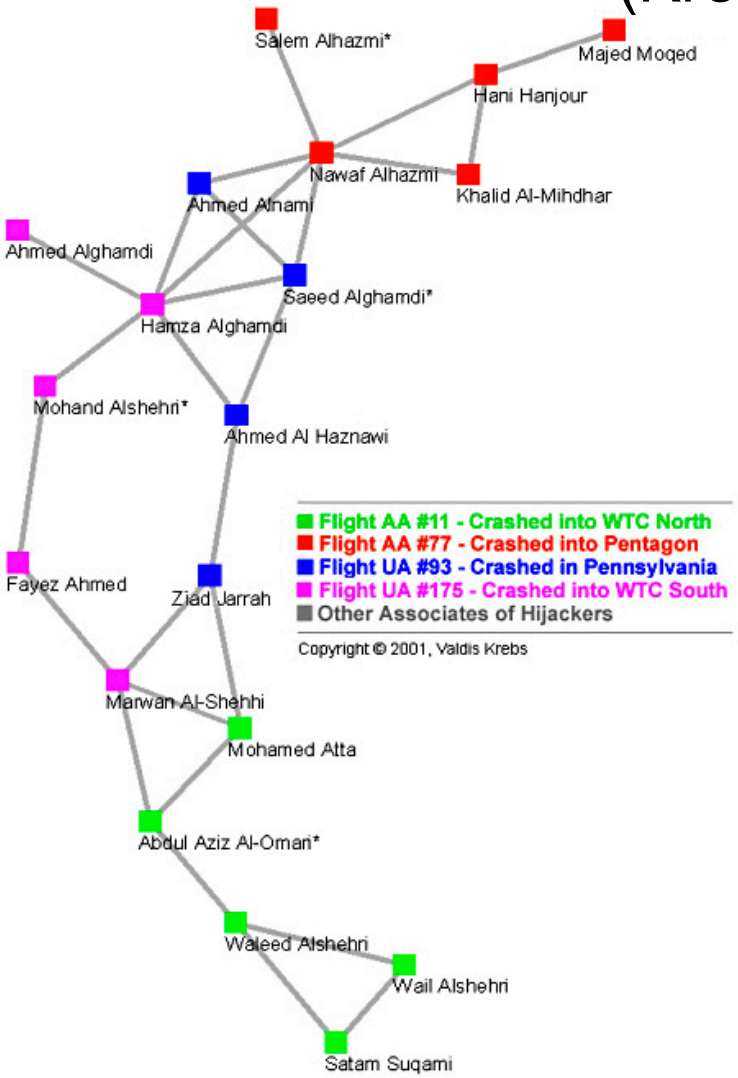


Figure 2 Trusted Prior Contacts

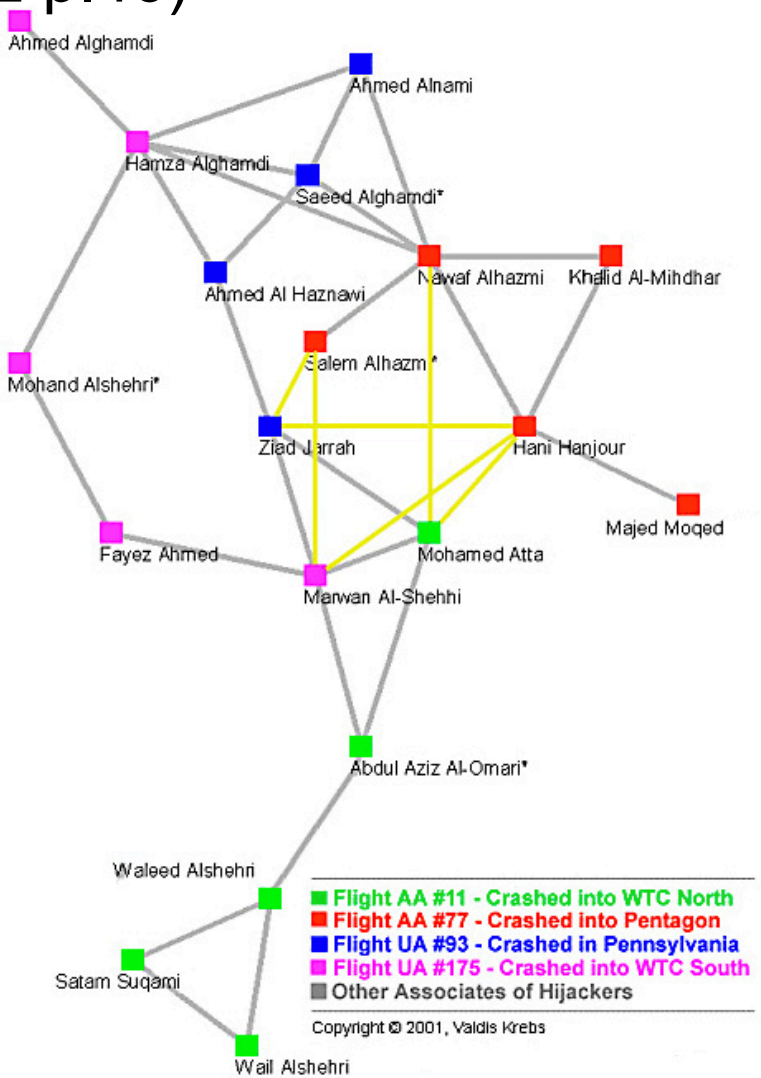


Figure 3 Trusted Prior Contacts + Meeting Ties [shortcuts]