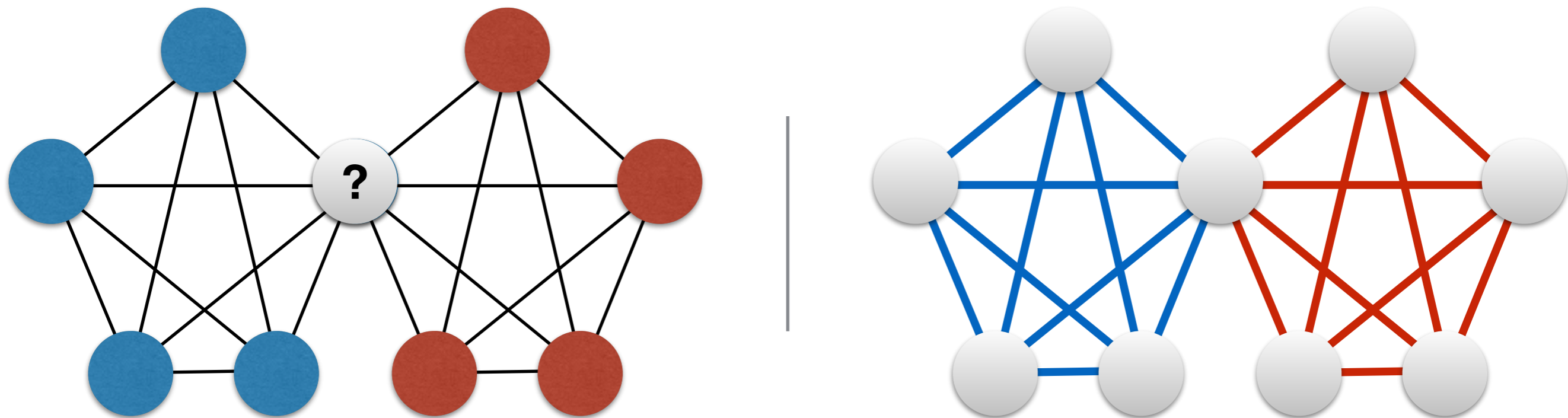


# Detecting community of links

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# Nodes groups vs links groups



Links groups and nodes groups are not equivalent and represent different structures.

# Detecting links communities

$G$ : graph,  $A$ : set of nodes and  $B$ : set of links

$V(B)$ : induced nodes in  $G$

$E(A)$ : induced links in  $G$

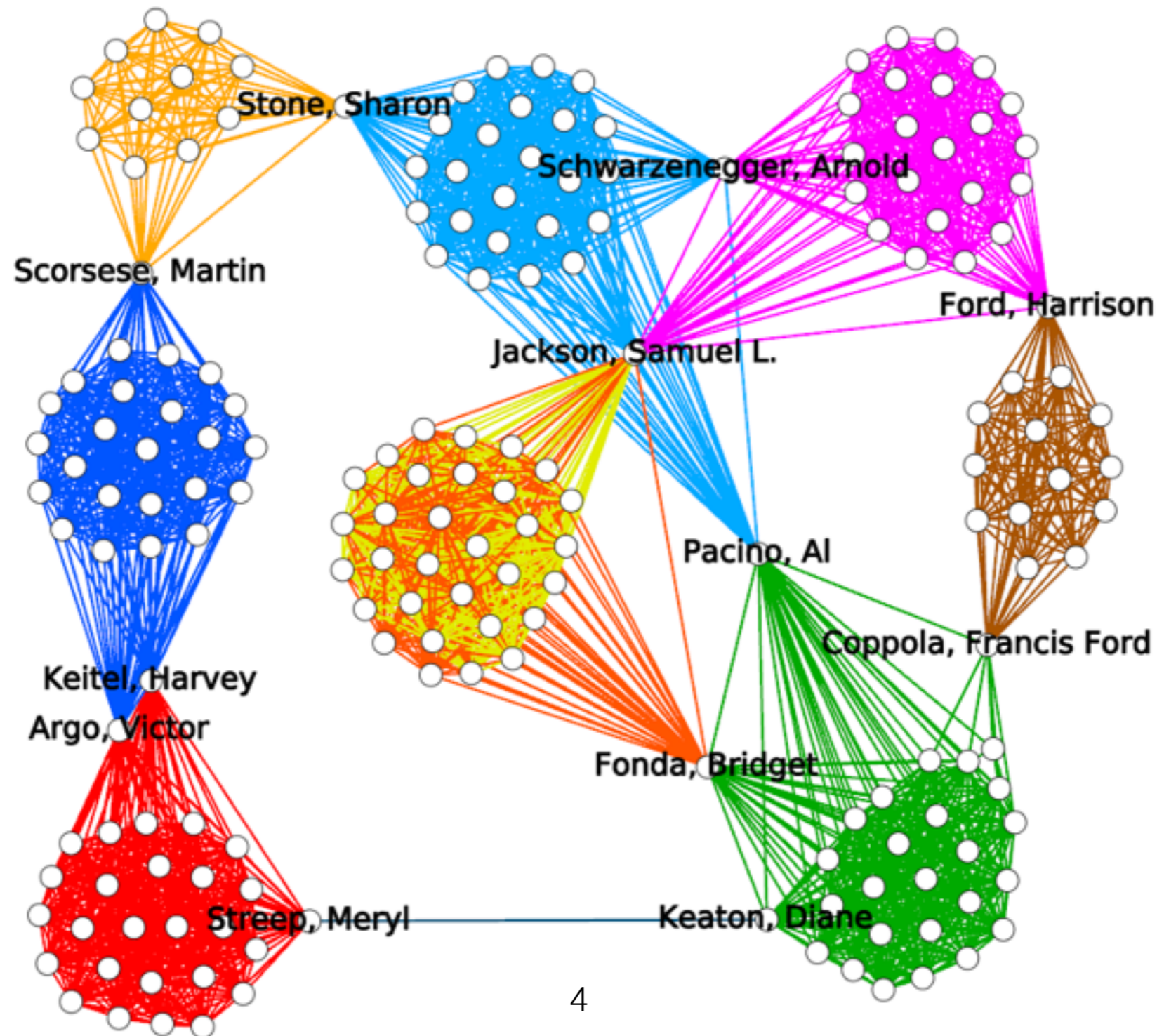
- Classic modularity for nodes groups:

$$Q(A) = |E(A)| - \mathbb{E}[|E(A)|] \quad \text{where } A \subseteq V$$

- Our quality function:

$$Q(B) = |V(B)| - \mathbb{E}[|V(B)|] \quad \text{where } B \subseteq E$$

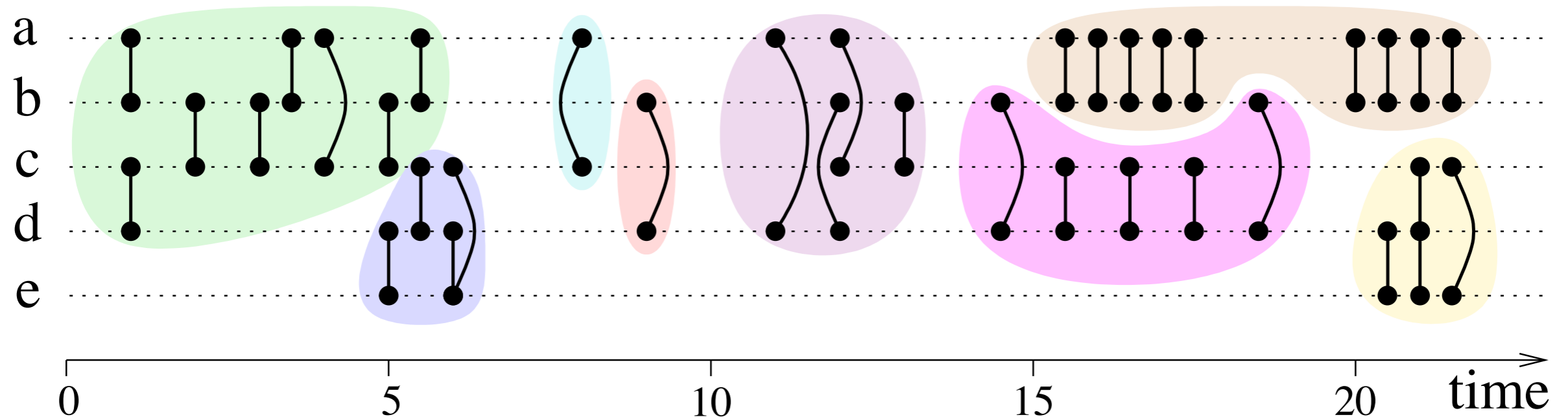
# Links groups in a more complex example



# What is the next step?

Temporal networks: interactions are instantaneous.  
Communities: subsets of all interactions.

Example:



In email exchange, communities would be threads.