Graphs

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A graph contains nodes and edges

- Example: auto part compatibility
+ 350 students in no romantic and/or sexual relationship
From: “Chains of Affection: The Structure of Adolescent Romantic and Sexual Networks”, *American Journal of Sociology*, by Peter Bearman of (Columbia), James Moody (Ohio State), and Katherine Stovel (U. of Washington);
Graphs

• A graph can be thought of as either of:
  – a collection of edges
    • Each edge represents some relationship
  – for each node, a collection of neighbors
    • The neighbors are those connected by an edge
Operations on a graph

Creation:
• Create an empty graph

Querying:
• Look up a node: Does it exist? What are its neighbors?
• Look up an edge (= a pair of nodes): does it exist? (You know the nodes it connects.)
• Iterate through the nodes or edges

Modification:
• Add/remove a node
• Add/remove an edge