

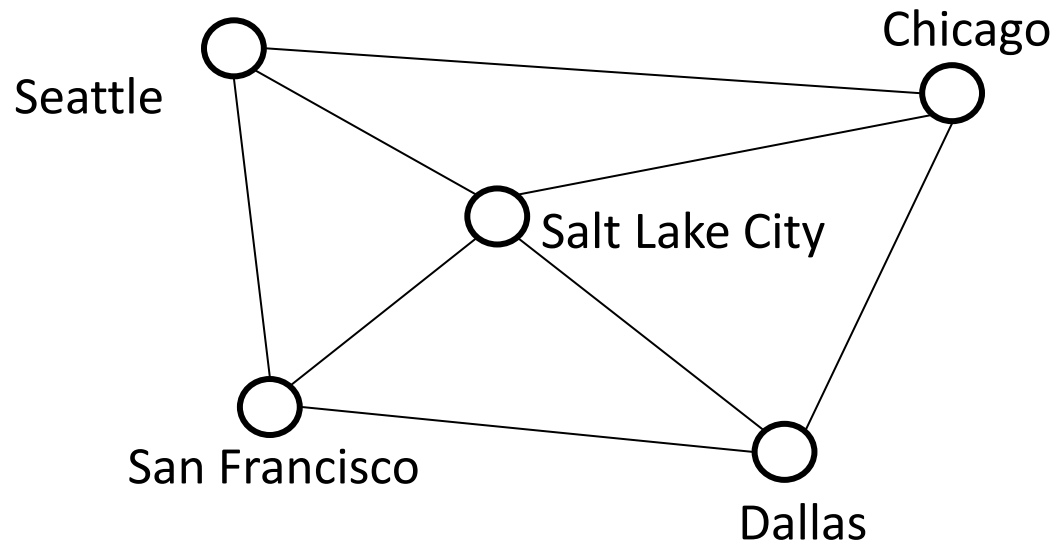
Graphs

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CSE 140

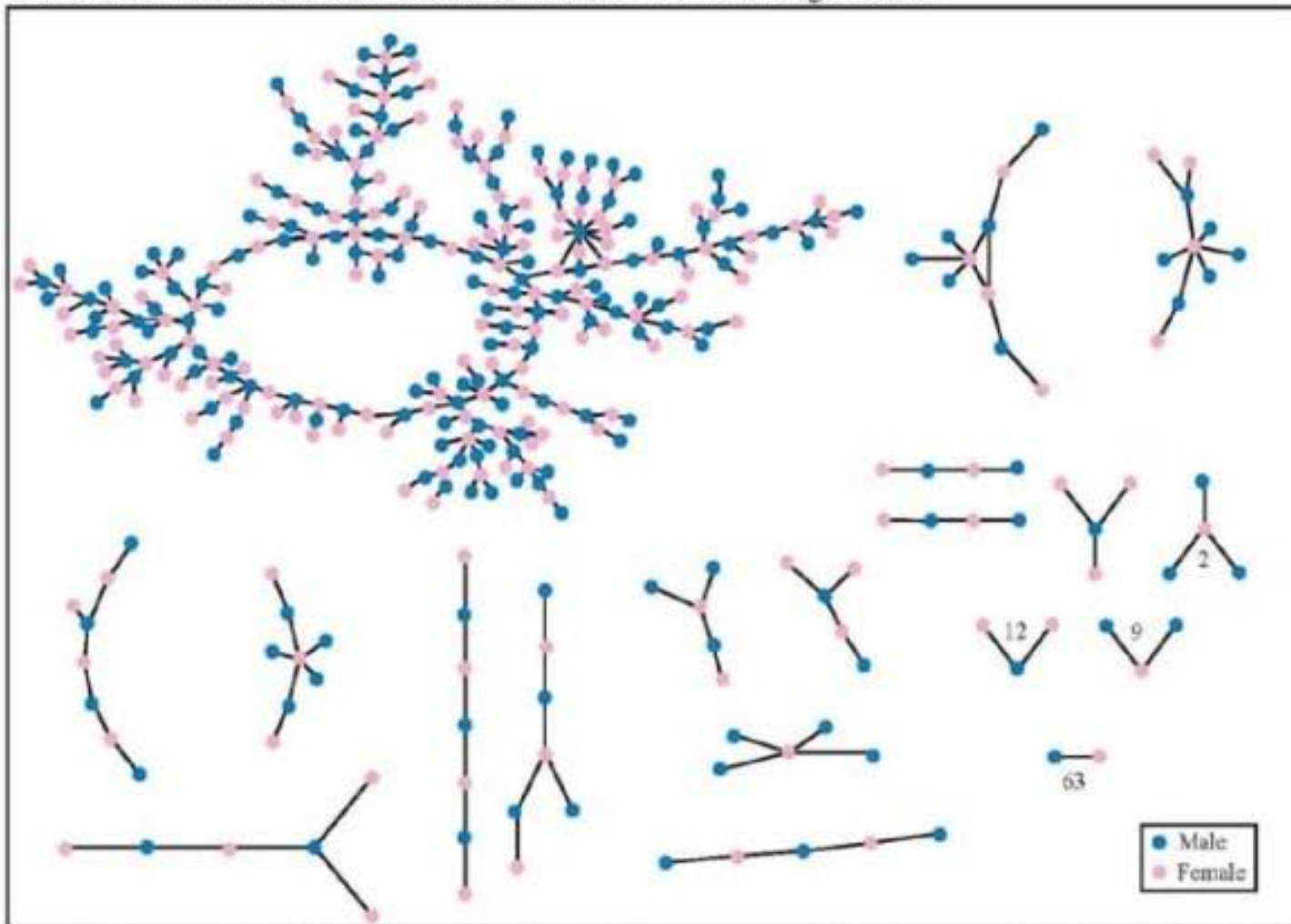
University of Washington

A graph contains nodes and edges





The Structure of Romantic and Sexual Relations at "Jefferson High School"



Each circle represents a student and lines connecting students represent romantic relations occurring within the 6 months preceding the interview. Numbers under the figure count the number of times that pattern was observed (i.e. we found 63 pairs unconnected to anyone else).

+ 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