Lecture 12

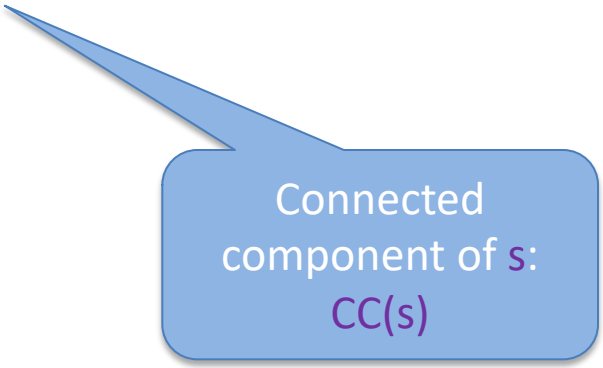
CSE 331

Sep 25, 2023

Connectivity Problem

Input: Graph G = (V,E) and s in V

Output: All t connected to s in G



Breadth First Search (BFS)

Build layers of vertices connected to s

$L_0 = \{s\}$

Assume $L_0,..,L_j$ have been constructed

L_{j+1} set of vertices not chosen yet but are connected to L_j

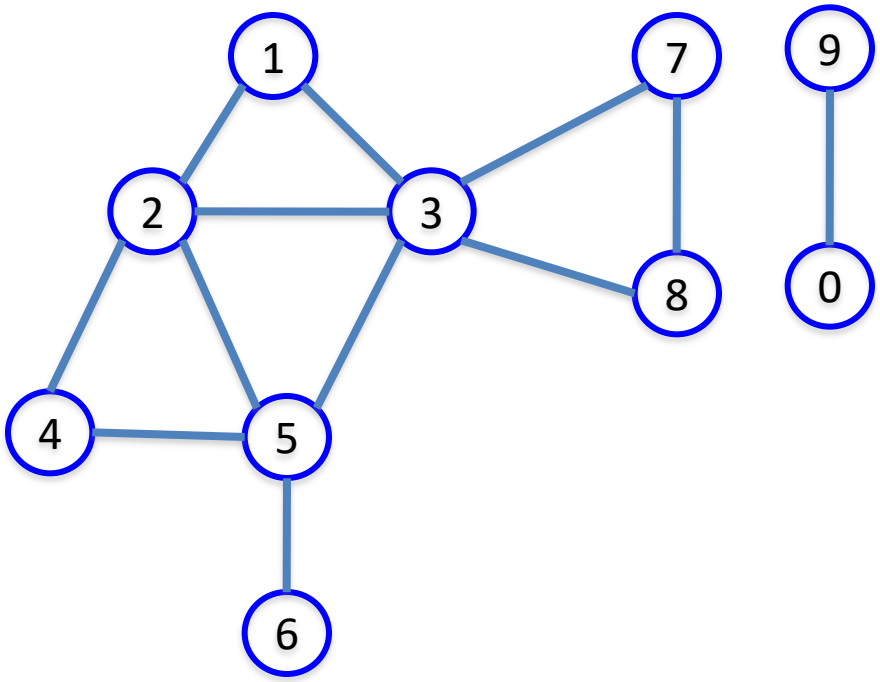
Stop when new layer is empty

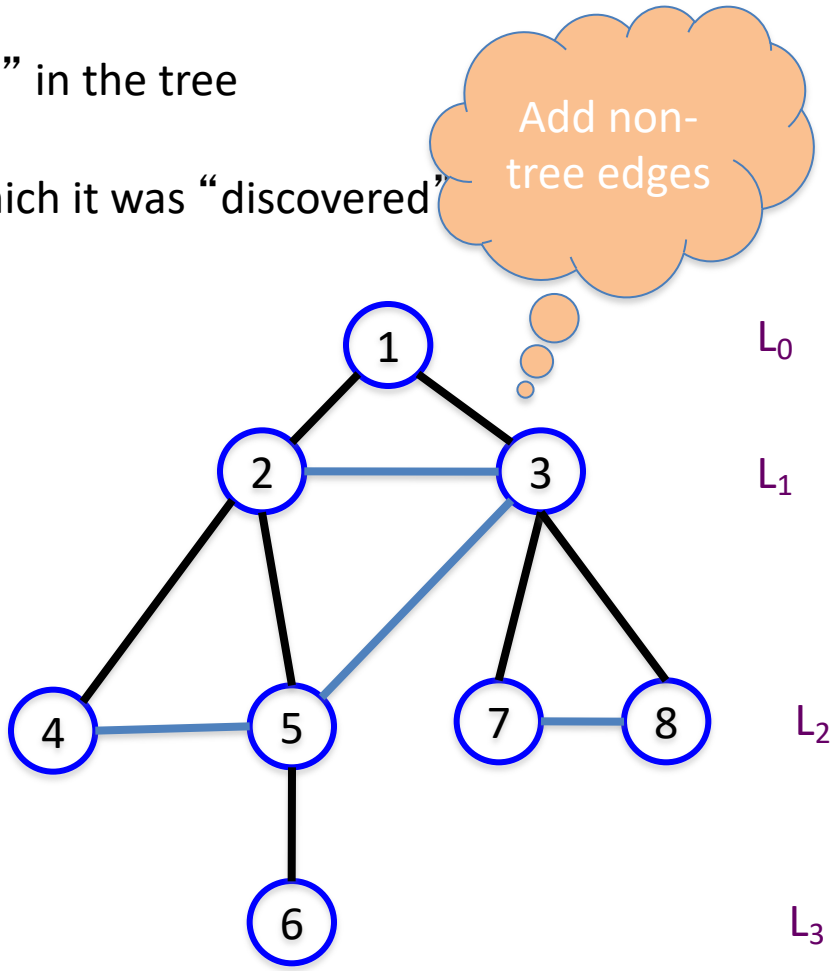
BFS Tree

BFS naturally defines a tree rooted at s

L_j forms the jth "level" in the tree

u in L_{j+1} is child of v in L_j from which it was "discovered"





Argue on the board…