

# Lecture 13

CSE 331

Sep 24, 2013

# Reminders

HW 3 due on Friday

# Today's agenda

Every edge in is between consecutive layers

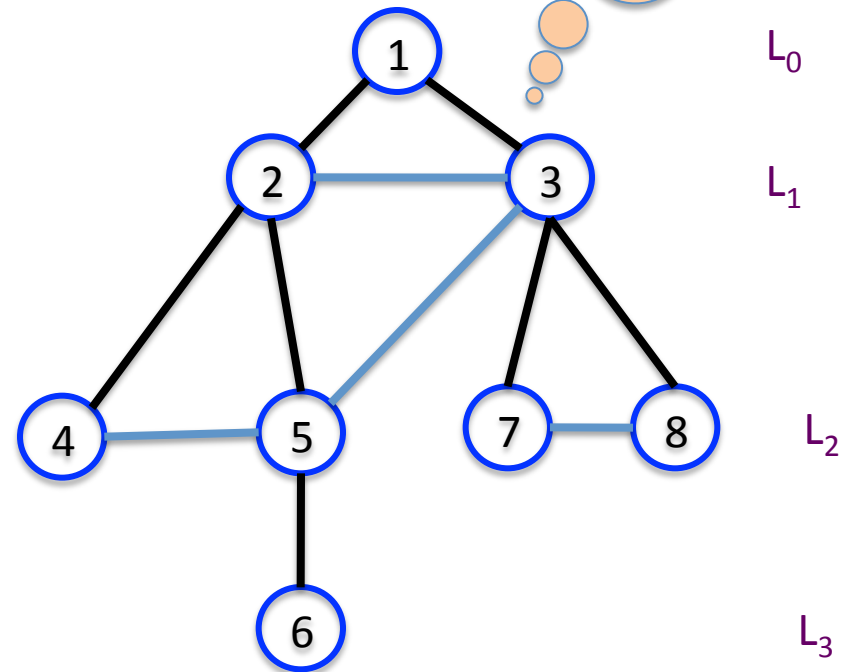
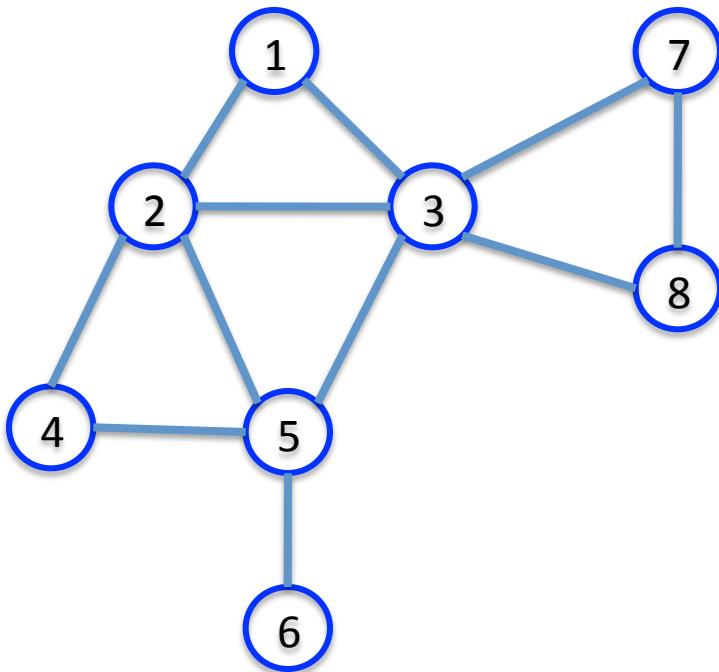
Computing Connected component

# BFS Tree

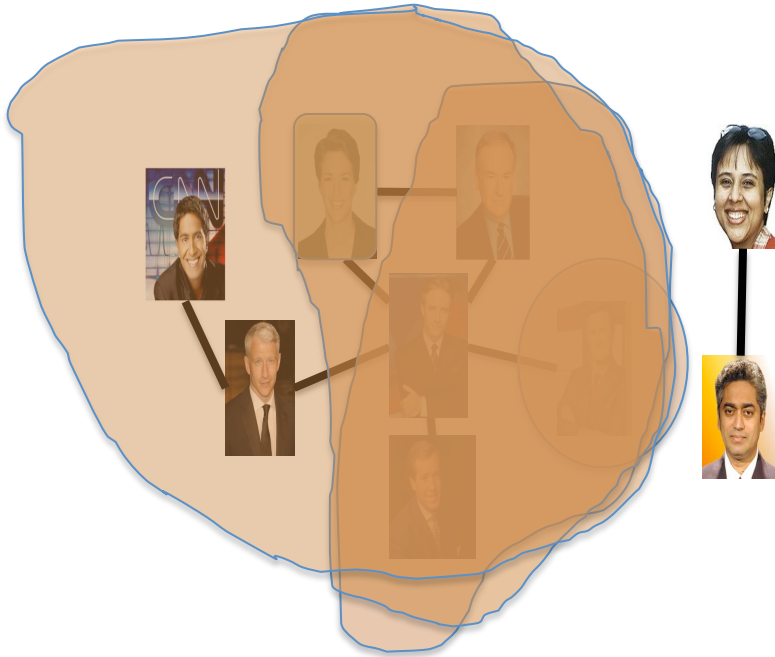
BFS naturally defines a tree rooted at  $s$

$L_j$  forms the  $j$ th “level” in the tree

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



# Computing Connected Component



Explore( $s$ )

Start with  $R = \{s\}$

While exists  $(u,v)$  edge  $v$  not in  $R$  and  $u$  in  $R$

Add  $v$  to  $R$

Output  $R$

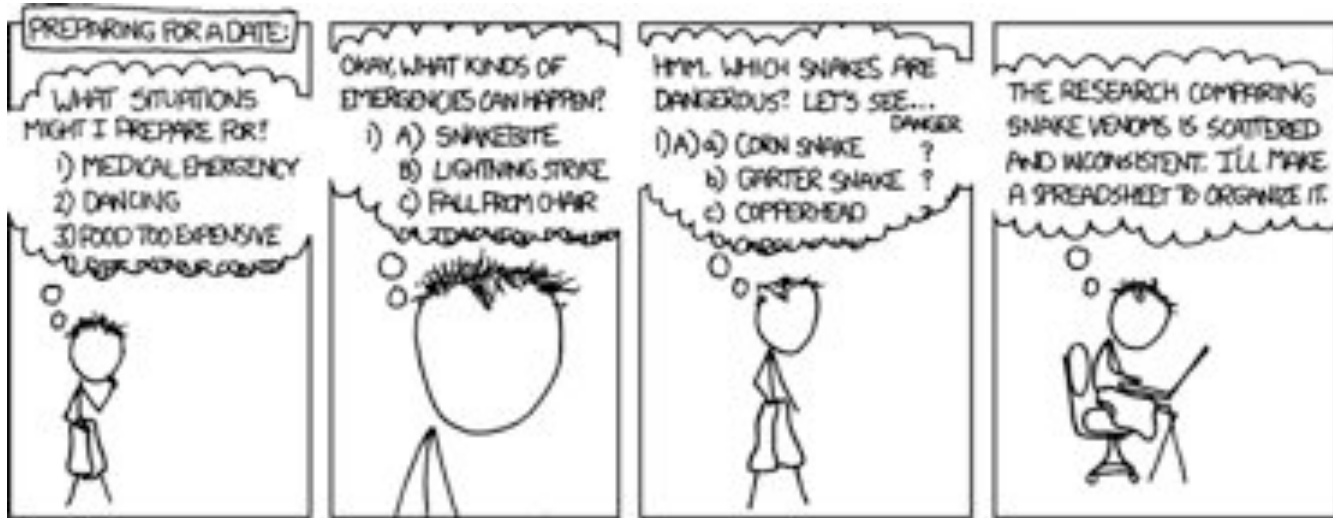
# Questions?



# BFS



# Depth First Search (DFS)



I REALLY NEED TO STOP USING DEPTH-FIRST SEARCHES.

<http://xkcd.com/761/>



# DFS(**u**)

Mark **u** as explored and add **u** to **R**

For each edge (**u**,**v**)

    If **v** is not explored then DFS(**v**)