

Lecture 17

CSE 331

Oct 3, 2014

HW 4 due today

Place Q1, Q2 and Q3 in separate piles

I will not accept HWs after 1:15pm

Other HW related stuff

HW 5 has been posted online: see piazza

Solutions to HW 4 at the END of the lecture

Graded HW 3 available from Monday onwards

Group/Algo registration deadline

BOTH DUE BY WEDNESDAY!

note ☆ 1 views

You need to form a group of size EXACTLY 6 for mini project Actions ▾

A gentle reminder that the deadline to submit your group composition and your algorithm choice is due in about 1.5 weeks (Wednesday, October 8).

Note that you need to form groups of size **EXACTLY SIX**. In particular, if you have a group with <6 or >6 members, then you have missed your deadline and will lose points.

Forming groups of size 6 might take some time so if you have not started on this, I strongly suggest you start immediately to avoid losing the points for the mini project. These points will be some of the easiest ones in the course so do not lose them due to procrastination.

A related post that might be of interest: @37

More details on the mini project: <http://www.cse.buffalo.edu/~atr/courses/331/handouts/mini-project.pdf>

mini_project

edit | good note | 0 Just now by Ron Rudra

Quiz # 1

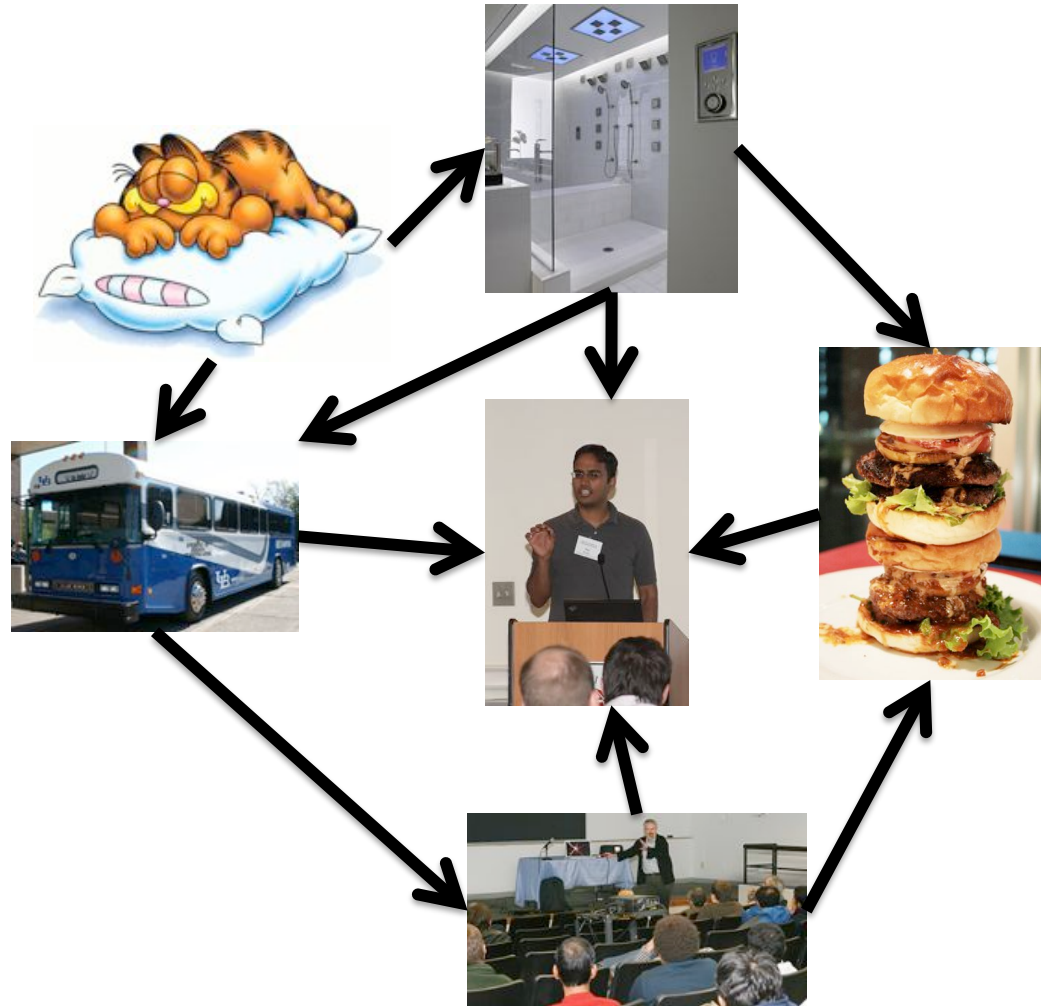
Monday, Oct 13

1:00-1:10pm in class

Directed Acyclic Graph (DAG)

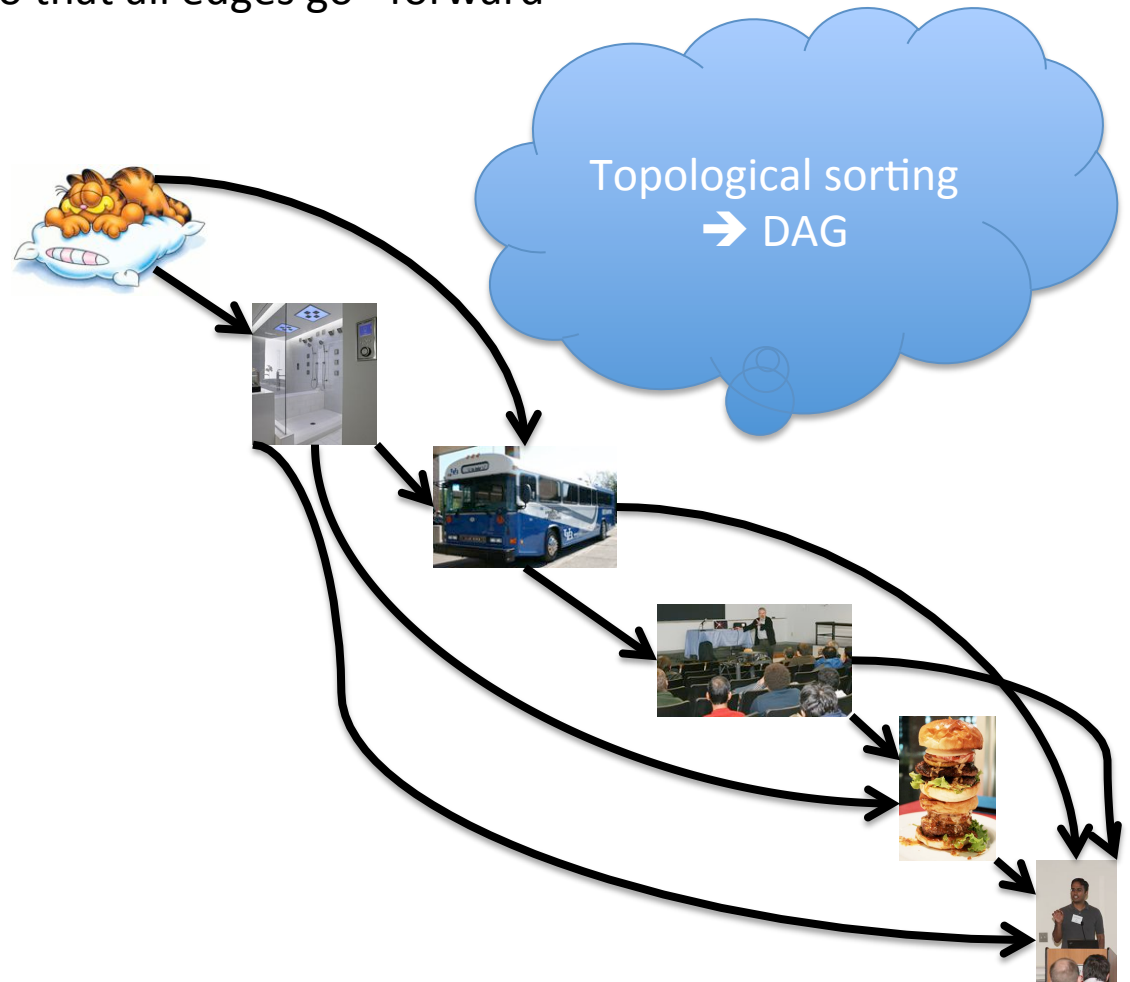
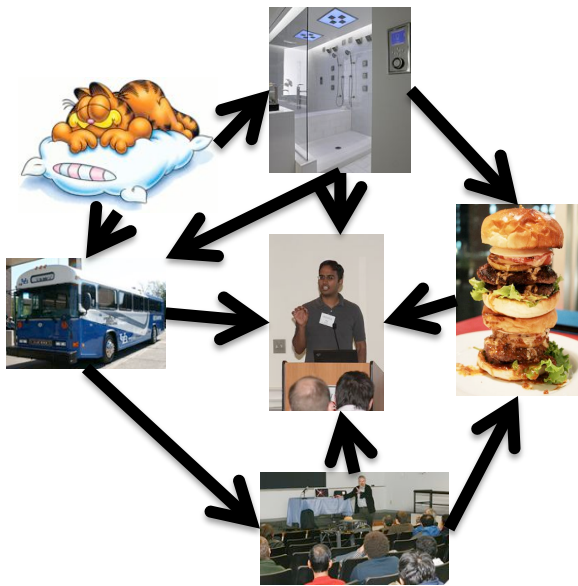
No directed cycles

Precedence relationships are consistent



Topological Sorting of a DAG

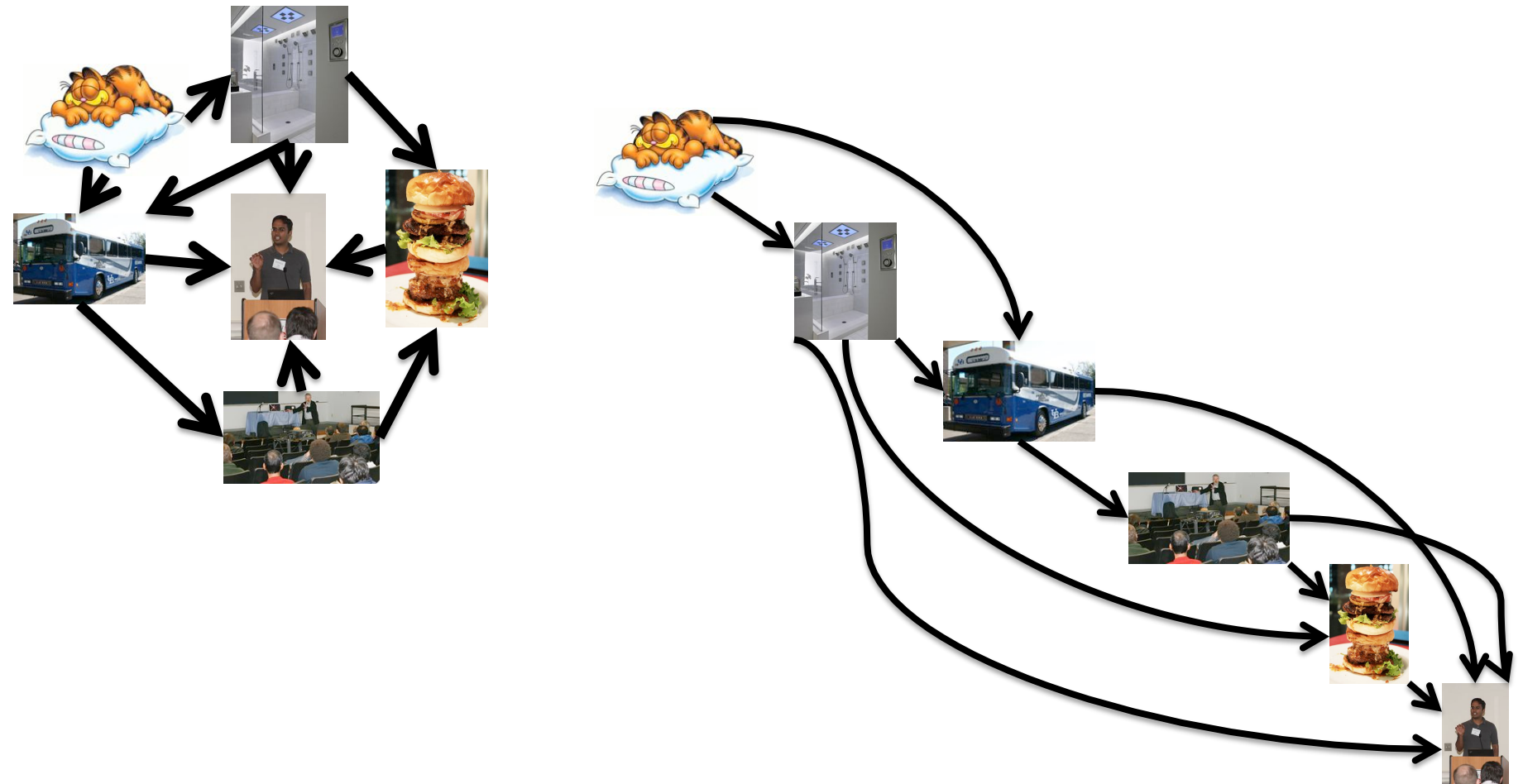
Order the vertices so that all edges go “forward”



TopOrd($G=(V,E)$)

1. If $|V| = \{u\}$, return u
2. Let w be a node with no incoming edges
3. Let G' be $G \setminus \{w\}$
4. Return w ; TopOrd(G')

Run of TopOrd algorithm



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Today's agenda

Run time analysis of TopOrd

10-15 mins of Q&A

Greedy algorithms

Mid-term material

Everything we have covered so far (essentially Chaps 1-3 except Sec 1.2)

Coming soon (over the weekend)

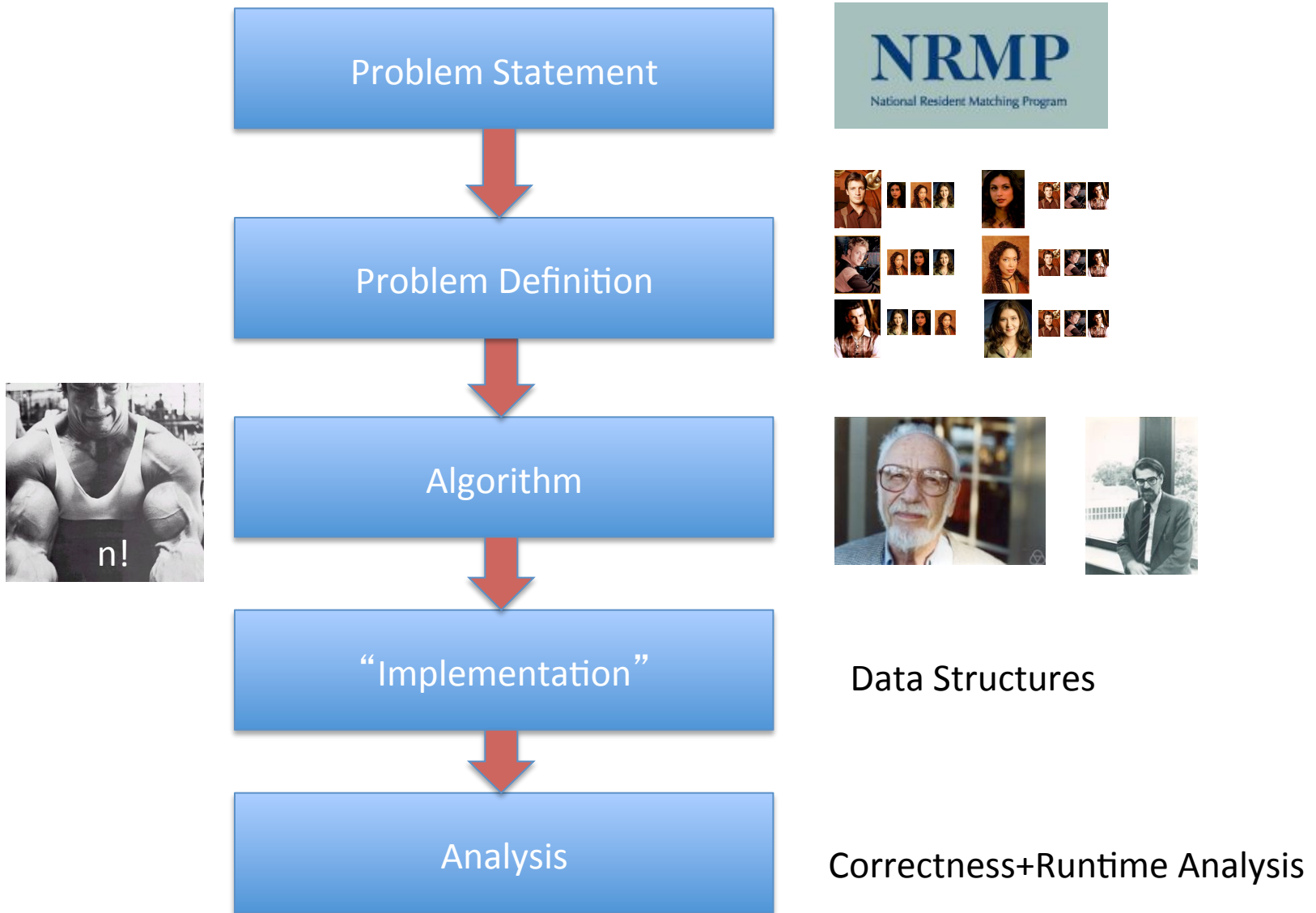
Sample mid-terms

A post on how to prepare for the mid-terms

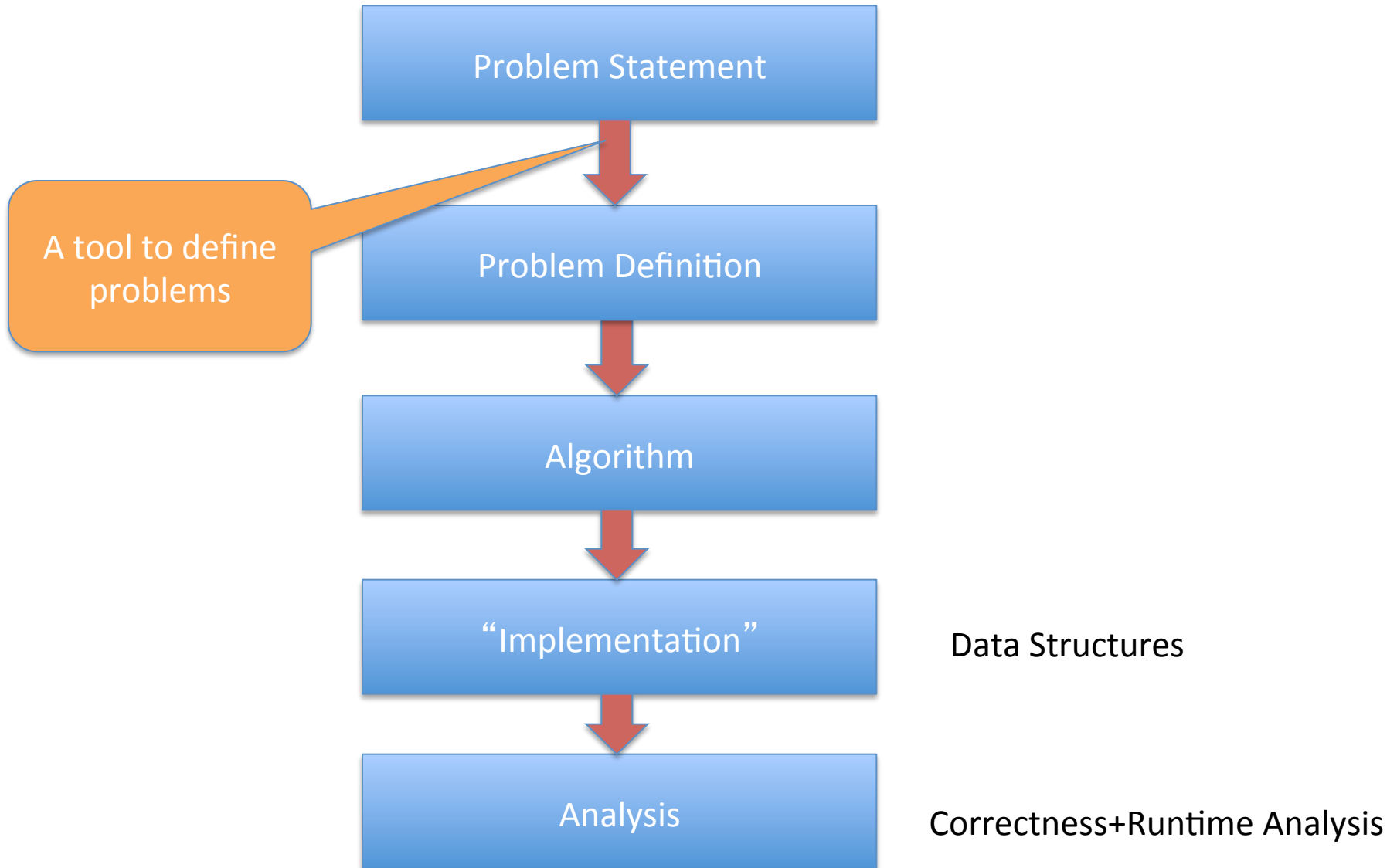
Questions?



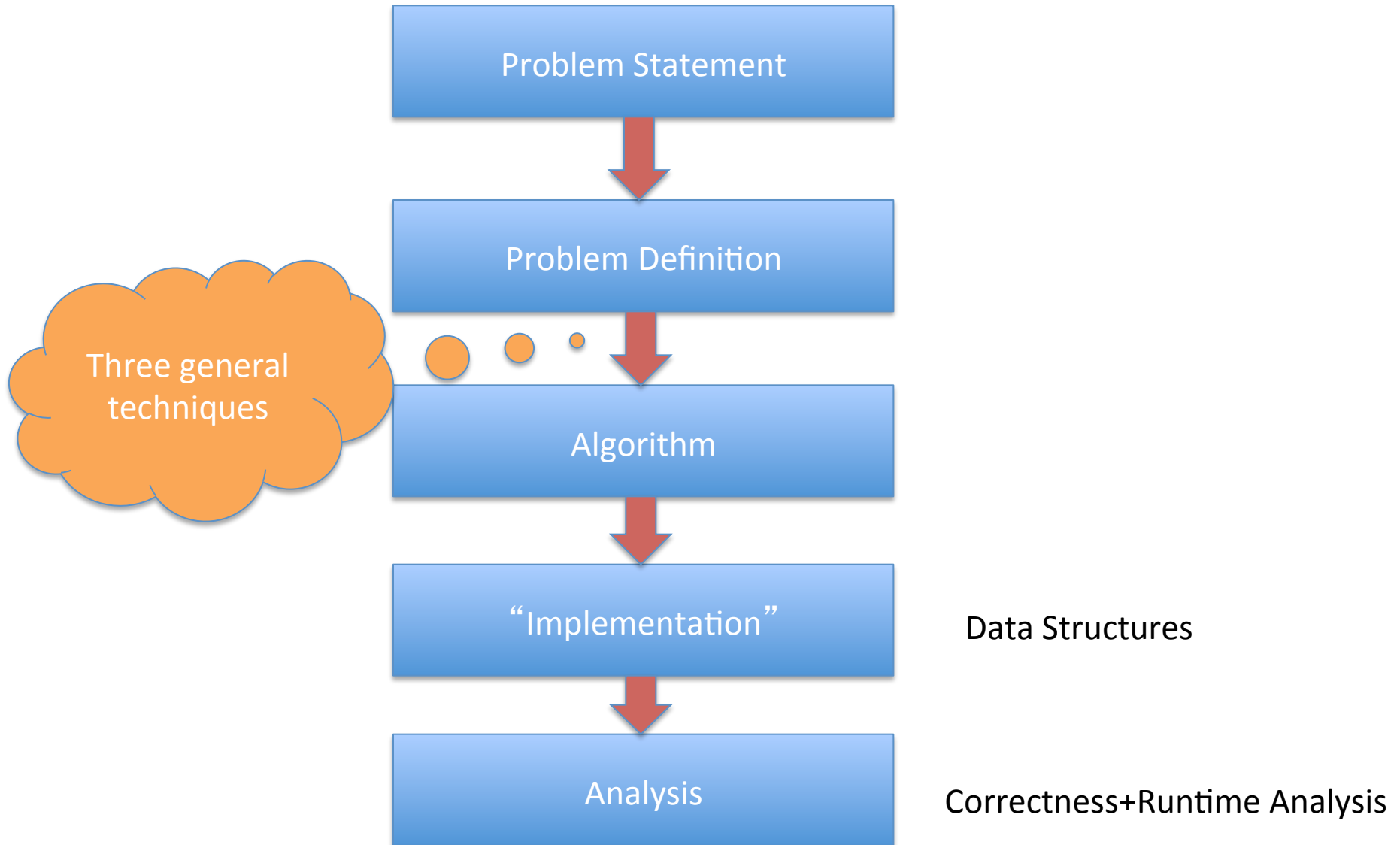
Main Steps in Algorithm Design



Where do graphs fit in?



Rest of the course



Greedy algorithms

Build the final solution piece by piece

Being short sighted on each piece

Never undo a decision

Know when you see it



End of Semester blues

Can only do one thing at any day: what is the maximum number of tasks that you can do?



Write up a term paper

Party!

Exam study

Homework

331 HW

Project

Monday

Tuesday

Wednesday

Thursday

Friday

Greedy solve your blues!

Arrange tasks in some order and iteratively pick non-overlapping tasks



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Ordering is crucial

Order by starting time



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331 HW

Algo = 1

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Another attempt

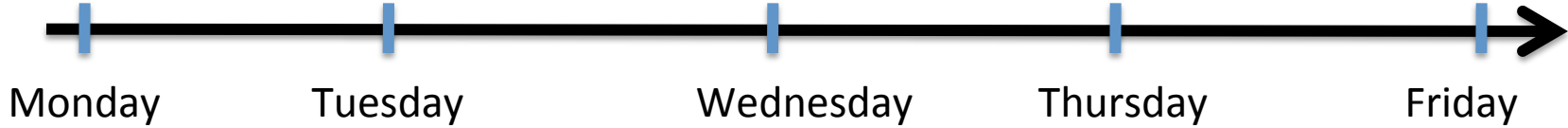
Order by duration



Ordering by least conflicts doesn't work



Algo = 1



The final algorithm

Order tasks by their END time



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Questions?



Rest of today's agenda

Prove the correctness of the algorithm