Traveling Salesperson: Done another way.

Lecture 29
CS 312

Tomorrow

• Q&A review section.
• No new material will be covered.

Recap and Objectives

• On Friday, we solved TSP using branch and bound.
• Modeled the problem as “starting at node \( i \) which node should be visited next to get the least bound?”
• Today: model TSP as “if the edge between nodes \( j \) and \( k \) is included (for any \( j \) and \( k \)) what bound can be obtained?”

New Search Tree

Use the same method for computing bounds.

Excluding an Edge

Which edge to consider

• Maximize “exclude” bound.
• Maximize the difference between the two.
Consider edge (3,2)
include (3,2)  
exclude (3,2)  
bound = 21  
bound = 22

Consider edge (2,3)
include (2,3)  
exclude (2,3)  
bound = 21  
bound = 28

Consider edge (5,1)
include (5,1)  
exclude (5,1)  
bound = 21  
bound = 30

Tree so far
include (5,1)  
exclude (5,1)  
bound = 21  
bound = 30

Consider edge (2,5)
ininclude (2,5)  
exclude (2,5)  
bound = 21  
bound = 28

Tree so far
include (5,1)  
exclude (5,1)  
21   30
include (2,5)  
exclude (2,5)  
21   28
Consider edge (3,2)

Tree so far

Tree so far