Knowledge representation (INFO0049-1) Exercise session 10

12 May 2015

1. Informed search strategies

- Best-first seach
- A* search

Given the following map, find the path from Arad to Bucharest using both of the above mentioned search strategies. Compare the resulting paths and try to figure out which algorithm gives the optimal path and why.



Make use of the straight-line distances between two cities (given below) as the heuristic function for solving the problem.

Arad	366	Mehadia	241
Bucharest	0	Neamt	234
Craiova	160	Oradea	380
Drobeta	242	Pitesti	100
Eforie	161	Rimnicu Vilcea	193
Fagaras	176	Sibiu	253
Giurgiu	77	Timisoara	329
Hirsova	151	Urziceni	80
Iasi	226	Vaslui	199
Lugoj	244	Zerind	374

2. Minmax search strategy

3. Difference list

Try to implement the following predicated with difference lists

- append(+List1, +List2, -List).
- quicksort(+List, -SortedList).
- t(L, X, R) is a tree represented with the root node X, left subtree L and a right subtree R. Write a predicate *linearize(+Tree, -List)*, to collect all the elements of a tree in a list using difference list.

4. Grammar

Write grammar rules for the following:

- 1. Given an integer number between 0 to 20, write grammar rules to generate that number in words (can be represented as a list)
- 2. Extend those rules to generate in words for numbers between 0 to 999

Given [five, hundred, forty, eight], write a query to get the number 548.