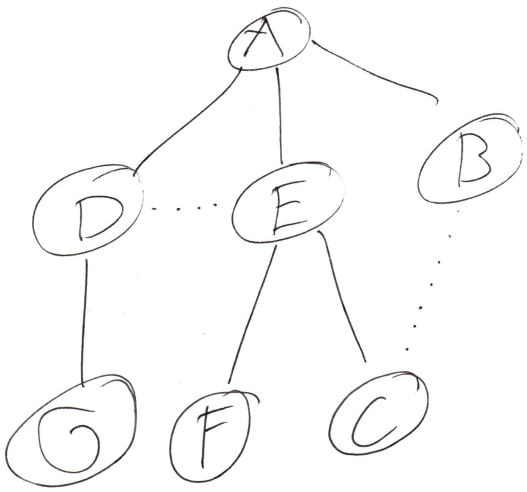
Matthew Irvine 10/14/2008

Task 2:

Breadth-first search



Fringe:

~~A~~, ~~D~~, ~~E~~, ~~B~~, G, F, C

Goal node

List of nodes expanded:

A, D, E, B

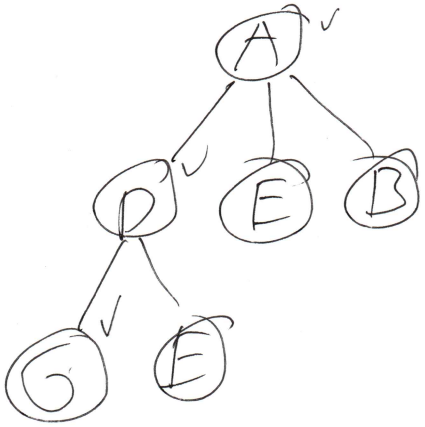
Closed set:

A → D cost 3

D → G cost 9

total cost 12

Depth-first search:



Fringe:

G E ~~D~~ E D ~~A~~

expanded nodes:

A, D

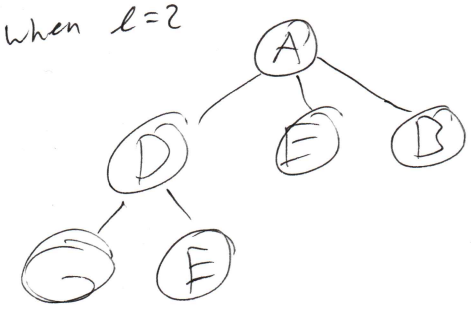
Closed set:

A → D

D → G

iterative deepening search: (Assuming ~~l=2~~)

When $l = 2$



Fringe:

G E ~~D~~ E D ~~A~~

expanded nodes:

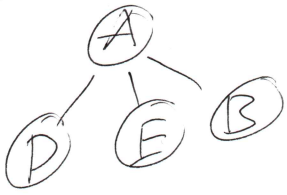
A, D

closed set:

A -> D

D -> G

When $l = 1$



Fringe:

~~D~~ E D ~~A~~

expanded nodes:

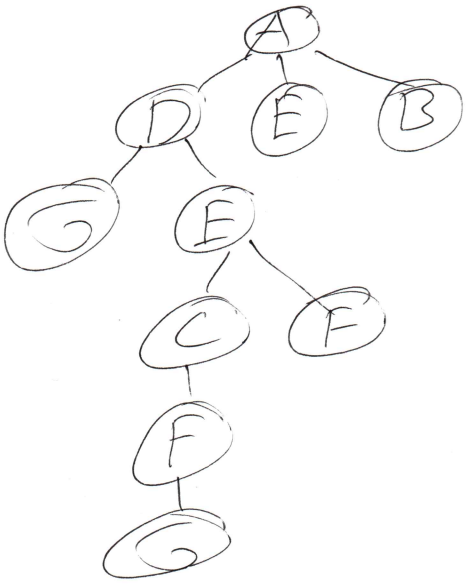
A

closed set:

none

Task 2:

Uniform cost search:



Fringe:

A

D E B

E B G

C F B G

F B G

G B

Visited:

A, D, E, C, F

nodes expanded:

A D E C F

closed set:

A -> D

D -> E

E -> C

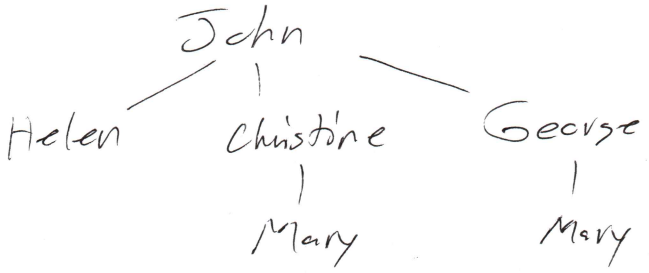
C -> F

F -> G

Task 3:

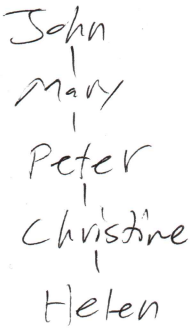
i. iterative deepening search

ii.

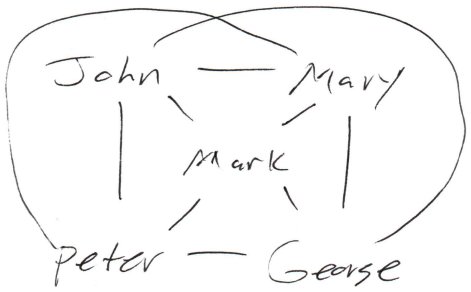


iii. No, because John has a one-to-three correspondance.

iv.



v.



vi. I am not sure

Task 4:

Heuristic 1: Not admissible

$h(B) = 50 \rightarrow 45$

Heuristic 2: Not admissible

$h(A) = 70 \rightarrow 60$
$h(B) = 70 \rightarrow 45$
$h(C) = 70 \rightarrow 15$
$h(D) = 70 \rightarrow 0$
$h(E) = 70 \rightarrow 45$
$h(F) = 70 \rightarrow 35$

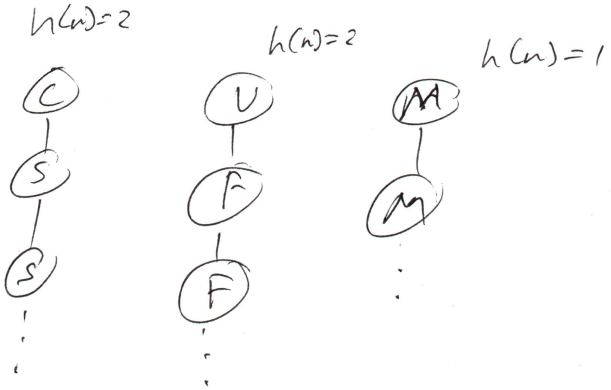
Heuristic 3: Not admissible

$h(c) = 20 \rightarrow 15$
$h(D) = 5 \rightarrow 0$

Heuristic 4: admissible

Task 5:

C - city
S - Suburb
V - village
M - mountain



Best admissible: $h(n) =$ [redacted] 1