

Uniformed Search

Problem: Spans like

Birds singing, flu kicking

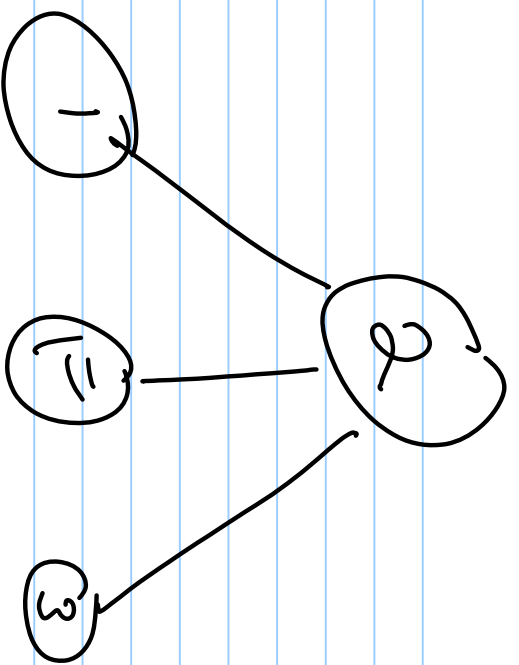
Air smells different

We are walking from 2N

to 1P

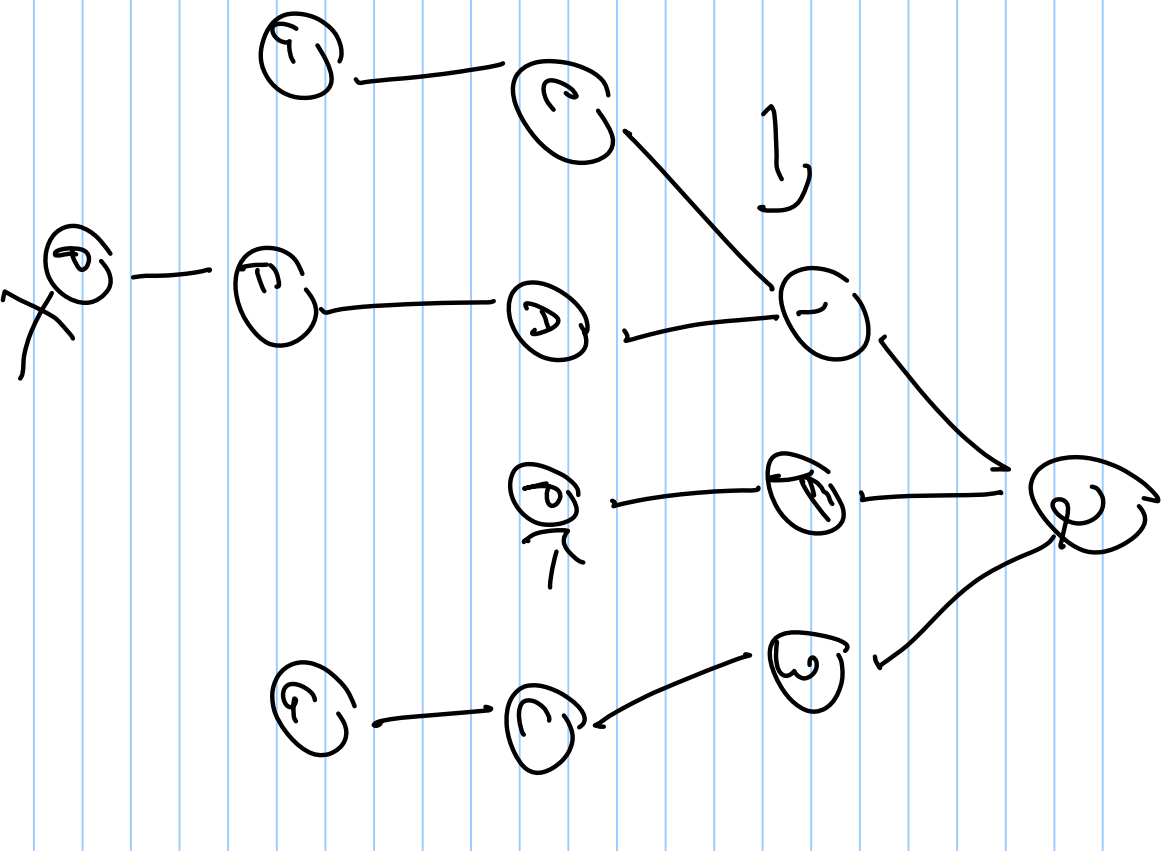
Mur of coppers

Removing ~~detail from~~ a problem - Abstraction



Take the
initial state
expand it
using an
operator
(successor function)

Search Strategy - choose one option
see where it gets you, then look at another
option



Tree links

Parent node

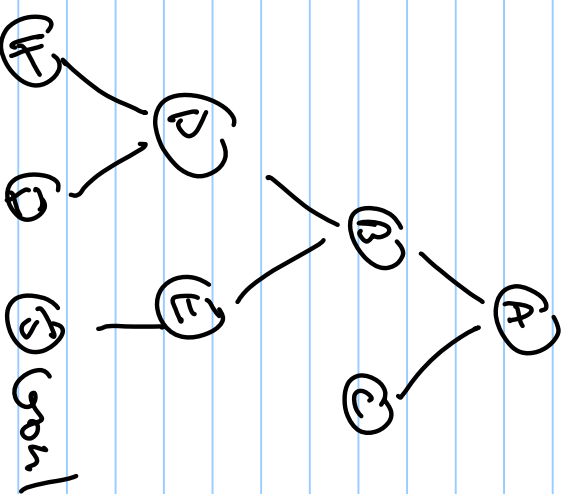
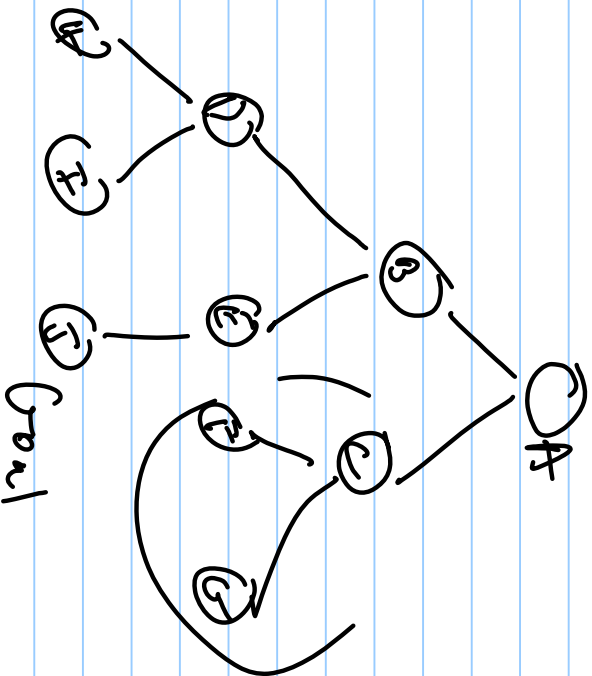
children

depth

Uniform Search

Breadth First Search - nodes at the same depth are expanded in sequence.

All nodes at depth d are expanded before the nodes at depth $d+1$.



Depth First Search - Always expand one node to the deepest level of the tree

Criteria with which to compare search algorithms

- ① Are we guaranteed to get a solution?
 - ② Optimal or best solution
 - ③ Search cost
- time

Memory

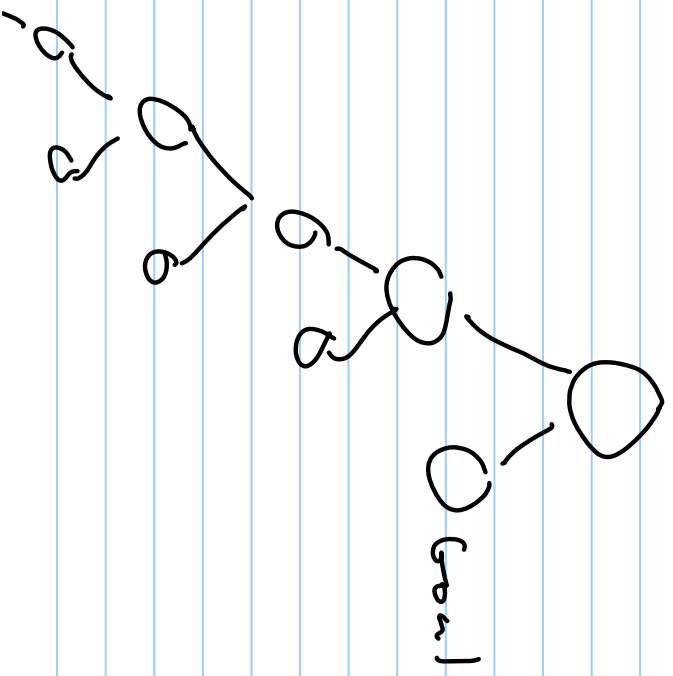
- ④ Do we search the entire state space - complete

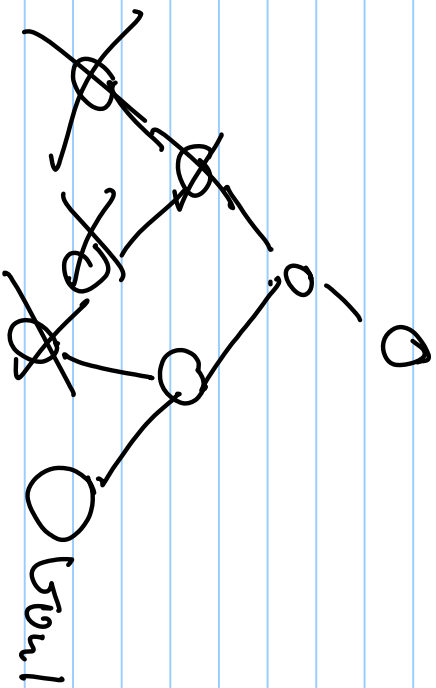
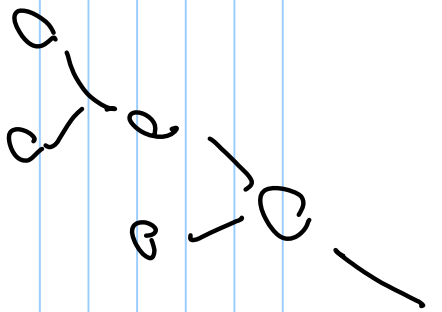
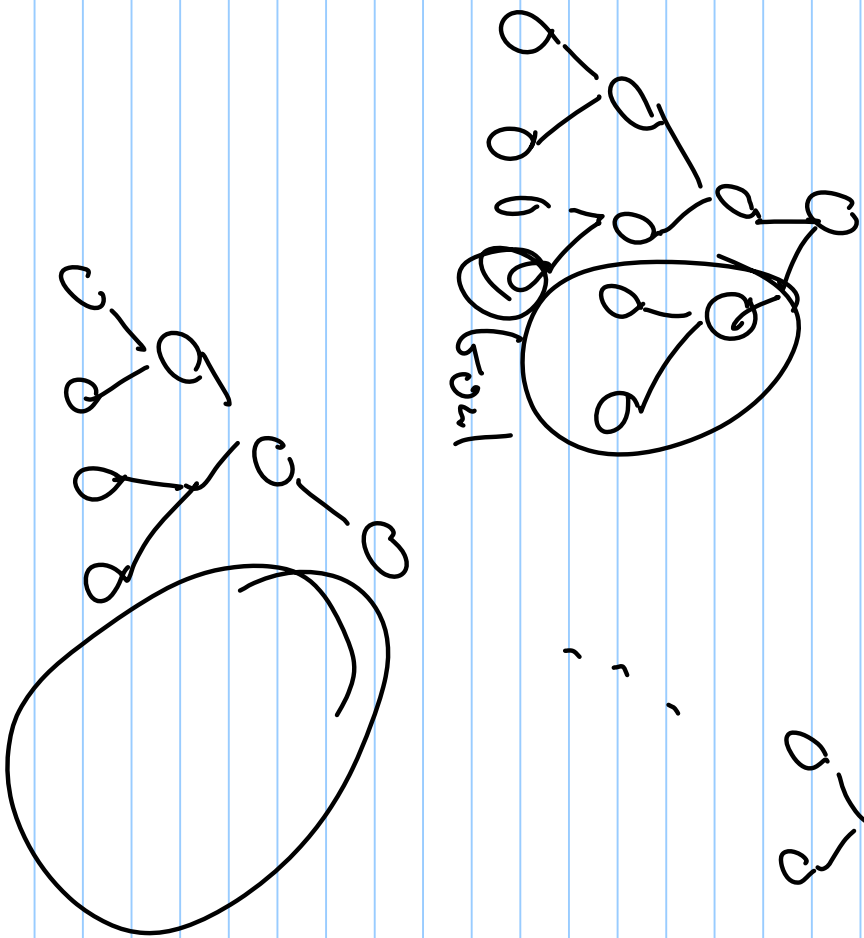
Breadth First Search -

If a solution exists - it will be found
finds the shallowest solution
complete, optimal providing the
path cost is a linear function of the
depth.

Time & memory

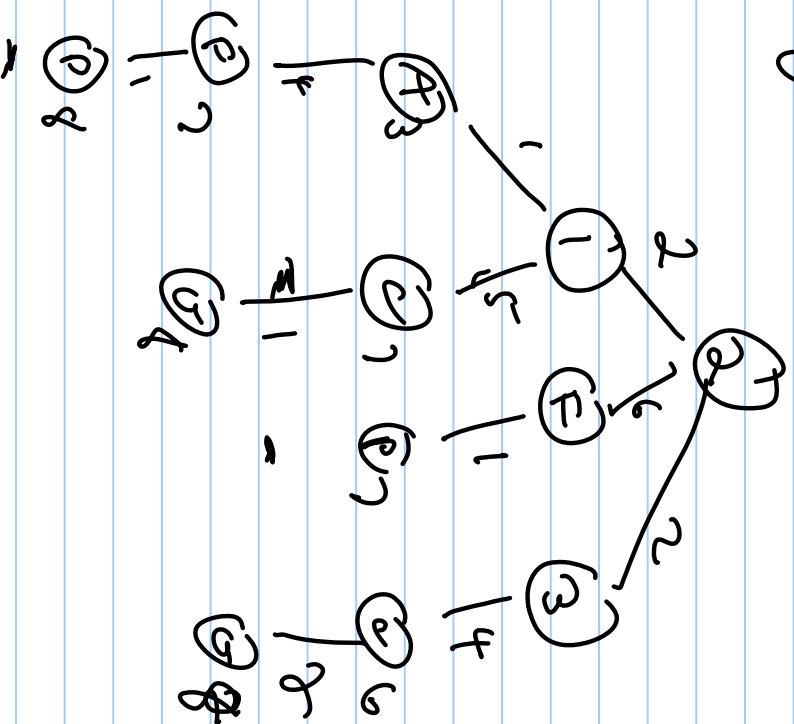
Depth First Search





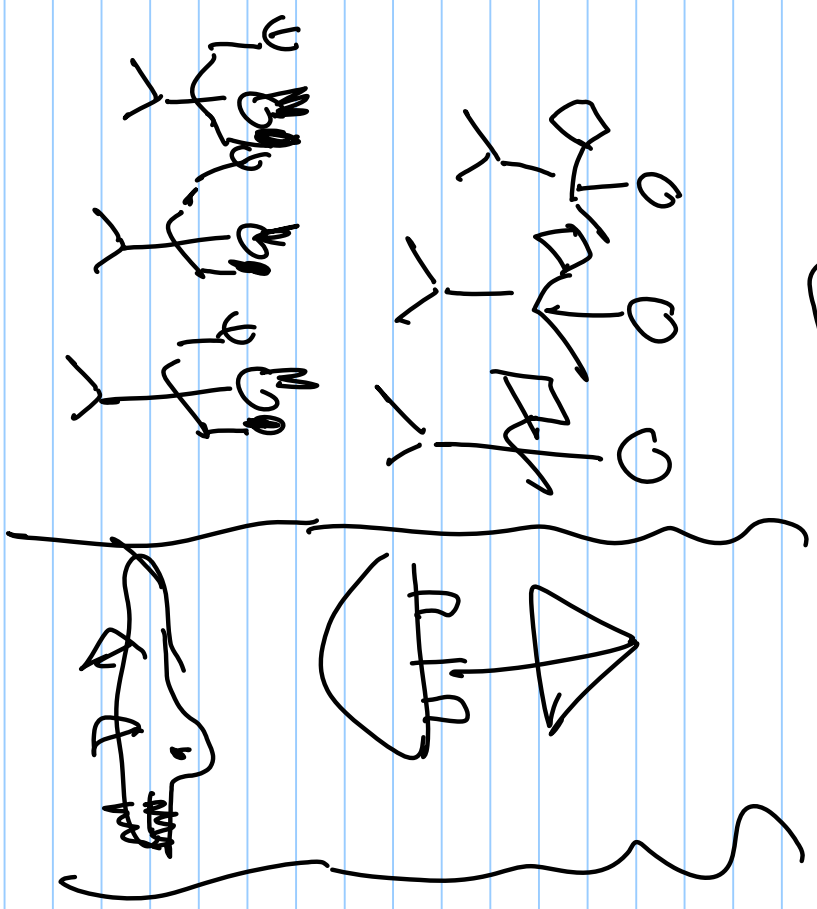
Uniform cost search - variation of breadth first

expand the lowest cost function on the fringe



C-M

L



R

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~~N-M~~

