Note:
- Will assign homework 1 today

Previous class
- Constraint Satisfaction Problems (CSPs)
- Heuristics, arc consistency

Today
- CSPs taking advantage of the problem structure
- Temporal CSPs: Interval Algebra (IA)

\[ f(n) = g(n) + h(n) \]

- A number of variables assigned
- Some that we unassigned
- Arc consistency will detect some failures
- (We can terminate the search under this branch)

• Reduce the domains (possibly)
tree:
no cycles
or
each node has
c at most one parent.

not a tree

A B C D E F G H
\[ A \rightarrow B \]
\[ B \rightarrow C \]
\[ C \rightarrow D \]

A: \[ z_1, z_2, \ldots, z_{10} \]
B: \[ y_1, y_2, y_3, y_4 \]
C: \[ v_2, v_3 \]
D: \[ x_1, x_2, x_3 \]

Assign a solution
Site of the tree
Arc consistency for polynomial time

\[ A \text{ var}_6 : \quad \bar{d} \]
\[ B : \quad \bar{d} \]
\[ C : \quad n \times d \]

\[ (A, 3r, 9^2) \]
\[ (B, 3r, 9^2) \]
\[ (C, 3r, 9^2) \]
for every possible value of SA

solve the remaining tree structured problem

a convenient node

Cutset: 1 variable d

For every possible assignment to v, end up d x d x d^2

Cutset size: S d^S