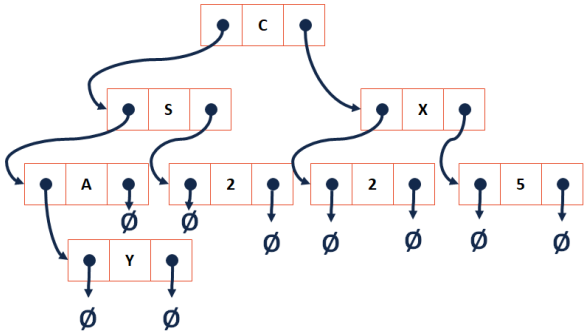
CS 225

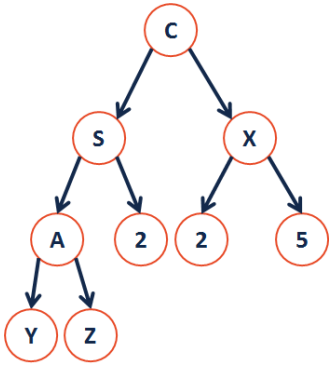
#15: Tree Traversals

October 1, 2018 · *Wade Fagen-Ulmschneider*

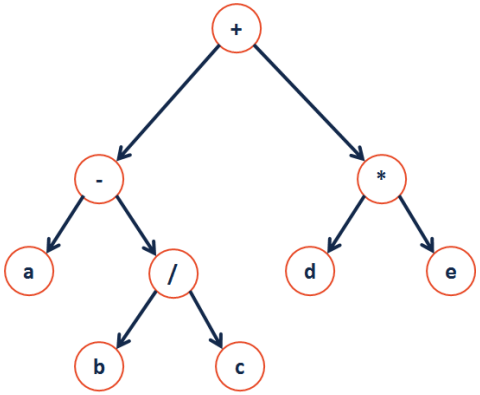
Trees are nothing new – they're fancy linked lists:



Theorem: If there are n data items in our representation of a binary tree, then there are _____ **nullptr**s.



Traversals:



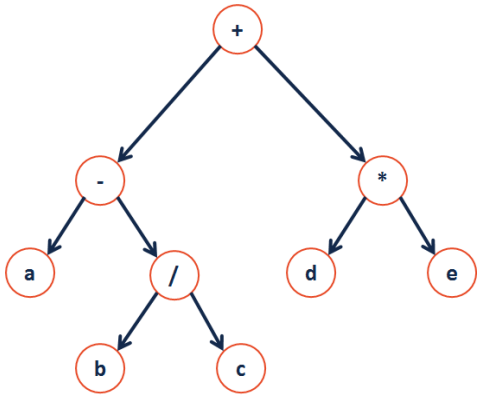
One Algorithm, Three Traversals:

BinaryTree.cpp

```
50  void BinaryTree<T>::___Order(TreeNode * cur) {
51    if (cur != nullptr) {
52
53
54
55
56
57    }
58  }
```

A Different Type of Traversal

Strategy:



BinaryTree.cpp

```
void BinaryTree<T>::levelOrder(TreeNode * croot) {




}
```

Traversal vs. Search:

Breadth First Search:

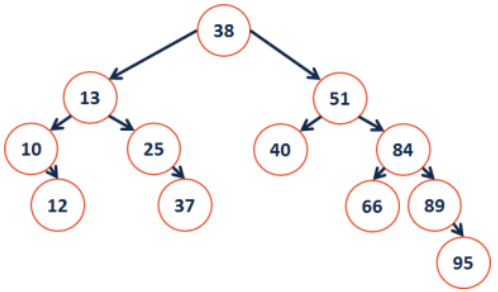
Depth First Search:

Dictionary ADT

Dictionary.h

```
#pragma once



class Dictionary {
  public:









  private:
    // ...
};
```

A Searchable Binary Tree?



BST.h

```
  private:
```

CS 225 – Things To Be Doing:

1. Theory Exam 2 starts next Thursday *(10 days from now)*
2. MP3 extra credit deadline tonight
3. Upcoming Lab: lab_trees
4. Daily POTDs