Binary Trees
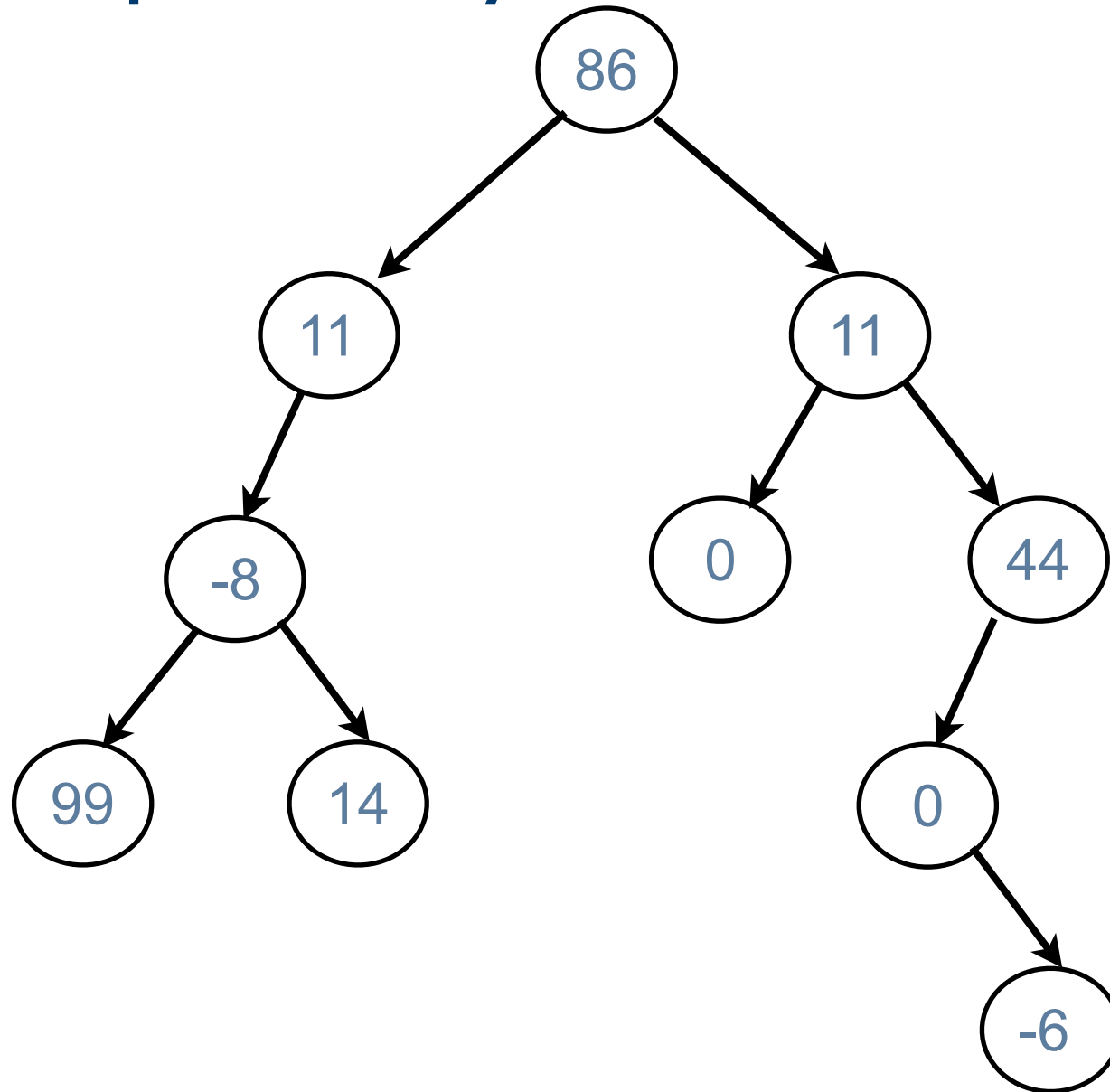
- Our general `Tree` class allowed unlimited numbers of children per node.
- Sometimes we impose a limit.
- A binary tree is a tree with branching factor 2.
- We call the children the left and right child.

Example binary tree

Tree traversal

- Tree traversal: visiting the nodes to do something at each.
- There are 3 standard orders in which to traverse:
  - in-order traversal: Visit a node *in between* visiting its two children.
    (Only really makes sense for binary trees.)
  - pre-order traversal: Visit a node *before* its children.
  - post-order traversal: Visit a node *after*.

Binary Search Trees

- A binary search tree is a binary tree with this additional property:
  For every node, its value is
  - greater than all values in its left subtree.
  - less than all values in its right subtree.
- It follows that any subtree of a BST is also a BST.

Example BST