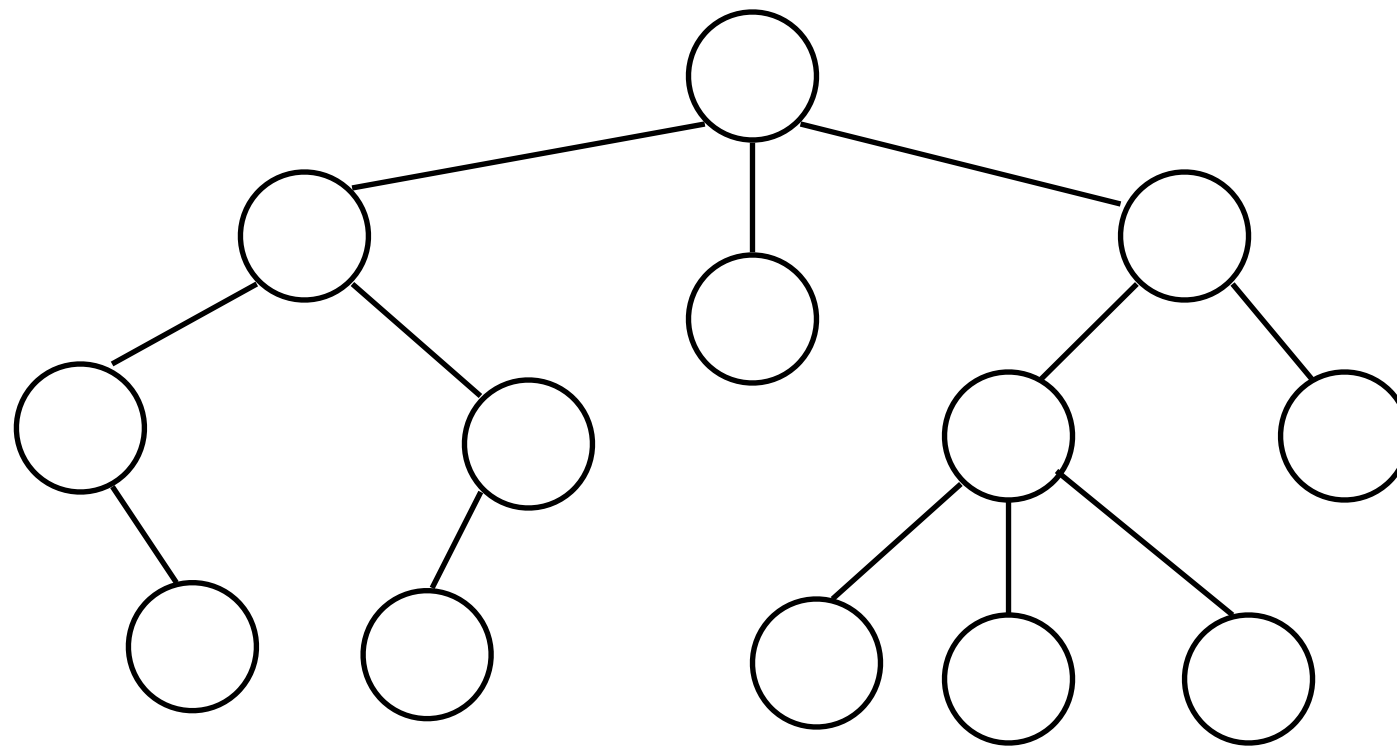


Pre-reading

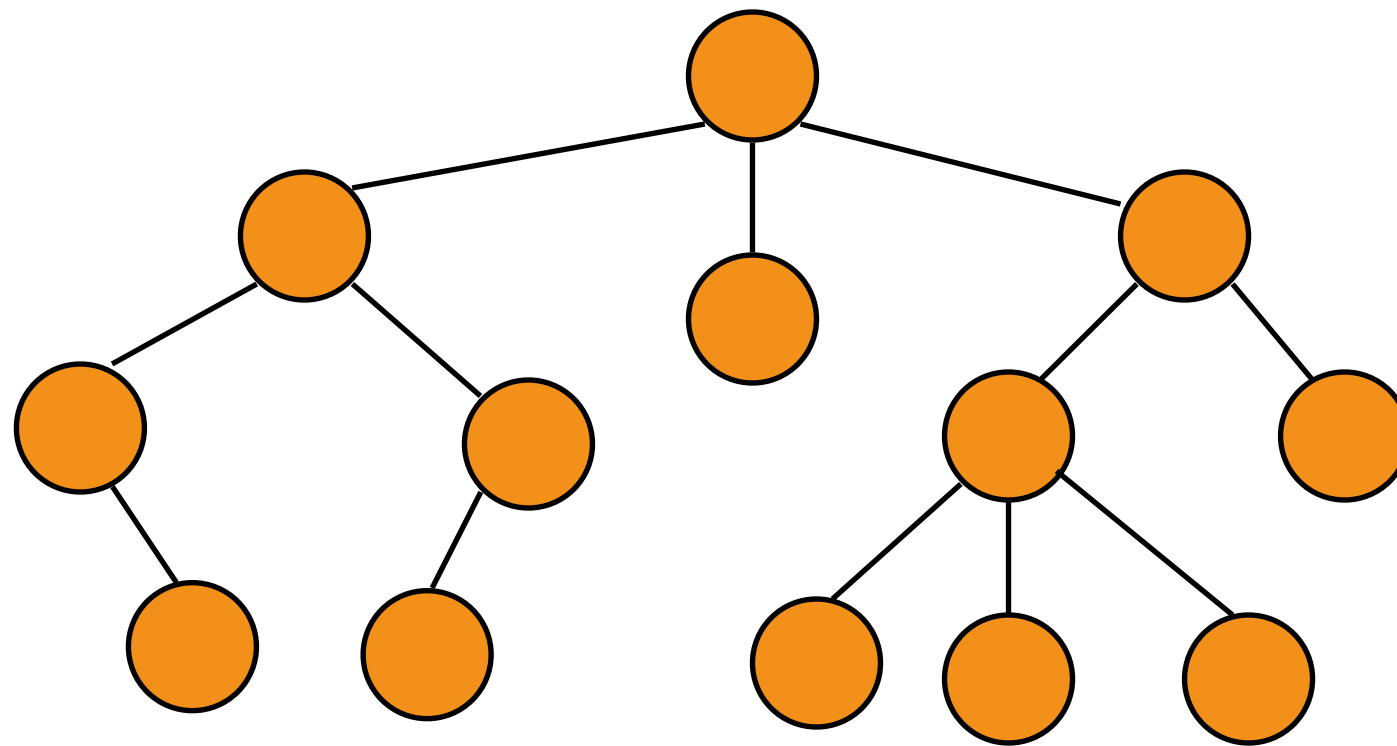
Lecture 30

Tree Terminology

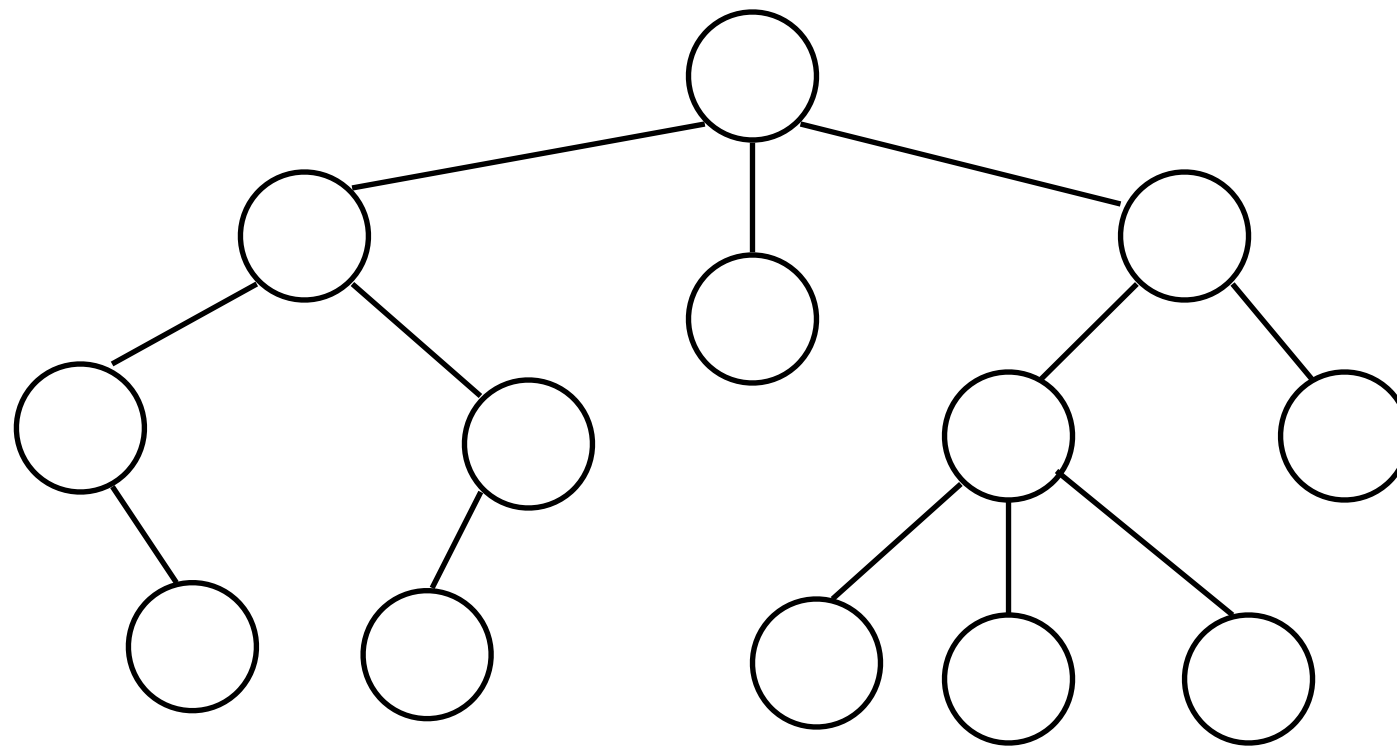


Tree Terminology

Nodes

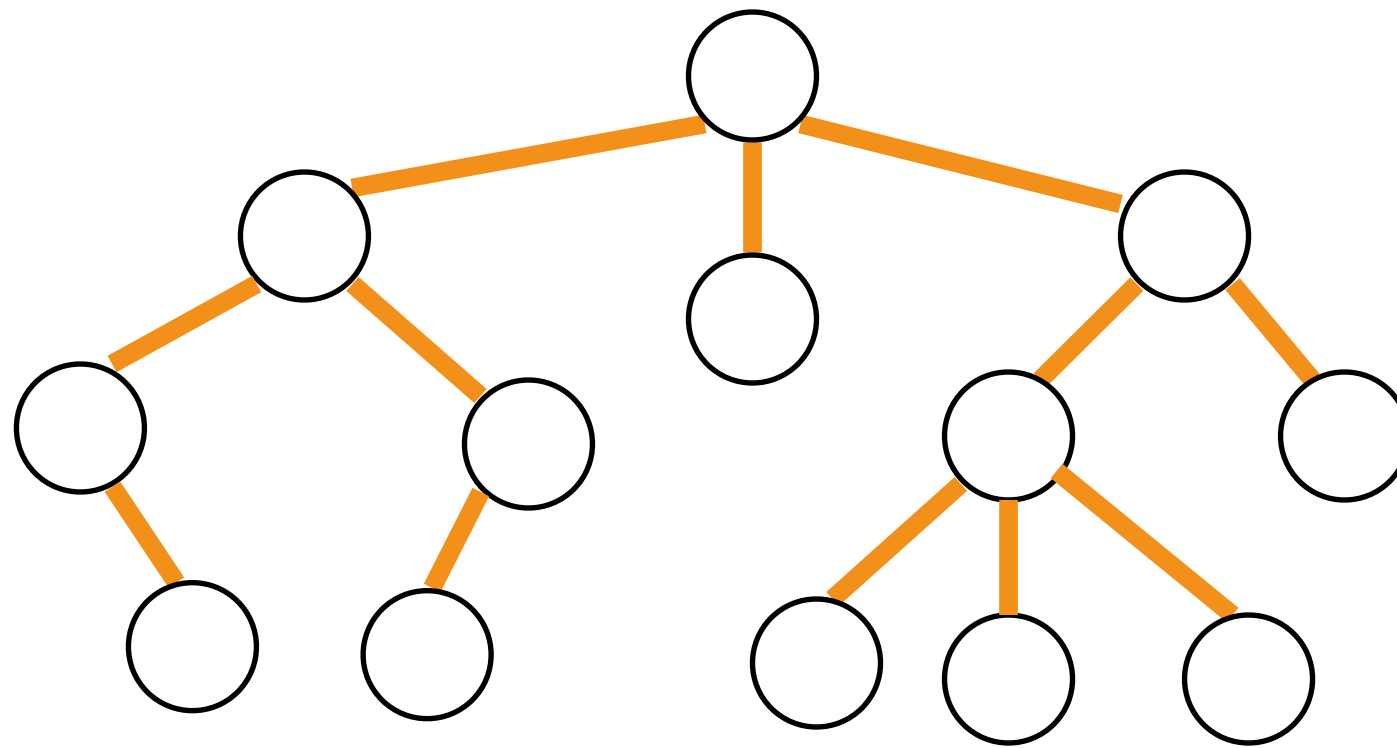


Tree Terminology



Tree Terminology

Edges

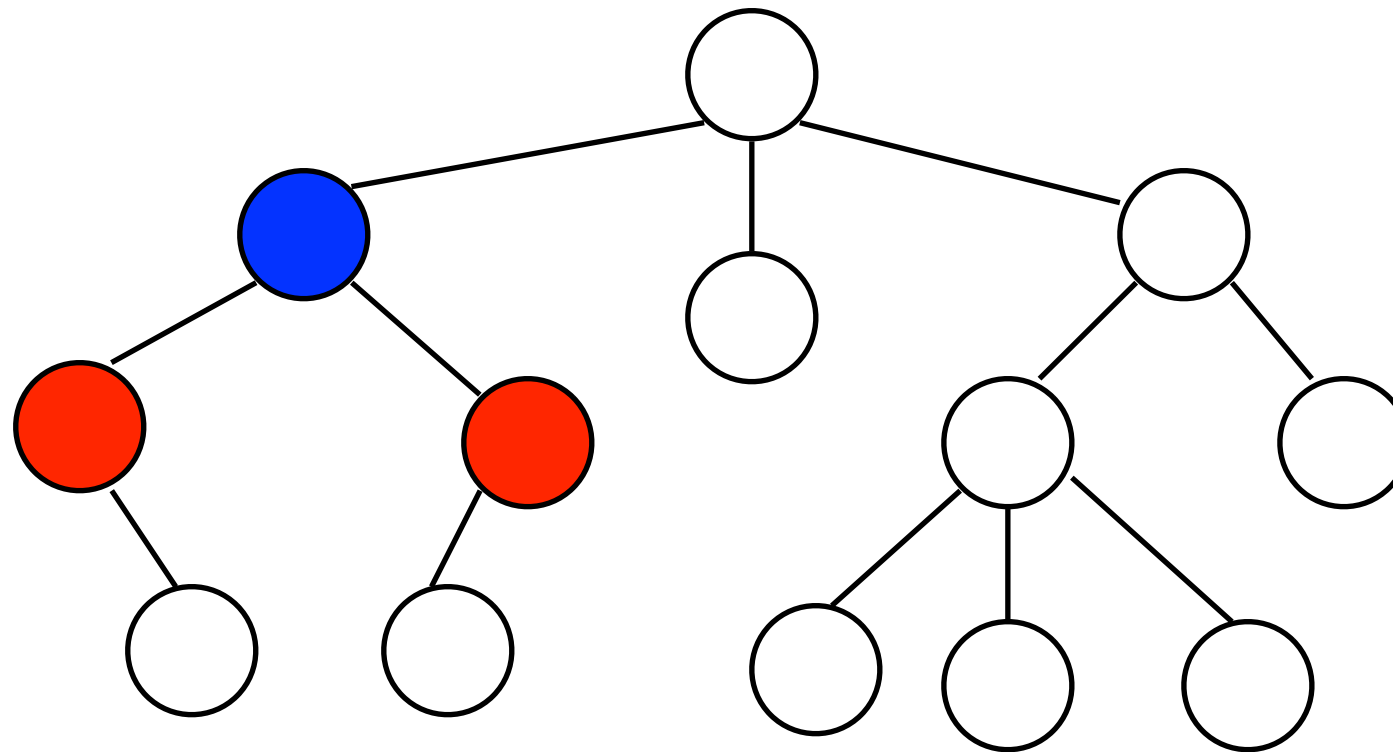


For **simplicity**: Draw undirected edges...
they are actually directed.

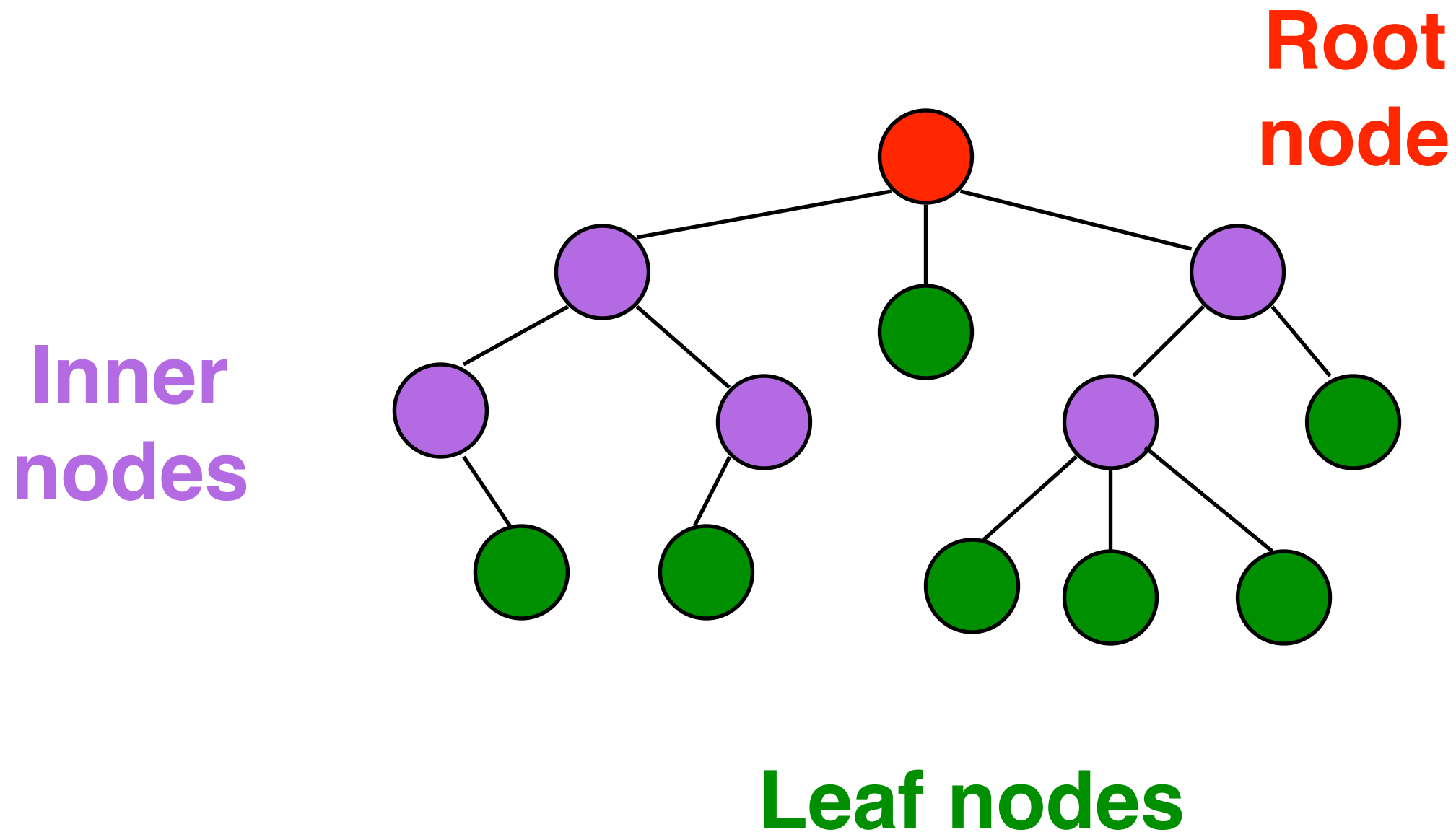
Tree Terminology

Parent

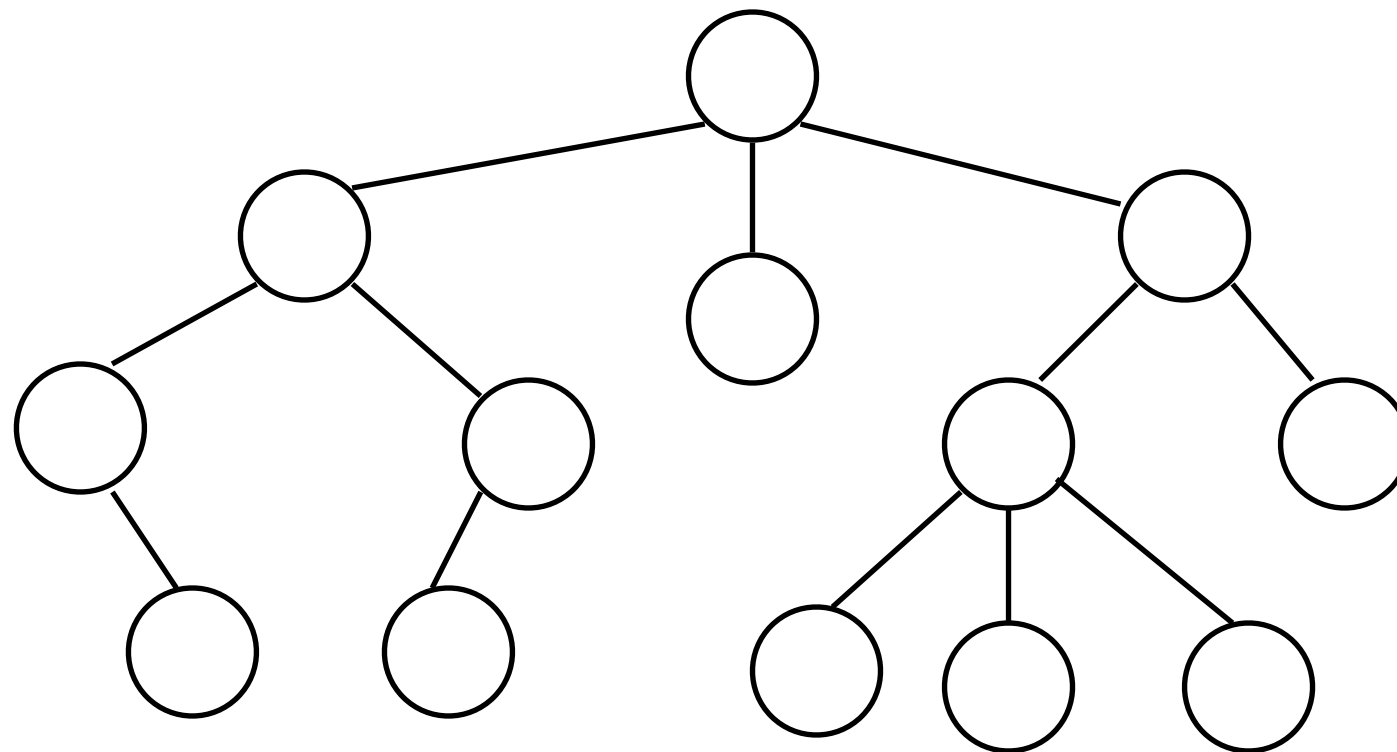
Children



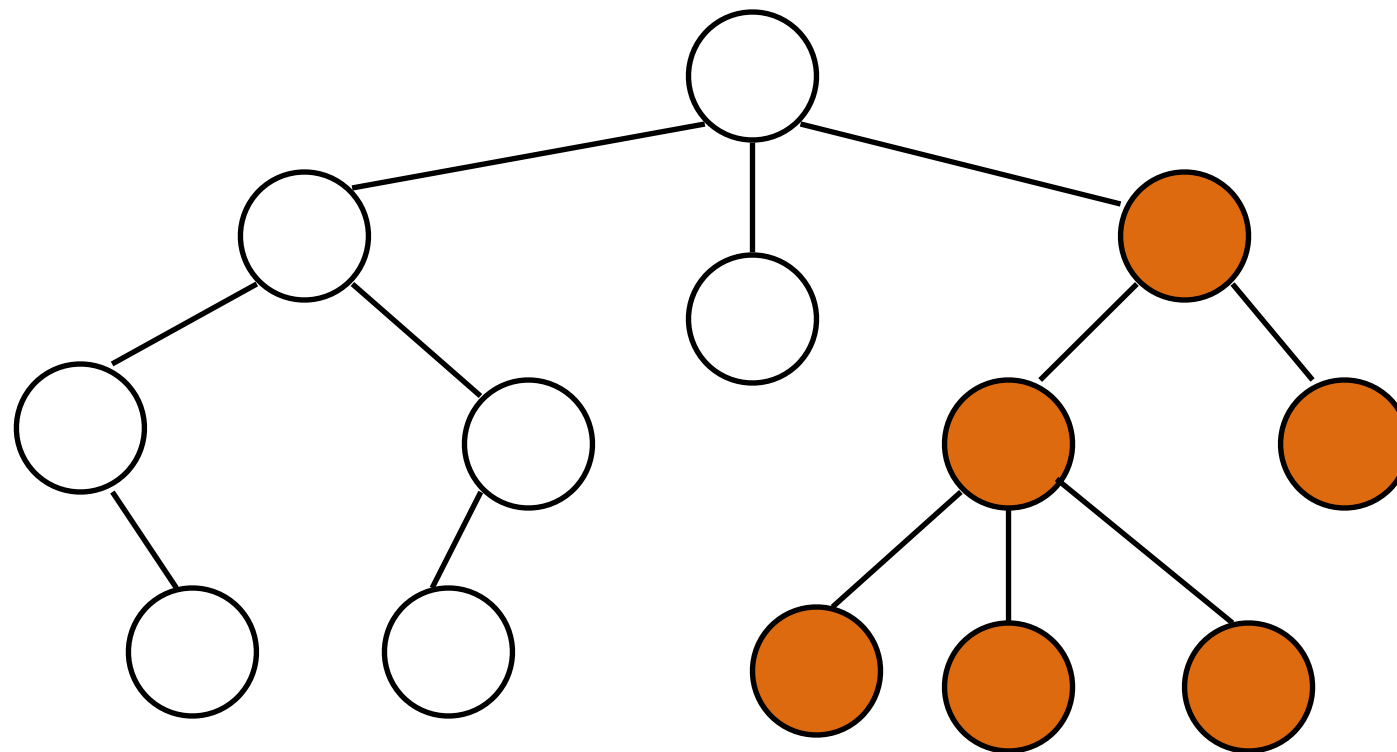
Tree Terminology



Tree Terminology

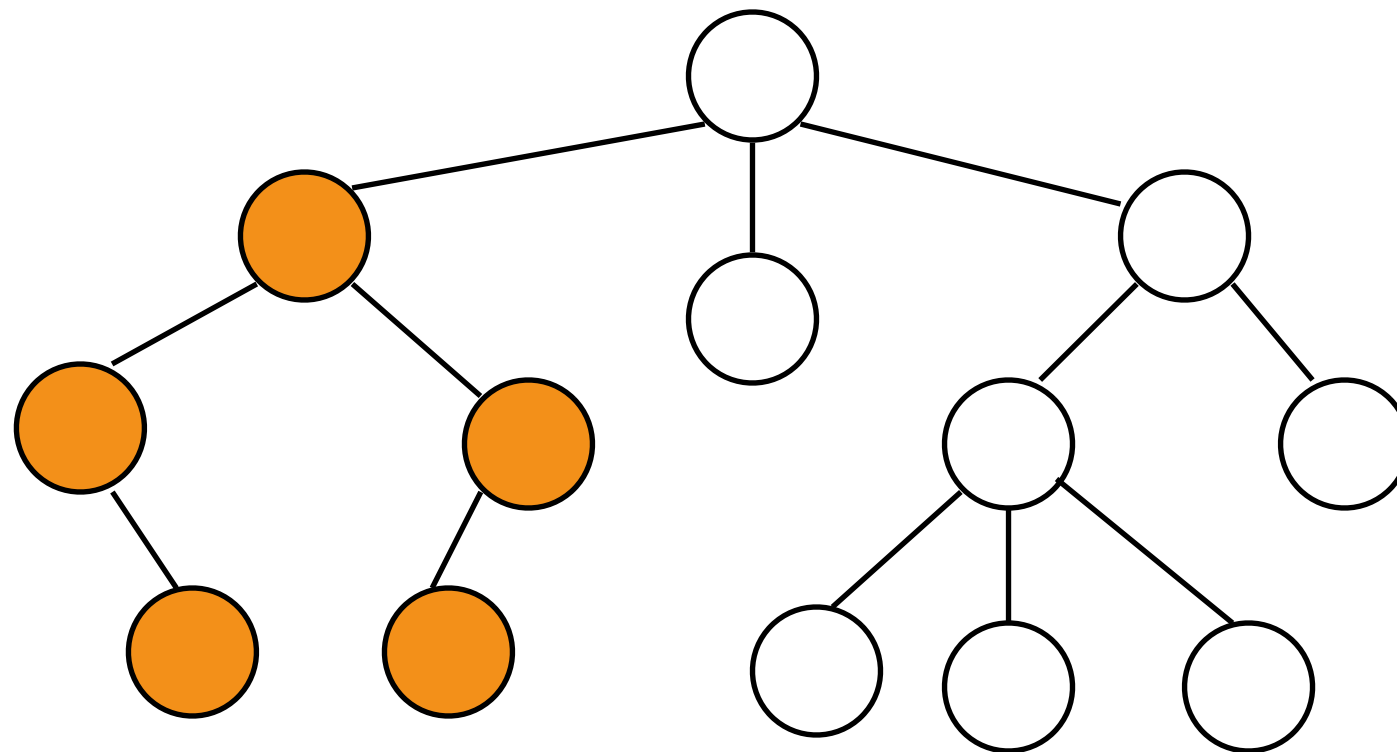


Tree Terminology



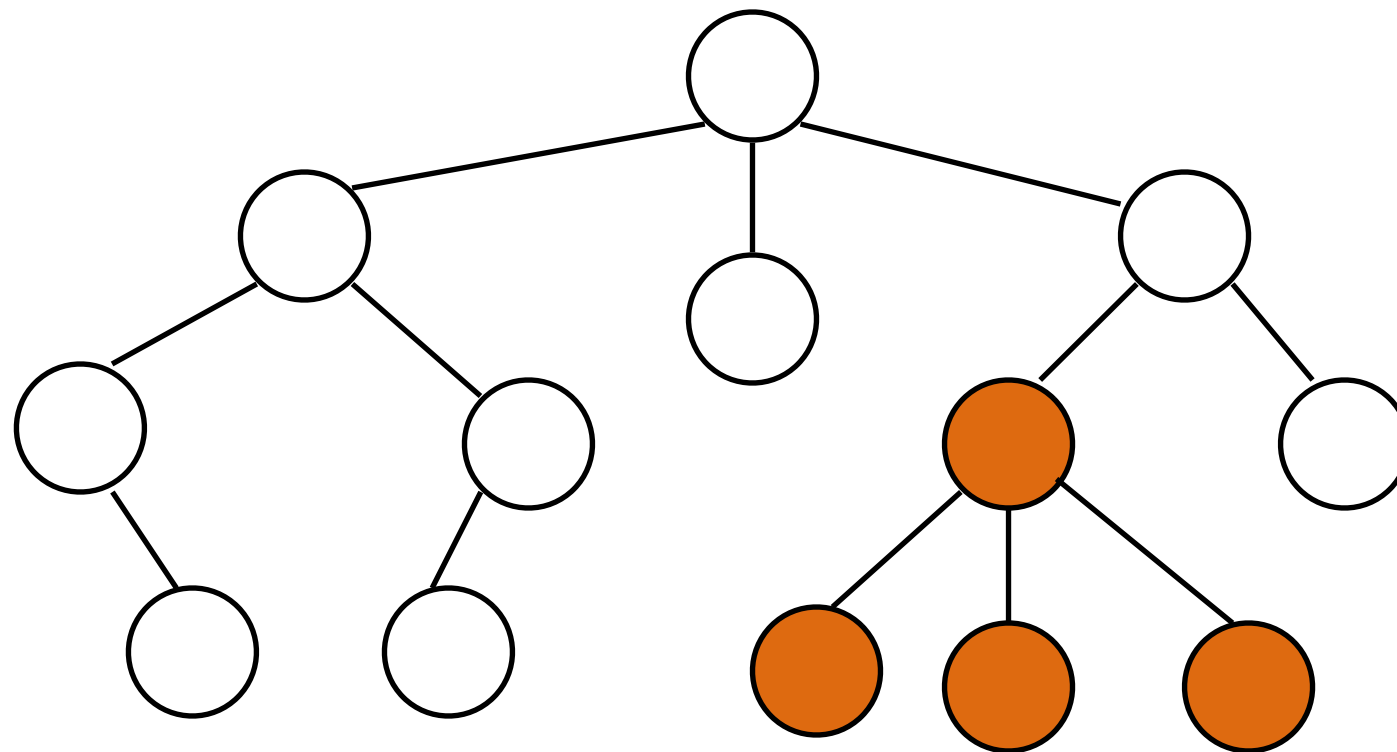
Subtree

Tree Terminology



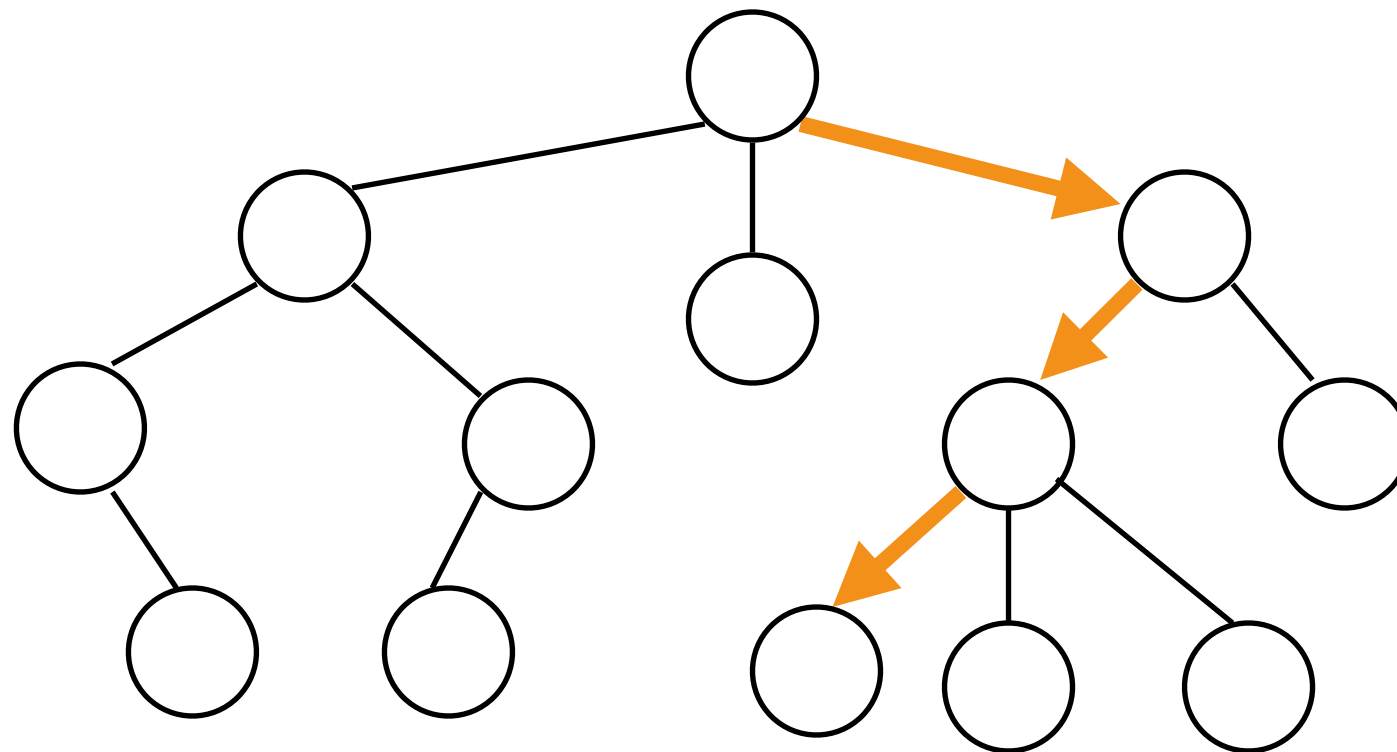
Subtree

Tree Terminology



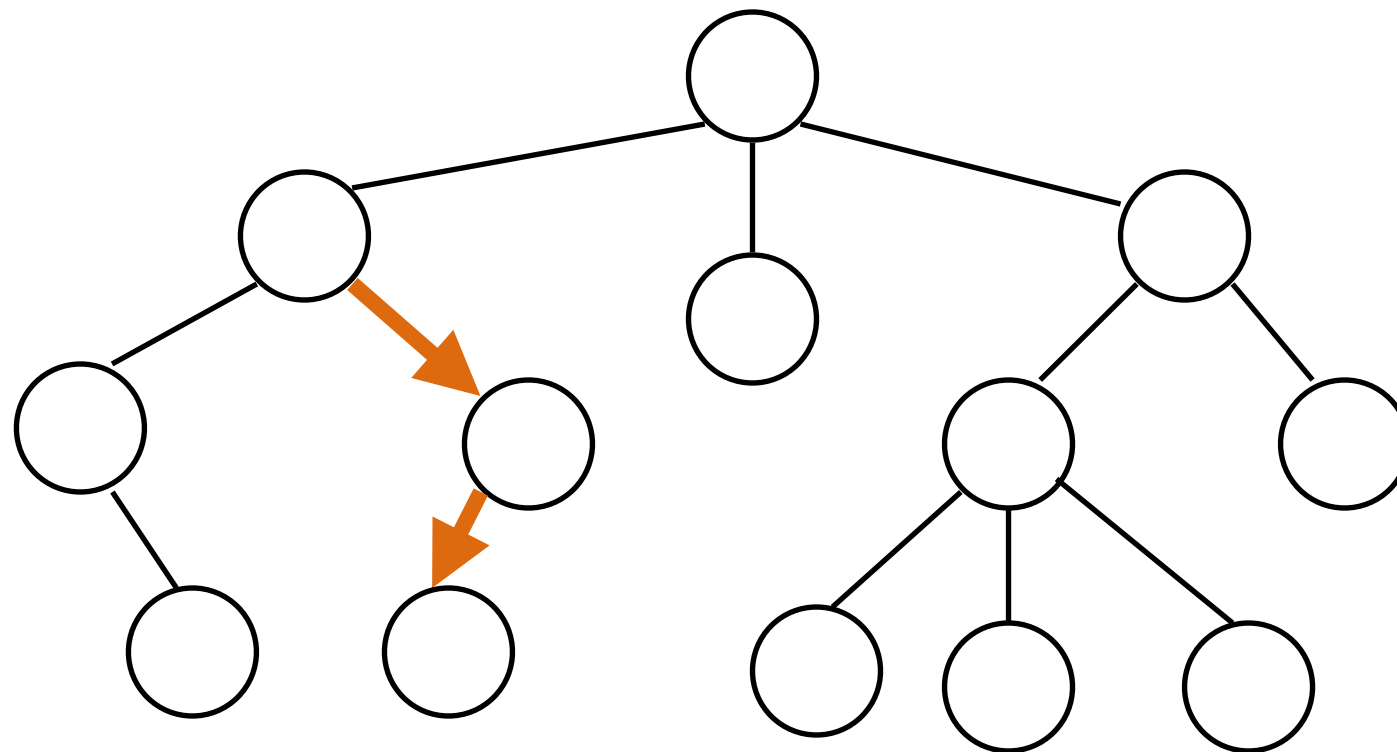
Subtree

Tree Terminology



Path of length 3

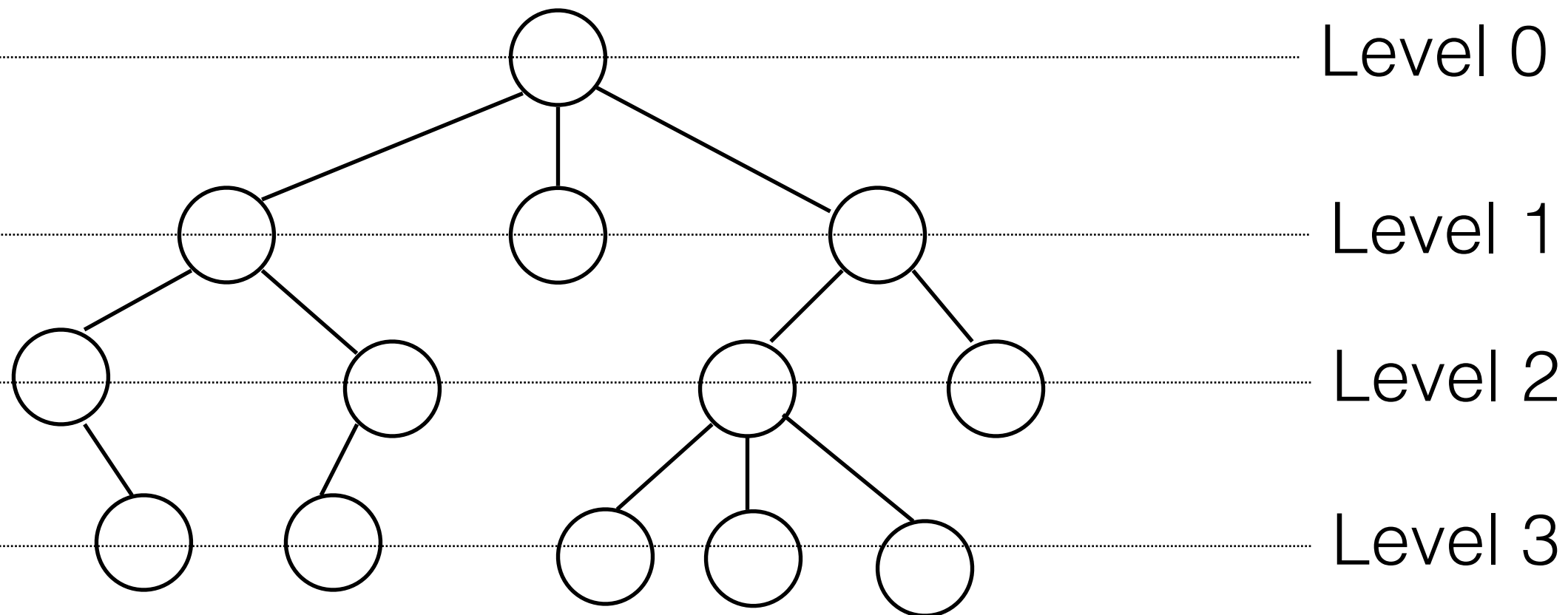
Tree Terminology



Path of length 2

Tree Terminology

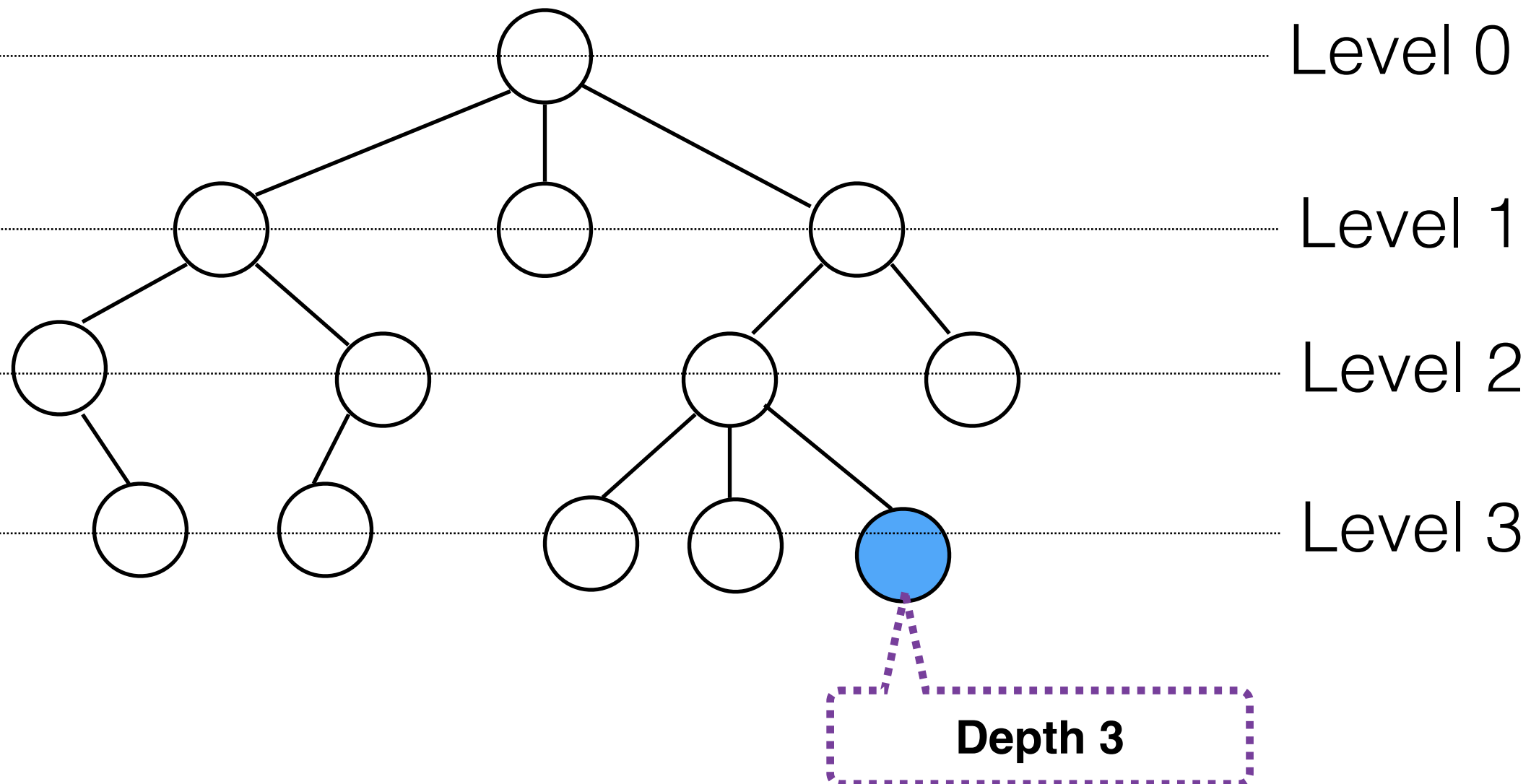
Levels



(determined by length of path from root node)

Tree Terminology

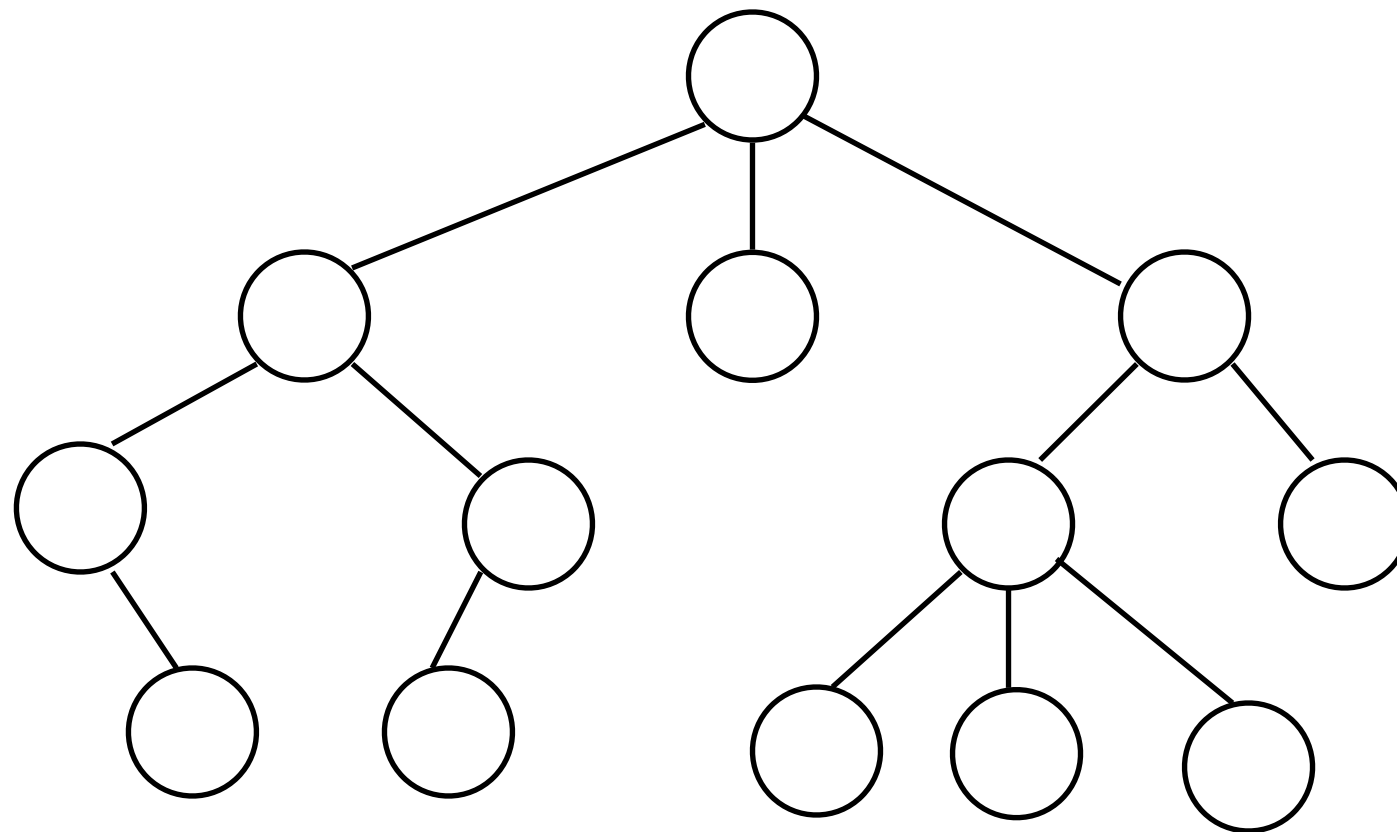
Depth of a node



Equal to its level.

Tree Terminology

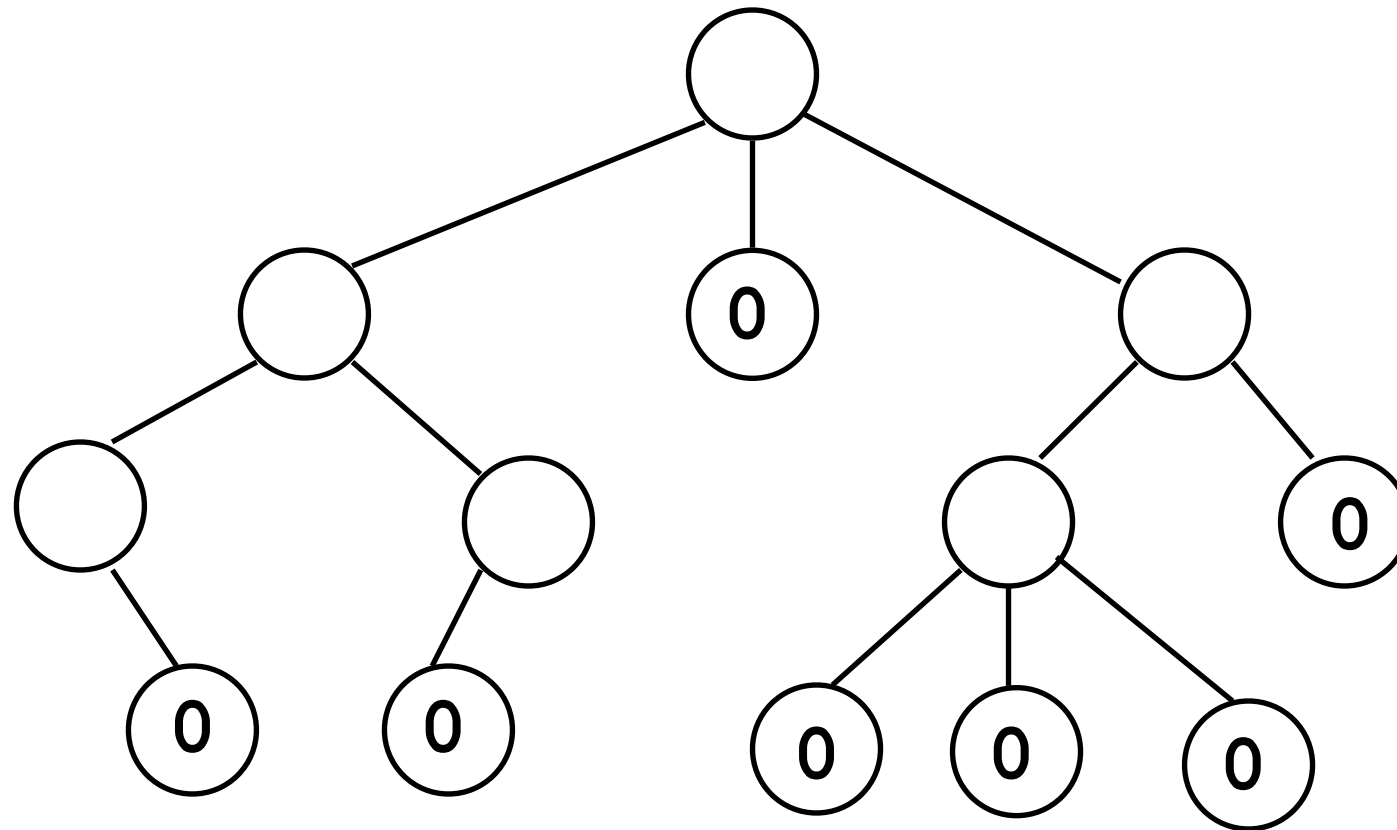
Depth/Height of a tree



Length of a path from the root to the deepest node.

Tree Terminology

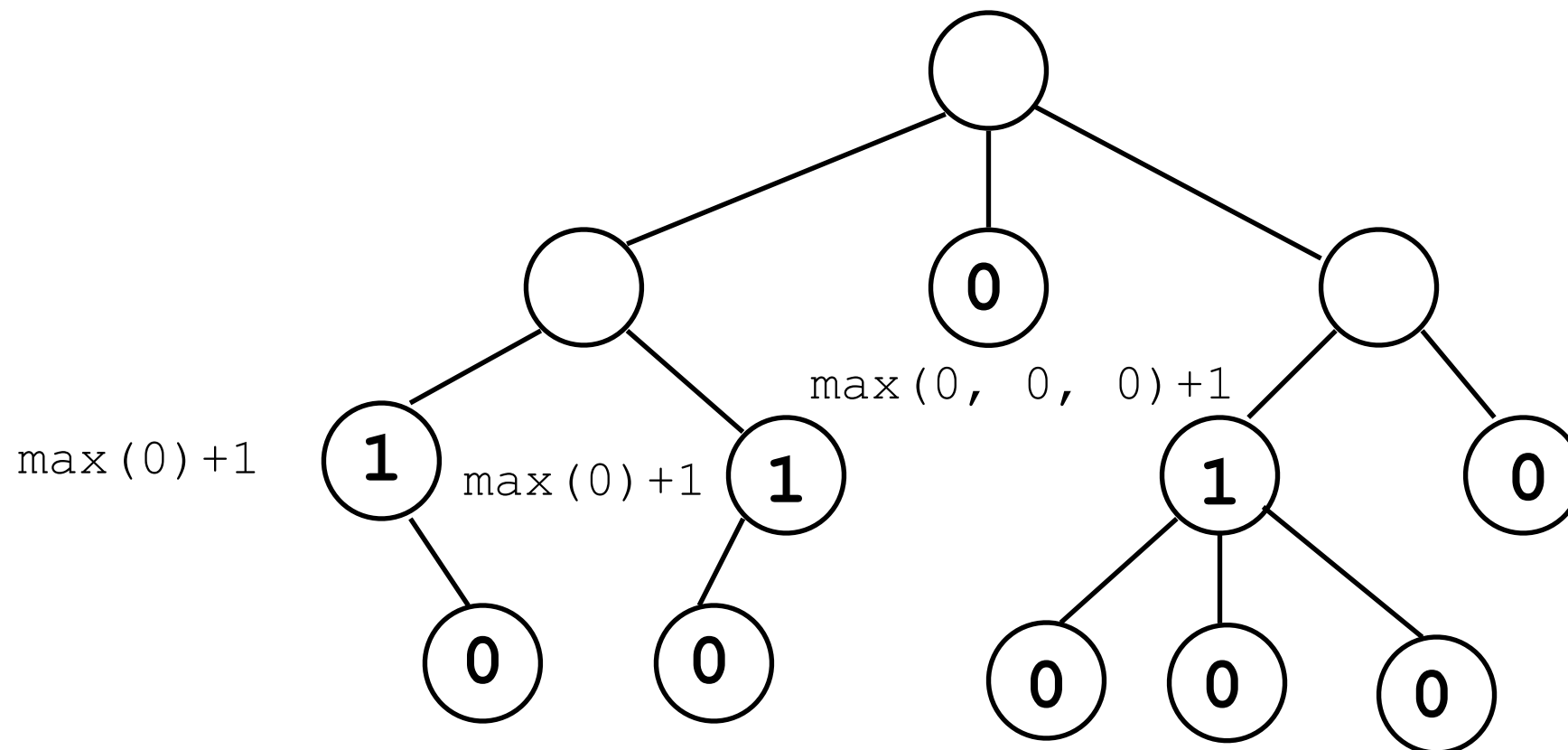
Depth/Height of a tree



Length of a path from the root to the deepest node.

Tree Terminology

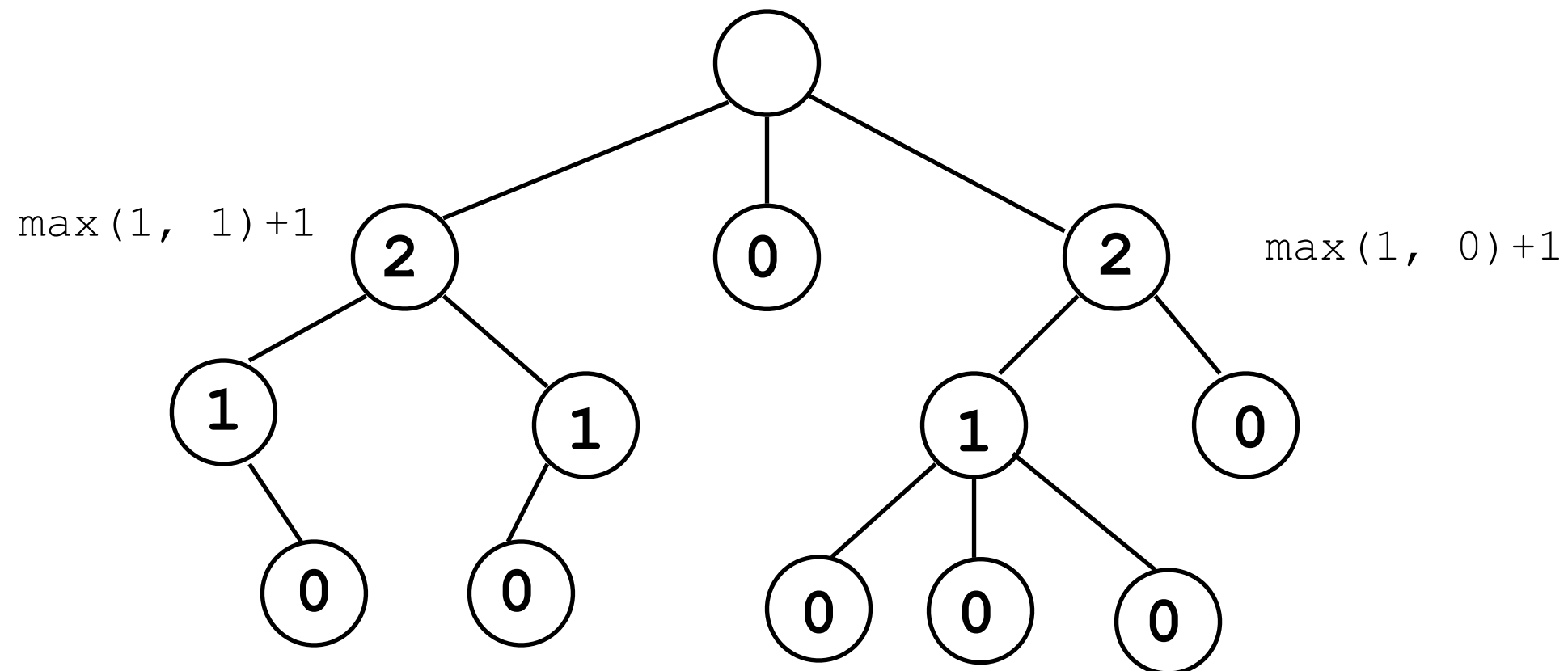
Depth/Height of a tree



Length of a path from the root to the deepest node.

Tree Terminology

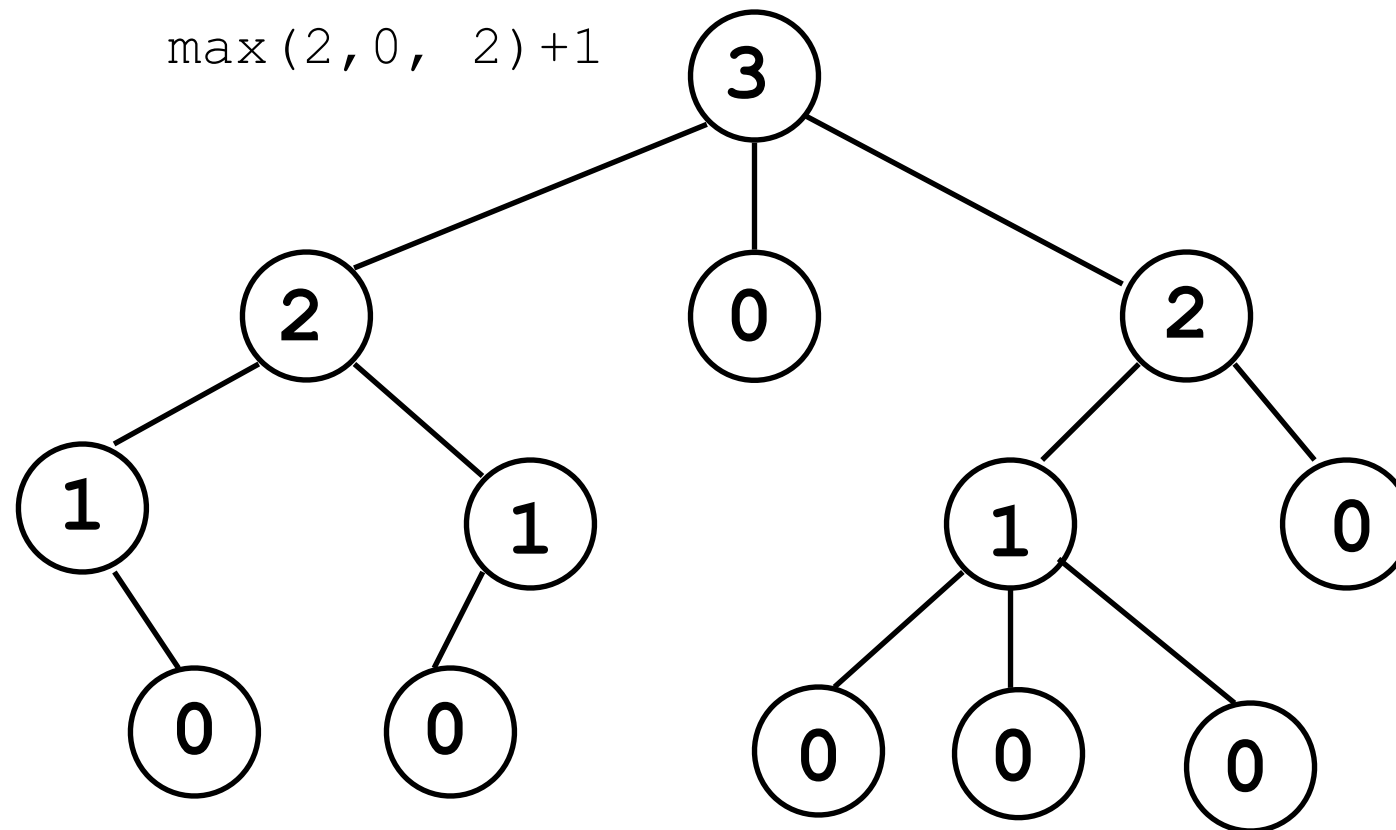
Depth/Height of a tree



Length of a path from the root to the deepest node.

Tree Terminology

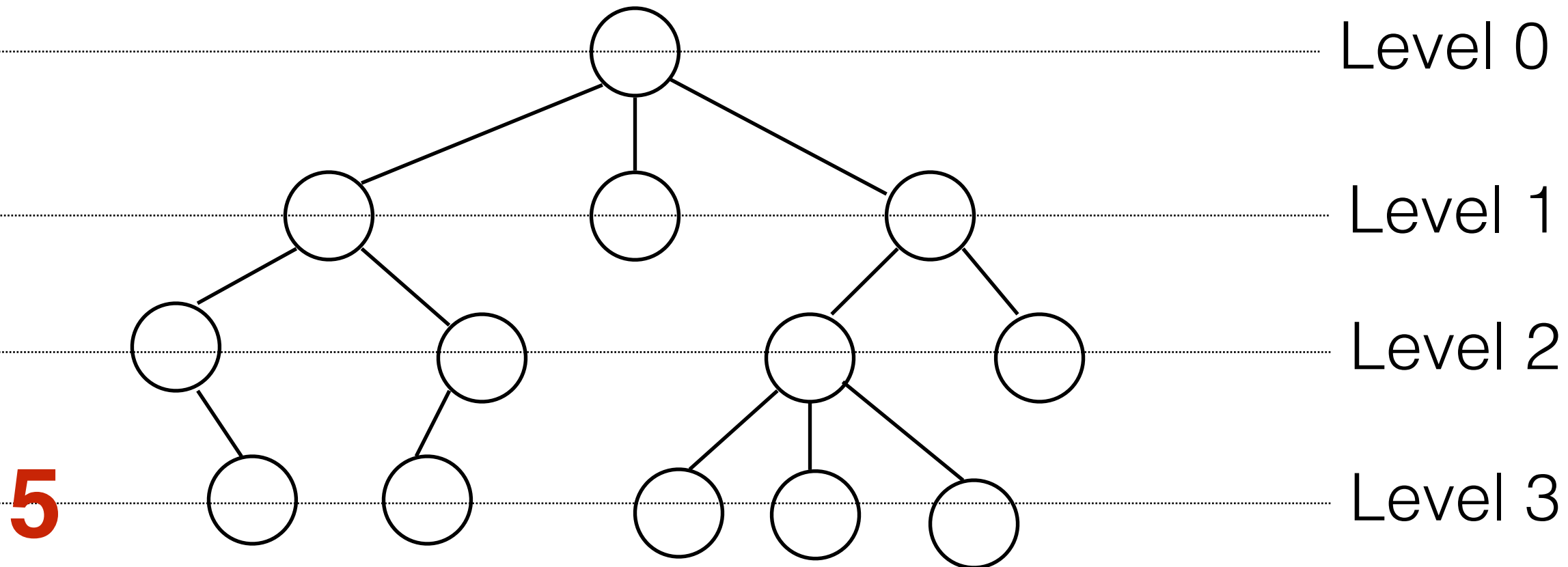
Depth/Height of a tree



Length of a path from the root to the deepest node.

Tree Terminology

Width of a tree



Number of nodes in the level with most nodes.

Summary of Tree Notation

- The node with no parent is the **root** (one per tree)
- A node with no child is a **leaf**
- Each node is either an **inner** node, or it is a root and/or leaf
- Every node that is not a leaf is a **parent** node
- Every node is the root node of its **subtree**
- Every node except the root is a **child**
- **Height/Depth** of a tree is also its **maximum level**
- **Width**: number of nodes in the level with the highest number of nodes