

# Mit 6.043 - Artificial Intelligence

Marco Filippone

November 22, 2020

## 1 Reasoning: goal trees and rule-based expert systems

**Semantic tree:** is a representation, that is a **semantic net** in which:

- certain links are called **branches**. Each branch connects two nodes; the head node is called the **parent node** and the tail node is called the *child node*
- One node has no parent; it is called the root node. Other nodes have exactly one parent
- Some nodes have no children, they are called *leaf nodes*. When two nodes are connected to each other by a chain of two or more branches, one is said to be the *ancestor*; the other is said to be the descendant

With constructors that:

- Connect a parent node to a child node with a branch link

With readers that: Produce a list of a given node's children  
Produce a given node's parent

A **goal tree** is a semantic tree in which: nodes represent goals and branches indicate how you can achieve goals by solving one: