



# Rooted Trees

## 1 Why

We want to talk about orienting the edges of a tree away from a given vertex.

## 2 Definition

A *rooted tree* is an ordered pair. The first object is a tree and the second object is a vertex of the tree. We call the distinguished vertex the *root*.

The pair corresponds to a directed graph obtained by orienting all the edges away from the root. There are as many choices of rooted trees as there are choices of root: namely, the number of vertices in the tree. Each choice leads to a different graph: the tree is, by definition, connected.