



# Trees

TODO: make this not jsut the edge set...

## 1 Why

Tree branches split and do not recombine. We formalize this property in the language of graphs.

## 2 Definition

A *tree* is a connected and acyclic undirected graph. A *forest* is an undirected graph if it does not contain any cycles.

### 2.1 Notation

Let  $T = (V, E)$  be a tree, a mnemonic for “tree.”

## 3 Properties

**Proposition 1.** *A unique path exists between any two vertices of a tree.*

*Proof.* The path exists because a tree is connected. The path is unique, since were it not, we could create a cycle by combining these paths.  $\square$





