



## TREES

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

### Why

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

### Definition

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

### Notation

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

### 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.  $\square$

