

### **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.  $\Box$ 

