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DIfference between tree and network #751

J Jue Wang
4 months ago in Lectures

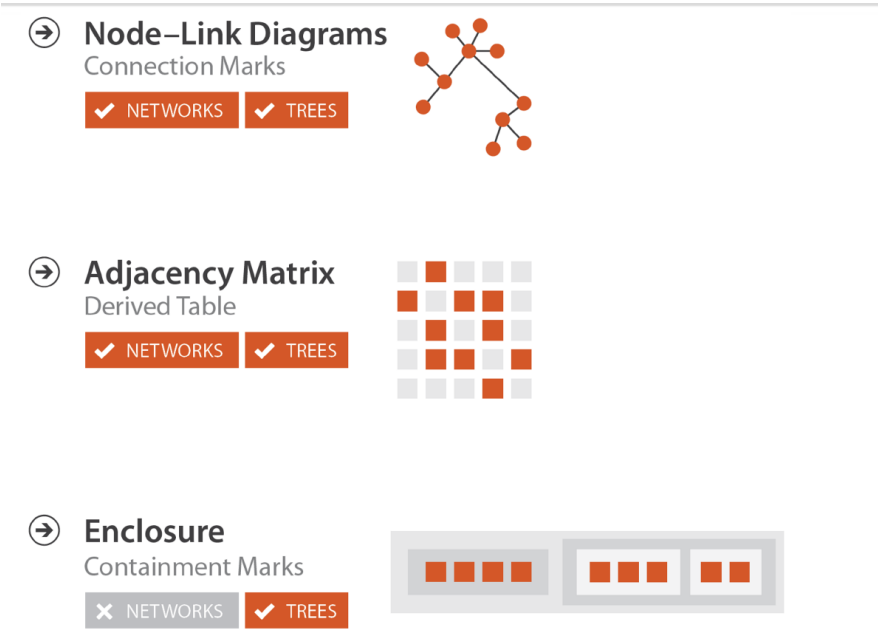
80 VIEWS

Hi all,

This is a week5 topic. What is the difference between a tree and a netwrok? This slide says this,

- Any question about the pre-recorded video lecture?
  1. Networks
     1. Node-link diagram
     2. Chord diagram, alluvial diagram, Sankey diagram
     3. Adjacency matrix
  2. Trees
     1. Dendrogram
     2. Adjacency matrix

However another slide says



So node-link digrams and adjaency matrix are netwrok and trees at the same time? How can we distinguish? Because based on my understanding, tree needs to have a root, but how does node link digrams or adjacency matrix has a root?

In addition what are chord, alluvial and sankey? Are they just network or netwroks and trees? Thanks in advance

1 Answer

K Kane Li STAFF
4 months ago

Hi Jue,

The slides might need to be updated a little bit.

Based on the textbook,

"Networks with a hierarchical structure are more specifically called trees. " -> so basically trees are just a special form of networks.

They are also called graphs in mathematics.

Node-link diagram: for trees, normally there is a layer: https://www.google.com/search?q=Node-link+diagram+tree&sxsrf=AOaemvKsRrOQxl-O6xLb7NZTYnudNL1ysw:1634373722956&source=lnms&tbm=isch&sa=X&ved=2ahUKEwj9ir_JxM7zAhX2zzgGHckTChsQ_AUoAXoECAEQAw&biw=1900&bih=924&dpr=1#imgrc=XVOa8SszJCHJsM

Adjacency matrix for tree:

either you use colour to show a children node belong to a parent node (or the other way around). Or you lose this information. But it can still show the connection below the node.

chord, alluvial and sankey: normally they are for a general network. It also depends on whether there is a hierarchical structure.

Cheers,

Kane