

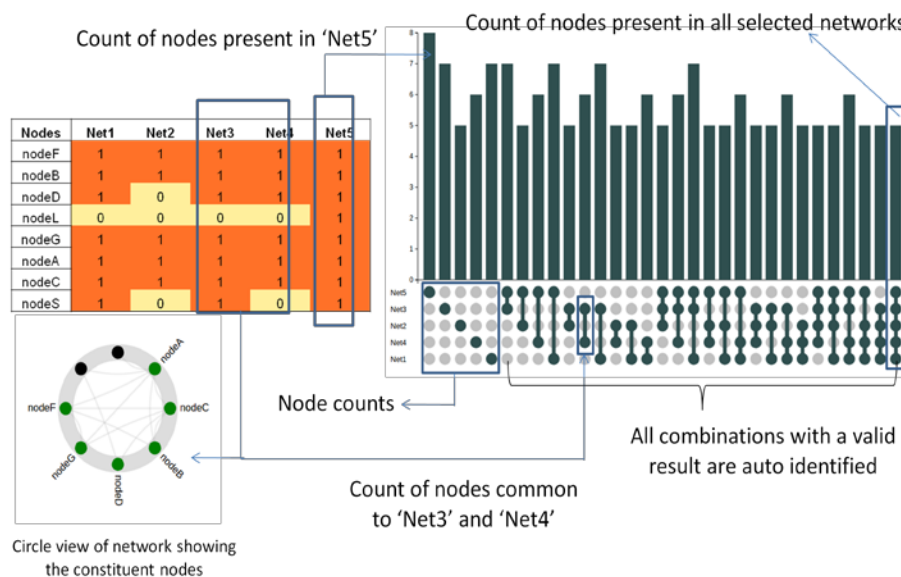
NetConfer Workflow 1

Assess Similarity of Network Components

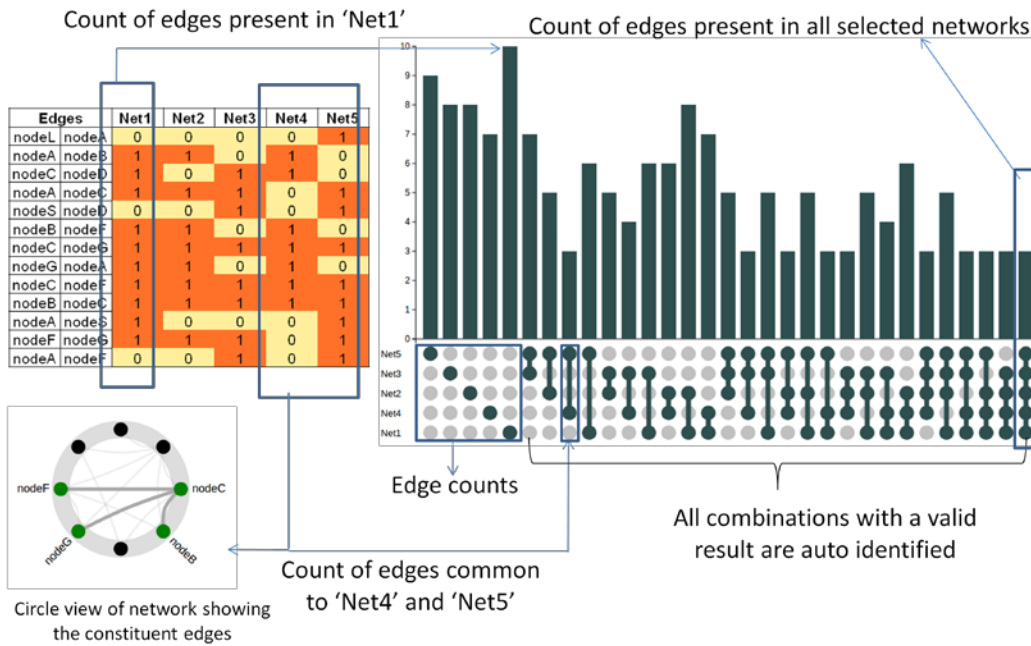
Objective: This workflow helps users compare the similarity of the node and edge composition of several networks simultaneously. The output of the workflow is an interactive visualization composed of an Upset Plot (with Circular Graph) and Venn diagrams.

Interpretation: The UpSet technique visualizes set intersections (in this case, common nodes or edges among different networks) in a matrix layout and introduces aggregates based on groupings and queries. The matrix layout enables the effective representation of associated data, such as the number of elements in the aggregates and intersections. Users have the choice of finding both the common nodes and the common edges between the selected networks. Clicking on a bar also shows the network components in a circular graph.

Interpretation of the UpSet plot (Nodes)

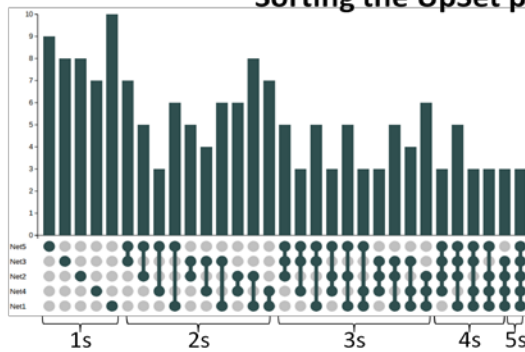


Interpretation of the UpSet plot (Edges)



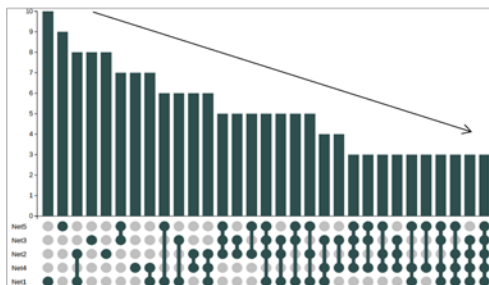
The bars in the UpSet plot can be sorted either based on the cardinality (ones, two's, three's, etc.) of the combinations or the set size of a combination set as shown below :

Sorting the UpSet plots



Combination Cardinality

Plot bars sorted by the size of the combinations

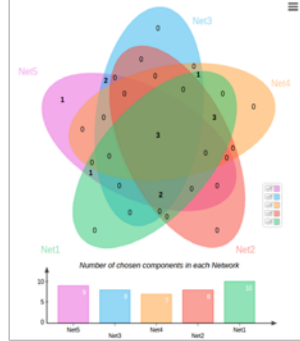
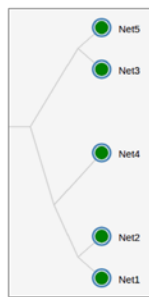


Set Cardinality

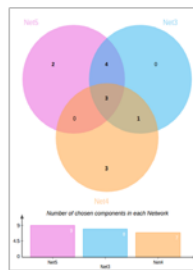
Plot bars sorted by the size of the sets

NetConfer also allows visualizing the network components (nodes/edges) using venn diagrams. However, venn diagrams are restricted to view upto six networks at a time.

Generating venn diagrams based on user selection



Venn diagram for all the networks selected



Venn diagram for 3 selected networks

Visualize network components using venn diagrams

Venn of Networks

Edges (Venn of Edges) ▾

This feature can be used to search for a venn element. For venn diagram of nodes the names can be nodeA, nodeB, etc. For venn-edges the search can be nodeC-nodeB, nodeC-nodeG, etc.

Option to view the venn diagram for nodes or edges

A bar plot showing the set sizes are also shown along with the venn diagram

Data Fetched!

Common in Net5 and Net3 :

- nodeA-nodeC
- nodeA-nodeF
- nodeD-nodeE
- nodeD-nodeF

Clicking on a number lists the elements

OK

Number of chosen components in each Network

Number of elements: specific (1) or shared by 2, 3, ... networks