Visualizing Differences due to Attributes

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Altering Node Appearance using attributes or measures

- The first tool is the Attribute/Measure Related Options dialog
- It is located in the Node Appearance menu, at the very bottom, under “Attribute/Measure related Options”
Attribute/Measure Related Options

- Step 1: Select an Operation
- Step 2: Select an Attribute or Measure
- Step 3: Adjust individual values
- Step 4: Apply Changes

Available Operations

- Color Nodes
- Scale Nodes
- Show/Hide Nodes
- Adjust Transparency
- Show/Hide Node Labels
- Scale Node Labels
An Example

- Operation: Scale Node(s)
- Measure: Centrality, Total Degree

Another Example

- Operation: Color Node(s)
- Attribute: Gender
Handling Attributes

- When we work with attributes, there are a few important things to keep in mind
- Nodes that don’t have attribute values can still be controlled using the “Lacks an Attribute value” option
- Attribute typing is important. If an attribute is all numbers, set it as such. It allows scaling nodes to scale proportionally to the attribute values, instead of requiring you to specify it manually.

Node Selector

- Under “Tools -> Node Selector” is a bit more selection-heavy way of visualizing node attributes
- It presents a matrix of nodes and attribute values, very similar to the main ORA matrix editor. You can use the same commands and filters to select specific subsets of nodes
- Across the bottom are a number of visualizer commands. You can do everything from hiding nodes, showing only specific nodes, changing colors, and hiding labels
Node Selector

Visualizer Tiles

- Visualizer Tiles provide a way for users to visualize multiple measures at the same time.

- It is located under the “View” menu.
- Selecting the option will prompt a name for a new tile. This is largely for bookkeeping and selection purposes.
- Once a name is selected, a mirror of the main Visualizer window is created. It reflects the location and visibility, stretched and shrunk to fit into whatever dimensions it has.
These tiles are fully dockable, so let's rearrange the interface a little.
Visualizer Tiles

Now, whenever we resize or recolor nodes, an option will pop up, asking us what window we want to apply it to.

On one tile, I colored by Gender. The other, Colored by Newman.
Visualizer Tiles

- There’s no limit to how many tiles you can create!
- As you remove them, they’ll no longer be an option for performing operations on, and all their info will slowly be lost to garbage collection

Multi-Dimensional Layout

- The multi-dimensional layout is a tool that allows for placing nodes in 1-3 dimensions, with a different attribute or measure controlling each axis
- In the 2D Visualizer, only two axes are available, for mostly obvious reasons
- The number of axes are optional, as is the scaling method and whether or not value tick marks are rendered
- It is located under "Layouts -> Multi-Dimensional Layout"
1 Axis (Horizontal vs Vertical)

- The X-Axis always grows from left to right
- The Y-Axis grows from the bottom to the top
- This picks show the same measure being run on the same data in the two different styles

Yes, technically you could just rotate the visualization 90 degrees

2-Axes (normalized)
X-Axis : Longitude (-160,-60)
Y-Axis: Centrality, Betweenness (0,0.0822]

- The normalization option forces the graph into a square. It's useful when the x and y axis are operating on two completely different scales
- The left graph is normalized. The one on the right isn't. The drastic disparity in scales renders the Centrality, Betweenness aspect as near-equal.

Tick Marks