The Visual Display of Quantitative Information

Puzzles and Hierarchy in Graphics

With this visualization, Edward Tufte talks about puzzle graphics. He shows an example of a visualization for the death rate in the United States. The visualization is made by crossing two four-color grids, which causes 16 shades to be spread across the map. He emphasizes the fact that viewers must run phrases through their minds in order to make sense out of the visual montage. In contrast, in a non-puzzle graphic viewers can translate from visual to verbal more quickly.

I thought it was interesting how Tufte talked about how the mind doesn’t give a visual ordering to colors, except maybe for red to reflect higher levels than other colors. Applying this back to the death rate visualization, it isn’t clear without reading the legend that yellow has a lower death rate than purple. When attempting to give colors an order, designers tend to create puzzle graphics with complicated verbal decoders.

I liked how Tufte mentioned using different shades of a particular color, instead of using different colors. In the example provided, he used ten different shades of gray for a galaxies map. Using this technique creates a non-puzzle graphic that is much clearer and provides a more clear-cut way to organize and order the data.

I wish Tufte would’ve talked a little bit more about certain colors, such as yellow and black that have associations. For example, yellow is a bright color so is sometimes associated with something happy and cheerful. Black is a dark color so it can be associated with something dark and gloomy. It would’ve been interesting to read Tufte’s opinion on using these colors in visualizations. In my opinion regardless of this implied association with certain colors, it seems that the same effects can be shown with shades. With gray, a lighter shade can be used for something happier, while darker would be used for something gloomier.

I think it would’ve been interesting to see how Tufte would fix the death rate United States map. I would’ve liked to see a visualization using different shades of a color. He could’ve then compared it to the original visualization and given a concrete example of how using shades makes the visualization easier to understand than crossing two four-color grids.
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Dance and Castanets

In this visualization, Tufte shows the dance steps for the ballerina Fanny Elssler. He states that it is a “grid-prison of heavy lines,” which he says clutters the information flow. The music notes are the same color as the lines and the grid. He says that nearly transparent lines can be used to make it look less cluttered.

I like how Tufte “fixed” the visualization he believed was flawed. As mentioned in the critique above, I think that comparing the visualization Tufte is criticizing makes for a better argument when he provides a clearer visualization for the same information.

Tufte also mentions that the grids can be removed, causing a better depiction of continuous movement. He doesn’t actually show a visualization for how the grids can be removed. I wonder why the first person to visualize this used a grid because music notes aren’t written on a grid. I think Tufte should’ve given more background on the origin of the original visualization and what some of its motivations were. It makes sense that removing the grid would’ve made the dance seem more continuous, but maybe there is a reason the grids are there, that makes more sense than making the visualization seem continuous.

I like how Tufte showed how stick figures could be used to represent the dance moves. Using stick figures definitely makes the visualization less crowded. However, Tufte only showed examples for the “easy to understand” dance moves. I would’ve liked to see one of the more complicated stick figures explained, such as the ones in row 1, column 7. I wish he would’ve talked a little bit more about how some dance moves the arms can be cut off, while others the arms are still attached to the pictures. How are the dancers supposed to know what to do with their arms, when they are cut off from the stick figures?

The visualization shown was made more than a hundred years ago. I would’ve liked to know if there is a more recent way of visualization dance steps with music. It would’ve been interesting to see how much it has changed and if it has some of the same flaws as the one Tufte shows.
Envisioning Information

Mesh Maps

In this visualization viewers can see the population density for Tokyo. It’s interesting to see the smaller concentrations dotting tracks radiating from the city since people live around rail lines and station stops. There is also a visualization for the proportion of children living at each location.

As mentioned above with another visualization, to me this seems like a puzzle graphic. For both visualizations there is no legend and different colors are used. I assume that the dark red represents very dense areas, but I don’t understand the difference between yellow and green. And does white mean that nobody lives there? Red, yellow and green make me think of a stoplight, but I don’t see how “stop/slow/go” can be used to mimic population density. In the visualization for the proportion of children living at each location, orange, green and yellow are the predominant colors. I don’t understand why orange was substituted for red. It seems like the designers would want to have consistency with their visualizations.

I didn’t really understand what Tufte meant by “colored-in areas are proportional to (often nearly empty) land areas instead of activities depicted, with large unpopulated areas often receiving greatest visual emphasis.” Is he referring to the white as being the unpopulated area receiving greatest visual emphasis? In my opinion the orange and the green stand out more, so is it actually the other way around: white is more populated areas?

I would’ve liked to read more about mesh maps and how they can be used in other visualizations. From the text a mesh map seems to be a map that is divided into counties, but I’m not completely sure from the text if this is what it is.

I think it would’ve been really interesting to have Tufte talk about what interesting findings were made from these visualizations. I really liked his observation about people living along the rail lines, and I wish he had given more. I don’t know that much about Japanese geography, but he could’ve talked about some other big cities in Japan and how there is a large concentration of people living there too, and related that to the visualizations.