PAPER 1

Hadley Wickham initally talks about the paper written by Gelman and Ulwin and shows that infographics and infovis are different. He also talks about the confusion created by them between design and decoration and that design is more important than decoration. Then the author talks about some history of graphics saying that amazing graphics were made even before computers were introduced and that computers don't limit our ability to create useful graphics. He gives few historical examples from late 19th century depicting the same. He appreciates the 5 recommendations for good visualization introduced at International Institute of Statistics in 1901. Fifth recommendation suggests to use red and blue as contrast for information depicting which makes him think about how prescient people were those days to recognize red-green color blindness by then. Tracking down those recommendations led him to some information like Historical Development of the Graphical Representation of Statistical Data by Funkhouser provided reference to the original guidelines: "Proposals to bring Uniformity to the preparation of charts" in the Bulletin of International Statistical Institute. Further digging into it he found issues of the Bulletin from the website of National Library of France. He talks about Munsell who developed theories of color. He also gives reference to ebook on color notation written by Munsell. He talks about the critiques of the 3D graph as well. The author wonders if drawing 3D bar charts is complex, what is it that makes us prefer 3D visualization. He doesn't further comment on this topic. He gives reference to a book by Spear which says that if message is clearly expressed by means of words why do we need charts. He ends the paper with few unanswered questions like why do people favor complex charts over simple ones and why do we need visual representation over textual one.

Though the author has done some good research on graphics and given some insights on it, I feel he could have linked the content in a better way. I found some things random like the 6th paragraph he talks about Munsell color theory, I couldn't link it with the previous content easily. The flow could have been better.

PAPER 2

Authors talk about Graphical Perception that is decoding of information that is encoded into graphs.

He talks about the theory behind it and also the experimentation to test that theory. Theoretical approach involves elementary perceptual tasks like length, direction, angel, area etc. that extracts information from graphs. Some graphs he discussed here are bar charts, pie charts, divided pie charts etc. He also talks about statistical maps with shading where the elementary task used to extract the data is how dense are the squares formed by the shading. For the cartesian graphs the elementary task is to determine the direction i.e the relationship between x and y coordinates. The second step of theoretical approach is ordering the elementary perceptual tasks by the accuracy of extraction to increase chance of correct perception. Combination of Psychophysical theory and experimental results helps determine accuracy of some perceptual tasks like length, area and volume. Length judgments are postulated to be more precise than area judgments which are suggested to be more accurate than volume judgments. This is hypothesized based on the power law of psychophysics. Author talks about the experimentation in order to test the postulated theory. One experiment was position-length experiment where in 55 people were asked to judge few grouped and divided bar graphs. Another experiment was position-angle experiment where in 54 people were asked to judge pie and bar charts. For the position-length experiment the rate of errors in length judgments was almost 5 times that of position judgements and for the position-angle experiment the rate of errors in angle judgments was almost 7 times that of position judgements. Based on this experiments some graphical forms are preferred over others. For example divided bar charts and pie charts are replaced with dot charts and bar charts. Grouped dot charts and grouped bar charts are replacements for divided bar charts. Framed rectangle charts are easier to judge than statistical maps with shading since shading comes lower in ordering of elementary perceptual tasks. For framed rectangles elementary task is judging length which is more accurate.

In this way author talks about the theory of graphical forms and which elementary perceptual tasks are more accurate than others that leads us to use certain graphs in order to increase accuracy. The theory written is backed up by the experiments conducted on some people by letting them judge some graphs without any labels and tick marks so that the results are not based on mental calculations but only on perception. The author has taken a good effort in recommending graphical forms for their accuracy by conducting experiments and utilizing some concepts from psychophysical theory.