

The one I believe to be ineffective/ misleading.

Paper: What Makes a Visualization Memorable?

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This is the paper which is more of an experiment conducted to analyze the kind of data visualization which can be remembered more effectively by a human brain. The paper deals with this unique quality of the data memorization based on which they have decided wheater the data representation is effective or not.

First of all, according to me, this is a beautiful paper summarizing and identifying the kinds of the graph and it's associated parameter which could stand out among other kinds of representation. But, sometimes it could be misleading to judge a graph on these parameters.

How do you make a graph more engaging? Maybe include a chart junk so that user will involve more than enough time to analyze and possibly remember the graph for a long time. But this paper doesn't use these criteria as more memorable. Instead, they devised a social experiment by collecting a lot of graphs from websites (including government sites, new media, and scientific publications) and show them all to the users and analyze how they interacted with different kinds of data, and the impact of different kinds of data on their ability to keep in memory.

Their hypothesis is that the visualization is more memorable if it includes pictures, cartoons or recognizable images; if it has more color; if it has more data-ink ratio; if it has more visual density; or if it has familiar visualization types. They confirmed these hypotheses with their experiments.

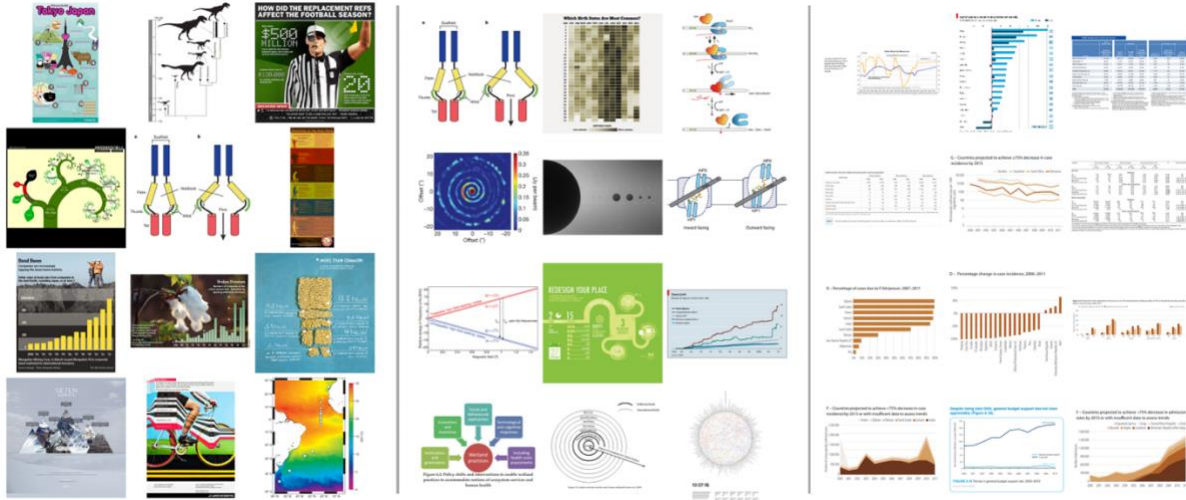


Figure dissipates the most remembered visualization to least remembered (from left to right)

In my view, these shouldn't be the only criteria for deciding the quality of the visualization. Even, in fact, these conditions can be used to mislead the visualization. Suppose, take for example color, humans can actually process and distinguish only 19 colors. This paper suggests that more color in visualization is effective. But someone can use a lot of colors, even more than 19 shades, to deceive the user by hiding some of the data anomalies.

Not just color, other factors considered in this paper, can be used as a misleading entity for visualization. But the paper, as a whole, concentrated on the fact that how one visualization can be made more memorable. In that regard, the paper did a decent job with the experiment. But I would say, it won't be the only factor.

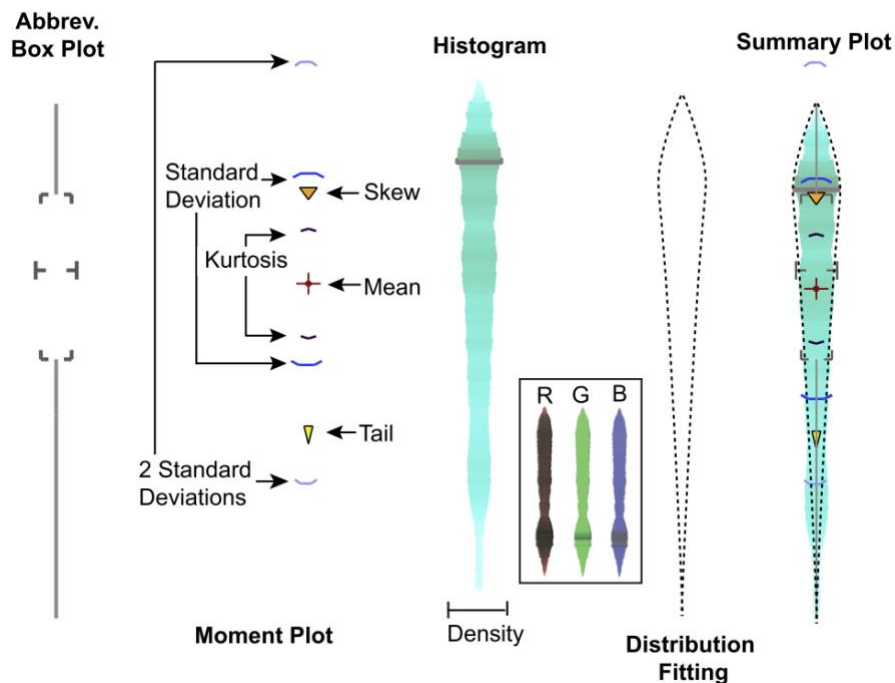
The one I believe to be effective.

Paper: Visualizing Summary Statistics and Uncertainty

Authors: *K. Potter , J. Kniss , R. Riesenfeld , and C.R. Johnson*

This is a beautiful paper which emphasis on creating a data visualization with accurate and most information. With the advent of time, data is becoming large and complex, and its representation becomes even harder. One of the things this paper concentrates on is the uncertainty information. Most of the data visualization displays the relevant data, but they try to keep this uncertain information away from the graph. But, representing uncertainty should be one of the important aspects since it gives more details about the data.

This paper uses the summary plot which uses higher order descriptives for representing data with uncertainty. The summary plot is a combination of the box plot, histogram, mean, and standard deviation. Box plot helps in displaying the range of data, while histogram portrays density of data for that range, and the color is used for representing the type of density.



From the figure we can see how the summary plot displays both the range and the density by making use of the traditional plots such as box plot and histogram.

This paper also considers the other scientific factors such as mean, standard deviation to visualize data. This aspect will be overlooked in most of the data visualization. Actually, this paper considers variance, skew tailing, and kurtosis along with mean and standard deviation. Also, describes how to calculate these and use them for visualization.

Accounting all this information, we can plot as many dimension data as possible. In this way, this paper is able to describe how it incorporates uncertain data into visualization. It explains how joining these decision factors (joining mean, sd and density or joining skew and variance) can help to picture the data accurately. This part of the paper what made me interesting. It uses color information to account for one of the factors, or dimensions, or joined visualization. This is the clever way of plotting graphs.

To conclude, it was a little complex to comprehend the paper since it involved a lot of math (not complex), but which was necessary with respect to understanding visualization. But, other than that it conveys the importance of uncertainty data, and how it could be visualized using summary plots.