

Literature Review

Effective Visualization: Flina Plots

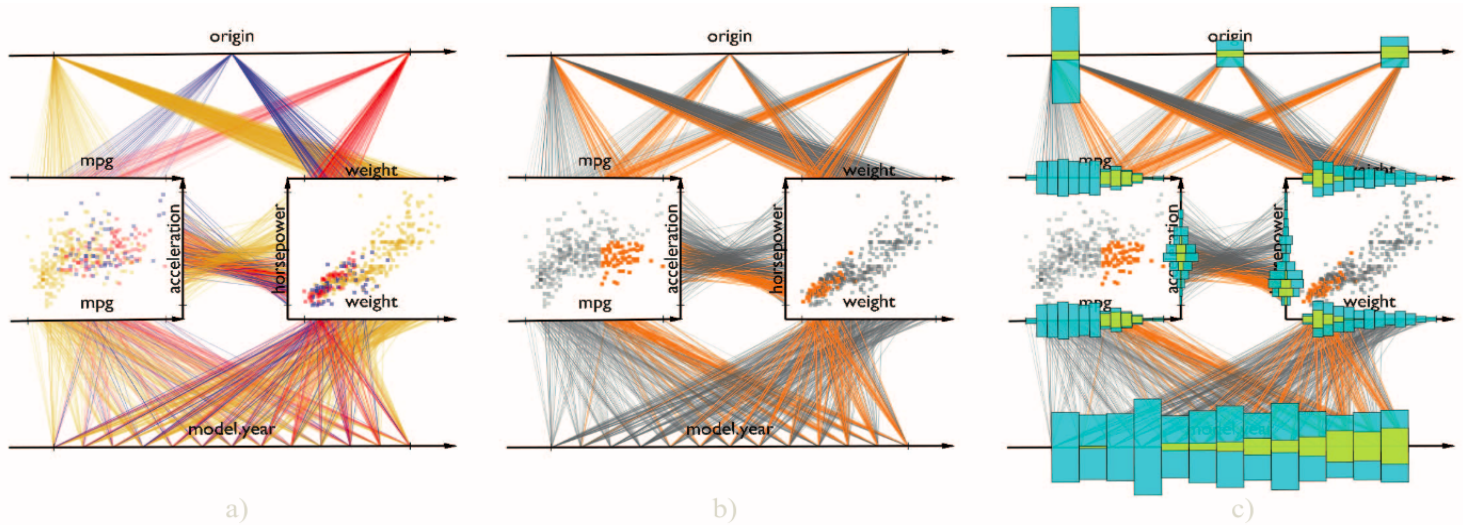


Fig. 4. FLINAPlots for the cars dataset: a) origin highlighted (yellow: USA; blue: Europe; red: Japan); b) selection of cars with fast acceleration (short time to reach 60 mph) and high mpg; c) histograms added.

This 'Attribute Relation Graph of Interest (ARGOI)' as proposed in the paper is termed as 'Flexible Linked Axes (Flina)' plots. Flina plots as I find them, are very effective in visualizing correlation between multiple attributes which is the central theme of these plots. This information is presented using links between axes representing different attributes. When compared to 'Parallel Coordinates Plots (PCP)', these plots are much better at the task of visualizing correlations. This is mainly because of the flexible arrangement of axes which can also be duplicated and can accommodate 3 to 8 attributes easily. Path tracing is much easier with Flina plots than with PCP's which makes discovering multiple correlation much faster with Flina plots. It can also accommodate other plots within their PCP style visualization. Plots above include scatter plots and violin-style histograms (Fig. 4 c) to present a more detailed pictures between different attributes. This ability of appropriate additional add-on plots makes the process of discovery much faster since targeting particular groups of interest is much easier with these plots in comparison to PCP's.

Most of the browsing and discovery process is supported by interactions in the graphs. These interactions include highlighting and selecting groups, thus, supporting linking and brushing. Users of the plots are also free to choose arrangements of the axes or can edit color representations of different classes of data. For example, in these plots, yellow represents origin as USA, blue as Europe and red as Japan. Each class can be assigned a different color and hence, these plots makes it easy to distinguish classes or groups.

How effective these plots will be depends on the selection and arrangements of attributes and their axes. In effect, users of this plots goes through multiple iteration before coming out with any good representation between attributes.

In the original proposal, authors have not included legends of colors in their work. These does not include domain values of the axes, which should be fine for the purpose of just finding correlations but does not provide any information above that. According to user study done for the paper, error rates in flina plots are equivalent to PCP's but the performance of discovery is increased by 20%. How good or bad the plots are depends on how user arranges the attributes as axes within the plot.

I find the lack of domain labels on axes very inconvenient. Lack of labels hinders the process of working with zoomed in axes. Legends is another area of improvement but not a major hinderance. With presence of legends, colors can by themselves, account for one extra attribute within the plot.