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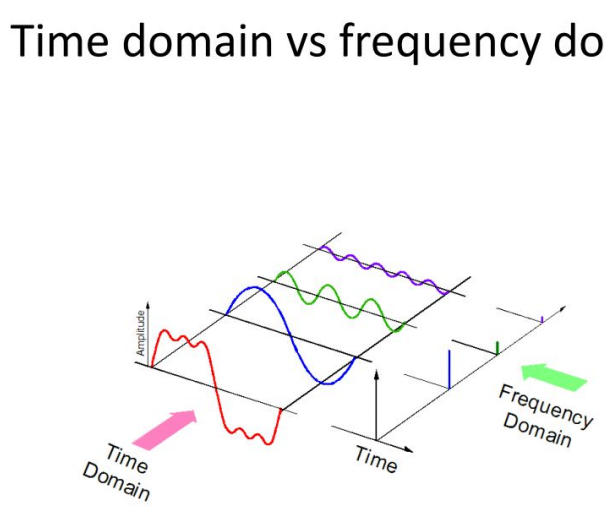
1 Ware argues that human perception involves 2.5 dimensions. Given this assertion, when might a 3D visualization be useful and why?



3D visualizations can be useful when you're up against data that overlaps. Of course there are other visualizations to choose from to combat this e.g. lines that change in thickness that stack ontop of each other instead of running through each other. A different solution is introducing a third dimension to the visualization, making the multiple lines visible but not having them obscuring one another. This visualisation isn't your typical "3d" object, but it does make great use of the depth dimension.

2 In Chapter 6, Ware presents some implications of pattern recognition and visual working memory on design. Provide an example that harnesses some of these principles (perhaps an advertisement, visualization, or interface) and discuss how the design takes these principles into account. Please include a screenshot, photo, or website URL.

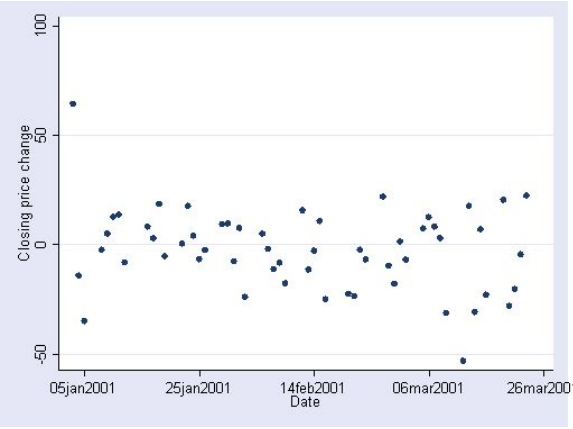
Pattern recognition is especially present when recognizing faces. The face on the left for example. The arrangement of the facial properties makes us recognize this as a face. But if you look at all the properties seperately, they become very hard to recognize (except for maybe the mouth). Take the nose for example, all it actually consists of are two diagonal lines, but because of the arangement and positioning, we immediately recognize this as a nose. The same goes for the eye/eyelashes. Viewed seperately, I personally would have thought it was some sort of microbe found in the ocean.

3 Pick three concepts covered in Lecture 9 - Interaction (e.g., Brushing & Linking) and relate them to the taxonomy presented in Heer & Shneiderman Table a How do the interaction concepts fit to their taxonomy?

Linking datapoints helps identifying the same points in different forms. The multiple dotted graphs is a good example. When highlighting certain points in one of the graphs, the same points in other graphs get highlighted as well. So there is selection present (selecting the points) and coordination: the selected points are linked and work together.

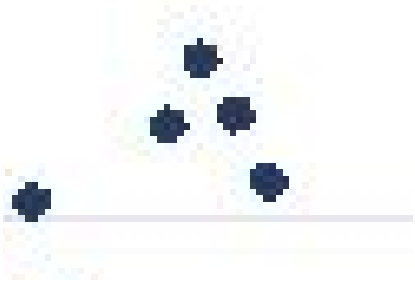
Filtering is listed under Data & View specification. Filtering is usefull when there is a lot of data present and one only wants to see certain information. For example, in the lecture there was a graph showing a lot of baseball players where the user could filter by wins, so that only players with a certain amount of wins would be shown. This is also clear in Figure 2 of the paper, where one can use the slider to filter by price.

Animation is an important aspect of navigation and it can work together with zooming. Animation helps us understand certain principles easier, for instance: when looking at a rainforecast one can usually see the dark clouds hovering over the country, but it's hard to see which way the clouds are going without visual help (e.g. an arrow or as mentioned before: animation).



Another good example of the use of animation is when zooming into a particular part of a visualization. The animation of zooming in gives us a smooth transition so one can follow along with their eyes. This way the user can see *where* the zoom is taking place and *which* part of the graph is ebing shown in detail. Without a zoom animation the sudden alteration of the interface might be confusing. I have an example on the left.

Top: the graph normal. Bottom: a specific part of the graph.



Can you spot which specifix part of the graph I'm talking about? After a search, perhaps, yes, but had there been a smooth

transition you'd know exactly which part of the graph is being represented in the bottom image.

4 Cockburn et al. describe various interface design paradigms, among them the "fisheye view." How would the fisheye view improve the usability of a visualization, and under what circumstances might it not?

The fish-eye view would improve the usability when the visualization isn't hurt by the distortion the fish-eye effect causes. For instance when looking at a page of a book and you need to magnify a part of the text, this effect would be okay. But doing the same thing on a map isn't as clever, because the roads around the selected point get distorted and the user would lose track of the connecting roads and/or buildings. When using maps I think the old-fashion zoom will do just fine.