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Reading 6

Pick three concepts covered in Lecture 9 - Interaction (e.g., Brushing & Linking) and relate them to the taxonomy presented in Heer & Shneiderman Table

1. How do the interaction concepts fit to their taxonomy?

It is difficult to compare interaction concepts to the taxonomy as described in Heer & Shneiderman. Most of the classes described in this table can be applied to specific visualisations and not so much to interaction concepts. For example, a brushing and linking visualisation can be a visualisation strategy which can lead to a visualisation that can be taxed in any of the twelve classes presented in the article. In this reading I tried to find classes which are intrinsic to the interaction concepts themselves.

Filtering:
- **Select:** One of the main interactions of a filter is selection of data, it filters some information, thereby selecting some data to show, and some data to hide.
- **Sort:** By applying a filter on the data, you sort the data in two categories: the data that fits the criteria of the sort, and the data that doesn't match it.

Animation:
- **Derive:** You can derive movement based data from animation. The speed of the animation can, for example, represent some data in a visualisation. This is not really what they mean with derive in the article, where they mean visual analysing outcomes of visualisation when they say deriving. Change derived from animated or real time data follows this definition of derivement more, because changing data gives rises to more data (e.g. trends over time).
- **Guide:** Because each frame of an animation is followed by a natural subsequent frame, you are guided through the movement of the animation. Also, animations guide you by attracting the attention, making you focus on specific points or features of the visualisation.

Zooming:
- **Select:** By zooming, you increase or decrease the amount of data viewed/selected (for viewing). You could argue that making some data points stand out more/more detailed, is also a way of selecting those datapoints.
- **Navigate:** As a user, you can navigate by zooming. When zooming out, you see the data in bigger context. The widely known visual information-seeking mantra "Overview first, zoom and filter, then details-on-demand" is one pattern of navigation.
- **Filter:** By zooming, you filter items based on their position. If you zoom in, you filter out data which falls outside of the zoomed view. If you zoom out, you give up on some of the details. This could be seen as filtering out the details.

TABLE 1: Taxonomy of interactive dynamics for visual analysis

Data & View Specification:
        Visualize data by choosing visual encodings.
        Filter out data to focus on relevant items.
        Sort items to expose patterns.
        Derive values or models from source data.
View Manipulation:
        Select items to highlight, filter, or manipulate them.
        Navigate to examine high-level patterns and low-level detail.
        Coordinate views for linked, multi-dimensional exploration.
        Organize multiple windows and workspaces.
Process & Provenance:
        Record analysis histories for revisitation, review and sharing.
        Annotate patterns to document findings.
        Share views and annotations to enable collaboration.
        Guide users through analysis tasks or stories.

https://cdn.mprog.nl/dataviz/excerpts/w5/p30-heer.pdf

TABLE 2: concepts covered in Lecture 9 - Interaction

• Overview & Detail
• Focus + Context
• Brushing & Linking
• Filtering
• Animation
• Zooming
• Off-the-desktop Interaction