Narrative Visualization

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- **Messaging**

  What is the message you are trying to communicate with the narrative visualization?

  The message trying to communicate is answer the question of what type of vehicle to pick if going to road trip that provide best efficiency? On road trips, most of the time we are driving on Highway. Using data source that contains average data for 2017 automobile manufacturers, we investigate Highway MPG for different type of vehicles. Comparing different number of cylinders and different fuel type. Multiple charts by different makes are shown on user selection.

  Using BMW as example, we can see despite engine cylinder, fuel type is gasoline or diesel, there is no big difference in Highway MPG. But Electric vehicles have much higher Highway MPG. Therefore, EVs are the most efficient on our road trips. From efficiency perspective, EV is the best selection when taking on road trips. EV is the future of cars.

- **Narrative Structure.**

  Which structure was your narrative visualization designed to follow (martini glass, interactive slide show or drop-down story)? How does your narrative visualization follow that structure? (All of these structures can include the opportunity to "drill-down" and explore. The difference is where that opportunity happens in the structure.)

  Interactive Slide Show.
  The narrative visualization consists of multiple scenes. Each scene provides a view of Highway MPG for vehicle of different fuel type and number of cylinders. By browsing scenes, we can answer the question by concluding EV provide the best efficiency for road trips.

- **Visual Structure.**

  What visual structure is used for each scene? How does it ensure the viewer can understand the data and navigate the scene? How does it highlight to urge the viewer to focus on the important parts of the data in each scene? How does it help the viewer transition to other scenes, to understand how the data connects to the data in other scenes?

  Scenes follows a consistent visual pattern. A chart, interactive color legends, annotation and same x and y axis.
  Viewers can understand and navigate data by choose different scenes (selecting different make) for comparing to conclude the trend and get the message.

The highlight is different fuel type in different colors and different number of cylinders.

Different scenes contain data for have different make. In general, number of cylinders, fuel type of gasoline or diesel do not make huge difference in Highway MPG. But vehicles with electricity as fuel type have much higher Highway MPG.

- ## Scenes

    What are the scenes of your narrative visualization? How are the scenes ordered, and why

    Scenes are different from each other by auto make. They are in alphabetical order. In alphabetical order, user can quickly find the make they are interested in. And separating scenes by auto makes, viewer can draw conclusion of general trends among different auto makes.

    For example, for scene "BMW", it includes different cars of each fuel type, different cylinders. For gasoline cars, 2, 3, 4, 6, 8 and 12 cylinders do not different from each other too much. For 6 cylinder cars, fuel type of diesel and gasoline are not much different from each other. But the Electric vehicle's Highway MPG is about 80 higher. Scene "Chevrolet" also have similar results.

- ## Annotations

    What template was followed for the annotations, and why that template? How are the annotations used to support the messaging? Do the annotations change within a single scene, and if so, how and why

    There are two types of annotation.

    First, static. By providing a text hint user to hover over dots in the chart to see details and hover over color legends to set filter to better view data.

    Second, dynamic, when user hover color legends, a filter is set to view data of specific type of fuel. When mouse moved away, filter is reset, all datapoints are displayed.

- ## Parameters

    What are the parameters of the narrative visualization? What are the states of the narrative visualization? How are the parameters used to define the state and each scene?

    Parameters are number of cylinder and average highway MPG.

    States are mouse over color legends (fuel type) to view different datapoints.

    Parameters are used as axis to display data in each scene and selected state.

- ## Triggers

    What are the triggers that connect user actions to changes of state in the narrative visualization? What affordances are provided to the user to communicate to them what options are available to them in the narrative visualization?

Trigger that connects change in state is mouse over event, including mouse over and out. Trigger that connects change in scene is mouse click on different make. The affordances provided is the annotation on top of the chart, two tips telling user how to get more detail for better understanding narrative visualization.

- **Reference**

https://github.com/rfonod/narrative-visualization/tree/master?tab=readme-ov-file