Narrative Visualization Report

Summer 2019, Xin Xin Dong, xxdong2

- **Messaging.** What is the message you are trying to communicate with the narrative visualization?

  I am trying to present the city and high MPG for the cars using gasoline, diesel and electricity. The cars in the dataset were built in 2017.

- **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.)

  This visualization is an interactive slideshow. User can explore at all steps of the story, which means user can click any type of car button to see its associated plot and MPG details. At the same time, use can hover on any circle of the plot to see its city and highway MPG numbers.

- **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?
  1) For each scene, there is a scatterplot of city vs highway MPG for the type of car selected, including axis and axis title. This would help user to see the MPG distribution for the type of car selected.
  2) The scatterplot title which is the type of the car selected is placed on the top of the plot. This would help user to know the plot is associated to what type of car.
  3) An instruction for tooltips highlighted in blue under the scatterplot title is provided. This would help user to know how to use the tooltips.
  4) Tooltips are available for the circles on the scatterplot. This would help user to get city and highway MPG details.
  5) The overall average city and highway MPGs for the type of car selected have been added to the scatterplot as annotations. This would help user to get the overall result from the scene.
  6) When transitions to other scenes, the axises and axis titles remain the same. The highlighted instruction for tooltips remains the same. Other elements will be changed.

- **Scenes.** What are the scenes of your narrative visualization? How are the scenes ordered, and why.

There are three scenes: Gasoline, Diesel and Electricity. They are ordered by the average city and highway MPG from low to high. The higher the MPG, the better the car is. I hope user can find a better average MPG if they click one by one from the first scene.

- **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.

  Annotations are fixed locations, which are located at the upper left corner. According to our experience, there is little chance that a car has a very low city MPG, but has a very high highway MPG. We would say the upper left corner of the scene would be blank. So it's a perfect area for the annotations. The annotations tell the user the average city and highway MPG for the type of the car selected, which is delivering the overall result of the scene. The annotations do not change within a single scene.

  The tooltips are showing up at the upper right corner of the circle selected. There are some circles on Gasoline plot that sticking out to the left, so the tooltips are better placed on the right side, and above the mouse anchor. When user is hovering on the circle, the tooltip is telling the city and highway MPG for the circle selected, which help user getting the MPG details of the type of car. The locations of the tooltips are changing within a single scene according to the circle selected. It allows user to follow the circle selected.

- **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?

  The parameters of this visualization are the type of the fuel: gasoline, diesel or electricity. The states of the visualization are plot and tooltips. The circles on the plot are only associated to the type of the fuel selected. The tooltips on the plot are only associated to the type of the fuel selected.

- **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?

  The buttons on the top of the chart are the triggers. Once the button is clicked, the plot and tooltips on the plot will be changed. An instruction in red under the project title tells user how to get the visualization content. And one more instruction in blue under the char title tells user how to get the MPG details.