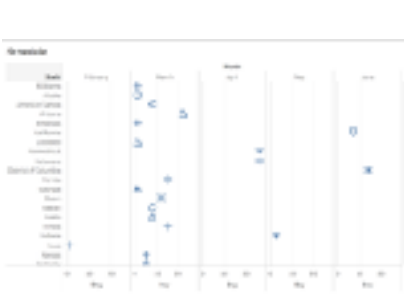
Exercise 7A Report: Republican Primary Schedule

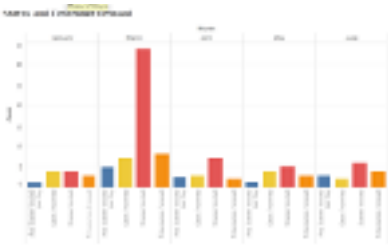
Motivation & Task

The provided visualization for the Republican Primary schedule attempts to show calendar events with a bar chart approach. If one visualizes the raw data, he or she will immediately notice that the schedule includes time periods when travel is very intense; not only do multiple events take place on the same day, but same day events frequently take place in different states. The purpose of the new visualization is to better encode the variety and logistical challenges related to the schedule. It provides a comprehensive dashboard that can be used to plan ahead based on future travel itineraries. It also easily summarizes all travel information and highlight time periods when travel itineraries become more burdensome.

Visualization

The visualization consists of three elements: an interactive schedule table (main component, left), an interactive map (top right), and a summary bar chart (bottom right). The schedule table is a representation of the full time series of events on the x-axis (day and month) and states visited on the y-axis. Each event is shown by a small shape placed on the table thus mainly defined as combination of time and state values. Each data point's shape is characterized by the timezone for the state to be visited. The interactive map allows to perform spatiotemporal analysis of all events. Each event is plotted on the map while each time point (day) is displayed as a map frame. By iterating through the days, the viewer will notice that the candidate paid particular attention to certain key areas of the country (in particular, the Northeast, the Southeast, and swing states) while taking a lot less trips to the West, especially California. Finally, the bar chart located at the bottom right of the dashboard displays key travel statistics by month. For each month, the metrics shown are average states visited per day in blue; number of days traveled in yellow; number of states visited in red and timezones crossed. The chart shows the intensity of travel related to the month of March, where all statistics are significantly higher than other months. Also, the idiom demonstrates that the candidate frequently travels across multiple states on the same day (especially in March) but at the same time travels on very few days of the month and hardly ever travels on more than 5 days in the same month. Important insights such as travel intensity are encoded by a combination of variables represented by channel dimension, intensity, and color. Ordinal variables are represented on a common scale in order to highlight differences across time. Using a combination of idioms makes each feature easily separable from others, thus highlighting the dashboard's key takeaway points. The schedule encodes event timezones with different shapes, thus making it easy to notice clusters of events happening in close locations vs. events taking place in far away locations within close time frames. The month of march is characterized by outliers and these are shown with significant degree of popout. In particular, the variety of states visited in the month of March is shown in red, a color capturing the attention of the human eye more easily than others. Finally, event groups are shown by location on the map and on the schedule table.





Exercise 7B Report: Spanish Speakers in the United States

Motivation & Task

The provided visualization named Distribution of Spanish Speakers in the US is characterized by a stationary map of the United States with state borders and coloring aimed at showing differences in Spanish Speakers as a percentage of state population across the country. While the use of a map is a good approach, the execution of the map by the original author betrays the principles of effectiveness and expressiveness. In particular, the main channel (percentage of Spanish Speakers) is encoded by partially filling states with colors. The amount of coloring should reflect the percentage of speakers, but too many colors are used thus making it hard to locate on the map. Additionally, many of the states with very lower percentages are all marked with a barely visible coloring line which makes it very hard to distinguish differences. Finally, the choice of background color (black) does not make for a pleasant experience to the viewer. The purpose of the new visualization is to better encode the same information. The story's main task is to highlight state and regional differences in terms of Spanish speakers as a percentage of state and region population.

Visualization

The visualization consists of four elements: an interactive map of the United Sates characterized by state borders; an interactive bar chart sorted by highest to lowest state in terms of percentage of Spanish speakers; a second interactive map defining regional differences; and finally a plot of regional differences across the country displaying key regional statistics. In the first map each state is clearly labeled by state code in order to keep the amount of text low while clearly identifying each.The interactive bar chart presents the same information as the map above but sorts states by percentages in order to show maximum, minimum, and contextualize smaller states which might be harder to seen the map if the viewer does not zoom. This chart increases the effectiveness of the story as it allows for easy comparison of all states across a common objective numeric scale. The third idiom consists in a map similar to the first one in terms of color (the same palette is used) and visual impact (the same dimension and similar interactivity tools are used). However, the focus is on the five regions of the US: West, Midwest, Southwest, Southeast and Northeast. At any given point the viewer can interact with the map to select regions among these five from the tooltip. When a selection is made, only states belonging to that particular region are shown. All states are labeled with state code and share the same color which represents the regional average of Spanish Speakers calculated as the average of the percentages (this is not a weighted average by each state's population). The fourth idiom consists of a plot demonstrating regional differences across regions (x-axis) and in terms of Average Spanish Speakers for the region (y-axis). In all four idioms, color used by the map is a red-gold palette where gold represents lower presence and red signifies higher percentages. Each state can be highlighted to show the actual state name, or selected to hide other states and just leave the selection on the map.