As a master’s student in human-computer interaction and more specifically studying information visualization, I have a particular interest in how The New York Times presents information to its readers. As such, I came across the data visualization titled Rick Santorum’s Race (http://www.nytimes.com/interactive/2012/04/10/us/rick-santorum-map.html). This visualization effectively illustrates and compares Rick Santorum’s electoral success between himself and his GOP opponents; nevertheless, the visualization is not without its flaws.

To help illustrate the visualization’s usability strengths and weaknesses, I incorporate Shneiderman’s "Eight Golden Rules of Interface Design" usability heuristics (http://groups.drupal.org/node/8248). Shneiderman’s heuristics draw upon his expert knowledge in the field of human-computer interaction where Ben Shneiderman is a foremost expert as depicted in his membership in the CHI (Computer-Human Interaction) Academy. His Eight Golden Rules help to better illustrate areas that I like and areas that I consider in need of improvement.

**Strengths**
A positive attribute of the visualization is that it has clear labels that state which color belongs to which candidate, as this reduces a user’s short-term memory load of information he/she has to remember. Moreover, the visualization allows for easy reversal of actions by affording users the ability to easily rest the zoom location to see the entire United States within the graph by selecting “Zoom to U.S.” This is helpful if a person loses his/her position in the map because he/she can easily revert to the entire United States view. Another positive trait is that the graphic offers flexibility in how the visualization depicts data. The visualization uses circles to demonstrate the relative size of a county’s population and therefore the actual weight a county has on primary results. For instance, if users only look at the County Leaders view, they could easily assume that Rick Santorum won the state of Ohio Republican primary because he won the majority of counties. In reality Mitt Romney won the Ohio Republican primary because Romney won more populated counties. Once more, the visualization offers informative feedback in the form of hover object cues (figure 1) that allow users to see additional information about an area. This method is also effective at reducing the short-term memory load by not
overwhelming users with all the statistics (percentages) of every county at once. The border that forms around a state (figure 2) is similarly helpful informative feedback that informs users that clicking on the state causes a zooming action to occur for further detail of a state.

![Figure 1](image1.png)

![Figure 2](image2.png)

**Weaknesses and Suggestions**
In addition to the visualization’s positive attributes, several key usability features would enhance the visualization’s usability and relevance. One element that would help is the ability for users to perform a faceted search to search by specific taxonomy. By offering a faceted search, it allows support for users’ sense of internal locus of control where they feel that they are able control what data they wish to see versus the system controlling which data they see. Given “Mr. Santorum … had heavy support from evangelical voters,” such a feature would be helpful to pinpoint where evangelical voters live. It would allow users to compare the voting demographics that another candidate attracted. For instance, the graph titled *Who Voted For Rick Santorum and Mitt Romney* (http://www.nytimes.com/interactive/2012/03/07/us/politics/how-candidates-fared-with-different-demographic-groups.html) illustrates the voter demographics that Santorum attracted. Such information could allow a user to better understand the reasoning why a voter might vote for Santorum.

Once more, I wish the visualization would allow users to compare one county versus another county. It is true one could easily visualize the larger counties by the size of the circle, but it would be more effective if a user could compare counties based on various criteria, as it also fulfills the heuristic to support internal locus of control. In addition, for the line graph demonstrating front-runner status, it would be more effective and follow’s Shneiderman’s rule to strive for consistency if readers could hover to see the exact percentage instead of estimating the percentage by looking at the X/Y axis similar to the hover attribute present in the main graph.
While effective feedback is present to distinguish states that have had primaries versus states that have not, I still wish a more distinct color was chosen to help users better distinguish between such states.

Succinctly, I hope my suggestions help better your future information graphics and that you continue with your wonderful design work.

Best,
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