This visualization is derived from a New York Times article, Where Boys Outperform Girls in Math: Rich, White and Suburban Districts, in June 2018. In addition to this graph, the author also provided an interactive system for viewers to search for research data of specific school districts. Combining both statistics and visuals, the article tends to convey the idea that the stereotype saying boys can do better than girls at math isn’t true for most cases of the US, however, boys who studied in rich, white and suburban districts are exceptions. The research quantified students’ ability in Math and English based on their standardized test scores for five years in one thousand school districts. They suggest that in low-income and African American districts, girls perform slightly better than boys, while boys do much better in high-income and mostly white or Asian American districts. To illustrate this point, the author compares students’ data of Montgomery Township district where median household income is high and is composed of white and Asian to districts of Detroit.

**Scaling and Axes:** Different from ordinary cartesian plane, this graph is primarily designed to compare boy’s performance in tests to that of girls in Math and English. Therefore, the scale of y-axis is considered as relative mastery of skills: x-axis represents boys perform as good as girls. If the circle is above x-axis, it represents the average performance of girls in test is better than boys, vice versa. Scaling on x-axis represents median household income in the school district. The author failed to inform the unit along x-axis, which violated the principle of scale. Possible re-scaling such as square and logarithm may cause visual distortion to viewers in this case.

**Proportion of data display and chartjunk:** In the perspective of Tufte’s principles, the visualization avoids wasting area on meaningless graphics and shows richness in data display. Approximately eight percent of the area in this visualization represents the data, while interpretation concurs only a small proportion of margin. The size of each circle represents the number of students in that school district, larger the circle, more population it has. Similar to a heatmap, darker in color represents more students with akin household background and grade in tests. The interactive design enables viewers to check out details of each point, which includes the name of that school district and different gender’s relative performance. To sum up, this design maximizes proportion of ink on statistics display.

**Combination of Plots and Comparison:** In terms of expressionIn order to highlight the main conclusion of this article that boys from rich white families do better in Math than girls, the author combines students’ performance in English tests with Math. In terms of combination methods, both plots share the same scale and stretch in the same ratio, satisfying the essential requirement of scientific visuals. However, simply comparing two courses cannot come up with the conclusion that rich families focus more on boys’ education in Math. It is probable that boys from wealthy families could in average perform better than girls in multiple fields of study, which is contrary to researchers’ speculation. Hiding visuals of other subjects and taking a part for the whole, such a two-way comparison may bring distraction to viewers.

**Use of number:** Instead of showing original data, average or median of test score, on the graph, the author reports number of months ahead of boys or girls in mastery of the skill. By showing only one or two digits with at most one decimal, this step avoids potential distraction from extra digits.

Improvement