Report*: "Goldiness" and the Winter Olympics Medal Race*

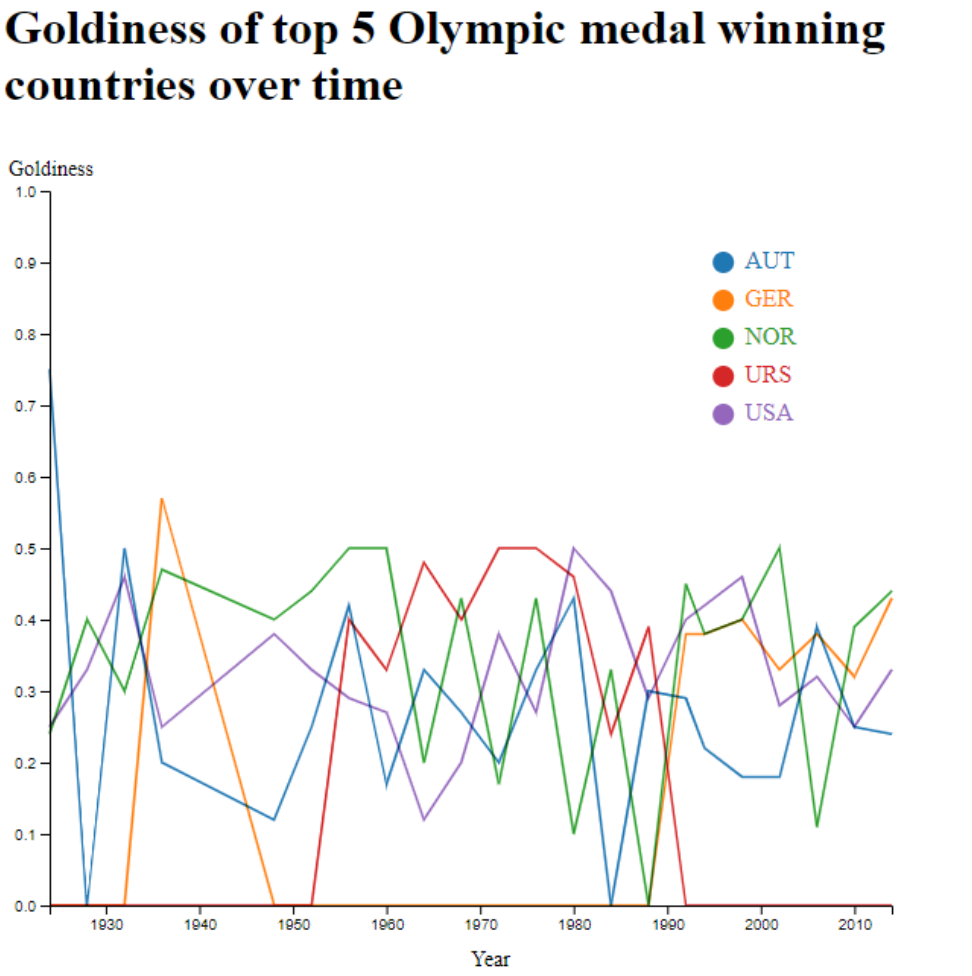
Motivation: In the comedy film *Talledega Nights*, racecar driver Ricky Bobby drives to the motto "if you aren't first, you're last" only to find out at the end of the film that his personality should not base itself around finishing first. In the Olympic games, medals are awarded for finishing first (Gold), second (Silver), and third (Bronze). Countries compete at an aggregate medal level to showcase the success of their athletes and earn bragging rights.

But did you know that in some countries, they only report Gold medal winners in their overall medal counts, as opposed to also counting Silver and Bronze medals? Actually, in an article by the WSJ in 2008, they claim that the U.S. is the *only* country to rank countries by all of the medals that the team wins, whereas the rest of the world only counts Golds. They adhere to what is considered as a "Gold-first" ranking. Additionally, they mention that by using this gold-first approach, some countries have made budget cuts in sports that they did not have a "clear shot at a gold."

Unfortunately for some countries, the Ricky Bobby motto is clearly not a laughing one – it is reality. We believe that there is some credence to both arguments, after all – would Michael Phelps be considered the "most decorated" if most of his medals were Silver? Conversely, in the article, a professor questions whether or not winning the event aligns with the spirit of the games. Notably, why would they present Silver and Bronze medals if Gold was the only medal of value? We want to examine the parallels between the gold-first and total scoring methods in the medals race amongst countries over time.

Tasks: Provided a dataset on Winter Olympics medal winners and additional details (Country, Sport, etc.), we are able to provide evidence for the debate on "if you aren't first, you're last." Specifically, we will define a term "Goldiness" to represent the Gold-finish rate (Total # of Golds/Total Medals Awarded) to help us dig into this phenomenon. The visualization provided may solve the following questions: Who are the top 5 most winning countries? When those countries win, do they win Gold? Is there any evidence to support that one of these countries is "Gold-first"?

Visualization: Here we have displayed the distribution of Goldiness amongst different countries over time:

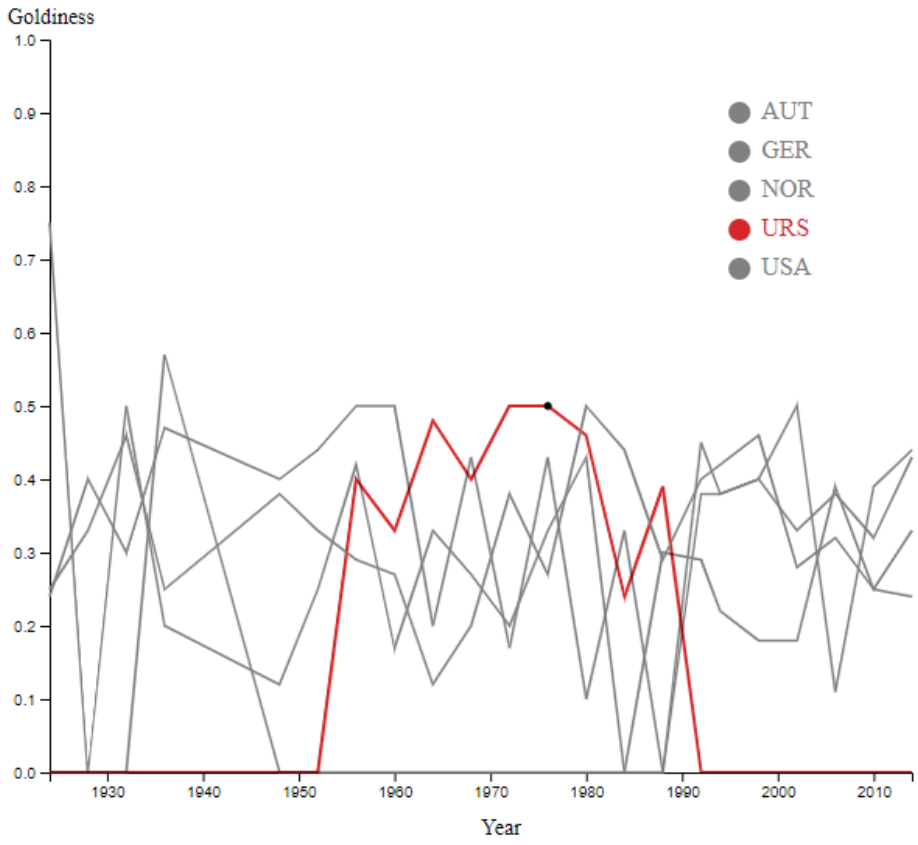


Considering that Goldiness lies on the possible scale of 0-1 (a country may receive anywhere between zero or only Golds for every event), we consider this metric to be an ordered attribute. Additionally, as we are examining Goldiness over time on a scale of years, the years themselves also form an ordered attribute. By leveraging the *position* (both horizontal & vertical) channel on a common scale, we were able to convey the magnitude of the metric in both dimensions.

From there, the *length* and *angle* channels are able to capture discontinuities and trends associated with the Goldiness metric.

Color is then used as a channel to determine categorical difference between the countries. Furthermore, when interacting with the plot by hovering the cursor, *color* is again

used as a channel to uniquely highlight specific categories of the plot which might be initially difficult to encode:



Assessment: Given the set of questions identified, we believe our visualization adequately addresses them while following the channel effectiveness principles. In our data cleaning process, we first had to create a country-level dataset – as opposed to the original lower granularity individual dataset. We did this by removing individual names, performing a de-duplication function, and then aggregating the counts of Golds and the row counts (total medals). From there, we captured the top 5 countries with respect to overall medal count. This was done deliberately to filter our results so that we create a graph that is not too crowded (i.e. violates too many colors).

Now that we had our list of the biggest overall winners, we wanted to use our graph to see who had the most Goldiness. Based on our graph, we determined this to be quite variable depending on the year – yet Norway and USA appear to be the most consistent.

Lastly, by using the hover feature in our graph, we were able to determine that Germany and the Soviet Union are likely the bigger candidates for a “Gold-first” approach as they achieve relatively high Goldiness or none at all.