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Charles Bergeron* (chbergeron@gmail.com), Albany College of Pharmacy and Health Sc., 106 New Scotland Ave, Albany, NY 12208. *What is the relative value of gold, silver, and bronze Olympic medals?* Preliminary report.

We investigate multi-objective ranking in the context of comparing country performances in sporting events such as the Olympics. For example, in the 2016 Summer Games in Rio de Janeiro, Croatia won 10 medals (5 gold, 3 silver, 2 bronze) and Canada won 22 medals (4 gold, 3 silver, 15 bronze). Which country displayed superior performance? Croatia won an extra gold, but Canada's total medal count is more than double Croatia's. Deciding this question raises the issues of *What is the value of a gold medal?* or *What is a gold medal worth relative to a silver or bronze?* The International Olympic Committee officially ranks countries according to the number of awarded gold medals, using silver and then bronze to break ties. This scheme is skewed, placing very high value on gold. In many countries, media outlets display medal tables according to total medal count, producing radically different results. This scheme is also skewed, assigning the same value to all medals. We hypothesize that it is possible to analyze medal table data to obtain a country ranking that is minimally controversial. Through formulating and solving optimization problems, we propose an objective scoring system. (Received September 20, 2016)