

What Every Pro Tennis Player Does Better Than Roger Federer



AP / Rick Rycroft

As he enters this week's annual Australian Open for the 16th consecutive year, Switzerland's living legend Roger Federer holds a plethora of records: He's the owner of 17 Grand Slam singles titles, 302 weeks ranked No. 1 in the world, and 36 straight Grand Slams in which he reached the quarterfinals or better.

However, Federer also holds the dubious distinction of having the worst record among players active since 1990 in so-called "Simpson's Paradox" matches—those where the loser of the match wins more points than the winner.

On the surface, his 4-24 record in such matches may seem hard to reconcile with the rest of his stellar statistics. A deeper inquiry, however, reveals mathematical proof of Federer's unequaled in-match competitiveness over the course of his career.

But first, some background on this arithmetic oddity.

[Simpson's Paradox](#) is a statistical [quirk](#) where seemingly correlated variables are reversed when combined. The application to tennis is nuanced: In tennis, a derivative of Simpson's Paradox is seen in the

small percentage of matches where players win more individual points than their opponent, but lose the overall match. This anomaly is an artifact of tennis's decidedly **unique** scoring system. Its "best of N" format (best of three sets, usually, or best of five sets in some men's professional matches) follows a point-game-set-match hierarchy with neither a running score nor a clock. The results can sometimes be peculiar. The only point the winning player *must* win is the last one.

Simpson's Paradox can happen at the both the game level and point level in tennis. The former would be where the score is, for example, 0-6, 7-5, 7-5; the match's loser wins more total games than the winner of the match. Such matches are exceedingly rare in tennis. The latter, those when the winner of the match wins less than 50 percent of the total points played, occur with some regularity and can be analyzed on a per-player basis.