

Criteria to assess the greatest of all time

By Chris Bowers

This paper was written as a background explanation of a presentation given by Chris Bowers to a tennis history conference at Wimbledon in November 2023. It has not been drawn up with a level of academic rigour to justify it as a paper for peer-review, although it would not take much to bring it to that level (mainly a bit of research to justify certain statistics, such as broadcast ratings and other indicators of economic pulling-power, plus relevant footnotes). Its primary purpose is to explain the thinking behind the model and ratings used in the presentation to offer a suggestion and justification for the greatest tennis player of all time.

In recent years, a lot of attention in the tennis world has focused on the debate over who is the greatest tennis player of all time. In truth, this debate has been a feature of the past 25 years, ever since Pete Sampras closed in on the then men's record of 12 Grand Slam singles titles set by Roy Emerson in the 1960s. Since Sampras surpassed Emerson's mark in 2000, and then Roger Federer, Rafael Nadal and Novak Djokovic all surpassed Sampras's 14 majors, the debate has been kept alive, all the more so for Djokovic's equalling of Margaret Court's record of 24 singles majors set in the 1960s and 70s, a record that, until recently, many suspected would never be reached. And as the acronym for 'greatest of all time' spells 'goat', the ruminant mammal has become the symbol of this debate, despite the characteristics of a goat having very little to do with those of great champions.

Yet no-one appears to have stopped to ask the question: what criteria go into determining the greatest of all time? The debate that gets fired up on Grand Slam finals days involving one of the big names seems to focus on 'the best' or 'the most successful', which can easily be answered by way of numerical criteria. But such discussions seem oblivious to the possibility that there might be other factors that need to be taken into consideration, and that, if other factors are relevant, they need to be weighted. After all, Muhammad Ali, the man who first used 'the greatest' in a sporting context (albeit about himself), is generally recognised as the greatest in his sport not because he was necessarily the best boxer, but because his combination of world titles, political/religious activism, great drama and immense charisma gave him a 'cut through' that no other boxer could match. Having written biographies of Federer and Djokovic, the author has dealt extensively with the possible criteria involved in determining 'the greatest' in tennis, and therefore offers this paper. It is an inexact science, and there are no doubt other factors that do not feature in this paper which can validly be added to the debate. But it at least offers a possible framework for reasoned discussion.

Numerical achievements

The easiest place to start is where the debate currently is: with numerical achievements. This is the area where, in theory, there is less room for interpretation. After all, tennis is a results-based sport, where you either win or you lose, so this would be a measure of greatness in

tune with the win/lose ethos of the sport. However, which numerical measuring stick should one use? There are several:

- Number of Grand Slam singles titles
- Number of overall Grand Slam titles (perhaps adding team/Olympic titles)
- Number of tour-level titles
- Scores
- Weeks at the top of the world rankings
- Other definable numerical indicators

The **number of major singles titles** is an obvious one, given that the four Grand Slam tournaments are generally recognised as the events around which the sport is structured. In many sports such as athletics (track and field), swimming and gymnastics, the Olympic Games is the highlight of a four-year cycle. Not so in tennis; while the Olympics have come back as a valued title in the quadrennial cycle, the sport universally recognises a Grand Slam singles title as of greater historical value than an Olympic gold medal. Therefore, if any numerical achievement should be used as a measuring stick for ‘the greatest’, it is natural that it be major singles titles. But should it be that alone?

If the Grand Slams are the pinnacle of tennis, should **major doubles titles** be included? For many they should, though at a lesser level of importance than singles titles. None of Federer, Nadal or Djokovic has a Grand Slam doubles title, though Federer and Nadal have **Olympic gold medals** in doubles – does that affect their standing in the debate when compared with, say, Rod Laver who won 11 singles majors, nine men’s doubles majors and four mixed doubles majors? If doubles had more weighting, one would have to introduce John Newcombe into the debate, as he won 20 major doubles titles (17 men’s, 3 mixed) alongside his 7 Grand Slam singles titles. In women’s tennis, Margaret Court, Martina Navratilova, Billie Jean King and Serena Williams all won multiple titles in all three disciplines open to them, whereas Steffi Graf’s impressive haul of 22 major singles titles was augmented by a solitary women’s doubles major title – does that affect some people’s contention that Graf is the greatest female player of all time? And what about team events and the Olympics? The Davis and Fed Cups were far more winnable for players from teams with several top-ranked players, while Federer and Djokovic each won just one title but carrying a lot more of the load than the titles won by Nadal, Laver and others. And the Olympics wasn’t available to the likes of Laver, Hoad, Rosewall, Newcombe and Borg, nor to Court, King and (just about) Navratilova and Evert, so how do we evaluate Graf’s ‘golden Slam’ of 1988?

Since tennis is all about winning titles, and you can only beat the person on the other side of the net, shouldn’t the **total number of titles** won be a factor? The men’s leader is Jimmy Connors with 109, followed by Federer with 103; as of 30 October 2023, Djokovic has 95. Even with Connors having won eight major singles titles on all three surfaces (his clay major came at Forest Hills during the three years it was played on ‘HarTru’ clay), few include him in ‘the greatest’ debate, yet those 109 titles – most of them won with a racket with a tiny sweetspot – ought to carry some kudos.

Because the tennis scoring system values a 6-0 6-0 win the same as a 7-6 6-7 7-6 win, not a lot of attention is paid to the **scores**, despite them being recorded in all official drawsheets. Yet if a player regularly trounces opponents, does this not count for something? Does McEnroe's 6-1 6-1 6-2 victory over Connors in the 1984 Wimbledon final simply count as one major, or should it count for more given McEnroe's emphatic display that day, and against his principal rival at the time? The same applies to Stefan Edberg's 6-2 6-4 6-0 win over Jim Courier in the 1991 US Open final. And on the professional circuit in the late 1950s and 1960s, Lew Hoad used to regularly beat his opponents by crushing scores – does that play any role in the already difficult task of evaluating his place in 'the greatest' debate?

What of rankings? It's important to remember why computer rankings were introduced – it was *not* to work out who was the best player in the world in a particular week, but to ensure fair entry into tournaments based on merit. Therefore, the world No 1 is more a by-product of the rankings than a purpose of them. Having said that, by being based on the past 52 weeks of tournament activity (other than in exceptional circumstances like pandemics), the **top of the world rankings** reflects the highest levels of consistency, and therefore has a role to play in 'the greatest' debate. Federer topped the rankings for 311 weeks, but Djokovic has exceeded that, and as of 30 October 2023 the Serb has been ranked No 1 for a total of 396 weeks (and counting). Graf topped the women's rankings for 377 weeks.

Economic pulling-power

Given the multi-billion dollar global sport that tennis has become, can we really leave economic pulling-power out of the debate? After all, the world No 1 in tennis is an equivalent athlete to the world No 1 in squash, or badminton, or other racket sports, yet he and she earn far more than their equivalents in those other sports, simply because tennis has much bigger commercial deals. Surely then, the economic pulling-power of a tennis great has to carry some weight in the debate about 'the greatest'.

This begs the question: how do you measure economic pulling-power? There appear to be two clear measuring sticks:

- Income
- Appearance fees and TV ratings

The best guide to **income** is the sports rich list published by the American magazine *Forbes*. It amasses income data from salaries/prize money and endorsements. The former is pretty reliable as the data is public. The latter is far less reliable, and *Forbes* freely admits it has to rely on off-the-record discussions with industry insiders, some of whom may have their own incentives to inflate figures. But the amounts are plausible – and as good as we're likely to get – and the itemisation makes sense; team players generally get far more from salaries than from endorsements, while individual sport players generally get far more from endorsements than from prize money.

The only tennis players to have featured in the *Forbes* sports rich list over the past 15 years are Roger Federer, Serena Williams, Maria Sharapova, Rafael Nadal and Novak Djokovic. What's more, Federer has been in the top 10 every year, while Djokovic and Nadal appear only sporadically (Djokovic was last in the top 10 in 2016, Nadal in 2014). Even in the 2023 list, based on data taking in his last (and sole) appearance of 2022 at the Laver Cup, Federer still managed to finish ninth. Williams was the next-best tennis performer at 49th. Federer's combined prize money and endorsements in the 2023 list was \$95.1m, while the next-best male tennis player was Djokovic with \$38.4m. Given that Federer's earnings were almost exclusively endorsements as he didn't play any prize money tournaments, that speaks volumes for his economic pulling-power.

Data on **appearance fees** are even harder to find out than endorsements, because they are kept a closely guarded secret and can be mixed up between fees paid on top of prize money and prize money guarantees for the situation that a player loses early. But when tournament directors want to enhance the attractiveness of their event, the prices they are willing to pay for players who act as a big draw are an indicator to who has the biggest pulling-power. To give an (unconfirmed) example, a WTA tournament in America in 2023 which boasted eight of the top 10 female players reportedly paid an appearance fee to only one, Coco Gauff. That indicates that, all else being equal, Gauff is likely to succeed Serena Williams as the leading female tennis representative in sports rich lists.

Data on **TV ratings** are also a murky area, but they give a further guide to economic pulling-power. In the era of the 'big three', viewing figures when Federer played were always inflated in global audience terms, considerably more so than for Nadal and Djokovic.

There are possible other indicators, such as who gets asked for the most autographs and selfies, and who children most like to imitate in their streets, gardens and schoolyards. These are all valid additions to the overall picture but are very difficult to measure.

It should be noted that the indicators for economic pulling-power are much greater these days than in earlier eras of tennis, and therefore they should really only be used to compare players from the same era, not players from different eras. Additionally, any player who was active before tennis went 'open' in 1968 would have been bound by very strict rules on what they could receive and even what they could do in their day-job. So they are valid for comparing, say, Federer, Nadal and Djokovic (perhaps alongside the Williams sisters and Sharapova), or Connors, Borg and McEnroe (plus perhaps Evert and Navratilova), but not for comparing Federer with Laver, Borg with Tilden, etc.

The competition

We get into precarious territory when it comes to deciding how to evaluate someone's achievements in the light of which principal competitors were not allowed to compete. (Note the word 'allowed' here – plenty of players are not able to play a tournament because they

are injured, but, however unlucky a player may be, injuries are part of the game; it is when a player is *able* to play but not *allowed* to that some account may have to be taken.)

The most obvious difficulty in assessing the greatest of all time affects the 40-or-so years in which tennis had split amateur and professional circuits (a problem that affected the men; women were only just starting their professional circuits when tennis went 'open' in 1968). The period affected was from the late 1920s until April 1968, and makes a realistic evaluation of anyone's career in that time next-to impossible. Don Budge did the first pure Grand Slam in 1938, but by then his biggest rivals Ellsworth Vines and Fred Perry had both turned professional, so while it was a remarkable achievement, it pales alongside Laver's Grand Slam in 1969 when everyone was eligible to compete; for the same reason, Laver's Grand Slam in 1962 also pales alongside his achievement in 1969 as Hoad, Rosewall, Gonzalez, Olmedo and others were by then professional. Many who watched Hoad and Rosewall on the professional tours say they were the equal of Laver, but prior to 'open' tennis they only competed against Laver for five years, and none of those were in prestigious tournaments but in de facto exhibition matches in makeshift tennis venues. And who knows how good Bobby Riggs and Jack Kramer really were, given that the Second World War stopped Riggs and the war and professional tennis limited Kramer?

A methodology to judge the standing of those who were professionals in the years before tennis went 'open' could be worked out using the results from 1968 in which players who were returning from the professional ranks played hitherto amateurs in the first few months of 'open' tennis. Given that the returning professionals generally beat the hitherto amateurs, the touring professionals pre-1968 should have their achievements weighted more heavily, and the Grand Slam champions pre-1968 should be evaluated with a little more caution. The big disbeneficiary of this would be Roy Emerson, who won 12 Grand Slam singles titles, but most of them with his biggest rivals ineligible to compete.

The women don't suffer from this problem as much, given the absence of professional circuits pre-1968, so Maureen Connolly's pure Grand Slam in 1953 is entirely legitimate, even if the spread of the sport at the time meant the strength in depth of top-level tennis was incomparable with today. But there is an issue evaluating Margaret Court's 24 major singles titles. She won the Australian Championships (the forerunner of the Australian Open) seven years running between 1960 and 1966, but a look at the draws shows a number of her principal rivals absent, having not been able to travel to Australia in those amateur days. No-one should take away from Court that she beat everyone on the other side of the net, and she did a legitimate Grand Slam in 1970 with everyone eligible to compete, so she is entitled to be considered in 'the greatest' debate, but her 24 singles majors do not look as good in their full context as Serena Williams' 23 titles won with persistently much fiercer competition.

An already inconsistent situation is further complicated by the inconsistency witnessed by the tennis tour in 2022 as the Covid-19 pandemic continued to influence global behaviour. Having declined to take a Covid-19 vaccine, Novak Djokovic was denied entry to Australia and America for the 2022 Australian and US Opens. Should one view this as *self-inflicted* as he

could have taken a vaccine if he'd wanted to and therefore it should be equated with an injury, or was it a case of him *not being allowed* given that tennis anti-doping rules make players responsible for what is in their bodies and Djokovic said he was uncomfortable putting a new vaccine into his system? Given that he was a hot favourite for both majors he was denied entry to, there has to be an asterisk alongside Rafael Nadal and Carlos Alcaraz, who won those two tournaments. The landscape was further confused by all Russian and Belarussian players being denied entry to the UK following Russia's invasion of Ukraine, thus making them not eligible to compete at Wimbledon (Djokovic won the title). The ATP and WTA declined to award ranking points for Wimbledon 2022 because they said legitimate players were not allowed to compete as due to a war, yet they still awarded points for the Australian and US Opens when Djokovic and the Czech player Renata Voracova were denied entry for making a medical decision in a pandemic.

Despite the difficulties of evaluating players from different eras, no-one could reasonably make a case for the greatest tennis player of all time to have come from any period before the end of the First World War. The Renshaws, the Dohertys, Anthony Wilding, and others may have been the best in the world in their era, but the sport was so new that the depth in competition was nothing like what it became later. The earliest two people who could conceivably be argued to be the greatest of all time would be Bill Tilden and Suzanne Lenglen, simply for reasons of competition. It is, of course, possible that someone from the pre-1918 era was the greatest of all time, but they came too early in the sport for them to be recognised. This may well happen in women's wheelchair tennis, where Esther Vergeer won 48 major titles, seven Paralympic medals (four singles, three doubles), and had a winning streak of 470 matches, but her achievement may be hard to assess over time, as she played in an era where wheelchair tennis was fairly young, and those who come after her are likely to face stiffer competition.

Aestheticism

This is purely subjective, but when numerous tennis fans purr at the perceived beauty of a player's strokes, how can this be left out of the debate? It's easy to think this is just a factor brought into the debate to separate Roger Federer from Nadal and Djokovic, but it applies to more rivalries than just the most recent one of the 'big three'.

Some tennis fans preferred the Borg fluency to the big power of the McEnroe game, yet others preferred the more classic McEnroe strokes to Borg's idiosyncratic style. Similarly, some fans preferred Navratilova's classic fluency to Evert's new age (for its time) 'tennis academy' strokes, yet others preferred Evert's perceived femininity to Navratilova's pioneering dedication to athleticism. The popularity of the one-handed backhand means that Graf had the aesthetic edge over Seles (certainly until Seles was stabbed, after which she gained in global affection among fans), and the same probably gave Sampras the edge over Agassi, even though Agassi always drew far greater crowds, at least in part because Sampras

was probably too successful for his own popularity. And while many fans tore their hair out at Nastase's antics, as many purred over his beautiful strokes.

The only way of quantifying aestheticism would be to do surveys of tennis fans to see for which players they would interrupt their plans to watch on TV and why. And for past generations, there are too few fans left, along with the tricks played by long-term memory, to give reliable evidence. There is clearly an overlap between aestheticism and economic pulling-power, and the more one wants to have tangible evidence, the less of a role aestheticism can play in 'the greatest' debate. But anecdotal evidence suggests that numerous fans, when asked who the greatest tennis player of all time is, respond with a form of "Oh it has to be Federer, he was so beautiful to watch!" so it cannot be entirely left out of the debate, however subjective it is.

One match v consistency

Most of the numerical indicators above reflect consistency over a sustained period, but is one not allowed to include in the debate players who have hit the highest levels of tennis? This question highlights the importance of defining what we mean by 'the greatest'. Is it the most consistent player at the top of the game, or is there a place for the less consistent player who clearly belongs to the elite and plays outstanding tennis every now and again?

The player this affects most is John McEnroe. Having won 'only' seven major titles, and across just two majors (4 US Open, 3 Wimbledon), few group him with the likes of Laver, Sampras and the 'big three'. But when he tapped into his form, he was devastating, and his demolition of Connors in the 1984 Wimbledon final was one of the finest displays of tennis many who watched it said they'd ever seen. Similarly, Martina Navratilova's 6-3 6-1 victory over Chris Evert in the 1984 Roland Garros final prompted the veteran BBC commentator Dan Maskell, then aged 76, to revise his opinion that Suzanne Lenglen was the greatest player he had seen.

By 'the greatest', most people seem to mean the most consistently great top-level player, so on that basis isolated sublime performances would not count for much. But there are those who argue that devaluing outstanding achievement in favour of consistent high-level achievement takes something away from the concept of 'the greatest'.

Transcendence and social impact

A central question in assessing the greatest is whether it should be entirely within the confines of the sport of tennis, or whether the ability of a great to transcend the consciousness of tennis, and become known to people who have little or nothing to do with tennis, is a factor in their greatness.

Again we come back to McEnroe. He became such a global icon as a 'spoiled brat' that his fame went well beyond the world of tennis. The contemporary dancer Wayne Sleep developed a McEnroe dance exploiting his on-court anger, the BBC's satirical *Not The Nine O'Clock News* programme did a 'Breakfast at the McEnroe home' sketch, and even now the phrase 'You cannot be serious!' is regularly quoted by people who have never seen McEnroe play tennis. Roger Federer may have a similar recognition level, and Novak Djokovic was in the world's news bulletins in January 2022 for his Covid vaccines stance which led to him being deported from Australia, but neither is likely to have the enduring cut-through of McEnroe outside the tennis world.

Transcendence is particularly important when assessing the best female player of all time. In terms of achievements and playing ability, there are approaching a dozen names one could throw into the debate, including Lenglen, Wills, Connolly, Court, King, Evert, Navratilova, Graf, Seles and Serena Williams. But three of those stand out as transcending the sport. Billie Jean King is arguably one of the great feminist figures of the 20th century, honoured well beyond the tennis world. Martina Navratilova took women's sport to a new level with her focus on fitness and diet, but as a teenage defector from the Soviet bloc and then an overt campaigner for homosexual recognition, she transcended tennis. And Serena Williams, together with her sister Venus, took the fight against the vestiges of racism to new levels – they came after many of the legal battles for racial equality had been won, but played a vital role in widening the perception of what people of colour – in particular girls and women – could do in areas previously associated with white predominance. The more weight one gives transcendence and social impact in assessing 'the greatest', the more these three rise to the top.

Other players have transcended tennis for short periods. Tracy Austin was the first of the 14-year-old professionals, and created such a stir that she was a globally recognised name even outside tennis for a few years; the British playwright Willy Russell even put her in the original version of *Educating Rita*, with Rita talking about telling 'the difference between Jane Austen and Tracy Austin'. Monica Seles had global recognition in the period after she was stabbed at a change-of-ends during a match in Hamburg. And Novak Djokovic dominated global news bulletins in January 2022 in the period before he was deported from Australia. But these are short-term claims to fame that bear no comparison with the sustained work done by the likes of King, Navratilova and Williams.

Men v women and others

This is a dangerous area to get into in terms of political correctness, but if we're asking the question 'Who is the greatest tennis player of all time?', it's worth asking whether the answer has to be an able-bodied man, simply by dint of superior strength. That is not in any way a devaluation of women's sport (tennis can rightly be proud of the pioneering role it has played in the sports equalities agenda), merely a recognition that all the top men would have beaten all the top women, plus wheelchair, junior and veteran players.

It's worth a look at some other sports. Swimming has four disciplines: breaststroke, backstroke, butterfly and front crawl, but the latter is not called front crawl but freestyle. This is because the first three are regulated, whereas the fourth is unregulated and swimmers can do whatever they want in order to go as fast as they can through the water. In boxing there are numerous weight categories, including heavyweight, but heavyweight is effectively the freestyle or unlimited weight, because anyone can box in the heavyweight division. There are weigh-ins before heavyweight boxing fights, but they are only for show, whereas any boxer failing to make the weight in other categories is disqualified from competing unless he/she can work off the weight in the time permitted. Athletics (track and field) is broken down into various disciplines, but the winner of the men's 100 metres at the Olympics and world championships is generally thought of as 'the fastest man on earth' because that is the discipline in which the fastest unaided speeds are attained.

The question then arises: is men's tennis the de facto derestricted category of tennis, such that the men's champion or world No 1 is automatically the best in the world? In terms of strength – and likely results – the answer has to be yes. Does that then rule out a woman or a wheelchair player from being the greatest tennis player of all time? An argument could be made that a woman or wheelchair player has played tennis to a higher standard than any man, even though that man would beat her in a one-to-one match with both at their peaks – would that allow the woman to be considered 'the greatest', even ahead of men who would have beaten her? The most likely candidate for 'the greatest' from a category outside men's tennis might be Esther Vergeer, although the reservations expressed in the section of this paper on competition may be valid here. (The King v Riggs match of 1973 is largely a red herring in this context, as King was 29 and at the peak of her career, while Riggs was 55 and 34 years past his Wimbledon titles; but the fact that all three sets were competitive, even if all were won by King, floats the hypothesis that a male former champion may have to be in his fifties before he slips below the level at which he can beat a top female player.)

Weighting

So if all these factors are valid in assessing the greatest tennis player of all time, they should surely not all carry equal weight? How, then, should they be weighted? Again, we are back in the realms of subjectivity. Some people may say tennis is a results-based meritocracy, so numerical achievement should account for 100% of the weighting – but then one still has the sub-divisions of numerical achievement, notably whether doubles titles, team titles and weeks at No 1 should be taken into consideration. How much do you consider economic pulling-power, or transcendence, or aestheticism? Everyone's weighting would be different, which is why this debate will never end.

A potential model

So let's construct a possible model, even though many tennis fans will disagree with elements of it.

- Numerical achievement must have the lion's share, so let's give that 40%, of which 35% is Grand Slam singles titles and 5% more can be earned with major doubles titles, team titles and weeks at No 1.
- Economic pulling-power has to have a prominent role, because tennis would not have its global status without marquee names who can sell the sport, so let's give that 25%.
- We have to take into account the competition that candidates for 'the greatest' faced, but as one can only beat the player on the other side of the net (and it's not the champion's fault if the challengers weren't as good as in other eras), and there are additional factors such as how two players' games match up, this should only have a small weighting – say 10%.
- We know aestheticism is very difficult to assess, but we also know it's there. Let's give it 5%, which many will say is too low, but the low percentage takes out some of the subjectivity.
- Players who hit superb heights in a match should get some credit for it, even if it boosts players who might not otherwise feature in the debate, but most people would consider 'the greatest' to reflect sustained top-level achievement, so this should only account for 5%.
- Transcendence and social impact have to feature, but surely the greatest tennis player of all time could be someone barely known outside tennis. Therefore, it probably qualifies for only 15% of the weighting.

There are plenty of other categories to add, the most obvious being mental strength. But mental strength is not an end, it's a means to an end (the end being to win matches and titles), so while one might say someone is 'the greatest' for their mental strength, it's the results in the big tournaments that make them great, not the mental side. Yet many would disagree, and that's entirely legitimate.

Applying the model

If we then apply this model to the leading contenders in the debate, we could award the following percentages, adding up to our league table of totals:

- **Federer** falls short of Djokovic and Nadal in Grand Slam titles, so he gets 32%, and an extra 4% for winning the Davis Cup and an Olympic doubles gold medal, but not the full 5% as he has no major doubles titles. As he's the most marketable player, he gets the full 25% on economic pulling power. Because he played in an era of the greatest competition, he gets the full 10% on competition. Federer has to get the full 5% for aestheticism. He seldom crushed opponents, but because he was such a fast starter he could decide matches before they were more than a few minutes old, so he picks up an extra 4% for scores dominance. It is difficult to know how much Federer transcended tennis – he was extremely well known, but isn't quite in the Agassi and McEnroe league, so gets 13% for transcendence.
- For **Nadal**, he should really get 33.5% for Grand Slam singles titles, but as we're not doing half-points he is rounded up to 34% because of his remarkable record at Roland-Garros. Like Federer, Nadal gets an extra 4% for winning the Davis Cup and an Olympic doubles gold medal, but not the full 5% as he has no major doubles titles. Because he was less loved than Federer (though more popular than Djokovic), he was less of a draw for tournament promoters and broadcasters, but still a member of the 'big three', so he gets 22% on economic pulling-power. Because he played in an era of the greatest competition, he gets the full 10% on competition. It's hard to argue that Nadal was a beautiful player to watch, as there was so much power involved, but he gets 2% (rather than 0 or 1%) because of his movement around the court and deft touch at the net. He was not one to seek a very one-sided score, and even his emphatic Roland-Garros finals (v Federer in 2008, v Djokovic in 2020) were as much a case of undermining the opponent's confidence rather than playing 'lights-out tennis', but he still warrants 4% on dominance in matches. It's hard to say Nadal transcended tennis – true, plenty of people knew him outside tennis, but while he was a massive presence on court, he was never more than a prominent spectator at a football match off it, so it's hard to justify more than 11% for transcendence.
- For **Djokovic**, he gets all 35% of the Grand Slam singles title points, and gets an extra 3% for winning the Davis Cup and holding the record for weeks at the top of the rankings. How do we handle the fact that, at one stage in 2016, he held all four major titles? – if we're giving Laver an extra 3% for doing a pure Grand Slam, Djokovic should have an extra 2% for holding all four titles simultaneously. Because he was less loved than Federer (though no less admired), he was less of a draw for tournament promoters and broadcasters, but still a member of the 'big three', so he gets 21% on economic pulling-power. Having played in an era of the greatest competition, he gets the full 10% on competition. Djokovic has very fluent strokes, which some find aesthetically pleasing, but the crowd didn't purr the way they did with Federer, so Djokovic gets 3% for aestheticism. Like Federer and Nadal, he would seldom be so dominant as to take opponents to the cleaners, but after a fairly even first half-hour, he would often go into a phase of not missing and open up a significant lead, so he gets 3% for scores dominance. Assessing how much he transcended tennis is difficult, as the biggest reason for him making headlines in the wider world has nothing to do

with tennis (his refusal to take a Covid-19 vaccine); outside the tennis world, he is not that well known, so only justifies 11%.

- For Serena **Williams**, she gets 34% for Grand Slam singles titles, and the full 5% for additional achievements having won a career Grand Slam in doubles, Olympic gold, and Fed Cup. Williams was (with Sharapova) the biggest women's draw of her era, and was a match for the 'big three' with the exception of Federer (the *Forbes* lists form a compelling argument), so she gets 24% for economic pulling-power. Because she played in an era of the greatest competition, she gets the full 10% on competition. It's hard to argue for many points for Williams on aestheticism, as her game was based on power, and her groundstrokes were often jerky; but the fluency on her serve and her development of an all-court game warrant at least 2%. There's no doubt Williams could crush opponents with unanswerable tennis – some of that may have been her superior strength, but in terms of producing matches that were stunning displays of dominance, she did so on several occasions so deserves the full 5% for scores. How much she transcended tennis is hard to gauge – she had a similar 'bad girl' image to McEnroe's 'bad boy', especially after she was defaulted from the 2009 US Open semi-finals and was nearly disqualified from the 2018 US Open final, and it is hard to know how much people talked about her outside tennis circles; as a woman of colour breaking new ground in sport, she had considerable social impact. She gets 13%, but it's easy to see arguments that suggest this is too high or too low.
- For **Graf**, her 22 Grand Slam singles titles give her 32%, plus 3% for doing a pure Grand Slam. She also gets the full 5% for winning one Grand Slam doubles title, two Fed Cup titles and an Olympic gold and silver medal, plus being the female player ranked No 1 for most weeks. She was a major draw in the tennis world, and was ranked 13th in the first *Forbes* sports rich list in 1990 (Gabriela Sabatini was also in the top 30 that year despite not having won a major singles title), but she was never a really big draw outside Germany, so gets 20%. One could argue for a competition factor of 8% or 9%, but as 6 of her 22 majors were won with her principal rival Monica Seles off the tour following her stabbing in May 1993, we round down to 8%. On aestheticism many tennis fans considered her sliced backhand a shot of beauty, but she was never known for her elegant game, perhaps because she regularly came up against more fluent players like Navratilova and Jana Novotna, so she gets 3%. In terms of scores dominance, she regularly beat players well within the hour, and her 33-minute 6-0 6-0 demolition of Natasha Zverev in the 1988 Roland-Garros final means she has to have 5%. How much she transcended the sport is hard to say, largely because she was an introverted personality, and had more recognisable rivals at the time, notably Navratilova, Seles (if only because of the stabbing) and Arantxa Sanchez Vicario, so she gets 11%
- For **Sampras**, his 14 Grand Slam titles give him 20% (one could mark him down for never winning on clay), and he gets 3% for his two Davis Cup titles, though he never won a doubles major and chose not to play the three Olympic tennis events he was

eligible for. Much as he was admired, he wasn't quite the draw that his on-court achievements might have warranted (except when he was playing Agassi), and therefore gets only 20% on economic pulling-power. Because of the expansion in the global reach of tennis between the Sampras/Agassi era and the era of the 'big three', Sampras gets just 9% rather than the full 10% for competition. Aestheticism is difficult for Sampras because people didn't go to see him play because he was beautiful to watch, but there was something classically beautiful about his shots, so he gets 3%. And he didn't really transcend the sport, preferring to retire to his home and the golf course when not playing tournaments, so the 11% he gets for transcendence may be overgenerous. Though many of his scores were emphatic and he could raise his level on the big points, he seldom pulverised opponents, so warrants 4% on scores dominance. And it's hard to see how he transcended tennis any more than his results warranted – the name 'Pete Sampras' was not uttered regularly outside the tennis world, even at his peak, so he gets 11%.

- **Agassi's** 8 major singles titles give him 12%, and he gets 4% for winning the Davis Cup and Olympic gold but no major doubles titles. Agassi was the Federer of his day in terms of a draw card so should have the full 25% for economic pulling-power. Like Sampras, Agassi gets 9% for competition. It's hard to weigh up Agassi's aestheticism, because his game was not known for its beauty, but the audacity of his game made people gasp in appreciation – he is probably worth 4%. At his best, he could produce some remarkable shots that destroyed opponents' confidence, but a look at his scores suggest he seldom crushed them, so he is another with 4% on scores dominance. His social impact was very strong, especially since the end of his playing days with his school for underprivileged children in Las Vegas, and his profile means there is a case to give him the full 15% for transcendence, but he doesn't quite match McEnroe and King, so he gets 14%.
- **Navratilova** gets 27% for her 18 Grand Slam singles titles, and the full 5% for doubles and representative tennis (it seems hopelessly inadequate when one considers what a colossus she was in doubles; her doubles record justifies her inclusion amid the omission of Chris Evert, who also won 18 major singles titles). At one stage in the 1980s she won six successive majors, but three each across two years, which meant she never did the pure Grand Slam in singles; based on how we're treating Djokovic and Laver, she deserves at least 2% more for that. Her economic pulling-power was massive in the 1980s, she could command appearance fees for the time, and was always a draw on TV, so she gets 24% for that. The competition was not as deep as it later became (partly thanks to successor players adopting Navratilova's standards on fitness and diet), but it was greater in the 1980s than it had been in the 70s, so she gets 8%. Aesthetically she was one of the most beautiful players of her day, and while she might be appreciated more now than she was at the time, even her detractors felt that only Evonne Goolagong Cawley had a more elegant playing style, which warrants the full 5%. While dominant, she rarely wiped the floor with opponents (even her near-perfect Roland-Garros final of 1984 was not a drubbing, mainly because Evert

played better than the 6-3 6-1 score suggests), so she gets 4% for scores dominance. Her social impact was immense, especially on sexuality issues, and her defection from Czechoslovakia at 18 and often high-profile private life means she could warrant 15% for transcendence, but she wasn't quite as notorious as McEnroe or as ambassadorial as King, so she gets 14%.

- For **McEnroe**, his 7 Grand Slam singles titles warrant just 10%, but his 9 major doubles titles and 5 Davis Cup winner's replicas give him the full 5% in an era when the Olympics weren't available until the twilight of his career (like with Navratilova, his doubles prowess feels inadequately rewarded). There was no question McEnroe sold out tickets wherever he went, if only because people wondered how long it would take him to lose his cool, so he gets the full 25% on economic pulling-power. Like Borg, McEnroe gets 7% on competition. McEnroe was like Agassi on aestheticism – the audacity of his strokes drew purrs and gasps from spectators, but his strokes were not always beautiful, and his serve looked like it was hit round the side of a building, so he gets 4%. His demolition of Jimmy Connors in the 1984 Wimbledon final was so emphatic that he has to get 5% for scores dominance. And the way he became a synonym for a spiky personality that could explode at any minute means he had a reputation that justifies 15% for transcendence.
- **Borg's** 11 major singles titles give him 16% (again one could mark him down for only winning two of the four Slams), and he gets 3% for his Davis Cup winner's medal; one could argue that should be 4% because the Olympics weren't available to Borg, but he played very little doubles and won just one Davis Cup, so 3% seems fairer. In places like Sweden, France and Great Britain, Borg was as big as McEnroe, but his cool demeanour meant he wasn't quite the draw across the whole tennis world, so he gets 23% on economic pulling-power. Borg and McEnroe played in the most competitive era tennis had seen to that point, but if one considers that the Davis Cup was only won for the first time by a non-Slam nation in 1974, it's clear the global competition wasn't as great in the 1970s; Borg therefore gets 7%. He had a very fluent style, but did people enjoy his aestheticism? – today's audiences would probably appreciate his backhand (two-handed up to the point of contact, then one-handed on the follow-through) more than fans in the late 1970s did, but he probably doesn't warrant the full 5% but 4%. Even when winning imperiously, Borg seldom crushed opponents, and many of his matches in Slams involved him having to come back from losing sets, so he gets 3% for scores dominance. Early in his career when he was something of a pop-star tennis player, his transcendence was high, but his introverted personality meant he was never a major name outside tennis, and therefore gets 12% for transcendence.
- **King** won 'just' 12 Grand Slam singles titles, which in the overall scheme doesn't score highly, so with the record standing at 24, it means she should only get around half, so 18%; but she gets the full 5% for her doubles and Federation Cup titles (the Olympics weren't an option in her playing days). Much as she is an icon now, she was not quite the same draw in her playing days, partly because rivals such as Court, Goolagong and

Wade were nearly as big draw cards, but King deserves 23% of the economic pulling-power points. The competition was impressive in King's playing days, but tennis didn't draw in players from all corners of the globe the way it does now, so she gets 7% on competition. Her game is more aesthetically pleasing now than it was in her playing days when most players had her style, but the fluency of her serve and her elegant movement around the court warrant 4%. She had one crushing Wimbledon final win (1975 over Goolagong-Cawley), but apart from that was a steady winner rather than one to inflict drubbings, so she gets 3% on scores dominance. On transcendence and social impact, she gets the full 15%, in fact that seems inadequate for such a feminist icon of the second half of the 20th century.

- **Laver** is harder to assess. If Djokovic is the leader with 24 singles titles, and as we are giving 35% to that, we are awarding approximately 1.5% for each major title, but should Laver get less than 1.5 percentage points for the six majors he won before tennis went 'open'? Or do we give him the benefit of the doubt and mark him very strictly on competition? Taking the latter approach, we can give him 16% for his singles majors, plus 5% for doubles and Davis Cup (the Olympics weren't an option for him), but then we probably have to give him just 4% for competition. Yet his calendar year Grand Slam in 1969 with everyone eligible to compete must count for something, so he gets an extra 3% on his major singles titles for that. His economic pulling-power is hard to gauge, because the global sporting market place and media landscape are so different now from the 1960s and early 70s when Laver was in his prime; as a name to draw in spectators, he didn't have the magnetism that he might have today, so warrants no more than 19%. People enjoyed watching him play, and his backhand volley was a shot of beauty, so he gets 4%. Even at his most dominant he rarely ground opponents into the dirt, so he gets 3% for scores dominance. Did he transcend the sport? – he was one of the early marquee names, but his profile outside sport was limited. The 11% he gets for transcendence might have been lower were it not for an international modern-day team competition named after him simply because he is a legend.
- We have the same problem assessing **Court**'s Grand Slam singles titles as with Laver, in fact more so, given not only that 13 of her Australian titles were won before tennis went 'open' (that is less of an issue with the women because there was no female professional circuit pre-1968) but also because 7 were won at a time when many of her main rivals didn't travel to Australia for financial reasons. The fact that she won a pure Grand Slam with everyone eligible to compete suggests she might well have won many of the Australian titles anyway, so she gets the full 35% for Grand Slam singles titles but – as a bit of mild counterweighting – no additional 3% the way Laver and Graf do. She gets her full 5% for doubles and representative tennis (the Olympics weren't available to her). Her economic pulling-power is hard to gauge, mainly because tennis in general and women's tennis in particular were harder to market in her day; she was clearly a marquee name, but she didn't have the magnetism that would sell tickets and was a reluctant member of Gladys Heldman's and Billie Jean

King's movement to promote women's tennis, so she gets 18%. In terms of competition, the fact that so many of her majors were won in what was sometimes referred to as a glorified Australian national championships means she cannot have more than 5%. In her Grand Slam winning year, she often won by dominant scores, but doesn't quite merit the full 5%, so she gets 4%. Did she transcend the sport? – ironically she has transcended it more since her playing days, with the second court at the Australian Open named after her, and controversy in recent years over her trenchant views opposing same-sex relationships. Based on what other players have had, 11% seems about fair.

Putting all these scores in a table, we get:

	Numerical	Economic	Competition	Aestheticism	Scores	Transcendence	Totals
Court	24	18	5	4	4	11	66
Laver	24	19	4	4	3	11	65
King	23	23	7	4	3	15	75
Borg	19	23	7	4	3	12	68
McEnroe	15	25	7	4	5	15	71
Navratilova	34	24	8	5	4	14	89
Graf	37	20	8	3	5	11	84
Sampras	23	19	9	3	4	11	69
Agassi	16	25	9	4	4	14	72
Williams	39	23	10	2	5	13	92
Federer	36	25	10	5	4	13	93
Nadal	38	22	10	2	4	11	87
Djokovic	40	21	10	3	3	11	88

And the winner is ...

Using this categorisation, weighting by percentage, and assessment of the leading contenders, Federer comes top (93%), Serena Williams second (92%), Navratilova third (89%), Djokovic fourth (88%) and Nadal fifth (87%). But the gaps between the top five are sufficiently small that it would take only a tiny amount of tweaking for a different winner to emerge. For example, if transcendence and social impact were given more weight, three women (King, Navratilova and Williams) might share the top places; if a higher percentage was given to numerical achievement, Djokovic would rise; and Navratilova and Court would rise if more credit were given for Grand Slam doubles titles. Convincing cases can be made for a variety of different percentage distributions, some of which might bring other players into contention.

Another problem with such a model is that it is open to the accusation that whoever drew it up did so to achieve their own desired outcome (somewhat suspiciously, the person who wrote this paper and drew up the model also wrote biographies of Federer and Djokovic!). As such, this can never be a clean debate, only one where 'the greatest' is determined on the basis of what given analysts consider the most important criteria.

Conclusion

Just as the debate over equal prize money rumbled on for many years and was ultimately only resolved when the presumption fell in favour of the criterion of human dignity – the argument that men and women ought to be rewarded the same as each other – over other considerations (notably that tickets for men’s matches were – and in some cases still are – easier to sell than tickets for women’s matches), so the debate about the greatest of all time ought to revolve around conscious criteria. But unlike the equal prize money debate, which appears to be resolved once and for all, the greatest debate will never be resolved. Perhaps that enhances the importance of the criteria used to evaluate ‘the greatest’?

It remains an inexact science, and that’s what makes it such a popular subject for tennis fans – no-one can claim to be definitively right. However, by any measuring stick or weighting of all the criteria, it is hard to look beyond Roger Federer, Novak Djokovic and Serena Williams (and just possibly Billie Jean King and Martina Navratilova if you give strong weighting to transcendence and social impact) as the greatest of all time. In other words, any reasoned weighting of the various criteria would lead you to one of these five, probably three. Djokovic might yet alter the data we input into whatever model we opt for if he takes his tally of major titles into the high 20s, and it’s possible that Carlos Alcaraz will be in the discussion 20 years from now. But any discussion needs to determine what criteria are being used, and how they are being weighted. This paper does little more than list some possible criteria and a possible weighting – the rest must be left to discussion in the tennis club bar.

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