



On The Greatest of All Time (GOAT) Debate between Lionel Messi and Cristiano Ronaldo Using 2021 FIFA Ballon D'or Ranking, A Mathematical Approach.

J. Hussaini

Department of Mathematical Sciences, University of Maiduguri, Nigeria.

Abstract: In this work, we established the GOAT Determinant and proved that Messi is the first and best player in the world while Cristiano Ronaldo is the 6th best player in the world using the 2021 FIFA Ballon D'or statistics as provided on the 29th of November 2021 during the award ceremony in France. We further proved by deduction that Messi is the first and best player in the world while Ronaldo remained the 6th using the same stats.

Keywords: GOAT, Determinant, Messi, Ronaldo, FIFA, Ballon D'or, Statistics.

Introduction

In 1956 Gabriel Hanot conceived the idea of the Ballon d'Or which is additionally known as the Golden Ball. It is a yearly football award presented by French news magazine France Football to respect the male player deemed to have performed the finest over the past year. It is based on voting by football journalists, from 1956 to 2006. After 2007, coaches and captains of national teams were too given the right to vote. The award is one of the most seasoned and for the most part respected as the foremost prestigious person award for football players. It was initially an award as it were for players from Europe and broadly known as the European Footballer of the Year award. In 1995, the Ballon d'Or was extended to incorporate all players from any root that have been dynamic at European clubs. In 2007 the award got to be a worldwide prize with all proficient footballers from around the world being eligible.

On 29th November, 2021 the France Football announced the winner of 2021 Ballon D'or in Paris where Lionel Messi, the Argentine won his seventh Golden Ball beating the Bayern Munich star Robert Lewandowski into second place. The first 10 according to France football are as follows:

1. Lionel Messi (PSG)
2. Robert Lewandowski (Bayern Munich)
3. Jorginho (Chelsea)
4. Karim Benzema (Real Madrid)
5. N'golo Kante (Chelsea)
6. Cristiano Ronaldo (Manchester United)

7. Mohamed Salah (Liverpool)
8. Kevin De Bruyne (Manchester City)
9. Kylian Mbappe (PSG)
10. Gianluigi Donnarumma (PSG)

In the end, Cristiano Ronaldo, the Portuguese finished number 6th in the 2021 ranking with his longtime rival Lionel Messi walking away with his seventh Golden Ball, beating Robert Lewandowski into second place when the results were announced.

Lionel Messi who currently play for Paris Saint-Germain after leaving the Spanish side FC Barcelona has the records 41 goals, 17 assists, won Copa America & Copa del Rey in 2021.

Before leaving the Spanish side, Lionel Messi dragged Barcelona to what would have been an unlikely La Liga title if they had got over the line during the opening months of 2021. He went further to win Copa America which finally claimed his first major international trophy, finished as the Player of the Tournament and the Golden Boot winner not to talk of assists and other contributions.

Considering the 2021 FIFA Ballon D'or ranking where Ronaldo ranked 6th and Messi 1st, we deduced the following:



J. HUSSAINI'S GOAT DETERMINANT

Using

2021 BALLON D'OR RANKING:

Lionel Messi = 1st

Cristiano Ronaldo = 6th

Let $\omega = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, where $\omega = \text{World Best Player}$, $a = M$, $b = 1$, $c = R$ and $d = 6$ ($M = 1 = \text{Messi} \ \& \ R = 6 = \text{Ronaldo}$).

$$\Rightarrow \omega = \begin{bmatrix} M & 1 \\ R & 6 \end{bmatrix}$$

$$|\omega| = ad - bc$$

$$= M6 - R1$$

$$\Rightarrow M6 - R1 = 0 \dots \dots \dots (*)$$

$$M6 = R1$$

$$M6 = R$$

$$R = M6, \text{ but } M = 1$$

$$\Rightarrow R = (1)6$$

$\therefore R = 6$ (*Ronaldo is the 6th in the World*)

From (*), we have

$$M6 - R1 = 0$$

$$\Rightarrow M6 = R1$$

$$M6 = R$$

$$\frac{M6}{6} = \frac{R}{6}$$

$$M = \frac{R}{6}, \text{ but } R = 6$$

$$\Rightarrow M = \frac{6}{6}$$

$\therefore M = 1$ (*Messi is the First and the Best in the World*)

Further debate,

Lionel Messi = **7 Ballon D'or**
Cristiano Ronaldo = **5 Ballon D'or**

2021 BALLON D"OR RANKING

Lionel Messi = **1st**
Cristiano Ronaldo = **6th**

Let $M = 1$ ($M = \text{Messi}$) and

$R = 6$ ($R = \text{Ronaldo}$)

$$M + R = 7 \dots\dots\dots (1) \quad (\text{Messi has 7 Ballon D'or})$$

$$R - M = 5 \dots\dots\dots (2) \quad (\text{Ronaldo has 5 Ballon D'or})$$

Substituting the value of R in (1), we have

$$M + 6 = 7$$

$$\Rightarrow M = 7 - 6$$

$$\Rightarrow M = 1 \quad (\text{Messi is the First and the Best in the World})$$

Substituting M in (2), we have

$$R - 1 = 5$$

$$\Rightarrow R = 5 + 1$$

$$\Rightarrow R = 6 \quad (\text{Ronaldo is the 6th in the World})$$

Clearly, **Messi** is the **First** and the **Best** in the **World**. Therefore, the longtime **debate** is over.

REFERENCES:

1. en.m.wikipedia.org/wiki/Ballon_d'Or
2. Goal (Nigeria), 2021
3. "How the award came about". UEFA.com. Union of European Football Associations. 9 August 2011. Retrieved 6 November 2011.
4. "The FIFA Ballon d'Or is born". FIFA.com. Fédération Internationale de Football Association. 5 July 2010. Archived from the original on 22 December 2012. Retrieved 4 December 2012.

© GSJ