

Measuring Celebrity

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Abstract

Celebrity is not fame, but it too can be measured.

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Fame is being known. Celebrity is being known by your first name. Monica Lewinsky became famous when people learned of her presidential activities. She became a celebrity when people called her *Monica*. Schulman [1, 2, 3] has quantified fame. We quantify celebrity.

Schulman [2] has shown that Google [4] is the best tool for measuring how well you are known. The quantity relevant to celebrity is the Google First Name Rank (GFNR), the position of the first reference to you when Googling your first name. For example, Bill Clinton has a raw GFNR of 10 because the tenth entry in a Google search for “bill” is a page about him. However, 6 of the preceding 9 entries are for non-people such as the Bill of Rights and *Kill Bill*. We omit such entries, giving Bill Clinton a corrected GFNR of 4.

There are many more Bills than Norberts, so Bill Clinton’s GFNR of 4 indicates greater celebrity than that of Norbert Christlieb [5]. Your measure of celebrity should depend on both your GFNR and the number of people who share your first name. As Schulman observed, the visibility of our cultural stars should be measured on a logarithmic scale. Therefore, we define your Celebrity Index (CI) to equal

$$\log \left(\frac{\text{percentage of population with your first name}}{\text{your GFNR}} \times \text{constant} \right)$$

where the constant depends on the unit of celebrity. Following Schulman, we define the *Monica* to be the unit in which Monica Lewinsky’s CI equals 0.

The CI is country-specific. Jacques Chirac’s GFNR is 16 as measured by `google.com`, but it’s 3 on `google.fr`; and many more Frenchmen than Americans are called Jacques. Chirac’s CI is therefore much higher in France than in the United States. In this article, celebrity is measured only for the U.S.

To measure the CI of Americans, we use data on the frequency of male and female first names from the Census Bureau [6]. Since about 49% of the population is male, the CI measured in deciMonicas (dM) is

$$10 \times \log \left(\frac{.49 \times M + .51 \times F}{\text{GFNR}} \times 70.86 \right)$$

where M and F are the percentages of the male and female population called by that first name. The values of M and F cannot be obtained directly from the census data, because people are not always called by the names on their birth certificates. Only .112% of Americans are *named* Bill, but a majority of the 2.4511% of Americans named William are *called* Bill. Comparing the

number of Google hits on Bill (485 million) and William (335 million), and observing that approximately 20% of the former hits are not for people, we can estimate that 1.44% of American males are called Bill.

Here are the CI and fame, in decibel Lewinskys (dBLw) using Schulman's definition, for some nonrandomly chosen celebrities. The Google measurements of GFNR and fame were made on 30 October 2005.

Name	CI	GFNR	M	F	Fame
Bill Gates	16.98	1	1.436	0	12.42
Bill Clinton	10.96	4	1.436	0	12.70
John Lennon	12.12	7	3.271	0.012	6.20
Paul McCartney	15.19	1	0.948	0.003	6.23
Jennifer Lopez	15.27	1	0	0.932	7.19
Carl Sagan	10.82	1	0.346	0.002	-0.48
Albert Einstein	10.39	1	0.314	0.001	8.44
Norbert Christlieb	-9.48	4	0.013	0	-6.86

While there is certainly a strong correlation between fame and celebrity, the two are clearly different. Albert Einstein is almost 8 dBLw more famous than Carl Sagan, but his CI is .43 dM lower. A preliminary conclusion would be that, in science, fame is based only on publications, but celebrity also depends on TV appearances. A comparison of Bills Gates and Clinton suggests that, in this era of blogging, celebrity depends more on how often one is seen on the computer screen than on the TV screen. Now that celebrity can be measured scientifically, we expect sociologists to study the phenomenon in greater depth.

References

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