

Silk vs. Cthulhu

The Urth list — 2 messages, 2 voices, 05 Jun 2010

<https://urth.darkrealm.vip/thread/urth/5624>

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Stuart Hamm — 05 Jun 2010, 15:16

So today I found my car with it's "Silk for Calde" bumper sticker parked behind a car with a sticker that read "Got Cthulhu?"

What are the odds??

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Gwern Branwen — 05 Jun 2010, 16:27 · in reply to Stuart Hamm

On Sat, Jun 5, 2010 at 11:16 AM, Stuart Hamm <hammstu at sbcglobal.net> wrote:

So today I found my car with it's "Silk for Calde" bumper sticker parked behind a car with a sticker that read "Got Cthulhu?"

What are the odds?

Ooh! This sounds like a fun Fermi problem.*

We can use the Birthday Paradox to find out. One result in the Wikipedia article is that

'This is a result of the good approximation that an event with 1 in k probability will have a 50% chance of occurring at least once if it is repeated $k \ln 2$ times.'**

Let's assume you park once a day averaged over your lifetime and you start driving at age 20; your life expectancy would be somewhere around >70, so that's 50 years * 365 days per year, so that's 18250 days, and one parking per day so 18250 parking incidents where you could've noticed such a thing.

Let's assume that there was a 50% chance of you ever seeing such an occurrence (you were somewhat lucky), so that we can say $18250 = k * \ln 2$. Then, $18250 / \ln 2 = k$, and a calculator says that $k = 26329$ and so the odds are 1 in 26,329.

Of course, this is only the odds of *you* seeing someone with a Cthulhu sticker parked in front of you. You observe a Silk is Calde sticker every day, after all. For the rest of us, the odds are even worse since our observation would have to both stickers. So the odds for us is probably more like $1/26,329 * 1/26,329$. (For you, it's more like $1 * 1/26,329$ as explained previously.)

In an aside, there are 254 million cars in the US.

(http://en.wikipedia.org/wiki/Passenger_vehicles_in_the_United_States)

* http://en.wikipedia.org/wiki/Fermi_problem

**** http://en.wikipedia.org/wiki/Birthday_paradox#Approximation_of_number_of_people**
gvern