

# One in four trillion: What the experts say about Neylon, Sivo letter odds

Page, Donna

[ProQuest document link](#)

---

## FULL TEXT

YOU'VE got a much higher chance of being struck by lightning, eaten by a shark or winning Powerball than the odds of the Neylon-Sivo letter-writing scandal coming true.

That's according to calculations from a data scientist who contacted the *Newcastle Herald* last week, after reading my column questioning the odds surrounding the letter-writing saga linked to City of Newcastle boss Jeremy Bath's best mate Scott Neylon and another pro-council letter writer using the name Jason Sivo.

Critics have been crying foul on the sorry saga for almost 12 months.

If nothing else, I surmised it seemed highly unlikely that Mr Neylon and Mr Sivo - who both appear to have never lived in the region - would list the same mobile phone numbers, share strikingly similar views in letters to the *Herald* and both have links to Hunter council bosses.

The day after my column was published, I received a letter from a reader that I can't help but share. The author is a data scientist who asked to remain anonymous.

The letter offered a scientific look at the saga using a simple interpretation of the problem and few calculations to estimate the odds.

Occasionally a statistic can smack you in the face, so clear is the story it tells.

And this one packs that kind of punch.

"Mobile phone numbers in Australia are 10 digits, but they always start with 04, so the odds of two people randomly writing down the same eight digits are 1 in 100 million," the data scientist says.

"Then you have to multiply 100 million by the odds that someone shares all the same opinions. Let's assume the community is equally divided and so these odds are one in two. The odds are now 1 in 200 million.

"Then you have to multiply 200 million by the odds any random *Herald* subscriber writes to the *Herald*. I'll make a complete guess at 1 in 20. The odds are now 1 in 4 trillion.

"With these assumptions the *Herald* would need 80 trillion subscribers before there is any likelihood of this happening by chance."

Well there you have it. The data scientist isn't buying it.

Oh, and in case you were wondering, I checked with the editor and the *Herald* does not have 80 trillion subscribers. In other words, if you agree with the data scientist's assessment of the problem, the chances of the letter-writing saga completely happening by coincidence - or pure happenstance - is to say the least, rather miniscule.

Before signing off, one last point from the data scientist.

"Feel free to get anyone familiar with the math of probability theory to check this reasoning, I could be wrong."

## So what do the experts say?

As a lecturer at the University of Newcastle who holds a PhD in statistics, Dr Glen Livingston Jr spends a lot of time considering the question: what are the odds?

Last year he co-authored a book, and for more than a decade he has contributed to studies and journal articles, many of them looking at statistical methodologies that enable deeper data analysis.

As society becomes more data driven, statistical analysis is being used increasingly to make better sense of how bits of the world work.

Numbers are key. We like their precision.

So, what does Dr Livingston think of the data scientist's take on the Neylon-Sivo letter-writing saga?

"I think looking at the letter you got sent, the calculation that this person has provided makes sense," he said.

"It's an estimate. If I was going to be providing an estimate, I'd probably be a little bit more conservative, but it's clear how they got there."

While the odds of one in 4 trillion are extremely low, Dr Livingston said there were different ways of looking at the problem that would provide more conservative results, but it would still be an "extremely rare event".

Dr Livingston described it this way.

"In science when someone is doing an experiment, they would assume that there is no relationship between the variables of interest. This is called the null hypothesis. We then look at the probability of observing the data we have assuming that the null hypothesis is true."

And if the probability of getting a set of circumstances, or the null hypothesis, is extremely low?

"Put simply, perhaps the assumption under the null hypothesis is not a good one and it should be rejected," he said.

"You can apply that to the situation here. We might make the assumption that the letters have all been independently written. We then look at the probability of observing all the similarities they have assuming they have been independently written. If that probability is very low, we reject the assumption that they have been independently written."

Dr Livingston said any calculations would only provide an estimate.

"I'm not sure if one in 4 trillion would be accurate, but even if it was one in 1 trillion, or one in 100 million, that is still extremely unlikely," he said.

"The other thing to consider is if you told this story to anyone down at the pub, what would they think? They would not believe it."

## Improving the odds

To better the odds, we also asked Professor Jake Olivier, who heads the University of NSW's Department of Statistics.

As the deputy director of the Transport and Road Safety (TARS) Research Centre, Professor Olivier deals with the cold and unforgiving facts of road safety data in an effort to save lives.

He described the Neylon-Sivo letter saga as a "strange case".

"This all appears highly unlikely or an incredible, one-in-a-lifetime coincidence ...," he said.

"The response you received regarding the phone numbers is roughly correct."

He said the problem gets more difficult from there.

"The other probabilities mentioned in the response, such as two people having the same political opinions, are subjective," he said.

"These are often probabilities we would like to know but would have great difficulty expressing numerically, although it does not usually stop us from trying."

A key point - however, says Professor Olivier is the "coincidental" incidents in the letter-writing saga.

He said including any more "coincidental" information makes the odds less likely that the two letter writers are unrelated.

For almost 12 months the *Newcastle Herald* has sought to get to the bottom of allegations that the letters submitted under the name Scott Neylon were in fact penned by Mr Bath.

For the record, Mr Bath says he hasn't written letters under the names Scott Neylon or Jason Sivo. Mr Neylon says he penned his own letters and has refused to answer questions about if he knows Jason Sivo.

Despite extensive searches, the *Herald* hasn't been able to locate a 'Jason Sivo' living in the Hunter and he has not responded to attempts to contact him via the email or phone number supplied in his correspondence.

## What are the odds?

So how does the probability of one in 4 trillion stack up?

Well, it's much steeper odds than your chances of winning last month's \$150 million Powerball, which was 1 in 134.5

million.

Lightning strikes kill between five and 10 Australians each year, and injure up to 100. According to University of Queensland mathematician, Professor Peter Adams, Australians have a 1 in 12,000 chance of being struck by lightning.

While Australia was home to more shark-related deaths last year than anywhere else in the world, the International Wildlife Museum estimates the chances of being attacked and killed by a shark is 1 in 3.75 million

So, you've got more chance of being eaten by a shark than the surface-level circumstances of the Neylon-Sivo letter-writing saga being true.

Does this mean it's time for lord mayor Nuatali Nelmes' Labor led council to launch another, more thorough, investigation into the matter to restore public confidence?

I wouldn't bet on it.

CAPTION:

CAPTION: Newcastle University's Dr Glen Livingston Jr.

CAPTION: University of NSW's head of Department of Statistics Professor Jake Olivier. Source: University of NSW

CREDIT: Donna Page

## DETAILS

<b>Subject:</b>	Statistics; Probability; Cellular telephones; Writing; Councils; Hypotheses; Letters
<b>Location:</b>	Australia
<b>Publication title:</b>	Newcastle Herald; Newcastle, N.S.W.
<b>Publication year:</b>	2024
<b>Publication date:</b>	Jun 22, 2024
<b>Publisher:</b>	Rural Press Pty Ltd Australian Community Media (ACM)
<b>Place of publication:</b>	Newcastle, N.S.W.
<b>Country of publication:</b>	Australia, Newcastle, N.S.W.
<b>Publication subject:</b>	General Interest Periodicals--Australia
<b>ISSN:</b>	22028021
<b>e-ISSN:</b>	22098666
<b>Source type:</b>	Newspaper
<b>Language of publication:</b>	English
<b>Document type:</b>	Commentary
<b>ProQuest document ID:</b>	3071102822

**Document URL:** <https://login.wwwproxy1.library.unsw.edu.au/login?url=https://www.proquest.com/newspapers/one-four-trillion-what-experts-say-about-neylon/docview/3071102822/se-2?accountid=12763>

**Copyright:** Copyright Rural Press Pty Ltd Australian Community Media (ACM) 2024

**Last updated:** 2024-06-22

**Database:** ProQuest Central

## LINKS

[Linking Service](#)

---

Database copyright © 2024 ProQuest LLC. All rights reserved.

[Terms and Conditions](#) [Contact ProQuest](#)