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From Jordan Ellenberg: How Not to Be Wrong

We certainly have built-in intuition for thinking about uncertain things, but it's [hard] to articulate ... When you try to think carefully about what probability means, you get a littl woozy ... What can we mean when we say, 'The probability that it will rain tomorrow is 20%'? Tomorrow only happens once; it's not an experiment we can repeat like a coin flip again and again. With some effort, we can shoehorn the weather into the frequentist model; maybe we mean that among some large population of days with conditions similar to this one, the following day was rainy 20% of the time. But then you're stuck when asked, 'What's the probability that the human race will go extinct in the next thousand years?' ... We use probability even to talk about events that cannot possibly be thought of as subject to chance. What's the probability that consuming olive oil prevents cancer? What's the probability that Shakespeare was the author of Shakespeare's plays? ... It's hard to license talking about these things in the same language we use to assess the outcomes of coin flips ... And yet ---we find ourselves able to say, of questions like this, 'It seems improbable' or 'it seems likely.' Once we've done so, how can we resist the temptation to ask, 'How likely?'"

In an earlier chapter
A 20th century rabbi, Michael Dov Weissmandl, pioneered using ELSs, equidistant letter sequences, to investigate the Torah.
"He observed that starting from a certain "mem" (the Hebrew letter that sounds like "m") in the Torah, and counting forward in steps of 50 letters, you found the sequence "mem shin nun hay," which spells out the Hebrew word Mishneh, the first word of [a historically important] Torah commentary. Now you skip forward 613 letters (why 613? because that's the exact number of commandments in the Torah, please try to keep

up) and start counting every fiftieth letter again. You find that the letters spell out "Torah"---in other words, that the title of [this] book is recorded in ELS form in the Torah, a document set down more than a thousand years before [the author's] birth.

Later, three researchers at the University of Jerusalem took up the mantle. "They chose 32 notable rabbis from the whole span of modern Jewish history. ... In Hebrew, numbers can be recorded in alphabetic characters, so the birth and death dates of the rabbis provided more letter sequences to play with. So the question [was]: Do the names of the rabbis appear in ELSs unusually close to their birth and death dates? Or, more provocatively: did the Torah know the future?"

What they did:
"First they searached the book of Genesis for ELSs spelling out the rabbi's names and dates, and computed how close in the text the sequences yielding the names were to the ones yielding the corresponding dates. Then they shuffled the 32 dates, so that each one was now matched with a random rabbi, and they ran the test again. Then they did the same thing a million times. If there were no relation to the Torah's text between the names of the rabbis and the corresponding dates, you'd expect the true matching between rabbis and dates to do about as well as one of the random shuffles. That's not what they found. The correct association ended up very near the top of the rankings, notching the 453rd highest score among the 1 million contenders."

"They tried the same thing with other texts: "War and Peace", the book of Isaiah (part of Scripture, but not the part that God is undertsood to have written), and a version of Genesis with the letters scrambled up at random. In all these cases the real rabbinical birthdays stayed in the middle of the pack."

"The authors' conclusion, written with characteristic mathematical sobriety: 'We conclude that the proximity of ELSs with related meanings in the Book of Genesis is not due to chance.'"

"The paper was refereed and published in 1994 in the journal 'Statistical Science', accompanied by an unusual preface by editor Robert E. Kass, who wrote:

> Our referees were baffled: their prior beliefs made them think the Book

> of Genesis could not possibly contain meaningful references to modern-day individuals, yet when the authors carried out additional analyses and checks the effect persisted. The paper is thus offered to Statistical Science readers as a challenging puzzle.

"Just as the codes were drawing wide acceptance in the public, their foundations were coming under attack in the mathematical world ... The Harvard math department ... had on the faculty both David Kazhdan, who had expressed a modest openness to the codes, and Shlomo Sternberg, a vocal opponent who thought promotion of the codes made the Orthodox look like dupes and fools ... Afternoon tea was kind of awkward the day [of] Sternberg's article ... in the 'Notices of the AMS' in which ... [he said] Kazhdan and others ... 'have not only brought shame on themselves, they have disgraced mathematics.'"

Two researchers pointed out
"that medieval rabbis didn't have passports or birth certificates granting them official names. They were referred to by appellations, and different authors might denote the same rabbi in different ways. If Dawyne 'the Rock' Johnson were a famous rabbi, for example, would you look for a prediction of his birth in the Torah under Dwayne Johnson, The Rock, Dwayne 'The Rock' Johnson, D.T.R. Johnson, or all of these? This ambiguity creates some wiggle room for code hunters."

At this point in class, Professor Scofield quoted from a book called "Fooled By Randomness", by Nassim Nicholas Taleb---another author with interesting insights into probability---who holds a clear disdain for self-described "experts" who go on news programs and "explain" the root causes of various recently-occurring, unexpected events as if the signs had been all around that such events were coming. (Had I searched harder, I think there were more relevant excerpts from Tableb's hand on that subject.)