

Fooled By Randomness

Thirteen

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CARNEADES COMES TO ROME: ON PROBABILITY AND SKEPTICISM

Cato the censor sends Carneades packing. Monsieur de Norpois does not remember his old opinions. Beware the scientist. Marrying ideas. The same Robert Merton putting the author on the map. Science evolves from funeral to funeral.

Ask your local mathematician to define probability; he would most probably show you how to compute it. As we saw in Chapter 3 on probabilistic introspection, probability is not about the odds, but about the belief in the existence of an alternative outcome, cause, or motive. Recall that mathematics is a tool to meditate, not compute. Again, let us go back to the elders for more guidance—for probabilities were always considered by them as nothing beyond a subjective, and fluid, measure of beliefs.

CARNEADES COMES TO ROME

Around 155 B.C., the Greek postclassical philosopher Carneades of Cyrene came to Rome as one of the three Athenian ambassadors who came to beg the Roman Senate for a political favor. A fine had been levied against the citizens of their city, and they wanted to convince Rome that it was unfair. Carneades represented the Academy, the same argumentative open-air institution where three centuries before, Socrates drove his interlocutors to murder him just to get some respite from his arguments. It was now called the New Academy, was no less argumentative, and had the reputation of being the hotbed of skepticism in the ancient world.

On the much anticipated day of his oration, he stood up and delivered a brilliantly argued harangue in praise of justice and how devolving it should be at the top of our motives. The Roman audience was spellbound. It was not just his charisma; the audience was swayed by the strength of the arguments, the eloquence of the thought, the purity of the language, and the energy of the speaker. But that was not the point he wanted to drill.

The next day, Carneades came back, stood up, and established the doctrine of uncertainty of knowledge in the most possibly convincing way. How? By proceeding to contradict and refute with no less swaying arguments what he had established so convincingly the day before. He managed to persuade the very same audience and in the same spot that justice should be way down on the list of motivations for human undertakings.

Now the bad news. Cato the elder (the “censor”) was among the audience, already quite old, and no more tolerant than he had been during his office of censor. Enraged, he persuaded the Senate to send the three ambassadors packing lest their argumentative spirit muddle the spirit of the youth of the Republic and weaken the military culture. (Cato had banned during his office of censorship all Greek rhetoricians from establishing residence in Rome. He was too much a no-nonsense type of person to accept their introspective expansions.)

Carneades was not the first skeptic in classical times, nor was he the first to teach us the true notion of probability. But this incident remains the most spectacular in its impact on generations of rhetoricians and thinkers. Carneades was not merely a skeptic; he was a dialectician, someone who never committed himself to any of the premises from which he argued, or to any of the conclusions he drew from them. He stood all his life against arrogant dogma and belief in one sole truth. Few credible thinkers rival Carneades in their rigorous skepticism (a class that would include the medieval Arab

philosopher al-Ghazali, Hume, and Kant—but only Popper came to elevate his skepticism to an all-encompassing scientific methodology). As the skeptics' main teaching was that nothing could be accepted with certainty, conclusions of various degrees of probability could be formed, and these supplied a guide to conduct.

Stepping further back in time and searching for the first known uses of probabilistic thinking in history, we find it harks back to sixth-century (B.C.) Greek Sicily. There, the notion of probability was used in a legal framework by the very first rhetoricians who, when arguing a case, needed to show the existence of a doubt concerning the certainty of the accusation. The first known rhetorician was a Syracusean named Korax, who engaged in teaching people how to argue from probability. At the core of his method was the notion of the most probable. For example, the ownership of a piece of land, in the absence of further information and physical evidence, should go to the person after whose name it is best known. One of his indirect students, Gorgias, took this method of argumentation to Athens, where it flourished. It is the establishment of such most probable notions that taught us to view the possible contingencies as distinct and separable events with probabilities attached to each one of them.

Probability, the Child of Skepticism

Until the Mediterranean basin was dominated with monotheism, which led to the belief in some form of uniqueness of the truth (to be superseded later by episodes of communism), skepticism had gained currency among many major thinkers—and certainly permeated the world. The Romans did not have a religion per se; they were too tolerant to accept a given truth. Theirs was a collection of a variety of flexible and syncretic superstitions. I will not get too theological, except to say that we had to wait for a dozen centuries in the Western world to espouse critical thinking again. Indeed, for some strange reason during the Middle Ages, Arabs were critical thinkers (through their postclassical philosophical tradition) when Christian thought was dogmatic; then, after the Renaissance, the roles mysteriously reversed.

One author from antiquity who provides us evidence of such thinking is the garrulous Cicero. He preferred to be guided by probability than allege with certainty—very handy, some said, because it allowed him to contradict himself. This may be a reason for us, who have learned from Popper how to remain self-critical, to respect him more, as he did not hew stubbornly to an opinion for the mere fact that he had voiced it in the past. Indeed your average literature professor would fault him for his contradictions and his change of mind.

It was not until modern times that such desire to be free from our own past statements emerged. Nowhere was it made more eloquently than in rioting student graffiti in Paris. The student movement that took place in France in 1968, with the youth no doubt choking under the weight of years of having to sound intelligent and coherent, produced, among other jewels, the following demand:

We demand the right to contradict ourselves!

MONSIEUR DE NORPOIS' OPINIONS

Modern times provide us with a depressing story. Self-contradiction is made culturally to be shameful, a matter that can prove disastrous in science. Marcel Proust's novel *In Search of Time Lost* features a semiretired diplomat, Marquis de Norpois, who, like all diplomats before the advent of the fax machine, was a socialite who spent considerable time in salons. The narrator of the novel sees Monsieur de Norpois openly contradicting himself on some issue (some prewar rapprochement between France and Germany). When reminded of his previous position, Monsieur de Norpois did not seem to recall it. Proust reviles him:

Monsieur de Norpois was not lying. He had just forgotten. One forgets rather quickly what one has not thought about with depth, what has been dictated to you by imitation, by the passions surrounding you. These change, and with them so do your memories. Even more than diplomats, politicians do not remember opinions they had at some point in their lives and their fibbings are more attributable to an excess of ambition than a lack of memory.

Monsieur de Norpois is made to be ashamed of the fact that he expressed a different opinion. Proust did not consider that the diplomat might have changed his mind. We are supposed to be faithful to our opinions. One becomes a traitor otherwise.

Now I hold that Monsieur de Norpois should be a trader. One of the best traders I have ever encountered in my life, Nigel Babbage, has the remarkable attribute of being completely free of any path dependence in his beliefs. He exhibits absolutely no embarrassment buying a given currency on a pure impulse, when only hours ago he might have voiced a strong opinion as to its future weakness. What changed his mind? He does not feel obligated to explain it.

The public person most visibly endowed with such a trait is George Soros. One of his strengths is that he revises his opinion rather rapidly, without the slightest embarrassment. The following anecdote illustrates Soros' ability to reverse his opinion in a flash. The French playboy trader Jean-Manuel Rozan discusses the following episode in his autobiography (disguised as a novel in order to avoid legal bills). The protagonist (Rozan) used to play tennis in the Hamptons on Long Island with Georgi Saulos, an "older man with a funny accent," and sometimes engage in discussions about the market, not initially knowing how important and influential Saulos truly was. One weekend, Saulos exhibited in his discussion a large amount of bearishness, with a complicated series of arguments that the narrator could not follow. He was obviously short the market. A few days later, the market rallied violently, making record highs. The protagonist worried about Saulos, and asked him at their subsequent tennis encounter if he was hurt. "We made a killing," Saulos said. "I changed my mind. We covered and went very long."

It was this very trait that, a few years later, affected Rozan negatively and almost cost him a career. Soros gave Rozan in the late 1980s \$20 million to speculate with (a sizeable amount at the time), which allowed him to start a trading company (I was almost dragged into it). A few days later, as Soros was visiting Paris, they discussed markets over lunch. Rozan saw Soros becoming distant. He then completely pulled the money, offering no explanation. What characterizes real speculators like Soros from the rest is that their activities are devoid of path dependence. They are totally free from their past actions. Every day is a clean slate.

Path Dependence of Beliefs

There is a simple test to define path dependence of beliefs (economists have a manifestation of it called the endowment effect).

Say you own a painting you bought for \$20,000, and owing to rosy conditions in the art market, it is now worth \$40,000. If you owned no painting, would you still acquire it at the current price? If you would not, then you are said to be married to your position. There is no rational reason to keep a painting you would not buy at its current market rate—only an emotional investment. Many people get married to their ideas all the way to the grave. Beliefs are said to be path dependent if the sequence of ideas is such that the first one dominates.

There are reasons to believe that, for evolutionary purposes, we may be programmed to build a loyalty to ideas in which we have invested time. Think about the consequences of being a good trader outside of the market activity, and deciding every morning at 8 a.m. whether to keep the spouse or part with him or her for a better emotional investment elsewhere. Or think of a politician who is so rational that, during

a campaign, he changes his mind on a given matter because of fresh evidence and abruptly switches political parties. That would make rational investors who evaluate trades in a proper way a genetic oddity—perhaps a rare mutation. Researchers found that purely rational behavior on the part of humans can come from a defect in the amygdala that blocks the emotions of attachment, meaning that the subject is, literally, a psychopath. Could Soros have a genetic flaw that makes him rational as a decision maker?

Such trait of absence of marriage to ideas is indeed rare among humans. Just as we do with children, we support those in whom we have a heavy investment of food and time until they are able to propagate our genes, so we do with ideas. An academic who became famous for espousing an opinion is not going to voice anything that can possibly devalue his own past work and kill years of investment. People who switch parties become traitors, renegades, or, worst of all, apostates (those who abandoned their religion were punishable by death).

COMPUTING INSTEAD OF THINKING

There is another story of probability other than the one I introduced with Carneades and Cicero. Probability entered mathematics with gambling theory, and stayed there as a mere computational device. Recently, an entire industry of “risk measurers” emerged, specializing in the application of these probability methods to assess risks in the social sciences. Certainly, the odds in games where the rules are clearly and explicitly defined are computable and the risks consequently measured. But not in the real world. For mother nature did not endow us with clear rules. The game is not a deck of cards (we do not even know how many colors there are). But somehow people “measure” risks, particularly if they are paid for it. I have already discussed Hume’s problem of induction and the occurrence of black swans. Here I introduce the scientific perpetrators.

Recall that I have waged a war against the charlatanism of some prominent financial economists for a long time. The points are as follows. One Harry Markowitz received something called the Nobel Memorial Prize in Economics (which in fact is not even a Nobel Prize, as it is granted by the Swedish Central Bank in honor of Alfred Nobel—it was never in the will of the famous man). What is his achievement? Creating an elaborate method of computing future risk if one knows future uncertainty; in other words, if the world had clearly defined rules one picks up in a rulebook of the kind one finds in a Monopoly package. Now, I explained the point to a cab driver who laughed at the fact that someone ever thought that there was any scientific method to understanding markets and predicting their attributes. Somehow when one gets involved in financial economics, owing to the culture of the field, one becomes likely to forget these basic facts (pressure to publish to keep one’s standing among the other academics).

An immediate result of Dr. Markowitz’s theory was the near collapse of the financial system in the summer of 1998 (as we saw in Chapters 1 and 5) by Long Term Capital Management (“LTCM”), a Greenwich, Connecticut, fund that had for principals two of Dr. Markowitz’s colleagues, “Nobels” as well. They are Drs. Robert Merton (the one in Chapter 3 trouncing Shiller) and Myron Scholes. Somehow they thought they could scientifically “measure” their risks. They made absolutely no allowance in the LTCM episode for the possibility of their not understanding markets and their methods being wrong. That was not a hypothesis to be considered. I happen to specialize in black swans. Suddenly I started getting some irritating fawning respect. Drs. Merton and Scholes helped put your humble author on the map and caused interest in his ideas. The fact that these “scientists” pronounced the catastrophic losses a “ten sigma” event reveals a Wittgenstein’s ruler problem: Someone saying this is a ten sigma either (a) knows what he is talking about with near perfection (the prior assumption is that it has one possibility of being unqualified in several billion billions), knows his probabilities, and it is an event that happens once every several times the history of the universe; or (b) just does not know what he is talking about when he talks about probability (with a high degree of certainty), and it is an event that has a probability higher than once every several times the history of the universe. I will let the reader

pick from these two mutually exclusive interpretations which one is more plausible.

Note that the conclusions also reflect on the Nobel committee who sanctified the ideas of the gentlemen involved: Conditional on these events, did they make a mistake or were these events unusual? Is the Nobel committee composed of infallible judges? Where is Charles Sanders Peirce to talk to us about papal infallibilism? Where is Karl Popper to warn us against taking science—and scientific institutions—seriously? In a few decades will we look upon the Nobel economics committee with the same smirk as when we look at the respected “scientific” establishments of the Middle Ages that promoted (against all observational evidence) the idea that the heart was a center of heat? We have been getting things wrong in the past and we laugh at our past institutions; it is time to figure out that we should avoid enshrining the present ones.

One would think that when scientists make a mistake, they develop a new science that incorporates what has been learned from it. When academics blow up trading, one would expect them to integrate such information in their theories and make some heroic statement to the effect that they were wrong, but that now they have learned something about the real world. Nothing of the sort. Instead they complain about the behavior of their counterparts in the market who pounced on them like vultures, thus exacerbating their downfall. Accepting what has happened, clearly the courageous thing to do, would invalidate the ideas they have built throughout an entire academic career. All of the principals who engaged in a discussion of the LTCM events partook of a masquerade of science by adducing ad hoc explanations and putting the blame on a rare event (problem of induction: How did they know it was a rare event?). They spent their energy defending themselves rather than trying to make a buck with what they learned. Again, compare them with Soros, who walks around telling whoever has the patience to listen to him that he is fallible. My lesson from Soros is to start every meeting at my boutique by convincing everyone that we are a bunch of idiots who know nothing and are mistake-prone, but happen to be endowed with the rare privilege of knowing it.

The scientist’s behavior while facing the refutation of his ideas has been studied in depth as part of the so-called attribution bias. You attribute your successes to skills, but your failures to randomness. This explains why these scientists attributed their failures to the “ten sigma” rare event, indicative of the thought that they were right but that luck played against them. Why? It is a human heuristic that makes us actually believe so in order not to kill our self-esteem and keep us going against adversity.

We have known about this wedge between performance and self-assessment since 1954, with Meehl’s study of experts comparing their perceived abilities to their statistical ones. It shows a substantial discrepancy between the objective record of people’s success in prediction tasks and the sincere beliefs of these people about the quality of their performance. The attribution bias has another effect: It gives people the illusion of being better at what they do, which explains the findings that 80 to 90% of people think that they are above the average (and the median) in many things.

FROM FUNERAL TO FUNERAL

I conclude with the following saddening remark about scientists in the soft sciences. People confuse science and scientists. Science is great, but individual scientists are dangerous. They are human; they are marred by the biases humans have. Perhaps even more. For most scientists are hard-headed, otherwise they would not derive the patience and energy to perform the Herculean tasks asked of them, like spending eighteen hours a day perfecting their doctoral thesis.

A scientist may be forced to act like a cheap defense lawyer rather than a pure seeker of the truth. A doctoral thesis is “defended” by the applicant; it would be a rare situation to see the student change his mind upon being supplied with a convincing argument. But science is better than scientists. It was said that science evolves from funeral to funeral. After the LTCM collapse, a new financial economist will emerge, who will integrate such knowledge into his science. He will be resisted by the older ones, but,

again, they will be much closer to their funeral date than he.