Chapter 9. The Ludic Fallacy, or the Uncertainty of the Nerd

Fooled by the coin- Lunch on lake Como (West) --Military as philosophers –Plato's randomness.

Fat Tony

"Fat Tony", whom we should perhaps more thoughtfully style "Horizontally-Challenged Tony", is not objectively as overweight as his nickname indicates; it is just that his body shape makes whatever he wears seem ill-fitted. He only wears tailored suits, many of them cut for him in Rome; but they look as if he bought them from a web catalogue. He has think hands, hairy fingers, wears a gold wrist-chain, and reeks of the licorice candies that he devours in industrial quantities as a substitute for an old smoking habit. He doesn't usually mind people calling him Fat Tony, but he much prefers to be called just Tony. In the days when Nero used to hang around with him, he called him more politely "Brooklyn Tony", but Tony actually lives in Staten Island, which is what people from Brooklyn started doing twenty years ago.

Tony is a successful nonnerd with a happy disposition. He leads a gregarious existence. His sole visible problem seems to be his weight and the corresponding nagging by his family, remote cousins, and friends who keep warning him about that premature heart attack. Nothing seemed to work; Tony often goes to a fat farm in Arizona to not eat, lose a few pounds, then gain almost all of them back in his first-class seat on the plane back. It is remarkable how his self-control and personal discipline, otherwise admirable, failed to apply to his waistline.

He started as a clerk in the back-office of a New York bank in the early 1980s, in the letter of credit department. He pushed papers and did some grunt work. Later he grew to giving small business loans and figured out the game of how you can get financing from the monster banks,

how their bureaucracy operated, and what they liked to see on paper. All the while being an employee, he started acquiring property in bankruptcy proceedings, buying them from financial institutions. His big insight is that bank employees who sell you a house that's not theirs just don't care as much as the owners; Tony knew very rapidly how to talk to them and maneuver . He also, later, learned to buy and sell gas stations with money borrowed from small neighborhood bankers.

Tony has this remarkable habit of trying to make a buck effortlessly, just for entertainment, without straining, without office work, without meeting, just by melding his deals into his private life. Tony's motto is "finding who the sucker is". Obviously they are often the banks: "the clerks don't care about nothing". Finding these suckers is second nature to him. If you take walks with Tony around the block you would feel considerably more informed of the texture of the world just "tawking" to him.

Tony is remarkably able to get unlisted telephone numbers, first class seats on airlines for no additional money or get your car in a garage that is officially full, either by connections or his forceful charm.

NonBrooklyn John

I found the perfect nonBrooklyn in someone I will call Dr. John. He is a former engineer currently working as an actuary for an insurance company. He is thin, wiry, wears glasses, a dark suit. He lives in a suburb in New Jersey not far from Fat Tony but they certainly rarely run into each other. Tony never takes the train, and, in reality, never commutes (he drives a Cadillac and, sometimes, his wife's Italian convertible and jokes that he is more visible than the rest of the car). Dr. John is master of the schedule; he is as predictable as a clock. He quietly and efficiently read the newspaper during his commute, then neatly folds it for the lunchtime continuation. While Tony makes restaurant owners rich (they beam when they see him coming, and they exchange noisy hugs) , John meticulously packs his sandwich every morning, with a

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fruit salad in a plastic container.   As to his clothing, he wears a suit that, too, looks that it comes from a web catalogue; except that it is quite likely that it actually came from a web catalogue.

Dr. John is a painstaking fellow, reasoned, gentle; and he takes his work seriously, so seriously that, unlike Tony, you can see a line in the sand between his working time and his leisure activities. He has a Ph.D. in electric engineering from the University of Michigan. As he knew both computers and statistics, he was hired by an insurance company to do computer simulations and enjoyed the business. Much of what he does consists in running computer programs called "Risk Management".

I know that it is rare for Fat Tony and Dr John to breathe the same air, let alone to find themselves at the same bar, so consider this a pure thought experiment. I will ask each a question separately and compare the answers.

NNT (that is, me): Assume that a coin is fair, i.e. has equal probability of showing head or tails. I throw it and get heads 99 times. What are the odds of my getting tails at the next throw?

Dr. John: Trivial question. Of course one half since you are assuming 50% odds for each and independence between draws.

NNT: What do you say, Tony?

Fat Tony: I'd say no more than 1%, of course.

NNT: Why so? I gave you the initial assumption of a fair coin, meaning that it was 50% either way.

Fat Tony: You are either full of crap of a pure sucker to buy that "50 pehcent" business. The coin gotta be loaded. It can't be a fair game. (Translation: It is far more likely that your assumptions about the fairness are wrong than the coin delivering 99 times heads in 99 throws).

NTT: But Dr. John said 50%.

Fat Tony (whispering in my ear): I know these guys with nerd examples from the bank days. They think way too slow. And they are too commoditized.

Now of the two of them which one would you favor for the position of mayor of New York City (or Ulan Bator, Mongolia)? Dr John thinks entirely within the box, and within what box was given to him; Fat Tony almost entirely outside the box.

To set the terminology straight, what I call here a nerd doesn't need to look sloppy, unaesthetic, sallow, wear glasses and a portable computer on his belt as if it were an ostensible weapon. A nerd is simply someone who thinks exceedingly inside the box.

Did you ever wonder why so many of these straight-A students end up going nowhere in life while someone who lagged is now getting the shekels, buying the diamonds, and gets his phone call returned? Or even get the Nobel Prize (in a real disciple, like Medicine)? Some of it may have something to do with luck in outcomes, but there is this sterile and obscurantist quality that is often associated with classroom knowledge that may get in the way of understanding what's going on in real life, or, worse, there may be this sterile mindset of those who do very well in classrooms and exams that gets in the way of their understanding what's going on in the real world. In an I.Q. test, as well as in any academic setting (including sports), Dr John would vastly outperform Fat Tony. Fat Tony would outperform Dr. John in any other possible ecological, real-life, situation. Indeed Tony, in spite of the lack of culture, has an enormous curiosity about the texture of reality, his own erudition –to me he is more scientific in the literal, though not in the social sense than Dr. John.

We will get deep, very deep into the difference between the answers of Fat Tony and Dr John; this is probably the most vexing problem I know about the connection between two varieties of knowledge, what we dubed as the Platonic and Aplatonic kinds. Simply, people like Dr John can cause Black Swans outside Mediocristan –their minds are closed. While the problem is very general, one of its nastiest illustrations is what I call ludic fallacy –the attributes

of the uncertainty we face in real life have little connection to the sterilized ones we encounter in exams and games.

So I close Book One with the following story.

Lunch at Lake Como

One spring day a few years ago, I was surprised to receive an invitation from a think tank sponsored by the United States Defense Department to a brainstorming session on risk that was to take place in Las Vegas the following fall. The person who invited me announced on the phone "We'll have lunch on a terrace overlooking Lake Como", which put me in a state of severe distress. Las Vegas (along with its sibling the Emirate of Dubai) is perhaps the place I wish to never visit before I die. Lunch at "fake Como" would be torture. But I'm glad I went.

The think tank had gathered a nonpolitical collection of people they called doers and scholars (or practitioners like me who do not accept the distinction) involved in uncertainty in a variety of disciplines. And they symbolically picked a major casino as a venue.

The symposium a closed-doors, synod-style assembly of people who would have never mixed otherwise. My first surprise was to discover that the military people thought, behaved and acted like philosophers –far more so than the philosophers we will see splitting hairs in their weekly colloquium in Book Three. They thought out of the box, like traders, except much better and without fear of introspection. An assistant secretary of defense was among us, but had I not known his profession, I would have thought that he was a practitioner of skeptical empiricism. Even an engineering investigator who had examined the cause of a space shuttle explosion was thoughtful and open-minded. I came out of the meeting realizing that only military people deal with randomness with genuine introspective intellectual honesty –unlike academics and corporate executives using other people's money. They just _need_ to go the extra step in realism. This does not show in war movies where they are usually portrayed as war-hungry autocrats. The people in front of me were not the people who initiate wars. Indeed for many, the successful

defense policy is the one that manages to eliminates potential dangers without war –such as the strategy of bankrupting the Russians through the escalation of defense spending. When I expressed my amazement to Laurence, another finance practitioner who was sitting next to me, he told me that the military collected more genuine intellects and risk thinkers than most if not all other professions. Defense people wanted to understand the epistemology of risk.

In the group was a gentleman who ran a group of professional gamblers and was banned from most casinos. He had come to share his wisdom with us. He sat not far from a stuffy professor of political science from Michigan, dry like a bone and, as is characteristic of "big names", was careful about his reputation, said nothing out of the box, and did not smile once. During the sessions, I tried to imagine the hotshot with a rat in his back putting him in a state of wriggling panic. He was perhaps good at writing Platonic models of something called "game theory", but when Laurence and I went after him on his improper use of financial metaphors, he lost all his arrogance.

Now when you think of the major casino risks, gambling situations come to mind. In a casino, one would think, the risks are those of lucky gamblers blowing up the house with a series of large wins or cheaters taking away money through devious methods. It was not just the general public that would believe so, but the casino management as well. Consequently, the casino had a high tech surveillance system tracking cheaters, card counters, and other people who try to derive an advantage over them.

Each of the participants gave his presentation and listened to those of the others. I came to discuss Black Swans with the intention of telling them that the only thing I know is that we know precious little about them, but that it was their property to sneak up on us, and that attempts at Platonifying them led to additional misunderstanding. Military people can understand such things, as the idea became recently prevalent in military circles in the expression "unknown unknown" (as opposed to the "known unknown"). But I had prepared my talk (on five restaurant napkins, some stained) and was ready to discuss a new word I coined for the

occasion: the _ludic fallacy_. I intended to tell them that I should not have been speaking there at a casino because it had nothing to do with uncertainty.

The Uncertainty of the Nerd

What is the _ludic_ fallacy? "Ludic" comes from _ludes_, games in Latin.

I was hoping that the representatives of the casino would speak before me so I could start harassing them by showing (politely) that a casino was precisely the venue _not_ to pick for such a discussion, since the class of risks casinos encounter are very insignificant _outside_ of the building and their study not readily transferable. My idea is that gambling was _sterilized_ and domesticated uncertainty. In the casino you know the rules, you can calculate the odds, and the type of uncertainty we encounter there, we will see later, is _mild_, belonging to Mediocristan. My prepared statement was this: "The casino is the only human venture I know where the probabilities are known, Gaussian (i.e. bell curve), and almost computable". You cannot expect the Casino to pay out a million times your bet, or to witness the rules change abruptly on you during the game –you never have days in which number 36 black is designed to pop up ninety-five percent of the time.

[Footnote: My colleague Mark Spitznagel found a martial version of the ludic fallacy: organized competitive fighting trains the athlete to focus on the game and, in order not to dissipate his concentration, to ignore the possibility of what is not specifically allowed by the rules, such as kicks to the groin, a surprise knife, etc. So those who win the gold medal might be precisely those who will be most vulnerable in real life. Likewise you see people with huge muscles (in black T-shirts) who can impress you in the artificial environment of the gym, but are unable to lift a stone.]

Probability has the same problem. In real life, you do not know the odds, you need to discover them, and the sources of uncertainty are not defined. Economists who do not consider

that what was discovered by noneconomists as knowledge draw an artificial distinction between Knightian risks (which you can compute) and Knightian uncertainty (which you cannot compute), after one Frank Knight who rediscovered the notion of unknown uncertainty and did a lot of thinking but perhaps never took risks, or perhaps lived in the vicinity of a casino. Had he taken economic or financial risks he would have realized that these "computable" risks are largely absent from real life! They are mostly laboratory contraptions!

Yet we automatically, spontaneously associate chance with these Platonified games! I find it infuriating to listen to people who, upon being informed that I specialize in problems of chance, immediately shower me with references to dice. Two illustrators for a paperback edition of one of my books spontaneously and independently added a die to the cover and below every chapter (by the typesetter), throwing me in a state of rage. The editor, familiar with my thinking, warned them to "avoid the ludic fallacy" as if it were a well known intellectual violation –amusingly, they both reacted with "ah, sorry, we didn't know".

Those who spend much time with their noses glued to maps will tend to mistake the map for the territory. Go buy a recent history of probability and probabilistic thinking: you will be showered with a names of alleged "probability thinkers", all based on these sterilized constructs. I recently looked at what college students are taught under the subject of "chance", and came out horrified: they were brainwashed with this ludic fallacy and the outlandish Bell Curve. The same applies to people doing a PhD in the field called probability theory. Furthermore, assuming chance had anything to do with mathematics, what little mathematization we can do in the real world does not assume the mild randomness represented by the Bell-Curve (i.e. the Gaussian), rather the scalable wild randomness. What can be mathematized is not usually Gaussian, but Mandelbrotian.

Now, go read any of the classical thinkers who had something practical to say about the subject, such as Cicero, and you something different: a notion of probability that remains fuzzy throughout, as it needs to be, since such fuzziness is the very nature of uncertainty. Probability

is a liberal art; it was a child of skepticism, not a tool for people with calculators on their belt to satisfy their desire to produce fancy calculations and certainties. Before Western thinking drowned in the "scientific" mentality and what is arrogantly called the enlightenment, people prompted their brain to think –not compute. In a beautiful treatise now vanished from our consciousness, *Dissertation on the Search for Truth*, published in 1673, the polemist Simon Foucher exposed our psychological, non-empirical predilection for certainties. He teaches us the art of doubting, how to position ourselves between doubting and believing. "One needs to exit doubt in order to produce science –but few people heed the importance of not exiting from it prematurely (...) It is a fact that one usually exits doubt without realizing it." he wrote. He warns us further: "We are dogma-prone from our mother's wombs".

By the confirmation error we saw in Chapter 5, we use the example of games, which probability theory was successful at tracking, and claim that this is a general case. Furthermore, just as we tend to underestimate the role of chance in life in general, we tend to <u>*overestimate*</u> it in games.

"This building is inside the Platonic fold; life stands outside of it", I wanted to shout.

Gambling With the Wrong Dice

I was in for quite a surprise, for I learned that the building too was outside the Platonic fold.

Their risk management, aside from the setting of the gambling policies, was geared toward reducing the losses resulting from cheaters. One does not need heavy training in probability theory to understand that the Casino was sufficiently diversified across the different tables, to not have to worry about taking a hit from an extremely lucky gambler (the diversification argument that, we will see in Chap 16, leads to the Bell Curve). All they had to do was control the "whales", the high rollers flown in at the Casino's expense from Manila or Hong Kong; these can swing several million dollars in a gambling bout. In the absence of cheating, the performance of

most individual gamblers would be the equivalent of a drop in the bucket, making the aggregate very stable.

I promised not to discuss any of the details of their sophisticated surveillance system; all I am allowed to say is that I felt transported into a James Bond movie, wondering if the Casino was an imitation of the movies or if it was the other way around. Yet, in spite of such sophistication, their risks had nothing to do with what can be anticipated knowing that the business is a casino. For it turned out that the six largest risks losses incurred or narrowly avoided by the casino fell completely outside their sophisticated model.

First, they lost around a hundred million dollars when an irreplaceable performer in their major show was maimed by a tiger (the show, called "Siegfried and Roy", had been a major Las Vegas attraction). The tiger had been reared by the performer and even slept in his bedroom; until then, nobody suspected that the powerful animal would turn against its master. In scenario analyses, they had even conceived of the animal jumping at the crowd, but nobody got near the thought of insuring against what happened.

Second, a disgruntled contractor was hurt during the construction of a hotel annex. He was so offended by the settlement offered him that he made an attempt to dynamite the casino. His plan was to put explosives around the pillars in the basement. The attempt was, of course, thwarted (otherwise, to use the argument of Chapter 8, we would not have been there), but I shivered at the thought of possibly sitting above a pile of dynamite.

Third, Casinos must to file with the Internal Revenue Service a special form documenting a gambler's profit if it exceeds a given amount. The employee who was supposed to mail and file the forms, instead, for completely unexplainable reasons, hid them in boxes under his desk. This went on for years without anyone noticing that something was wrong. His refraining to send the documents to the mailroom was truly impossible to predict. Tax violations (and negligence) being serious offences, the Casino faced the near-loss of a gambling license or the onerous

financial costs of a suspension. Clearly they ended up paying a monstrous fine (an undisclosed amount) which was the luckiest way out of the problem.

Fourth, there was a spate of other dangerous scenes, such as the kidnapping of the owner's daughter. It caused the father, in order to secure the cash for the ransom, to violate gambling laws by dipping into the casino coffers.

Conclusion: A back-of the envelope calculation shows that the dollar value of these Black Swans, the off-model hits and potential hits I've just outlined, swamp the on-model risks by a factor of close to 1000 to 1. They spent hundreds of million of dollars on gambling theory and high tech surveillance, while the bulk of the risks came from outside their models.

All that, while the rest of the world learns about uncertainty and probability from gambling examples.