
Chapter 14. From Mediocristan to Extremistan –and Back

*I prefer Horowitz -How to fall from favor –The long tail – Get ready for some surprise –
It's not just money –*

Let us see how an increasingly manmade planet can evolve away from mild into wild randomness. First, I describe how we get to Extremistan. Then I will take a look at its evolution.

The World is Unfair

Is the world that unfair? I have spent my entire life studying randomness, practicing randomness, hating randomness. The more time passes, the worse things seem to me, the more scared I get, the more disgusted I am with mother nature. The more I think about my subject, the more I see evidence that the world we have in our minds is different from the one playing outside. Every morning, the world appears to me more random than it did the day before, and humans seem to be even more fooled by it than they were the previous day. It is becoming unbearable. I find writing these lines painful; I find the world revolting.

Two “soft” scientists propose some model for the development of such inequity : a mainstream economist and a sociologist. Both simplify a little too much. I will present their ideas because they are easy to understand, not because of the scientific quality of the insights or any sequence in the discovery –then I will show the story as seen from the vantage point of the natural scientists

Let me start with the economist, Sherwin Rosen. In the early eighties, he wrote papers about “the economics of superstars”. In one of the papers, he conveyed his sense of outrage that a basketball player could earn \$1.2 million yearly or a television celebrity could make \$2 million. To get an idea of how such concentration is increasing -- i.e., of how we are moving away from Mediocristan -- consider that television celebrities and players (even in Europe) get contracts today, only two decades later, worth in the hundreds of million of dollars! The extreme is about (so far) twenty times higher than it was two decades ago!

According to Rosen, this inequality comes from a tournament effect: someone marginally “better” could easily win the entire pot, leaving others with nothing. Using the argument I gave in Chapter 3, people prefer to paying \$10.99 for a recording featuring Horowitz to \$9.99 for the another struggling Russian. Would you rather read Kundera for \$13.99 or some unknown author for \$1? So it looks like a tournament, with the winner grabbing the whole thing –and he does not have to win by much.

But it is role of luck that is missing in Rosen’s beautiful arguments. The problem here is the notion of “better”, this focus on skills as leading to success. Random outcomes or an arbitrary situation can also explain success and provide the initial push that leads to a the winner-take-all result. Someone can get slightly ahead for entirely random reasons; because we like to imitate each other, we will flock to him. I mentioned earlier Art DeVany’s evidence that the catalyst of a movie’s success is rain in a large metropolitan area on the opening weekend.

As I am writing these lines I am using an Apple Mac, after years of Microsoft-based products. The Apple technology is vastly better –yet the inferior software won the day. How? Luck.

The Matthew Effect

More than a decade before Rosen, the sociologist of science Robert K. Merton presented his ideas of the “Matthew effects”³², by which people take from the poor to give to the rich. He looked at the performance of scientists and showed how a would an initial advantage follow someone through life. Consider the following process.

Say someone writes an academic paper quoting fifty persons who have worked on the subject and provided background for his study; assume, for the sake of simplicity, that all fifty are of equal merit. Another researcher working on the exact same subject will randomly cite fifty of those fifty in his bibliography. Merton showed that many academics cite references without having read the original work; rather, they read a paper, and draw their citations from among its sources. So a third researcher reading the second article selects three of the referenced authors for *his* citations. These three authors will receive cumulatively more and more attention as their names are associated more tightly with the idea. The difference between the winning three and the other members of the original cohort is mostly luck –they were initially chosen not for their greater skill, but simply for the way their names appeared in the bibliography. Thanks to their reputation, the successful academics, will go on writing papers as their work will be easily accepted for publication. Academic success is partly (but significantly) a lottery.

It is easy to test the effect of reputation.[*Fn: *Much of the perception of the importance of precocity in the career of researchers can be owed to the misunderstanding of the perverse role of preferential attachment, especially when reinforced by bias. Enough counterexamples, even

³² These scalable laws were already discussed in the scriptures:

“For onto everyone that hath shall be given, and he shall have abundance; but from him that hath not shall be taken away even that which he hath”. Matthew (Matthew XXV:29, KJV).

in fields like mathematics meant to be purely a “young man’s game” illustrate the age fallacy. Simply: it is necessary to be successful early, and even very early at that.] One way would be to find papers that were written by famous scientists, had their author’s identity changed by mistake, and got rejected. You verify how many of these rejections got subsequently overturned after the true identity of the author was established. Note that scholars are judged mostly on how many times their work is referenced in other people’s work, thus making “cliques” of people who quote each other (“I quote you; you quote me” type of business).

Later on, authors who are not often cited much will drop out of the game by, say, going to work for the government (if they are of a gentle nature), or for the mafia, or for a Wall Street firm (if they have a high level of hormones). Those who got a good push in the beginning of their scholarly career will keep getting persistent cumulative advantages through life. It is easier for the rich to get richer, for the famous to become more famous.

Matthew effects bear the less literary name “cumulative advantage” in sociology. The theory can easily apply to companies, businessmen, actors, writers, and anyone else who benefits from past success. You get published in the *New Yorker* because the color of your letterhead attracted the attention of the editor, who was daydreaming of daisies, and the resultant reward will follow you for life. More significantly, it will follow *others* for life. Failure is also cumulative; the loser is likely to lose in the future, even if we don’t take into account the mechanism of demoralization that might exacerbate it and cause additional failure.

Note that art, by its dependence on word of mouth, is extremely prone to these cumulative advantage effects. I mentioned clustering in the formation of categories in Chapter 1, and how journalism helps perpetuate these clusters. Our opinions about artistic merit are the result of arbitrary contagion even more than are our political ideas. One person writes a book review; another person reads it and writes a commentary that uses the same arguments. Soon you have several hundred reviews that actually sum up to no more than two or three because there is so much overlap. For an anecdotal example of the clustering of book reviews, see *Fire the Bastards*,

whose author, Jack Green, goes systematically through the reviews of William Gaddis's novel *The Recognitions*. Green shows clearly how the book reviewers anchor on other reviews and reveal powerful mutual influence, even in their wording. This is reminiscent of the test of herding by financial analysts in Chapter 10.

The advent of the modern media has accelerated these cumulative advantages. The sociologist Pierre Bourdieu noted the link between the increased concentration of success and the globalization of culture and economic life. But I am not trying to play sociologist here, only to show that unpredictable elements can play a role in social outcomes.

Merton's cumulative advantage idea has a more general precursor, "preferential attachment" which, reversing the chronology (though not the logic) I will present next. Merton was interested in the social aspect of knowledge, not in the dynamics of social randomness, so his studies were derived separately from the research on the dynamics of randomness in more mathematical sciences.

Carleton Wu

The theory of preferential attachment is ubiquitous in its applications: it can explain why city size is from Extremistan; why vocabulary is concentrated among a small number of words, or why bacteria populations can vary hugely in size.

The scientists J. C. Willis and G. U. Yule published a landmark paper in *Nature* in 1922 called "some statistics of evolution and geographical distribution in plants and animals, and their significance". Willis and Yule noted the presence in biology of the so-called power laws, the scalable randomness that I discussed in Chapter 3. These power laws (on which more technical information in the next chapters) had been noticed earlier by Vilfredo Pareto who found that they applied to the distribution of income. Later, Yule presented a simple model showing how

power laws can be generated. His point was as follows. Say species split in two at some constant rate, so that new species arise. The richer in species a genus is, the richer it will tend to get, with the same logic as the Mathew effect. Note the following caveat: in Yule's model the species never die out.

During the 1940s, a Harvard linguist, George Zipf, examined the properties of language and came up with an empirical regularity now known as Zipf's law, which, of course, is not a law (and if it were, it would certainly not be Zipf's). It is just another way to think about the process of inequality. The mechanisms he described were as follows. The more you use a word, the less effortful you will find it to use that word again, so you borrow words from your private dictionary in proportion to their past use. The more you use a word, the easier you will find it to use in the future. This explains why out of the 60,000 main words in English, only a few hundred constitute the bulk of what is used in writings, and fewer even appear regularly in conversation. Likewise the more people aggregate in a city, the more likely a stranger will be to pick that city as his destination. The big get bigger and the small stay small, or get relatively smaller.

A great illustration of preferential attachment can be seen in the mushrooming use of English as a *lingua franca* –not for its intrinsic qualities, but because people need to use one single language, or stick to one as much as possible, when they are having a conversation. So whatever language appears to have the upper hand will suddenly draw people in droves; its usage will spread like an epidemic, and other languages will be rapidly dislodged. I am often amazed to listen to conversations between persons from two neighboring countries, say between a Turk and a Iranian, or a Lebanese and a Cypriot, communicating in bad English, moving their hands for emphasis, searching for these words that come out of their throats at the cost of great physical effort. Even Swiss Army members use English (not French) as a *lingua franca* (it would be fun to listen). Consider that, in America, a very small minority of the so-called Anglo citizens, i.e., those who appear to be of English speaking ancestry, is from England; the traditionally

preponderant ethnic groups are of German, Irish, Dutch, French, and other Northern European extraction. Yet because they use English as their main tongue, they have to study the roots of their near-adoptive tongue and develop a cultural association with parts of a particular wet island, along with its history, its traditions, and its customs!

Ideas and Contagions

The same model can be used for the contagions of ideas and their concentration. But there are some restrictions I must discuss here. Ideas do not spread without some form of structure. Recall from my discussion in Chapter 4 on how we come prepared to make inferences. Just as we tend to generalize some matters, but not others, so there seem to be “basins of attraction” directing us to some forms of beliefs. Some ideas will prove contagious, not others; some forms of superstitions will spread, but not others; some types of religious beliefs will dominate, but not others. The anthropologist, cognitive scientist, and philosopher Dan Sperber has proposed the following idea on the epidemiology of representations. What people loosely call “memes”, ideas that spread and that compete with each other using us people as carriers are not truly like genes. Ideas spread because, alas, they have for carriers self-serving agents who are interested in them, and interested in distorting them in the replication process. You do not copy a cake for the sake of replicating it –you try to make your own cake using ideas from others to improve it. We humans are not photocopiers. So contagious mental categories must be those in which we are prepared to believe, perhaps even programmed to believe. To be contagious, a mental category must agree with our nature.

Nobody Is Safe in Extremistan

There is something extremely naive about all these models of the dynamics of concentration I've presented so far, particularly when it comes to socio-economic ones. For instance, although

Merton's idea includes luck, it misses an additional layer of randomness. In all these models the winner stays a winner. Now a loser might always remain a loser, but a winner might be unseated by someone new popping out of nowhere. Nobody is safe.

Preferential attachment theories are intuitively appealing. But they do not account for the possibility of being supplanted by newcomers –or what every schoolchild knows as the declines of civilizations. Let us apply it to the logic of cities – go explain why Rome, with a population of 1.2 million in the first century, ended up with a population of 12,000 in the third, how Baltimore, once the principal American city, became a relic, and how Philadelphia came to be overshadowed by New York.

A Brooklyn Frenchman

When I started trading foreign exchange, I befriended a fellow names Vincent, who exactly resembled a Brooklyn trader, down to the mannerisms, except that he spoke the French version of Brooklynese. Vincent taught me a few tricks. Among his sayings were “Trading may have princes, but nobody stays a king” and “The people you meet on the way up, you will meet again on the way down”.

There were theories, when I was a child, about class warfare and struggles by innocent individuals against powerful monster-corporations capable of swallowing the world. Anyone with intellectual hunger was fed these theories inherited from the Marxist belief that the tools of exploitation were self-feeding –that the powerful would grow more and more powerful, furthering the unfairness of the system. But one only had to look around to see that these large corporate monsters dropped like flies. Take a cross-section of the dominant corporations at a particular time; many of them will be out of business a few decades later, while firms nobody ever heard of have popped onto the scene from some garage in California or from college dorm.

Take the following sobering statistic. Of the 500 largest U.S. companies in 1957, only 74 were still part of that select group, the “Standard and Poors 500”, forty years later. Only a few had disappeared in mergers; the rest either shrank or went bust.

Interestingly, these large corporations dropping like flies were mostly located in the most capitalist country on earth, the United States. The more socialist a country’s orientation, the stickier it was for the large corporate monsters. Why did capitalism (and not socialism) destroy these ogres?

In other words, if you leave companies alone, they tend to get eaten-up. Those in favor of economic freedom claimed that beastly and greedy corporations posed no threat because competition kept them in check. What I saw at the Wharton school convinced me that the real reason included a large share of something else: Chance.

But even that was not the true virtue of free markets. The luck of others counts greatly. Another corporation may luck out thanks to a blockbuster and displace the current winners. Capitalism was, among other things, the revitalization of the world thanks to the opportunity to be lucky. Luck was the grand equalizer, because almost everyone could benefit from it. The socialist governments protected their monsters and, by doing so, killed the potential newcomer in the womb.

Everything is transitory. Luck both made and unmade Carthage; it both made and unmade Rome.

I said earlier that randomness is bad, but it is not always so. Luck is far more egalitarian than even intelligence. If people were rewarded according to their abilities, without an inch of luck, that would still be unfair —people don’t choose their abilities. Randomness has the beneficial effect of reshuffling the cards in society, knocking down the big guy.

In the arts fads do the same job. A newcomer may benefit from a fad, as followers multiply thanks to a preferential attachment-style epidemic. Then, guess what? He too becomes history.

It is quite interesting to look at the acclaimed authors of a particular era and see how many have dropped out of consciousness. This even happens in countries such as France where the government supports established reputations, just as it supports ailing large companies.

When I visit Beirut, I often spot in relatives homes the remnants of a series of distinctively white-leather-bound “Nobel books”. Some hyperactive salesman once managed to populate private libraries with these beautifully made volumes; many people buy books for decorative purposes and want a simple selection criterion. The criterion this series offered was one book by a Nobel winner every year —a simple way to build the ultimate library. The series was supposed to be updated every year but I presume that the company went out of business in the eighties. I feel a pang every time I look at these volumes: Do you hear much today about Sully Prudhomme (the first recipient), Pearl Buck (an American woman), Romain Rolland, Anatole France (the last two were the most famous French authors of their generations), Saint-John Perse, Roger Martin du Gard, or Frédéric Mistral?

The Long Tail

I said that nobody was safe in Extremistan. This has a converse: nobody is threatened with complete extinction either. Our current environment allows the little guy to bide his time in the antechamber of success —and so long as there is life, there is hope.

The idea was recently revived by Chris Anderson, one of the very few humans who got the point that the dynamics of fractal concentration has another layer of randomness. He packaged it with his idea of the “long tail”, about which in a moment. Anderson is lucky not to be a professional statistician (people who have had the misfortune of going through conventional statistical training think we live in Mediocristan). He was able to take a fresh look at the dynamics of the world.

True, the web produces acute concentration. A large number of users visit just a few sites, such as, say, Google which, at the time of this writing, has total market dominance. At no time in history has a company grown so dominant so quickly –Google can service people from Nicaragua to southwestern Mongolia from the American West Coast, without having to worry about phone operators, shipping, delivery, and manufacturing. This is the ultimate winner-take-all case study.

People forget, though, that before Google, Alta Vista dominated the search engine market. I am prepared to revise the “Google” metaphor by replacing it with a new name for future editions.

What Anderson saw is that the web causes something *in addition* to concentration. It enables the formation of a reservoir of protoGoogles waiting in the background. It is also promoting the *inverse Google*, that is, allowing people with a technical specialty to find a small, stable audience.

Recall the role of the web in Yevgenia’s success. Thanks to the internet, she was able to bypass conventional publishers. Even her publisher with pink glasses would not have been in business had it not been for the web. Assume that Amazon does not exist. Say you have written a sophisticated book. If a bookstore is very small and carries only 5000 volumes, odds are that they will not be interested in letting your “beautifully crafted prose occupy premium shelf space. Now, the megabookstore, say the average American Barnes and Noble superstore, might offer 130,000 volumes, which is still not sufficient to accommodate marginal titles. So your work is stillborn.

Not so with web vendors. A web bookstore can carry a near-infinite number of books, since it need not have them physically in inventory. Actually, nobody needs to have them physically in inventory –since they can remain in digital form until someone prints them, an emerging business called “print-on-demand”.

So you can sit there, bide your time, be available to search engines, and perhaps benefit from an occasional epidemic. Indeed, the quality of readership has improved markedly over the past few years thanks to the availability of these more sophisticated books. This is a fertile environment for diversity.

Plenty of people have called me to discuss the long tail, which seems to be the exact opposite of the concentration implied by scalability and power laws. It implies that the small guys, collectively, in that environment, should control a large segment of culture and commerce –thanks to the niches and subspecialties that can now survive thanks to the internet. But, strangely, it can also imply a large measure of inequality: a large base of small guys and a very small number of supergiants, together collectively representing a share of the world’s culture – with some of the small guys, on occasion, rising to knock out the winners. (This is the “double tail”: a large tail of small people, a small tail of large people.)

The role of the long tail is fundamental in changing the dynamics of success, destabilizing the well-seated winner, and bringing about another winner. In snapshot it will always be Extremistan, always ruled by the concentration of Mandelbrotian randomness; but it will be an ever-changing Extremistan.

The long tail’s contribution is not yet numerical; it is still confined to the web and its small-scale online commerce. But consider how it may affect the future of culture, information, and political life. It may free us from the dominant political parties, from the academic system, from the clusters of the press –anything that is currently in the hands of ossified, conceited, and self-serving authority. The long tail will help foster cognitive diversity –another highlight of 2006 was to find in my mailbox a draft manuscript of a book called *The Differences* by Scott Page. Page examines the effect of cognitive diversity on problem solving and shows how variability in worldviews and methods acts like an engine for tinkering. It works like evolution. By subverting the big structures we also get rid of the Platonified “one way” of doing things –in the end, the bottom-up theory-free empiricist will prevail.

In sum, the “long tail” is a byproduct of Extremistan that makes it somewhat less unfair. The world is made no less unfair for the little guy; but it is also extremely unfair for the big man. Nobody is truly established. The little guy is very subversive.

Naive Globalization

We are gliding into disorder –not necessarily bad disorder. It implies that we will see more periods of calm and stability, with most problems concentrated into a small number of Black Swans.

Consider the nature of past wars. The twentieth century was not the deadliest (in percentage of the total population), but it brought something new. It was the beginning of the Extremistan warfare –a small probability of a conflict degenerating into total decimation of the human race, one from which nobody is safe anywhere.

Now a similar effect is taking place in economic life. We have never lived before under the threat of a global collapse. Financial institutions have been merging into smaller number of very large banks. Banks are now almost all interrelated. So the financial ecology is swelling into gigantic incestuous bureaucratic banks (often Gaussianized in their risk measurement) –when one falls, they all fall. The increased concentration among banks seems to have the effect of making financial crises less likely –but when these happen they are more global in scale and hit us very hard. We moved from a diversified ecology of small banks, with varied lending policies to a more homogeneous framework of firms that resemble each other. True, we now have fewer failures, but, when they occur... I shiver at the thought.

And we have some idea how such a crisis would happen. A network is an assemblage of elements called nodes that are somehow connected to each other with a link; the world’s airports constitute a network, as does the worldwide web, as do social connections and electricity grids. There is a branch of research called “network theory” that studies the

organization of such networks and the links between their nodes, with such researchers as Duncan Watts, Steven Strogatz, Albert-Laszlo Barabasi, and many more. They all understand Extremistan mathematics and the inadequacy of the Gaussian bell curve. They have uncovered this property of networks: concentration among a few nodes that serve as central connections. Networks have a natural tendency to organize themselves along an extremely concentrated architecture: a few nodes are extremely connected; others barely so. The distribution of these connections has a fractal, scale-invariant structure of the kind we will see in Chapters 15 and 16. Concentration of this kind is not limited to the internet: it appears in social life (a small number of people are connected to others), to electricity grids, to communications networks. This seems to make networks more robust: consider that random insults to most parts of the network will not be consequential because they are likely to hit a poorly connected spot. But it makes networks more vulnerable to Black Swans. Just consider what would happen if there is a problem with a major node. The electricity blackout we experienced in the North-East during August 2003, with the consequential mayhem, is a perfect example of what could take place if one of the big banks went under today.

But banks are in far worse situation than the internet. There is no significant “long tail”! We would far better off if there were a different ecology, in which financial institutions went bust on occasion and were rapidly replaced by new ones, thus mirroring the diversity of internet businesses and the resilience of the internet economy. Or a “long tail” of government officials and civil servants coming to reinvigorate bureaucracies?

Reversals Away from Extremistan

There is, inevitably, a mounting tension between our society full of concentration, and our classical ideas of *aureas mediocritas*, golden mean, so it is conceivable that efforts would be made to reverse the concentration. We live in a society of one person one vote, so progressive taxes have been enacted precisely to weaken the winner. Indeed, the rules of society can be

easily rewritten by those at the bottom of the pyramid to prevent such concentration from hurting them. But it does not take voting to do so – religion could soften the problem. Consider that before Christianity, in many societies, the powerful had many wives, thus preventing those at the bottom from accessing wombs, a condition that is not too different from the reproductive exclusivity of alpha males in many species. But Christianity reversed it, thanks to the one man-one-woman rule. Later, Islam came to limit the number of wives to four. Judaism, which was polygamous, became monogamous in the Middle Ages. One can say that such strategy has been successful – the institution of monogamous marriage, even when it is practiced the “French way”, provides social stability since there is no pool at the bottom of angry sexually deprived men fomenting a revolution just so they could have the chance to mate.

But I find the emphasis on economic inequality, at the expense of other types of inequality, extremely bothersome. Fairness is not exclusively an economic matter; it is less and less so as we are satisfying our basic material needs. It is pecking order that matters! The superstars will always be there. The Soviets may have flattened the economic structure, but they encouraged their own brand of *übermensch*. What is either poorly understood, or denied (owing to its unsettling implications) is the absence of role for the *average* in intellectual production. The disproportionate share of the very few in intellectual influence is even more unsettling than the unequal distribution of wealth –unsettling because, unlike the income gap, no social policy can eliminate it. Communism could conceal or compress income discrepancies; it could not eliminate the superstar system in intellectual life.

It has even been shown by Michael Marmot, of the *Whitehall studies* that the ones at the top of the pecking order live longer, even adjusting for diseases. Marmot’s impressive project shows how social rank alone can affect longevity, adjusting for health conditions and other factors. He calculated that actors who win an Oscar tend to live on average eight years longer than their peers who don’t. People live longer in societies that have a flatter social gradient.

Winners kill their peers as those in a steep social gradient live shorter lives, regardless of their economic condition.

I do not know how to remedy this. Is insurance possible? Should the Nobel prize be banned? Granted that the Nobel medal in economics has not been good for society or knowledge, but even those rewarded for *real* contributions in medicine and physics too rapidly displace others from our consciousness, and steal longevity away from them. Extremistan is here to stay, so we have to live with it, and find tricks to make it more palatable [*Footnote:*There are tricks, once we accept both unpredictability of success and extremistan. Recall from chapter 8 that entrepreneurs do not do as well as venture capitalists, that is, people who specialize in collecting a large number of bets on individual entrepreneurs. Each bet is a long shot, but collectively these bets make sense. This also holds for books: authors do not do as well as publishers who own a large portfolio of books and are paid a higher return on their risk – and, furthermore, manage to diversify it across authors. Furthermore, artists face a high risk of starving and a small probability of making it big. What is the remedy?

Given that government bureaucrats, given their track record, would not be able to do anything constructive in the area, except sponsor some class of artists, at the expense of others, a possible solution is to leave it completely to the market. An artist could easily cap his income, and, say, against receiving immediately a sum of \$100,000, would agree to pay 20% of any dollar he cumulatively earns in his lifetime in excess of \$3,000,000. The utility of a certain \$100,000 received now far exceeds the potential dollar above the \$3,000,000. This is similar to venture capital, expanded to artists, as it can come as a single transaction between an agent and the market. This would enforce some form of fairness among artists and allow them to get a portion of collective uncertainty.”

This works exactly like collective insurance, but with a free-market coloration. This is the scheme Mark Spitznagel, Art DeVany and I drafted recently. Remarkably, it does not require any form of planning beyond a financing contract with a bank and a market willing to trade the

security. In a way book advances on the part of publishers fulfill such function; it would be a way to make it more an open market issue, i.e. to "securitize" the contract.]