

The Black Swan: The Impact of the Highly Improbable Study Guide

**The Black Swan: The Impact of the Highly Improbable
by Nassim Taleb**

(c)2015 BookRags, Inc. All rights reserved.



Contents

[The Black Swan: The Impact of the Highly Improbable Study Guide.....1](#)

[Contents..... 2](#)

[Plot Summary..... 4](#)

[Prologue..... 5](#)

[Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 1: The Apprenticeship of an Empirical Skeptic..... 6](#)

[Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 2: Yevgenia's Black Swan; Chapter 3: The Speculator and the Prostitute..... 8](#)

[Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 4: One Thousand and One Days, or How Not to Be a Sucker..... 10](#)

[Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 5: Confirmation Shmonfirmation!..... 12](#)

[Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 6: The Narrative Fallacy..... 14](#)

[Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 7: Living in the Antechamber of Hope..... 16](#)

[Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 8: Giacomo Casanova's Unfailing Luck: The Problem of Silent Evidence..... 18](#)

[Part One: Umberto Eco's Antilibrary, or How We Seek Validation; Part Two: We Just Can't Predict, Chapter 9: The Ludic Fallacy, or The Uncertainty of the Nerd; Chapter 10: The Scandal of Prediction..... 20](#)

[Part Two: We Just Can't Predict, Chapter 11: How to Look for Bird Poop..... 22](#)

[Part Two: We Just Can't Predict, Chapter 12: Epistemocracy, a Dream; Chapter 13: Appelles the Painter, or What Do You Do if You Cannot Predict?..... 24](#)

[Part Three: Those Gray Swans of Extremism, Chapter 14: From Mediocristan to Extremism, and Back..... 26](#)

[Part Three: Those Gray Swans of Extremism, Chapter 15: The Bell Curve, That Great Intellectual Fraud..... 28](#)

[Part Three: Those Gray Swans of Extremism, Chapter 16: The Aesthetics of Randomness..... 30](#)



[Part Three: Those Gray Swans of Extremism, Chapter 17: Locke's Madmen, or Bell Curves in the Wrong Places.....](#) 32

[Part Three: Those Gray Swans of Extremism, Chapter 18: The Uncertainty of the Phony.....](#) 34

[Part Three: Those Gray Swans of Extremism; Part Four: The End, Chapter 19: Half and Half, or How to Get Even with the Black Swan.....](#) 35

[Epilogue: Yevgenia's White Swans.....](#) 36

[Characters.....](#) 37

[Objects/Places.....](#) 40

[Themes.....](#) 42

[Style.....](#) 44

[Quotes.....](#) 45

[Topics for Discussion.....](#) 47



Plot Summary

Nassim Nicholas Taleb built arguments to support his thesis of empirical skepticism, a different way of approaching the randomness in the world. He explained that true randomness was the unavoidable consequence of living in this place and time, and that it led inevitably to Black Swan events. These were events that happened without warning and beyond anybody's capacity to detect ahead of time. They were the big surprises in life that resulted in major game changes, such as hurricane Katrina and the 9/11 terrorist attack on the World Trade Center. Black Swan events could also be positive, such as making a big killing in the stock market from speculative investing or stumbling upon a product that made a big hit. The trick was to maximize luck, and this could best be done in capitalistic markets.

Empirical skepticism involved turning the scientific method, an inductive way of thinking, on its head. Instead of starting with a hypothesis, supporting the hypothesis with observations and experimentation, and then creating a grand theory, empirical skepticism did experimentation first and never proposed any theories. The idea was to discover what worked, not how it worked. Determining how anything worked in empirical skepticism was considered a waste of time because not all the variables could be determined, and most of the silent evidence was unknown. An example of silent evidence given was the high and unknown number of failed species for which no fossils exist.

People have developed several thought habits that helped us to deny the existence of Black Swan events. Among those listed and explained by the author were the error of confirmation, the narrative fallacy, straight denial that Black Swan events exist, silent evidence, and undue focus on a few well-defined Black Swan events.

The author attacked his detractors as being frauds and knowing it. They of course attacked back, but Taleb knew how to handle them. He did not become upset with them but simply let their emotional storms pass. The detractors were defending the bell-curve method of thinking that did more to hide the possibilities of Black Swan events than to predict anything worthwhile. The author suggested that they find more meaningful employment.

Taleb suggested that the ways to deal with Black Swan events were to maximize luck and prepare for the consequences that would arise from the events. He gave mostly investment advice, since this was how he made enough money to quit his investment career. He left it up to the reader to determine if any of his advice would be useful in day-to-day life, but he did encourage everyone to be aware that Black Swan events could happen at any moment. He also expressed regret that reality was so painful for many people. He had experienced war firsthand while in Lebanon as a teenager, living in a basement while mortar shells exploded overhead. He relocated to France but went back home to visit his family throughout the subsequent years. He met Benoit Mandelbrot, the father of fractal geometry, there and recognized that this math could help turn Black Swan events into somewhat predictable entities, but not all of them.



Prologue

Prologue Summary and Analysis

Summary

The author used a prologue to give an overview of his ideas presented in the rest of the book. He called events that are entirely unanticipated Black Swans, a reference to the black swans of Australia. Up until the Seventeenth Century, people of other countries had accepted the hard fact that all swans were white, but when the flocks of black Australian swans were first spotted by a Dutch mariner, a long-held belief was refuted.

Black Swans have happened throughout history, the author observed. From the 9/11 attack to the Persian Empire being conquered by a young upstart from Macedonia, Black Swans had the characteristic of turning the world on its head, changing perceptions and beliefs in radical ways. The author proposed that our habits of thinking, developed over thousands of years, have not been capable of dealing with Black Swans effectively. Humans have tended to look backward in time with the desire to make sense of what had been chaotic. These efforts have not been at all successful in predicting Black Swans but have kept us ignorant of how much we have not known or understood. We have been living in an illusion of logic and sense where neither existed to the extent that we desired.

The Prologue gave a few hints at what was to come in the rest of the book. The purpose of the book was to give answers to these questions: "Why do we, scientists or non-scientists, hotshots or regular Joes, tend to see the pennies instead of the dollars? Why do we keep focusing on the minutiae, not the possible significant large events, in spite of the obvious evidence of their huge influence" (p. xix)?

Analysis

The Prologue could just as well have been called the Introduction, since the author brought out the overall ideas that would be further explained in the book. His premise was that we have been ignorant fools throughout our development, and that now in the Information Age, we are more exposed to risk than ever before. We simply have not realized it due to how we think.

This premise had the problem of gaining acceptance because people have generally rejected negative descriptions of themselves. The author used a conversational tone and first-person narrative style to bring the ideas into places where the reader could grasp them and at least consider their validity. He gave a brief explanation that aggressive trial-and-error is a better method of discovery than conventional means that involved incentives.



Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 1: The Apprenticeship of an Empirical Skeptic

Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 1: The Apprenticeship of an Empirical Skeptic Summary and Analysis

Summary

Part One opened with a description of the library that the writer, Umberto Eco, owned. This library contained over 30,000 volumes, most of which Eco had never read. This was the entire point of having a personal library to the author: He cared not for books he had already read; only the ones that would be read mattered to him.

Taleb pointed out that we consider our knowledge as a thing to be protected and defended, as if it were private property. We have created lists of our experiences and academic accomplishments, but what we have not done was to create lists of what we did not know.

Chapter 1 contained a brief autobiography in which the author described his home country of Lebanon and how the region had changed over time. It had once been thought of as a land of tolerance. Muslims, Christians and Jews lived side-by-side with no more friction between them than any other community. Then war broke out when the author was a teen. He spent a great deal of time in basements with mortar shells exploding overhead. This was where he determined to become a philosopher, although not in the conventional sense of gaining a doctorate degree. He instead read all the books he could get his hands on.

In later life he worked as a floor trader on Wall Street and later as a derivative trader. The market crashed in 1987, which made the author think about how people reacted to both the war and the market crash. He realized that the reactions were similar.

Part of the problem had to do with journalists clustering together and comparing notes. This led to conventional wisdom, in which truth was determined by consensus rather than by independent thought. An exception had to do with individuals who wrote immediately about events and released the material as dispatches that were later compiled into books. The author had some reservations about the editing of the resulting books that probably dropped or enhanced details to fit an already determined narrative.



When the author decided to drop out of the financial world and devote his life entirely to thinking deeply, he had a challenge to describe how he made his living. He liked to think of himself as an empirical skeptic, but nobody knew what he meant. Instead, he told people that he was a limousine driver.

Analysis

One reason why people have not created lists of what they do not know has been that most realize this list would extend into infinity. Shorter lists of what we need to find out have been made, most notably by published authors while researching their books. Taleb's observation at this point seemed to lose traction, but he recovered in Chapter 1 after this brief prelude for Part One.

The shift from describing ideas to giving personal information about one's life was a good move to bring the reader into the narrative and feel compassion for the author. His life had not been an easy one, and during the war in Lebanon, he had been directly involved. Respect for the author was encouraged by his take on those who evaded responsibility and others, like himself, who stood up for what was right.

What the author learned in the financial world influenced his background thinking for this book. He realized that risk-aversion was the wrong way to approach investing, since risk can never be fully understood with mathematical modeling and through the use of universally known information. The nearly incomprehensible derivatives had an advantage exactly because they were very difficult to understand. Still, making money this way lost its appeal after he had earned enough in bonuses to quit.

The autobiography ended with the author dedicating his life to thinking, or in his estimation, becoming a true philosopher. His focus was on epistemology, or the study of how we know what we know. He turned an adage around: What we do not know will likely harm us at some unknown time, and we will not see it coming. He left an open question: Will this book help us to think better and handle Black Swans more effectively?



Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 2: Yevgenia's Black Swan; Chapter 3: The Speculator and the Prostitute

Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 2: Yevgenia's Black Swan; Chapter 3: The Speculator and the Prostitute Summary and Analysis

Summary

Chapter 2 was a very short three-page description of a novelist, Yevgenia Nikolayevna Krasnova, who brought forth a new literary form. She had been pushed away by publishers who could not understand what the novel was about, for whom it was written, or what genre bookstores could use to put the book on a shelf. She tried to take a writing workshop and came out of the experience entirely disgusted with the literary world.

Then a small publishing house decided to take a chance on the book. Over several years, it gained an audience and the respect of literary critics. Taleb pointed to the book as Yevgenia's Black Swan event.

In Chapter 3 the author revealed that Krasnova is a fictional character used to illustrate how the Black Swan worked. He moved from that into the natures of the two kinds of randomness and invented two mythical countries, Mediocristan and Extremistan, that represent type 1 and type 2 randomness, respectively. An example given for a type 1 randomness was that of a dentist who, through diligence and steady work, would make a predictable amount of money. An example of type 2 randomness was that of a famous author, J.K. Rawlings, and her rise to becoming one of the bestselling novelists of all time. The author explained that in Extremistan, only the very successful and the unsuccessful, the giants and dwarfs, populated the country. Mediocristan was populated by individuals without much difference, and if one of them out of many were to differ a great deal, the overall effect would be negligible.

Analysis

The use of a common story about a rejected novelist finally getting the recognition she deserved did not in itself constitute a Black Swan. The key ingredient was that Krasnova's novel redefined what constituted fiction, and in another way, how nonfiction differed. She had blended the two into a unique form, a form so different from what was



normally considered successful that nobody wanted to publish her. This is quite a bit different from a series of books that conform to standard plot designs, characterizations, thematic concepts and language. An example of what set Krasnova's work apart was the use of foreign languages in dialogs, perhaps assuming that an English reader would also understand Italian.

Taleb used a little humor in telling this story. Krasnova seemed to have had a big attraction for philosophers and serially married three of them. Then she became tired of all the arguing and stopped marrying philosophers.

The author might have angered some of his readers with the use of a fictional character in the previous chapter and not revealing the truth until the third chapter. This revelation was done in a footnote as well, something that many readers might have ignored. Other readers might have caught on to the author's wit as he moved from fiction to the realities of randomness, in effect what he had alleged was Krasnova's accomplishment: the blending of fiction with nonfiction.

People have been aware that fame and fortune come to only a few, while many others struggle to gain what will never be realized. This was the point being made with the imaginary country, Extremistan. Most people stopped following impossible dreams and settled down to unremarkable careers that required mediocrity and that could even punish the extraordinary. This was the point about Mediocristan.

Black Swans could happen in Mediocristan but not often, with Extremistan having the highest chance of Black Swans occurring. Taleb used real-world examples of how type 1 randomness resulted in the greatest equality, whereas type 2 randomness resulted in the greatest disparity. This was not an attempt to bring out economic theory but to offer a trick for distinguishing between the types of randomness, which in turn was necessary for a better understanding of epistemology.



Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 4: One Thousand and One Days, or How Not to Be a Sucker

Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 4: One Thousand and One Days, or How Not to Be a Sucker Summary and Analysis

Summary

The most important story that the author brought out was that of a Thanksgiving turkey. The turkey lived for a thousand days, and all during this time, it was fed regularly, cared for and nurtured to a large size. Then on the day after the thousand-day period of blissful, worry-free existence, on the day before Thanksgiving, the turkey was beheaded, plucked and prepared for the feast. This story illustrated the thinking process of induction, or the observation of details that led to a generalized conclusion. The turkey had thought that its life would forever be blissful and worry-free until one day the seemingly impossible happened. That event was a Black Swan.

The problem of the turkey went back in history to Sextus Empericus (160 - 210 AD). Al-Ghazali (1058 - 1111 AD) brought skepticism to the scientific method, which depended almost exclusively on inductive thinking. David Hume (1711-1776 AD) worked on the turkey problem, which was also called Hume's problem. Although Taleb did not promote skepticism, he used it as a basis to build an argument toward being aware of risk but not averse to it.

Analysis

The author built an underlying philosophical foundation in Chapter 4. Empirical skepticism came out of strait skepticism for inductive thinking, but the turkey problem did not go far enough to the Black Swan event. It merely illustrated the major problem in the scientific method, and in some cases, skepticism led to mysticism. In other cases, the skeptic became afraid of risk, and neither outcome was desirable.

Five weaknesses that came from ignoring the Black Swan were presented as the error of confirmation, the narrative fallacy, human programming against the existence of Black Swan events, the distortion of silence, and focusing too much on a few Black Swans that were well-defined after they had occurred.



The error of confirmation had to do with looking at only a subset of data and extrapolating a forecast. The narrative fallacy had to do with our need for comprehensible patterns. The human programming had to do with our inherent nature. The distortion of silence had to do with how history filters out details, thereby resulting in distorted conclusions. The final weakness had to do with ignoring other Black Swans that could have been important.

The author promised to explain each of the weaknesses in subsequent chapters and to give a comprehensive conclusion at the end of Part One.



Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 5: Confirmation Shmonfirmation!

Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 5: Confirmation Shmonfirmation! Summary and Analysis

Summary

Confirmation was defined as making generalized conclusions from a single experience or many experiences. That this can lead to wrong conclusions was shown with the turkey example in which the turkey lived just fine for a thousand days but was killed the day before Thanksgiving. Another example given was sleeping on a railroad track one night without harm. This did not mean that on any other night, a train would not come along and cause a great deal of harm.

Humans have developed confirmation as part of our survival mechanism. Experiments with children have shown that we selectively generalize from limited information, and in primitive environments, this worked fine. However, the world of today has developed into a complex web of international relationships. Day-to-day living has become more prone to Black Swan events, for example a surprise layoff from a job held for many years.

The author suggested a different approach that involved negative empiricism. He defined this as looking for weaknesses in arguments rather than strengths, which is not intuitive for most people. One example given had to do with a professional remembering and expressing accomplishments rather than failures, and another had to do with cancer detection. The point was that the presence of cancer can be determined, but the lack of cancer would require examining every cell in the human body, therefore it is wrong for a doctor to declare a patient cancer-free. The Black Swan event would be the recurrence of cancer originating from missed cancer cells.

Analysis

The author brought out in Chapter 5 the idea of learning more from our mistakes than from our successes and the concept that we might be able to alter our inherent ways of making conclusions. He pointed out the common thinking mistake of attributing to whole groups the observed behavior of some members of the groups: All terrorists are Muslim, therefore all Muslims are terrorists. Even published authors and college professors have been caught in this logical mistake but in more subtle contexts.



The idea of focusing on weaknesses rather than strengths was acknowledged as not being a new concept. Still, people have not been doing this for all sorts of reasons, from building up a resume to accepting awards. It seemed to have been the logical flow within the context, and although the practice promoted illusion, it caused no real harm. When people forgot about weaknesses within critical contexts, the chances of being blindsided by Black Swan events increased.



Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 6: The Narrative Fallacy

Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 6: The Narrative Fallacy Summary and Analysis

Summary

The narrative fallacy was explained as our penchant to tell stories to ourselves and others rather than to think about randomness and why causes have been assigned to effects. The author expressed disdain for cause-effect thinking, although he admitted to sometimes using the relationship. His main complaint was about how people changed actual information for what best fitted the story. Additionally, stories changed as they aged.

Narratives have been useful for compressing a great deal of information into memorable stories, but that usefulness turned into disadvantages when Black Swan incidents were considered. An observation was presented that showed how a statement can overly simplify a complex situation by limiting possibilities via modifiers. "The king died and the queen died" left open what contributed to the queen's death. "The king died, and then the queen died from grief" limited what contributed to her death.

Another important role of narratives has been to lessen the pain of unpleasant memories. Nevertheless, the narratives that we have created and that appear in nearly all media have been more effective at hiding reality than understanding it. The author used an example from the news in which the rise of one financial market had been attributed to the death of Saddam Hussein. When the same market fell, the same cause was cited, and the author questioned whether the death of Hussein had anything at all to do with the market fluctuations. While narratives may have helped humans to deal with harsh realities, they have been working against our understanding of Black Swan events.

Analysis

From an early age humans have gravitated toward narratives in the forms of nursery rhymes, songs, fables, television shows and other sources. Our brains have been conditioned over many thousands of years to cast what is a very complex reality into the more understandable narratives. The author claimed that this gravitation toward the narrative, although so ingrained that we do it subconsciously, has been working against our understanding of the Black Swan events. He explained that this is only a

disadvantage when trying to understand Black Swan events because we have also been focusing on only a few that had developed well-defined narratives and ignoring all the rest.

The author wrapped up the chapter with an admission that his experiences in life were highly important in his coming to understand Black Swan events and that most people have not been thinking as he does. This was one of his reasons for writing the book. His honesty with the reader may have worked to keep the mind open to possibilities, but at this point he had not made enough of a case to bring a flash of insight. What he has revealed about humans has become nearly common knowledge with the publishing of popular books on neuroscience. Still, his point was not to bring out what might be considered the obvious but to orient the reader into the basis of his overall thinking.



Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 7: Living in the Antechamber of Hope

Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 7: Living in the Antechamber of Hope Summary and Analysis

Summary

People living in Extremistan have suffered from various forms of persecution because they have not attained a steady-state that others considered a mark of success. The unpublished writer waited to be accepted by an agent or publisher; the struggling rock star waited to be discovered by a major recording label; the scientist waited for a breakthrough theory that would win the Nobel prize. All these people needed Black Swan events of the positive kind to happen in order to be considered successful by others, and that perception was fleeting as the others forgot and moved on to other interests.

The author made the point that oftentimes people who have lived in Extremistan never experienced the positive Black Swan event before they died. Fame may have come after death, but more often they simply died, leaving whatever recorded work they had created behind for others to expand upon or leaving nothing.

Another important point was brought out that existence is not as linear as we, and especially scientists, would like to believe. The author explained that so many events impact any observed phenomena that no conclusions can be honestly drawn from the effort, and yet they are. If the scientist working steadily toward a Black Swan event actually made it, any attempt at analyzing how the scientist had moved from there to here would be seriously flawed if a progression were to be sought. On the other hand, the actual complexity of the process was too convoluted for most humans, who have the desire for clear narratives, to understand.

Taleb proposed that for most people, happiness came from a steady flow of small rewards. The lumpy nature of rewards for those seeking positive Black Swan events has had the effect of reducing happiness. In simple terms, a steady small paycheck trumped a huge payoff that only happened once or a few times and with long dry periods in between. Offsetting the reduction in happiness for Black Swan hunters was hope and the anticipation that the journey was worth more than reaching the destination, that process trumped results.

Analysis



Taleb employed an unusual writing technique in which elements from fiction were blended in with the nonfiction elements. He had created a mythical character, Yevgenia Nikolayevna Krasnova, in Chapter 2. In this chapter he brought her back and described her one favorite novel, which actually exists, as being about a soldier waiting for a big battle that did not happen until he was near death. This blending of fiction and nonfiction elements has not been widely accepted, but the technique has been explored by this and other authors.

The starving artist has been one stereotype used to characterize a person hunting for a positive Black Swan. The author peeled back the stereotype and exposed the realities underneath. Black Swan hunters suffered for their choices in careers and for reasons that could not have been avoided. The territory went along with the chosen path, which was not at all well marked to begin with. Another common stereotype has been the trailblazer, the pioneer in whatever field. Taleb suggested that most Black Swan events were unanticipated by most people, but the hunters of Black Swan events expected them to happen eventually, similar to how explorers have expected to find odd land features populated by strange creatures. An example he gave was of a trader in the markets gaining a few pennies on risky investments but expecting one of them to pay off big for unpredictable reasons. The overarching theme of Chapter 7 was that even though most Black Swan events were hidden, they should have been expected even if this meant giving up one form of happiness for a more challenging form.



Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 8: Giacomo Casanova's Unfailing Luck: The Problem of Silent Evidence

Part One: Umberto Eco's Antilibrary, or How We Seek Validation, Chapter 8: Giacomo Casanova's Unfailing Luck: The Problem of Silent Evidence Summary and Analysis

Summary

Silent evidence was defined as ignored events that had contributed to a Black Swan event. A well-known novelist, Balzac, was brought forward as an example, since one of his stories dealt with a writer who experienced a period of silent evidence for not having his book published and then was published. If the character had not experienced the lucky break of becoming published, he would have become silent evidence.

Another example was the common practice of analyzing why millionaires became rich. Certainly hard work, risk-taking and other traits were found to be in common, but those same traits were also common to people who did not become rich. Those people constituted the silent evidence. The author concluded that the only trait in common among millionaires was luck.

Two famous Black Swan events, Hurricane Katrina and the 9/11 attack on the World Trade Center, were used to illustrate how funds given to the survivors of both tragedies were taken from other people who were invisible in the process. Whether originating from charity or government, the funds may have been taken from cancer patients, making them silent evidence. Common inferential analysis ignored very important silent evidence, and that led to wrong conclusions. The author used a few examples of populations in which the reality was directly opposite of the conclusion. In one, rats were collected and subjected to radiation. Some died, and the conclusion was that the survivors were stronger than the average rat, even though the radiation had weakened all the rats. This in itself was not wrong, but extending the conclusion by releasing the radiation-weakened rats into the general rat population and considering them to be somehow stronger was in error. The radiation had not killed the rats, but it also had not made them stronger.

Silent evidence has always been around, but due to the human need to make sense of the world with cause-effect relationships, we have built many false ideas. Among them were evolutionary progressions when in fact evolution has been a grand experiment



with far more failed species than successful; the idea that the world had been created just for humans, but many other worlds had also been created that failed to produce life; beginner's luck and lucky streaks in gambling, while many other beginners failed to have any luck, and far more gamblers never experienced a lucky streak. The author emphasized that when silent evidence was considered, sheer chance could explain most phenomena.

Analysis

Taleb's take on the chaotic nature of the universe was tempered with his admitting that taking risks is necessary and that being aware of the silent evidence should not be mistaken for ignoring history, science, or most other academic subjects. His main argument was that most people are not aware of the silent evidence, and from this built-in ignorance has come several ideas that do not stand up to scrutiny. An important one was the notion that nature has followed a clear progression in evolution, and with humanity as the ultimate goal. The importance of this extended to how newspapers always built cause-effect stories when clear relationships were not justified. However, this has been what the reading population desired, since humans inherently gravitate toward stories.

The case for silent evidence was made convincingly. Certainly many more species have existed on earth than the fossil record has indicated, due to the exacting conditions required for fossilization. As astronomy has revealed more of the universe and physics proposed additional dimensions, our existence as a matter of chance became more likely. The doubts that have been expressed on this and the ideas of a Supreme Being and intelligent design have arisen due to underestimating the silent evidence. The assumption that was made in favor of silent evidence was that many more influences and trial runs have existed than most people have taken into consideration.

Taleb questioned whether humans can ever understand our own existence to any accuracy because of the very fact that we exist. We have been asking the wrong questions. There may have been no reason for our existence outside the result of a long and messy random collection of biological trials, and we will never know all that went into making a human species. This viewpoint has been expressed before, but the author gave unusual examples of randomness in several contexts outside of biology. Literature, gambling, business, and recent Black Swan events were used effectively to support the idea of silent evidence.



Part One: Umberto Eco's Antilibrary, or How We Seek Validation; Part Two: We Just Can't Predict, Chapter 9: The Ludic Fallacy, or The Uncertainty of the Nerd; Chapter 10: The Scandal of Prediction

Part One: Umberto Eco's Antilibrary, or How We Seek Validation; Part Two: We Just Can't Predict, Chapter 9: The Ludic Fallacy, or The Uncertainty of the Nerd; Chapter 10: The Scandal of Prediction Summary and Analysis

Summary

In Chapter 9 the author described the ludic fallacy, a common error of equating games of chance and dice rolls with true uncertainty and randomness that are found in the real world. He described his experiences at a meeting in Las Vegas on the subject of uncertainty and how the military leaders understood its true nature better than the academics and casino owners. The military attendees had already conceptualized the idea of unknown unknowns, as opposed to known unknowns. The academic attendee he described was too brainwashed into Platonicity, which the author had defined as focusing on familiar narratives at the expense of messier and less controllable structures. The casino owners had been hit by several very expensive Black Swan events, none of which could have been predicted mathematically or observed via the sophisticated monitoring systems in the casinos.

In Chapter 10 the author described a visit to the Sydney Opera House, but the point was not that the building was beautiful or the opera magnificently performed. The building had at first been budgeted for 7 million AU\$ but had cost about 104 million AU\$ upon completion. The point was that this happened so often as to indicate a principle about planning.

Guessing and predicting were shown to be the same activity, and certain principles have been proven via experimentation. Suggesting numbers before the prediction always changed the prediction to coincide closely with the suggested numbers. When delays happened in any sort of project, from constructing a building to writing a book for publication, further delays could be extrapolated mathematically with a fair amount of certainty. However, many people have made their livings by making predictions, especially about the behavior of markets, but none of them could honestly claim that



their predictions were reliable. The tendency has been to make excuses for predictions gone wrong. Common among these excuses have been that the game had changed; the outlying influences were not in the model, and the prediction was close to being right. The advent of computerized spreadsheets has made these wrong predictions more common.

Analysis

Chapter 9 wrapped up Part One with observations on how people understand probability theory and ignore the true randomness in the world. The author emphasized that even though he had split up his thoughts into distinct pieces, it was all really one thought with many ramifications. A strong implication was that risk management was a fool's errand and that most organizations have spent too many resources trying to control what was fundamentally uncontrollable by the means employed.

The central problem with making predictions has been that the number of variables was universally underestimated. This was due to the fact that anything could have happened, and the events that caused predictions to be false had not been considered. Fluctuations in the cost of crude oil have not been understood even after the fact. The author did a good job of presenting many examples of wildly wrong estimations and handed a large measure of judgment on professionals who make their livings by promoting bad predictions. He felt that they all should get more useful jobs.

While all this might have been true, the only positive advice offered was to become aware of how seriously faulted most predictions are. The guesswork of average people was just as accurate as the predictions from highly paid professionals. The author also expressed doubt that the high pay for CEOs can be justified by what they actually did to make their companies successful. This argument was one-way with no refutation from actual CEOs or the board members who authorized the high pay rates.



Part Two: We Just Can't Predict, Chapter 11: How to Look for Bird Poop

Part Two: We Just Can't Predict, Chapter 11: How to Look for Bird Poop Summary and Analysis

Summary

Chapter 11 began with the assertion that most inventions and discoveries have happened by accident while people were looking for something different. The commonly known example is Columbus finding the New World rather than his desired destination, India. Another important part of this was that, when something new was found, the finder generally did not understand the importance. The core principle was that the natural world, of which humans are a part, has been running on aimless processes that sometimes resulted in successes but most often ended in failures. A few modern-day corporations have recognized this and have allowed their engineers free reign when exploring possible new products.

The author revealed how we have taken illusions and extrapolated their importance in economics and science. The problem has been trying to make predictions when not enough data were available, and in fact would never be available to a degree that could lead to accurate predictions. Instead, the author emphasized the need for empirical thinking, in which the purpose was not to make up general theories that were supposed to fit a broad range of situations, but to observe, experiment and guess until something worked. Additionally, there would be no need to determine how something worked, just that it did.

However, the author acknowledged that planning for the future has been a strong survival skill that has developed in humans. This skill of anticipating future events has given the human species an edge on environmental situations that would have otherwise required jumps in evolution, effectively cheating evolution by allowing the species to thrive when other species would have died out.

Analysis

Empirical skepticism has been the core concept that the author returned to via different routes. The skepticism had to do with not taking the experts' words about the future unquestioningly and definitely not on faith alone. The experts have been consistently wrong and blind to developing Black Swans, according to the author. What the author did not include were those experts who actually did predict Black Swans, such as the fiscal meltdown of 2008. Other forces were at work to discredit these experts, among them the grand human ability for self-deception. The author did expound on this human failing and how it has attributed to Black Swan events that surprised, seemingly, everyone.



The empirical part of empirical skepticism was shown to have many proponents throughout history but has fallen by the wayside in the ways that most educated people think today. This was the central theme of the book: We have fallen into terrible habits of thinking and have been deceiving ourselves that we actually have come to understand the world. The author called the bad thinking habits Platonicity, since they focused on the easily understood while ignoring those parts of reality that defied understanding. What may well have been our edge among species, our skill at anticipating future events, could also be why we have been having a very difficult time working within the environments that we have created. We have been trying to predict the unpredictable.



Part Two: We Just Can't Predict, Chapter 12: Epistemocracy, a Dream; Chapter 13: Appelles the Painter, or What Do You Do if You Cannot Predict?

Part Two: We Just Can't Predict, Chapter 12: Epistemocracy, a Dream; Chapter 13: Appelles the Painter, or What Do You Do if You Cannot Predict? Summary and Analysis

Summary

In Chapter 12 Taleb described his idea of utopia as an epistemocracy in which the fundamental idea was to run the society from a basic awareness of ignorance instead of knowledge. He restated in different forms the trouble with our conceptions that have been mistaken for knowledge and brought out the observation that a forward process is easier than a backward process. The analogy used was predicting the shape of a puddle that would form from a melting ice cube (predictive) versus determining what kind of ice cube formed a puddle, if a melting ice cube was indeed the origination of the puddle. History was used as an example of the difficulties with the backward process, since it has been impossible to definitively identify causes of particular events, such as the fall of the Roman empire.

In Chapter 13 the author did not advise people to stop being human. Trying to deny our natural tendencies toward making judgments and forming opinions was neither encouraged nor discouraged but presented as just the way we are. Yet because we never have clear knowledge of what will happen next, the main idea propounded was to be prepared for anything relevant. This included not only the negative Black Swans but the positive as well. A cautionary note was given that we should be careful about embracing theories brought forward by experts and assess how much damage could result from belief in their theories. Rather than blindly following the blind, the recommendation was to maximize the role of luck in future events.

The way that luck was maximized in the author's approach and many of the people he quoted was through trial and error. This implied that many more errors than successes would result from numerous trials, but that was how innovation always worked and how huge fortunes were made. An example given was an investment portfolio with 85-90% going into safe investments and the remaining 10-15% going into speculative investments that could pay off handsomely. This was maximizing the chances of encountering a positive Black Swan, possibly a start-up company that could gain significant market share with one or more hit products.



The key points highlighted were to make the distinction between positive and negative outcomes, keep an open mind, be wary of both government and corporate grand plans with exact specifications, and stop wasting time by avoiding arguments with those who make predictions.

Analysis

Chapter 12 recapped the problems with our present attitudes toward knowledge and our abilities to know. The chapter ended with a promise to explore "extremely practical measures we can take" (p. 200). So far the major theme has been that we are woefully underequipped to survive in our world full of random events that lead to unclear results, which was not original or unknown to most people and has been expressed in the idiom, stuff happens. The theme should benefit from ways to cope with stuff happening. One chilling observation had to do with global nuclear war. That this has not yet happened does not mean it will not happen, for if it had happened, we would not be around to wonder when or if it will. The observation was similar to the turkey living just fine until the slaughter right before Thanksgiving.

The recommendations given in Chapter 13 have been summed up as organizing one's luck. The point was that since we can never know what the future holds, be conservative with most assets while taking bold chances with a relatively small portion. The assumption made was that people have assets with which to do this, yet debt has remained a constant problem for many. For these people, the advice on handling an investment portfolio likely had very little relevance. The other ways of dealing with uncertainty may have had more value for the readers struggling with debt.

Once a person has determined the outcomes of Black Swan events, then preparations for those outcomes could be made. People living in earthquake zones could stockpile food and water; those living on flood plains could prepare for evacuation and possibly find flood insurance. What the author did not make clear was how to prepare for unknown Black Swan events, other than trying to imagine what they might be. This exercise in imagination was pointed out as being very common among military leaders and becoming more accepted in businesses. The important issue was that everyone would benefit from thinking this way, rather than assuming that conditions will always continue as they have. The famous scouting motto, be prepared, was invoked. The reader might have thought that this bromide has been self-evident all along, but Taleb gathered the somewhat common wisdom together in one place and offered historical evidence that we have been ignoring these principles too much, perhaps dismissing them because of their familiarity.



Part Three: Those Gray Swans of Extremism, Chapter 14: From Mediocristan to Extremism, and Back

Part Three: Those Gray Swans of Extremism, Chapter 14: From Mediocristan to Extremism, and Back Summary and Analysis

Summary

The author claimed that luck had played a major role when Microsoft software took the lion's share of the market, while Apple software was left with a relatively small piece, even though the Apple software was obviously superior. He extended luck to virtually every human endeavor in which there are big winners and many more losers, including celebrity, wealth distribution, religious ideas, political opinions, and the success or downfall of cities and entire civilizations.

Taleb explained that capitalism maximized luck, whereas socialism minimized it in favor of stability. As a result, capitalistic countries, and especially the United States, have been producing innovations. Socialistic countries followed the innovations but hardly ever came up with original ideas.

A new development, the Web, has changed this situation. The Web has enabled many small entrepreneurs to try for the top slots and to open up niche markets, which put pressure on those currently holding the high positions. This is termed the long tail, in reference to those on the lower rungs of society, economics, business and fame. An additional impact has come from readers writing their own book reviews and consumers reporting on their experiences with products and services. The overall effect has been to knock those who formerly held sway over public opinion off their lofty perches.

The portion of the book that has garnered the author the most attention was his take on the globalized banking system. He predicted that should any one of the big banks fail, they all would come crashing down in a global financial meltdown. The important detail was that the author wrote the book before the economic crisis of 2008 happened, and so he experienced a Black Swan of his own due to the luck he had in being published and having his book released at just the right time.

Analysis

Nothing could have supported the author's ideas better than his own success with this book. It had been on the New York Times bestseller list for a record-breaking amount of time, due mostly to the illusion that he had forecast the economic disaster of 2008. He

had certainly pointed out the glaring weaknesses of globalization in the economic sector, but others had done the same. The key ingredient was luck, as Taleb would have been the first to admit due to luck holding a central place in his thesis.

Ironically, his book had been published through conventional means and not via the Web. This seemed to contradict his point about the Web changing the game, but this might have also meant that Web publishing has not had enough time to develop and become ingrained into people's minds. Taleb did point out that most people would gladly pay a high price for a traditionally published book from a known author than pay a lower price for one from an unknown author. The parts that might have been missing in online publishing were the marketing support and the traditional book tour. People have been reluctant to give up their professional book reviewers in newspapers, magazines, and literary reviews. Authors with new books have not disappeared from the television and radio circuits.

The author's take on capitalism versus socialism ignored the value that government investment into research and development has yielded over the decades. Examples of this were NASA, university research into drugs, and the Interstate Highway System. Another irony was that the Internet itself would not have developed so quickly had the government not put money into the effort, and without the Internet, globalization would not have occurred.



Part Three: Those Gray Swans of Extremism, Chapter 15: The Bell Curve, That Great Intellectual Fraud

Part Three: Those Gray Swans of Extremism, Chapter 15: The Bell Curve, That Great Intellectual Fraud Summary and Analysis

Summary

The bell curve, first popularized by Carl Friedrich Gauss, has been used incorrectly and even tragically as a risk-measurement tool. Not realized when it was initially embraced in the Eighteenth Century, the bell curve made outlying events seem to increase in improbability the farther away they moved from the average. This turned out to be a false reading for the way things actually worked in the real world because the thinking gave an illusionary sense of security that Black Swans could never happen.

The author challenged the idea of an average anything, outside of pure mathematics. He used the average person as an example, since no truly average people have existed. Those who might have been considered average had traits that moved them outside of average, such as playing the piano well but perhaps not riding a horse very well.

At best, the Gaussian approach worked with huge populations that had small variances among them. A coffee cup did not jump around without some form of action performed on it, but all the particles making up the coffee cup did. By the Gaussian approach, the odds of all the particles making up the coffee cup jumping in the same direction at once, and repeatedly in succession, were shown to be so bad that the event could be honestly called impossible.

Statistics were an outgrowth of the Gaussian approach, and they have been used wrongly as well. Standard deviation changed from population to population of the same subject, and correlations did not fare a better fate. Regardless, statistics has become a widely used form of math and accepted as the best way to calculate risk. The author argued that this amounted to intellectual fraud.

Analysis

The bell curve was revealed to have been somewhat more than a hoax but far below the status that it had been given. Too many people with the power to make critical decisions in their own lives and in the lives of others, oftentimes many others, have depended on the mathematics that arose from the bell curve: statistics. Terms such as



standard deviation and regression testing have been tossed around as if they actually meant something important, but in reality these concepts have served to cover up the existence of Black Swan events.

This was not a conspiracy of any sort but wishful thinking on the parts of many historical figures, including Karl Marx, who desired to level a naturally bumpy playing field by artificial means. The author gave arguments that have been used against the ideas of, especially, Marx. However, the author also expressed sorrow that the world could not be made into any sort of utopian dream, that the Black Swan events would happen over and over again to foil any attempt at adjusting reality to fit human desires.

At the core of the mistaken thought process was the extension of Gaussian bell-curve thinking into the realms of politics and sociology. The bell curve has worked well only in very specific kinds of environments in which the population consisted of uniform elements. Since humans have never been uniform, the bell curve was never appropriate for us. There has been no such thing as the average person because each of us has a unique skill/talent matrix and qualities that defy measurement or classification.



Part Three: Those Gray Swans of Extremism, Chapter 16: The Aesthetics of Randomness

Part Three: Those Gray Swans of Extremism, Chapter 16: The Aesthetics of Randomness Summary and Analysis

Summary

Chapter 16 opened with a brief biography of Benoit Mandelbrot and the author's feelings about the man. Mandelbrot has been considered the father of fractal geometry, and he indeed did originate the idea. Born in Poland, he moved with his family to France at thirteen years of age and became a renowned mathematician who spoke excellent French. The author described him as still being alive, which he was during the writing of Taleb's book. Mandelbrot died on October 14, 2010. He had lived most of his life in the United States, and although ultimately rejected, he had tried to convince people that fractal geometry could explain how stock market crashes developed, and with this understanding, predict some, but not all, future crashes.

Taleb explained fractals in light of his Black Swan events. The basic notion of a fractal involved the repetition of a small pattern enough times to produce a seemingly random result. This has proven valuable for explaining how nature builds objects, such as a tree and its components, but the author perceived the value that fractals have for explaining some Black Swan events. He called those events gray swans because they did have the qualities needed for fractal prediction. Nevertheless, the predictions could never be precise due to not knowing an important part of the math, the exponent, to a perfect degree of accuracy. He compared the problem to knowing what a machine produces but not how the internals of the machine worked.

Not liking the randomness of the world as a humanist, the author revealed that he hated the results of randomness that involved human suffering and feelings of insecurity. Despite this he looked straight into the heart of randomness and appreciated that Mandelbrot had shed some light in the darkness: "You are indeed much safer if you know where the wild animals are" (p. 273).

Analysis

Very few people have welcomed bad news, which could explain why Mandelbrot was first welcomed as a genius and even offered a professorship at The University of Chicago, which was later rescinded. To accept fractal geometry into economics and other disciplines, people were required to acknowledge that Black Swan events have



happened and will continue to happen, and worse, that some of them were beyond control because they were unknown unknowns. Fractal geometry could only work on the knowable unknowns. At the heart of being knowable was the size of a data set and how close the estimation of the exponent was to reality. These two necessary constants in fractal geometry had their own problems with being knowable, and that perception of uncertainty likely turned many people away from the idea.

For Taleb, Mandelbrot's discovery brought him to a better place while he struggled with randomness and the Black Swan events that it had spawned. He had expressed his feelings about the random world—the actual reality in which we all live—several times earlier in the book, but in this chapter he held back no feelings. Rather than disparaging those who have found comfort in tidy little theories that were all wrong, he railed against what he could not deny. Then he moved on to fractal geometry and how that made the world a bit more palatable for the honest seeker of truth.

He gave a nod to three current authors who have shared his views on randomness in popular books. He agreed with most of what they had written, but he did not accept their applications of the underlying premises because they were too precise. Precision was only possible by falling back on already discredited analytical and predictive techniques.



Part Three: Those Gray Swans of Extremism, Chapter 17: Locke's Madmen, or Bell Curves in the Wrong Places

Part Three: Those Gray Swans of Extremism, Chapter 17: Locke's Madmen, or Bell Curves in the Wrong Places Summary and Analysis

Summary

In Chapter 17 the author recounted his experiences while expressing his ideas to others. Business people generally accepted his ideas while away from the office, but once back to their work environments, they would keep on using their same faulty mathematics based on the bell curve, or Gaussian, way of thinking. He reminded the reader that highly complex statistical models have developed around Gaussian and Platonic thinking and that many of the people who did the development have been awarded Nobel prizes. As a result, Taleb did not think highly of the prize, since it rewarded wrongful thinking.

Those who made their livings teaching or practicing the objectionable mathematics reacted to Taleb's ideas with scorn, attacks on the author's personality but not his ideas (ad hominem fallacy) and by expressing high degrees of anger. He had obviously hit some sensitive nerves. At the end of the chapter, Taleb provided a one-page comparison between skeptical empiricism, his approach, and the Platonic approach, which his detractors fully embraced.

Analysis

Taleb had attracted a high degree of derision from his peers, although he probably would not have counted them as peers but charlatans. He claimed to have grown a tough hide while on the floor trading securities, but his tone reflected that the attacks had still stung. He spent most of the chapter telling stories about what he suffered through, but he did add Table 4: Two Ways to Approach Randomness at the end. This was the most valuable part of the chapter because it neatly summarized all that had been expounded upon previously.

The good news seemed to be that Taleb lived during a period of history in which heretics were no longer burned at the stake. The most anyone could do to him was to express high emotions and write long letters about how he was wrong. These desperate

actions did not damage the author's psyche and actually gave him more reasons to continue promoting his ideas. He was hitting the beast in its vital parts.



Part Three: Those Gray Swans of Extremism, Chapter 18: The Uncertainty of the Phony

Part Three: Those Gray Swans of Extremism, Chapter 18: The Uncertainty of the Phony Summary and Analysis

Summary

The problems with traditional ways of looking at uncertainty were brought out in Chapter 18. Many respected professionals have rolled out the idea of quantum physics uncertainty and applied it to uncertainty in economics, politics and other areas. This was shown to be extremely poor thinking, since quantum physics has had no impact on the world in which we live, other than for very small-scale electronics. What has occurred is that the quantum uncertainty has not been perceived by human beings due to the effect of large numbers. Large numbers alluded to the phenomenon of something that looked smooth from afar appeared very rough when looked up close. Our place in reality saw quantum uncertainty from so far away that all the uncertainty balanced out. In the same sense, when we looked at a star from earth, it appeared to be a single point of light. Up close it would appear to be a gigantic ball of nuclear storms.

The basic appeal was to keep thinking about randomness in all situations rather than trying to put it into a little box outside of reality. The point was to experience randomness, think through what it might mean, and then try to describe how it might work even though the best that could be done in many situations was to prepare for the unknown.

Analysis

The narrative of Chapter 18 revolved around the ludic fallacy, or taking artificial environments and then determining randomness within them. All games of chance had the ludic fallacy, and looking at real-world situations in this way was always doomed to failure. The greatest danger was ignoring true randomness and denying that Black Swan events were more common than imagined. This has given too much of the world false senses of order, of predictability and of security. The advice given was to think the same way in all real-world experiences, from determining stock picks to running a business to engaging in war, and that way of thinking was empirical skepticism.



Part Three: Those Gray Swans of Extremism; Part Four: The End, Chapter 19: Half and Half, or How to Get Even with the Black Swan

Part Three: Those Gray Swans of Extremism; Part Four: The End, Chapter 19: Half and Half, or How to Get Even with the Black Swan Summary and Analysis

Summary

The author profiled himself in Chapter 19. He had split his approaches to situations, half the time being one way and the other half being the opposite, for example hyper-conservative and hyper-aggressive. His ideas about taking risks were opposite those of most people. This split extended to literature and philosophy: "Half the time I hate Nietzsche, the other half I like his prose" (p. 296). He gave solid advice that in order to live the best life, a person should make her or his own rules. If a job had been causing problems, the advice was to walk away from it if the courage to do so was available. The author learned this when a friend said that he never ran to catch trains, which was his friend making up the rules of life when this could be done. He ended the final chapter by emphasizing the great luck that had to have happened for any of us to be alive and thanking the reader for having read his book.

Analysis

By Taleb's self-description, he seemed to be a contrarian and a walking contradiction. His character garnered either high praise or extreme repulsion from those whom he had met along the way, but in no manner could he have been deemed a milquetoast when it came to expressing his views or handling his finances as a floor trader and later as a derivative broker. As he described it, this book wrote itself, which probably meant that he had been thinking about the subject matter for a very long time.

His approach seemed dualistic, either to one extreme or another with no room for moderation. Whether this was actually true seemed a bit of a stretch due to his exposure to different cultures, his broad and deep exploration of literature, and his associations with many honored authors, thinkers and teachers. His advice to make one's own rules in life put this into perspective: Do it your way, and do not follow the crowd unless that makes sense to you.

Epilogue: Yevgenia's White Swans

Epilogue: Yevgenia's White Swans Summary and Analysis

Summary

The Epilogue described how the author's fictional character, Yevgenia, went into seclusion to write her second book. The literary world had greatly anticipated the second book, and once released, called it a masterpiece. However, sales were dismal. The publisher, now in financial straights, blamed the lackluster sales on the book being too long. This was Yevgenia's second Black Swan, but unlike the first one, this was a negative experience for the publisher. For Yevgenia, she could not have cared less.

Analysis

Ending the book with an epilogue that illustrated the differences between positive and negative Black Swans was a nice touch. While Yevgenia's publisher went into financial difficulties and cursed the day that he had ever taken on her book, Yevgenia considered the sales figures of the book to have been irrelevant. She had written her second book, improved upon the first, and it was published. She expected nothing further because she realized how Black Swan events worked.



Characters

Gaussians

Gaussians were what the author labeled those who used statistical analysis to predict future events. He coined the name from Carl Friedrich Gauss, the historical figure who popularized the bell curve. The author maintained that statistical analysis hardly ever yielded accurate predictions of anything outside a tightly closed system, therefore the predictive capabilities were not useful for the real world in which randomness played a primary role in shaping future events.

The author was also contemptuous of Gaussians because deep down they realized what frauds they were but still fiercely defended their techniques. Some had told the author that even though flawed, statistical analysis was all they had. Others could not abandon what had become their professions, even though what they did was next to useless. The author advised these people to find more useful occupations.

Benoit Mandelbrot

If the author had a hero, Mandelbrot filled those shoes. He had developed fractal geometry, and that impressed Taleb to no end. Mandelbrot and the author became close friends in France, and when Mandelbrot was relocating to the United States, he offered Taleb any books from his personal library that Taleb wanted. Taleb accepted the invitation and enjoyed the books immensely.

Later Mandelbrot was castigated for his attempts at applying fractal geometry to other fields of study, such as sociology and economics. Taleb thought this was a brilliant method of turning Black Swans into gray swans, or events with some degree of accurate predictability. While Taleb was writing his book, Mandelbrot still lived in the United States. He died in 2010.

Yogi Berra

Taleb used several of the famous sayings by Yogi Berra, who had played and coached baseball. Berra was known for saying things that seemed non sequiturs at first, but with a little more thought, they contained insightfully wise observations.

Giovanni Giacomo Casanova

Casanova was used as an example of someone who had tremendously good luck throughout his life, at least at the endeavors that he had tried.



Catherine II of Russia

Catherine II was used as an example of how people expand upon stories. The author put forward that she was known to have many lovers, but the actual count of them was less than what people had imagined.

Marcus Tullius Cicero

The author used a story from Cicero to illustrate how people became fooled by events because they had not considered silent evidence.

Umberto Eco

The library of Umberto Eco was presented as an example of how we should be thinking. We should be looking at the books that we have not yet read rather than those we have. The idea was to concentrate more on what we do not know.

Fat Tony

Fat Tony was a fictional character that Taleb used to show that street smarts often work better than formal education when dealing with the real world. Fat Tony became rich by working deals in Extremistan.

Doctor John

Doctor John was a fictional character that Taleb used to show how Mediocrastan worked and how boring this could become.

Friedrich Hayek

Heyek was an economist who held views about economics similar to the author's. This was basically that science and predictions from the scientific method did not work for economic forecasts.

Daniel Kahneman

Kahneman was a statistician who made up a test question that most other statisticians failed. It had to do with assumptions about population size and relative stability.



Yevgenia Nikolayevna Krasnova

Yevgenia was a fictional character that the author used to illustrate the Black Swan event from two different views, one positive and one negative, but Yevgenia treated both as neutral and irrelevant to her important work.

Karl Marx

The author brought Marx into his argument for capitalism and against socialism. He considered Marx to have been a wishful idealist within a world that could not tolerate an artificial utopia.



Objects/Places

Randomness

Randomness was identified as the key feature of the world in which we live. From randomness arose Black Swan events, and this was shown to be a condition that will go on, for all practical considerations, forever.

Mediocristan

Mediocristan was a fictional place in which most people have believed we existed. Although Black Swan events could happen in Mediocristan, they were considered rare.

Extremistan

Extremistan was a fictional place in which the author believed we existed. Black Swan events were expected to happen frequently, and the way to handle them was to anticipate, prepare and practice empirical skepticism.

Society of Judgment and Decision

The Society of Judgment and Decision was described as the only organization that the author felt was worthwhile to join. This was due to the Society's understanding of empirical skepticism.

France

The author lived in France after leaving Lebanon. Here he met Benoit Mandelbrot, the father of fractal geometry.

Lebanon

Lebanon was the author's home country. During his teens, the country fell into war, and he had participated in the events that had led up to war.

The Bell Curve

The bell curve was an Eighteenth Century concept from which statistics came. The author thought the bell curve did no good and a great deal of harm by hiding Black Swan events.



Ludic Fallacy

The ludic fallacy was a wrong way of thinking about randomness. When games of chance were used as examples of randomness, this invoked the ludic fallacy. True randomness had nothing to do with gambling.

Fractal Geometry

Fractal geometry involved mathematics based on a simple pattern repeated over and over again. This was how nature created structures, and the author found value in the technique for making Black Swan events more predictable, but not absolutely so.

Black Swan

The Black Swan event was one that came entirely unanticipated and caused big changes in people's perceptions and thinking.

Gray Swan

The gray swan event was the same as a Black Swan event but with some amount of prediction from the use of fractal geometry.

Unknown Unknown

An unknown unknown was the term used instead of a Black Swan event. The reasoning was that some events, such as the invasion of a country, were knowable unknowns, but others, such as changes in weather conditions during a battle, were unknowable unknowns.

Platonicity

Platonicity was a state of mind that denied the frequency of Black Swan events through the use of the bell curve and statistics. The author argued that this was the wrong way to think about the world, especially in sociology and business.



Themes

Unpredictability

Over the past few centuries, many attempts have been made to predict various events. The author argued that most of these attempts resulted in wrong predictions, and if they were right, it was not due to having built a reliable prediction technique. Over all this time, people had been fooling themselves. The condition became worse with computerized spreadsheets and other modeling programs. What actually characterized the world was a high level of unpredictability.

Most people have had a hard time accepting the fact that the world remained unpredictable despite all the work that had gone into making predictions. The entire discipline of statistics was shown to be of little value other than for maintaining an illusionary belief in the nature of future events. The majority of them would happen without anyone anticipating that they could happen, which the author called Black Swan events.

Human nature had developed to desire stability and predictability in the world. Planning for the future had worked extremely well for survival up until the Age of Reason and the advent of the scientific method. The author preferred a different method of thinking, empirical skepticism, in which trial-and-error led to discovering what worked but not how it worked. The scientific method assumed that how something worked was more important than that it worked, and this kind of thinking led to overarching theories. Since empirical skepticism did not create theories, the author felt that it was a superior method of approaching the unpredictability in real life.

Self-delusion

The author gave many examples of a strong part of human nature: the ability for self-delusion. Self-delusion resulted from casting all events into narratives that made sense. Cause-effect relationships were key parts of the narratives, but this did not explain the reality of randomness and unpredictability. As a result of embracing narratives rather than reality, people became accustomed to thinking about the world as if it were logical, progressive, and ultimately understandable.

Other factors worked to build self-delusional world views. One of them was the habit of tunneling through massive amounts of data, much of it unknown, and concluding that only a few of the actual variables were at work for any given study. The unknown data was called silent evidence. When taking silent evidence into account, the idea of evolution being the result of immense trial-error, undirected randomness made sense to the author. His take was that we have no idea how many failed species had to happen before a single successful species evolved, but that number was probably huge. Self-delusions cropping up from ignoring silent evidence have included Intelligent Design



and its predecessor, the existence of a Supreme Being. The author included financial forecasts based on statistics as self-delusional thinking.

Another path to self-delusion involved the error of confirmation. People have tended to agree with one another about events to the point of entirely distorting what really happened. Had these people not compared their interpretations, the stories would have all been different. The author gave examples of experiments in which groups of people influenced each other and could be influenced by authoritative suggestion.

That humans are very prone to self-delusion was not the point, however. Along with this natural tendency, humans have developed brains with the capacity to think outside of innate patterns. The author appealed to this capacity and encouraged his readers to acknowledge Black Swan events, anticipate them, and prepare for them.

Intellectual Courage

The author referred to those who constantly supported the ignoring of Black Swan events in favor of statistical prediction as intellectual frauds. He urged them to get more meaningful careers and to show intellectual courage. The author considered himself to have gone the route of intellectual courage, and he admitted that doing so would attract a great deal of negative feedback. This did not stop him from continuing to promote empirical skepticism but seemed to have energized him. By example he demonstrated that living a life in which intellectual courage was paramount resulted in a more interesting and satisfying existence. His book did hit the bestseller list and stayed there for a remarkably long time, so intellectual courage could also be very profitable.

The success of his book was likely a Black Swan event. He finished it and the publisher released it at exactly the right time, about a year before the financial crisis of 2008. As a result, he gained a reputation of being a soothsayer, a brilliant predictor of future unanticipated events. The author probably did not think as much, since his thesis argued against future predictions. His intellectual courage would have required the honesty to admit that luck had more to do with him being right than any analysis based on empirical skepticism. This was just one of many Black Swans that could have happened after the release of his book.

The fictional writer he created, Yevgenia Nikolayevna Krasnova, had also experienced her Black Swan event when her first book became a big success. Her approach to the success was intellectually courageous because she had written what needed to be written, nothing more or less. When her second book bombed, she showed an equal amount of intellectual courage by not caring about financial success. Intellectual courage meant that whatever a person decided to do, it should have been because it needed to be done, not to garner awards, pad resumes, keep a career alive, grab the spotlight, or any other ancillary reason. Contrasting with Yevgenia's courage was her publisher's shallowness, only thinking about the money her second book would make and suffering from its lackluster sales.

Style

Perspective

Taleb grew up during a fairly stable time in Lebanon and learned the rich heritage of his home. By the time he had reached his teen years, he became involved with revolutionary elements and the start of a war. He had to leave his home city due to the war and spent a great deal of time in France, where he studied philosophy and other subjects that drew his interest. While in the United States, Taleb worked first as a floor trader on Wall Street and then an investment broker. During this time he became aware of Black Swan events and learned how to use them to his advantage. The author developed a positive attitude toward capitalism as the best means to innovation, while he determined that socialism could never innovate much of anything.

Tone

The author's tone moved from straight exposition with embedded dry wit to an argumentative stance while writing about those people who argued against his ideas. He clearly expressed disdain for them and called them intellectual frauds. Not surprisingly, they had choice words for him as well. At times Taleb wrote that he hated the nature of the world due to how much misery negative Black Swan events have caused, will cause, and that nothing can be done to stop them from happening. His attempts at mitigating this depressing state of the world included advice on how to deal with Black Swan events, how to use fractal geometry to identify some Black Swans, thereby turning them into gray swans, being thankful to be alive and setting one's own rules in life. His struggle with seeing too much of reality was palatable and included subtexts of envy for those who go all through life believing in nice fictions. Counteracting the envy were aggressive attacks on the fictions, such as the bell curve.

Structure

The book consisted of nineteen chapters, a prologue, and an epilogue. The chapters were collected into four parts that built the base and framework of his arguments and brought forth his conclusions. Each chapter had subheadings one level deep. The author provided a glossary of terms, a notes section, bibliography, and index.



Quotes

"Let us call an antischolar—someone who focuses on the unread books, and makes an attempt not to treat his knowledge as a treasure, or even a possession, or even a self-esteem enhancement device—a skeptical empiricist."

Part One, Umberto Eco's *AntilibRARY, or How We Seek Validation*, p. 2

"It is one thing to be cosmetically defiant of authority by wearing unconventional clothes—what social scientists and economists call 'cheap signaling'—and another to prove willingness to translate belief into action."

Chapter 1, *The Apprenticeship of an Empirical Skeptic*, p. 6

"It is true that a thousand days cannot prove you right, but one day can prove you wrong."

Chapter 5, *Confirmation Shmonconfirmation!* p. 57

"The very same desire for order, interestingly, applies to scientific pursuits—it is just that, unlike art, the (stated) purpose of science is to get to the truth, not to give you a feeling of organization or make you feel better. We tend to use knowledge for therapy."

Chapter 6, *The Narrative Fallacy*, p. 69

"Plans fail because of what we have called tunneling, the neglect of sources of uncertainty outside the plan itself."

Chapter 10, *The Scandal of Prediction*, p. 156

"When a new technology emerges, we either grossly underestimate or severely overestimate its importance."

Chapter 11, *How to Look for Bird Poop*, p. 168

"As individuals we should love free markets because operators of them can be as incompetent as they wish."

Chapter 11, *How to Look for Bird Poop*, p. 181

"To clarify, Platonic is top-down, formulaic, closed-minded, self-serving, and commoditized; a-Platonic is bottom-up, open-minded, skeptical, and empirical."

Chapter 11, *How to Look for Bird Poop*, p. 182

"It has been more profitable for us to bind together in the wrong direction than to be alone in the right one."

Chapter 12, *Epistemocracy, a Dream*, p.192

"Know how to rank beliefs not according to their plausibility but by the harm they may cause."

Chapter 13, *Appelles the Painter, or What Do You Do If You Cannot Predict?* p. 203



"In the end we are being driven by history, all the while thinking that we are doing the driving."

Chapter 13, Appelles the Painter, or What Do You Do If You Cannot Predict? p. 211

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

Chapter 14, From Mediocristan to Extremistan, and Back, p. 222

"The rarer the event, the less we know about its odds. It mean [sic] that we know less and less about the possibility of a crisis."

Chapter 14, From Mediocristan to Extremistan, and Back, p. 226

"Yet there was the bell curve, and next to it Herr Professor Doktor [sic] Gauss, unprepossessing, a little stern, certainly not someone I'd want to spend time with lounging on a terrace, drinking pastis, [sic] and holding a conversation with no subject."

Chapter 15, The Bell Curve, that Great Intellectual Fraud, p. 230

"I could not find anyone with depth and scientific technique who looked at the world of randomness and understood its nature, who looked at calculations as an aid, not a principal aim. It took me close to a decade and a half to find that thinker, the man who made many swans gray: Mandelbrot—the great Benoit Mandelbrot."

Chapter 15, The Bell Curve, that Great Intellectual Fraud, p. 252

"Working with such abundant data humbles us; it provides the intuition of the following error: traveling the road between representation and reality in the wrong direction."

Chapter 16, The Aesthetics of Randomness, p. 269

"Mandelbrot deals with gray swans; I deal with the Black Swan. So Mandelbrot domesticated many of my Black Swans, but not all of them, not completely."

Chapter 16, The Aesthetics of Randomness, p. 273

"Several hundred thousand students in business schools and social science departments from Singapore to Urbana-Champaign, as well as people in the business world, continue to study 'scientific' methods, all grounded in the Gaussian, all embedded in the ludic fallacy."

Chapter 17, Locke's Madmen, or Bell Curves in the Wrong Places, p. 274

"I hope I've sufficiently drilled home the notion that, as a practitioner, my thinking is rooted in the belief that you cannot go from books to problems, but the reverse, from problems to books."

Chapter 18: The Uncertainty of the Phony, p. 290

"We are quick to forget that just being alive is an extraordinary piece of good luck, a remote event, a chance occurrence of monstrous proportions."

Chapter 19: Half and Half, or How to Get Even with the Black Swan, p. 298



Topics for Discussion

What did Taleb mean by the Black Swan?

What was wrong with Platonic thinking, according to the author?

How were Taleb's ideas received by the statistical analysts and college professors?

Describe how empirical skepticism works.

What methods had Taleb used to make enough money so that he could become a full-time thinker, speaker, and author?

Why have so many argued against empirical skepticism even to the point of attacking Taleb's character (ad hominem fallacy)?

Briefly (250 words or less) describe a Black Swan event with which you were involved or one that you can identify in the Twenty-first Century.

What did Taleb think about the credibility of Nobel prize winners?

Who was Yevgenia and what had she done?