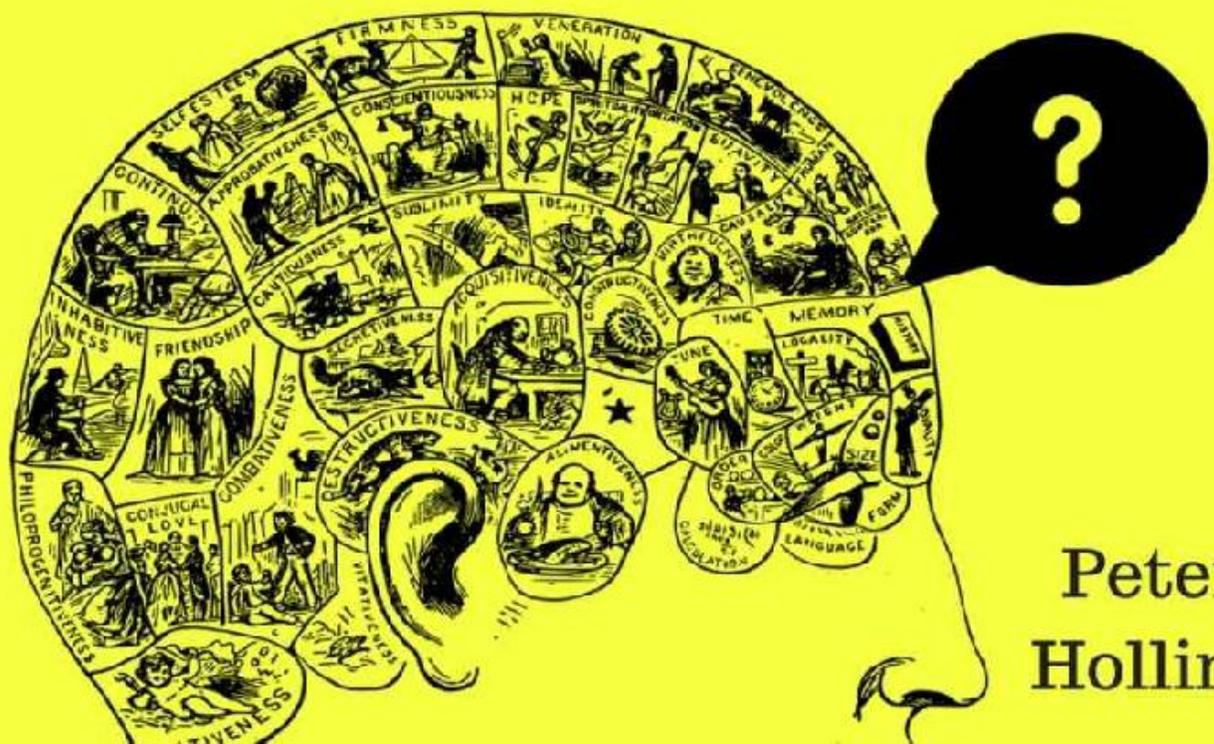


# Brain Fart.

Discover Your Flawed Logic, Failures in Common  
Sense and Intuition, and Irrational Behavior -  
How to Think Less Stupid



Peter  
Hollins

**Brain Fart.**  
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*How to Think Less Stupid*

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## Introduction

When I was a teenager, I remember going with my parents to buy a new car.

The car certainly wasn't for me, no matter how much I begged and pleaded with the might of my new driver's license. The car was for my mother; she had gotten into a minor accident, which our insurance company had deemed major enough to cover the cost for a new car. It was the one of the few positive interactions I would ever have with insurance companies.

I distinctly remember this day because I remember the salesperson that we dealt with — or rather, *tolerated*. He was the stereotype for a slimy salesman who would pat your back and keep repeating your name in an annoying fashion. If you could create an untrustworthy salesperson in a lab, you would come up with this man.

Things went quickly because my parents were in a buying mode and it showed plainly on their faces. They were busy people and just wanted to get in, get the car, and get out. This type of sentiment is like blood in the water for salespeople.

The negotiations went quickly and I noted that the salesman didn't bring up the price until as late in the process as possible. Every time my father tried to clarify, he would say something like, "Right, we'll get to that right after this, I promise. Just a couple more things to hammer out."

He was drawing my parents deeper and deeper into the process, and when he finally presented the price with all the amenities my parents wanted

(power windows, air conditioning, a CD player), he presented a figure that made my parents gasp. In particular, my father looked shell-shocked, like he had just witnessed a robbery in the street.

In hindsight, he had anchored the price exceedingly high so as to reduce the amount of wiggle room my parents had. In other words, because the quoted price was high, it was innately assumed that you couldn't work too far down from it — even if you wanted to, three-quarters of the price was still extremely high.

Little did he know my parents were raised in a culture where you were mocked if you didn't try to get a good deal on anything you purchased. They had grown up going to small markets, and haggling was second nature to them.

Once my parents set their own anchor to a far lower price, the salesman began to squawk about how the decision had to be made quickly — within the hour — because his supervisor had imposed some quota on him, and the cars were selling at a fast pace. I remember my father standing up, walking outside the salesman's office, and looking around theatrically. When he returned, he said, "There is only one other potential customer here, and he is looking at a different car."

In what appeared to be the salesman's final argument to seal the deal at a higher price, he tried to get me on his side by appealing to my sense of desperation of wanting to drive. He said things like, "Kid, if your father doesn't pull the trigger, you can't hang out with your friends!" Little did he know I had a strict curfew and could never hang out with my friends regardless. He had tried to make an ally out of me, but I already disliked him, so I would never have agreed with him.

In the end, my parents walked out with the car they wanted at the price they wanted. This battle of wills was forever emblazoned in my brain as an example of when people tried to make an independent decision, only to be boggled using covert manipulation and fallacies in human reasoning designed to generate a specific outcome. The salesman was trying to pull

one over our eyes and make us ***Brain Fart*** – have a momentary lapse in our collective judgment.

Humans make poor decisions and exhibit seriously flawed thinking on a daily basis. Our brains try so hard to make sense of the world that it actually works against them. Combine that with emotional thinking and a tendency to jump to conclusions and what do you get?

A profoundly flawed brain which makes suboptimal decisions. Frequent flaws and farts in logic and reasoning.

In ***Brain Fart***, I want to shine a flashlight into the depths of our brains and expose why we do what we do in such peculiar ways. We think we are driven by logic and reason, but it appears that common sense isn't really as common as we'd like to think.

That car ended up being passed down to me years later, and I found it profoundly funny that my parents had left the price sticker on the interior top of the front windshield as a reminder of their triumph that day.

Here's to uncovering the hidden ways we act against our best interests.

## Chapter 1. Free Will (Or Lack Thereof)

There's not a person alive who prefers to think of themselves as a follower. We all like to imagine that we have *free will* and are actively making our decisions instead of the other way around.

In fact, we view followers with a negative slant. These are the people who are easily influenced by others and can even be manipulated into doing things they're either unaware of, or uninterested in. Whatever the case, followers are not people that are seen in an attractive light.

On the other hand are leaders. Leaders are what we typically want to aspire to, and for good reason. They are prominent, and it is usually a positive and valuable descriptor for someone. If you want to compliment someone in a work setting, you would call them a leader, and if you want to insult someone, you would call them a follower.

Leaders blaze the trail and set the path instead of the other way around. They are strong-minded and are driven by a set of morals and convictions. Above all else, they do what they want because they want it, not because someone has told them to do it.

So we all want to be leaders on some level, but the truth of how we all act is a bit uglier. What we might define as free will on a daily basis is actually just us being influenced in subtle and subconscious manners by other people and the settings we find ourselves in.

Here's a simple example.

If you walk into your new job and you find everyone wearing magenta shirts, you are probably going to find a magenta shirt as soon as you can for the next day, despite the fact that there is no dress code and no one has ever mentioned anything about magenta shirts. Something in your mind will tell you that you should be conforming to the people around you, even though there are no rules about it and the people you've asked haven't mentioned it, either.

We are heavily influenced by the people around us and the contexts we find ourselves in, to such a degree that free will is more accurately categorized as just another decision that depends on what we see and feel from others.

In this chapter, I want to cover three infamous, landmark studies that show just how little our actions are determined by free will, and instead are decided by context, pressure, or outright instruction to act in ways that are highly contrary to our identities or preferences. These studies shed light on why we feel compelled to wear a magenta shirt even if there is no dress code, and why people tend to act against their own interests or values.

### **The Asch Conformity Experiment**

The first study that digs deep into the concept of dubious free will is the Asch Conformity Experiment.

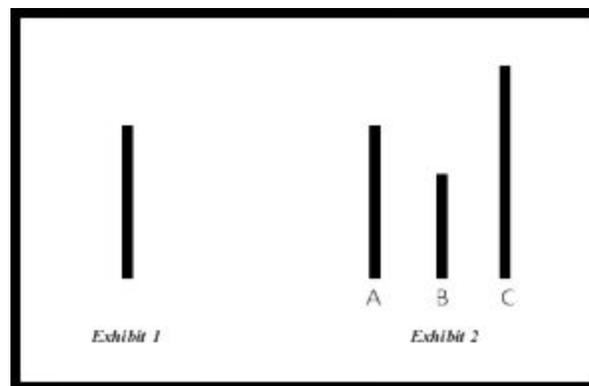
This study was conducted by Solomon Asch of Swarthmore College in the 1950s and broadly demonstrated the compulsion to conform and "fit in" despite our best instincts and interests.

The study was relatively simply and asked participants to engage in a vision test. In each run of the study, there was only one subject, and the rest of the people present were Asch's confederates. They would attempt to influence the true participant to conform and act against their free will.

The participant sat around a table with seven confederates and was asked two questions:

1. Which line was the longest in Exhibit 2?
2. Which line from Exhibit 2 matches the line from Exhibit 1?

Below is what the participants saw and made their judgment on. When participants were asked this question alone, through writing, or without confederates who would provide a range of answers, they consistently answered in the exact same way: Obviously Line C and Line A, respectively.



However, when confederates were present and provided incorrect answers, what followed was surprising.

When the true participant was surrounded by confederates who gave incorrect answers, such as stating that Line C was equal to Exhibit 1, or Line B was the longest in Exhibit 2, they also conformed their answers to be stunningly incorrect based on the social pressures of the people around them. Over one third of the true participants gave an obviously wrong answer, presumably because of the influence of peer pressure and the general feeling of, "What could I be missing that everyone else is seeing?" This feeling of confusion and wanting to avoid appearing stupid can cause someone to conform to something obviously wrong, which will actually make them appear stupid because they were trying to avoid that very thing. Asch successfully displayed that people, whether they believe it or not, wish to blend in with their peers and their environment so they don't stick out.

People don't want to commit a faux pas, so even if they thought the line was truly the same length or not, they made it seem like they did. Follow ups to Asch's experiment showed that this effect increased the more confederates were present. If there were one or two confederates who gave incorrect answers, the effects were small, but if there were more than two, then people seemed to feel a significantly greater sense of peer pressure. It seems there is comfort in numbers — if three people see something a certain way, then I might be the one missing something, but if only one person disagrees with me, then they are equally as likely as me to be missing something.

Asch commented, "The tendency to conformity in our society is so strong that reasonably intelligent and well-meaning young people are willing to call white black." He had the opportunity to ask participants after the experiment whether they actually believed their altered stances, and most did not and simply wanted to go along with the group because they did not want to be thought of as "peculiar." Others thought the group's judgment was actually correct, and felt their new answer to be correct as well.

These two approaches represent the two main reasons people appeared to conform and act against their own free will. First, they wanted to be liked by the group and not seen as a "peculiar" outsider — this is called a normative influence. They wanted to fit in and be seen as comparable to the group. Second, they conformed because they thought their information was faulty, and they wanted to use the group's judgment instead of their own. This is called an informational influence, where they doubted their own instincts and assumed others had more and better information than they did. In either case, people's sense of free will is subverted by interesting emotional reactions to what other people are doing. You can say that you chose to go along with other people's answers consciously, but in fact, it wasn't what you truly wanted to do.

This is how we end up wearing magenta shirts far more often than we think we should. You might start with buying only one, but by the end of a year, you'll probably have a closet full of magenta shirts just because it seems like the right thing to do to fit in. You want acceptance from the group to

not appear “peculiar,” and you feel there’s a reason magenta is so prevalent, one you don’t quite know yet.

It might not be a surprise that we take cues on how to behave and think from other people, especially if it’s a situation that is foreign to us. For instance, if you show up at a fancy ball, you would look to how other people bow, stand, and interact so you can calibrate your own behavior. Where this takes a deviation into subverting free will is where you go directly against what you know to be true just to conform. Asch’s experiment was one instance where a clearly correct answer was passed over, showing the true power of peer pressure and social influence.

The psychological implications of Asch’s experiment may not be groundbreaking — we are all afraid of judgment, but the degree to which we strive to avoid it is huge and can be said to make us a follower in a negative way.

### **Milgram’s Shock Experiment**

Stanley Milgram’s experiment chronicled in his 1963 paper *Obedience to Authority: An Experimental View* is one of the most important and famous psychological experiments ever conducted. And for our purposes, it demonstrates how we are slaves to authority and generally don’t act in a way we want when ordered to do something under the guise of a duty. In more recent times, remembering the conclusions of Milgram’s experiment can explain how atrocities as unthinkable as torture of prisoners of war have happened, or even how genocide was allowed to rise to prominence during World War II.

People aren’t inherently evil and don’t necessarily use their free will to inflict such harm. Instead, Milgram showed us another explanation as to why people can act in atrocious ways while still remaining very human at heart. It can serve as a general lesson on why people who are capable or who have done dark things aren’t different from you or me.

Milgram began his research at Yale University in the 1960s with the initial impetus of studying the psychology of genocide. He began to theorize that

people weren't necessarily evil, twisted, or even different from those who *didn't* commit genocide, but that it was rather a reflection of authority, orders, and the perception of a lack of accountability. In other words, if you were just being told what to do and you were conditioned to follow orders without question, there was a pretty good chance you were going to be able to do anything.

After all, that is the reason soldiers go through boot camp and are berated endlessly by drill instructors — it is a process designed to promote obedience and conformity, even in the worst conditions that combat will present.

However, Milgram's experiment showed it wasn't only trained soldiers who could fall victim to such blind obedience and have their free will taken away from them. Milgram built a "shock machine" that looked like a device that would be used to dole out torture, but in reality, it did nothing and was mostly a series of lights and dials. This would be his tool for exposing human nature.

His experiment worked on the premise that the participant was administering a memory test to someone in another room, and if the unseen person made a mistake on the test, the participant was given the instruction from a man in a lab coat to punish them with electric shocks stemming from the "shock machine." The shocks would escalate in intensity based on how many wrong answers were given. Before the start of the experiment, the participant was given a 45-volt electric shock that was attached to the shock machine. 45 volts was where the shocks would begin and then increase in 15-volt increments with each mistake. The shock machine ranged up to 450 volts, which also had a warning label reading "Danger: Severe Shock" next to them, and the final two switches were also labeled "XXX."

The unseen test-taker was actually an actor who followed a script of getting the vast majority of the questions incorrect. As the participant administered shocks, goaded on and encouraged by the man in the white lab coat, the actor would cry out loudly and begin to express pain and anguish, begging them to stop and then eventually falling completely silent.

Despite this, pushed on by the man in the white lab coat, a full 62% of participants administered the electrical shocks up to the highest level, which included the “XXX” and “Danger” levels. Milgram only allowed the man in the white lab coat to encourage with neutral and relatively benign statements such as “Please continue” and “It is absolutely essential that you continue.”

In other words, the participants weren’t coerced within an inch of their life to, in their perception, shock someone to unconsciousness or death! 62% reached the 450-volt limit, and none of the subjects stopped before reaching 300 volts. At 315 volts, the unseen actors went silent. The participants weren’t being forced to do this, neither were they being yelled at or threatened. How could these results have occurred?

Are people just callous and have little regard for human life and suffering outside of their own? That can’t be true. What’s more likely to be true is how persuasive the perception of authority can be in subverting our free will. We will act against our wishes if we sense that we are being ordered to by someone who has power over us, no matter how arbitrary.

This obedience to authority and sense of deference can even push us to electrocute an innocent person to implied death. Suddenly, things such as genocide, the Holocaust, and torturing prisoners of war didn’t seem so far fetched. We like to think we have hard limits on what we could inflict on others, but the results of Milgram’s experiments showed otherwise — our free will was completely bypassed because of a simple display of authority.

Milgram noted other factors might be the feeling that because there was an authority figure, they would hold no accountability and be able to say, “Well, he told me to!” When the participants were reminded they held responsibility for their actions, almost none of them wanted to continue participating in the experiment, and many even refused to continue if the man in the white lab coat didn’t take explicit responsibility. Additionally, it was an unseen victim they had never met before, so there was a degree of separation and dehumanization that allowed actions to go further.

In the end, a normal person was shown to have followed orders given by another ordinary person in a white lab coat with a semblance of authority, which culminated in killing another person. It was quite the discovery in terms of what drives and motivates people. It was a very powerful piece of evidence that our free will is subject to all manners of delusion and influence.

### **The Stanford Prison Experiment**

This is the final, famous psychology experiment most people have heard about to some extent. The infamous Stanford Prison Experiment was conducted on the campus of Stanford University by prominent psychologist Philip Zimbardo in 1973, and he wanted to examine a few hypotheses.

Similar to the Milgram Shock Experiments, Zimbardo wanted to test how the presence of roles of authority would drive people to do things drastically out of their nature and into an area some might call sadistic and horrible. He specifically wanted to investigate whether the brutality that was being reported in prisons throughout the nation was because the prisons had a tendency to attract sadistic people, or because it was the artificial environment they were placed in with prisoners with an inherent power differential.

Zimbardo found participants and randomly assigned them the role of prisoner or prison guard in a simulated jail complex built on the university campus. He theorized that if they all acted in non-aggressive ways, then abuse was happening in prison institutions because of the inherent bad actors and biased population — not because of the toxic environment. If the participants acted the same as guards and prisoners did in real prisons, that would be an argument for the corrupting influence of the prison environment itself.

Both groups of participants were told to adhere to their roles as closely as possible, though it quickly became clear the guards did this far more zealously than the prisoners. The guards wore sunglasses to avoid making eye contact, they punished prisoners who misbehaved by assigning them to solitary confinement cells, and they only referred to prisoners by their identification numbers instead of their names. In addition, the prisoners

were stripped naked, showered in front of each other, and only given prison clothes. This was as close to prison environment as was possible.

This next part was critical: The guards were given free reign to do whatever they felt was necessary to maintain a functional prison cell, maintain order, and maintain respect from the prisoners. There was no physical violence allowed, but there were certainly many other ways bad behavior began to leak out. For instance, the guards would awaken the prisoners at 2:30 in the morning just because they wanted to show control and dominance. Forced pushups until collapse was not uncommon as a form of punishment and general breaking of the spirit.

The guards embraced their roles, which caused the prisoners to embrace theirs. They began to act exactly like prisoners act in real prisons by ganging up against other prisoners, trying to curry favor with the guards, and taking the rules very seriously. One prisoner went on a hunger strike to try to gain better treatment for the prisoners, but his cohorts didn't rally behind him; rather, they viewed him as a troublemaker who was going to cause them problems if he didn't stop.

Very quickly, the treatment of the prisoners by the guards became worse and spiraled into near-abuse. Toilet facilities became a privilege, instead of a basic human right, with access to the bathroom being frequently denied, and the inmates often had to clean the facilities with their bare hands. Prisoners were stripped naked and subjected to sexual humiliation.

These were normal people put into roles with a huge power differential. Despite how good many of the guards felt they were, the majority didn't object to this treatment of the prisoners, and Zimbardo estimated one third of the guards began to spiral into extremely sadistic behavior and thought patterns. Free will be damned — people began to play the roles they were assigned. People may not be inherently evil or sadistic, but when put into powerful positions over people that are sufficiently dehumanized, they tend to act in predictable ways.

The Stanford Prison Experiment was slated to run for 14 days, but Zimbardo felt it had to end by the sixth day. The behavior was growing out

of control. People began to identify with their roles in horrifying and negative ways. The guards took the modicum of power they had and expanded it as much as possible, while the prisoners became more dejected over time. Prison guards in a vacuum may be as sensitive and courteous as the rest of us, the roles they inhabit take a toll on how they view others.

The guards egged each other on, and their behavior kept degrading because of a mob mentality. Zimbardo had neatly answered his question of whether it was situational or personal factors that contributed to the abuse rampant in the country's prison systems. When people are put into specific roles, they will live up to that role, plain and simple. It doesn't necessarily matter what someone's normal temperament is. People's free will is again undermined or pushed to the side in order to fulfill the duties of a role, to blend in, and to meet others' expectations.

These three experiments — Asch, Milgram, and Zimbardo — prove the simple fact that who we think we are doesn't matter. What matters more in determining how we will act are our surroundings, contacts, and unique set of pressures that come with each context. Our typical definition of free will is one that allows us to dictate the path we force through life. Unfortunately, these three experiments show you what we want to do and what our will is don't match up so frequently.

We are making conscious choices, but they aren't the ideal choices we want to make — and that's a lack of free will.

## Chapter 2. Superstitions and Magic

Who among us will openly admit they believe in the supernatural?

People might not willingly admit they believe in ghosts and monsters under the bed, but nonetheless, the vast majority of people have been shown to possess some sort of superstitious routines, have experienced an inexplicable hallucination, or have seen things they can only explain as *magic*.

Want your favorite sports team to win? You might just feel better if you wear the same pair of socks you wore the last time they won. These things creep into our lives in small, almost imperceptible ways that make it second nature for us to believe in.

Essentially, *the supernatural* has become a catch-all umbrella term for things that lack a conventional explanation. Can't explain it? Must be something supernatural. There may not always be a clear explanation, but blaming the missing cookies on a ghost and not the dog belies a very interesting tendency for humans to try to apply understanding to that which is out of their grasp.

You've likely read about this tendency when learning about ancient and not-so-ancient civilizations. The Greeks assigned a god to nearly everything as a scapegoat or savior, and Native Americans engaged in rain dances to help their crops flourish for the coming harvest. We have the overwhelming desire to feel in control; if we are out of control, then we risk feeling

insignificant or subject to danger. When we feel we have control over something, we are suddenly more engaged and invested; if we feel there is no control, we feel helpless to the powers that be.

We believe in supernatural forces exerting control because something we don't understand, yet can blame, is far more comforting than no explanation at all. Humans just don't like to feel that we are random molecules of carbon and hydrogen that happened to coalesce and form somehow — we might be, but it sure feels better if we have a purpose.

## **Superstitions**

Superstitions are the first way we trend to put our faith into the unknown.

Specifically, superstitions are behaviors or thought patterns that people engage in because there is the belief of a cause-and-effect relationship. You engage in superstitious acts because you believe it will get you closer to a specific outcome. For instance, if you notice that your favorite football team has won the past three times you've worn red underwear, a new superstition will be born: red underwear only on game days. You might not affect the game itself, but it appears that there is a pattern of causation, so you're going to adhere to it — sometimes even subconsciously.

Classical conditioning is the cause for many superstitions we hold throughout our lives. We commit an act, we see an outcome, and we begin to link the two, even though it's no more than a correlation or simple coincidence. Surprisingly to some sports fans, sitting in the same chair while watching matches likely does not affect the end outcome just because it happened twice three years ago. This is why people don't walk under ladders— because negative occurrences have coincided with that event — never mind the fact that walking under a ladder puts you directly into the path of falling debris.

Yet these beliefs are what humans have the tendency to cling to (and pigeons, as the famous psychologist B.F. Skinner proved in 1948—during his study, he found pigeons learned to continue behaviors that coincided with food appearing, despite the food appearing at set intervals. In other

words, pigeons saw patterns that produced an outcome they wanted and kept doing it, even though there was no causal relationship).

Shana Wilson from Kent State University investigated why people, specifically sports fans, engage in superstitious behavior. They concluded that people who engage in superstitious behaviors are more susceptible to what is called the *uncertainty hypothesis*, which is the idea that when people feel a complete lack of certainty, they seek to find a way in which they feel they can exert some degree of control over it. A lack of certainty is extremely uncomfortable and unsettling, and being able to point to something as a cause eases the underlying tension.

We can find examples of this in our own daily lives. We all hate bumper to bumper traffic. We enjoy driving unimpeded to our destinations. Which would you prefer: bumper to bumper traffic, or driving unimpeded, both of which would culminate in you driving the same distance over the same amount of time? Most of us would choose the latter; we would choose to drive unimpeded because we can control the speed of our car and how slowly or quickly we go. To be stuck in a situation like bumper to bumper traffic where we have zero control and are subject to the infernal gods of traffic — that gives us feelings of hopelessness and helplessness.

Not having control over situations, at the extreme end of the spectrum, is a feeling which underlies types of anxiety and depression. What motivation could you possibly have if you were certain everything would turn out terribly, despite your efforts? Therefore, many times, the more important an uncontrollable situation is, the more likely people are to try to exert a measure of control through superstitious behavior.

Daniel Wann (2013) discovered that sports fans actually felt that they could influence outcomes of games and matches with their superstitious behaviors, which typically involved clothing, food and drink, and good luck charms. Sports fan or not, the more you feel that your life is determined by factors outside your control, this research would argue, the more likely you'll become superstitious.

Superstitions are generally harmless, unless they replace actual work and effort. Problems arise when people can't distinguish between an outcome

they can control and an outcome that is beyond their control. Stuart Vyse, author and professor at Connecticut College, chalks superstitious behaviors up to the comforts of illusory control, saying, “There is evidence that positive, luck-enhancing superstitions provide a psychological benefit that can improve skilled performance. There is anxiety associated with the kinds of events that bring out superstition. The absence of control over an important outcome creates anxiety. So, even when we know on a rational level that there is no magic, superstitions can be maintained by their emotional benefit. Furthermore, once you know that a superstition applies, people don’t want to tempt fate by not employing it.”

Positive superstitions can improve confidence and reduce anxiety because they are the panacea to all that ails you. If you are shy about a job interview and you always wear lucky socks during job interviews, you are going in with a head full of confidence because you feel you are complete and fully armored for battle. This is positive and can be helpful in providing a psychological advantage over not having any superstitious behaviors at all. These help us complete the self-fulfilling prophecy where if we think that we are (because of a superstitious behavior, anyway), then we are.

It’s the same belief that can make us proclaim, “The talent was in you all along!”

Superstitions are extremely easy to acquire, and they are likely more widespread than you realize. Our brains are fooling us into a sense of illusory control because it feels more comfortable that way. However, that comfort sometimes distorts reality in very detrimental ways.

### **Magic**

Ah, magic—not the type that magicians peddle on sidewalks, but rather the belief in the paranormal and the extraordinary.

This is something maybe even fewer of us would admit to believing in as adults, but children have been found to accept magic and the paranormal as readily as science and the feeling that their father is the strongest man in the world. Children’s brains are sponges for information. They absorb

everything and have no sense of filtering for truth, falsehoods, or the fantastical.

Thus, children accept magic as part of their worldview because they don't understand the world well enough to dispel it. At some point, most people lose their belief in Santa Claus for this very reason. The math doesn't measure up for an obese man whipping a set of flying reindeer across the world, descending through every chimney in the world with gifts and enough time left over to kick his feet up and enjoy a snack of milk and cookies. It's close, but it doesn't quite seem possible, and many children can realize this as they grow older. Many things just don't hold up to increased scrutiny as children grow up and experience more of the world and the boundaries of reality.

However, this doesn't mean our sense of magic and the paranormal are completely dashed from our lives — Eugene Subbotsky of Lancaster University believes the belief in magic persists in the subconscious of adults even while they consciously reject it.

In other words, they'll never admit to it, but they'll secretly hope to catch the obese man dressed in a red suit on their rooftop during Christmas Eve. They feel logically they shouldn't believe in magic, and logically they should seek alternate explanations for what they may have heard of or witnessed. However, at the slightest chance of magic, they revert back to what is referred to as “magical thinking” — a self-explanatory term. Adults are more likely to rule out *magic* as an option right off the bat and will instead seek all other alternate explanations before resorting to a paranormal option.

This mirrors what we see in everyday life. Adults, for the most part, are conditioned to swear off magical thinking because it can denote a lack of logic, evidence, and even intelligence. Indeed, it is seen as a crutch to simply explain anomalies away as magic, a ghost, or a monster with a hammer.

Magical thinking, however, arises in large part for the same reason superstitions take hold in people's minds: Being able to blame a boogeyman

or credit a savior gives us a sense of control over the world and how we navigate it. If we can blame the rain on a mischievous deity, this is more comforting than a total lack of understanding of rain's origins. It gives us comfort in uncertain times and allows us to remain mentally strong.

Giora Keinan of Tel Aviv University found that those who had the highest levels of magical thinking were also those with the highest levels of stress. It is clear then that magical thinking, whether superstitious or in the belief of salvation, is used as a defense mechanism to protect people's psyches against reality. Indeed, in Israel, citizens were subject to constant missile attacks at the time of the study. Magical thoughts can make a person feel that they will be okay.

Someone without magical thinking in an extremely dangerous situation will be too beholden to logic to feel okay. They'll calculate the odds of survival or happiness and see that probability is not on their side. Someone with magical thinking can easily thrive in such a position because they possess one of the most important human traits: *hope*. Magical thinking bestows a feeling of hope and that things will turn out all right.

Jennifer Whitson at the University of Texas conducted additional research into the notion that magical thinking is a type of mental shield from the harsh truths of the world. If something negative has happened, it was for a reason, or there was a greater purpose behind it. That's the type of magical thinking that can allow people to mourn more effectively or work through tragedy. Adam Waytz of Northwestern University gives meaning to spirits and ghouls we imagine are haunting us: "We create beliefs in ghosts, because we don't like believing that the universe is random."

We've established that magical thinking serves to protect us in many ways, but why are there such different levels of acceptance of magical thinking?

Some people frequently get their palms read and avoid black cats like the plague, while others choose to live on the 13<sup>th</sup> floor of buildings because they like the number. What accounts for this difference? Research from the University of Helsinki showed that people with greater degrees of magical thinking tended to interpret random moving shapes as being anthropomorphized or having some sort of intent or purpose. Some said the

random shapes were playing tag, while people who had low degrees of magical thinking simply saw random shapes moving in tandem. Those with greater degrees of magical thinking also saw hidden faces in photos with where no such faces were present.

In other words, participants saw what they wanted to see.

People with lower degrees of magical thinking seem to be more adept at seeing random data and patterns for what they are, whereas magical thinking is a lens people will look through to interpret their world. A believer in the paranormal will see fate and kismet, where a more skeptical person will see a simple coincidence. A believer in magic will attribute it to unseen forces, where the skeptic will talk about the small world effect. And so on.

This isn't to say a belief in magic and the paranormal is negative or unhelpful. It's merely to suggest the genesis of a belief in Santa Claus and the sun being one of the wheels of Apollo's golden chariot arose out of a need for self-defense, feelings of control, and a desire to be significant and purposeful. It wasn't necessarily because people engaged in illogical thought patterns – they were just doing the best with the information they possessed.

Just like with superstitions, beliefs in magic and the paranormal can also be positive because they lend confidence to uncertain situations. If someone holds the belief that they fight well in battle during full moons and their next battle happens to fall on a full moon, they will be ready for action.

Finally, information out of the University of Toulouse concluded that there were indeed certain “cognitive thinking styles” which predicted magical thinking and line up neatly with the other assertions made in this chapter. The researchers delineated two different cognitive thinking styles: intuitive and reflective. Intuitive thinkers go with their gut as quickly as possible, whereas reflective thinkers tend to absorb information and then process it more slowly. In a sense, reflective thinkers are suspicious of their first instincts. Guess which one was more predictive of magical thinking?

Let's take the following scenario: you are walking next to a cemetery at midnight and there is a man in a red leather jacket staggering toward you. He appears to be covered in dirt and mold.

The intuitive thinker will immediately jump to conclusions and come up with the first explanation — clearly a zombie is approaching. This same thought might cross the reflective thinker's mind as well, but they will suppress it in favor of an explanation that takes into account many more factors. This usually results in decidedly *unmagical* thinking.

Superstitions and magic can be seen as flaws in human thinking, but they can also be seen as features in that they act to protect the self. There is no doubt they can occasionally (or often) distort our views of the world, but on the whole, they appear to contribute to mental health and wellbeing. After all, I know I wouldn't feel comfortable wearing the cardigan of a serial killer no matter how many times it had been laundered. This gut feeling, this hunch from extraordinary beliefs, is what guides many of our daily actions.

## Chapter 3. Logic and Perception

Flawed thinking and brain farts don't just come from the beliefs we have, or the notion that we don't really have the free will we think we do.

Flawed thinking can sometimes be as simple as having thinking that is, well, flawed. It's either logically or perceptively unsound. This happens to us most days, but these flaws aren't always caught because they can be incredibly subtle and or simply glossed over.

It's like paying for coffee in cash and receiving your change in pennies and nickels. It seems like you have probably received the correct amount, but upon closer inspection, you might be one penny too few or too many. But at that point, you've gotten nearly all of your money back and you can't spend the time to inspect all the pennies — so you move on and you don't examine your change closely. In many senses, this is how our mental processes function.

If something has the veneer and appearance of making sense, we'll run with it emotionally and not examine the small details. As long as we're in the ballpark of what logic and reason, that's usually good enough for us. Another example is taking an action movie and enjoying it for the entertainment value while decidedly ignoring all of the glaring plot holes.

With that said, I want to cover two main approaches to flawed thinking in this chapter: incorrect logic and incorrect perception.

## **Incorrect Logic**

The first big obstacle to clear thinking is incorrect logic.

That's a phrase that can mean a lot of things, but I mean something very precise in this context. People use incorrect logic in the sense that they fall prey to logical fallacies on a daily basis. Logical fallacies are errors in thinking that occur because we see an argument and don't examine it deeply enough to see that the argument isn't actually very convincing. In other words, a logical fallacy is when a reason to do something actually isn't a reason at all, under all the flash and glitz. As you might imagine, logical fallacies and incorrect logic are extremely popular with politicians and those seeking to mislead others.

However, they are exceedingly easy to fall prey to and even use. I want to present a few common logical fallacies here to demonstrate just how prevalent they can be in influencing your thinking. In some sense, it's scary that there are so many small holes in commonly parroted logic that leads to flat-out incorrect thinking.

First, there is the ***straw man argument***.

Here's how it sounds:

Argument: "This is why the gym should be closed."

Straw man: "So you're saying you're against health and for the obesity epidemic in this country?"

You: "Well, that wasn't really what I was saying ..."

An argument is put forth, and then that argument is refuted by the straw man, which actually isn't even the same argument. The straw man suddenly and subtly changes the argument to health and obesity, where the first argument is only about the gym itself. Therefore, the straw man argument is when a false argument is created, yet treated as the same issue, to be more easily refuted. As you might guess, it's much easier to win an argument against a straw man—in this case, obesity and a nation's health.

They're hard to catch, but people love to use straw man arguments when they feel like they have nothing legitimate on their side, so they have to make their arguments about the implications, or ripple effect, and not the argument itself.

Similarly, this is how people use the same logical fallacy of the slippery slope, which often leads to a straw man argument. The slippery slope argument functions the same way. Instead of addressing the actual argument, the argument turns into the vast variety of implications that one can dream of or imagine. It is so named because a slippery slope is something people happen upon accidentally that can quickly lead to them falling down a cliff of unintended consequences.

Argument: "This is why the gym should be closed."

Slippery slope: "That's a slippery slope, though. Why stop at gyms? What if you want to close hospitals and schools next?"

The slippery slope soon turns one simple issue into everything negative that it may remotely imply or be related to. It's a completely illogical argument to make because it sidesteps the actual topic or issue, but it's one that people use frequently. In fact, you might be the one using it to persuade people to your side, but it's a significant detriment to clear thinking if you don't realize you are doing it. You are blowing something out of proportion, which then makes it an emotional issue. Catch it and nip it in the bud, even if that means weakening your argument or stance.

Second is the *No True Scotsman* logical fallacy.

This is a logical fallacy which gives you the ability to refute just about anything but adding the phrase, "But she's/he's not a *real X!*" Whatever the topic is, you are redefining in on your own terms and making it so you are never in the wrong. Most people will never notice this, but they will be annoyed at how you seem to be moving the goalposts.

Argument: "The study said all sushi in the world has trace amounts of mercury in it."

No True Scotsman: “Yes, but no true fisherman would catch fish like that — not in Japan, I bet.”

People (or you) may do this if you feel backed into a corner or with no real argument. It depends on people not seeing that you are changing the rules of the game right in front of them just to come out on top. In fact, you are better informed and smarter than the other person because you have specialized knowledge and know the true nature of things.

It is a logical fallacy because it allows you to slip out of anything with a new definition, despite the fact that definitions are commonly understood and generally set in stone. Again, and this just might be a trend you notice, the actual topic is ignored in favor of something questionably related that you can *win* on.

The No True Scotsman logical fallacy is about changing the parameters to suit you.

The third logical fallacy is confusing where the ***burden of proof*** lies.

Bob: “I think this restaurant serves fish.”

John: “No, it doesn’t.”

Bob: “Oh, yeah? Prove it!”

Does anything seem wrong with the above?

This logical fallacy is a bit sneakier than the others. To most, nothing will seem out of place, but consider who made the first assertion: Bob. Bob then essentially says that he doesn’t need to prove John’s claim; John must prove that Bob is wrong. Yet Bob made the assertion that there was fish in the restaurant, so he’s actually the one who needs to prove it — not John. Bob makes the mistake of thinking that the person who challenges an assertion must prove themselves.

An assertion is not automatically true. He is assuming it is true, and treating it as a given, or as the truth. Read it again and you can see where the error was made. As I mentioned, this logical fallacy is covert, and that’s why

most people don't realize they are committing or hearing it. Let's try this with another example.

Bob: "The sky is red."

John: "Are you sure? I think it's blue."

Bob: "Oh, yeah? Prove it!"

In this example, it is easier to see that Bob is actually the person who needs to prove themselves, not John. John is only asking a question as to the validity of his statement. It makes no sense to ask someone to validate a statement when they are already questioning that statement's validity. In general, whoever speaks first or makes an assertion that confirms or denies the status quo is the person to be questioned. You wouldn't question the questioner about the veracity of their question. Try to keep your eyes peeled for the incorrect logic regarding the burden of proof.

These logical fallacies might not all be new, but it's important to see just how common they are in daily life. All of the examples could plausibly occur to you, and you may notice that something is off, or you may not. It's more likely that you may not notice it every time, so it's important to catch what you can.

### **Incorrect Perception**

Incorrect perception is the second means by which people don't think clearly. This is different from incorrect logic because incorrect logic makes people think  $1 + 1 = 3$  by accident, though they might know that it's wrong. They've just been tricked.

Incorrect perception, typically known as cognitive bias, makes people think  $1 + 1 = 3$  and believe it to be true. Incorrect logic lies in the end result, where incorrect perception lies in the thought process.

The first piece of incorrect perception lies in our tendency to *measure by contrast*.

It's the error of being swayed by a relative value in comparison to something that doesn't matter versus the absolute value, which is very often the metric you should actually be considering.

Let's say the expensive new car you are looking at has a sticker price of \$50,000. The used car is only \$10,000. However, the new car is currently discounted from the original price of \$90,000.

That sure makes it more attractive, doesn't it? Sometimes we get caught in this trap of perceived value. It sounds like a good deal to get a \$90,000 car for almost half off, but that assumes that the car is actually worth \$90,000, and that \$50,000 is also a fair price. By introducing the comparison to the number that isn't exactly relevant, one might actually feel that they're getting a steal at \$50,000.

However, this isn't considering the car on its own merits or its own absolute value. This is considering it only in comparison to something it shouldn't: a relative value which makes it appear attractive.

You are stuck on a fundamental misunderstanding of value, not wanting to miss out on something versus evaluating something in a vacuum by itself. Life doesn't operate in a vacuum, but it's important to keep your focus on the factors that actually matter in your decisions.

In this example, the best course of action would be to judge if the car is actually worth \$50,000, despite how much of a discount the price represents. Then you can compare the absolute value of both the new and old cars at their respective price points to make a better decision free of cognitive bias. Otherwise, you just might be fooled into caring about something that is wholly irrelevant to what you are trying to accomplish.

The third cognitive bias that is detrimental to your thinking is the ***tendency to prefer simplicity***.

The first cognitive bias is that humans tend to prefer simplicity. In fact, we trust something is more accurate the simpler it is. By contrast, we also distrust things the more complex they are, or the more hoops we seem to

have to jump through. We even become suspicious of difficult concepts because we feel that decisions should be simple and straightforward.

We prefer simplicity in all walks of life, and that means the path that seems the simplest, or with the least amount of moving parts, is almost always going to be preferred. They feel more trustworthy, like everything is transparent.

This also implies another aspect of what we prefer — we prefer things that we understand easily and immediately. If we can't, then it's as though there is a logical disconnect and something is being hidden. Never mind the fact that many concepts cannot be broken down in such a fashion, but that's why this is a cognitive bias.

Studies have dubbed this *cognitive fluency* — how easily information is digested and understood. If information is easier and more closely resembles a model you already understand and can make a comparison to, it will feel familiar and fluent as a result. For example, there is a science to branding and marketing, and studies have found that easily pronounceable names and recognizable logos perform far better than others. It's the power of simplicity.

We love to quickly be able to ascertain the major points of competing decisions, and if we can't, then we mentally write them off. We can try to push things into that worldview, but it isn't representative of reality.

The fourth cognitive bias that clouds our thinking is known as the ***Gambler's Fallacy***.

The Gambler's Fallacy is the feeling that there are predictable patterns in what are actually random sets of events.

For example, if you roll dice, you might feel that you should eventually roll a seven because it's time for it to happen. Never mind the fact that this is not statistically or probabilistically sound; you are attempting to create order in something impossible to have control over.

This is a cognitive bias that causes us to keep attempting something or hold out for hope when it makes zero sense to do so. It will cause us to overlook possible alternatives and to make decisions in a purely illogical manner.

You are also attempting to find logic and an explanation for a random series of events. There is no better illustration than how early mankind started to see entire scenes in the night sky in the form of constellations. The stars in the sky are certainly randomized, but humans have a tendency to find patterns and put things into contexts we already know.

The Gambler's Fallacy is the notion that just because X happened, Y should happen, X shouldn't happen, or X should happen again. More often than not, these events are all independent of each other, and this should guide your decision making to be less biased.

This cognitive bias is representative of a broader phenomenon known as *apophenia*, which is the human tendency of seeing patterns and connections through random data points. This is why people see rabbits in clouds and elaborate scenes through inkblot tests. The term was coined by neurologist Klaus Conrad, who defined the tendency as an "unmotivated seeing of connections." It seems to stem from an evolutionary desire to make sense of information and understand the current environment we are in.

Apophenia likely did serve an important purpose for those who constantly had to think about their safety and security. This still applies to many of us who live outside the concrete jungles of cities and towns. If you recognize a pattern of danger, you can more easily flee, fight back, and survive. If you miss these patterns, you're going to be something's dinner. One's propensity for apophenia could literally mean the difference between life and death. For instance, you might notice leaves rustling, the birds have disappeared, and dust is rising from a nearby bush. If you fail to put together that this is a pattern of an impending attack from a jaguar, from what appear to be unrelated events, then you're dinner.

It turns out seeing patterns where they may not exist can actually be a boon — though not when you are gambling. However, they can also lead to a skewed perception of reality.

Logic and perception are quirks in thinking that can typically be fixed with a bit more thought and examination.

## Chapter 4. SOLD!

How often have you gone to the grocery store and come home with a bunch of items you hadn't planned for, and hadn't even wanted? Once you empty your shopping bags at home, you instantly regret that you won't actually enjoy eating broccoli for the next week, or you don't have a use for five pounds of baking soda. Yet somehow, they made it into your shopping cart, and you didn't object when the cashier rang them up.

That giant bag of brown rice passed multiple levels of objections, despite the fact that you don't even own a rice cooker.

When was the last time you realized you bought something you won't use, and never have used, just because it seemed like a good idea at the store? The sign caught your eye and made it seem like it would solve all the problems in your home and life. Shockingly, it ended up not doing any of that. It's okay, there will be a product next week that just might do the same thing.

I wanted to devote a chapter to *the psychology of being sold* and why we spend our money in the ways that we do.

Clever advertisers have come up with a plethora of ways to part us from our hard-earned cash. In a way, they are the masters of inducing brain farts. You might know some of them, but others might be entirely a mystery to you. In either case, what ends up happening is you spend more than you originally

intended. Advertisers have become masters of lowering the boundaries to buying, and essentially creating impulse buys wherever you look.

They know exactly how to capture your attention and what buttons to push to make you open your wallet, and once it's open, keep giving and giving. Surprisingly, the way to induce this tendency is wholly unrelated to the shiny colors of billboards, or even the pricing itself. It goes much deeper and taps into the core of what motivates us as human beings. We're not psychologically programmed to give more than we want, but we are programmed to satisfy our inner desires.

What follows in this chapter is an examination of four of the most common ways to be sold to. First, I'll cover Cialdini's infamous six keys to persuasion, then talk about gamification and how a sense of progress and achievement motivates sales, delve into how appealing to fear can be extremely powerful, and finally discuss the science of celebrity endorsements. Hopefully you can begin to notice these popping up in your everyday life and save yourself a few dollars in the process!

### **Cialdini and Influence**

There is perhaps no better demonstration for the separation of how we wish to act versus how we are subconsciously influenced to act than Professor Robert Cialdini's famous methods discussed in his seminal book *Influence*.

Cialdini discussed six weapons of mass influence that underlie many of our actions and subtly persuade us into going a certain direction. You'll see these most frequently in advertising, and you might just recognize some of them from the name only. His influence factors are:

1. Social Proof
2. Liking
3. Reciprocation
4. Scarcity
5. Authority
6. Commitment

**Social proof** is taking a cue from other people to make our decisions. If we observe others leaning a certain way, then we will as well because “if so many people are doing it, they can’t be wrong,” even though they clearly can. You can also think of this as the mob mentality at work. We feel safe following the lead of others — the more people involved, the safer we feel that we are making a wise decision, even one that we might regret skipping over. When we follow others, we are able to expend less brain power, and ultimately claim less accountability for our actions because we can just blame someone else. This is why testimonials and reviews play such a heavy part in persuading someone to a certain decision. Monkey see, monkey do. “Millions of people, just like you, agree!”

**Liking** takes something you’ve known your whole life and makes it an official quantity. We are more easily persuaded and influenced by people we like, people we find attractive, and people who seem to like us. We feel that they have our best interests at heart, and that we can trust them more. Furthermore, if they are more similar to us, then we feel that they innately understand us and have the same worldview as us. You’d probably listen to someone from your remote, tiny high school than someone who is from another country based solely on their perceived similarity and trust. We will buy more easily from people who we have a rapport with, which is why salesmen typically spend so much time nurturing relationships — they are in it for the long-term sale, which banks on likability.

**Reciprocation** takes advantage of the fact that when someone is nice to us, we immediately feel an emotional debt and the compulsion to pay them back. When someone does us a favor, it’s natural for us to seek ways that we can perform a favor for them. Savvy salespeople will grant you favors and take advantage of the fact that you feel an emotional pull to reciprocate the act. If someone occasionally brings you free coffee, you’ll more than likely donate to their charity when the time comes. You’d feel bad if you didn’t — that’s emotional debt. If someone takes time out of their day for you and buys you a free lunch, you’re going to feel like an ingrate if you don’t let them pitch you and sell you afterwards.

**Scarcity** fuels all attractive sales such as “limited time offer” or “prices shoot up at midnight.” Scarcity is when you are compelled to a decision because something seems to have low availability, but it really means that you are driven by your need to not miss out on something, rather than a need to actually possess something. Scarcity makes you reactive to a situation rather than proactive. We all have useless objects we don’t need because we felt that we needed to buy it before the price went up. We fear a potential loss rather than a gain.

**Authority** figures are theoretically in their positions because they know best, so we should heed their words. We listen to those in authority, no matter how arbitrary the position is, and we don’t often question them. This harkens back to the Milgram Shock Experiment, where a man in a simple white lab coat commanded with unspoken authority. Whenever we see someone we perceive to be in authority, we disproportionately weigh the importance of their words because we assume that they know much better than we do. We give them the extreme benefit of a doubt, regardless of whether it is deserved or earned. “Leading doctors and dentists endorse this product.”

**Commitment** takes advantage of the fact that we all have a certain self-image about ourselves, and we like to act in ways which further that self-image. If we want to be seen a certain way, we will commit to that image with consistency. For example, you would feel compelled to give a donation to charity if you were often asked if you were a kind, charitable person. We act in ways that make us commit to our earlier stances or statements. “This product is for healthy, thoughtful people only.”

These six persuasion methods support the fact that we are driven by subconscious emotion more than we like to admit. Purchasing is not about the prices we are paying; it’s about the emotions that are evoked and eventually push us to purchase. A typical emotional decision happens extremely fast. Studies have quoted figures around 0.1 seconds. This was necessary to activate your fight-or-flight instinct to simply keep you alive. It’s what creates the “hunches” or gut feelings we sometimes have.

However, most of us (and certainly you, if you're reading this right now) don't live in that kind of world any longer. As author Jonah Lehrer put it, "The human brain (the 'rational' brain) is like a computer operating system rushed to market with only 200,000 years of field testing ... it has lots of design flaws and bugs. The emotional brain, however, has been exquisitely refined by evolution over the last several hundred million years. Its software code has been subjected to endless tests, so it can make fast decisions based on very little information."

The logical, rational brain is relatively new and still doesn't know what to look for, but the emotional brain has had millions of years of information and experience to react to. Try as we might to be impartial or coldly calculating, it's impossible to ignore the instincts that kept human beings alive. We buy out of emotion and instinct, not with a budget in mind.

## **Gamification**

First of all, what is gamification?

Gamification is when you apply the principles that make games addictive to non-gaming contexts. For instance, gamification in an office setting might be allowing people to level up as they hit certain milestones. This would serve to motivate people on two fronts: for the arbitrary level up, and to hit the actual work milestone.

Often, people have difficulty becoming motivated purely out of duty or obligation. That's where gamification is best used — if you can make someone focus on leveling up, you can motivate them to hit their work milestones as a byproduct of wanting to level up. For instance, let's say that for each sale someone makes, they gain a point. If they accrue enough points, their title is upgraded from sales salmon, to sales tuna, to sales shark, to sales whale, to sales fisher. The idea behind gamification is to make people care about these levels, and in the process, make them care about their sales numbers.

You see this all the time with points, badges of honor, loyalty programs, and prizes for those who move up in the ranks. Hint: It's not about the points or

badges at all — it's about motivating people to perform the underlying action that gets them the points or badges.

What exactly does this have to do with sales?

Gamification creates an extremely fertile ground for purchasing because it makes people forget about the money they are spending. Instead, it makes them focus on gaining points, and gaining in general. Their reward system becomes completely rewired and turned backwards because they actually feel they are being rewarded when they spend money, as opposed to a feeling of slight loss and regret at the expenditure of money.

Let's take a famous example that has driven literally millions of dollars in revenue: the McDonald's *Monopoly* game.

The McDonald's *Monopoly* game is a gamification strategy where customers receive stickers every time they purchase something at McDonald's. The stickers could be used in two ways. First, they could be used to complete a *Monopoly* board, and the more complete it was, the better chance you had for winning a prize. Second, certain stickers by themselves bestowed rewards and gifts like free hamburgers and drinks.

For many, it became an obsession to try to complete the *Monopoly* boards or get free prizes — all of which could be accomplished by simply spending more money at McDonald's. The outcome McDonald's desired was clearly to increase their revenue, and by making people focus on progressing in the *Monopoly* game, they distracted people from the fact that they were spending much more money on McDonald's than they would have otherwise. People could see and taste their progress in the game — visually through how complete their *Monopoly* boards appeared, and through taste because they would literally get free food relatively frequently.

The free food was a short-term and immediate reward which kept people returning on a day-to-day basis, while the completion of the *Monopoly* board was a long-term reward which kept people returning on a yearly basis — it gave purpose to the entire venture. Having both rewards was critical,

because together they addressed short-term boredom and long-term lack of positive reinforcement.

Because of the gamification strategy employed, people ignored the fact that they were essentially spending a lot at McDonald's for very little tangible reward — the reward was advancing in the game itself. In 2010, McDonald's increased its sales by 5.6% in the United States solely by using this strategy. It's similar to how game at a carnival can be so profitable. People will pay a sum to throw beanbags and knock down a pyramid of cans for a prize worth less than a dollar. But it's not about the value of the prize, it's about accomplishing the goal of knocking down the pyramid.

Gamification, as you can see, builds massive brand loyalty as a byproduct, because it's not about the brand — it's about the game and your own progress. Everything else become secondary, but even though it's secondary, it will still occupy a fair amount of your mental bandwidth. That sweet feeling of advancement to the next level is a huge psychological reward. We anticipate it, then we feel it, and then we immediately seek more of it by striving to level up once more. It's addicting.

The viral mobile game *Candy Crush* was on virtually everyone's phone in its heyday. The reason for this was simple: It wasn't a naturally engaging or even interesting game. The focus wasn't on gameplay, or even game design. The goal was similar to the goal of *Tetris* — complete rows of three, which would open up new lanes for you to create new rows of three. The genius wasn't in the game itself; it was in how it made itself an addictive hit.

*Candy Crush* was exceedingly easy, at first. It was simple to get through the first 10 or so levels, and in doing so, people gained momentum and felt positive sentiments toward the game. No one likes a game that is too difficult or that stumps you right in the beginning. This is what causes people to give up and is the opposite of engagement. *Candy Crush* allowed people to get into the swing of things, feel good about their performance, and essentially build up a reservoir of confidence about their skills. This encouraged feedback and endeared the game to people because, after all, we all like what we excel at.

As the levels began to grow more difficult and people's confidence started to waver, players started to be able to unlock bonuses, boosts, and charms that allowed them to perform better and preserve their positive feelings about the game. These boosts and charms were free, at first, but players had to pay for them later in the game. People were able to continue advancing, moving toward their goals while not feeling too discouraged about their prospects.

As you might have guessed, the goal of the *Candy Crush* designers was to extract money from people's wallets.

The more people played, the more they would inevitably spend on seemingly useless boosts and charms because they wanted to keep playing and advancing levels. They got people used to performing well, and eventually, it became virtually impossible to advance in the game unless players started shelling out money for additional boosts and charms. A crude analogy would be what drug dealers do with their clients — they offer the first taste for free to get them hooked on the feeling, and then the dealers start to have leverage because what they have to sell is suddenly in high, high demand. If you are enjoying a game and suddenly you feel like you have hit a wall in terms of advancement, and there is an option for you to buy your way through it, you will probably take it. In fact, you will probably jump at the opportunity — and that's the essence of gamification. When you can generate a specific outcome from people because you have distracted them, you'll know you did a good job.

## **Fear**

Fear in advertising in nothing new.

The origins of this strategy can usually be pinpointed to a 1950s Listerine ad for mouthwash. Prior to that point in time, the market for mouthwash didn't exist. Bad breath was what it was — something that was taken care of with regular flossing and brushing, and there was no stigma surrounding it. Moreover, at the time, the average person bathed themselves around once a week, and deodorant hadn't been invented. Therefore, bodily odors were an accepted part of life. Imagine if you were tasked with selling something people didn't feel like they would need: mouthwash.

"Jane has a pretty face. Men notice her lovely figure, but never linger long. Because Jane has one big minus on her report card — halitosis: bad breath."

The advertisers pioneered the fear-based approach by showing Jane, who was repeatedly rejected and scared of dying a lonely spinster because of her offensive breath. The advertisements focused on how scary the effects of bad breath were and how much they could negatively affect Jane's life, even though she was beautiful and lovely in every other regard. Listerine made bad breath a debilitating disease to which they had the sole solution, and it worked to perfection. In fact, Listerine was going to cure a global epidemic — halitosis.

Listerine invented a problem, blew it out of proportion, then presented themselves as the answer. This is a path many subsequent advertisers would take. They wanted to position themselves as the sole path to safety and security. Another related example is how the cleaning products industry has blossomed in conjunction with widespread knowledge about bacteria, germs, and infection. In essence, people are now slightly obsessed with exterminating 99.99% of the bacteria and germs in their homes, and words such as "antibacterial" has become a major selling point for the safety of your family.

On television commercials, bacteria and germs were presented as miniature demons that would sabotage your efforts at happiness. These worries reached a fever pitch with random outbreaks of E. coli, salmonella, and even SARS (avian bird flu). Antibacterial soap was installed in every public facility. Again, a problem was invented and the advertisers had the solution — buy my product and sleep easily at night knowing you aren't subject to bacteria and germs!

Bob Ehrlich, who helped launch the best-selling drug for cholesterol, Lipitor, stated, "Consumers remember basically one thing and one thing only," with the implication being to make sure what they remembered was scary. The unspoken fear of a global pandemic was again all that people needed to pull the trigger on buying more soap. Fear is a powerful salesperson.

Fear makes people alarmed, want to protect themselves, eliminate threats, and act emotionally and spontaneously to perceived danger. Fear is one of the most primal and powerful emotions, and while this isn't without its benefits, you can see how it can be used to circumvent logic and analysis. Threats can come in physical, psychological, financial, or even social forms, and advertisers have but to choose one to focus on, amplify, and present themselves as the solution to.

For instance, let's suppose you want to sell computers. What are the worst versions of the negative consequences that could ever occur if you didn't own a computer?

- You could be jobless.
- You will be a social pariah.
- People will think you are stupid.
- You will miss all career and social opportunities.
- You will be seen as unsophisticated and clueless to the world.

Now, clearly none of those are true. But it's a matter of painting a picture of despair where having a computer is the sole salvation.

Jimmy is amazing and smart, but no one knows it because he doesn't have a computer and can't communicate with anyone. He's generous and kind, but he can never get a job because he doesn't know how to use a computer, and in this day and age, that is unacceptable. Buy Acme Computers. It's your key to the life you want.

Not bad, right?

There is a final fear advertisers like to capitalize on: the fear of missing out. Not all fear-based advertising is about the end of the world, but rather, it can be about how good your life can be and what you are not taking advantage of. Here, advertisers don't create a problem and present the solution — they create an ideal life view and present themselves as the missing puzzle piece. For instance, if someone wants to sell the same

product, a computer, they would make an appeal to how a computer is the key to technology, learning, and increasing your satisfaction with life through connectivity.

In either case, fear-based advertising can make people act uncharacteristically because when people are presented with threats, logic leaves them. This is a situation which leaves people vulnerable to impulse buys.

## **Celebrities**

There are two reasons celebrity endorsements are so widespread.

First, sex sells, and celebrities often represent a paragon of masculinity or femininity. Women want to be the Heidi Klum, and men want to be with her, while men want to be George Clooney, and women want to be with him.

Sex is one of our very few primitive drives that kept us alive and thriving throughout the history of mankind. Sex and the urge to reproduce, hunger and the urge to eat, and anything else that generally kept us alive and healthy. These are all parts of what scientists like to refer to as the lizard brain, the reason being lizards are primitive creatures that only have a few things involving survival on their minds.

Sex appeals to the lizard brain, and celebrities have sex appeal. The lizard brain takes over, and it acts toward impulses that suggest or show sex. Overall, this means it's tough to ignore messages and advertisements that hinge upon sex because we are hardwired to search for it and seek it out. When there's an advertisement for cologne that is being sprayed over a tanned woman's body, it might not be the most clear or informative ad — but that doesn't really matter. What matters is you are paying close attention to the sexual aspect, and the cologne itself is an unavoidable byproduct for your attention to fixate on. You might think it's too on the nose or lacks subtlety, but it's indisputable that the more your eyeballs see something, the more they recognize it, mentally catalog it, and eventually want it.

Sex has been explicitly used to sell since the dawn of advertisements, but one of the first documented and widespread uses was in 1885, when W. Duke and Sons began to include trading cards on their soap's packaging of the female stars of the era. People saw the images and bought the soap to look at the pictures back at home. Did it matter to W. Duke and Sons why people bought their soap? Not at all, so long as the money exchanged hands.

What if the celebrity being used in the advertisement isn't sexy? Maybe they are best known for being funny.

This brings us to the second reason celebrities are great pitchmen — the halo effect.

The halo effect is a psychological phenomenon where if you see a generally attractive person (physical or personality-wise), you will rate them more favorably in traits and characteristics. For instance, if you enjoy your best friend's company, you will be more apt to rate them as attractive, honorable, funny, and creative — even if they are none of those things. The halo effect allows us to feel good about a person's overall vibe based on a limited set of data points. As you may have noticed after reading the previous chapters in this book, our brains enjoy leaping to conclusions based on the most limited of information, and it rarely looks back.

As you can imagine, the halo effect can rear its ugly (attractive, actually) head in all sorts of contexts. A teacher may treat an attractive or charming student more favorably, and a supervisor may give special treatment to an attractive subordinate. You may even pick your teammates for a sport based on how attractive or charming you think they are, assuming they are also physically coordinated and talented. The possibilities are endless.

Now, how does the halo effect make celebrities useful to advertisers? Many celebrities are famous for one specific trait, whether it is their attractiveness or their above-average abilities. Thus, this talent or ability is mentally transferred to them having talent in other traits, including their taste in products. Our positive evaluations of that celebrity spread to the product itself. We trust the celebrity and their endorsement. We want to experience

what they experience. We see them as experts whose leads we want to follow. And sometimes, we just want to be like them.

One of the most famous examples of celebrity endorsers is Michael Jordan, more commonly known as the greatest basketball player of all time. He was also instrumental in taking the fledgling shoe brand at the time, Nike, to worldwide prominence, as well as pitching for Wheaties, Hanes, and Gatorade, among others. People knew him as an amazing athlete, but why were we taking his advice on underwear and cereal brands? There's no logical reason he should have better taste in those arenas, yet the halo effect makes us subtly assume that the options he pitches are good — decent, at worst.

Awareness of the halo effect may not inoculate you from its effects. Being sold to is truly a delicate art that isn't about the features of a product. It's about the emotional benefits and how a person's life can change from purchasing it. At least, that's what the most effective advertisements do.

## Chapter 5. Faulty Memories

Although we don't like to admit it, sometimes our memories are wrong.

For instance, suppose you are in a fight with your significant other about whose turn it is to wash the dishes. You feel that your memory is a steel trap and you did the dishes for the past week, so obviously, it is their turn. Yet they swear the same thing. Whose memory is inaccurate, and how can you begin to determine that?

Someone's memory is clearly incorrect, or both of them are! But there is such confidence in those memories.

This is a bit scary because our world is but a product of our memories, and if our memories can be wrong about such trivial things as washing the dishes, it makes you wonder what else you might be remembering incorrectly.

Our memories are unreliable, at best, and they are skewing the way we see the world and the decisions we make. It gets us into trouble, causes misunderstandings, and makes us doubt ourselves.

It would be beneficial to first take a quick look at the structure of memory and how it works before showing the design flaws.

Memory is how we store and retrieve information for use, and there are three steps to creating a memory. An error in any of these steps will result in knowledge that is not effectively converted to memory — a weak

memory, or the feeling of, “I can’t remember his name, but he was wearing purple ...”

1. Encoding
2. Storage
3. Retrieval

**Encoding** is the step of processing information through your senses. We do this constantly, and you are doing it right now. We encode information both consciously and subconsciously through all of our senses. If you are reading a book, you are using your eyes to encode information, but how much attention and focus are you actually using? The more attention and focus you devote to an activity, the more conscious your encoding becomes — otherwise, it can be said that you subconsciously encode information, like listening to music at a café or seeing traffic pass you by at a red stoplight.

How much focus and attention you devote also determines how strong the memory is, and consequently, whether that memory only makes it to your short-term memory, or if it passes through the gate to your long-term memory.

**Storage** is the next step after you’ve experienced information with your senses and encoded it. What happens to the information once it passes through your eyes or ears? There are three choices for where this information can go, and they determine whether it’s a memory that you will consciously know exists. There are essentially three memory systems: sensory memory, short-term memory, and long-term memory. **Sensory memory** is the first level of memory, and it stores information for only an instant. **Short-term memory** is what we’re most familiar with, and it can retain information for roughly 20 seconds on average. **Long-term memory** is where memories become a real, physical manifestation as a result of neurons making connections.

The last step of the memory process is **retrieval**, which is essentially when you remember something. You might be able to recall it from nothing, or you might need a cue to bring the memory up. Other memories might only

be memorized in a sequence or as part of a whole, like reciting the ABCs and then realizing you need to sing it to remember how it goes. Usually, however much attention you devoted to the storage and encoding phases of memory determines just how easy it is to retrieve those memories. Most of memory isn't necessarily focused on retrieval — it's focused on the storage aspect, and what you can do to force memories from sensory and short-term areas into long-term areas.

Memory may seem relatively simple, but there are many moving parts, and at least three major areas where the process can go wrong. Besides general memory decay or lack of rehearsal and practice, there are a few phenomena of memory which tell us exactly how inaccurate and faulty our recollections can be.

You may have what you think is your true view of the world, and it can be disconcerting to realize what you think you know is completely wrong.

### **Flashbulb Memories**

A flashbulb memory is a memory that feels like you can reach out and touch it still. It is incredibly vivid, clear, and detailed. For example, do you remember where you were and what you were doing the moment you heard or read about the tragedy of 9/11?

I remember watching the attack on the World Trade Center on television at school, and hearing the school announcements while in a daze in my biology class. The voice on the intercom was close to tears, and the rest of the people in the classroom were sitting in stunned silence. The professor wasn't present at the time, but I remember the person sitting next to me gasping and grabbing her blue sweater tightly. I was wearing black Nike shoes, and halfway through, the professor walked into the classroom.

You likely have a very strong emotional pull to that memory, and you remember everything about that exact moment. Older people might have flashbulb memories of the assassinations of prominent national figures or when family members died, or even the time they witnessed a car accident. This is the essence of flashbulb memories: They are tied to significant and emotional events, either personal or historical.

Something about the emotional fixation and arousal of the moment helps cement that particular moment in time as a powerful memory that is often remembered until death. Because of the emotional impact, flashbulb memories are typically assumed to involve the amygdala, one of the brain's main processing centers for emotion.

The term “flashbulb memories” was coined in 1977 by Brown and Kulik, who proposed that they existed and were forever etched into our brains as an evolutionary defense mechanism. Suppose you were attacked by a wild animal, something which would cause a flashbulb memory because it is so emotionally traumatic and impactful. Brown and Kulik hypothesized the use of flashbulb memories was so we can go back in time, at the moment of danger, and analyze in great detail how we can avoid similar situations in the future.

Strong emotional impact is the genesis of a flashbulb memory. Therefore, whether flashbulb memories are formed is largely subjective. You might have a slightly fuzzy flashbulb memory of 9/11 — but I would ask that you try to recall what you did later that day, or what you did on September 10<sup>th</sup> and September 12<sup>th</sup>. I would be willing to bet that those details are all lost forever, not even bothered to be committed to long-term memory at all. Flashbulb memories live in our minds with vivid detail for decades after they occur, as if we had rehearsed them ad nauseam and attempted to commit them to memory intentionally.

Flashbulb memories are intense, but they have been shown to be less than reliable. As you've read in this book, our memories are highly susceptible to manipulation, whether they get mixed up with fantasy or daydream, they degrade naturally, are skewed by our natural biases, or are influenced by other factors.

For example, if you develop a flashbulb memory around 9/11, your account could shift according to:

- How you daydreamed about making an impromptu patriotic speech in front of your family.

- What your friends told you about 9/11 and their flashbulb memories surrounding it.
- How you feel about 9/11 and your reaction.

Why is this important to note?

It just emphasizes the fact that memory is highly suggestible, which is the last phenomena of memory I want to cover in this chapter. If something we feel lives in a snapshot in our brains can be found to be falsified and wrong, something we are so confident and sure about, then what does that mean for our other memories? Memories that are unremarkable and common — what's to stop them from being easily confused, mixed up, or entirely planted and fabricated?

Unfortunately, nothing.

### **False Memories**

False memories are on the extreme of the spectrum where it's not a matter of remembering incorrectly or forgetting a few details — it's about running with a narrative or emotion and making your memories fit, instead of observing the world and recording what you see.

More frequently than we would like to admit, we have false memories and are flat-out wrong about what happened in the past.

Just because our memories are capable of remarkable feats doesn't mean that they aren't subject to errors that are just as remarkable. A false memory is simply a memory that is real, which is neurologically identical to a real memory, but not based on something that actually happened.

In 1995, Loftus and Coan from the University of California, Irvine conducted a simple study to investigate how to implant a false memory by fusing it with an existing, real memory. The study involved a subject who was given descriptions of three true memories from his childhood and one false memory. The subject wrote about each of the four memories for five

days in a row, giving a summary and any details or facts he could remember about each of the memories (three real and one false).

Over the five days, the subject began to recall more and more about the false memory, introducing details that were never there, and that seemed to stem completely from the subject's imagination. He purported to remember everyone that was present, and even the emotions involved. He was adding onto the false memory, not realizing it was made up.

Weeks later, the subject was asked to rate his memories for how clear they were. He gave the false memory the second highest rating out of the four memories presented. He could provide vivid detail — perhaps because it was fabricated, so the details conformed to his idea of what the experience would usually entail. Memories could be implanted in people just by saying that they had occurred.

Memories, if they are not entirely false or fabricated, can also be influenced by things as small as suggestive word choice, phrasing, and vocabulary. An infamous study conducted in 1974 by Loftus and Palmer at the University of California, Irvine illustrates this effect.

Subjects watched different videos of car accidents at three different speeds. After, they filled out a survey which asked, “About how fast were the cars going when they *smashed* into each other?”

Other groups of subjects watched the exact same videos and filled out a survey after as well, but the survey instead asked, “About how fast were the cars going when they *bumped/hit/contacted* each other?” The estimates the subjects gave changed in relation to the verb used, which influenced the perception of speed and impact.

- Smashed = 40.8 mph
- Bumped = 38.1 mph
- Hit = 34 mph
- Contacted = 31.8 mph

This simple change in vocabulary affected people's perception of an event, and in essence, changed their memory surrounding it. How reliable can memory truly be when we are manipulated by such small variables? This was an event that the subjects watched on video — and the speed increased by nearly 10 mph when leading language was used — a discrepancy of 25%.

The ease with which false memories are created is why eyewitness testimony occupies such an ambivalent place in the legal system. Memories can change during interrogation, and sometimes intentionally. For example, Annalies Vredeveldt of the University of Amsterdam states that asking questions about a memory can easily take a wrong turn if you ask questions as simple as, "What was the color of his hair?" or "He was a redhead, wasn't he?" The first question assumes that there was a male, and the second question is leading and draws its own conclusions.

Eyewitness accounts are highly trusted by juries, yet highly condemned by judges and attorneys who know better. Researcher Julia Shaw states that to implant a false memory, "you try to get someone to confuse their imagination with their memory and get them to repeatedly picture it happening."

This means simply repeating a false memory or story to someone can cause them to confuse the false memory with reality, and eventually mesh them together with the real account. There is a very thin and blurry line between memory and imagination.

Eyewitness testimony has been questioned since Hugo Munsterberg's seminal 1908 book *On the Witness Stand*. He questioned the reliability of memory and perception, and the legal community has taken notice ever since. What's scary is that research has shown that juries can't tell the difference between false and accurate witness testimony, often simply relying on how confident the eyewitness is (Nicholson, 2014). As we learned in the section about flashbulb memories, confidence is never the hallmark of accuracy. Additional support for the distrust in eyewitness testimony has been found in analyses by Scheck and Neufel, who proved that eyewitness testimony was frequently present in cases of suspects who were later exonerated based on DNA evidence.

With the knowledge of how unreliable memory can be and just how easy it is to implant false or biased memories, it's a wonder eyewitness testimony is still allowed.

Christopher French of the University of London sums it up best: *“There is currently no way to distinguish, in the absence of independent evidence, whether a particular memory is true or false. Even memories which are detailed and vivid and held with 100 percent conviction can be completely false.”*

Our memories are incredible, but the same malleability that leads to memory feats can also be exploited to show great flaws. These create flawed thinking, not out of unsound logic or perception, but if you literally remember something to be different from reality, you're going to have some kind of trouble. The main goal of our brains isn't to be accurate or even helpful, and thus, it can be easily manipulated and tricked.

## Chapter 6. Overconfidence

One of the most common ways our brains deceive us is by telling us we are smart, we are correct, or we know better than others.

Clearly, this can't be true for us all to think this way. By necessity of statistics, 50% of us are above average, 50% are below average, and exactly 1% of us are average in terms of any trait or ability. Yet why do we all prefer to insist that we aren't part of the 50% that is below average?

First of all, it's not a view anyone ever wants to take of themselves.

In fact, our egos, senses of pride, and defense mechanisms are all desperately at work making sure we have a generally positive view of ourselves. It's something that keeps us mentally healthy and motivated. If you don't view yourself in a positive light with at least some hope and ability, put this book down right now and research the requirements for being diagnosed with depression, because that's what happens. To maintain any type of healthy outlook on life, we must believe we are talented and capable in at least a few respects.

Of course, this is where you'll find common behavior such as overcompensating and one-upmanship — because people are trying to convince themselves and their egos they are worthy and capable. Often, this type of behavior isn't even aimed at others — it's aimed at themselves to be able to maintain a healthy sense of self-esteem, though they might not always realize it.

Second, we know our thoughts and explanations for how we come to certain decisions.

If we make a poor choice or assertion, we still know we had some plausible set of reasons that made it seem not-so-ridiculous at the time. Essentially, we can explain and justify our faulty thoughts and decisions. When we make a mistake, it's something we accounted for and can write off as an anomaly. However, when we look at the thoughts and behaviors of others, we can't read their minds and understand their train of thought. We don't have any idea of why others have faulty thoughts and decisions, which means we can't justify them. It was just a bad decision made out of stupidity, no rhyme or reason.

Hopefully most of you have been nodding your heads while reading this, muttering to yourself, "I *do* think that ..." But if you're not, I would like to present three ways in which we display our sense of hubris and overconfidence, from the Dunning-Kruger Effect to how we jump to conclusions with little to no information, and the confirmation bias.

### **The Dunning-Kruger Effect**

The Dunning-Kruger Effect is a psychological phenomenon you may have heard of. It's where someone who is below average in a certain aspect believes themselves to be above average because *they don't know what they don't know*. They don't have the requisite amount of exposure, context, or knowledge to recognize that they are inept or incompetent.

For instance, if you have just learned soccer and you can complete a regular pass, you might think soccer is not so difficult or complex. This is because you have only been exposed to soccer as a series of kicks and passes, and you haven't seen the depth of variety in passing, strategy, and overall hand-eye coordination. You may even excel at a small part of "soccer" but that's only if you see "soccer" as a series of kicks and passes — which it is not. You can apply this same type of ignorance to any field — the specifics may be different, but what remains the same is how people who know less than average will rate themselves to be above average.

The original experiment came from Cornell University in 1999, where the researchers had participants perform tests of general intelligence and grammar, and then rate how they thought they performed on the tests compared to the other participants. Generally, the participants who performed the worst rated themselves to be at least above average. Participants with test scores that put them into the bottom 12% rated themselves as performing in the top 62%. Conversely, people who performed above average rated themselves fairly accurately, or as below average.

When you have knowledge in a certain domain, you know nothing is truly simple or easy. What someone might see as three steps is closer to 30 steps to you because you might know what's involved. If you know these steps exist, you won't be as confident in your performance or knowledge. If you don't know these steps exist, you'll be confident that you can nail three simple steps. Additionally, when people *don't know*, they don't understand the flaws in their thought patterns and fail to grasp the complexities of what they are trying to accomplish.

Another illustration would be when someone is attempting to learn math and believes multiplication is like addition, but with different rules. That is clearly not true, but if someone views multiplication in such a way, they simply wouldn't know the complexities of multiplication. It would take new information and knowledge of the process to combat the Dunning-Kruger Effect here.

### **Jumping to Conclusions**

People have the tendency to jump to conclusions based on little to no information.

Why do we do this? Well, there are plenty of reasons that we have glossed over earlier in this book. It can be an evolutionary advantage, and it can be to exert some semblance of control over a world that is chaotic and unpredictable.

Another reason, as psychologist Daniel Kahneman states, is related to narratives. A narrative is a story or overarching theme around something that gives it structure and meaning. For instance, a man may be visiting a cemetery three times a week with seemingly no explanation — someone who noticed this would likely construct a narrative around this set of behavior that the man had recently lost a close family member.

We struggle to fit what we see into something that makes sense to us, and this is the basis for why we jump to conclusions. Even if we don't see much or know much, we will always want to make sense of it in whatever way we can, rationality be damned. We just want to do something with our newfound information.

For the example about the man visiting the cemetery, there are very few narratives that would make sense to the vast majority of people. But what happens when a more ambiguous behavior is observed? For example, a man is seen walking from store to store every day for a week. This is a behavior that can have multiple explanations, and our personal experiences will color which explanation you arrive at. You might assume this man is a very determined salesperson, or you might even assume this person is collecting protection money for the local mafia.

What's important is the narrative, or story, that is created. Christopher Booker describes seven of the most prevalent types of narratives in his book, *The Seven Basic Plots*. We may see these in movies and television, and we may also see these more generally in our daily lives. Whatever the case, they are examples of how we can jump to conclusions because of predetermined narratives that exist in our heads. They are listed below:

1. Overcoming the master: The hero wants to defeat the bad in the world, creating a clash of good versus evil.
2. Rags to riches: The hero gains power and riches, loses it, and finds that happiness existed in them all along.
3. The quest: The hero wants to retrieve some sort of object at all costs.
4. Voyage and return: The hero takes a voyage and returns a happier and more fulfilled person.

5. Comedy: The hero battles confusing and sometimes silly adversaries to become a better person.
6. Tragedy: The hero possesses a fatal flaw and the story documents their fall from grace.
7. Rebirth: Tragedy befalls a hero, which forces them to adapt and rise from the ashes.

When we jump to conclusions and construct a narrative in our heads, there are a few distinct ways we do it subconsciously.

First, we can give someone or something a label based on limited information. Someone's house is messy the one time you visited? They live in a "pigsty" or are "disgusting." This is an overgeneralization and is usually used with a negative slant. Labels have incredibly strong staying power, and once you mentally label someone or something, it's going to stick.

Second is mind reading, which occurs when, based on limited information, you assume you know what the other person is thinking and how they wish to act. For instance, if someone gives a lukewarm response to your salutation, you would assume they are highly disinterested in you, or that they might even hate you. Further, by reacting in a certain way, you are more likely to cause that outcome to occur.

Conclusions and narratives are fueled by implicit assumption we don't always realize we hold. We skip steps and act as if our assumptions are fact. Everyone is guilty of it — even doctors. Author Jerome Groopman noted that, "most incorrect diagnoses are due to physicians' misconceptions of their patients, not technical mistakes like a faulty lab test." Doctors jump to conclusions and build their own narratives based on a quick evaluation of their patients. They are trying to read their patients instead of the symptoms and test results — indeed, jumping to conclusions can sometimes be a matter of life or death.

What do we take from this? Humans have the tendency to try to make sense of everything they see. Sometimes this leads to efficiency, but more often

than not, this leads to walking down the wrong path. We might be thinking we are only using our common sense, but predicting the future and jumping to conclusions are not talents we naturally possess.

### **Confirmation Bias**

Confirmation bias occurs when you have a preference on what you would like to believe. If you want something to be true, you will seek out information that makes it true.

This is a large error in thinking because it leads you intentionally incorrect, or at best, incomplete information surrounding an issue that a belief is then built on. For instance, if you want to believe that children are all inherently generous and kind, then you will seek out evidence to confirm that stance.

You will type into a search engine, “children are generous” as opposed to, “children are naughty.” You can see how this will instantly transform your perspective for the worse because you are only seeing the evidence that you want and not the complete picture. What confirmation bias actually reveals is that you want something to be true.

Once we have formed a perspective, we are going to maximize the impact and importance of evidence to confirm it, and we will ignore, reject, or minimize evidence that conflicts with it. We might catch ourselves saying, “It’s not the same” or, “That’s a different thing altogether.” But is it?

In essence, we are cherry-picking what we want to hear, but we might not always be aware of it. In doing so, we become trapped inside our assumptions, which begin to look more and more like fact because of all that one-sided evidence we’ve collected!

Here’s another quick illustration. Suppose you are a child and you want to convince your parent to allow you to have a cat. Cats are cuddly and cute, but some people hate them because they can be fickle and violent. You are going to gather articles about how cats can help people with anxiety, how one cat saved someone from a heart attack, and how clean cats are. You are going to skip over and ignore information that paints cats as feral, territorial, or indifferent.

If you support a certain politician, you are likely going to read books and articles about how great he or she is; you aren't going to search for information about their scandals. Even if you do come across those articles, you'll forget it because it's not what you want to hear.

You are trying to make a point, and by virtue of that, you are only confirming your biases. Again, this is something that can serve us well if we are indeed correct, and it can help us become efficient if we find all the pertinent information first. If there is only one true stance, you've already zeroed in on it. However, what about the cases where confirmation bias can be a matter of life or death?

Suppose you are a massive hypochondriac and you are fixated on diagnosing yourself with grave and chronic diseases. You might not have those specific diseases, but you are going to be saddled with the same stress and anxiety — all because you are acting to confirm your biases and beliefs.

We might know we should seek conflicting opinions or try to survey the entire landscape of an issue, but it's hard work and unpleasurable — two things humans tend to avoid. Our judgment is again shown to be far more clouded than we realize.

To combat confirmation bias, make a concentrated effort to first articulate what your belief is. If you have a stance or bias, you must know what it is before researching or reading about a topic. If you covertly want to get a cat, you must be able to admit to yourself that you want a cat, and you aren't trying to give a balanced and objective view of cats as pets. Then, looking to actively prove yourself wrong will help you avoid confirmation bias.

Our manner of thinking is often overconfident because we simply like to think what we want. We make a mental assertion, and with absolutely no reason to persevere, we do so at high costs.



## Chapter 7. Risk Tolerance

Risk is an interesting concept that tends to divide people into one of two camps. When we talk about risk, you are either risk-averse, or you have an appetite for risk.

What makes the difference in which camp you instinctively lean toward? We all weigh factors in our heads and come to conclusions of what we are comfortable with, risk-wise. We make these calculations within a split-second hundreds of times a day, and we don't even realize we are doing it.

For instance, we can choose to cross the street or ride a motorcycle in heavy traffic. For most of us, crossing a street represents little to zero risk. As such, it's not something we consciously consider. However, riding a motorcycle in heavy traffic represents something we know presents far more danger in a very salient and tangible way. If you get into an accident, you will fly through the air and sooner rather than later come back into contact with the ground. That's a conscious choice we make after weighing the risks and benefits.

There's risk involved in everything we do, from crossing the road, driving a car, and walking under a ladder. How do we decide what to worry about and what to simply disregard and push to the side? What makes some of us risk-averse, while others enjoy jumping off buildings or swimming with carnivorous sea creatures?

It's true some of this difference may be inherently biological or physiological and dependent on our individual brain chemistry.

For the same reason some of us like horror movies more than others, some of us enjoy the thrill and adrenaline rush of what appears to be danger or a threat. In 2008, researchers from the University of Bonn found that there were distinct differences in brain chemistry that cause some people to react far worse to horror movies. Specifically, they found if people have a particular gene in a greater quantity, they will react better and be more inoculated from the feelings a horror movie evokes. These people can view the ensuing adrenaline rush as something to look forward to. Yet this difference doesn't fully explain how and why we see risk differently.

Researchers David Ropeik and Paul Slovic were able to identify 14 distinct factors aside from individual brain chemistry which influence how we perceive risk and how dangerous aspects of our lives are. These can explain most instances of why we care about the things we do, and how we are able to brush other things off as unlikely or even irrelevant.

One of the first things you'll notice about these factors is they aren't very logical. In fact, they might not even be relevant to how much risk is present in a given situation. This adds fuel to the fire (and lends credence to the general proposition of this book) that people don't think with logic or any measure of objectivity. They think with emotions, gut feelings, and what appears only at first glance to be common sense.

The perception of risk follows that vein where people assess risk through their own biases and level of emotional impact.

## **Trust**

The *more* we trust the source of information of a risk, the *less* dangerous we perceive a risk to be. Conversely, the *less* we trust the source, the *more* dangerous we perceive a risk to be.

Why is this? You would assume it to be the opposite way — if we trust a source, then we believe the validity of what we are hearing.

However, if we trust a source, we also believe in their power to mitigate the risk and make everything okay. If we don't trust a source, we don't think

they will be reliable or effective at dealing with the fallout from a risk. So it goes beyond what we believe others will do; this factor in risk perception speaks to how we believe others can help shield us from risk. The more trustworthy someone or something appears, the more we feel they can protect us. We feel if they are telling us, they will continue to speak and tell us their solution to solving the risk — why else might they tell us?

For instance, we tend to trust the government. If the government told us about a disease outbreak, we might feel alarmed, but we would also assume they would provide a procedure for protecting the population from the effects of the outbreak.

### **Origin**

This factor in risk perception is the ultimate double standard. If *we* create a risk, we tend to brush it off and perceive it as minor. However, if *someone else* creates the same risk, we tend to perceive it as major and significant because we don't have control over it.

This risk perception factor is what causes people to push the envelope and act selfishly. For instance, you might not think twice about walking across a busy street illegally. You wouldn't feel a risk because you are in the situation evaluating it as it is happening. You would check the street both ways multiple times before you made your decision. However, if you saw someone else take the same risky maneuver, you would be on the outside just seeing someone doing something that is generally risky and unwise. You don't know the level of care or attention they have devoted to it.

### **Control**

If you feel that you have control over the end outcome, you will feel there is less risk involved. However, if you are forced to be a bystander to a risk, you will perceive it as inherently more dangerous. This factor is relatively straightforward and unsurprising. If you are driving a car, you feel that you have control, however bumpy the road is. However, if you are riding in an airplane, you have zero illusion of control, and any bump or twist could mean an engine blowing out and imminent crash.

We always feel like we have the power to effect change. If we are completely out of control, we feel like we are just sitting ducks waiting to be hunted.

## **Nature**

We perceive risks and dangers from nature to be relatively minor and harmless, but put us in front of a man-made risk factor, and we are immediately hesitant.

There is a primary potential cause for this: There may be the belief that if something occurs in nature, it can't be that harmful. You only have to look at your local grocery store to see massive proof of this assumption, where every advertisement wants to capitalize on organic and non-GMO foods. When we think natural, we think gentle, cleaner, and what humans were designed to use.

Now contrast that general perception to man-made dangers of war, radiation, and heavy machinery accidents. These are actually more preventable because they involve elements of human control. Yet they appear to be greater in terms of risk perception, possibly because of how wide-reaching man-made disaster can be. For instance, we fear chemicals in our drinking water more than tornados because the former has a greater chance of affecting us. Man-made threats are in our face constantly, while natural disasters only happen to certain people in certain locations.

## **Awareness**

We only have a certain amount of attention we can devote to risks each day, week, and even year. We have a higher perception of risk for that which we are more aware of — that which dominates the news or social cycle of the day or week.

For instance, there seems to be a new international threat or scandal just about every week. Yet, do you care about the ones from last month? They haven't changed, and they are still there. We are just aroused by the risks

we are most aware of, the ones which have our attention at the moment. It makes sense from an evolutionary perspective, because all that matters in saving your life from a wild animal is awareness of that particular wild animal, not a wild animal from the past week which might still be lurking nearby.

### **Uncertainty.**

When we know a general risk, but are uncertain on the rest of the details — who, what, when, where, and why — we perceive a risk to be significant. This is because the perception of risk is left almost entirely up to our imaginations, and our imaginations have the tendency to run away from us and magnify negative feelings.

When we are uncertain about the details of a risk, we also don't know the overall scope of damage that is possible. Could you die, or would you just get a weird-looking rash? What is the realistic worst-case scenario you might have to deal with? The more you don't know, the worse that worst-case scenario will get. This explains why people are afraid of strangers, new technologies, and anything that is foreign to them; they lack the context to be certain about what these things could mean.

### **Scope**

Scope refers to just how much damage will occur if the risk comes to fruition. The greater we perceive the scope of the damage to be, the greater the risk is.

We feel more risk exists if we gamble with our life savings, as opposed to when we gamble with 20 dollars. One represents a huge scope of damage, and the other a negligible effect on your life. We can transfer this same feeling to events like earthquakes, which have a lower probability of occurring versus heart disease, which has a higher probability of occurring. People are generally more wary of earthquakes because of the massive scope of damage that is possible.

### **Hard to Understand**

This is related to the *uncertainty* risk perception factor. The less we understand something, the more risky it appears to be. Of course, this can also work the opposite way — the less we understand something, the more miraculous it may appear to be. Imagine an ancient man seeing a computer, or even a wheel. When we don't understand a risk, such as risks that are covert or complex, the risk feels magnified because of the potential harm.

## **Dread**

If there is a threat that makes us feel dread, we associate more risk with it.

What is dread? The dictionary definition doesn't do it justice, but for instance, a risk that would invoke dread is being eaten alive by a combination of ants and rats. You likely just made a disgusted face and shuddered, and that's what dread can do to you. It seizes control of your imagination and creates a visceral reaction, which makes you perceive greater risk because you just want to avoid that outcome at all costs. Unpleasant things make us perceive greater risk.

## **Familiarity**

Threats that are new, novel, or previously unfamiliar are perceived to be more dangerous than familiar threats. Simply evaluate the following sentences and make a quick judgment call as to which is more intimidating:

1. This is an entirely new type of disease. It's unlike anything we've ever seen.
2. This is a disease we have encountered three times in the past decade. We have seen it before.

The first statement sounds infinitely scarier because it also implies there are no known solutions, cures, antidotes, or ways to reduce your risk. Compare that to a disease that is well-known, studied, and has been made familiar to us. We have found ways of coping with the threat, and we have come to grips that it exists. In other words, the threat isn't gone, but the initial

emotional fear of the threat is. This is upended with a new, unfamiliar threat. It doesn't matter that the new disease was 100% curable and the old disease was 100% fatal. We perceive the new disease to be a greater threat to our lives.

### **Specificity**

This is a reason why case studies and singling people out can be so effective in advertising.

If there is a specific victim due to a threat, then suddenly the threat will become much more salient and important because it has been humanized, which creates a much greater emotional reaction. This is another risk perception factor where we can compare two statements:

1. Little Betty Sue was brutally killed by the disease.
2. A few children were brutally killed by the disease.

We instinctively care more about little Betty Sue because she is a specific person we could each know. The risk becomes personified by what happened to Betty Sue, and she becomes a beacon for what can happen if the threat persists.

### **Personal Impact**

If there is a threat which has no possibility of affecting you, then you probably feel very little risk associated with it. In fact, it might not even feel like a threat to you at all.

If we hear a statistic such as, "One in one million people will get sick from this," we don't worry about it because we never imagine we will be that one unlucky person. This is a threat which appears to have no personal impact on us, an outcome which will happen to someone else and not you. But that stems from a misunderstanding of probabilities, which inflates confidence and reduces the feeling of risk. In reality, we are always at risk of personal impact.

## **Fun Factor**

If something is fun and involves pleasure, then there will appear to be less risk involved. In reality, the risk remains the same, but we are distracted by the prospect of fun.

For instance, racecar driving or any type of extreme sport like skydiving are inherently dangerous activities, but we choose to engage in them because we believe we will derive pleasure from them. The pursuit of fun becomes the top priority, rather than risk mitigation.

## **Age Affected**

This is the last of Ropeik's risk perception factors, and it is perhaps the simplest: If a threat appears to affect children, it is seen as more dangerous. Presumably, this is because children are more fragile and protected, so if it can affect them, then it can sure touch us all.

We feel more sympathy and emotional affect when we hear about children being harmed versus adults. Therefore, it becomes more tangible in our minds, and thus the associated risk is greater.

Of the 14 factors, a few you might be able to argue as logical. Others require you to be in the situation firsthand to understand it. But what is clear is we are mostly incapable of accurately assessing how risky something is. In a vacuum, we might be able to do it — but once external factors that create emotions of despair or hope are involved, we lose all perspective. Those of us who are more risk-averse might be categorized as being less susceptible to emotional highs and lows, but the same could be said for those with an appetite for risk. In the end, our evaluation of risk simply may not be up to us.

## Chapter 8. First Impressions

If you've ever made a significant purchase in your life, such as a house or car, you'll have wondered what you could have done to reduce the price in your favor.

Let's say the sticker price of the car you wanted was \$20,000. You might think if you're lucky, you could get the price down to \$17,000. In reality, the dealership slapped a new sticker on the car over the old one which labeled the car was \$15,000. If you are able to get the car down to \$18,000, this feels like a significant win to you — and the dealership.

Why didn't you think you could get any lower than \$17,000, and eventually settle for paying \$18,000 for a car worth \$15,000?

Because first impressions matter. Both parties feel good about this because the dealership presented you with a high initial price. Specifically, this was an example of the psychological phenomenon of anchoring, which I'll get to shortly.

We've all heard that first impressions are massively important when we're meeting new people. Whatever we think of someone will be emblazoned into our minds for the foreseeable future, and it may never change. With people, if we like someone right off the bat, we are willing to give them the benefit of the doubt and will allow them to get away with questionable behavior. However, if we hate someone right off the bat, we are going to construe everything they do with malicious intent.

First impressions also matter in every other regard in life. If you see a high price for a car, that is going to pervade your thoughts far more than you realize. Not only will you not feel like you can't ask for a low price, but you'll be resistant to the idea of a low price. You'll have it lodged into your mind that the prices simply aren't low for this type of car, regardless of whether it's true or not. You may also feel that it would be a huge social faux pas, and borderline insulting, to go drastically below the price you were quoted!

Whatever the case, it is clear there are many reasons we both consciously and subconsciously stick to our first impressions.

In this chapter, I want to cover and explain two ways in which first impressions skew our senses of reality.

### **Anchoring**

Anchoring is a psychological effect that occurs based on first impressions. The chapter opened with a clear example of anchoring — the car's sticker price was \$20,000, so you felt compelled to stay close to that range. Consciously, you felt \$20,000 was close to the true value and couldn't deviate too far from it. Subconsciously, the initial price *anchored* you to that relative price point.

“Anchoring” as a term was coined in a 1974 research study (Tversky and Kahneman) which asked participants a simple question: How many African countries did they think were included in the United Nations (UN)?

This is not a question the vast majority of people can answer, or even have an informed estimate for, so the participants were basically guessing. Before the participants answered, they spun a wheel that had a range of numbers on it, but was fixed to only land on either 10 or 65. In the context of this chapter, these numbers were indirect first impressions. You'll see that anchoring doesn't even have to be direct or blatant as you might see in the car's pricing; it can just be something that is present in the environment.

Regardless of whether the wheel landed on 10 or 65, participants were asked the same two questions:

1. Whether they thought the percentage of African countries in the UN was higher or lower than the number they had spun.
2. What they thought was the actual percentage of African countries in the UN.

The participants who spun the wheel and landed on 10 estimated on average that 25% of African countries were in the UN, while participants who landed on 65 estimated 45% on average. It didn't even matter that the wheel was inconsequential and seemingly unrelated to the questions — the wheel provided a number that persisted in people's minds, which anchored them to either higher or lower values. Since they had no idea as to the answer of the original question, they were essentially grasping for any hint of a reference point. Without any other type of indicator or data point for guidance, they unknowingly latched onto the random number generated by the wheel, and were thusly anchored.

Anchoring takes your first impression and makes you stick to it. It then becomes an important mental reference point upon which we can potentially base incredibly important decisions. It creates a set of expectations we subconsciously adhere to and drastically decreases the amount of wiggle room you may have thought you had.

Let's look at another example: Do you know what the population of France is? You probably have no clue.

Suppose in one instance, I told you I thought it was 20 million people, and in another instance, I told you I thought it was 60 million people, and then asked you to estimate after each time. In the first instance, your estimate will be in the 20 million neighborhood, and in the second instance, your estimate will be in the 60 million neighborhood.

Anchoring is interesting in that it can completely skew your judgment and logic just because it's what you first see and assume is relatively accurate.

When we go to a store, we see high prices which anchor us to a certain perception of value. It is much smarter for stores to keep products above a certain price sometimes, so they can all anchor each other. JC Penney was the victim of a dubious marketing scheme in which they introduced a “no coupons or discounts” in policy in favor of lower pricing on an everyday basis. What happened? This failed miserably because people *like* discounts, often discounts are what psychologically push people to purchase, and of course there was a complete lack of anchoring to higher prices, so people didn’t see the inherent value of the products.

Restaurants have been known to engage in a practice known as *decoy pricing*, in which they place an extremely expensive item on the menu with the intention that it act to anchor prices to a higher level and make less expensive items seem more palatable. After all, if you see a duck entrée for \$50 and no other items are more expensive than \$30, suddenly the other items will appear more attractive and acceptable.

In negotiation, anchoring is an extremely important tactic because it can determine how much money is won or lost.

For example, if you want to actually win \$10m in a negotiation, it’s commonly accepted practice to start your first offer with something like \$20m. You are anchoring high and forcing the other person adapt to your price point instead of the other way around. In doing so, you are more likely to meet in the middle around \$10m, which was your original goal. If you were to start at a modest \$12m, you’ve anchored the entire negotiation at a low value, and you are likely to meet below your original goal. This is why you’ll hear lawsuits that proclaim hundreds of millions of dollars in damages. They don’t necessarily think they are going to receive that much, but rather, it’s to anchor the public perception to the high value of the case.

The overall lesson of anchoring is people absorb information quickly and seek to make meaning of it even more quickly — which can lead to suboptimal thinking.

## **Priming**

Priming is how most advertising purports to work: on a subconscious level. Often, we watch television or movies and scoff at how stupid a commercial is. None of us think advertising works on us because they never make us suddenly sprout preferences for specific brands or products.

Indeed, studies have shown that we develop brand loyalty based on personal experiences, habits, or what we are exposed to in our childhoods. Brand loyalty is not based on television ads alone.

But that's not what advertising is actually trying to accomplish. Advertisers simply want to get inside your head so when you are scanning an entire aisle devoted to peanut butter, you will recognize the brand name that was advertised and choose it as a default option or impulse buy. They want to create name recognition so when you think peanut butter, suddenly the brand name pops into your head.

Priming is the act of providing some type of stimulus that subconsciously influences people's actions and thoughts.

Whatever people are exposed to, they will keep in their mind. Essentially, this means that having a poster of ice cream in your apartment will make visitors crave ice cream when they look at a dessert menu later that night. Seeing the word "cat" on a screen would subconsciously make you consider the word "dog," and the word "thunder" would make you subconsciously consider words such as "lightning" or "storm."

It may seem complex and deviant, but priming works simply by making specific thoughts more accessible. It puts thoughts on the mental equivalent of "the tip of the tongue," which makes them more accessible and salient for a certain amount of time after the initial exposure. Thus, first impressions matter so much that they don't even have to be conscious — just being exposed to something is enough to influence our actions.

This certainly seems to lend validity to theories of self-help such as affirmations, thinking positive, visualizing accomplishing your goal, and other methods that are essentially about stepping into the mindset of the

person you want to be. For example, the practice of affirmations generally involves writing down or saying your goals, what you want to accomplish, or articulating the type of person you want to be to yourself every day. If you continually keep these thoughts in your head, priming dictates that they may very well help you reach them.

Even subliminal messages designed to help people lose weight (Papies, 2012) have been found to have some efficacy. Therefore, it *is* possible to be primed for these types of actions, but remember this doesn't mean people will suddenly become superhuman because of their daily affirmations. It just means they might think about it more consciously and subconsciously.

A 1999 study (North) found even something as subtle and simple as background music in a grocery store could have a priming effect on the buying patterns of the customers. The researchers played stereotypically French or stereotypically German music on alternating days, and the sales for French and German wine were analyzed. Far more French wine was sold on days when French music was playing, and far more German wine was sold on days when German music was playing. Something that is *designed* to be in the background and not paid attention to — music in a grocery store — made people purchase what they were more primed toward. You can see how wide-ranging priming can be, and how sneakily it can be used to influence our everyday actions.

You can look at priming as dropping *very* subtle hints. They don't have to be blatant or even perceptible. As long as there is exposure of some type in one of the five major senses, it will likely have made some type of subconscious impact.

This chapter should add support for the commonly repeated adage of never judging a book by its cover, but for a very different reason — because you don't know if there is a specific outcome the cover is designed to elicit. Again, our notions of free will stand on thin ice.

## Chapter 9. Self-Defense

This chapter is about the self-defense of your psyche, not your physical body, by learning martial arts. For the purposes of this book, we can consider your *psyche* to be your overall state of mental wellbeing.

The importance of keeping your ego intact and healthy was briefly mentioned earlier in the chapter about overconfidence, but that was in the context of why people might err on the side of the Dunning-Kruger Effect — they wanted to feel good about themselves.

Here, self-defense is about how we are able to maintain a healthy sense of self-esteem by strategically plugging our ears, digging our heels in, and tuning others out. We don't want to feel bad about ourselves, and we will spin reality to keep it that way. It's the art of intentional ignorance and denial — because sometimes, that's just what we need to function and get by. If we feel too low about ourselves on a constant basis, we'll begin to knock on the door of depression and all that entails.

For instance, let's suppose you are the lowest performer at your job. Everyone at the office seems to know it.

It is a hard blow to our pride, and our egos might not accept the objective reality of being the worst performer in the building who only got there because of a family connection. So what happens? We start to rationalize, justify, or utilize some type of defense mechanism to make ourselves feel better.

The objective truth be damned, you will engage in caveats, exceptions, explanations, and justifications for why your performance is low, yet can be excused.

You'll catch yourself saying things like, "Well, at least I'm the most fit person in the office," or, "Well, I don't let my job define me; I have a life outside of this to focus on," or even, "I'm actually really in the top three; the data just doesn't show it." These are statements designed to preserve your dignity and self-esteem in any way possible. That's what self-defense of your psyche is.

Even though you might understand the negative reality you are facing, you find different angles to look at it from to maintain an overall healthy outlook on life.

The first rebuttal the person used in the situation above was about finding something else of value to rank themselves on, and the second rebuttal statement was about giving a reason *why* their job performance was acceptably lower. The third rebuttal statement was simply denial. None of them actually helped the situation — but they did help the person who was speaking them, affording them a small way to deflect reality and maintain their sanity.

Generally, these are known as defense mechanisms or rationalizations.

### **Defense Mechanisms**

Defense mechanisms are the methods we use consciously or subconsciously to deflect tension or negativity from our ego, pride, and self-esteem. These methods keep us whole when times are tough. If you don't use any defense mechanisms, you are destined to suffer from low self-worth, whereas if you use too many defense mechanisms, you are destined to suffer from obliviousness and hubris brought on by a lack of self-awareness.

The origin of the term comes from Sigmund Freud, who posited that defense mechanisms were necessary to protect the ego, in the context that the ego was one of three parts of the psyche: the ego, the id, and the

superego. This sounds overly complex and twisted — like something that may not apply to everyone. But you just might recognize some defense mechanisms put forth by Anna Freud:

1. **Denial**
2. **Intellectualization**
3. **Rationalization**
4. Projection
5. Displacement
6. Reaction formation
7. Regression
8. Repression
9. Sublimation

Of these nine, the ones you might be most familiar with are the first three: denial, intellectualization, and rationalization. I'll describe those briefly to give you a sense of how reality is subverted.

*Denial* is one of the most classic defense mechanisms because it is easy to use. “No, I don’t believe that report ranking all of the employees. There’s no way I can be last. Not in this world.”

What is true is simply claimed to be false, as if that makes everything go away. You are acting as if a negative fact doesn’t exist, and thus, there is nothing to be dragged down about. Sometimes we don’t realize when we do this, especially in situations that are so dire they actually appear fantastical to us. All you have to do is say “no” often enough and you might begin to believe yourself, and that’s where the appeal of denial lies. You are actually changing your reality, where other defense mechanisms merely spin it to be acceptable. This is actually the most detrimental defense mechanism, because even if there is a dire problem, it is ignored and never fixed. If someone continued to persist in the belief they were an excellent driver, despite a string of accidents in the past year, it’s unlikely they would ever seek to practice their driving skills.

*Intellectualization* is when you deal with negativity or threats to your self-esteem by pushing emotion aside and using logic to make yourself feel better.

This is an attempt to tell yourself that things are not as bad as they seem. For example, this is where you start to console yourself about how the job market is healthy and you've gained valuable skills by learning how low you rank in the office. The negative event has occurred, but you aren't focusing on it or the consequences — you are focusing on the logical way forward and painting the best-case scenario for yourself. It isn't necessarily wrong, but it's diverting focus away from reality and only paying attention to an angle that makes you feel good about yourself.

*Rationalization* is when you explain away something negative.

It is the art of making excuses. The bad behavior or fact still remains, but it is turned into something unavoidable because of circumstances out of your control. The bottom line is anything negative is not your fault and you shouldn't be held accountable for it. It's never a besmirching of your abilities. It's extremely convenient, and you are only limited by your imagination.

For instance, if you want to talk to an attractive stranger but keep chickening out, this is something that could be construed as negative. However, a very common rationalization of this lack of action would be to simply say they weren't really that cute, they appeared preoccupied or mean, or you were too tired at that point in the night.

These might appear to be flimsy excuses, but they are the small escape paths your psyche needs in order to feel good about itself. It's easier to portray someone as ugly or mean than to come to grips the fact that you were deathly afraid of rejection, or that you were nauseous all night thinking about it, only to fail. The latter leads to shame and embarrassment, while the former leads to, "Well, there's always next time!"

Rationalization is the embodiment of the *sour grapes fable*: A fox wanted to reach some grapes at the top of a bush, but he couldn't leap high enough.

To make himself feel better about his lack of leaping ability, and to comfort himself about his lack of grapes, he told himself the grapes looked sour, anyway, so he wasn't missing out on anything. He was still hungry, but he'd rather be hungry than hurt his pride.

Rationalization can also help us feel at peace with poor decisions we've made with phrases such as, "It was going to happen at some point, anyway," or, "The price won't go much lower, anyway." You'll hear these when you are grappling with buyer's remorse or buying something at a high price when it was discounted the following day.

Rationalization ensures you never have to face failure, rejection, or negativity. It's always someone else's fault!

While comforting, this tends to skew reality and lead to overall frustration and lack of fulfillment. People will make more and more bad decisions, resist growth, ignore opportunity, and generally act against their own interests — only acting in their ego's best interests. A life dictated by self-protection does not bode well.

### **Cognitive Dissonance**

This is a principle put forth by famed psychologist Leon Festinger in 1957.

It states that we want to feel consistency between our beliefs, actions, and thoughts. Whenever we are put into a situation where this sense of consistency is thrown off, we feel cognitive dissonance (a tense state) and skew reality to maintain that sense of consistency. Dissonance is unpleasant, so we act to reduce it. If we believe X, and somehow we find that we support Y (where Y is the opposite of X), then this is a state of cognitive dissonance that must be resolved by coming up with any justification of why you believe both X *and* Y simultaneously.

Festinger's original study involved participants who were members of a cult. This particular cult believed the planet was going to be destroyed by a flood on a specific date. Obviously, this did not occur. How did the cult members cope with this betrayal of their beliefs? They were in a state of cognitive dissonance because they believed the planet was going to be

destroyed, and yet it was not destroyed. How could they reconcile these conflicting stances?

Some cult members realized this was a sign that the cult leader they were following was selling a story, but the vast majority of the cult members remained faithful because they were able to solve their cognitive dissonance. How and why?

All the cult members needed was a reason to bridge the gap between the world not ending and their beliefs remaining true. They found it quite easily.

They were able to ease their cognitive dissonance by making the assertion that the prediction and their beliefs were indeed correct, but the planet was saved because of the faithfulness of the cult members. Everything they believed was still true, and yet it could also exist with the current reality of the world still existing.

They went right back to the cult's beliefs because their beliefs became consistent with the reality of the world once again.

From this and subsequent studies, Festinger noted three main ways for cognitive dissonance to be alleviated and conflicting beliefs to reconcile with each other.

First, people experiencing cognitive dissonance can change one of their opinions and have only one remaining. Therefore, they would be consistent because there was nothing to conflict with. This is tough, because it is essentially the admittance that one aspect of their belief system was wrong, or at least less correct than the other. This would be the cult members admitting that either their belief was wrong, or the world did end in some aspect. This is a tough sell, and as you might expect, rare to come across.

Second, people can reduce their cognitive dissonance by discovering new information that makes both conflicting stances palatable. A bridge is constructed between them. A reason is essentially invented to connect conflicting beliefs. Imagine you are a fiction writer, and you are given a

beginning and ending and told to make them work. This is the option the cult members chose — neither belief was wrong, and a new piece of information that the world was saved because of their faithfulness created a reality where both things were true.

Third, people can reduce cognitive dissonance by making their competing beliefs unimportant. This would be if the cult members said their beliefs were secondary and not a central tenet of their cult religion. When you reduce significance of a belief, suddenly you are able to do almost anything you want because “no one *really* believed that was going to happen; it was purely symbolic.” If you don’t care about a belief, then it can’t truly be said to conflict with anything.

We constantly find ourselves in situations where what we believe doesn’t match up with what we see.

Take the everyday situation of believing dogs to be rabid and wild and eating lunch next to a cute shih-tzu sitting on a pillow. Those are two conflicting stances — cognitive dissonance in daily life. People reduce that tension by saying, “Well, it’s just a tiny dog. Tiny dogs are harmless!” If we looked more closely at what we’re saying, we’d realize that we are manipulating our stance on dogs. We engage in this type of thinking more often than we realize, and it causes us to misrepresent reality to ourselves.

When we defend ourselves physically, we are just acting. But when we defend ourselves mentally, we are literally changing the world around us, and this isn’t always for the better.

## Chapter 10. Brain Farting

Finally, a chapter on the eponymous brain fart.

Brain farts are more commonly known to us as moments that make us proclaim, “I can’t believe I did that,” or, “How did I forget that?”

They are momentary lapses in judgment due to ... well, anything. It could be due to seeing a shiny object and being distracted, or having something stuck on the tip of your tongue. Why do they occur, and how can you prevent them?

In this chapter, I want to uncover some of the most common ways we lose our bearings in everyday life. It’s not because we are stupid or prone to absentmindedness. Rather, it’s typically because of the way our brain works, and how it wants to seek pleasure for itself above everything else.

In other words, a happy brain does not make good decisions.

That would be like depending on your taste buds to make healthy decisions about diet. That’s not their purpose! Your taste buds just want to enjoy themselves and taste what they were designed to taste, regardless of the fat content or amount of calories. Further, the better something tastes, the worse it is likely to be for us, because that would denote the presence of

greater amounts of fat, oil, or grease. Thus, taste buds are probably the worst body part to make a decision about a healthy diet.

Our brains seek pleasure and freedom, and in doing so, it sometimes conflicts with good decisions for us as a whole. Brain farts are when our brains want to be lazy hunks of meat.

## **Brain Farts**

If you've ever been in the middle of a sentence and your mind suddenly went blank, you've experienced a brain fart. It's a lapse in cognition, judgment, and overall thought. It's as if your mind was an Etch A Sketch and someone shook and cleared it.

You can call it a hiccup or a blunder, but what is happening is a sudden interruption of your train of thought. It might feel like an instance where you have just slipped into stupidity, but there is actually a well-founded physiological explanation for your lapses.

Neuroscientists have investigated the phenomenon of suddenly losing your train of thought, and they have discovered that roughly 30 seconds before your *brain fart*, there is a decrease in blood flow to the portion of your brain that is involved in focus and attention. In other words, our brains go on autopilot because we are engaging in something that doesn't require our full focus or attention — for example, and activity such as driving, sorting your laundry, or walking the dog, or any other type of behavior where your brain can be driven by instinct, muscle memory, or pure habit. These are instances where we *zone out* — which is essentially a precursor to a brain fart because your brain isn't proactively being used. Everything is familiar, and your brain is well-conditioned to react to most contingencies in these situations. Therefore, attention is not deemed necessary.

When the brain senses it can let its guard down and relax because a repetitive or monotonous task is at hand, it takes a break and conserves energy, and blood flow is decreased as a reaction. Remember how I said our brains only want to feel pleasure with little regard for the rest of our bodies?

This conservation of brain energy can easily lead to lost laundry, and even traffic accidents because of our autopilot mode.

When we make a mistake, the blood flow turns back on to our focus and attention centers, but sometimes only after we've suffered the consequences. The brain is just trying to get by with as little energy expenditure as possible. This is akin to turning the gas and electricity off in your home at night while people are sleeping in the hopes that no one will need them. You want to keep your utilities bill as low as possible. However, what happens when someone needs to use the phone to call 911 because they are having a heart attack? You may have lowered your utilities bill a little bit, but you have also massively inconveniencing yourself, and perhaps causing some harm.

Most of the time, we will get away with this and our only negative consequences will be a slip of the tongue, blank mind, or brain fart. There is still a tiny percentage where we will suffer true negative consequences, but that's a cost-benefit analysis the brain is more than comfortable with.

In a way, this does act to conserve our mental bandwidth for tasks that matter. The brain, while only roughly 2% of the body's weight, consumes roughly 20% of its energy and glucose expenditure. It makes sense that the brain would be so lazy whenever it is possible; if it can sense a pattern to coast upon for a while, this allows energy to be saved or delegated elsewhere — and your attention to decrease.

This tendency for the brain to shut down whenever possible is called entering the *default mode network*. This is when your mind isn't focusing on anything in particular, despite the fact you may be engaging in something that requires three of your limbs, such as driving. But suppose you were driving on a long straightaway for an hour — your brain would eventually push you to zone out more and more, and it would be tougher to hold your attention on the road because it would be so boring and uneventful.

Without new stimuli (or stimuli we consider worthwhile or interesting enough, which explains zoning out in class or during lectures), your brain is

pushed into the default mode network. Your mind wanders and you zone out. Sometimes when you enter the default mode network deeply enough, you fall asleep. This is not a foreign feeling, but now we know what drives it: a lack of anything to make you stand up and pay attention.

Why should the brain expend unnecessary energy to pay attention if it doesn't have to? Thus, brain farts occur at the intersection of the default mode network and trying to suddenly pay attention.

The way to battle brain farts is to accomplish that which is most difficult — to think about thinking. To actively consider whether you are focusing on something, or whether you are zoning out and diverting your attention elsewhere. This might be the feeling when you realize you have read the same paragraph three times — it's supremely hard to catch. They might not realize it, but scheduling breaks in presentations and using shocking imagery in commercials are meant to shake people out of the default mode network and make them pay attention!

We are engaged in a daily battle with keeping our attention focused. Not everything deserves our full attention, but we tend to be as stingy with it as possible.

### **Tip of the Tongue**

While you can think of a brain fart as a general phenomenon with a physiological cause, there's also a specific type of brain fart known as tip of the tongue (TOT). This occurs when you know what you wanted to say, but your mind suddenly runs blank, or you walk into a room and realize you have no idea what why you did so.

Psychologist William James first coined the term TOT in 1890, describing it as, "A sort of wraith of the name is in it, beckoning us in a given direction, making us at moments tingle with the sense of our closeness and then letting us sink back without the longed-for term."

For the next few decades, it was noted as a peculiar and annoying habit of the human mind. It wasn't until 1966 that researchers from Harvard University studied why knowledge appears to be at our fingertips and yet so

far away (Brown and McNeil). We might confidently feel that we know something, but come up empty when we seek to recall specific details.

In the 1966 study, researchers read aloud word definitions to participants and then asked them to recall the defined words. They found that there was a very specific set of behaviors they engaged in if they were in a TOT state — they could remember what the word was, and perhaps even what it meant. They could also provide synonyms for it and words that rhymed with it. However, they were still not always able to recall the exact defined word.

If this feeling feels like torture to you, it's because Brown and McNeil accurately characterize it as the feeling of imminent recall. If we keep hunting around for it, we might find it. We might also never come up with the trigger for it, despite ruminating for hours or days. The sensation of knowing that you know something, yet you don't know it at the moment, is supremely frustrating.

A study from McMaster University has posited that the TOT phenomenon occurs because specific words get lost in translation. The brain translates a thought or memory from an abstract, intangible concept into a word, and then the word is sent to our sensory systems to make the proper sound. This is the process of expressing anything via speaking, and it's far more complex than we give it credit for. This means there are many moving parts where an error or disconnect may occur. Thus, the TOT error may be caused by one of these disconnects or failures in the memory and expressing process.

The McMaster researchers put participants into TOT states by asking, "What do you call the sport of exploring caves?" This is something the participants vaguely knew, but were typically unable to correctly recall. They were given time to think, and if they didn't produce the word, the researchers provided them with the answer. Days or weeks later, the participants were asked the same question and were shown to exhibit the same TOT states. They pointed to this as proof that TOT behavior is something that can be reinforced, just like a memory. In other words, if you

make the same error and fall into a TOT state, you are likely to do it again with that same word.

However, if you work through the TOT state yourself, you are more likely to remember the word because you've broken the pattern of requiring assistance. This is similar to improving your memory, where it is far more effective to independently recall information as opposed to review or be told it.

Other hypotheses about the TOT effect are that the brain has limited capacity, and anything that isn't immediately rehearsed or introduced into long-term memory exists in a hazy region where TOT is just a byproduct. You might know that you know the information, but you may have neglected to rehearse sufficiently to actually be able to recall it without a strong clue, such as, "The color rhymes with *blorange*." Essentially, this is a failure in memory encoding or memory retrieval. With memory encoding, the information simply may not be there, while with memory retrieval, the information is there, but there may be too many distractions or barriers for you to effectively recall it.

Dealing with a TOT state can be one of the most maddening moments in life. Researchers have described it like the feeling that a sneeze is coming — you don't know when or how, and you can't force it along, so you have to wait for it to strike. My personal favorite description of TOT is mining for gold. You know it might be there if you search long enough, but you also might just come up with a handful of coal and dirt. It's something you want desperately, and you want to find it to satisfy your urges. But it may or may not be there.

Unfortunately, brain farting is a very common aspect of our everyday lives. It's helpful to know how they function, but this knowledge may not help you avoid them.

## Conclusion

I can look back on my experience with the greasy salesman from the car dealership and say with absolute certainty he was attempting to get my family to engage in intentional brain farts — lapses in judgment that would open them up to seduction by emotion.

In a sense, the salesman wanted to transform our sense of reality with regard to the price of the car. As I mentioned, he chose the wrong family to attempt it on, but his methods are just the tip of the iceberg as to how we generally act in foolish ways and often against our own interests.

The brain is constantly in a state of disarray and discomfort. This is because we force it to work and *think*. It may be the brain's primary purpose and job, but that doesn't mean it likes it — it would prefer to lounge on the proverbial beach and relax and conserve energy. But just because that's your brain's goal doesn't mean that's good for you as a person!

*Brain Fart* is a book that seeks to uncover what's behind our flawed logic and downright irrational thinking. We're not stupid, and there's nothing inherently wrong with us.

We're only human.

Best,  
Peter



## Cheat Sheet

### [Chapter 1. Free Will \(Or Lack Thereof\)](#)

Do we truly act how we want, or are we inexorably influenced by the people around us? Asch, Milgram, and Zimbardo demonstrate the power of roles, people, and authority to rob us of our free will.

### [Chapter 2. Superstitions and Magic](#)

Throughout history, we have exhibited a need for explanation and control — it is a basic human tendency. Superstitions, magic, and other types of paranormal thinking all provide the comfort of explanation and reason — however tenuous or illogical.

### [Chapter 3. Logic and Perception](#)

Simply put, we use incorrect logic and perceive the world incorrectly at times. These are displayed through logical fallacies and cognitive biases, respectively.

### [Chapter 4. SOLD!](#)

Advertisers use a host of ingenious techniques to make us pay them more money, from Cialdini's principles to gamification, to the strategic use of celebrity endorsements.

## [Chapter 5. Faulty Memories](#)

Our memories are not an accurate reflection of the past, as they work for us and to protect us. They are also highly susceptible to falsification and manipulation.

## [Chapter 6. Overconfidence](#)

We have a high opinion of ourselves and our thoughts, as evidenced by the Dunning-Kruger Effect and how we jump to conclusions and confirm our biases. This acts to skew our sense of reality.

## [Chapter 7. Risk Tolerance](#)

We have a skewed sense of risk tolerance — what is a threat and what is not. This is driven by emotional impact, rather than probability or logic.

## [Chapter 8. First Impressions](#)

We highly overvalue what we first see, regardless of whether it matters or is accurate. Anchoring and priming are two ways we stick to our first impressions.

## [Chapter 9. Self-Defense](#)

We engage in self-defense of our psyche to maintain healthy levels of self-esteem. Chief tactics include the numerous defense mechanisms you might be familiar with, as well as alleviating cognitive dissonance.

## [Chapter 10. Brain Farting](#)

A brain fart is a momentary lapse in judgment brought out by zoning out, and the tip of the tongue phenomenon is a type of cognitive lapse for which there are numerous explanations.

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