Thinking in Bets

By Annie Duke

Key Takeaways

1. Humans are irrational beings with several biases we are not privy to.

2. Challenge your own beliefs before challenging those of others.

3. Be wary of information that directly confirms your own point of view.

4. Incorporate uncertainty into all assertions and assumptions.

5. Build out groups in your life that challenge your own beliefs to seek out truth.

6. Be open to all ideas and be reluctant to make decisions or agreements with those who are not.

7. Share everything you know: don't be afraid to be wrong.

8. Understand we are inclined to favor our present self over our future self when it comes to decisions in the moment.

9. You can become a more accurate decision maker when you take into account all variables that might affect the final outcome.

Notes & Thoughts

- Honestly, this is one of the densest books I have ever read. On its face, it's only 230 pages, but with all the notes I've written in the margins it might as well be 400.

- I strongly recommend this book to anyone who is looking to streamline their decision-making process and remove biases from their life (ahem – *everybody).*

- Great Quote: "'But' is a denial and a repudiation of what came before."
    o Don't use "but" in arguments if at all possible

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Summary

Chapter 1: Life is Poker, Not Chess

Annie Duke opens up with a story about Seattle Seahawks head coach Pete Carroll, a narrative she goes on to reference throughout the book. The plot goes something like this: on second down with 26 seconds left in the Superbowl and trailing by four points, Pete Carroll calls for QB Russell Wilson to throw a pass from the one-yard line rather than having Marshawn Lynch push it into the endzone. The result? Wilson threw into an interception.

As the nation began ridiculing Carroll, people failed to realize the underlying decision was actually not miscalculated. The odds of throwing an interception in the given situation (over the course of all professional football history) was only 2%. What Carroll actually suffered from was *resulting bias.* This is the tendency to disproportionately weigh luck and skill when evaluating a result. In Carroll's situation, the nay-sayers of his decision were weighing the whole of the result on his skill – suggesting he had made a stupid decision. Instead, he likely made a smart decision, however, the decision was clouded by the unfortunate luck that caused the interception to occur (as I'll address later on – we often think in black and white [all skill or all luck] – when the reality is nearly always a mixture of the two).

Specifically, in the Seahawks example, the resulting bias was coupled with *hindsight bias*. Not only did people criticize Carroll's decision-making skills, but they also viewed the outcome as if it were destined to happen. When you look at an outcome without fully taking into account all the decisions that lead to it, you ignore the numerous variables that went into determining the final outcome. In a completely rational world, we would evaluate decisions in a probabilistic manner, meaning that we would take all pertinent information into account when making decisions while also accounting for the probabilities of each variable affecting the outcome. When we act with hindsight bias, we forget about the different variables that contribute to an outcome, thereby becoming blind to what the reality of the situation really was. For Coach Carroll, completing a pass in the endzone from the one-yard line given the performance of the defense that day had great odds, yet when we look at the decision having already witnessed the outcome, we see the interception as being much more probable than it was in reality. Hindsight is 20/20.

When the hindsight and resulting biases come together, we frequently revert to placing blame all on skill or all on luck. More specifically, our hubris is that when we make decisions that lead to a positive outcome, we tend to attribute it all to skill. When we make decisions that lead to a negative outcome, we attribute it solely to luck. Conversely, when observing the decisions of others (when we are not in line with the outcome – like fans of the Seahawks and Carroll's passing decision), we blame poor outcomes on skill and positive outcomes on luck. Confusing, right? Now you can see why this book is so rich.

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We have limits to our knowledge; we will never know a certain outcome is fully attributable to skill or fully to luck. We won't ever know the exact quality of each of our decisions because it is impossible to evaluate all the variables that went into the outcome. Unfortunately, society teaches us that we must be wholly sure, but the reality is we cannot ever be wholly sure of something unless it is a fact of math, science, or history. Everything else is theoretical. We must be willing to accept uncertainty because "I'm not sure" is a more accurate representation of the world when it comes to decision making.

Take for example going into a coffee shop to order a coffee. You pay $3.00 for your morning joe. Now what happens? Theoretically, the barista will make your coffee and give it to you – that's part of the unwritten contract. However, there exists a sliver of chance the barista refuses to serve you after you have already paid. So, while you can be 99.99% sure to expect a coffee after paying, there is still that .01% chance you don't get a coffee. So, the next time you make a decision to buy something, remember it is essentially a *bet* on the chance you get the item or service you pay for. In the Seahawks example, Carroll might have been 50% sure that the pass would have turned into a touchdown, 30% sure of an incomplete pass, 19% sure of a sack, and only 1% of an interception. Unfortunately, the outcome was in the 1%. All decisions are *bets* based on the likelihood of a given outcome.

Chapter 2: Wanna Bet?

When decision makers like you and I explicitly understand that each decision we make is a gamble on the likely outcome, we learn to anticipate, evaluate, and take protective measures when hints of irrationality like the aforementioned biases pose a threat to our best interest. When we embrace the uncertainty embodied in each decision we make, we are able to see the world more accurately and consequently make better decisions.

Unfortunately, humans tend to adopt strong held beliefs rather easily, thereby making accurate decisions more difficult. Humans naturally learn in the following manner: 1) We hear something. 2) We believe it to be true. 3) If we have the time/inclination, only later do we vet the idea. For the majority of beliefs, humans only get to the second stage. This is the basis for *confirmation bias* – or the habit of seeking evidence which confirms our already-held beliefs. We don't challenge the validity of confirming evidence and subconsciously work hard to discredit contradictions to the belief. Duke suggests this is the danger of fake news: it entrenches the audience in beliefs it already has and amplifies them. The difficulty with this is that the smarter you are, the more susceptible you are to becoming entrenched in said beliefs… the smarter you are, the better you are at constructing a narrative that supports your own beliefs, rationalizing, and framing the data to fit *your* point of view. This leads to the *blind spot bias:* people are better at recognizing biased reasoning in others than themselves (again, the smarter you are, the larger the blind spot).

Those with strong held beliefs may be wholly confident in whatever belief they may have. However, they can partially fix this overconfidence by assigning a value of probability to their belief. For example, if Bob declares that he is 100% sure Denver is the highest altitude capitol in the US, then others tend to value his opinion less. If Bob, however, suggests he is 90% confident that Denver is the capitol city with the highest altitude, then it opens the floor to contradicting thoughts while also saving Bob some embarrassment when he learns that Cheyenne is the capitol with the highest altitude. Understanding and admitting we are not completely sure is an invitation for help in refining our own beliefs and finding an optimal decision.

Chapter 3: Bet to Learn: Fielding the Unfolding Future

How do we learn something new from our decision-making process? We have pre-formulated beliefs which then lead us to our first bet. The bet then leads to an outcome. Once we have interpreted that outcome, we have learned and are able to make better bets (decisions) moving forward. Now this loop does not take into account luck, which muddies the system. We could get in a car crash as a result of skill (not being able to see out of the corner of your eye) or as a result of luck (you had no time to react). However, the reality is probably somewhat a mixture of the two. Just like we don't want to discredit our own believes, we don't like to discredit our own skill, so if we make a poor decision, we usually attribute it to poor luck (see Chapter 1 above). This "fielding error" or misinterpretation of how an outcome came about is due to the *self-serving bias.* We scapegoat bad outcomes on poor luck and the converse is true for decisions made by others. Look at the infamous Steve Bartman incident when he reached over the outfield foul territory fence, deflecting the baseball, and causing a single out to not be had. The Chicago Cubs would go on to make a series of bad plays and errors costing them the World Series. However, the reality is that for each of those events to occur in the fashion that they did, very little, if any of it, was truly due to Bartman's decision to reach for the baseball.

To prevent fielding errors in the course of everyday life, Duke suggests the abandonment of absolutes like "always" and "never." Understand that every decision has underlying uncertainty. When someone pays for a coffee, they will get it 99.99% of the time, but the .01% of the time a barista walks out on the job should be accounted for. If you're asked how long you could hold your breath, you might be inclined to say "I'm sure I could hold it for one minute." But if there was a gun to your head challenging you to do so, you might revert your answer to 30 seconds because you're only 50% sure you could hold your breath for one minute.

Chapter 4: The Buddy System

To combat the habit of confident certainty, Duke suggests that we create accountability teams, or what she calls "Truthseeking Pods." These groups act as accountability teams, ensuring that each member maintains objectivity in their most crucial decisions. From

advice for making an important decision at work to how you view a certain public issue, you might turn to this group to voice ideas, and focus on finding truth. This means that each member must be willing and able to voice their full opinion while giving credit where it's due and taking responsibility where appropriate. It takes true effort to acknowledge our mistakes, therefore, by participating in one such group, you agree to being open to dissenting opinions.

Such "truthseeking" groups prove extremely useful for habits that are difficult to change. This is precisely why AA exists. Exploratory, open conversation encourages omniscience, and equal consideration of all points of view. Exploratory (nonconforming thought) is most likely to be activated when decision makers know they will be accountable to an audience A) whose views are unknown, B) who is interested in accuracy, C) who is reasonably informed, and D) who has a legitimate reason for discerning the reasoning behind members' decisions. If the common goal of the group is accuracy, it allows individuals to feel the common bond, thereby producing proper/accurate reasoning for the good of the group.

The basis for such a group is as follows:
1. Focus on accuracy (instead of confirmation)
    a. Reward truthseeking & focus on accuracy
    b. Have members formulate their own ideas prior to being swayed by others
2. Accountability
3. Openness to diversity of ideas
4. Reinforce exploratory thought

The different viewpoints in the group will ideally point the group in the "most right" direction. In the same way a financial index tracks the market by composing an aggregate number from all the stocks within the index, these truthseeking groups take all available opinions and compose the aggregate decision.

We don't win bets or make proper decisions only if we do what we think is best. We need others to fill in our blind spots and vice versa. We win bets and make proper decisions when we have considered all information (all opinions/facts/knowledge) and have incorporated them into our decision.

The single most dangerous decision-making behavior, however, is forming a decision group (an anti-truthseeking pod) that shares the same opinions and has the same sources we do. The more homogeneous we are in our decision-making communities, the more susceptible we are to confirmatory thought, which hinders our ability to seek the truth.

> **Beware:** Individuals tend to find flaws with arguments they dislike while overlooking the flaws in arguments with which they agree or in their own arguments.

Chapter 5: Dissent to Win

When it comes to information, more is more. Shared knowledge is more valuable than individual knowledge. In a group, if only one person is aware of something the value of that knowledge is less than is everyone in the group were to be aware of that same something. If we ever have the urge to leave out details because they make us uncomfortable or requires further clarification, these are the exact details we *must* share to provide the greatest value to the decision making/bet placing process.

If data is withheld, there is one of two issues going on: the person doesn't realize the relevance of the data or the person withholding the data is providing a biased representation. Sharing all available data that is applicable to decision making or bet placing is critical to extruding accuracy because it generates insight from listeners.

"If you don't like the message, don't kill the messenger." Same goes for information. Even if it's not agreeable, it's essential to seeking the truth/best outcome.

> **Beware**: if you have a negative opinion of the person giving the information, you will naturally close your mind to their message. When we have a positive connotation of the messenger, we become overly accepting of the message without much vetting (red flag: confirmation bias). Both habits are dangerous and harmful to ideal decision making.

How do we de-bias ourselves in these situations? One suggestion Duke provides is to incentivize debating from opposing points of view. Most of the time, this will open our eyes to the opposing standpoint and provide enough evidence to find the proper middle ground. Open-mindedness and empathy (walking in another man's shoes) are the only ways to *truly* learn.

Therefore, when decision making – whether in a boardroom or on the battlefield – the best way to form the final decision is to begin from a place of not being certain.

> In the same way Duke suggests building out a "truthseeking pod" she also suggests creating a group whose sole job is to point out the weaknesses in strategies. This is the method technologies take on when they incentivize hackathons.

Unfortunately, the school system punishes being wrong, thereby causing individuals to be weary of sharing information of which they are not *certain*. However, this often causes individuals to withhold invaluable insights and opinions. Whenever having a conversation to decide and you have a disagreement, restate things you agree with, but instead of following it with "but," then listing what you *disagree* with, follow with "and." The curtness of "but" and the way it immediately negates that which your partner shared makes listeners apprehensive to furthering the conversation. When using "and" you open an opportunity for both you and your partner to elaborate and find common ground.

Chapter 6: Adventures in Mental Time Travel

Humans are irrational. We have a severe issue with present bias: the tendency to favor our present self at the expense of our future self. This is also referred to as temporal discounting. Think of Jerry Seinfield's "Night Jerry" monologue. Night Jerry wants to stay up late, but night jerry never feels the repercussions of his actions. Morning Jerry always feels like crap because he doesn't get enough sleep – not night Jerry's problem. Well, therein lies the issue – it is night Jerry's problem.

Our natural inclination is to temporally discount – it's what our ancestors had to do to survive – use the resources available now instead of saving them for a future time where we may or may not need those same resources. Now in the night Jerry example, his future-self was always regretful of his actions *after* staying up late. Regret after the fact is in no way useful to us. We cannot change decisions we have already made. However, if we are able to reposition our regret to before we make a decision, then we will be armed with the necessary emotions to prevent ourselves from making stupid decisions or bad bets like staying up late.

A strategy Duke uses in her everyday life to overcome temporal discounting is the 10-10-10 rule. This is the process of taking the decision at hand and looking at what the consequences will be in 10 minutes, 10 months, and 10 years. This helps us to frame the decision as if it were in our past and consequently make a better decision in the present. This also helps us from irrationally blowing the present moment out of proportion. If you like finance like me, then you understand the idea of holding a fund over an extended period. If you look at the day to day, you might see the crash that made the market plummet when news of COVID began filling the airwaves. However, if you zoom out and look at the performance over several years, the trend of the market is upwards. We should look at our happiness in the same manner.

> **Beware:** tilt. Tilt is the concept of stringing together several poor or several positive outcomes. Either way, the person in the driver's seat will consequently begin making unjustified decisions because of the sequence of outcomes. This is what causes a partner to come home and get frustrated with a minor disagreement after a rough day at work.

Remember, zoom out and look at the broader picture. The blip of the day at work was an unfortunate string of bad outcomes. Don't let emotions get involved.

The Ulysses (Odysseus) contract is another great method for preventing future irrationalities. Odysseus had his crew tie him to his mast to refrain from becoming entranced by the sirens. In the same way, we can create barriers against our own irrationalities. Examples include carrying only healthy snacks, not going to the mall, taking the long way home to avoid the unhealthy fast-food place. Build out the options you have when making decisions *before* you face the decision, and you will be better off.

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Map out your own future. Assign probabilities to likely variables and outcomes. Create your decision map. Assess how you will go about each decision based on the map and you will be able to best situate yourself to achieve your desired outcome. This is the process of "backcasting." When we identify the goal and work backwards form there, we increase our ability accurately identify the decisions that lead to desired outcomes by over 30%.

Taking that into account, one can become even more expert in creating their own future by predicting likely obstacles to their desired outcome. This is where the assigning of probabilities to variables comes into play. We are more likely to execute on goals if we think about the negative futures that would result from not overcoming the obstacles.

Circling back to the beginning of the book, after they occur, we forget that outcomes were never certain until they happened. Time is a tree. The trunk is the past, the branches are futures, the more probable they are, the thicker the branch. Where the top of the trunk meets the branches is the present. When we look at the past, it seems inevitable what occurred was going to occur: there is one trunk. We forget about the several branches that have fallen over time because decisions were foregone. By remembering all the decision paths that were foregone in favor of the one chosen, you will be better calibrated to make justified decisions moving forward.

> "Life, like poker is one long game, and there are going to be a lot of losses, even after making the best possible bets. We are going to do better, and be happier, if we start by recognizing we'll never be sure of the future. That changes our task from trying to be right every time, an impossible job, to navigating our way through the uncertainty by calibrating our beliefs to move toward, little by little, a more accurate and objective representation of the world. With strategic foresight and prospective, that's manageable work. If we keep learning and calibrating, we might even get good at it."