Communication

Alternative Framings at the Gate: Exploring Beyond 'Thinking, Fast & Slow'

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Introduction

The book titled Thinking, Fast and Slow by Daniel Kahneman,(published by Farrar, Straus and Giroux, New York) gives us in-depth insights into how we behave and what kind of mental shortcuts are functional when we make any decision. The book starts with a very systematic narrative, but somewhere in between, the narration takes us on a tour of all the works of the author over the past forty years. By the time we come to the end, it becomes a bit tedious and repetitive. Yet, it can be acknowledged as a book that introduced a comprehensive view on "Behavioral Economics" to many of us. The insights of the book have had not only a significant impact on psychology but also on other domains like economics, finance, policy-making, law, and so on. The broad topic of his study is that human beings are prone to intuitive thinking, and that intuition cannot be trusted as it is imperfect and does not result in choices or judgments that are statistically correct and economically optimum. The workings of the mind are susceptible to errors that are common to most of us.

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It also talks about the biases of intuition. The biases or heuristics (as termed by the author) signify that while making choices or taking any decision, we automatically assume certain things without cautiously0 thinking them through. The book is divided into five parts. The first part deals with the metaphor of the two systems: System 1 and System 2, which explains how our mind works while taking any decision. System 1 is fast, automatic, intuitive, involuntary, jumps to conclusions quickly, is effortless, and it is more prone to errors. System 2 is slow, processes the available information, it computes, concentrates, and considers other data and does not jump to the conclusion. Relative to system 1, it is less prone to errors.

The second part focuses on heuristics and biases. It explains why we struggle in various situations to think statistically and how our use of rules of thumb or heuristics leads to biased pre-

dictions. Different types of heuristics have been discussed, which come into play in different situations of decision-making. Such is the power of heuristics that despite getting all the information, people do not use it correctly and end up making biased decisions.

The third part deals with the issue of overconfidence. The author uses the concept of WYSIATI (what you see is all there is). It means that the workings of the mind consider only those phenomena that is known to be relevant and for which we have information, termed as Known Knowns. It seldom believes the Known Unknowns; the phenomenon that it knows is relevant, but there is no information about it. It hardly explores the Unknown Unknowns; the relevance of the phenomena is unknown as well as there is no information about that phenomenon. It says that we do not consider the complexity of a phenomenon, and based on minimal information, we make sense of the world, which might be very biased as not it does not take into account all the information which might be influencing it. Also, the mind does not factor in the role of luck or chance and might be overemphasizing any pattern or regularity which might not exist.

The fourth part is about choices. In this part, more economic theories are discussed and what kind of heuristics people use while making economic choices. Of all the theories, prospect theory is the most influential one. There are four assumptions underlying prospect theory. First, choices are made after being evaluated as gains or losses relative to a reference point (which is the status quo). The second assumption is that people are loss averse. Third, when it comes to gain, we are risk-averse and prefer a certain amount to a risky choice (even if the expected value is high), and we become risk-taking when it comes to a loss. The fourth assumption is that in a few situations, we overestimate the likelihood of low-probability events and underestimate the events which have a high probability of happening. This assumption is used to explain the choices where people pay more than they should for lottery tickets or flight insurance.

The fifth part deals with the two selves: experiencing self and remembering the person. The experiencing self is the one that is more embedded in the moments and goes through pain, pleasure, and various emotions. It lives in the moment. The remembering self is the one that records or maintains a diary of the experiences. The author emphasizes that remembering the self dominates experiencing the self, and we recall our experience as it has been recorded by remembering the self than the real experience. The remembering self focuses more on the peak moments and the end moments and how the experience ends decides the overall nature of the experience. Even if one goes through the painful process for a longer time but if it ends well, it will be recorded as less painful than the process, which was painful for a shorter time but ended in pain itself. It is like when we recall our experience, our remembering self dominates the experiencing self.

The insights of this book have not only had a significant influence on psychology but also contributed to changing the perspective of the practitioners of various domains like Economics, Finance, Law, Marketing, Policy-making, etc. The conceptualization of behavioral economics as we know it today would not have been possible without the contribution of Kahneman's and Tversky's work. The frameworks and findings of their research have inspired many studies. For example, Heller et al. (2017) applied the insights of this book to conduct field experiments to reduce crime and dropout in Chicago. Murdock & Sullivan (2013) explained the significance of the ideas of the book for lawyers and how relevant all the insights are for their practice. Sunstein (2005) pointed out the relevance of the findings of the book in the framing of social policies. The book is useful for financial investors as it gives them an idea about the heuristics they might be applying while deciding about investments. It has found its application in different strata. For example, Thaler & Sunstein (2008) support policies that simplify decision-making for people who rely on system 1 in a situation such as deciding to save for retirement where even though system 2 is aware of all the information, it is the system 1 which decides. Many policymakers refer to this book to substantiate their argument that policy maker's decisions are more reliable than common people's opinions as policymakers follow the processing of system 2 while people's opinion is guided by system 1.

System 1 & System 2

The book starts with a description of how the mind works. The author introduces two fictitious characters: the effortless system 1 and effortful system 2 to explain the workings of the mind. Stanovich & West (2000) coined the terms system 1 and system 2, where system 1 is characterized as automatic, mostly unconscious, and relatively undemanding of computational capacity and system 2 is more controlled processes serve to decontextualize and depersonalize problems. This system is more adept at representing in terms of rules and underlying principles. It can deal with problems without social content and is not dominated by the goal of attributing intentionality nor by the search for conversational relevance. Stanovich & West (2000) argue that there is a higher probability that the system 2 will be more dominant than system 1 in individuals with higher cognitive ability. But the first question arises: what exactly is the relationship between system 1 and system 2. Though the dichotomous classification of the working of the mind is an interesting metaphor and shows us the clear distinction between the functions of the two systems when we are thinking, how do both the systems work? Is it like one system is driving the decision while the other is on the back seat? Or is it like they both coordinate and, depending upon the nature of the problem, take the dominant role. When it comes to explaining the dynamics of the two systems, the book does not give any specification. The book is particular in pointing out the systematic errors of system 1. It was like, I am

asked to solve the question using system 1 and with every failure, I could visualize the author chuckling at the failure of system 1 and then asking me to activate my system 2 and see the errors of system 1. The process repeats question after question, and in the end, we start looking at our system 1 or intuition with a tinge of doubt. It is undeniable that the author wants us to be aware of the biases of system 1 and consult system 2 more often than we do.

But there are a few questions. Are we all more of system 1 individual than system 2 individual? The studies were conducted mostly in Israel and US. In that case, does the findings of the book applicable to all the people coming from a different culture, background, demography, status, and with different experiences? There is no doubt that the intuition is more dominant because of our evolutionary history but not being able to answer probability-related questions correctly, does it make us less analytical? It might be because we have not evolved that much to think in the language of numbers. There are many times in life when we have to make decisions for which we don't have all the information and do not have time to venture out for information, what do we do then? How about people who are analytically very intuitive and very fast at solving problems correctly while others juggle for long hours to get to the same point? And most important, despite reading the book, can we stop being intuitive? No. It comes naturally to us. The question should not be, should I work through system 2 more than system 1? The question should be, how can I use my system 2 to make my system 1 more efficient?

Intuition is the language of feelings. There have been studies that signify the importance of intuition over rationality (Bear & Rand, 2015; Gigerenzer, 2007; Issacson, 2011). We have often heard the significance of intuition over rational minds from many studies, instances, and by many great achievers. As Albert Einstein had said,

"The intuitive mind is a sacred gift, and the rational mind is a faithful servant. We have created a society that honors the servant and had forgotten the gift." (Maria, 2017)

Steve Jobs (2011) in his biography had reflected,

"The people in the Indian countryside don't use their intellect as we do, they use their intuition instead, and the intuition is far more developed than in the rest of the world…Intuition is a very powerful thing, more powerful than intellect, in my opinion. That's had a big impact on my work."

Now, one can counter-argue that these are the people who were both; highly rational and highly analytical. Exactly, that is our argument. Rather than seeing the two system as two different entities, there are more efficient ways to visualize the dynamics or the relationship between the system 1 and system 2 which can explain the working of the two systems more efficiently and explain the variations in the dynamics of system 1

and system 2 across people, and cultural variations in the working of mind.

Critique of the Methodology

System 1 is faster than system 2, and it is intuitive. So, to study the dual-process account, it was assumed that the relative reaction times can be one of the ways to identify intuitive choices. For such research, reaction-time (RT) data have been used to conclude that a few options can be intuitive. However, the examination of relative reaction time to distinguish between system 1 and system 2 is ineffective evidence to provide dual-process accounts (Krajbich et al., 2015). The use of behavioral or biological measures to infer mental function, popularly known as 'reverse inference,' is problematic because it does not take into account other sources of variability (subjective-value differences, for example, idiosyncratic individual variability in preferences.) in the data. Krajbich et al. (2015) used two example data sets obtained from value-based choice experiments to demonstrate that, after controlling for discriminability (that is, strength-of-preference), there is no evidence that one type of choice is systematically faster than the other. Their results demonstrate that RT differences should not be used as evidence for dual-process theories.

Replication Issues

Two of the prominent cognitive biases suggested in the book are priming and framing. Priming refers to any sort of exposure (conscious or unconscious) that can make our mind to think about the associated idea. Framing involves the cognitive construction of an event. If the same event is framed differently, system 1 many times construct a different view of an event or a phenomenon. However, further studies on priming have not been compelling (Molden, 2014; Ijzerman et al., 2015; Kido & Makioka, 2014). For 'framing' cognitive biases also, the studies have found replication issues (Cacciatore et al., 2016; Scheufele, 2014). These cognitive biases have been found to be applicable in many areas, but the replication issue makes them a little contentious topic. It might be happening because while designing the experimental studies, the researchers might be missing some mediating variables (Busby et al., 2018).

Regression to the Mean

The author criticizes the common belief that if criticized, one will perform better, and if praised, the level of performance will decrease. According to him, the fluctuation in performance has less to do with criticism or reward and more to do with the concept of *regression to the mean,* which signifies that the fluctuation in the quality of performance is random, and people generally tend to perform around their average level of performance. So, the instructors attach a causal interpretation typically (that the performance decreases after praise and becomes better after criticism) to the inevitable fluctuations of a random process. "Random" is a word that is used for any phenomenon which cannot be explained with confidence. What the author is saying might be true but from a micro behavioral perspective, the same phenomenon can be

explained from two perspectives. The first perspective is based on a very inherent human nature. Any nature of the reward is a kind of confirmation that the effort we had put in our performance has paid off and it was good. As stated by the author, putting the effort in work is a job of system 2, which is inherently lazy. Once rewarded for the effort, it tries to take a short vacation (backstage) and allows system 1 to lead. Especially in the learning phase, when one is asked to perform when system 1 is leading, the performance is not the same as it was during the effortful phase (as system 1 has still not grasped the automaticity of the best performance) and thus it looks like the reward led to the disappointing performance. The same explanation can be given for criticism. Criticism is like a loss. It can be a loss of face in front of your seniors or peers or it can be self-humiliating. We all have a certain image of ourselves which we try to maintain for self-identity. Any criticism feeds back that the current effort is not enough and needs more attention. The situation (we all have a tendency of loss aversion) demands attention, focus, and effort, and thus, it leads to better performance. The second perspective is a self-fulfilling theory (Brophy & Good, 1974; Darley & Fazio, 1980). Over the years, the instructors, coaches see the phenomena of criticism leading to better performance and reward to disappointing performance; they start believing in this phenomenon. So, after rewarding the student, they expect a certain degree of lower performance. Even if the current performance is lower than the previous by a very small fraction, it feeds into the belief of the instructors. The effect of criticism and reward, if studied further, can partially explain the variation if not completely.

Prospect Theory: A Few Issues

One of the assumptions of the prospect theory is that people evaluate risky choices in terms of losses or gains with respect to a reference point. About the reference point, the author specifies,

"*The reference point is basically a stage to which one has adapted; it is sometimes set by social norms and expectations; it sometimes corresponds to a level of aspirations which might or might not be realistic."*

The reference point is not very clearly specified in the prospect theory. Koszegi & Rabin (2006) suggest that the reference points should be rational expectations of future consumption, a proposal that brings in calculated thought. Hart & Moore (2008) believe that contracts serve as reference points for future negotiations. Pope & Schweitzer (2011) find that goals serve as reference points in professional golf. There is a need for further studies to have a clear consensus on what reference points refer to.

Another assumption of the prospect theory is that the people are risk-seeking towards loss and risk-averse towards gain. The assumption was motivated by the research in which people preferred a choice of losing a thousand dollars with a fifty percent probability of a sure loss of five hundred dollars. This assumption received partial support. Thaler & Johnson 's (1990), two-stage gamble

found the behavior (risk-seeking for loss and risk aversion for gain) can change in the second stage of a gamble depending on the mood induced by the consequences of the first stage. The gain at the previous stage can make one risk-taking and loss at the first stage can make one risk-averse for the next stage.

The other assumption is that people attach too much decision weight to highly unlikely events. For example, buying lotteries or overpayment for flight insurance. In the case of overpayment for flight insurance, the thought behind this assumption is that people ignore or are unaware of the lower chances of these events and put a heavyweight on the basis of their fear coming from the memory of the flight accidents. However, the author is ignoring a few variables functional in this context. Even if people know that road accidents are more likely than flight accidents, they will be ready to overpay for flight insurance because the perception of control becomes dominant in the cognitive processes. On flights, even a small error can lead to disastrous consequences. In the case of flights, if something goes wrong, the control is perceived to be less. Driving on the road, or even traveling on the road, seems to be more under control than the flight journey. People under the influence of such a thought process are more likely to overpay for flight insurance despite knowing the lower probability of flight accidents.

Loss Aversion

When we read the theory that we dislike losing more than we like gaining, it seems unsurprising, and we feel that at some level, we always knew it. We feel losses more intensely than gains. It is like there in our system. The loss is the state when something positive goes missing from the status quo. The pain of the loss is clear as the previous status quo is a clear frame of reference, but the gain, in certain contexts, lacks the presence of a clear frame of reference, and though positive, it might not be felt as intense as the pain of a loss.

Intuition Is Just Recognition or Something More?

The author says that intuition is nothing but recognition. According to him, intuition follows the recognition-primed decision model, where intuition decision-making is pattern recognition. But many innovations and discoveries have been claimed to be intuitive, which was more than mere recognition. To recognize, we should have some familiar cues. Still, in the case of discovery or innovation, there is no familiar cue, it just comes naturally to the discoverer or innovator. For example, the discovery of the structure of benzene. Verderese & Roth (2011) mention the dream of August Kekule, where he saw atoms moving in a snake-like fashion. The dream gave him the idea of the cyclic nature of Benzene. We get to hear stories where people acted intuitively and correctly in a very new unpredictable environment. Such stories can be discarded as a random guess, but can we narrow down the boundaries of intuition to mere recognition? Does this assumption explain, if not all, the intuitive decisions but even the majority of intuitive decisions?

Methodology of Identifying Two Selves?

The study done by the author involved asking the participants to put their hands in cold or hot water, and then a few participants were asked to put in relatively normal water. People who experienced normal water after hot or cold were found the process to be less painful than the people who were asked to experience the water with relatively a bit unbearable temperature. In real life, our experience of events is richer than the experimental designs, has diverse elements, and we deal with much more complicated issues. The findings of the study mentioned above can be interesting, but to establish a theory, we need more experiments whose model resembles real-life experiences. For example, if with the same objective, if we try with different experimental designs (different models of inflicting pain and pleasure), would we get the same result or it would be different? Without many studies to back up, the distinction between two selves comes across as more of overgeneralization from a simple study. Also, Kahneman seems to focus more on the storing stage without mentioning anything about the retrieval stage. The context-dependent memory can also explain the same phenomena that when people are asked to put their hand from cold or hot water to normal water, they are made to shift to another context where they cannot exactly remember the intensity of the pain of the previous context. However, in the case of only having experience hot or cold water, one continues to be in the same state of mind and can easily recall the experience of the pain. So, the same phenomenon can be explained from different perspectives. In such a scenario, we need more studies to establish which perspective is more dominant and in which context, one will override the other.

Conclusion

The author has been claimed to be the pioneer in the field of "Behavioral Economics," and even if most of the findings get more nuanced insights with further experiments or also if a few of the findings do not stand the test of the time, one cannot argue against the contribution of the author. In history, he will always be remembered as a researcher who opened a window of thought in everyone's mind when most of us were not even aware that there was one. But as it happens, almost all the theories fail to explain one or the other phenomena, and this leaves the space for further research. The book makes a point to keep an eye on our intuitive, fast system and always to consult the slow, deliberate system 2 (the one which can compute and find logic). But as mentioned, the concept of theory induces blindness in the book, the findings of the book should not let us undermine the importance of system 1. We live in a world that is fast and unpredictable. In the real world, we do not and cannot have all the information as many forces (which influence any event) are intangible and unpredictable. In most of the contexts, we are constrained by bounded rationality. In such a scenario, we cannot disregard the voices of system 1.

As an individual, one's mind, at some level, always juggles between the pursuit of rationality and its disposition towards ir-

rationality. But what we called as rationality has its incompetency. We believe that the world works in a pattern, and once the pattern has been identified, it should be followed rather than using our voices. What we discard is the unpredictable nature of any entity. In quantum mechanics, the uncertainty principle, also known as Heisenberg's uncertainty principle, is of a variety of mathematical inequalities asserting a fundamental limit to the precision with which certain pairs of physical properties of a particle, known as complementary variables, such as position x and momentum p, can be known (Sen, 2014). When in such a predictable world, it is uncertain to precisely identify two complementary variables, it becomes very difficult to assume that we should completely rely on data where so many social, political, cultural, technical, demographic, economic, individual idiosyncrasies, natural forces, etc. are operational every second. In such a scenario, even to believe in system 2 can be questioned. Also, heuristics have their functions. Though they should be questioned, they should not be discarded. The complete way to live is not by becoming very logical, rational, or completely intuitive. It can a state of synch between intuition and logic, and in the case of conflict between them or in the case of an ambiguous situation, one can gather information from as many sources as possible and then can decide, do they want to go for data intuition.

Also, the book evaluates system 1 too much on numbers. If system 1 could not answer the probability question correctly, that does not signify that it is inept. Maybe, it happened because it is not system 1's domain, and it is not system 1's fault if we are not consulting our system 2 for more information and deliberate analysis. The book emphasizes the significance of algorithms, patterns, and predictability. Any success we get by taking an intuitive decision is a random guess, and if it works out its sheer luck, there is no causality related to it. It sounds very logical and rational thing, but does it work like that in real life? Maybe, after reading this, we might decide to push for more information before taking any decision, but will we stop going for our gut feeling? It is a matter of doubt. The purpose should not be to make system 2 the king of decision-making. The purpose should be to make system 1 sharp, to strengthen it, and to make it coordinate and consult with system 2 before taking the decision of forming any opinion.

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