Thinking Fast and Slow

In 1974 an article appeared in *Science* magazine with the dry-sounding title "Judgment Under Uncertainty: Heuristics and Biases" by a pair of psychologists who were not well known outside their discipline of decision theory. In it Amos Tversky and Daniel Kahneman introduced the world to Prospect Theory, which mapped out how humans actually behave when faced with decisions about gains and losses, in contrast to how economists assumed that people behave. Prospect Theory turned Economics on its head by demonstrating through a series of ingenious experiments that people are much more concerned with losses than they are with gains, and that framing a choice from one perspective or the other will result in decisions that are exactly the opposite of each other, even if the outcomes are monetarily the same. Prospect Theory led cognitive psychology in a new direction that began to uncover other human biases in thinking that are probably not learned but are part of our brain's wiring.

Dr. Tversky died in 1996, but Dr. Kahneman went on to become the first psychologist to win the Nobel Prize (for Economics!) in 2002 for his work on Prospect Theory. Now Kahneman has expanded the theory into a broader framework for human cognition and behavior in his new book ***Thinking Fast and Slow*** (Farrar, Straus, & Giroux, New York, 2011), which links psychology to neuroscience and evolutionary biology. According to Kahneman, some of our biases are like optical illusions (he calls them "cognitive illusions"). Take for example the Illusion of Remembering, whereby being familiar with a past event convinces us that we actually experienced it, even if we weren't there. Prospect Theory also led to the discovery of heuristics, or the simple rules the mind uses to solve problems quickly. Take for example the Availability Heuristic, whereby the ease with which we can think of an event convinces us that it occurs more often than it really does.

Thinking Fast and Slow tells the story of two systems which account for much of what humans do in their waking lives. System 1 is the fast, intuitive system. It is the first responder to inputs from the outside world. It assesses the situation quickly and simply, but is biased toward quick action and safety. Thus it tends to jump to conclusions about cause and effect, focuses narrowly on what is right in front of it, thinks in terms of averages rather than specific quantities, evaluates only one thing at a time, and uses only the immediate information available to make a decision. It is also strongly influenced by negative emotion, and its decisions usually result in a positive feeling. In contrast, System 2 takes time and effort. Thinking hard makes us frown and does not lead to immediate good feelings. System 2 frames problems broadly, takes in more information and looks at more alternatives for action than does System 1. System 2 can deal with specific quantities, but it is lazy, does not hurry, and requires a lot more deliberation before it can arrive at a decision.

These two systems provide a framework for understanding much of what goes on inside the human mind. Kahneman's System 1 represents the more primitive system, which was probably adaptive earlier in human evolution and which is still adaptive in many

contexts. This system pervades all aspects of psychology, from perception to learning and memory, emotion, social cognitions, and especially the language we use to think with and communicate with. However, as human existence has become more complicated, System 2 has evolved to adapt to it. The problem is that System 2 makes many more demands on working memory and our ability to shift from one thought to another without losing our place (called executive functioning) than does System 1. These demands make thinking more work and less fun, but without the conscious effort of System 2, we slip back into the unconscious cognitive illusions and heuristics of System 1. Kahneman's descriptions of these little quirks of the human mind are fascinating and draw from a variety of psychological research. Examples include……

Why we are more likely to accept a medical procedure presented as having a 90% success rate than one presented as having a 10% failure rate.

Why it is easier to pick out mistakes in other people than in ourselves.

Why thinking of words like "Florida" may cause us to walk slowly down a hallway.

Why we are more likely to buy detergent than candy when feeling guilty.

Why our memory of a painful medical procedure is colored more by a single intense moment than by how long it lasted.

Why when we go to sell something we hold out for more money than we paid for it.

Why we esteem leaders who make risky decisions and dislike leaders who "play it safe."

Why if given $50 we are more likely to agree to keeping $20 than losing $30.

Why our memory of that lousy vacation last summer was determined by how it ended.

Why first impressions are so powerful in judging other people.

How memories of intense events alter our notions of time.

Why making a decision quickly makes us feel better.

Why the more we think about something, the more important it seems.

If you ever wondered why normally rational people sometimes act irrationally, ***Thinking Fast and Slow*** is the book for you!