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How You Decide
The Science of Human Decision Making

Course Guidebook

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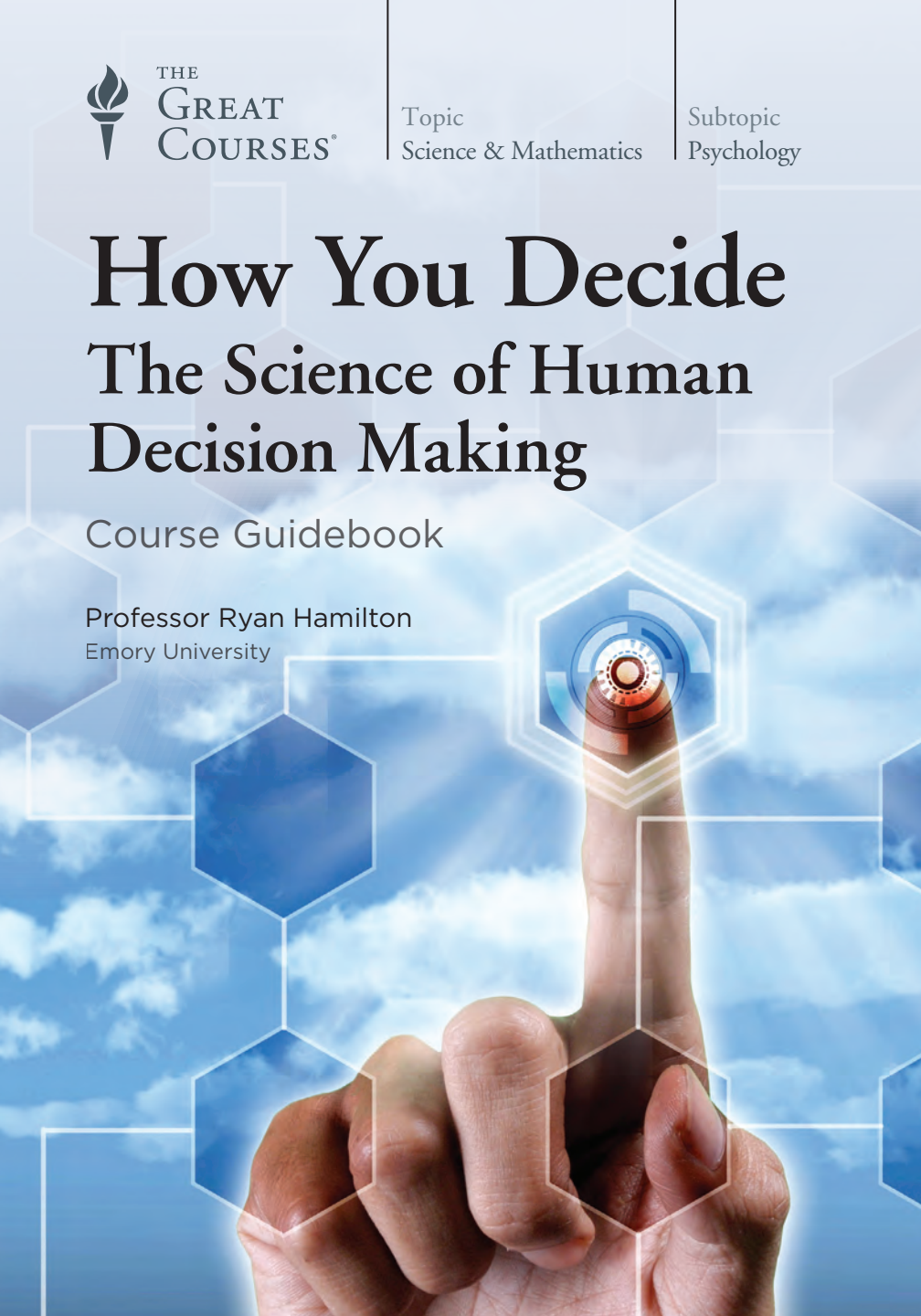

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Ryan Hamilton is an Associate Professor of Marketing at Emory University's Goizueta Business School, where he has taught since 2008. He received his Ph.D. in Marketing from Northwestern University's Kellogg School of Management. He also has a B.S. in Applied Physics from Brigham Young University.

Dr. Hamilton is a consumer psychologist whose research investigates shopper decision making: how brands, prices, and choice architecture influence decision making at the point of purchase. His research generally fits within the school of behavioral decision theory, examining how contextual factors produce decision biases and irregularities. In 2013, he was recognized by the Marketing Science Institute as being among the most productive young scholars in his field.

Dr. Hamilton has received multiple teaching excellence awards from his M.B.A. students at Emory and, in 2011, was named one of "The World's Best 40 B-School Profs under the Age of 40" by *Poets & Quants*, an online magazine that covers the world of M.B.A. education.

Dr. Hamilton's research findings have been published in some of the most prestigious peer-reviewed journals in marketing and management, including the *Journal of Consumer Research*, the *Journal of Marketing Research*, the *Journal of Marketing*, *Management Science*, and *Organizational Behavior and Human Decision Processes*. His findings have also been covered in the popular press, including *The New York Times*, *The Wall Street Journal*, *TIME*, *USA TODAY*, *The Financial Times*, *New York* magazine, and CNN Headline News. He also taught *Critical Business Skills for Success (Marketing)* for The Great Courses.

Dr. Hamilton is the proud father of five young children, which means that he spends much of his time exhausted and slightly rumpled. He is also a former amateur sketch and stand-up comedian and performed in that capacity in clubs and on college campuses across the country. ■

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How You Decide: The Science of Human Decision Making

Scope:

Interest in how we make decisions dates back to some of our earliest cultural stories. Nearly every branch of science and philosophy has weighed in on how decisions are made and how they might be evaluated. In this course, we will investigate the most prominent theories that describe how people make decisions, the various factors that can influence those decisions, and the common shortcuts that can bias the results.

The course is organized around a metaphor of decision making as a manufacturing process. In the first part of the course, we'll discuss the cognitive machinery that ultimately produces decisions. These lectures are about the cognitive processes that underlie decision making, the features of the mind that tend to be general across people.

Although we have only imperfect control over some of our cognitive machinery, we do have some say over how it is used and to what end. In the second part of the course, we will discuss the motivational control panel that directs our decision-making machinery. These lectures are about the motivations people have when making decisions.

The last factor that determines the output of our decision-making apparatus is the input: the information we use when making decisions. This information is the raw material of our decision-manufacturing process. The lectures in this section are about the properties of the options from which we make choices.

The focus of this course is on the fascinating ways this most common of human activities can still surprise us. Decision making—that of others and even our own—can be mysterious, but with the right tools, it can be understood, anticipated, and influenced.

Lecture 1

Thinking Scientifically about Decisions

Protoplast myths, such as the story of Adam and Eve, are stories of the progenitors of a people, a race, or all mankind. They are important because they tell us something about the fundamental values, concerns, and decisions of the people involved in them. As it turns out, in many places and cultures, our ancestors were interested in decision making—particularly bad decision making—and its consequences. We'll take a scientific approach to this topic in these lectures, but all the experiments and theories can't obscure the intriguing and subtle answers to the question: How do we decide? Studying decision making allows us the consistent opportunity to be amazed at the results of our own minds.

Limiting Your Spending

- If your goal is to save money on consumer purchases, experts agree that you should place some limits on yourself before you go shopping. For example, if you want to buy a new TV, you should decide on your level of spending first. That will keep you from getting carried away when you get to the store.

- Although this may make sense from a pragmatic perspective, it's rather unusual advice from a decision-theory perspective.
  - It's not news that people make decisions relative to constraints; we don't often buy as if we had infinite amounts of money to spend.

  - But most theories don't allow for any change from making spending restraints salient. In other words, you only have so much money available to you, and your choices are constrained by that limit. That will be true whether you articulate an amount beforehand or

not. Reminding yourself to not overspend before you go shopping shouldn't matter. Research on this question, however, yields some interesting results.

- In one study, students were paid $6.00 to complete a battery of surveys. Then, they were asked if they would be interested in using some of that $6.00 to buy a pen at a steep discount; 85 students said yes.

- The participants were randomly assigned to one of two purchase-decision scenarios. One group was shown a group of four pens, ranging in price from $0.99 to $3.99. Participants simply chose the pens they liked; then, a research assistant gave them their pens and the $6.00 participation fee, minus the price of the pen they had chosen. People in the other condition were asked to set a spending limit for themselves before they saw the options. Then, they chose from the same set of discounted pens.

- Surprisingly, people who first set a price restraint ended up choosing more expensive pens than people who didn't. On average, people spent about $1.64 when they simply chose a pen. When they stated how much they were willing to spend first, they spent $2.10 on average.
  - Looking at the data another way, when people chose without first thinking about price restraints, about 60% chose the cheapest pen, and only about 2% chose the most expensive pen.

  - In contrast, when people thought about how much they might spend first, the share of the cheapest pen dropped to about 40% and the share of the most expensive pen jumped to more than 12%.

- Why does thinking about a price limit before choosing change what people chose? And why would it make people choose more expensive options?

- Close to a dozen similar experiments were run, and the result was the same: Deciding how much you planned on spending beforehand

caused people to spend more than those who did not initially set a spending restraint.

Decision Making as Manufacturing

- A simple metaphor for breaking down complex decisions is to treat decision making as a manufacturing process. This process requires three things: raw materials to serve as input; machinery that prepares and assembles the raw materials into their final form; and a control mechanism to govern the machinery in the manufacturing process.

- We can treat the "manufacturing" of a decision in a similar way. Each decision is the result of some combination of processes in our cognitive machinery combined with some (imperfect) governance of that machinery via a motivational control panel. These are used together to process the various types of informational inputs that constitute the raw materials in our metaphor.

- Let's begin with the cognitive machinery of decision making. Although there is wide variance in the quality of mental operations from person to person—and even within the same person at times—there are still some similarities in how we process information and make decisions.
  - The two-system model of cognition has recently become popular as a way of explaining the often-divergent decisions people make.

  - There are also some inherent limitations on decision making; think of this as the tolerances, or *bounded rationality*, of our cognitive machines.

- In our manufacturing metaphor, the motivational forces that regulate cognitive machinery come next. Think of them as a brightly lit, extremely complicated control panel. Sometimes, switches flip and dials spin without our being aware of it. Further, some switches and buttons are buried deep within the control panel and are activated by something else going on in the factory that we may not know about.

We can use our cognitive machinery to do an astonishing array of things, but the human mind is not infinitely flexible and runs up against some predictable restraints.

- Each decision is made on the basis of some informational inputs that we feed into the decision-making machinery. In manufacturing, the raw materials tend to be basic and uniform. In contrast, the raw materials that people use to inform decisions tend to be quite complex. Sometimes, objectively equivalent information can lead to different choices, depending on the way that information is communicated. Sometimes, objectively irrelevant information can be incorporated into our decisions and bias our choices.

The Manufacturing Metaphor and Price Restraints

- How might this manufacturing metaphor help us understand the finding that setting a price restraint can lead to more expensive choices? This finding seems mostly to be a raw material effect. In particular, one of the early choices that people make when manufacturing a decision is how much weight or importance to give each piece of informational raw material.

- If you're making a table with the raw materials walnut and maple, you can use mostly walnut and end up with a dark-wood table with light-wood accents. Or you can use mostly maple and end up with a light-colored table with dark accents. The emphasis you put on the different raw materials leads to the manufacture of two outputs.

- The same is true of price restraints. When you set a price restraint, you partition the decision into two stages. Instead of answering the single question "Which option should I choose?" which generally involves making some tradeoffs between price and quality, you ask two questions: "How much do I want to spend?" and "Which option should I choose?" By asking the price question first, you start to break down some of those tradeoffs.

- Suppose you decided that you didn't want to spend any more than $400.00 on a TV. You then go into a store and find two TVs: one medium-quality brand for $350.00 and one higher-quality brand for $390.00. Without a price restraint, you would have to make a tradeoff: Is the better brand worth the extra $40.00?
  - But if you've already decided that you won't spend any more than $400.00, you've essentially already decided that anything up to $400.00 is acceptable, at least in terms of price. Now, you are faced with a choice between a moderate-quality brand at an acceptable price or a higher-quality brand—also at an acceptable price.

  - When framed that way, of course, you would pick the higher-quality, higher-priced option. The result is a tendency to pick more expensive options after setting a restraint for ourselves on spending.

Breaking down the Process

- Decision making is often too nebulous and general to grasp, but if we break it down into three simple components, it becomes much more approachable.

- What is the decision we are trying to understand or anticipate? First, we can ask: What is the informational input? What options does the person have to choose among? How are those options described? In what context will they be evaluated? What decision rules will be used to process and weight that information?

- Next, we can inquire: What are the characteristics of the cognitive machinery that will process that information? What biases are likely to be introduced as a natural result of the way our minds work? How might a person try to make that decision easier?

- Finally, what motivations are likely to underlie a person's decision making? What are the goals or deep-rooted drives that can influence this person?

Scientific Skepticism

- As we saw, the experiments from the beginning of the lecture showed the surprising effects of price restraints on decision making, prompting a number of questions. For example, some people might question whether the effect would still occur if the price restraint were set aggressively low; others might be skeptical based on the fact that some of the studies used hypothetical choices.

- Such criticisms are not out-of-bounds. All these objections concern what scientists call *boundary conditions*—limits on how far a theory can be applied. Boundary conditions let us know that a theory is likely to hold under certain conditions but may not under others.

- Does the identification of a boundary condition undermine the theory? Scientists—particularly social scientists—have identified two ways for a theory to be valid: *internal* and *external validity*.
  - With regard to internal validity: Most scientific research is conducted to test causal relationships: Does A cause B? Does smoking cause lung cancer? Internal validity means that a theory has successfully established a relationship between a cause and an effect.

- External validity is the degree to which findings can be extended (or generalized) beyond the initial settings in which they were discovered.

- Scientists are, of course, concerned with both internal and external validity. But when a tradeoff between the two is necessary—and it usually is, at least to some extent—they tend to side more with internal than external validity. Obviously, if you are in the business of developing theories, it is more important for the theories to be correct than for them to be generalizable, although ideally, they would be both.

- As a consumer of research on human decision making, it's important for you to critique research in a responsible and useful way. You should be skeptical of all research findings, but not all skepticism is equally useful. A threat to internal validity is significant, but when it comes to

No theory related to human decision making will hold all the time and in every situation.

skepticism, incredulity about external validity tends to not be as serious as disbelief related to internal validity. In general, it's important to remember that no theory related to human decision making will hold all the time and in every situation.

Suggested Reading

Larson and Hamilton, "When Budgeting Backfires."

Plous, *The Psychology of Judgment and Decision Making*.

Shadish, Cook, and Campbell, *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*.

Questions to Consider

1. What is the difference between a normative and a descriptive approach to understanding decision making? What are the advantages and disadvantages of each?
2. What is the difference between internal and external validity? Which should scientists care more about? Which type of validity should policymakers, government officials, and business leaders care more about?

Lecture 2

The Two-System Model of Decision Making

Thinkers going back to antiquity have noted that people sometimes seem to be directed by two entirely different centers of control. More recently, empirical psychology has taken a renewed interest in a two-minds approach to understanding the cognitive machinery of human decision making. Today, the systems under study are generally known as *System 1* and *System 2*. In fact, it turns out that as we receive informational input—the raw materials of our decision making—there is more than one type of "machine" through which we can feed that information. And the characteristics of these two types of cognitive machinery can lead to very different decisions.

System 1 and System 2

- From an evolutionary perspective, System 1 is the earlier of the two cognitive systems. This system is automatic and effortless. It is a parallel-processing system, meaning that it is capable of performing multiple tasks at the same time. System 1 is good at making rough estimates, noting correlations, and logging incidences. It also handles the initial screening and processing of perceptual information.

- In an evolutionary sense, System 2 is a relative newcomer, and compared to System 1, it is slow and ponderous. It is a serial processor, meaning that it doesn't multitask well. And it requires us to devote cognitive resources for it to operate properly. However, this system is able to handle diverse tasks. It is also a deliberate system, meaning that we can control and direct it. System 2 is good at making precise calculations, forming and following rules, and making tradeoffs.

- Amazingly, System 2 can train System 1. In fact, some psychologists have suggested that this may be the ultimate purpose of System 2: to teach our automatic system to do new tricks. For example, when you first learned to drive a car, that complex tangle of decisions and actions required your full attention; System 2 was fully engaged. But within a few months, your approach changed completely. You now go through all the same motions and process the same amount of complex information without focusing all your attention on the task.

We can see the process of System 2 training System 1 by observing a toddler who is just learning to walk.

Approval and Override

- Six modes of interaction are possible between System 1 and System 2: approval, override, neglect, influenced, informed, and solo operation. Each of these labels describes the role of System 2 in the process of making a decision.

- Let's begin with approval. Imagine that you are walking down the street and you pass an ice cream parlor. System 1, the repository of all our base desires and instinctual behavior, immediately craves ice cream. System 2, feeling the urge to get some ice cream bubble up from System 1, decides that some ice cream is indeed in order. This is approval.
  - Note that the System 1 response doesn't have to be appropriate, wise, or even factually correct for it to be endorsed by System 2. The response may not even have been closely scrutinized by System 2.

  - Approval means only that System 2 had the opportunity and ability to acknowledge the System 1 response and allowed it to go through.

- In contrast to approval, override takes place when System 2 prevents us from acting on the System 1 response and, instead, overrides it with something it deems more appropriate.

- People differ in terms of how likely they are to override System 1 responses and engage in System 2 processing. Shane Frederick, from Yale University, developed a three-question test of this natural difference.
  - Question 1: A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost?

  - Question 2: If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?

  - Question 3: In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half the lake?

- If you answered $0.10, 100 minutes, and 24 days, you are a typical human being, and you are wrong on all three counts. The real answers are: $0.05, 5 minutes, and 47 days. All three of these questions share a common formulation. They are all questions for which there is an obvious, intuitive answer that is also obviously wrong.

- Frederick argued that this *cognitive reflection test* measures the natural tendency of someone to engage in System 2 processing. For all these questions, an intuitive answer was available and seemed reasonable at first glance. It is only those who truly want to engage in additional processing who will find the correct, nonintuitive answers.

Neglect

- The third way that these two systems can interact is neglect. Neglect takes place when System 2 is distracted, exhausted, or otherwise unable to fulfill its oversight responsibilities.

- A set of experiments published under the title "Heart and Mind in Conflict" investigated decision making under both an override mode and a neglect mode.
  - In one of the experiments, participants were given a choice between eating a piece of chocolate cake or eating a fruit salad. Before making their choice, they were given what psychologists call a *cognitive-load manipulation*. This is a task designed to occupy the participants' short-term memory and keep them mentally distracted. In terms of our discussion, a cognitive-load task is something that requires System 2 processing.

  - In this case, people in the low-cognitive-load condition were asked to remember a two-digit number, and those in the high-cognitive-load condition were asked to remember a seven-digit number.

  - Researchers found that given the choice between the chocolate cake and the fruit salad, 41% of the people who were cognitively

unburdened chose the cake. But among the group who had System 2 occupied with the harder memorization task, 63% chose the cake.

- This is a powerful demonstration of neglect in action. We can assume that, for most people, System 1 always wants the cake. But because System 2 is in charge of managing higher-order goals (such as losing weight), it often overrides System 1.

When System 2 is otherwise occupied, it is less able to restrain System 1 and more likely to allow us to choose the chocolate cake or ice cream through neglect.

- When System 2 is otherwise occupied, such as in trying to remember a long number, it is also less able to restrain System 1. In this experiment, the result was about a 50% increase in the percentage of people choosing the chocolate cake.

Influenced

- The fourth way that these two systems can interact occurs when System 2 is influenced by System 1. This looks similar to override in that System 2 rejects the System 1 response, but in this case, System 1 insidiously biases or influences the System 2 response.

- For example, you walk past the ice cream parlor; System 1 wants you to go inside, but System 2 tamps down that base response. However, even though you passed up one temptation, System 1 keeps thinking about ice cream, below the surface. Later, you find that you have an unexpected urge to dish up some ice cream after dinner. System 2 was initially successful at blocking the System 1 response, but System 1 still influenced the System 2 response.
  - The baseline (control) group answered only one survey. This group got the question "Have you purchased a car in the previous six months?" and about 2.4% answered yes.
  - Another group answered two surveys, delivered six months apart. In the first survey, group members were asked when they planned on purchasing their next new car, with the options ranging from six months or less to never. Then, about six months later, this group was asked whether they had purchased a new car in the last six months.
  - The researchers were interested in the following question: Does answering a neutral survey question about when you might buy a new car increase the likelihood that you will actually buy one?
  - The baseline condition—the nearly 5,000 people who responded to the survey just once—included about 2.4% who had recently

purchased a new car. In contrast, in the treatment condition—the 3,500 who were first asked when they planned to buy a car, then asked if they had recently bought a car—the purchase rate increased to 3.3%. That may not seem like much in absolute terms, but remember that the subject here is buying a car and that the only manipulation was a single question on a mail-in survey. The overall purchase rate increased by about 50%.

- This is known as the *mere measurement effect*—the idea that simply asking people about a possible behavior can increase the likelihood that they will engage in that behavior. It may be one manifestation of a System 2 response being influenced by System 1. When asked when they are likely to buy their next new car, people engage in a kind of mental simulation, considering what life would be like with and without a new car, and at least some of this consideration process engages System 1. That seed, once planted in System 1, can eventually flower into something that influences System 2 choices, even the decision to buy a car.

Informed

- The fifth type of interaction between the two systems occurs when System 2 is informed by System 1. System 1 can provide information about how easy or hard it is to recall something or to generate examples of something, and that information can be used by System 2 when making judgments and decisions.

- For example, you might try to assess how reliable Hondas are by trying to think about times you have seen a Honda broken down on the side of the road. As you do so, System 1 can helpfully provide the information that generating examples is difficult. System 2 could then use that information to determine that if it is hard to come up with examples of broken Hondas, then Honda must be a reliable brand.

Solo Operation

- The last way to characterize the interactions between these two systems is solo operation. System 1 is a wonderfully complex and capable set of cognitive machinery, but it can't do everything, and for the things it can't help with, System 2 is on its own.

- For example, for most people, System 1 can't help with doing long division or balancing a checkbook. Unless you have specifically trained your System 1 to do these types of tasks, then System 2 must engage in solo operation.

Suggested Reading

Kahneman, "Maps of Bounded Rationality."

———, *Thinking, Fast and Slow*.

Questions to Consider

1. Define the two systems in the two-system model of decision making. What does System 1 do? What does System 2 do?
2. What are the various ways that System 1 and System 2 interact when making a decision? Think of examples from your own life or observations from others that might be characterized as each type of interaction.

Lecture 3

The Role of Heuristics in Decisions

So far, we've been laying the groundwork for understanding our cognitive machinery—those common mental processes and functions we all share. And we've used the two-system model of decision making. The popularity of this model is due, in part, to the efficiency with which it explains many different kinds of decision phenomena. We'll spend the next several lectures exploring some of the implications of this two-system model as they relate to decision making. In this lecture, we'll look at the role of heuristics in decision making and how some common heuristics can be explained by the two-system model of cognition.

Defining *Heuristic*

- A *heuristic* is a way of simplifying a complex process. In psychology, it almost always refers to simplifying the process of making a judgment or a decision. Common heuristics include educated guesses, rules of thumb, trial and error, and stereotyping and profiling. None of these heuristics guarantees a correct decision, but they will serve you well most of the time.

- Heuristics simplify things in ways that increase the likelihood of arriving at an acceptable outcome. Many heuristics operate by substituting an easy-to-solve problem for the hard-to-solve problem to which you really need an answer. Common heuristics also tend to leverage the strengths of our cognitive machinery and minimize the weaknesses.

- The most interesting types of heuristics for decision researchers are those that are not deliberate rules we set for ourselves but common shortcuts that seem to be universal. A few heuristics have been especially important to understanding human decision making, including anchoring and adjustment, availability, and representativeness.

Anchoring and Adjustment

- People use the anchoring-and-adjustment heuristic when making numerical estimates. The basic idea is that when you need to produce an estimate of something, such as someone's height, you tend to start with some number that you know, then make some adjustment based on the particulars. If you were to try to estimate how tall someone is, you might start with the knowledge that the average man in the United States is 5 feet, 10 inches tall and try to estimate how much taller or shorter your subject is from that starting point.

- These kinds of estimates are a common precursor to many of the decisions we make. Are you going to invest in a rental property? That decision will involve some estimate about the likely return on the investment. Should you start a garden this spring? That decision will probably be based on an estimate of how much time it will take to plant and tend the garden.

- People often run into two particular problems when using the anchoring-and-adjustment heuristic. The first is that they sometimes start with an inappropriate anchor. The second is that when people adjust, they tend to under-adjust, sticking too close to their starting point.

- Suppose someone were to ask you to estimate the temperature at which water boils at the top of Mount Everest. You probably know that at sea level, water boils at 212° F. You may even remember that the boiling point changes depending on air pressure. If you had started with 212° as an anchor and adjusted from there, you'd likely be fairly close to the real answer. But that's not the answer researchers received when they ran an experiment using just this question.
  - First, before participants gave their estimates, the experimenters asked them to answer one of two questions: (1) whether the boiling point of water at the top of Mount Everest was above or below 50° F or (2) whether it was above or below 500° F.

  - The initial question wasn't hard to answer, but simply asking the question was enough to cause people to fall into of one of the

traps of anchoring and adjustment: They started their estimates using the wrong anchor. It is as if System 1 was influenced by the salience of another number intruding just at the moment when the initial anchor was being generated.

- People who were asked whether the temperature was above or below 500° estimated an average temperature of 274°. Those who were asked whether it was above or below 50° estimated 134°.

- People may have assumed that the anchor in those questions was intended to be informative. But what if the number clearly and obviously had nothing to do with the estimate at hand?
  - In another demonstration of anchoring, researchers asked participants, "What percentage of countries in Africa are members of the UN?" But before accepting answers, the researchers spun a wheel—right in front of the participants—to generate a random number. Participants were asked whether the percentage was higher or lower than that random number, then were asked for their own estimates.

  - For example, when the wheel stopped on 10, participants were asked whether the percentage of African countries in the UN was higher or lower than 10%. Then, they made their estimates. The median estimate in this case was 25%. In the case where the experimenter spun a 65, the median value was 45%—a full 20% higher.

- To understand how anchoring and adjustment works, let's go back to the two-system model of cognition.
  - Recall that one of the ways the two systems interact is in the influenced mode. Here, System 1 provides some response, but System 2 disagrees and stops the System 1 response. Instead of a clean override, however, System 1 influences or biases the response, even if we are not aware of it.

  - Anchoring and adjustment might be considered another example of System 1 influencing the System 2 response. The results of

research on anchoring and adjustment suggest that System 1 can become fixated on a salient number—even numbers completely unrelated to the task at hand—and that those unrelated numbers can influence the System 2 response.

Availability

- People use the availability heuristic when they are trying to determine the likelihood of some event. These likelihood estimates affect all kinds of decisions, such as which colleges to apply to, where to eat lunch, or whether to buy travel insurance.

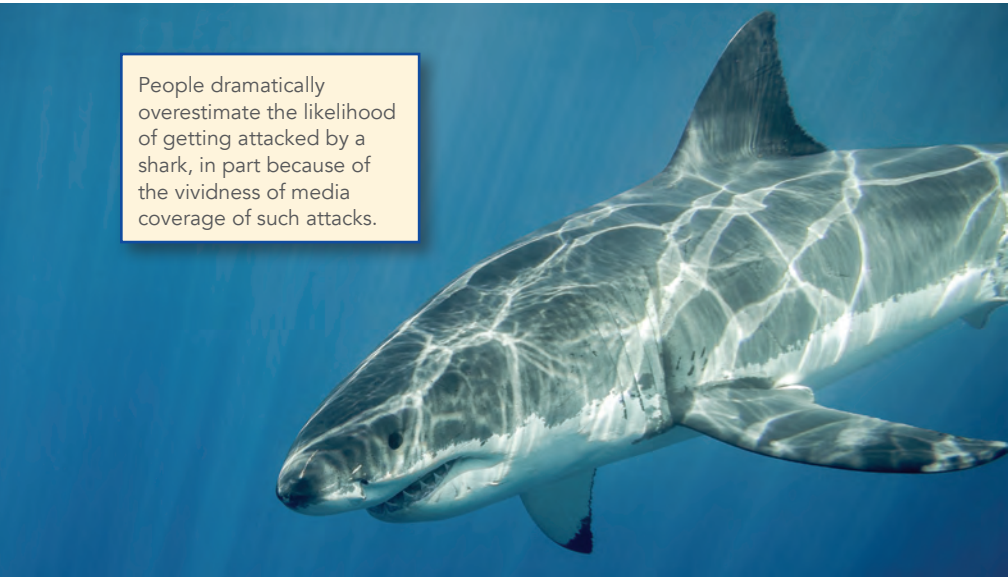
- Availability substitutes an easier problem for a more difficult one. For example, if you are estimating the likelihood of a flood in your area in the near future, you might try to think of examples of floods in areas similar to yours. If it's easy to think of examples, then you may estimate the likelihood of a flood as relatively high.

- Availability is an example of an informed interaction. In other words, the System 2 response is informed by evidence provided by System 1 about how the mind works—in this case, how hard it was to remember something or imagine some outcome. With availability, your own effort becomes the input to your estimate.

- The problem here is that many things can influence how easy it is to bring something to mind that have nothing to do with the likelihood of the event happening. In general, things that are more familiar, more recent, and more vivid will all be easier to recall or imagine. That means that the likelihood of events with any or all of those properties tends to be overestimated.

Representativeness

- Representativeness is like availability in that they are both ways of estimating probabilities. But where availability uses ease of recall as a cognitive shortcut, representativeness uses the representative



People dramatically overestimate the likelihood of getting attacked by a shark, in part because of the vividness of media coverage of such attacks.

characteristics of a category, schema, or stereotype to determine likelihood. Basically, representativeness is useful when you are trying to determine the likelihood that some specific thing is a member of some category.

- Representativeness generally works fairly well most of the time, but it can present two problems. The first problem relates to the *law of small numbers*. Any good statistician will tell you that to draw reliable conclusions about a population, you need a large sample of observations from that population. The law of small numbers refers to the misguided tendency people have to believe that small samples should be representative of a population. Essentially, they ignore or misunderstand the potential for variability in small samples.
  - Suppose you took a fair coin and flipped it four times, getting a tail each time. You then asked a friend to place a $10.00 bet on the outcome of the next flip. If your friend is like most people, he or she will put money on the flip coming up heads. Essentially the

logic goes like this: Your friend knows that a fair coin should come up heads as often as it does tails; four tails in a row means that heads is now "due."

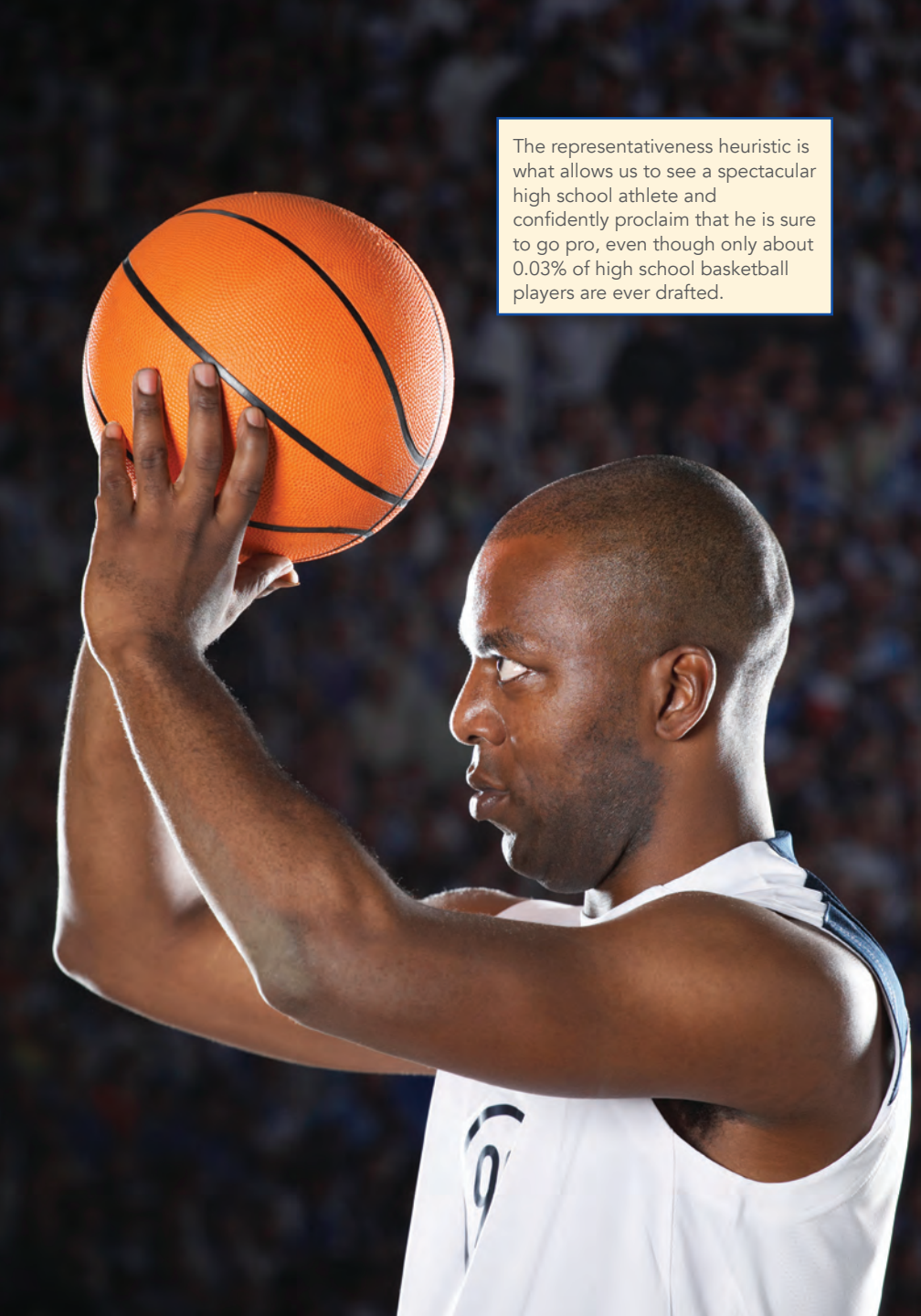
- But the coin doesn't have a memory. It doesn't know which side came up the last time it was flipped. Each flip is as likely to come up heads as tails, regardless of what happened in the past.

- To demonstrate the second problem with representativeness, consider this question: If you observe someone on the subway, what is the likelihood that that person has a Ph.D. versus not having a college degree? To make that kind of estimation, you'd probably start by looking the person over and trying to determine whether he or she "looks" like someone with a Ph.D. or someone without a degree.
  - Let's suppose you see this person doing something that seems intelligent, such as reading *The New York Times Book Review*, while riding the train. Surely, that would increase your prediction that this person has a Ph.D. In this case, you are using whatever evidence is available to improve your judgments, and that's not entirely wrong.

  - The problem here is that people make adjustments based on new information, and they often completely neglect the base-rate probabilities when they do.

  - Reading the *New York Times Book Review* seems as if it's a thoughtful and scholarly activity—characteristics we tend to associate with those who have a Ph.D. Thus, because this person resembles a stereotypical Ph.D. in a few important ways, we jump to the conclusion that he or she is likely to have a Ph.D. People may even say that, based on the evidence, it is more likely that the person has a Ph.D. than no degree at all.

  - But such estimates completely disregard the base rate, that is, the likelihood that a random stranger on a train would hold a Ph.D. It



The representativeness heuristic is what allows us to see a spectacular high school athlete and confidently proclaim that he is sure to go pro, even though only about 0.03% of high school basketball players are ever drafted.

turns out that less than 1% of the U.S. population has a Ph.D., and about 70% do not hold college degrees.

- Unfortunately, representativeness causes many problems related to stereotyping. For example, evidence suggests that far too often, hiring decisions are made not based on information that actually correlates with eventual performance but, instead, on how well the person fits the stereotype of someone who does that job.

Suggested Reading

Kahneman, Slovic, and Tversky, *Judgment under Uncertainty*.

Tversky and Kahneman, "Judgment under Uncertainty."

Questions to Consider

1. What is the purpose of a heuristic? Why do people use them? What are the advantages and disadvantages relative to more effortful and accurate forms of decision making?
2. For which types of decisions might a person rely on each of the three heuristics discussed in this lecture? Think of times when you or someone you have observed may have used each heuristic.

Lecture 4

How Habits Make Decisions Easier

In this lecture, we'll talk about habits, specifically, how they're formed and what can trigger them. Psychologists already know a number of important features of habits: First, habits require some kind of cue or trigger to activate them. Second, habits are formed when the decisions or behavior triggered by some cue results in a consistent reward over time. And third, habits work by shifting something that would normally be a deliberative, effortful decision into an easy, automatic one. We'll also see that the two-system model allows us to better understand habits.

Habits and the Two-System Model

- The prototypical habit is a bad habit, something we wish we didn't do but we find ourselves doing anyway, such as humming while working or smoking. From a psychological perspective, those are definitely habits, but habits are also much broader than that. When we think about habits, we shouldn't limit ourselves to just automatic behaviors or even just to specific actions. Habits can also be any general tendency to respond to particular cues in predictable ways. Such cues can include the activation of certain desires or motivational states, the availability of certain memories, and the salience of certain decision strategies.

- As we've learned, one of the predominant theories researchers use to characterize our decision-making machinery is the two-system model of cognition. We have one slow, deliberate, effortful system—System 2. This is the conscious mind, the part of the self to which we have direct access. And we have one fast, automatic, effortless system—System 1. This two-system model provides us with one way of understanding habits.

- One of the evolutionary benefits of having two cognitive systems, according to psychologists, is that the higher-order System 2 can train the lower-order System 1 to do repetitive tasks.
  - This is a significant advantage to us because System 2 consumes attention and energy and is generally able to do only a limited number of things successfully at one time. System 1, in contrast, can be thought of as more or less free from a cognitive resources perspective. If we can train System 1 to take over some of the tasks that we currently have System 2 doing, System 2 can work on other, more important things.

  - This is the true benefit of habits; this is why we have habits and why, ultimately, they are a good thing for us as a species, even if they occasionally work against our better interests.

  - From a psychological perspective, habits are a general tendency for System 1 to respond in a certain way, based on exposure to a particular cue or trigger. Habits turn what would have been a deliberative, System 2 decision into a habitual, System 1 decision.

Training System 1

- Training System 1 to adopt certain habits can be difficult but not because System 1 is a bad student. In fact, in almost any situation, System 1 is looking for opportunities to help; to automate what it has been programed to automate; to provide memories, emotions, or intuitions that seem as if they might be relevant to the situation at hand. Sometimes, System 1 provides just the information you need. More often, it provides the information you need, along with irrelevant information. And sometimes, System 1 is simply way off.

- As an example, one study examined people who frequented live sporting events. The researchers hypothesized that people who go to these events often develop habitual behaviors associated with being at a game.
  - In the study, the researchers subtly exposed participants to pictures of large stadiums and arenas. In particular, they had participants

perform a visual search task, in which the background images were of either sports venues or kitchens. Then, in the context of an ostensibly unrelated task, they measured how loudly the participants spoke. They found that participants who had been exposed to images of a stadium actually spoke louder than people who had been exposed to images of kitchens.

- The logic is that when exposed to the image of a stadium, System 1 jumps to attention. The stadium activates some of the thoughts, memories, and feelings typically associated with being at a sporting event. And one of the common behaviors for those attending live sporting events is that you typically need to speak much louder than usual to be heard by others. System 1 remembers this and helpfully pushes closer to the surface the intuition to speak louder, leading to the incongruous response of speaking louder even when there is not a need to.

Triggers

- The most straightforward kind of trigger comes when some kind of environmental stimulus—some sight, sound, smell, taste, or touch—kicks off a habitual behavior.
  - For example, most animal-training programs use a simple pattern of stimulus-response-reward, reinforced through repetition. This is called *conditioning*.
  - The animal becomes aware of some stimulus, such as a particular verbal command. If the animal performs some action after sensing the stimulus, then it receives a reward. Over time, it starts to understand that certain behaviors, when performed after the stimulus, elicit rewards; thus, we get habitual animal responses.
- One way to think about habits is as the conscious System 2 mind training the intuitive System 1 mind into automatic responses through the simple process of stimulus-response-reward. Indeed, the major difference between habit formation and animal conditioning is not in

System 1 recognition of certain environmental cues can lead to all kinds of habitual decision making, such as the trigger of finishing dinner in a restaurant leading to the habitual decision to order dessert.

the process itself. Rather, it stems mostly from the fact that humans are much more flexible in terms of what can serve as stimulus and what can serve as reward.

- When you are training an animal, you are fairly limited in terms of stimulus. Depending on the animal, you can use some verbal commands, hand signals, or a whistle. But when you're training yourself, the sky's the limit. Even something situational and somewhat nebulous, such as the end of a meal, can serve as a cue that can kick off habitual behaviors, including a craving for dessert, coffee, or a cigarette.

For many people today, simply doing nothing now serves as a trigger to check their phones.

- The other way habit formation differs from animal conditioning is in the breadth and variety of things that can serve as rewards. When scientists train rats and pigeons in a lab, the reward is usually a food pellet. A family pet might get trained using treats, attention, and affection. And people respond to the same types of rewards: food, affection, and approval. But people also respond to a much broader set of rewards, including cognitive efficiency.
  - As you recall, habits are valuable because they free up System 2 to do other things. The cognitive savings achieved can serve as a reward that can lead to a habit.

  - Much to the consternation of marketers, many of our common purchases are the result of habitual decision making. When buying toothpaste, most of us don't start with a complete survey of all the toothpastes available on the store shelves. We don't carefully weigh the performance of all options every time we go to the store and only then reach a purchasing decision.

- Instead, we tend to stick with the same brand we've always bought, because making thorough and well-informed decisions can be exhausting. Avoiding that work is a reward that can motivate the formation of habits.

- Alleviating boredom can also serve as a reward. This is the primary reason that many of us have formed the habit of reaching for our phones any time we find ourselves with a few minutes of peace. We find being alone with our own thoughts aversive. Indeed, some research found that when experimenters gave people the choice between sitting alone and doing nothing and receiving mildly painful electric shocks, people chose to endure physical pain rather than be bored.

- Finally, habits among humans can form much faster than conditioning can train an animal.

Summing Up Habits

- Why are good habits in particular so difficult to form, while bad habits can form so quickly? The answer mostly comes down to reward reinforcement. For most of us, the activity of running offers some distant, nebulous rewards. If we go running every day, we may live a little longer, but that's time at the end; we're not getting that extra time in our 20s. That reward seems very diffuse. In contrast, the reward of not getting up early to run is immediate and palpable: You get to sleep longer. It's not hard to understand why sleep wins out over running for so many of us in the habit formation war.

- Habits are not insurmountable, uncontrollable urges. Because we sometimes talk about habits in the context of chemical dependencies—such as smoking habits or drug habits—we may conclude that habits are forces compelling us to behave in one way or another, things that are nearly impossible for us to resist.

- Although that certainly is an accurate description of some habits, remember that to psychologists and decision researchers, habits

describe a broad class of cognitions and behaviors. Some are powerful and consuming, but many are just a general inclination to behave in a certain way—or to choose in a certain way—based on exposure to some specific cue or trigger.

- The reason habits are important in understanding decision making is not because they are so powerful as to be irresistible, but because we are so willing not to resist them. When we think of habits as trained System 1 responses, then we understand that habits will lead to actual decisions and behaviors only when System 2 either approves or neglects System 1 urges. Habits don't allow System 1 to highjack our minds and our decision making.

- Habits fit into a class of simplifying decision processes that includes heuristics and simplified decision rules. Like all these simplifying processes, habits are generally adaptive; they allow us to make decisions more efficiently. But as is also true of simplifying processes, this efficiency comes with some tradeoffs—namely, that habitual decisions will most often be those that appeal to System 1. And unless we are very careful in training System 1, those habitual decisions can easily become decisions we regret.

Suggested Reading

Duhigg, *The Power of Habit*.

Wood and Neal, "A New Look at Habits and the Habit-Goal Interface."

Questions to Consider

1. Why do people form habits? What advantages do habits provide?
2. What is the process by which habits are formed and reinforced? How can you use this knowledge to break a bad habit?

Lecture 5

Self-Regulation and Choice

In this course, we've described decision making as a machining process, in which our cognitive machinery processes raw informational input into the choices we ultimately make. The two-system model of cognition helps explain some of the strengths and limitations of our cognitive machinery. But like any machine, our cognitive machinery requires resources to run properly. One of the resources that our minds require to function well and make good decisions is known as the *executive resource*, or the *ego resource*. When this resource runs low, certain cognitive operations—especially those that require self-control or self-regulation—tend to not work as well.

Executive Function

- The executive function is one important feature of which System 2 is in charge, but the two are not equivalent. The executive function is the control room of the brain, the part that directs the rest of the mind and the conscious. And it is where self-control resides.

- The executive function is a set of cognitive faculties spread across the brain. Executive resources are theoretical constructs used to describe and explain observed phenomena.

- The executive function is in charge of many things, but its self-regulatory functions are primarily related to four domains: attention control, emotion regulation, impulse override, and behavioral modification.
  - Attention control directs the attention where it should be, rather than where it seems to want to go.

  - Emotion regulation is fairly straightforward. Sometimes, you feel some strong emotion, such as anger, but you are in a setting where it is inappropriate to express that emotion, such as at a staff

meeting. Emotion regulation is that part of the executive function that keeps you from getting fired.

- Impulse control is any tamping down of base urges. It allows you to stick to your diet and keeps you from blurting out what you really think of your friend's new dress.

- Finally, behavioral modification takes place when you change some ingrained or automatic behavior.

- One way of generalizing across all four of these domains is that they all describe a situation in which System 2 is trying to override a System 1 response. Thus, one way to think about executive function failures is as System 2 failing to reign in System 1.

When the executive function does not have enough resources to function properly, we start seeing more System 1 responses slip through—more emotional outbursts, more cheating on diets, more skipping the gym.

Resource Depletion

- Ironically, self-regulation is often what leads to self-regulation failures. In other words, whenever we exercise self-control in the four domains, we are consuming some portion of the limited pool of resources required to further operate the executive function.

- Consider the executive function as a machine requiring fuel to run properly. When you use a machine to do some work—say, your lawn mower—you consume some of the fuel from the fuel tank. You may be able to mow two or three times without having to worry about the fuel reserves. At some point, however, the work done by the machine will have burned through all the fuel, and the mower will stop working and won't work again until you replenish the fuel supply.

- You can think of executive function in the same way. Exercise self-control every once in a while, and there is no problem. But exercise a great deal of self-control over a short period of time, and the self-control "machine" runs low on fuel and stops working as well. Those resources will replenish with time, but over the short term, it's possible to run low.

- Of course, there is no separate fuel supply for each domain of self-control. We don't have one gas tank for sticking to a diet and a different one to keep us from venting our frustrations. There is a unitary executive resource that powers our unitary executive function. Thus, any taxing bit of self-regulation in any domain is likely to leave us prone to self-control failures in another domain.

Research in Executive Resource Depletion

- There are essentially two ways that depletion effects collide with decision making. The first we've already talked about: When our resources have been depleted, the decisions we are likely to make change—especially when those decisions involve exercising self-control. When executive resources are not available, we tend to favor System 1 decisions.

- The second way that ego depletion interacts with decision making is that decision making can cause depletion. According to some recent research, the act of making a decision is an act of the executive function and, as such, consumes some of those precious resources that are also required for self-control. The result is that after making decisions, we may have fewer of those resources available for other things, such as self-regulation.
  - Researchers have run a number of experiments to investigate this phenomenon. In one study, some people were asked to make basic consumer choices in such categories as t-shirts, scented candles, and shampoos. People in the other condition saw some advertisements and were asked to rate how much they liked them.

  - After this, everyone had to perform a self-control task: to plunge his or her arm up to the elbow in a vat of freezing-cold water and hold it there as long as possible.

  - Those in the control condition, who made no choices beforehand, were able to hold their arms in the water for, on average, 67 seconds. People who had previously made several simple decisions were able to hold their arms under water for only about 28 seconds.

- In another study, researchers intercepted people coming out of a shopping mall and administered a survey asking them about their decision making during that day's shopping.
  - At the end of the survey, participants were faced with a page of 100 addition problems that each required summing two 3-digit numbers. People were asked to do as many as they could but were also told that they could quit any time they wished.

  - Consistent with the initial hypotheses, the researchers found that the more decisions the shopping-mall customers had made and the harder they had worked on their decisions that day, the fewer math problems they were willing to do and the fewer they got right.

Many businesspeople find it helpful to wear suits of only one or two colors to minimize the decision-making energy they must use throughout the day.

- Other research into a specific depletion effect investigated the effects of mindset switching. For psychologists, *mindsets* refer to any group of cognitive procedures that are geared toward preparing a person to react in a particular way. But we can think of these as what happens any time you mentally "switch gears" or take on different perspectives. When you think about a particular problem in multiple ways, you are probably engaging different mindsets.
  - The researchers hypothesized that mentally switching gears required self-control, and as such, it consumed self-regulatory resources. The researchers also hypothesized that among the different types of mindsets or mental gears that people use are those associated with different types of decision-making strategies.

  - Note that people can use different rules or strategies for making a decision based on the same set of underlying information. Some decision rules emphasize motion and action—for example,

by eliminating options one by one until there is only one choice available. Other decision rules are more deliberative, actively comparing alternatives in a thorough way before making a choice.

- The researchers suspected that these types of decision rules were different enough that they might activate different mindsets in the people making the decisions. That meant that anyone required to switch between different styles of decision making would be especially likely to get depleted.

- This hypothesis was tested in a number of experiments. Participants made choices in 10 categories: cell phones, refrigerators, apartments, camcorders, athletic shoes, PDAs, pillows, vacuum cleaners, deodorants, and MP3 players. In each category, they had to choose among 5 options, each described by several attributes.

- Participants were also instructed exactly how they were to make their decisions. Some were told to make their decisions in a thorough and deliberative way, comparing each option to all the others on every attribute. Other participants were told to make their decisions in a way that emphasized motion by eliminating the options one at a time until they had a winner. Most important, some participants were instructed to switch between those two decision styles on every other choice.

- The dependent variable came from a different self-regulation domain: emotion regulation. People watched several minutes of a funny stand-up comedy routine while their facial reactions were filmed. They were told to show no emotion as they watched the funny clip. The dependent measure was how successful people were at suppressing their emotions and maintaining a neutral expression versus cracking the occasional smile.

- On average, people were found to be about twice as bad at maintaining a neutral expression when they switched back and forth between decision strategies as they were when they used a

single decision strategy. In short, changing the strategy or rules one uses to make decisions consumes executive resources, increasing the likelihood of self-control failures later.

- This result was found to be true when people had to switch mindsets of all kinds—switching from thinking about something in an abstract way to a concrete way, or switching from approach to avoidance mindsets, or even switching between languages for bilinguals. Every time people switched between mindsets, they were subsequently worse at self-regulation relative to people who did the same tasks but didn't switch mindsets.

- The implications of this research are that people should try to avoid switching mental gears too frequently. If you have a job that requires you to wear multiple hats—such as an accountant who does both auditing and forecasting—it might be worthwhile to chunk those tasks so that you are not switching back and forth throughout the day.

Self-Regulatory Depletion

- If we think about depletion as primarily driven by trying to resist System 1 impulses, we should remember that the same things will not deplete everyone equally. For example, for those who have never smoked, resisting a cigarette requires no self-control. For a long-time smoker, in contrast, System 1 has been trained to respond to the rewards of smoking. For that person, resisting the urge to have a cigarette requires effort from the executive function.

- The last thing we need to remember about self-regulatory depletion is that these effects are temporary. Our cognitive machinery can run low on resources in the short term, but over time, these resources replenish. Understanding how depletion works helps us understand the cognitive machinery of decision making better, and it may even help us make better decisions ourselves.

Suggested Reading

Baumeister and Tierney, *Willpower*.

Baumeister and Vohs, "Self-Regulation, Ego Depletion, and Motivation."

Questions to Consider

1. Describe the role of the executive function in decision making. How does it facilitate or inhibit the choices we make?
2. What domains are subject to self-regulatory depletion? What types of decisions might be influenced by depletion effects?

Lecture 6

The Value Curve and Human Decisions

If you are interested in the cognitive machinery that manufactures decisions, then behavioral anomalies are gold mines. Those settings and situations where people consistently diverge from clean, rational models are clues about what is really going on inside a person's mind. The godfathers of modern decision science are Nobel Prize–winner Daniel Kahneman and his longtime research partner, Amos Tversky. They called their fledgling decision model *prospect theory* because it was largely developed by examining how people evaluated different gambles, or prospects. The part of prospect theory that we will focus on in this lecture is called the *value curve*.

The Value Curve

- The value curve takes objective value on the horizontal axis—something concrete and easy to measure, such as money—and translates it into subjective value—how happy it makes us or how much we like it. If we were completely unbiased in our assessments, this curve should be a straight line running at a 45-degree angle through the origin. We would value $1.00 as $1.00, and each additional $1.00 would be valued the same as any other. That would make sense, but that's not the way our cognitive machinery works.

- Instead, the value curve is not straight but more S-shaped. This S-shaped function has three properties that describe the process of how our minds translate objective value into subjective value: (1) The curve has a reference point at the origin that serves as the zero point; (2) the curve is characterized by diminishing sensitivity; and (3) the curve is kinked at the zero point, such that it is steeper in the domain of losses than it is in the domain of gains.

Reference Points

- The idea behind reference points is that almost every evaluation we make is not made in absolute terms but, rather, is relative to something else. Interestingly, these reference points are quite fluid and contextual—even arbitrary. We are so dependent on reference points that when we don't have good ones, we are often willing to use unimportant, erroneous, or even irrelevant reference points to make decisions.

- Reference points are why infomercials always suggest a comparison price for whatever they are hawking and why sales promotions always tell you what the retail price was before it was discounted. If you were to evaluate the lower price in isolation, you may or may not even know that it was reduced. But the pre-discount price serves as a reference point.

Objectively, it doesn't make sense that someone who wins third place should be happier than someone who wins second, but such evaluations are highly dependent on reference points.

- Reference points can also affect how we evaluate our own successes and failures. In one study, psychologists Victoria Medvec, Scott Madey, and Thomas Gilovich showed that in sporting competitions, bronze medalists are often happier than silver medalists.
  - For silver medalists in the Olympics, the natural reference point is gold; these athletes are painfully aware that they were almost the best in the world at something.
  - For bronze medalists, the reference point is fourth place—getting nothing at all. They are generally thrilled just to be on the stand.
- In another study, the behavioral economist Dan Ariely informed his students that he would be performing a poetry reading and passed around some sign-up sheets to allow them to reserve their spots.
  - Some of the students received sheets asking them whether or not they would be willing to pay $10.00 to attend the reading; a subsequent question asked how much they would be willing to pay if not $10.00. Other students got a similar sheet, but they were asked whether they would be willing to attend if they were paid $10.00 to listen. They were then asked the same question about willingness to pay for a ticket.
  - When students were first asked whether they would come if they were paid $10.00, everyone subsequently demanded payment to have to listen to the reading. In contrast, when students were first asked if they would pay $10.00, all students indicated that they would be willing to pay some money to attend the reading.
  - By making an unpleasant task seem like something to be sought after—something worthy of paying money for—people assumed it must actually have some value. When the reference point was negative—when people were offered money to endure the poetry reading—they concluded that it must be bad, and they all demanded payment for their attendance.

Diminishing Sensitivity

- The second property of the value curve is *diminishing sensitivity*. The idea here is that the further we get away from the reference point, the less sensitive we are to changes in the objective value.

- If we return to the graph of the value function, diminishing sensitivity looks like a curve that gets flatter the farther we get from the origin. The larger the magnitude on the horizontal axis—which measures objective value—the harder it is to get an appreciable change on the vertical axis—which measures subjective value.

- This idea was first articulated by a Swiss mathematician and physicist named Daniel Bernoulli in the early 1700s. The basic idea is that the more we have of something, the less we value more of it.
  - Everybody appreciates being given $10.00, but how much you appreciate it depends on how wealthy you are. If you have nothing, you will appreciate that $10.00 a great deal. But if you're a millionaire, it's probably not going to be that exciting.

  - Kahneman and Tversky added to Bernoulli's idea by pointing out that this principle holds not just for absolute wealth but relative to whatever the reference point happens to be.

- One example is based on a famous study conducted by the behavioral economist Richard Thaler. Suppose you were shopping at a store for a jacket and a calculator. You find a jacket you like for $15.00 and a calculator you like for $125.00. As you are checking out, a sales clerk says, "You know, this exact calculator is on sale for $5.00 off at the other branch of this store, about a 20-minute drive away."
  - When Thaler asked a group of people whether they would be willing to drive across town in this situation to take advantage of the discount, only about 30% said they would.

  - A different group of people was given a similar vignette, with the jacket now costing $125.00 and the calculator, $15.00. Once again, the sales clerk let people know that they could drive 20 minutes

On average, the larger the dollar value of an item, the less sensitive we will be to differences in prices.

away to save $5.00 on the calculator. This time, almost 70% of participants said that they would be willing to go to the other store.

- The same effort would have to be expended to save the same $5.00, but because of diminishing sensitivity, a $5.00 discount on $125.00 feels like much less than a $5.00 discount on $15.00. And that's enough to motivate a change in the decision to drive 20 minutes.

Loss Aversion

- *Loss aversion* describes the fact that people tend to be much more sensitive to losses than they are to gains of equal magnitude. In concrete terms, losing $10.00 feels much worse than winning $10.00 feels good.

- You can see this principle in action if you ask people how much upside they'd demand in order to flip a coin where the downside is they lose $10.00. Suppose I offered you a gamble in which I flip a fair coin and you call it in the air. If you're right, you win $10.00, but if you're wrong, you lose $10.00.
  - The expected value of this gamble is zero; thus, a cold, rational evaluation of the bet gives you no particular reason to play. But suppose I offer you a gamble with a positive expected value, such as $10.10 for a win against $10.00 for a loss. If you're like most people, you still wouldn't play.

  - For most people, the gamble would have to be closer to $20.00 for a win against $10.00 for a loss before you'd be willing to take it. Across numerous similar studies, psychologists' best estimate for the size of loss aversion is about 2.1. In other words, the gain of a particular gamble must be about twice as large as the loss for people to want to take the gamble.

- And loss aversion is not limited to gambles. Some marketing professors ran an experiment in which they asked students at a university whose basketball team had just gotten into the NCAA Final 4 this question: What is the most you would be willing to pay for tickets to see the team play? The average was $166.00. The marketers then asked another group how much money they would demand to sell those same tickets. The average was $2,411.00, roughly 15 times more. This is known as the *endowment effect*. Once people feel that something is theirs, giving it up feels like a loss.

- On the value curve, loss aversion is represented by the fact that the curve is much steeper in the domain of losses. As it is usually represented, the slope of the curve on the negative side of the graph is about twice as steep as the slope on the positive side.

- Another example of loss aversion comes from religion. Most major religions have in common a belief in some kind of cosmic justice to be

doled out in the afterlife: punishment for the wicked and reward for the virtuous. Many religions preach both heaven and hell, but they don't always emphasize them to the same degree.

- Some researchers looked at the relative beliefs in heaven and hell using some data from international value surveys. All told, they got responses from more than 140,000 people in 67 countries. They created a belief index for each country by subtracting the proportion of people who believed in heaven from those who believed in hell.

- The researchers then looked at the actual behavior of the people in each country. One way religious beliefs can be evaluated is through the lens of how those beliefs affect the everyday decisions of people in those cultures.

- The researchers correlated belief in heaven and hell with national crime statistics and found a significant relationship between those two variables. The less a country believed in hell relative to heaven, the more crime took place in that country. And that was true across the religions under study.

- The value curve elegantly represents three key insights that drive much of human decision making: First, in making decisions, we are heavily dependent on reference points; second, as magnitudes get larger, we get less sensitive to changes; and finally, whether it's betting on a coin toss or deciding whether or not to break the law, we are more sensitive to losses than we are to comparable gains.

Suggested Reading

Kahneman and Tversky, "Prospect Theory."

Tversky and Kahneman, "Advances in Prospect Theory."

Questions to Consider

1. What are the three properties of the value curve? What does each property mean with regard to how people make decisions?
2. Prospect theory has proven to be one of the most influential theories in all of social science. Why do you think that is? How do you think this theory might be applied outside the fields of psychology and economics? The theory has also generated some strenuous opposition. Why do you think that is?

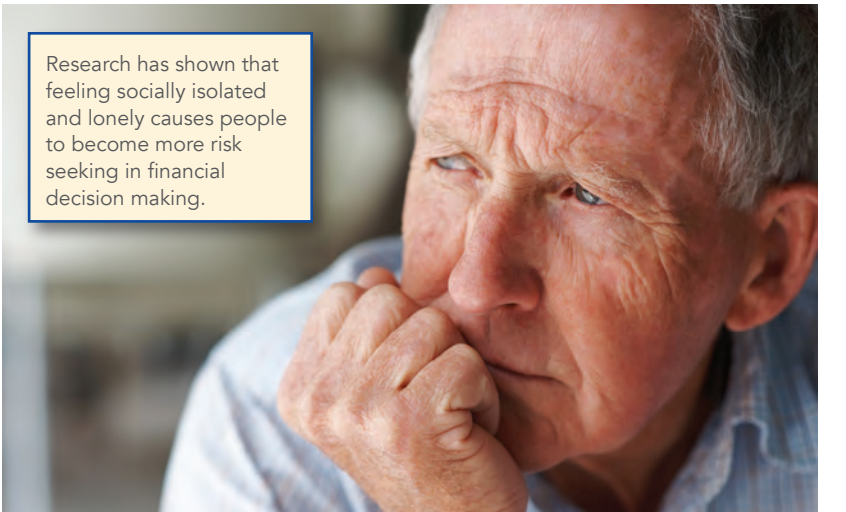
Lecture 7

Emotional Influences on Decision Making

In this lecture, we'll discuss the role of emotion in decision making, that is, how feelings can influence our decisions. Recall that we've divided the topics related to decision making into three groups based on where they fit in the process of "manufacturing" a decision. There is the informational input, which constitutes the raw materials we use to construct decisions, and there is the control panel we use to control the decision-construction process. We'll talk about both those topics in subsequent lectures. Emotion fits in the category of cognitive machinery—those characteristics of our shared cognitive capacities and processes that can transform information, under the guidance of motivation, into a decision.

Emotion and Decision Making

- So far, we've taken a *bounded rationality* approach to understanding our cognitive machinery. We've talked about the limits our cognitive



Research has shown that feeling socially isolated and lonely causes people to become more risk seeking in financial decision making.

machinery is under, and how those limitations lead to predictable biases in judgments. But we've still taken a mostly rational, logical approach to understanding decision making (a *cold cognition* approach). In taking this tack, we've followed the prejudice of decision researchers and philosophers going back hundreds of years.

- It's not that early theorists didn't understand that emotion plays a role in decision making. But because decision research is often undertaken from the perspective of trying to improve or optimize decisions or of trying to understand rational or boundedly rational choices, emotions were seen as largely a distraction.

- In essence, emotion (*hot cognition*) was set up in opposition to the quasi-rational, cold-cognition processes that were supposed to drive decision making. This perspective—that emotion's role in decision making is mostly a distraction that impairs decision making—has a pedigree going back to Plato. It is only relatively recently that many

Early theorists argued that emotions would make "real" decision making worse and would do so in mostly uninteresting or uninformative ways.

decision researchers have started to adopt the view that emotions might be more than distractions in the decision-making process; instead, they are an integral part of the cognitive machinery of decision making.

- Opening the study of decision phenomena to the influence of emotions has led to a host of fascinating findings. For example, a June 2003 article in *The Journal of Finance* investigated the relationship between the weather and stock-market returns. The authors collected daily market performance data from the main stock exchanges in 26 countries over a period of 15 years; they found that there was a significant correlation between sunny mornings in the cities where the exchanges were located and positive daily returns.

- Another group of researchers, this time publishing in *Applied Economics Letters*, studied the association between the performance of the English national soccer team and the financial performance of England's stock market, as measured by the FTSE 100 index. They uncovered two interesting relationships.
  - First, the performance of the national football club was associated with predictable changes in the market. There was a mild positive effect when the team won but a much larger negative effect when it lost.

  - Second, this relationship between national team losses and stock market performance got stronger the further the team got into tournament play. If the English team lost in an international match, that was bad. If it lost during a tournament-qualifying round, that was worse. On the few occasions when the English national team made it to a finals game in a tournament and lost, that was terrible. The stock-market losses the next day averaged 0.4%.

Decision Making without Emotion

- The neuroscientist Antonio Damasio has built a case that although emotions can clearly bias decisions, the absence of emotions does not

necessarily lead to better decision making. In fact, in some cases, the absence of emotions can leave a person unable to decide at all.

- Damasio and his colleagues worked with people who had a specific, localized kind of brain damage. Sometimes, the damage came naturally, but most often, it was caused by surgery to remove tumors or fix some other problem.

- Damasio's team was interested in people whose brains had been damaged only in those areas that process emotions. They found that patients with this kind of localized damage—this inability to process emotions—were, cognitively speaking, high functioning. Many had very high IQs, but they were unable to make decisions.

- When asked a simple question, such as which restaurant to go to for dinner, the emotion-impaired respondents will start listing advantages and disadvantages associated with each option—and they won't stop for 10 minutes, 20 minutes, or more.

- It appears that without emotional cues (Damasio's *somatic markers*) people are, in many instances, incapable of moving beyond deliberation to actually committing to a course of action. Based on the work of Damasio and others, it now appears that the rational and emotional systems are not constantly at odds. Instead, emotion is absolutely necessary in decision making; without emotion, our decision-making machinery simply won't run properly.

Incorporating Emotions in Models of Decision Making

- One of the more prominent theories that emotions are integral to decision making is known as the *appraisal-tendency framework*. This theory was developed by Jennifer Lerner from and Dacher Keltner. Appraisal-tendency is built primarily around the argument that understanding the role of emotion in decision making requires understanding the influences of specific emotional states because distinct emotions can lead to different outcomes.

- Before the appraisal-tendency framework was developed, most research on emotion and decision making tended to focus only on the valence of the emotion (the intrinsic attractiveness or aversiveness of an event, object, or situation). Basically, researchers looked at whether decision making under positive emotions differed from decision making under negative emotions. Lerner and Keltner argued that emotions are more complex and nuanced than just positive and negative.

- Based on some earlier research, Lerner and Keltner asserted that emotions can be described by a matrix of six attributes that explain what each emotion does to someone: certainty, pleasantness, attentional activity, anticipated effort, personal control, and responsibility.
  - Pleasantness: whether the emotional state is pleasant or aversive
  - Attentional activity: whether the emotion causes people to become more alert and attentive versus being more relaxed and sedate
  - Certainty: describes the degree to which the future feels predictable and understandable
  - Control: refers to how much one feels that individual agency can alter the current situation
  - Anticipated effort: an assessment of how much physical or mental exertion might be needed in the near future.
  - Responsibility: describes the extent to which one feels that blame or credit for a situation can be assigned to someone or something specific.

Utility of the Appraisal-Tendency Framework

- To illustrate how the appraisal-tendency framework might be useful, consider anger and fear. Both of these have the same valence: negative. But they differ on most of the other six appraisal tendencies.

- For example, anger tends to be associated with a high degree of certainty, elevated levels of perceived individual control, and an assumption that specific others bear responsibility for problems. In contrast, fear is associated with a low degree of certainty and reduced perceived control.

- These differences lead to different predictions about how these two negative emotions affect decision making. We should expect someone who is angry to be more likely to choose action than someone who is sad, for example. Because sadness is associated with less certainty and less individual control, it tends to lead to passive decisions and inaction.

- Ironically, some emotions of opposite valence remain similar on many other appraisal dimensions. Happiness, for example, tends to be high on certainty and individual control. This makes happiness similar to anger in some important ways.

- One of the predictions derived from the appraisal-tendency framework is that some emotions are associated with feeling confident in one's own judgments and others are not. For example, disgust and happiness are both characterized by high levels of certainty, even though one is a negative emotion and one is positive. Fear and hope, in contrast, are both associated with low levels of certainty.
  - Some psychologists from Stanford used an autobiographical emotion-recall task to induce different emotional states in a group of participants. People were asked to remember a time in which they felt disgust, happiness, fear, or hope and to write a short essay about that experience.

  - After they re-experienced one of those emotional states, participants were asked to perform an ostensibly unrelated task: making predictions about the future. Participants indicated both their predictions and their levels of confidence in those predictions.

  - Consistent with the predictions of the appraisal-tendency framework, the participants who had previously felt disgust and

happiness—the two high-confidence emotions—indicated they were significantly more confident in their predictions than were participants who felt fear or hope—the low-confidence emotions. The valence of the emotion had no effect on the confidence ratings.

- Another set of researchers, led by Lisa Cavanaugh of the University of Southern California, built on this idea that individual emotions are characterized by specific attributes. They investigated the differences among several positive emotions with regard to prosocial decision making.
  - They found that positive emotions of all kinds tended to increase prosocial behavior toward close others, such as local charities. However, this boost from positive emotions did not extend to prosocial choices that would benefit distant others, such as international charities.
  - The one exception was love. When feeling love as a generalized emotion, people were generous to everyone, regardless of distance. The researchers argued that love has a property of seeking to broaden connections with others, while other positively valenced emotions lack this characteristic.
- Finally, researchers from New York University and Columbia University examined the differences between anxiety and sadness on decision making—in particular, on the risk preferences that drive particular types of decision making. Consistent with the appraisal-tendency framework, these researchers found that negative emotions would lead to different types of decisions because they are associated with different levels of perceived control.

Conclusions on the Appraisal-Tendency Framework

- The latest evidence suggests that emotions are not the enemy of cold, calculating, rational decision making. In fact, it appears that emotions are absolutely vital to decision making. Emotions are an indispensable component of the cognitive machinery that allows us to make decisions.

- It is not the case that we may simply consider whether someone is in a good mood or a bad mood and anticipate his or her decision response from that.

- In fact, decision researchers have identified many important dimensions on which specific emotions differ; even seemingly similar emotions, such as love and compassion or anxiety and sadness, can differ on a number of dimensions. Those attributes can lead to the engagement of different cognitive gears and, ultimately, to different decision outcomes.

Suggested Reading

Duclos, Wan, and Jiang, "Show Me the Honey! Effects of Social Exclusion on Financial Risk-Taking."

Hirshleifer and Shumway, "Good Day Sunshine: Stock Returns and the Weather."

Lerner, Li, Valdesolo, and Kassam, "Emotion and Decision Making."

Questions to Consider

1. What are some of the ways that emotion aids or facilitates decision making?
2. What are some of the specific appraisal tendencies on which emotions differ?

Lecture 8

How Goals Guide Our Decisions

This lecture marks our transition from discussing the machinery of decision-making—the cognitive processes involved in making choices—to the control panel we use to direct that machinery. The idea here is that our cognitive machinery must be directed toward some end—some goals that determine how the machinery is to be used. Just as some machines can be used for different purposes by adjusting the settings, we can think of the same basic sets of cognitive procedures being bent toward different ends, depending on the needs, goals, and desires of the decision maker. In this lecture, we'll focus on goals as one of the knobs on the control panel. Goals direct our cognitive machinery in specific directions.

Defining *Goals*

- Goals are psychological representations of desired end states. Most psychologists who study goals define *end states* rather broadly—essentially, something, big or small, that would be different from the way the world exists now.

- The psychologists James Austin and Jeffrey Vancouver argued that end states can be "outcomes, events, or processes." They can "range from biological set points … (e.g., body temperature) to complex cognitive depictions of desired outcomes (e.g., career success)." Such goals are motivational in the most basic sense: They are the reason we engage in actions.

- When we think of goals, we tend to think of something aspirational, to be worked on over time, such as getting a master's degree. But to a psychologist, grabbing the blanket and throwing it over your legs because your feet are cold is also a goal-driven behavior. The desired end state—warmer toes—drove the decision to get the blanket. In

thinking about goals, keep in mind that broad, higher-order goals reflect just a tiny portion of all the motivated behavior in which people engage.

- Goal theorists have long argued that the gap between reality—the world as it currently is—and our desired end state creates a kind of psychological tension within us. That tension motivates decision making and, ultimately, actions. This idea was first championed by Kurt Lewin, a German psychologist in the 1930s. According to this *tension systems* view, a need is created by the gap between goal and reality, and needs generate tension. Because this tension is unpleasant, people move to resolve it by reducing the need and, thus, fulfilling the goal.

- Goals can be distinguished from other psychological constructs in part because once they have been activated, they tend to be enduring. In fact, evidence shows that under some circumstances, an unfulfilled goal will actually get stronger over time until it is fulfilled.

Goal Hierarchies

- One way to think about goals is in terms of *goal hierarchies*. In 1943, Abraham Maslow proposed a goal hierarchy with the most basic or foundational needs at the bottom and progressively higher-order needs on top: physiological, safety, belongingness, esteem, and self-actualization. Unfortunately, researchers who have investigated the hierarchy have found little evidence to support the notion that people rank goals in the way Maslow proposed.

- We could argue, however, that the list of goals Maslow created shouldn't be completely disregarded. In business school, students learn about frameworks, which are useful because they organize information in a way that makes it easier to understand and interpret. We could put Maslow in the same category. The hierarchy makes predictions about goal-driven behavior that cannot be supported. But as a framework, it organizes goals into different categories, which can expand our view of what types of needs can motivate decision making.

Intrinsic and Extrinsic Motivation

- One area that researchers have investigated when looking at how motivation influences choices is the distinction between intrinsic and extrinsic motivation.
  - *Intrinsic motives* are those that respond to internal rewards or punishments. We engage in some behavior because we like it, because it seems like the right thing to do, or because we would feel guilty if we didn't.
  - *Extrinsic motivations* are those that respond to external rewards or punishments. We may do something because we're paid to, because we anticipate receiving praise, or because we'll have to pay a fine if we don't do it.
- Interestingly, research so far suggests that providing an extrinsic motivation often kills the intrinsic motivation or, at least, reduces its strength. One fascinating study was conducted at daycare centers in

The intrinsic sense of duty to help a friend is powerful, but if your friend offers you an extrinsic reward, you may think twice about the same request.

Israel that had a strict policy about pick-up time. At each of the daycare centers, there were about 10 late pick-ups per week.

- Two behavioral economists worked with the owners of these facilities to introduce a fine to see if that changed the compliance rate. A fine of about $3.00 per child was levied against parents who were more than 10 minutes late. Normatively, we would expect the fine to increase compliance.

- But within about a month of introducing the new policy, late pick-ups had doubled. The researchers argued that the extrinsic motivator of a small fine reduced the strength of the intrinsic motivator—guilt—that had kept parents compliant before.

- The basic finding here is that offering an extrinsic motivator appears to actually dampen the intrinsic motivation that had previously existed.

Goal Pursuit

- One of the key determinants of goal pursuit is the perception of progress. It turns out that whether we think we are making progress toward a goal is a significant driver of how hard we continue working on it. But exactly how perceptions of progress affect us can be complicated.

- One goal pursuit prediction is based on an observation made in the 1930s by an animal psychologist named Clark Hull, who worked with rats. Hull found that the rats ran progressively faster the nearer they got to a reward, and he labeled this observation the *goal-gradient hypothesis*. This hypothesis recently received renewed interest as a possible phenomenon in humans.

- In 2006, Ran Kivetz, Oleg Urminsky, and Yuhuang Zheng of Columbia University published a series of studies looking at customer behavior at a coffee shop, based on a punch-card loyalty program.
  - Kivetz and his colleagues tracked each punch on the card and when the free coffee was redeemed. Sure enough, the closer people got

At a coffee shop, a group that was endowed with phantom progress toward the goal of receiving free coffee returned to the shop more frequently and was more likely to complete all the purchases required to get the reward.

to receiving the reward, the more frequently they stopped by the coffee shop to make another purchase.

- In a separate study, once people redeemed their free coffee rewards, they were given another punch card to start the process over. But after the initial loyalty card had been redeemed, people reset back to their old purchase frequency.

- In another test, the coffee shop gave out two versions of the loyalty card. Randomly, customers got a card that required either 10 or 12 purchases to redeem a reward. But for the 12-purchase customers, the baristas immediately punched the card twice—just to be nice.

- Both groups needed 10 purchases to get free coffee. The group with no initial punches took 15.6 days to make 10 purchases and

redeem the reward. But the group that had two free punches to start off took only 12.7 days to make the same 10 purchases.

- We might conclude that perceived progress leads people to work harder toward a goal, but that's only true sometimes. In another study, participants were given an arrow to color in to indicate how far they were from their ideal weight. If you were three pounds from your ideal weight, you would color in an arrow up to the three-pound mark.
  - Everyone was asked the same question, but the size of the number line they were given to indicate an answer differed across conditions. For some participants, the number line went up only to 5. This meant that no matter how far you were from your ideal weight, you started coloring in that line and you just kept coloring. The effect was to make people feel very far from their goals.

  - In contrast, the rest of the participants saw a number line that went up to 25. For this group, most weight-loss goals required only a little bit of coloring. This condition imbued people with a false sense of progress.

  - After completing the coloring task, participants were given a gift: a choice between a chocolate bar and an apple. The goal-gradient hypothesis would predict that when people feel close to their goal, they should accelerate toward it and choose the apple.

  - Interestingly, in the condition where people felt far from their ideal weight, less than 60% of participants chose the chocolate bar over the apple. But in the condition where people were made to feel that they were closer to attaining their goal, 80% chose the chocolate.

  - As it turns out, perceived goal progress can sometimes motivate us and cause us to work harder. But sometimes, perceived progress can license us to slack off. When people felt as if they were closer to their ideal weight, they felt less pressure to restrain themselves. It weakened the goal, and they picked the indulgent option.

- When does perceived progress toward a goal motivate us, and when does it license us to shirk?
  - Recall the conditions under which Hull initially identified the goal-gradient phenomenon. The rats were pursuing some known objective—food—and they accelerated as they got closer to that reward. The cases where subsequent researchers have identified goal-gradient phenomena in people are similar: With a known objective—free coffee—people accelerated their purchases as they got closer to the reward.

  - But many of the goals we pursue in life are not of that type. Often, we are not pursuing some narrowly defined and clearly understood objective. We want something more nebulous, such as happiness, success, or security. And even the intermediate goals we set to get there—such as reaching some "ideal" weight—are not definitively rewarding in the same way that the food pellet at the end of a maze would be.

  - Unless someone is going to give you a car when you reach your ideal weight, then there is no real prize. If you achieve that goal, you congratulate yourself, but then you need to wake up the next morning and choose between a banana and a Pop-Tart all over again. And it is for these "softer" goals, with no definitive end and weakly defined rewards, that we might expect licensing.

- In fact, one commonly given bit of advice for people pursuing goals is to not tell others about your goals—and the reason is licensing. When you tell someone you are planning on starting a diet, just the act of talking about the goal can be registered by a part of the brain as making progress toward that goal. After all, if you're telling people you're on a diet, you must be doing pretty well—that's got to count for something.

Suggested Reading

Fishbach and Dhar, "Goals as Excuses or Guides."

Gneezy and Rustichini, "Incentives, Punishment, and Behavior."

Kivetz, Urminsky, and Zheng, "The Goal-Gradient Hypothesis Resurrected."

Questions to Consider

1. How do intrinsic and extrinsic motivations differ from each other?
2. What is the goal-gradient hypothesis? When might we expect a goal-gradient effect, and when might we expect a licensing effect?

Lecture 9

Reason-Based Choice

We would expect that asking someone to choose an option from a binary set should result in the same basic outcome as asking someone to reject one option from that set. But when one of the options is average (impoverished) and another has both strong advantages and disadvantages (enriched), people's decisions are sensitive depending on whether they are asked to choose or reject one option from the set. In other words, people make decisions as if they were looking for a reason to choose or reject each option. Of course, saying that people make choices based on reasons is not a terribly groundbreaking insight. The important point here is that sometimes reason-based choices lead to strange outcomes.

Inconsistencies in Reason-Based Choice

- One way reason-based choice can differ from normative, rational, consistent models of decision making is by changing the weight we put on various attributes in making decisions. Psychologist Eldar Shafir showed that the way a decision task is framed can naturally lead us to weight information differently when making decisions. If you're asked which option to reject, you tend to over-weight negative information—reasons to reject. If you're asked to choose, you tend to over-weight positive information. This can lead to different outcomes in settings where we should expect consistency.

- Another way reason-based choice can be problematic is that people sometimes rely on irrelevant reasons for choosing one option over another. In our lecture on heuristics, we saw how common it is, when making difficult decisions, for us to substitute an easier but less accurate question for a harder but more accurate question. The same thing can happen with the reasons we use to make decisions.

When people are making decisions, they may try to negotiate a tradeoff between such factors as price or quality, but they still sometimes make decisions based on reasons that have no relevance to the products.

- As we all know, some companies run promotions offering incentives that are not related to the products they sell. For example, you might buy several packs of batteries, then mail in the UPC labels in exchange for a golf umbrella.

- As long as it covers its costs, this kind of promotion should be strictly a good thing. People shouldn't stop buying the product because of the promotion. After all, if they don't want the umbrella, they don't have to send in the UPC labels.

- A group of marketing professors, however, made a different finding. They looked at this issue from a reason-based choice perspective and found that if you are looking for reasons to choose one brand of batteries over another, the fact that you don't need a golf umbrella could serve as a reason not to choose the brand that's running the promotion.

- Choosing a battery because it costs less, will last longer, or is more reliable are all reasonable justifications for the choice. But not choosing a particular brand of batteries because you don't need a golf umbrella isn't germane to the decision at all.

- It's possible that people use such promotional offers as quality signals. They may think that the promotion itself is a sign that the product isn't worth the price being charged. However, some experiments have ruled out this explanation.
  - In one study run at the University of California at Berkeley, undergraduate business students were asked to imagine that it was several years in the future and they had decided to pursue an M.B.A. They had gotten into two schools (UCLA and Northwestern's Kellogg School of Management) and were asked to pick one and give some reasons for their choice.

  - Participants were given a paper survey and were told that the experimenters had decided to save paper by printing two short surveys per page. There was a chance that some of the participants

would get a form on which the survey on top had already been filled out by another student. If that was the case, students were instructed to ignore the other person's answers and just fill out the survey on the bottom half of the page for themselves.

- Of course, everyone got a survey that had already been filled in by an experimenter, indicating whether that student would choose Northwestern over UCLA. For half the participants, the "student" who had taken the top survey chose Northwestern but did not give any reasons for the choice. For the other half, the previous survey taker had chosen Northwestern because he or she had relatives in Chicago.

- Learning that some random student has family in Chicago should not influence another student's choice of schools, but interestingly, it did. The choice share of people choosing Northwestern over UCLA dropped from 43% to 23% (a 20-point drop) when students got a survey listing the reason for the choice as having many relatives in Chicago.

Entrapped by Reason

- We often use reasons inappropriately to ease decision making, but our reliance on reasons can also entrap us and make what should be easy decisions more difficult.

- In one experiment, conducted by Professor Itamar Simonson at Stanford, students were asked to imagine that it was the end of the fall semester, that they were feeling tired, and that they had just taken an exam that they weren't sure they had passed. If they failed the exam, they would need to take it again after the winter break.
  - Students had also just been presented with an attractive vacation package to Hawaii for an exceptionally low price. But the special deal would expire tomorrow, and they wouldn't know whether they passed the exam until the day after tomorrow.

- Students were given three options: (1) Buy the vacation package now, (2) pass on the package, or (3) pay a nonrefundable $5.00 fee to reserve the chance to buy at the discounted price in two days—after they found out how they did on the exam. Most students (61%) chose to pay the $5.00 fee and wait to buy the vacation package until after they had learned the outcome of the exam.

- Simonson and his colleagues presented the same hypothetical situation to two additional groups of students, but in this case, people already knew the outcome of the exam. Half the students were told that they passed the exam, and half were told they had failed and would need to retake the exam after the break.

- Amazingly, both groups responded in almost exactly the same way. Whether they had passed or failed, about 55% chose to purchase the vacation.

- In this scenario, the outcome of the exam didn't matter in determining whether or not students would go on the trip; instead, it provided reasons for going. Those who passed could treat themselves, while those who failed could recuperate so that they were fresh to study for the exam again.

- The reasons themselves didn't appear to matter much—and either outcome would provide an equally viable reason for choosing to go. But until the exam question was resolved, students wouldn't know which reason to use. This need to find a reason to justify our decisions can actually complicate the decision-making process. If we look for a reason and can't find one, we can be stymied.

Irrelevant Attributes

- One additional way that reason-based choices can lead to suboptimal decision making occurs when we focus on different attributes of the decision than the ones that will matter to us later.

- Professor of Psychology Timothy Wilson and his colleagues asked a group of undergraduate women to evaluate some posters of the type that undergraduates often have in their dorm rooms. Some of the posters had a more aesthetic appeal, featuring reproductions of paintings by Monet and van Gogh. Others had a more cerebral appeal—humorous or motivational.
  - Half the participants were asked to rate how much they liked each of the posters on a 9-point scale. They then got to select one of the posters to take home. The procedure was the same for the other half of participants, but this group was asked to write down why they liked or disliked each poster before rating them and choosing one to keep.

  - Requiring reasons for the participants' opinions changed the exercise from a neutral one that clarified existing preferences to one that appeared to influence the choices participants made. In particular, the reason manipulation shifted choices away from the aesthetic posters and toward the cerebral posters.

  - When not prompted to provide reasons for their choices, fully 95% of the participants chose one of the posters of a famous painting. When asked to articulate reasons for their opinions, the share of art posters dropped to 64%.

  - Several weeks later, the experimenters followed up with each participant by phone and asked whether she still had the poster, whether she had hung it up, and whether she still liked it. Women in the control condition—those who were not asked to provide reasons for their choices—still liked their posters. But those who had to articulate the reasons for their choices were much less satisfied when they got their posters home.

  - We might think that people simply liked all the posters less when they had to provide reasons for their choices. But that wasn't the case. In fact, if anything, people in the reasons condition initially indicated that they liked the posters more. What caused the change?

- The way we enjoy art might generally be characterized as a System 1 process. We tend to appreciate posters and artworks holistically, aesthetically, and automatically. But System 1 does not do well generating reasons; that's a System 2 task. Thus, when participants were asked to generate reasons for their preferences, they switched from what likely would have been their natural, System 1 way of appreciating a poster and, instead, imposed System 2 judgements on it.

- Further, the reasons that System 2 is likely to generate are System 2 reasons, and System 2 often has difficulty articulating reasons that would appeal to System 1. Thus, by asking people to explain why they liked or disliked something, the experimenters were encouraging them to move from a System 1 evaluation mode into a System 2 evaluation mode. This created a disconnect between preferences at the time of choice and preferences later, at the time of consumption.

Customers often rely on System 1 cues in making decisions, while marketing professionals, product designers, and brand managers are more likely to use System 2 reasoning.

- Reasons are one of the levers we have on our decision-making control panel. We don't always use reason-based decision making, nor do our reasons have to be clearly and unambiguously articulated in order for them to influence our decision making. Of course, reasoning isn't a bad way to make decisions either. However, the ways reasoning goes wrong are consistent, and that consistency tells us something interesting about the imperfect control panel we use to manage the decision-making process.

Suggested Reading

Shafir, Simonson, and Tversky. "Reason-Based Choice."

Questions to Consider

1. How does a reason-based choice model differ from a utility-based choice model?
2. Recall some of the "reasons" documented in this lecture as being able to influence choice. Can you think of similar, context-based reasons that someone might choose a particular option from a set?

Lecture 10

Mental Accounting as a Factor in Decisions

The fungibility of money is one of its defining features. One dollar is equivalent to another dollar. But the University of Chicago's Richard Thaler, one of the leaders in the field of behavioral economics, presented evidence of, the non-fungibility of money—at least in certain cases. It turns out that people treat the same dollar differently depending on how they have categorized that dollar mentally. The idea is that people categorize money and resources according to their intended use, and once they have performed this purely psychological categorization, they start to treat those categorized funds differently. One dollar is no longer equivalent to another.

Mental Accounts

- Sometimes, people make mental accounts that mirror the types of accounts an accountant would make, such as budgets for entertainment, clothes, and savings. A good deal of research has looked into how and why people segregate and combine experiences and resources.

- One experiment was conducted by Dilip Soman of the University of Toronto and Amar Cheema of the University of Virginia. Participants were given 100 coupons for gambling. The coupons were worth $0.64 and could be used to play or could be cashed in at any time. Most people chose to play the game.
  - Players could trade 1 coupon for a roll of two dice. If the total was 9 or higher, then the player won an additional 5 coupons that could not be used for further gambling; they could only be cashed out. Participants essentially faced the question of how many times they wanted to gamble before stopping.

- The experimental manipulation was in how the coupons were delivered to the players. Some received all 100 coupons in a single sealed envelope; some received 4 sealed envelopes with 25 coupons in each; and some received 10 envelopes with 10 coupons in each.

- Researchers found that the total number of bets placed decreased as the coupons were allocated to more envelopes. When all the coupons came from a single envelope, people bet, on average, 43 coupons. When the coupons came in 4 envelopes, the average bet dropped to 25.5. When the coupons came in 10 envelopes, the average dropped to 16.

- The multiple envelopes probably provided people with natural mental accounts. With all the coupons in a single envelope, people presumably gambled until they felt they had had enough. But with the pre-apportioned packets, people seemed more likely to decide that they would gamble a certain number of envelopes' worth of coupons. The more envelopes available, the more opportunities to stop and declare the other coupons off limits.

- If this explanation is accurate, then we should expect to find something else: Not only should people bet less overall when there are more envelopes, but they should also be more likely to use all the coupons in an opened envelope once that envelope has been opened.

- Indeed, that was the second main finding from this study: People in the 1-envelope condition gambled the most coupons on average, despite the fact that in this condition, fully one-third of participants did not gamble at all. The rest tended to gamble a great deal. Of those who opened the envelope, the average bet was 64 coupons.

- When the coupons came in 4 envelopes, only two people chose not to gamble anything. The mode response was to gamble 1 full envelope: One-third gambled exactly 25 coupons—1 envelope's worth. And one-half of all participants in this condition bet all the

coupons in whatever envelope was the last one they opened: in other words, one-half of all participants bet 25, 50, or 75.

- Similar results were found in the 10-envelope condition. Again, the mode response was to bet 1 envelope's worth of coupons: One-quarter of participants bet exactly 10 coupons. Nearly two-thirds of participants bet some multiple of 10, stopping only when they came to the end of an envelope.

- The more "partitions" there were, the slower consumption was over all. People treated these divisions among otherwise equivalent options—these "accounts"—as meaningful, and it changed their consumption.

Mental Accounts in the Real World

- Soman and Cheema took these findings to the field to see if creating mental accounts could do some real-world good. The researchers conducted an experiment with construction workers in rural India. These laborers were paid 670 rupees (about $15.50) a week. Their average six-month savings rate was 0.75%.

- Working with social workers and financial advisors, the researchers developed a savings plan and selected a group of workers on which to test it. For participants, they specifically chose workers who were married, lived with a spouse, and had two children between the ages of 2 and 7.

- First, everyone received some counseling from the financial planners and was given a savings goal—6% or 12% of their income (about $1.00 or $2.00) per week.

- Some participants received only the training and the goal. Members of another group received their pay with the savings already set aside in an envelope, although they were free to open the envelope at any time if they needed the money. Still another group received a sealed envelope

with their savings target, but on the envelope was printed a picture of their children. Tearing open the envelope usually meant ripping through the picture of the children to get to the money inside.

- The researchers found that people with higher savings goals tended to save more, and those with their savings partitioned into envelopes did better at saving than those who did not receive some of their money separately. Further, people saved more money when their children's pictures were printed on the envelopes.

- At the end of 14 weeks, participants with the goal of saving 6% saved about 270 rupees, or about $6.25. But when the goal money was placed in an envelope, the average jumped to about $8.60. When the goal was to save 12%, the effects were even more pronounced. The larger goal did not help at all in the baseline condition, but when combined with the envelopes, the average savings was $10.50.

Personal financial advisors often advocate creating a budget each month and physically distributing the money into envelopes; this practice can have a surprisingly positive effect on savings.

Diminishing Sensitivity

- Mental accounting has also been invoked to explain fundamental phenomena based on how we process positive and negative experiences. Consider the following two hypotheticals:
  - In the first scenario, Mr. A wins two small lotteries in one day, one for $50.00 and one for $25.00. Mr. B wins one lottery for $75.00. In one study, Thaler found that 64% of participants thought that Mr. A would be happier.

  - In the second scenario, Mr. A received a letter from the IRS saying that he owes $100.00. On the same day, he received a letter from the state tax authority informing him that he owes $50.00. Mr. B received a single letter from the IRS telling him that he owes $150.00. Again, in a study, 75% of participants thought that Mr. A would be more upset.

- To explain these findings, we must combine mental accounting with prospect theory. As you recall, in prospect theory, diminishing sensitivity is the idea that we get less sensitive to gains and losses the farther we are away from a reference point. Put another way, a given increase or decrease will be felt less acutely relative to a large magnitude than to a small magnitude.

- The key ideas in prospect theory can be expressed as a curve on a two-dimensional plane, with the horizontal axis representing objective value and the vertical axis representing subjective vale. Diminishing sensitivity is expressed graphically by curves that bend more toward the horizontal axis as they get farther from the origin.

- When we evaluate a single gain or loss for a relatively large amount, we move out to the flat part of the curve, relatively far from the origin. But when we have two gain or loss experiences, we experience the steepest part of the curve—the part closest to the origin—twice. For this reason, we actually experience $25.00 + $50.00 as greater than $75.00. We feel two wins more positively than just one win.

Coupling Pain with Benefit

- The notion that people can mentally combine or separate experiences is a powerful idea in mental accounting and can explain a great deal of common behavior that is at odds with the predictions of rational decision-making theories.

- Consider the following example, created by Drazen Prelec of MIT and George Loewenstein of Carnegie Mellon University:

- Mr. A and Mr. B both joined health clubs. Mr. A's club charged a fixed fee for each month of usage, payable at the end of the month. Mr. B's club charged an hourly fee for using the health club, with the total payable at the end of the month. By chance, both men used the health club about the same amount, and both ended up getting a bill for the same amount at the end of the month. Who enjoyed himself more while at the health club?
  - Of the people who were asked this question, 38% said that the men would be indifferent. But of those who thought one man would be happier than the other, 48% thought that Mr. A would be happier, compared to only 14% who thought Mr. B would be happier.

  - Prelec and Loewenstein observed the same effect across three additional scenarios involving fixed versus variable fees. Indeed, researchers have documented a *flat-rate bias* in many consumer transactions.

- Prelec and Loewenstein attributed the preference for fixed rates over variable rates to the way consumers psychologically manage the "coupling" of costs and benefits. The researchers pushed the accounting metaphor a step further, suggesting that mental accounting might be most accurately described as a double-entry accounting system, to explain the dual effects of the pleasure of consuming and the pain of paying for consumption.
  - Some methods of purchase couple the pain and pleasure tightly. When you pay for something upfront using cash, the coupling is strong: The pain of payment is experienced at the same moment

that the pleasure of consumption starts. But humans have developed numerous methods, such as prepayment and the use of credit cards, for decoupling the pain from the pleasure.

- Similar logic applies to fixed versus variable pricing. When the cost is fixed, we experience the pain at once, and it is not as tightly coupled to the experience. But with variable pricing, the pain of payment is much more closely associated with the experience.

- Decoupling the pleasure of a purchase from the pain of payment is usually not a particularly good idea from a personal finance perspective. But our mental-accounting systems were not necessarily designed for optimal financial decision making. And from the standpoint of maximizing happiness over some moderate time horizons, this kind of decoupling is a strategy that works well—too well, for many of us.

The way we buy gasoline couples the pain of payment very closely with the benefits we get related to transportation.

Suggested Reading

Soman and Cheema, "Earmarking and Partitioning."

Thaler, "Mental Accounting Matters."

Questions to Consider

1. *Mental accounting* can be a rather nonintuitive phrase for some people. How is mental accounting defined? Give some examples of mental accounting as it has been studied in the literature.
2. Mental accounting can cause some biases that lead to poor decision making, but it can also be used strategically to produce positive results. What mental-accounting principles could you use to encourage someone to save money?

Lecture 11

The Role of Mindsets in Decision Making

Our minds are constantly trying to prepare us for whatever situations we happen to be facing. Thus, they are often spooling up a set of cognitive procedures to help us best respond to the environment around us. Once that set of cognitive procedures is activated, it tends to stay active for a while, thereby influencing subsequent judgments and decisions. In this lecture, we'll explore the relationship between mindset and the decision-making process. As we'll see, a mindset functions in part as one of the dials or buttons on our motivational control panel. In other words, when making a choice, sometimes the mindset that happens to be active will drive the decision.

Growth versus Fixed Mindsets

- One mindset theory that has proven popular both within psychology and with the public is based on Carol Dweck's work on growth versus fixed mindsets. This is a learning theory that describes students' beliefs about where their abilities come from.

- Some students believe that intelligence, abilities, and talents are fixed traits. A person with a fixed mindset views success in some area as evidence of innate talent and failure as evidence of the lack of talent. People with a fixed mindset, therefore, spend time seeking out evidence of their own successes in those domains that are important to them and avoiding situations that might cause them to fail in those domains.

- In contrast, some students believe that abilities can be developed through hard work and persistence. In other words, someone with a growth mindset doesn't see success as evidence of being smart

but of having worked hard. And failures are not nearly as damaging to someone with a growth mindset. Failures are a natural part of the growth process, not evidence of an inherent shortcoming.

- Dweck's research suggests that people tend to chronically be in one state or another. That is, because of personality and how we were raised, we tend to fall into a fixed or a growth mindset. But research also supports the idea that through training and effort, people can change their mindsets.

Mindsets and Cultural Differences

- Nearly everyone agrees that culture plays a significant role in understanding human psychology in general and decision making in particular. But the term *culture* is difficult to define and study. Mindsets, however, have provided one approach for empirical psychologists to examine specific aspects and implications of culture.

- For example, a mindset theory called *self-construal* explains how people think about themselves: either as independent individuals, acting on their own volition and toward their own aims, or as interdependent members of a collective, such as a family or a company. The reality, of course, is that we are all both independent and interdependent. But at any point in time, we tend to think of ourselves predominantly in one way or the other.

- This ties back to culture in the emphasis that certain cultures place on one of these views versus the other. As a result, people raised in certain cultures tend to adopt one mindset as their default or chronic setting.

- Neither of these mindsets—interdependent or independent—is right or wrong, of course, and it is not the case that everyone within a culture has the same perspective. But people raised in a particular culture, on average, maintain a particular self-construal mindset most of the time.

- Still, it's important to note that people switch self-construal mindsets with relative ease. In fact, researchers can readily coax a person from one culture to think like a person from another culture.
  - For example, many research studies ask people to perform a simple reading task in which they circle all the pronouns in a paragraph. In some conditions, the paragraph is written in the first-person singular perspective: "I did this; I did that." In other conditions, the paragraph is written in the first-person plural perspective "We did this; we did that."

  - This simple task that focuses people on singular or plural pronouns has been found to be a robust way of inducing a temporary mindset switch. Focusing on "I" shifts people to an independent mindset—at least for a few minutes—while focusing on "we" shifts people to an interdependent mindset.

Mindset-priming tasks are among the most common designs used in experimental psychology.

The Rubicon Model of Action Phases

- One specific mindset theory that is especially important for decision theory is known as the *Rubicon model of action phases*. The insight here is that sometimes an action can best be understood by breaking it up into a series of phases that a person goes through to complete it.

- This model was developed by two German psychologists, Peter Gollwitzer and Heinz Heckhausen. Essentially, they argued that any action can best be understood as a series of four consecutive stages. The two stages most relevant to our discussion come immediately before and immediately after the decision.
  - Before the decision a goal-setting stage. This is where options are evaluated and assessed, and desires are translated into goals. At the conclusion of the first stage, the decision is made, and we move from consideration to commitment.

  - The second stage is the planning stage. Now that a decision has been made, we make plans to put that decision into action.

  - Third comes the action itself, pursuing the goals from stage 1 through to completion.

  - Finally, the fourth phase is a post-action, assessment stage. Has the goal been satisfied, or are further strivings necessary?

- The Rubicon model is predicated on the claim that each of these four phases is associated with a different set of cognitive processes. Because the mind needs to solve different problems at each stage, different sets of cognitive procedures are brought online. In other words, each phase is associated with a different mindset.

- Before we decide, we are in deliberation mode. A *deliberative mindset* is attuned to evaluating options in terms of both desirability and feasibility. This is an exploratory frame of mind, in which we seek out information. Remember that at the outset of a decision, we might not

even know which attributes will be important in making our final choice. A deliberative mindset is often associated with open-mindedness.

- After we have made a decision, we are in implementation mode. An *implemental mindset* is much more focused. Now, we've zeroed in on the one course of action to take, and information about that option becomes paramount. In this sense, it is a close-minded mindset. Implemental mindsets are also partial to information that supports the chosen course of action.

- The differences between deliberative and implemental mindsets have been thoroughly explored by psychologists in the decades since the Rubicon model was first proposed.
  - For example, in a series of studies, Gollwitzer and his colleagues asked participants in one condition to think about some upcoming decision they had to make, listing their thoughts or creating a pro/

Our thoughts are often much more concrete when we are in an implemental mindset and considering upcoming actions.

con list. In the other condition, people were asked to think about some decision they had already made but had not yet carried out. Sometimes, they would list the steps needed to carry out the decision; then, they would move on to another task. But researchers found that the deliberative or implemental mindset had already been activated and carried over to the subsequent task.

- One of these studies involved a creative writing task. Participants were first induced to activate either a deliberative or an implemental mindset. Then, they were given the starting portions of several fairy tales and were asked to write three sentences that continued the stories. One of the stories was the tale of a widowed king who was facing the choice of leading his army into war or staying home to protect his beloved daughter.

- People's responses were later coded on the basis of whether the story fragments portrayed the king as being deliberative or implemental. Thus, the sentence "The king wracked his brain wondering what to do." was scored as deliberative. The sentence "The king ordered a trusted officer to stay at home at the castle and protect his daughter." was scored as implemental.

- When people had activated a deliberative or implemental mindset by thinking about decisions in their own lives, they carried that approach over into a seemingly unrelated writing task, essentially projecting their state of mind onto the protagonist of the story.

- Another of these studies involved giving participants a memory test. The Rubicon model predicts that people in different decision phases should remember different types of information more easily.
  - In this study, participants were induced to have an implemental or deliberative mindset by being asked to choose to take one of two versions of a creativity test. They were told that people differ in terms of what best solicits their creative instincts and that only by choosing the right version of the test would they get an accurate measure of their creative potential.

- Some of the people were told about this test, then given time to deliberate and make their choices. After they made their choices, they were told that the actual test would come later; first, they had to do a different task. The rest of the participants were told about the two versions of the creativity test and were given some time to deliberate, but they were told that the test would come later, and they could make their decisions about it at that time.

- In other words, some people made their choices, but hadn't taken the test yet. This is the implemental mindset condition. Other people didn't make a choice. This is the deliberative mindset condition.

- Once the mindsets were activated, both groups performed an intervening task: They saw a list of the supposed thoughts of a person experiencing some kind of decision. Some of the thoughts were deliberative, dealing with the desirability and feasibility of the decision. Some thoughts were implemental, dealing with the steps required for the action to come to fruition.

- Later, people were given a memory test over the thought listings they had seen. As predicted by the Rubicon model, those who had not yet made a decision (deliberative mindset) remembered the deliberative information better. Those who had already made a decision—about an unrelated test—were better able to remember implemental thoughts.

- Mindsets are a powerful idea in psychology, helping us explain everything from culture to inference making to interpersonal relationships to stereotyping. From a decision-making perspective, the most influential mindset theory has arguably been the Rubicon model, which has proven to be compelling approach to understanding how goals and motivation can influence our choices.

Suggested Reading

Dweck, "The Secret to Raising Smart Kids."

Gollwitzer, "Mindset Theory of Action Phases."

Trope and Liberman, "Construal-Level Theory of Psychological Distance."

Questions to Consider

1. How do mindsets differ from goals?
2. One specific mindset theory that relates to decision making is the Rubicon model. Why is it called the Rubicon model? What is the significance of that historical reference?

Lecture 12

How Consistency Drives Decisions

In his 1841 essay "Self-Reliance," Ralph Waldo Emerson argued that people should trust themselves, throwing off the artificial constraints imposed by social pressures and institutional wauthority. One of the things constraining our genius, according to Emerson, is that we find ourselves molding our present behaviors and actions to be consistent with what we have said or done in the past. The empirical research since Emerson suggests that he was right: Consistency is a powerful motive. We've already discussed the importance of goals and motivations in general, and we've seen several frameworks for thinking about people's motivations. In this lecture, we'll focus on the motive to be consistent and examine the different ways this driver can affect decision making.

Sources of Consistency

- When we talk about people being consistent, we are generally talking about the consistency of some combination of beliefs and behavior. In fact, we can consider consistency based on every permutation of the relationship between beliefs and behavior.

- Beliefs can be consistent with our beliefs in the past (*reinforcement*). Moreover, beliefs tend to intensify over time for no other reason than that they have been previously held. Another type of consistency is the consistency of behavior with beliefs (*consistency coherence*). It's also true that our behavior can be consistent with our previous behavior—not involving our beliefs or attitudes at all, just action leading to consistent action (*habit*). Perhaps the most interesting way that people can be consistent is when their beliefs conform to be consistent with behaviors (*self-perception*).

Coherence

- Coherence is probably the most intuitive form of consistency. This is the idea that our behavior should be driven by—and, therefore, consistent with—our beliefs.

- We generally act in a way that is consistent with our beliefs and attitudes, but sometimes, we do not. In fact, the correspondence between beliefs and attitudes assessed independently with behavior is not as close as we might expect.

- Part of the problem is that early psychologists were often not measuring the right thing. Measures of attitudes have historically focused on the *valence* of the attitude, that is, how positive or negative the belief is. More recent research has discovered that attitude *strength* (security and stability) is a much better predictor of behavior than attitude valence.

Coherence tells us that our behavior should be consistent with our beliefs; if we care about the environment, for example, we should recycle, drive fuel-efficient cars, and so on.

- We might expect attitude strength to be correlated with attitude valence. Often, the things about which we feel very positive or negative are also things about which we have very strong and stable beliefs. But this is not necessarily the case.

- In psychology, such variables are called *orthogonal*. We can think of them as perpendicular axes in a two-dimensional space. For a given attitude valence—say, highly positive—you can hold that belief either weakly or strongly. Likewise, you can have an opinion that is very strong, but that opinion could be positive, negative, or relatively neutral. And it is the strength, not the valence, that ultimately predicts behavior.

Reinforcement

- *Reinforcement* refers to the fact that beliefs, once held, tend to be stable or even strengthen over time. One of the early demonstrations of the effect that came to be known as *attitude polarization* is especially evocative.
  - In one study run in the 1970s at Stanford University, 48 undergraduates were chosen to participate in an experiment related to beliefs about capital punishment; half were proponents of capital punishment and half were opponents. People on both sides of the issue believed that the research into the deterrent efficacy of capital punishment favored their position.

  - Experimental subjects were told that they would be given two "randomly" selected studies on the deterrent efficacy of capital punishment to read. One of the studies presented research supporting the idea that capital punishment serves as a deterrent for crime, and the other study presented opposing research. Objectively, people should have left this exercise more or less where they were when they came in. It's also possible that this exercise might moderate your views a bit.

  - But after reading a set of balanced information, people's beliefs about capital punishment became more extreme, and this was true

for both groups. Presenting objectively balanced information to someone with an initial opinion can make that opinion even more extreme.

- The researchers also took some follow-up measures to see what people thought about the research they had read. They found that when forced to engage with evidence contrary to their opinions, the participants actively argued against it. But the research that was supportive of their opinions was described as "well thought out," "valid," and "accurate."

- In 2002, a group of German psychologists looked at the role of differing opinions—and even conflict—in reducing the negative effects of reinforcement. They recruited adults to participate in a study on group decision making.
  - The procedure was to provide each participant with some information about a business case. The participants played the role of a board member of a company that wanted to move some of its operations overseas.

  - Participants were given some initial information about two possible locations for the new plant. The prospects were described on 14 attributes, including tax rates, economic growth rates, and so on. Based on this information, they made preliminary decisions and were then assigned to groups to make the final decision.

  - The researchers deliberately created both homogenous and heterogeneous groups—those in which two people supported one option, but the third leaned in the other direction.

  - Researchers found that the homogeneous groups tended to evince reinforcement biases. When given the opportunity to get more information before making their final decisions, the homogenous groups sought out less additional information overall. Even worse, the information homogenous groups sought tended to be of the confirmation-bias type.

- To measure the magnitude of this bias, the researchers created a net bias index, in which the more positive the measure, the greater the confirmation bias. They found that homogenous groups had a bias score of more than 1. When there was one dissenting voice in the group, the bias measure moved from about 1 to –0.5. That means that having someone with a differing opinion did more than just eliminate the bias; it actually reversed it.

- Further, the advantages of divergent opinions are hard to fake. These researchers also told some groups to take the perspective of someone who preferred the other option and to debate the decision from his or her point of view. This devil's advocacy approach did some good, but again, it just reduced the reinforcement bias, without eliminating it.

Self-Perception

- *Self-perception* is the idea that our beliefs are often consistent with our behavior—the opposite pattern of coherence, in which our behavior is consistent with our beliefs.

- One of the most influential theories used to explain self-perception effects is Leon Festinger's *cognitive dissonance*. Dissonance theory posits that we tend to feel an unpleasant stress whenever we experience an inconsistency within ourselves, including when our behavior is inconsistent with our beliefs. On some level, we recognize that believing one thing and doing another isn't good. We can resolve this inconsistency by bringing our behavior in line with our beliefs—and sometimes people do that—or we can change our beliefs to be in line with our behavior.

- Benjamin Franklin once astutely noted that people tend to be nicer to those for whom they have done a favor. Indeed, if you witness yourself doing someone a favor, you recognize that this action is inconsistent with negative feelings toward that person. Thus, on some level, you reason that doing the favor means that you must like this person. You then change your beliefs to match your behavior.

A smoker might cope with the dissonance of his unhealthy habit by convincing himself that smoking is not as dangerous as the scientists say, that he is young and healthy enough that the dangers of smoking are not that great for him, or that he will quit sometime soon.

- In 1959, the psychologists Elliot Aronson and Judson Mills documented this phenomenon with regard to hazing. They gave female students the opportunity to participate in a discussion group, which turned out to be mostly a boring lecture. Everyone had to read a passage aloud to a male experimenter in order gain entry to the group. Some of the participants had to endure a slightly embarrassing hazing ritual, reading aloud a list of mildly improper words. Those in the severe-embarrassment condition had to read aloud a sexually explicit passage containing several obscene words.
  - Afterwards, everyone was asked to rate how enjoyable they thought the discussion group was. Those who had to endure the more embarrassing task subsequently rated the boring lecture as more enjoyable.

  - It seems that for those who were willing to endure the embarrassment to participate, the group must be worthwhile. This is behavior driving belief.

- The most fascinating result of self-perception is when people use behavior to fool themselves, using a process called *symbolic self-completion*, a term coined by the psychologist Robert Wicklund and his research partners. This is the idea that when an important part of a person's self-image is threatened or incomplete in some way, then the person can bolster that part of his or her self-image through external, symbolic means.
  - Suppose you are an older man, and nature is working hard to convince you that you are not as young and virile as you used to be. If that part of your self-image is important to you, you might be tempted to surround yourself with external symbols of youth and virility, such as a sports car. Based on the fact that you now drive a smart, fast car, you update your beliefs about yourself, now confident in your youth and virility.

  - People don't usually articulate such arguments to themselves, but the outcome is the same. It's like a shell game that we play against ourselves. We rig the outcome to bolster our self-image, updating our beliefs through the performance of strategic, self-enhancing behaviors.

- This symbolic self-completion behavior occurs only when people feel insecure about some aspect of the self.
  - For example, in one study, researchers went to a tennis club and interviewed both novice and expert players about what they wore to tennis practice. Based on some initial assessments, they knew that being a tennis player was an important part of the self-image of all the participants.

  - The experts, who had been playing in tournaments for years, were more likely to feel secure in this aspect of their self-concept. The novice players, in contrast, were largely aspirational. They couldn't point to many tournament victories or years spent on the court in practice, and their self-concept was on much shakier ground.

- Both groups were asked the same question: "For playing tennis, do you prefer clothing of a particular company or brand?" Among the experts, only 14% said yes. But among the novices, 63% said that the brand of clothing they wore mattered when playing.

- The interpretation of these results is that the novice players—whose self-concept is less secure—bolster their self-image through external symbols.

Suggested Reading

Lord, Ross, and Lepper, "Biased Assimilation and Attitude Polarization."

Wicklund and Gollwitzer, *Symbolic Self-Completion*.

Questions to Consider

1. Coherence and reinforcement both refer to beliefs or attitudes. How do coherence and reinforcement differ from each other? How might these ideas help you understand how decisions are made in different settings?
2. According to self-perception theory, what do hazing rituals have in common with coupon shopping?

Lecture 13

Social Influences on Decision Making

Early in his career, a psychologist named Robert Cialdini set out to study persuasion. He did extensive fieldwork on the topic of how people persuade others, looking for similarities across the methods of what he called "compliance professionals." He then took those insights into the lab to determine which methods worked best and why. The result has been a staggering amount of research into social influences on decision making—how people's choices and decisions are influenced by the intentional and incidental behaviors of others. In this lecture, we'll cover three principles of social influence that arise from Cialdini's research: reciprocation, social proof, and authority.

Reciprocation

- *Reciprocation* is the idea that when we receive something from others, we tend to feel obligated to respond in kind. It seems clear that some degree of reciprocation is necessary for society to function properly; in fact, reciprocation may serve as the cornerstone of civilization. It is also a strong influence on the decisions we make.

- Suppose, for example, that you're faced with the decision of whether or not to make a donation to a charity. Charities and nonprofits are well aware of the power of reciprocation when asking you to make that decision. This is why letters requesting donations often come with address labels or some other small gift.

- Some researchers tested the power of reciprocity in a field study with a company that sold insurance to small businesses. This company wanted

Surprising as it may seem, even something as simple as including some mints along with the bill in a restaurant has been found to lead to larger tips.

to conduct market research to improve its sales processes, but it often had low response rates when it mailed out surveys to clients.

- The researchers randomly assigned the small business clients on the mailing list to receive one of eight different mailers. Some clients received just the survey, politely asking for a response. About 20% of small businesses in this condition sent the survey back, which is objectively low for the purpose of getting good data.

- The other seven conditions all got the same survey, but the mailers also included either cash ($1.00 or $5.00) or checks made out to the receiver in amounts of $5.00, $10.00, $20.00, or $40.00. In the last condition, survey recipients were told that if they filled out the survey and returned it, they would be mailed $50.00 as compensation for their time.

- Response rates increased in all six of the reciprocation conditions. When people found $1.00 in the envelope, the response rate went from about 20% to about 40%. It went up to about 50% with $5.00. When the survey included a check, recipients seemed to be relatively insensitive to the actual amount of the gift: From $5.00 up to $40.00, all the response rates hovered a little higher than 50%.

- Interestingly, the $50.00 offered in exchange for completed surveys netted only a 23% response rate—just a couple of points higher than offering people nothing at all.

- In this scenario, business owners were confronted with a choice: to fill out the survey or not. For many owners, receiving a gift upfront influenced that choice. The gift seems to have prompted them to think, "Because you've done me a favor, I guess I owe you one in return." And that thought seems to have driven a specific decision to fill out the survey.

- Reciprocation can be a powerful tool in sales and negotiation settings, as well. In particular, reciprocation is at the core of the *door-in-the-face technique*. This tactic starts by asking people for something large that

they are likely to reject. Then, after the rejection, the negotiator follows up with a smaller request.

- The principle at play here is *reciprocal concession*. After you reject the initial offer, the negotiator or salesperson comes back with something that you are likely to find more appealing. It's not what he or she really wants, of course; that was the initial request. But the salesperson will be "generous" and meet you halfway.

- Reciprocation then kicks in, and you feel some pressure to respond in kind. Your decision-making process has just been manipulated.

- What makes this logic here particularly ridiculous is that we are remarkably insensitive to the starting point. Almost anything can be made to seem more reasonable or attractive by simply going more extreme with the first request or proposal.

- Cialdini and some colleagues ran an experiment in the 1970s in which they told college students on campus that they were looking for volunteers for a county youth counseling program. They asked some students if they would be willing to chaperone a group of youth on a day trip to the zoo. Only 17% agreed to go on the trip.
  - Other students, however, received the door-in-the-face treatment. These students were first asked if they would be willing to volunteer two hours per week as a youth counselor for a minimum of two years. Almost everyone said no.

  - Then, after refusing the big request, the students were asked if they'd be willing to chaperone the zoo trip, and the number of people who agreed jumped to 50%.

- Of course, a few things need to happen in order for someone's act of kindness to generate feelings of reciprocity.
  - First, the gift must be understood as a gift—as something extra or unexpected. If it is interpreted as fulfilling an obligation or as nothing out of the ordinary, then it is less likely to trigger reciprocity.

- The other key for reciprocity to affect decision making is that the gift or concession must seem sincere. If someone makes a gesture that is interpreted as being purely strategic and mercenary, people feel no obligation to return that gesture.

Social Proof

- Another social influence on decision making is *social proof*. This term refers to the idea that we tend to behave in ways that are consistent with what we perceive to be the social norms and preferences of others.

- Social proof is one reason that cultural phenomena go viral. Popularity begets popularity. There are many examples of celebrities, videos,

Marketers long ago figured out the power of telling potential customers, "Everyone else is doing it"; this is why we see "#1 Best Seller" promoted in ads and on displays so frequently.

books, and activities that seem to have no redeeming value of their own but somehow become inexplicably popular.

- You can find evidence of social proof everywhere, including examples of people turning social proof to their advantage. If you've ever worked a job with a tip jar, you were probably told on your first day never to empty the jar completely. When the jar is empty, customers get the subtle signal that tipping is not the social norm. A few bills and coins in the jar, however, give the signal that tipping is customary. And that subtle pressure applied through social proof is effective. Faced with the decision to tip or not to tip, people are more likely to put money in the jar if it is not empty.

- Social proof can also be used to help people lead more normal lives. In the 1960s, some researchers worked with a group of children who had a phobia of dogs. Their approach was remarkably simple.
  - Researchers had young children come into the office and watch another young child play with a dog for about 20 minutes. The exercise was then repeated the next day.

  - After just four days, two-thirds of the study participants were willing to climb into a playpen with a dog and stay there even after all the adults left the room—only four days to go from phobia to close contact! This all took place through the power of social proof: Seeing someone else doing something normalizes that behavior, making it seem more reasonable and appropriate.

Authority

- Yet another type of social influence is *authority*. This term refers to the propensity for people to decide in ways that are thought to be in line with the desires of perceived authority figures. In short, we tend to comply with authority.

- The most famous example of this principle comes from the notorious compliance experiments conducted by Stanley Milgram in the 1960s.

- In these experiments, people were brought into a room and told they'd be participating in a research study on memory. One experimental subject took on the role of the Learner (actually an actor, hired by the experimenters) and was hooked up to wires that would give him an electric shock any time he got a question wrong on the memory test.

- The role of the participant—the person whose reaction was the true focus of the study—was the Teacher. His or her job was to administer the electric shocks. The third person in the room was the Experimenter, who would let the Teacher know when to administer the shocks and in what voltage.

- These experiments found that people were appallingly compliant to authority. The electric shocks were fake, but they seemed real to the people administering them. The experimental participants became visibly upset by the Learners' reactions. Some even begged to stop the experiment. But a surprising number of them kept administering the shocks when they were instructed to.

- If people are willing to respond to authority in a setting where the outcome is so psychologically cruel, we can certainly expect compliance with authority to be generally powerful in less extreme situations, as well.

- As with the other social influences we've discussed, it's not unjustifiable for someone to defer to authority. Where the situation gets tricky is when we defer, not to legitimate authority, but to our perceptions of authority, based on setting, behavior, or environmental cues.
  - For example, the authority figure in the Milgram experiment wasn't a legitimate authority, such as a police officer. He was just a man—in some cases, wearing a lab coat—running a psychology experiment.

  - In that situation, however, he seemed like an authority figure; thus, people responded as if that authority were real and valid. They could have chosen to stop applying shocks, but the mere

perception of an authority figure in the room led them to make the morally dubious decision to continue.

- Once again, marketers have latched onto the power of authority in persuasive messaging, which is why we find the trappings of authority in ads and other marketing communications. People who give advice in ads are often dressed or look or act in such a way as to make them seem as if they have some authority.

- These social influences—reciprocation, social proof, and authority—by no means represent an exhaustive list of the ways other people can influence our choices, but they are powerful and robust factors that guide many of the decisions we make.

Suggested Reading

Cialdini, *Influence*.

Questions to Consider

1. What is reciprocation, and why does it work? What are the settings or conditions under which we should not expect reciprocation to work?
2. Think of examples of social proof from your own life. When has social proof worked on you? When have you resisted the pull to conform with the crowd?

Lecture 14

Nonconscious Influences on Decision Making

The most famous experiment on subliminal advertising was conducted in 1957 by James Vicary. He worked with a movie theater to intersplice subliminal messages into films, urging people to "Eat Popcorn" and "Drink Coca-Cola." Consequently, popcorn sales increased by 57.5% and Coca-Cola sales increased by 18.1%. The study seemed to provide proof that people can reach inside our minds, using pictures too fast to process consciously, and force us to do things that we otherwise wouldn't do. Interestingly, however, the Vicary study never took place, and as a result, the topic of nonconscious influences became unfashionable. As we'll see, however, many things can influence our beliefs, decisions, and behavior in subtle ways without our consciously being aware of them.

Clarifying Terminology

- When we talk about nonconscious influences, it's common to talk about subliminal stimuli, but these two terms are not interchangeable.
  - The root term *liminal* is from a Latin word meaning "threshold." In decision-making research, it refers to the point at which a stimulus enters the conscious awareness—the *subjective threshold*. Above the subjective threshold, we are aware that we have seen, heard, touched, tasted, or smelled something. When we are aware of something, we say that the stimulus is *supraliminal*.
  - If something occurs below the subjective threshold, it is *subliminal*. Our senses picked it up and some part of our minds processed it, but this happened below the level of consciousness.

Signs on the side of the road can be subliminal if you are focused on the traffic around you.

- Whether something is subliminal or supraliminal may be a function of attention and motivation. If you are on the lookout, you might notice something that otherwise might have escaped your attention. Some things, such as words or pictures flashed at fractions of a second, will always be subliminal for everyone. Our conscious minds require some minimum exposure duration for a stimulus to register. But a stimulus can also be subliminal if you are just not paying attention to it.

- We also need to understand *conscious* and *nonconscious influences*.
  - Conscious influences are those messages that we recognize as potentially influencing us, such as persuasive attempts, goal reminders, memory cues, and so on. Such attempts may or may not be successful, but we know that an attempt was made.

- Nonconscious influences are things that could influence us in some way even though we are not aware of their influence.

- The distinction between supraliminal and subliminal does not map cleanly onto conscious and nonconscious influences.
  - It is not the case that nonconscious influences are always subliminal. It is true that if subliminal stimuli have any influence on us at all, that influence must be nonconscious.

  - Obviously, if we are aware of the influence, then the stimulus must be supraliminal. But it is not true that the influence of supraliminal stimuli must be conscious. As we will see, the fact that we are aware of a stimulus does not mean that we are aware of its influence on us. Thus, for supraliminal stimuli, the influence can be either conscious or nonconscious.

Goal Activation

- One type of nonconscious influence is *goal activation*. The idea here is that goals exist as cognitive structures, but not all goals are active all the time.
  - Some goals are specific and intentional, such as becoming fluent in Spanish, but many are not deliberately set and are nearly universal across people. Thus, we may have the goal of being a nice person or being honest.

  - Because all goals can't be active at once, we tend to focus on just a few at a time. Sometimes, we consciously choose which goals to focus on, but sometimes, those goals are activated by things we encounter in the world around us. Once latent goals have been activated, they can influence our decisions and behavior.

- In one series of studies, researchers investigated the ability of cold temperatures to activate the goal of feeling warm. These researchers argued that once the explicit goal of feeling warmer was activated, people would seek out, not just physical warmth, but any means of

feeling warm, including the latent goal of emotional warmth. In short, they argued that environmental cold can trigger a general preference for warmness that would lead, in this case, to an increased preference for romantic movies relative to other movie genres.

- In one study, researchers asked participants to evaluate a series of movies, including asking how much they would be willing to spend to be able to watch the movie right then. The experimental manipulation was to change the temperature of the room in which

If you activate the latent goal of being healthy, you might order salad instead of a hamburger for lunch.

the experiment was conducted. For some participants, the room was kept at 75 degrees; for others, the temperature was in the 59- to 60-degree range.

- People evaluated movies of all types, and there was no difference in willingness to pay based on room temperature—with one exception. People were willing to pay about one-third more for romance movies when it was cold in the room relative to when it was hot.

- This is an example of nonconscious influences not needing to be subliminal. The temperature of the room was supraliminal; people were conscious of it. Despite this, the influence was nonconscious; people were not aware that the temperature influenced their preference for movie type.

- A different group of researchers tested a similar theory, attempting to activate the latent goal of cleanliness by encouraging people to think about morally questionable behavior. They reasoned that when we act in an ethically compromised way—or when we remember or even think about behaving badly—the goal to purify or cleanse ourselves is activated.
  - These researchers thought that feeling ethically dirty can activate the nonconscious desire to cleanse ourselves in all ways, including physically. They called this the *Lady Macbeth effect*.

  - Experimental participants were made to feel guilty by writing about a time when they had been dishonest or by hand-copying a first-person account of someone betraying a work colleague. When in this state of feeling morally dirty, participants were given an opportunity to feel physically clean. In one study, they were asked to rate the desirability of 10 common consumer products. Of the products, 5 had nothing to do with physical cleanliness (such as juice or batteries), while the other 5 were cleaning supplies.

  - The non-cleaning products were rated as equally attractive regardless of how salient guilt was to the participants. But when

participants had thought about acting in an ethically compromised way, they rated the cleaning products as significantly more attractive. Supraliminal cues that prompted people to think about guilt had the nonconscious influence of increasing preferences for physical cleanliness.

Evaluative Conditioning

- The basic idea with *evaluative conditioning* is that when you pair some target stimulus with something that has a strong positive or negative effect, eventually, some of that effect will rub off onto the target, causing you to like the target more or less because of it. Evaluative conditioning can be either conscious or nonconscious.

- In one study, people were shown several pictures of a man going about a normal day. The pictures were specifically chosen to be neutral. After viewing all the pictures, participants were asked to rate the man's personality.
  - Unbeknownst to the participants, between each picture, they saw a 14-millisecond subliminal message. In one condition, it was a single repeated picture of a cute child playing with a cuddly toy. In the other condition, the picture was of a ferocious shark. Of course, the man was rated as much less nice when his image was paired with the shark than when it was paired with the child.

  - Such findings may make people nervous, but consider everything the experimenters did to find an effect. They used a neutral man in a neutral setting. People basically had nothing else on which to base their judgments other than the vague disquiet that comes from subliminal exposure to a shark. In such settings, subliminal conditioning is likely to have an effect.

- Could subliminal conditioning influence the decision to vote for one candidate versus another? In the 2000 presidential campaign, a staffer for George W. Bush inserted a subliminal message into a television ad. The ad warned voters about one of Al Gore's policy proposals that

would turn over too much power to government bureaucrats. As the words *bureaucrats decide* zoomed onto the screen, the word *rats* was also visible for about 1/30th of a second.

- For most people, 1/30th of a second is fast enough to be subliminal because people aren't paying attention or looking for it. But to be reliably subliminal to everyone, the message would have had to be tens or even hundreds of times faster.

- One reason this instance of subliminal messaging didn't work is that the word *rats* by itself is not likely to be strongly affect-laden. Further, for such conditioning to work, there must be more than just a single pairing, even if people see the ad several times.

- Finally, most of the ad featured Bush's face and a message about his policy agenda. The ad swiped at Bush's opponent only a couple of times. It is unlikely that people would process the negative effect associated with rats and be so attuned as to match it up with Gore rather than Bush.

Capabilities of Nonconscious Influences

- In a 1959 experiment, people watched a 16-minute film during which the subliminal message *beef* was flashed 140 times. Afterward, participants completed a survey, in which they were asked, among other things, how hungry they were. It turned out that people were significantly hungrier after watching the film that repeatedly flashed the word *beef* than other people, who saw an unadulterated version of the film.

- After viewing the movie, people were given the option of having some food, and one of their options was beef sandwiches. Interestingly, there was no change in the preference for beef sandwiches after the subliminal exposure.

- This simple experiment tells us a great deal about when nonconscious influences are likely to work and what their capabilities are.

- It is possible for stimuli or environmental cues to influence us by activating goals or through affect transfer, but those effects are likely to be small. Can someone make you hungry using subliminal trickery? The answer is: probably. But you would eventually get hungry regardless.

- Could subliminal advertising drive your decision to purchase a specific brand of food? This is much less likely. There are simply too many things that drive preference for a specific food, and many of those things have a much stronger influence on us.

- Nonconscious influences are all around us and probably influence us in small ways all the time. But most of these effects are small, and usually, they are nudges in directions we were already leaning.

Suggested Reading

Hassin, Uleman, and Bargh, eds., *The New Unconscious*.

Hong and Sun, "Warm It Up with Love."

Zhong and Liljenquist, "Washing away Your Sins: Threatened Morality and Physical Cleansing."

Questions to Consider

1. What is the difference between subliminal and supraliminal? How do these ideas relate to conscious and nonconscious psychological influences?
2. What are the limits on nonconscious influences? What types of influences are likely to affect behavior? What types are unlikely to make much difference?

Lecture 15

An Evolutionary View of Decision Making

Evolutionary forces have shaped our decision making primarily in two ways. First, the structure of the decision-making apparatus in our minds is a function of the way our minds have evolved over millennia. Second, evolutionary forces shaped a set of motives and drives that can be activated in each of us and can drive our decision making, even today. Put in the language of our manufacturing metaphor, a set of motivational buttons and levers was hardwired into our control panels. As we'll see, those buttons and levers are hidden beneath the panel's surface controls and can guide our decision-making machinery in ways of which we are unaware.

A Primer on Evolution

- *Evolution* describes the adaptive changes in a species from generation to generation. These changes are generated and guided by the three basic components to the simplest theories of evolution.

- The first component is random variation, which is produced in each generation. Some variations are adaptive, meaning that they help the individual in some way that is relevant to survival or procreation. But some random variation produces maladaptations—changes that hurt the individual's chances of survival or procreation.

- The second and third components are the twin forces of natural and sexual selection. These forces sort people based on genetic fitness and, ultimately, determine which random variants are adaptive and which are maladaptive.

- Both selection processes allow an individual's genetic traits to be passed on to future generations. Natural selection, broadly speaking, refers to the process by which traits that promote survival are passed down from generation to generation.

- Sexual selection, of course, refers to those traits passed down genetically that tend to make an individual more attractive to potential mates or that enable an individual to fend off sexual rivals.

- From these two forces, we can derive a host of specific psychological predictions. In particular, we can observe how these forces may have created predispositions to respond to certain environmental cues in ways that would have increased our ancestors' chances of survival and reproduction.

Many bird species are characterized by ostentatious plumage that is used to attract potential mates.

Evolutionary Goals

- Two prominent psychologists in this area, Douglas Kenrick and Vladas Griskevicius, have developed a framework of seven evolutionary goals that can affect individual decision making, and they've tied each of these goals to an associated "subself." The basic evolutionary goals are: self-protection, disease avoidance, affiliation, status, mate acquisition, mate retention, and kin care.

- Two of these goals are tied to natural selection, or survival: Self-protection and disease avoidance both help to ensure that you live long enough to mate and pass on your genes.

- Three of the goals are tied to sexual selection, that is, producing offspring and ensuring its survival: mate acquisition, mate retention, and kin care.

- The other two goals, affiliation and status, are arguably driven by both natural and sexual selection.
  - The goal to affiliate encourages us to get along with others and work in groups. For our prehistorical ancestors, working in groups increased the chances of survival, and getting along generally improved the chances of our offspring surviving and prospering.

  - The same is true of status. High-status individuals are more likely to have increased mating opportunities and more likely to survive and have children that survive than are low-status individuals.

- These seven latent goals wait below the surface, and in innumerable subtle ways, our environments can activate them. Even if we aren't aware of it, these core evolutionary goals can play a part in both mundane and important decisions.

- Kenrick and Griskevicius explain the activation and interplay of these goals in terms of different aspects of the self. We all have within us different self-concepts that are activated at different times in response to the environment.

Affiliation Goal

- When testing the affiliation goal, psychologists derived the prediction that social rejection is likely to activate the goal to affiliate with others. These researchers further predicted that when the affiliation subself was active, people tend to be more accommodating in their evaluations of others. Think of it this way: If you are at a party, you have a series of decisions to make regarding whether or not to approach someone and introduce yourself. Such decisions can be influenced, in part, by the goal to affiliate. If you have a strong need to affiliate, you might start to see people as friendlier and more approachable.

- To test this prediction, the researchers had participants first interact with a large group of people—mingling and making small talk—under the guise that they were involved in a study examining group dynamics.
  - Next, participants were placed in their own small rooms to wait while the researchers ostensibly formed small groups. Everyone was given a piece of paper that read: "We are interested in forming groups in which the members like and respect each other. Below, please name the two people (out of those you met today) you would most like to work with."

  - A few minutes later, a researcher came back to the room and said that, unfortunately, they couldn't proceed with the small-group exercise. Participants were given one of two reasons for the change of plans. People in the high-social-acceptance condition were told that everyone else had selected them to be in their group. People in the low-social-acceptance condition were told that no one had selected them.

- In a separate task, participants were asked to rate the "sociability" of a series of faces that had been pre-tested to be of moderate attractiveness and to have neutral expressions. People in the high-social-acceptance condition rated the faces as neutral, while those who had first been socially rejected saw the neutral faces as significantly nicer, friendlier, more attractive, and more desirable. It seems as if being rejected

activates the goal to affiliate, and that goal drives us to look for any opportunity to approach and bond with others.

- Perceptions of sociability matter because they affect decisions about how to interact with other people. Presumably, this change in perceptions of sociability would lead to differences in decisions about whether or not to approach a stranger at a social function. When the affiliation subself is active, our decisions will bend in the direction of connecting with other people and strengthening social bonds.

Self-Protection and Mate-Acquisition Goals

- The decision of whether to conform to or diverge from the group can be driven by a variety of factors. From an evolutionary psychology perspective, the goal of affiliation clearly leads to conformity, as does the goal of self-protection. In contrast, divergence from the group tends to be a preferred strategy when the mate-acquisition goal is active.

- Some researchers tested these conflicting paths toward conformity and uniqueness. They first activated an evolutionary goal state by having people watch one of two movie clips. People in the mate-acquisition condition watched a few minutes from the romantic movie *Before Sunset*. In the self-protection condition, people saw a clip from *The Shining*, in which a writer tries to murder his family.
  - After watching one of these clips, people were asked to participate in an ostensibly unrelated study in which they evaluated a number of proposed ads for various products. There were two versions of each ad, one relying on a popularity appeal and one using a uniqueness appeal.

  - Consistently, people who were in the self-protection condition rated the popularity appeals higher, while those in the mate-acquisition condition responded more favorably to the ads with the uniqueness appeal.

- If you are trying to attract a mate, the uniqueness appeal fits the bill. But if you are thinking about being chased down by a maniac, then being surrounded by people seems advantageous.

- This matters because the decisions you make depend, in part, on how persuasive you find associated advertising appeals. And how persuasive you find those appeals is a function of which subself happens to be activated.

Mate-Acquisition Research

- One major mediator of mate-acquisition behavior seems to be driven by changes in sex hormones. This means that men and women tend to behave differently when this goal state is activated.

- The male response seems to be more easily activated by environmental cues, partly because testosterone levels are highly responsive to different situations. When testosterone levels increase as a result of a mate-acquisition goal, men tend to be more nonconforming. They also engage in more conspicuous consumption and become more gain-seeking, creative, and risk-seeking.
  - In one study, researchers Richard Ronay and William von Hippel studied the behavior of teenagers at a skate park, using experts to rate the difficulty of the tricks they were trying. The researchers then had an attractive young woman enter the skate park to watch. Suddenly, the tricks got flashier and more dangerous.

  - By taking saliva samples from some of the young men, the researchers confirmed that testosterone levels increased when the attractive girl appeared; this seems to have led to an increase in decisions to try risky stunts.

- For women, mate-acquisition goals tend to be less situational and more cyclical. The hormones that drive female mate-acquisition behaviors seem to be less influenced by the immediate environment but driven instead by the ovulatory cycle.

- In one study, led by Kristina Durante, undergraduate women were asked to give a urine sample; the sample was used later to determine which participants were ovulating during the experiment. All participants were then asked to perform an online shopping task, where they could pick their favorites from a variety of clothing, shoes, and accessories.

- When the researchers correlated the participants' clothing preferences with hormone levels, they found that when they were ovulating, participants were more attracted to clothing and accessories that were independently rated as being more alluring. In short, the underlying goal state subtly influenced the kind of choices the women might have made on a shopping excursion.

Of course, status goals can lead to ostentatious displays, but status can also be gained by conspicuously consuming a virtuous product, such as a hybrid car.

Evolutionary Psychology as a Framework

- In an earlier lecture, we talked about Maslow's hierarchy of needs as one framework for categorizing the various motivations that drive people's decision making. Consider evolutionary psychology—and the subselves framework—to be another approach for trying to organize the chaotic tangle of motivations that drive human decision making.

- Where most of Maslow's goals might be considered conscious goals, most evolutionary goals might be considered nonconscious. Often, we are not aware that these evolutionary goal states have been activated in us by some factor in the environment or in our own bodies.

- These surprise motivations can be helpful or distracting. But even if they are not always well-suited to everyday decisions, they served our ancestors well enough for those traits to be passed down to us.

Suggested Reading

Kenrick and Griskevicius, *The Rational Animal*.

Questions to Consider

1. What is a "just-so" theory? Why is this criticism often applied to research on human evolution? What is the scientific defense against charges of creating just-so theories?
2. What are some of the differences in motivation caused by the seven subselves identified by Kenrick and Griskevicius?

Lecture 16

Regulatory Focus and Human Motivation

The idea that people approach rewards and avoid punishments is fairly basic and serves as one of the foundational insights that underlies entire schools of psychological thought, from decision making to animal learning. Indeed, for many years, it was thought that the major structure of goal-derived decision making fit into these two categories. But in the late 1990s, a psychologist at Columbia University named Tory Higgins suggested we could better understand the so-called pleasure principle by introducing another motivational factor that cut across approach and avoidance. The result was a motivational theory called *self-regulatory focus*, which we'll discuss in this lecture.

Motivational States

- To understand self-regulatory focus, let's begin with a specific example involving the various motivations people might have for wanting to work hard at their jobs.
  - Some people are motivated by the potential for gain. They work hard because they want promotions and raises.
  - Others work hard to avoid getting fired. They don't want to lose what they have.
  - Some people work hard because they want job security. Notice that both seeking a promotion and seeking job security are approach motivational states, but one group is approaching a gain, while the other is approaching a non-loss. This divides the general approach orientation into two categories based on what is being approached: gains or non-losses.

- The same thing can be done for avoidance goals. Some people work hard because they want to avoid getting fired (a loss), but others work hard because they want to avoid getting stuck in their current jobs (a non-gain).

- Ultimately, these motivations change the control-panel settings that guide our cognitive decision-making machinery.

- We can envision these four main motivational states as laid out on a grid.
  - Picture a vertical line intersected in the middle by a horizontal line. The top half of the vertical line indicates an approach motivation, while the bottom half indicates an avoidance motivation.

  - Bisecting this axis is a horizontal line that maps Higgins's regulatory focus. On the left side of the horizontal axis is a *promotion orientation*, while on the right side is a *prevention orientation*.

  - The four quadrants formed by the intersecting lines are the four goal states. Thus, in the upper-left quadrant, we find people with an approach motivation and a promotion orientation (a gain end state). These people tend to be motivated by securing advancement and happiness. In the upper-right quadrant, we find an approach motivation paired with a prevention orientation (a non-loss end state). These people tend to seek security and calmness.

  - The bottom two quadrants are avoidance motivations. In the bottom-left quadrant, avoidance is paired with a promotion orientation (an end state of avoiding non-gains). People in this motivational state want to avoid ending up sad or unfulfilled. In the bottom-right quadrant, avoidance motivation is paired with prevention orientation (an end state of avoiding losses). People in this state seek to mitigate threats and reduce anxiety.

Chronic Regulatory Focus

- Research shows that people tend to naturally favor either a promotion orientation (in which the primary concern is approaching gains and avoiding non-gains) or a prevention orientation (in which the primary concern is avoiding losses and approaching non-losses). Psychologists refer to the tendency toward one of these orientations or the other as a *chronic state*.

- Your chronic regulatory focus orientation is a function of many things, including your culture and the way you were raised.

- It is not the case that one type of focus is better than another. These orientations are simply different ways people have of thinking about goals and motivations. Further, although we all tend to have a chronic preference for one of these states over the other, regulatory focus is relatively fluid and can be shifted easily.

Research suggests that people raised in similar cultures tend to have a similar chronic regulatory focus.

Regulatory Fit

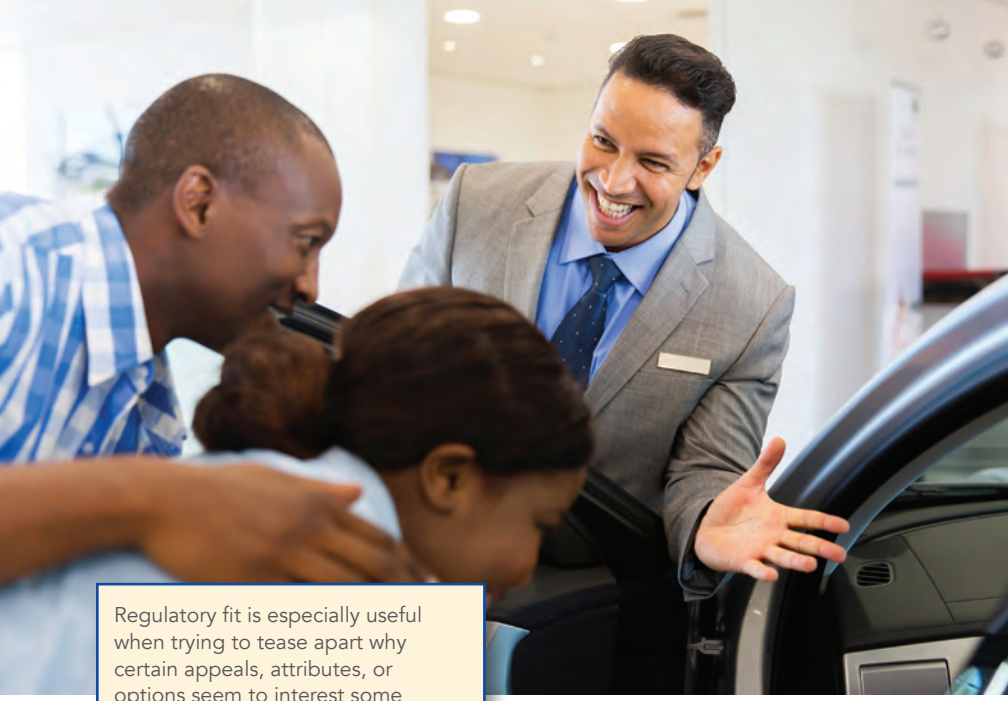
- Regulatory focus has become popular among researchers because it is consistently able to predict behavior, and its predictive power comes from a simple idea. If you have a preference for thinking about gains and non-gains or about losses and non-losses, then you will respond to things that are framed in such a way as to be consistent with that regulatory focus. This is known as *regulatory fit*.

- Experiencing regulatory fit "feels" right. You'll find this state to be more persuasive, more motivating, or more attractive.
  - For example, imagine these two scenarios: (1) You book a flight, but because you must postpone your ticket purchase, you end up spending an extra $50.00 above the usual cost. (2) You had the opportunity to save $50.00 on a ticket, but you missed the chance.

  - In both cases, you are out $50.00 relative to what you might have spent. But in one scenario, the $50.00 came in the form of a loss. (Paying more than expected is generally coded as a loss.) The other is a non-gain—failing to take advantage of savings. For many people, the feelings elicited by those types of pain are not equivalent, even if they involve the same amount of money.

  - Higgins and his colleagues found that people with chronic promotion orientations were more sensitive to scenarios about non-gains, while people with chronic prevention orientations were more sensitive to scenarios about losses.

  - The explanation given for the finding was regulatory fit. If you have a promotion orientation, you will tend to be more sensitive and react more strongly to gains and non-gains. It is as if your mind is more prepared to process those types of stimuli; thus, your reactions will be more finely attuned. In the case of aversive stimuli, a person with a promotion orientation will find non-gains more aversive than losses of a similar magnitude.



Regulatory fit is especially useful when trying to tease apart why certain appeals, attributes, or options seem to interest some people but can fall flat with others.

Goal Pursuit

- Regulatory fit has also been used to explain the means by which people strive to achieve their goals. For example, if you want to lose weight, you could seek out foods with certain nutritional characteristics or you could seek to avoid certain foods.

- Regulatory-fit theory predicts that the strategies people use in goal pursuit will be consistent with their regulatory focus.
  - If you are a promotion person, it is likely that "eager" strategies will resonate with you. You'll look for ways to make changes now, focus on ideal outcomes, and be motivated by thoughts of success.

  - If you are a prevention person, then "vigilance" strategies are more likely to appeal to you. You'll be motivated by thoughts of what will happen if you fail to meet your goal, and you'll try to make sure that doesn't happen.

- When people pursue goals using strategies that conflict with their regulatory focus, they experience misfit and are generally less successful at achieving their goals.

Persuasion

- People in a promotion frame of mind tend to find gain-focused appeals more persuasive, while those with a prevention orientation seem drawn to arguments about avoiding losses and obtaining non-losses.

- Angela Lee, from Northwestern University, and Jennifer Aaker, from Stanford, tested this proposition, presenting experimental participants with two versions of an ad for Welch's grape juice.
  - The text of one ad emphasized that grape juice can create energy, is delicious, and is fun to drink—a gain-focused message. The other ad focused on the health benefits of grape juice—its levels of antioxidants to reduce the risk of cancer and heart disease and flavonoids to help blood flow freely. Essentially, this ad focused on the ways grape juice could help someone avoid negative health outcomes, or losses.

  - The researchers found that after viewing the gain-focused ad, people with promotion orientations liked Welch's grape juice more. In contrast, the loss-focused ad that emphasized health benefits led to prevention-oriented people liking Welch's more. The ads were more persuasive when the message fit with the person's regulatory focus.

- The importance of regulatory fit in anticipating persuasive messages has also been tested in public-health messaging. Guangzhi Zhao and Connie Pechmann developed several versions of a 30-second anti-smoking public service announcement. In their studies, the ads were seen as more persuasive when there was a high degree of regulatory fit.

Regulatory Fit and Decision Making

- Research also suggests that regulatory fit has the potential to influence decision making at several points in the process, starting with the way information is acquired, through how that information is weighted, to the type of decision that is ultimately made.

- Evidence shows that people construct preferences that are consistent with their regulatory focus.
  - Imagine that you were evaluating new toothpastes from brands you've never heard of. Each toothpaste is described by several attributes, such as ability to freshen breath, control plaque, and so on.

  - Much research in decision making suggests that you likely don't have strong pre-formed preferences about which of these attributes is more important and, instead, form your preferences in the moment, based on the information you have available to you (known as *constructed preferences*). A regulatory fit perspective on constructed preferences predicts that you will construct your preferences to be consistent with your regulatory focus.

  - Researchers Jing Wang and Angela Lee tested this prediction by inducing a group of people to have either a promotion orientation or a prevention orientation. Then, they had the people evaluate toothpastes. They described various toothpastes using a combination of six attributes: three that were promotion focused (freshening breath, whitening teeth, and strengthening tooth enamel) and three that were prevention focused (preventing cavities, preventing gingivitis, and controlling plaque).

  - People with promotion orientations tended to form preferences for toothpastes that excelled on the promotion attributes, and prevention-oriented people formed preferences for toothpastes that were better on prevention attributes.

- Finally, regulatory fit can even influence the types of decisions we are inclined to make. Often, the decisions we make are based not on certain outcomes but on probability estimates. There are four possible outcomes from a probability decision: (1) a hit, (2) an error of omission, (3) a correct rejection, or (4) an error of commission.
  - These four decision outcomes map fairly cleanly onto the four quadrants of the approach/avoidance matrix. For people with a promotion orientation, the regulatory-fit hypothesis would predict that they should favor decision strategies that are consonant with eager, gain-focused approaches. In other words, promotion-oriented individuals should be primarily focused on maximizing hits and avoiding errors of omission.

  - Prevention-oriented people, in contrast, are primarily focused on vigilant, loss-focused strategies. They want to maximize correct rejections and minimize errors of commission.

- The end result is that regulatory fit can affect the strategies we use when making our decisions, encouraging more eager, gain-focused decisions or more vigilant, loss-focused ones.

Suggested Reading

Higgins, "Promotion and Prevention."

Lee and Aaker, "Bringing the Frame into Focus: The Influence of Regulatory Fit on Processing Fluency and Persuasion."

Molden, Lee, and Higgins, "Motivations for Promotion and Prevention."

Questions to Consider

1. How are promotion/prevention orientations different from approach/avoidance motivations?
2. What is regulatory fit? How does regulatory fit influence decision making?

Lecture 17

Decision Rules

In this lecture, we'll discuss decision rules people use when making choices. This may seem like a hopelessly complex question, but to help us get a grasp on the topic, we'll start with a stylized, simplified choice context. We can later build on this context, making things more complex and realistic. But what this simplified setting lacks in external validity—that is, real-world generalizability—it makes up for in internal validity. Simplified settings give us an uncluttered experimental perspective that lets us zero in on the kinds of decision rules people can use in any setting.

Case Study of Decision Rules

- Let's suppose that you are trying to decide where to go on vacation. You find three vacation packages that seem to have potential, and you find a travel website that has rated each of them on the four attributes that matter most to you: price, activities, hotel amenities, and hotel view.

- Each of these vacation packages excels in some areas and is deficient in others. The table below shows the ratings (on a 5-point scale) for each of the attributes under consideration. Because there is no clear winner, making a decision from this set requires making some tradeoffs.

Vacation	Price	Activities	Amenities	View
A	5	4	1	4
B	3	5	3	1
C	2	4	5	2

- Even from this simplified consideration set, people have enormous flexibility in how they might approach this decision. (These insights

come from the work of researchers Jim Bettman, John Payne, and Eric Johnson.) Possible strategies people can use vary on a number of important dimensions, including the amount of information processed, the order in which information is gathered (by attribute or by option), how the information is weighted (either compensatory or noncompensatory), and how accurate the decision rules are.

- With regard to accuracy, some choices can be evaluated as objectively right or wrong. If option A and option B are identical in every way, except that option B is $10.00 cheaper, then we have a clear winner. And the accuracy of a decision rule could be measured based on whether it leads someone to choose option B.

- But most often, consideration sets are not nearly so clear cut. Even the simplified set of vacations we started with does not have an

The fatal-flaw approach to decision making (noncompensatory) means that if one option, such as hotel activities or price, is not sufficiently good on some attribute, it is out of further consideration.

obvious winner. In such cases, the most accurate decision is not the optimal one in an objective sense. Instead, accuracy is evaluated relative to what would be the best choice for you.

Weighted-Additive Rule

- The most accurate way of making decisions is to follow the *weighted-additive rule*. This rule requires knowing which attributes are most important to you and the importance of each attribute relative to the others. Based on these ratings, the decision maker assigns weights to each attribute.

- For example, suppose that the most important attribute to you is activities. You might assign that a decision weight of 0.4. For hotel amenities, you assign a weight of 0.3; for price, 0.2; and for hotel view, 0.1. (When following the weighted-additive rule, it's traditional to make the attribute weight fractions add up to 1 when summed across all attributes.)

- We then multiply the score given to each attribute on the travel website by our own decision weights, sum the results, and get an overall score for each option. Using this approach, Vacation C has the highest overall score, with 3.7. (See table below.)

Vacation	Price × Weight (= 0.2)	Activities × Weight (= 0.4)	Amenities × Weight (= 0.3)	View × Weight (= 0.1)	Total
A	5(0.2)	4(0.4)	1(0.3)	4(0.1)	3.3
B	3(0.2)	5(0.4)	3(0.3)	1(0.1)	3.6
C	**2(0.2)**	**4(0.4)**	**5(0.3)**	**2(0.1)**	**3.7**

- Obviously, the weighted-additive rule requires extensive information processing. We can't come to an overall score for each option unless we evaluate all the information for each option on every attribute.

- This decision rule also encourages by-option processing. We create a summary score for each option before moving on to the next one, and only the weighted total scores are ultimately compared.

- Weighted-additive is a compensatory decision rule. One weakness won't necessarily knock an option out of consideration. The rule relies on holistic assessments of the options.

- The weighted-additive rule is an effortful way to make decisions, but it should also lead to the most accurate outcomes. If you know your own preferences well enough to accurately assign attribute weights and if you can accurately assess each option's attribute performance, then this method will all but guarantee that you will get the best option.

Elimination-by-Aspects Rule

- Another strategy, proposed by Amos Tversky, is the *elimination-by-aspects rule*. Using this rule, we drop options from consideration until we get a winner. To do this, we again need to know which attributes are most important to us. But even at this first stage, this rule is easier than weighted-additive. We need to know only the order or ranking of the attributes; we don't need to know exactly how important each is relative to the others.

- Again, suppose that you consider activities to be the most important attribute, followed by amenities, price, and view. We start by setting a minimum threshold for the most important attribute. If an option is not good enough on that attribute, then it is eliminated from further consideration.

- Because activities are so important to you, you set a threshold of 4 for that attribute. The second most-important attribute is hotel amenities; for this, you are willing to accept anything that scored 3 or higher. Vacation A is now out because it scored only 1 on amenities. For the third most-important attribute, price, we assume a threshold of 3 again. We can now eliminate Vacation C because it scored 2 on price. Vacation B is the only remaining option.

Vacation	Price Attribute rank: 3 Cutoff value: <3	Activities Attribute rank: 1 Cutoff value: <4	Amenities Attribute rank: 2 Cutoff value: <3	View Attribute rank: 4 Cutoff value: <2	Elimination Order
A	5	4	1	4	Round 2
B	**3**	**5**	**3**	**1**	**Winner**
C	2	4	5	2	Round 3

- Notice that using a different decision rule can lead to different outcomes, even for someone with a consistent and stable set of preferences. Here, you ended up with a different vacation.
  - Elimination-by-aspects is not as demanding in terms of the amount of information that needs to be processed.
  - This method also differs in the order in which information is processed. This is a by-attribute decision rule. First, an attribute is selected; then, all the options are assessed on that attribute. Then, we move on to the next attribute, and the remaining options are assessed.
  - Finally, this is a noncompensatory rule. Unlike weighted-additive, if an option doesn't make the cut on one of the early attributes, it's out. It can't make up for it by being great on another attribute.

Satisficing

- Yet another decision rule is *satisficing*, identified by Herbert Simon. The purpose of this rule is not to come to the optimal conclusion; rather, the point is to find the first option that is good enough.
- As a formal decision process, satisficing requires rank-ordering the attributes in terms of importance and determining some cutoff threshold for those attributes. However, instead of working through the list and

dropping options that are not good enough, satisficing looks for the first option that is good enough, according to the thresholds.

- Let's use the same attribute ranking and thresholds we used in the previous example. Vacation A makes the cut on activities, which means that we're done.

Vacation	**Price** Attribute rank: 3 Cutoff value: <3	**Activities** Attribute rank: 1 Cutoff value: <4	**Amenities** Attribute rank: 2 Cutoff value: <3	**View** Attribute rank: 4 Cutoff value: <1	Evaluation
A	**5**	**4**	**1**	**4**	**Winner**
B	3	5	3	1	
C	2	4	5	2	

- Of course, satisficing is highly sensitive to the order in which options are evaluated. If there were more than one option that satisfied the thresholds, then the first one to be encountered would be chosen. Given the often arbitrary way that information about options comes to us, satisficing can produce inconsistent choices over time, but it is fast and easy.

Revealed Preferences

- Researchers have identified eight decision rules that people use to make choices. And each of them can return different choices—even for a person with the same basic set of preferences.

- This finding—that people with relatively stable and well-defined preferences can make different choices depending on the decision rule they apply—challenges some economic models of decision making. Many of these normative models are based on the assumption of *revealed preferences*—that someone's true preference structure can be inferred based on his or her behavior.

- Like so many of the assumptions that underlie rational, normative decision models, this one seems reasonable. Choosing one option over another would seem to be fairly reasonable evidence about your true preferences. Nevertheless, the work on decision rules shows that this assumption is not always justified. The same underlying preferences can lead to different decision outcomes, depending on the decision rule used.

- This insight led to a new way of thinking about decision making. Normative models of decision making largely assumed that people chose by selecting the option that maximized their utility, subject to some budget constraints. This means that making a choice is simply a matter of comparing each option to an internalized ideal point.

- But the work on decision rules suggests something different: that at least some of the time, we may have only a vague idea of what we want. With such general guidelines, we can select different decision rules and arrive at different outcomes. Rather than pointing to preexisting preferences, research on decision rules indicates that we often construct preferences in the decision situation itself.

Real-World Decision Making

- In the real world, we rarely encounter choice sets in which all the information is available and easily comparable for every option. But if we abstract a little, we can see how people might do something approximating those strategies.
  - If we are thorough, we come reasonably close to a weighted-additive mode of decision making.
  - If we skim what's available and pick the first option that seems good enough, we come close to satisficing.

- What's even more common in real life is that people use multiple decision rules at different stages in the decision process. One common strategy is to use an easy, noncompensatory rule, such as elimination-by-aspects, when the choice set is large, but switch to a harder, more

In buying a laptop, you may initially use an elimination-by-aspect strategy to cull your options; you may then switch to a weighted-additive strategy to arrive at a more accurate decision.

accurate, compensatory rule when the choice set has been winnowed down to something more manageable.

Suggested Reading

Bettman, Luce, and Payne, "Constructive Consumer Choice Process."

Payne, Bettman, and Johnson, *The Adaptive Decision Maker*.

Questions to Consider

1. What is the difference between compensatory and noncompensatory decision rules? What are the implications of each for decision making?
2. What is satisficing? How does it differ from a weighted-additive decision rule?

Lecture 18

How Context Influences Choice

We've been using the metaphor of manufacturing to describe the human decision-making process. We've talked through the cognitive machinery common to all of us and the complex and imperfect set of controls we have at our disposal to regulate that cognitive machinery. In this lecture, we'll discuss the raw materials that serve as inputs to our decision-making process. In fact, the options we consider—how they are described, which options accompany them, and how many options we have—all serve as input to our decisions. And subtle, seemingly irrelevant changes in those raw materials can ultimately influence the choices we make.

Choice Context and the Decoy Effect

- From a decision-research standpoint, *context* can be defined as the immediate environment in which decision options are considered, including the composition of the set of options under consideration. Some contexts influence decision making by providing reasons for choosing a particular option.

- Perhaps the most well-known phenomenon in this area is the *decoy effect*. This effect is seen at times when adding a third option to a set changes the relative preference for the original two options.
  - Suppose you were buying a car and found two cars that were more or less equivalent, but one offered a more comfortable ride and the other had better gas mileage. (See table below.) Decision scientist Itamar Simonson gave this choice set to a group of people in the late 1980s and found that about 40% chose Car B—the one with the better gas mileage.

Car	Ride Quality	MPG
A	83	24
B	73	33

- A different group of people saw the same two options but was also given a third car to consider: Car C.

Car	Ride Quality	MPG
A	83	24
B	73	33
C	70	33

- When given this three-option choice set, basically no one chose Car C, but the relative choice share of Car B shot up to more than 60%. That is, adding Car C to the set made Car B more attractive than it was in the set with just A and B. The simplest explanation for this result is that Car C provided a reason for choosing Car B.

- Notice that Car C is not uniformly worse than the other two; instead, it is *asymmetrically dominated*—dominated by one of the options but not the other. Car C was strictly worse than B. It had the same miles per gallon but a worse ride quality; thus, Car B dominates C. Car A had much better ride quality, but Car C had better gas mileage; thus, Car A does not dominate C. The asymmetric dominance provides a reason for choosing B.

- The presence of Car C is not a particularly good reason for choosing Car B. But even though the decoy is objectively irrelevant, it can still influence choice. The way that raw material is presented affects the choice that is ultimately manufactured from it.

- Psychologist Dan Ariely and colleagues tested the decoy effect in the context of evaluating the attractiveness of human faces. Using a computer simulator, the researchers created two faces (Tom and Jerry) of roughly similar levels of attractiveness.
  - In each trial, people were shown the two baseline faces, plus a decoy face. The decoy was made by making one of the original faces—Tom or Jerry—slightly less attractive.

  - In trials where there was a Jerry decoy in the mix, people tended to rate Jerry as the most attractive face in the bunch. In trials where there was a Tom decoy, Tom was viewed most favorably.

- The vast majority of the research on the decoy effect was done in settings where people were presented with options laid out in tables, with the attribute values mostly expressed numerically. Later research has shown that when information is presented in somewhat more naturalistic settings, the evidence for the decoy effect becomes much weaker.

Compromise Effect

- The *compromise effect* is similar to the decoy effect. It also involves adding an option to a binary choice set and invokes reason-based decision making as its most prominent explanation.

- The compromise effect is rooted in the common human tendency toward extremeness aversion. There are certainly exceptions to this rule, but in many settings, people tend to avoid extreme options. In large sets, this often means that the highest and lowest options will be neglected.

- When dealing with three-option sets, the middle, or compromise, option tends to be preferred. Returning to our car example, if one car is better on ride quality, and another is better on gas mileage, we might expect to increase the choice share of one of the options by adding a more extreme option to the set that made one of the original two a compromise.

- Suppose we add Car D to our original set. Car D is better than A on ride quality but worse on gas mileage. This makes Car A moderate on ride quality—not the best in the set but not the worst either. Car A is also moderate on mileage (see below). In such a context, we would expect the relative choice share of Car A to increase.

Car	Ride Quality	MPG
A	83	24
B	73	33
C	70	33
D	93	18

- Note that this is different from the decoy effect. Car D is not a decoy; it's not dominated by either of the other cars. If all you care about is ride

The fact that the best-selling wine in a restaurant tends to be the second least-expensive option is an example of the compromise effect at work.

quality, then Car D is the one for you. But adding Car D changes the relative preference for A and B. Car A suddenly becomes more attractive because it is neither the best nor the worst on any single dimension. And that becomes a reason for choosing it.

No-Choice Options

- Research has found that choices can even be influenced by whether or not the option not to choose is salient at the time of choice.

- In a series of studies conducted by marketing professors Jeff Parker and Rom Schrift, different groups of people were given identical choice sets—say, two cameras—in which the only difference was that some people were asked which camera they would choose, and some people were also given the option not to pick one but to keep looking for other options. Across the studies, the no-choice option wasn't particularly popular, but just having that option available was enough to influence which of the two cameras people selected.

- Parker and Schrift argue that the salience of a no-choice option changes the nature of the questions people ask themselves when evaluating options.
  - When asked which of the two options they would choose (a *forced-choice scenario*), people intuitively ask themselves, "Which option is better?" When trying to answer that question, people tend to do attribute-by-attribute comparisons across the options, and the outcome of this process usually favors easy-to-compare attributes. Attributes with numerical values are inclined to carry more weight than "squishier" attributes, such as brand.

  - Contrast that with a choice set in which the option not to pick but to keep looking is salient. Now, instead of asking which is better, people first ask themselves whether either of the options is worth picking at all. When faced with that question, people tend to process information differently. Instead of attribute-by-attribute processing, they engage in option-by-option processing, in which

easy-to-compare attributes are not nearly as influential. Instead, qualitative attributes, such as brand, start to shine.

- When a choice set involves making a tradeoff between options for which one is better on easy-to-compare attributes and one is better on qualitative attributes, we can find preference reversals when people think about the possibility of looking for other options.

Environmental Factors

- When we think about contextual influences on choice, we might also consider environmental factors. Perhaps surprisingly, even the tempo of music we hear can influence our decisions. As we all know, many people prefer to exercise to up-tempo, peppy music because it helps them feel energized and vigorous. It doesn't seem strange, then, that music might have a similar effect while shopping.
  - In one field study, Ronald Milliman worked with a restaurant to play either fast or slow music on different days to see how the difference affected customer behavior.
  - In general, people were slower and more patient when the music was slow compared to when it was fast. Customers spent an average of 12 minutes longer at their tables, which led them to order an average of $9.00 more in drinks.
- The physical space that we are in when making a decision can also affect us. For example, one study showed that when people were in a confined physical space—such as narrow grocery store aisles—they were more inclined to seek variety when they made decisions.
- Researchers from the University of Pennsylvania, MIT, and Stanford examined the influence of context on voting patterns.
  - Polling in the United States takes place in many different places, such as schools, libraries, churches, and so on. Some of those contexts may be related to issues that the voters are considering. For example, in the fall of 2000, a proposition in Arizona was on

The physical space that we are in when making a decision can affect us; one study showed that when people were in narrow grocery store aisles, they were more inclined to seek variety when they made decisions.

the ballot to increase state sales tax by 0.6% and steer that money toward education.

- The researchers found that people who were assigned to a polling place in a school were significantly more likely to vote for the tax increase than were those who voted at all other types of polling locations.

- This relationship remained significant even after controlling for demographics and political views: Being in the context of a public school when making the decision about public school funding seemed to have influenced the way people voted.

"Manufacturing" Decisions

- In making physical objects, the raw material inputs are relatively straightforward. You may have different grades of steel, but an I-beam is an I-beam. In contrast, the informational inputs we use in manufacturing decisions are much more nuanced.

- The information we receive, including the options we have to choose from and the attributes that describe those options, are the basis for our decisions, but the context in which that information is considered matters a great deal.

- The context, including the other options under consideration, the physical setting we are in, and what we can see and hear, is part of the informational input our decision-making apparatus uses to manufacture decisions.

- You can think of this as your mind is collecting all the surrounding information, just in case it is relevant. If everything worked optimally, it would then discard the material that is not important, leaving only the information that mattered.

- But instead, once that surrounding raw material information has been collected, it's used. In this way, the context can change the way we evaluate options, weight information, and ultimately, make decisions.

Suggested Reading

Huber, Payne, and Puto, "Adding Asymmetrically Dominated Alternatives."

Parker and Schrift, "Rejectable Choice Sets."

Simonson, "Choice Based on Reasons."

Questions to Consider

1. The decoy effect and the compromise effect both involve adding one option to a two-option set. What are the differences between the added options that lead to the decoy effect in one instance and the compromise effect in the other?
2. How does the option not to choose affect decision making, even when people end up choosing something?

Lecture 19

How Framing Effects Guide Decisions

One of the foundational tenets of rational choice theories is that choices should be consistent across equivalent descriptions of the options. For example, suppose a doctor told you that you had a disease and that the best chance of a cure was a somewhat risky surgery. Rational choice theories tell us that it shouldn't matter whether the doctor tells you that your chances of surviving the surgery are 90% or that your chances of dying during the surgery are 10%. The only difference between those two scenarios is the way in which the information is *framed*, which shouldn't matter. But in fact, there are consistent, predictable settings in which framing can have a profound influence on decision making.

Status Quo Framing

- *Status quo* framing effects are based on the observation that, all else equal, people tend to prefer the status quo. Of course, a preference for the status quo is not unjustifiable. After all, in many instances, there is a reason that the status quo option is the status quo. It may be the most preferred by the most people, or it may have been determined that this option is in the best interest of the largest number of people.

- Regardless of why we generally like default options, we do. And this can lead to some surprising results. One of the pioneers in documenting the power of status quo options is Columbia University's Eric Johnson. In one study, he and some colleagues looked at auto insurance choices.
  - For many years, people have recognized that there is a great deal of litigation surrounding car accidents, and a few state legislatures have decided to tackle the problem by restricting the ability of people

to sue over car crashes. However, rather than simply restrict those rights, these legislatures give people a choice: You can maintain a more robust set of options for using the courts, but you have to pay for that right upfront in the form of higher insurance rates.

- Thus, when people in certain states signed up for auto insurance, they were given a choice between a robust option, which cost more but preserved the right to sue, and a restricted option, which was cheaper but limited the opportunities to sue in the event of an accident.

- Some of these states decided that the robust option should be the default, and some states decided that the restricted option should be the default. In both cases, people were allowed to choose whichever option they wanted, but they could default to one option, whereas they would need to make an active decision to change to the other option.

- Two states that passed such laws were Pennsylvania and New Jersey. Pennsylvania made the robust option the default, while New Jersey made the restricted option the default. In Pennsylvania, 75% of motorists ended up paying more for the robust insurance. In New Jersey, only 20% opted for the more expensive insurance. This choice was not trivial. Pennsylvania residents ended up paying $200 million more on auto insurance, simply because the legislature decided to make one option the default instead of the other.

- In another example, Johnson and another colleague looked at effective consent rates of organ donation across Europe and found a dramatic difference across countries. Austria, Belgium, France, Hungary, Portugal, Poland, and Sweden all had participation rates running from 85.9% to 99.98%, while Denmark, the Netherlands, the United Kingdom, and Germany all had rates from about 4% to 27.5%.
  - The most parsimonious explanation for this disparity is that the first group of countries has an opt-out system for organ donation. Basically, in those countries, it is assumed that everyone is willing

to donate their organs after they die, but people can check a box if they do not want to participate.

- The countries with lower rates of participation have opt-in systems, where it is assumed that people do not want to participate unless they explicitly indicate that they do.

- Thus, one way of framing the raw informational material that is fed into our decision-making machinery is to designate some of that information as the default or status quo. This type of information often seems to get preferential treatment by our decision-making machinery.

Gain/Loss Framing

- Another type of framing arises out of our discussion of prospect theory. Recall that Daniel Kahneman and Amos Tversky found that losses tend to evoke larger reactions in people and that people tend to be more sensitive to potential losses than to potential gains. It turns out that loss aversion holds not just for objective gains and losses but also in situations in which a given piece of information is framed in terms of gains or losses.

- The experiment developed by Kahneman and Tversky to test this hypothesis started with this problem:

- Imagine that the United States is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimate of the consequences of the programs is as follows: If Program A is adopted, 200 people will be saved. If Program B is adopted, there is one-third probability that 600 people will be saved, and two-thirds probability that no people will be saved.
  - When Kahneman and Tversky ran this experiment, they found that 72% chose Program A.

  - A different group of people read the same scenario about the same disease and its predicted death toll of 600 people. But they

were given two different programs to choose from: "If Program C is adopted, 400 people will die. If Program D is adopted, there is one-third probability that nobody will die, and two-thirds probability that 600 people will die." In the original study, 78% of people preferred Program D.

- You may have already realized that these two pairs of programs are exactly the same. However, one is framed in terms of how many of the 600 who are at risk will be saved, and the other is framed in terms of how many of the 600 will die. That shouldn't matter, but it does.

- The way gain/loss framing most often plays out is by changing people's risk preferences. In the domain of gains, people tend to be, in relative terms, risk averse. In other words, people love the sure gain. People value a 100% chance of getting some gain relative to an option with a probabilistic outcome.

- In the domain of losses, people tend to become risk seeking; they hate the sure loss. Given a choice between a 100% chance of a loss and some probabilistic chance of a gain or a loss, people tend to be willing to roll the dice.

- We see this is in Kahneman and Tversky's problem. Should we save 200 lives or roll the dice on perhaps saving more or perhaps saving less? Most people will go for the sure gain, happy that they saved some lives. Should we let 400 people die or roll the dice on a possibly better or worse outcome? Most people can't stand the thought of losing all those lives and will prefer the riskier option.

- You can see an interesting real-world illustration of gain/loss framing at the racetrack in the *favorite-longshot bias*: a systematic bias on the part of bettors in favor of longshots and against favorites. Along with this favorite-longshot bias comes another effect that is almost as well established: The bias toward longshots tends to be strongest in the last few races of the day.

At the racetrack, the favorite-longshot bias comes into play in the last few races of the day; people tend to make riskier bets as the track gets closer to closing time.

- We can understand this increasing preference toward long-odds horses from the perspective of gain/loss framing. If you've been at the track for the last several hours, you have almost certainly lost money and are likely in a loss frame of mind.

- In that state, you realize that when the track closes, you will have locked in those losses, and because you are human, you hate that. Thus, you become risk seeking, picking riskier bets in hopes of producing the larger wins you need to return to the black.

Opportunity Cost Neglect

- In the strictest sense, not all decision researchers would consider opportunity cost neglect a framing effect. Rather than communicate the same information in two different ways, as gain/loss framing does, opportunity cost neglect can be seen when information that is objectively not informative is added to the description of an option and, thereby, changes consumers' preferences.

- *Opportunity cost* is an economic term for whatever you didn't get by choosing whatever you chose. According to some models of economic decision making, the way you make any decision is by comparing a considered option to the opportunity costs. If the considered option is better than the foregone options, you take it. If it's not, then you select one of the other things you could be doing instead.

- According to this rationalistic view, pointing out that you are giving up some things in order to choose an option shouldn't change things; that, in fact, is how you made the decision. But some decision researchers hypothesized that simply pointing out the opportunity costs might systematically change how people make decisions.
  - Shane Frederick at Yale University said that this idea came to him when he was shopping for a new stereo. He was debating between a more expensive model and a cheaper one when a helpful sales clerk pointed out that if Shane bought the cheaper one, he'd have

A surprisingly compelling strategy for businesses is to focus customers on the fact that paying more money for a competitor's offering will leave them with less money to use for other things.

an extra $100.00 to spend on CDs for the stereo. Of course, the information the clerk provided shouldn't have mattered, but by framing the options in terms of opportunity cost, the clerk changed their relative attractiveness.

- Shane and his colleagues took this observation into the lab and found that if you remind people that a less expensive option costs less money and that money can be used to buy other things, you can increase the preference for the less-expensive option.

- You can also use opportunity cost neglect to your benefit if you are trying to save money. The next time you're shopping for a big-ticket item, narrow your choices down to just a few reasonable options. Then, calculate the difference between the lowest-priced option and the others, and ask yourself: What could I do with that extra money? You may realize that the extra money would not be as valuable as the higher quality you'd get out of the more expensive option. But the research on opportunity cost neglect suggests that the simple act of making that price difference salient may be enough to turn you toward the cheaper option.

Suggested Reading

Frederick, Novemsky, Wang, Dhar, and Nowlis, "Opportunity Cost Neglect."

Kahneman and Tversky, eds., *Choices, Values, and Frames*.

Questions to Consider

1. What are the similarities and differences between framing effects and context effects (discussed in the last lecture)?
2. How are robust framing effects a threat to normative (rational) models of decision making?

Lecture 20

The Role of Memory in Decisions

In our effort to understand the decision-making process, we've been using the metaphor of raw materials. By this, we mean informational input about the options available to us. Our cognitive machinery interprets and compares this input before "manufacturing" a final decision. When we think about the "raw materials" of a decision, we're often examining how information is communicated to us or how choice sets are constructed. In other words, we're looking at factors that can be thought of as external to the decision maker. But we also consider internal factors, in particular, memory; indeed, memory is an integral part of many decisions we make.

Memory Storage

- Decades of research have been conducted on what kind of information gets remembered, that is, what is selected to be stored in long-term memory. Many of these findings are not surprising: We tend to remember things better when they are repeated, emphasized, unusual or humorous, connected to music, personally relevant, or tied to preexisting memory structures.

- Let's imagine that you work for an organization that wants to decrease the incidence of injuries and deaths around trains. Aside from the occasional mechanical failure or engineering mistake, nearly all train accidents are the result of a common citizen making a foolish decision, such as standing too close to the edge of a subway platform.
  - If you want to prevent bad decisions when people are around train tracks, how do you get that message across in a memorable way? One possibility is to write a catchy and humorous song, as the Metro Rail system in Melbourne, Australia, did with "Dumb Ways to Die."

- The song is so upbeat and funny that you cannot help but sing along, and its message gets lodged firmly in memory as a result. In the months after the metro ran this campaign, Melbourne saw a 21% reduction in accidents and deaths.

- If you want someone to remember a message, a political candidate, or a brand name, you should pursue one or more of these strategies: Make your pitch unusual or funny, repeat it often, or set it to music. All these things increase the likelihood of a memory being encoded.

Memory Recall

- The influence of memory on decision making is not just a function of whether memories have been encoded but also whether or not they are retrieved at the right time. Some of the ability to retrieve information is a function of how information is indexed in memory. And of course, certain types of information are easy to retrieve, while others are difficult.

- Are there more words in the English language that start with *R* or that have *R* as the third letter? People consistently guess that there are more words that start with *R*, but in reality, there are about 9,000 proper English words that start with *R* and more than 22,000 that have *R* as the third letter.
  - The reason people are so consistently off in their estimates about this question relates to the way our memories are indexed. It is relatively easy to think of examples of words that start with *R*. But our memory databases are not indexed to search by the third letter in a word. That makes retrieving examples exceedingly difficult.

  - Thus, according to the availability heuristic, we assume that if it is hard to think of examples of something, there must be fewer of those things, and we fall prey to an error.

- We can think of a similar situation when we use memory to aid decision making. Certain decision options are easier or harder to access simply because of the way our memories are organized.

- For example, if you are in the mood for tacos, you can probably generate a mental list of Mexican restaurants easily, but you may skip over other restaurants that serve Mexican food along with other selections.

- The second group of restaurants is not categorized as Mexican in your memory. Thus, when you go mentally wandering through the library stacks of your memory looking for tacos, those restaurants won't be shelved in the Mexican food section and won't be included in your consideration set.

Retrieval is sometimes aided or inhibited by the natural structure of memory, and this ease or difficulty of retrieval can determine how memory influences subsequent decision making.

- Retrieval can also be aided by memory cues that happen at the time of decision making. If something in your environment makes a memory momentarily more accessible or if the memory is tied to a cue that is likely to be present at the time of choice, then that memory has a greater likelihood of influencing decision making.
  - In Quebec, Canada, there is a chain of pharmacies called FamiliPrix. Several years back, this chain had a problem: Market research indicated that the brand was generally well liked by customers, but when customers were asked to name pharmacies, FamiliPrix consistently came in third.

  - To combat this problem, FamiliPrix developed a brilliant ad campaign. It was a series of 15-second spots that all featured ordinary people going about their lives. Standing in the middle of the scene, unnoticed by everyone, was a pharmacist in a white lab coat. As the scene unfolded, something happened to a person on screen, such as an accident or illness, that would necessitate a trip to the pharmacy. The pharmacist would then shout, "Aha! FamiliPrix."

  - The ads were funny, which made them memorable. But more important, they tied the message directly to memory cues—situational triggers that would encourage people to remember the message at the time they were deciding which pharmacy to choose.

- The idea that memory cues are vital to decision making was tested empirically by Jonah Berger of the Wharton School and Gráinne Fitzsimons of Duke University. These researchers decided to test various slogans designed to encourage undergraduates to eat more fruits and vegetables with their dining-hall meals.
  - The researchers started by pretesting two slogans: (1) "Live the healthy way; eat five fruits and veggies a day" and (2) "Each and every dining hall tray needs five fruits and veggies a day."

  - Although there was a clear preference for the first slogan, follow-up research showed that exposure to the second slogan increased fruit and vegetable consumption by an average of 25%.

- The explanation these researchers gave is that the slogan about the dining hall trays had a memory trigger: When these students went to the dining hall to eat, the first thing they did was to pick up a tray. That environmental cue caused them to remember the message and to change their eating choices accordingly.

The Changing Influence of Memory

- Is memory becoming less important over time as we gain access to more technological memory aids? The short answer is that memory seems to be less of an influence than it used to be. Technological changes have allowed us to use our memories in different, more strategic ways.

- There is a phenomenon in memory research known as *directed forgetting*. The idea here is that although the brain can store an amazing amount of information, it is not limitless. Thus, to use that limited storage capacity efficiently, the mind prioritizes some bits of information over others.
  - Sometimes, this selection process can feel haphazard, as when you forget the name of a dear friend but clearly remember a commercial jingle from your youth.

  - Often, however, information is stored in memory based on how important it seems at the time, and directed forgetting is the process of strategically not remembering things that seem less important.

- In a 2011 paper entitled "Google Effects on Memory," some researchers at Columbia, Wisconsin, and Harvard found that people may be inclined to use a specific form of directed forgetting in relation to information they acquire in the digital age. Specifically, people are less likely to bother to remember information if they expect it to be available for them to access easily later. Of course, with the Internet and powerful search engines, nearly everything is available for us to access easily.
  - A generation ago, if you were a movie buff, your mind was filled with trivia about which actors were in which movies, who directed what, and so on. But today, all those facts are stored in the Internet Movie Database and available with just a few taps of the fingers.

As a result of technological advances, people may treat large classes of information as something they don't have to remember because such information can be accessed quickly and easily.

- Indeed, the authors of the "Google Effects" paper found that our brains seem to be adapting to the digital age. What is enhanced when we have an enormous trove of information at our fingertips is the memory for how to get at specific kinds of information. In other words, the Internet is shifting how we use our memories.

- It is rare for people to remember both a fact and where to find that fact. Instead, we tend to remember one or the other. And as we expect more information to be stored and easily available, we remember fewer facts and develop better memories for where to find them.

- This finding has several implications for decision making. First, although there will always be a role for memory in decision making, it may be that that role is shrinking over time.
  - To the extent that we are turning to electronic sources and a kind of external extra memory storage for our brains, we should expect that some of the memory biases that currently affect decision making will be reduced and replaced with a new set of quirks associated with the way information is retrieved online.

  - Humor and music might become less influential on decision making, while search engine optimization and keyword searches start to matter more.

- From a decision-making perspective, we can think of memory as another source of raw material—information—that we can use when making decisions. The influence of memory on decision making is not just a function of what is stored but also whether it is remembered at the right time.

Suggested Reading

Berger and Fitzsimons, "Dogs on the Street, Pumas on Your Feet: How Cues in the Environment Influence Product Evaluation and Choice."

Sparrow, Liu, and Wegner, "Google Effects on Memory."

Questions to Consider

1. Recall is partially a function of how memories tend to be structured. Can you name a time when you were unable to retrieve some useful piece of information because it was stored in memory in a way that was incompatible with the demands of the decision you were making?
2. What are some of the factors that increase the likelihood that information will be stored in memory? If you were designing a message that you wanted people to remember, which of these factors could you realistically use to help get your message stored in your audience's mind?

Lecture 21

Assortments, Variety, and Choice

In the past few lectures, we've used the metaphor of raw materials to explore how certain inputs can influence our decisions. So far, the raw materials we've discussed include the types of options available, how those options are communicated, and the contexts in which they are evaluated. In this lecture, we'll continue our discussion of raw materials by learning how the number of options considered can influence how we manufacture our decisions.

Choice Overload

- In the late 1990s, two researchers from Stanford, Sheena Iyengar and Mark Lepper, conducted an experiment in which they gave people either 6 or 24 options of fancy jam to sample. The researchers found that giving people too many options can make the decision process onerous or even overwhelming. One of the consequences of this *choice overload* is that people opt not to make a choice at all.

- Iyengar and Lepper's work caused quite a stir among decision researchers because intuitively—even objectively—more options should always be better. The more options you have to choose from, the higher the likelihood that you'll be able to find one that matches your ideal.

- Of course, there is an easy solution to facing a choice set that is too large: Simply make it smaller by eliminating some options. But there is also compelling evidence that people don't like fewer options.

- Thus, when Iyengar and Lepper's study was first published, it generated some criticism. With so many reasons to think that more options would be better, it seemed hard to believe that more options could cause negative consequences. The most common criticism leveled at this line

of work was that it was not worth the time required to investigate all the options available for a trivial choice, such as selecting jam, but that when people make decisions that truly matter, they wouldn't simply walk away just because there were too many options.

- Iyengar and some colleagues followed up on the initial research, by investigating, among other things, participation rates in 401(k) retirement plans.
  - Defined-contribution retirement plans differ across companies in terms of how many mutual funds are offered to employees. Some companies offer their employees only a few funds to choose from; others offer dozens. As with almost any choice, objectively, the more funds you have to choose from, the better off you should be in terms of matching your goals to an investment vehicle.

  - Despite this advantage, these researchers found that as companies offered their employees more mutual funds to choose from, there was a steady drop-off in participation rates. At companies that offered just a few funds, about 75% of employees participated in the retirement savings program. When firms offered more than 50 funds, participation rates dropped to about 60%.

  - When people were given more options, some were sufficiently overwhelmed by the choice that they decided not to invest for retirement at all. Of course, this decision is not like picking a jam. The decision of whether or not to participate in a 401(k) program is arguably among the most important people will make in their professional lives. But having more options to choose from was enough to move some people from participating to not participating.

The Choice-Overload Effect

- A number of explanations have been proposed for the choice-overload effect. One comes from Iyengar and Lepper, who posited that large choice sets can be demotivational. The effort they require—processing information and making comparisons—can sap our motivation to do

As much as people will tell you that they want more options, the reality is that for many products, people can easily find themselves overwhelmed.

additional research. When there is the option of not choosing, as with the jams, people simply don't choose.

- In one study of choice overload, the participants were students in two sections of an introductory psychology class at Stanford, and the manipulation was to change the requirements for an assignment across two sections of the same class. Both sections had the opportunity to write an essay for extra credit, based on a list of possible topics provided by the instructor. One section was given 6 possible essay topics, while the other was given 30.
  - The researchers were interested in both the percentage of students who chose to write an extra-credit essay and the quality of the essays that the students wrote. The essays were graded by assistants who were blind to the hypotheses and the experimental conditions.

  - The study found that students were more likely to write the essay when they were given fewer possible topics to choose from. Of those who were given 6 topics, 74% wrote an essay, but only 60% wrote one when given the option of 30 topics.

- Having more options can also change the reference point against which people evaluate options. This driver of over-choice effects was investigated empirically by Kristin Diehl from the University of Southern California and Cait Lamberton from the University of Pittsburgh. They found that people were systematically less satisfied with their choices when choosing from larger assortments relative to smaller assortments.
  - For example, in one study, participants were asked to imagine that they were shopping for a birthday card for a coworker. All the participants were asked to evaluate the same card to see how satisfied they would be with that selection. But half were told that the card had been chosen from a shop that had only 25 cards to choose from; the other half were told that the card came from a shop with 250 cards.

  - Despite the fact that everyone saw exactly the same card, participants were more satisfied if they were told that it came from a small shop than a large shop.

Assortment Effects

- Choice overload has been shown to occur in a number of contexts, but it has also been shown not to occur in some consistent settings.

- One of the contexts in which having more options tends to be better is when people have an *articulated ideal point*. In fact, some theories of rational choice start with the assumption that people have an ideal point for every decision they make and simply search through the available options, choosing the one that is sufficiently close to that ideal. However, the underlying assumption here doesn't have a great deal of empirical support.

- Even if people don't always know exactly what they want all the time, sometimes they do. And research by Alexander Chernev of Northwestern University has found that when people have an articulated ideal point, the negative effects of large assortments become positive.

According to rational choice models, when you're buying a TV, you have some ideal TV in mind; as you peruse the available options in the store, you compare each one to the ideal and select the one that is the closest overall.

- For example, in one of Chernev's studies, he asked people to choose among an assortment of either 16 or 4 chocolates. Within these two assortments, each chocolate was described by four attributes: type, cocoa content, flavor, and nut content. Each attribute also had four values. Type could be solid chocolate, truffle, praline, or caramel; flavor could be original, vanilla, strawberry, or cherry; and so on.

- Some participants were simply shown one of the assortments and asked to pick a chocolate. Other participants were first given the opportunity to articulate an ideal point. Before they were shown any particular chocolate, they were told the four attributes and asked to indicate which combination of attribute values would be their most preferred.

- Among those who were given an assortment without any preparation, the typical choice overload effects were found. People were less confident in their choices when choosing from the 16-option assortment than from the 4-option assortment. But when people were first given the opportunity to articulate an ideal point, the effect flipped. People were more confident in their decisions when choosing from the larger assortment than from the smaller one.

- Of course, this isn't difficult to understand. When you have articulated exactly what you know you want, all you have to do is search for it. And with a larger assortment, the chances that you'll find something close enough to what you want increase.

- Another setting in which people don't seem to be tripped up as much by choice overload can be seen when they are choosing between assortments that both carry relatively attractive options.
  - Recall that even though people can become overwhelmed and demotivated by large choice sets, they are also are more attracted to larger assortments. This suggests that in many settings, people may make an initial decision—which assortment to choose from—that causes them problems later when it comes time to actually make a choice.

  - A typical setting for this issue to arise might be competing stores that offer different ranges of choice.

- Some research has found that at least some of the attraction to larger choice sets is driven by uncertainty. If we are unsure about whether we will find something we like, we want the large choice set to increase our chances, even if it will require more work for us. But if both assortments are attractive, then the initial preference for the larger assortment is reduced.
  - For example, in one study, lunch was provided to adult students in an executive education class. Participants were given the option of one of two sandwich shops: one that offered an assortment of 9

options and another that offered 38 options. But the students had to pick the restaurant before they could see the menu.

- In one condition, both sandwich shops were described in relatively unflattering terms. In the other condition, both sandwich shops were described in glowing terms.

- When the restaurants were described as being not very good, only 13% chose to order off the menu with fewer options. In the other condition, 40% chose to order from the smaller sandwich shop.

- This finding may explain, in part, the success of stores that promote themselves on their small assortments and limited selections. The only retailers able to get away with that are those that promise extremely high-quality items, such as exclusive jewelers.

- A final setting in which choice overload is consistently not seen is when people are given decision tools, such as an easy-to-manage decision tree or search-and-sort functions, to help categorize the assortment.

Overcoming Choice Overload

- As we've seen, there are a couple of strategies for overcoming choice overload effects in your own life. First, whenever possible, articulate your preferences before you start looking. Many of the problems associated with larger choice sets are caused by people trying to form their opinions as they are evaluating the options. If you know exactly what you are looking for first, then the process becomes much easier.

- Second, take advantage of decision aids, such as decision trees, search functions, and sorting tools. The more control you have over how the assortment is organized, the easier it will be for you to cull that over-large set down to something manageable.

Suggested Reading

Chernev, "Product Assortment and Consumer Choice."

Chernev and Hamilton, "Assortment Size and Option Attractiveness in Consumer Choice among Retailers."

Diehl and Poynor, "Great Expectations?! Assortment Size, Expectations, and Satisfaction."

Iyengar and Lepper, "When Choice Is Demotivating."

Questions to Consider

1. What reasons have researchers uncovered to explain why larger choice sets can cause problems for decision makers?
2. One question left largely unresolved by research on assortment/size effects is this: How large does a set of options need to be before people start to experience negative over-choice effects? Why have researchers not pinned this down? What factors do you think might affect how people are influenced by the number of options they have to choose from?

Lecture 22

How Evaluability Affects Decisions

In the mid-1990s, Chris Hsee, a decision researcher at the University of Chicago, demonstrated a concept that has come to be used to describe many decision-making phenomena. The basic idea rests on two observations: The first is that attributes differ in evaluability—in how easy it is for the decision maker to assess or pass judgment on the quality of the attribute. The second observation is that the importance of an attribute in decision making is a function of its evaluability. Attributes that are easier to evaluate tend to be given more weight in decision making than attributes that are harder to evaluate—even when that means prioritizing objectively less important features over more important features.

Evaluability Effects

- It is probably not difficult to think of examples of evaluability effects in the decisions you've witnessed other people making. For example, if you look at surveys concerning hospital choice, you'll find that people place a great deal of importance on the courtesy of staff and the appearance of facilities.
  - Of course, those attributes are not trivial, and they could serve as signals of a high-quality, professional hospital. But it's also true that those particular attributes—courtesy of staff and appearance of facilities—are easy for people to evaluate.
  - In contrast, attributes that truly matter, such as the skill and competence of the medical staff, are nearly impossible for the average patient to assess firsthand. Thus, it is possible that ease of evaluating certain attributes (evaluability) leads people to give them more weight in the decision than they probably should.

- An even clearer example involves criticisms leveled against colleges for the seemingly large amounts of money spent on such amenities as new dorms, upgraded athletic facilities, rock-climbing walls, and so on.
  - There are many reasons for a university's specific spending decisions, but evaluability may be an important driver. When a prospective student is trying to decide which school to attend, a few factors, such as the quality of the learning environment or the culture, are likely to be important but difficult to evaluate. In contrast, the quality of the gym equipment is much easier to assess.

  - In a paper published by the National Bureau of Economic Research, researchers found that some students appear to base their decisions about which college to attend, at least in part, on the amenities the college offers. The students most likely to be swayed by new gym equipment are those who are relatively less focused on academics and who come from wealthy families. Even more interesting, schools appear to adjust their spending—specifically, the ratio of amenity to academic spending—according to the types of students they're trying to attract.

Reference Information

- What makes it easier or more difficult to evaluate an attribute? The answer boils down to whether or not we have reference information for the attribute under evaluation.

- In general, having a frame of reference means having some kind of experience with the attribute, often from your own past. If you make a particular kind of evaluation often enough, evaluating an attribute becomes second nature.

- A reference frame can also come from deliberate preparation: Imagine that you are buying your first refrigerator. You're a novice, but because you consider this an important purchase, you educate yourself before you go to the store. After investigating what's available, you get some

idea of which levels of attribute performance would be acceptable and which would not.

- Further, a reference frame can come through training. Nurses, for example, know the full range of numbers possible in a blood pressure check and can inform patients about whether their readings are too low or too high.

- The reference frame that we need to make something evaluable requires some experience or expertise; unfortunately, many of the domains in which we make decisions are those in which we don't have any particular expertise and only limited experience.

Low-Evaluability Attributes

- Decision researchers have discovered several workarounds that people use when faced with a low-evaluability attribute in making a decision.

- One solution in this situation is to perform relative evaluations. As it turns out, numerous strange outcomes can be demonstrated when one group of people is given multiple options to evaluate and others are given just the options in isolation.
  - For example, Hsee and some colleagues showed people pictures of two options of soft-serve ice cream being sold by two vendors. One vendor sold 8 ounces of ice cream in a 10-ounce cup. The other vendor sold 7 ounces of ice cream in a 5-ounce cup. All the volumes were labeled, and—rationally—people indicated that they would be willing to pay more for more ice cream: $1.85 for 8 ounces and $1.56 for 7 ounces.

  - But when a different group of people was asked to evaluate only one ice cream or the other, the preferences flipped. People indicated that they'd be willing to pay $2.26 for 7 ounces of ice cream but only $1.66 for 8 ounces. When people evaluated the two cups of ice cream independently, they were actually willing to pay more, on average, for less ice cream.

- Because people didn't have good reference information for the per-ounce price of ice cream, they looked at the pictures. In the 8-ounce picture, the cup was only four-fifths full, but in the 7-ounce picture, the ice cream was piled well above the rim. The height of the cup became an easy but largely irrelevant reference point for evaluating the ice cream. People were less sensitive to the high-quality information—the actual volume of the ice cream—and more sensitive to the low-quality information—the height of the ice cream relative to the cup—because the reference point made that the easier attribute to evaluate.

- Joint evaluations allow us to use higher-quality external reference points. We can see how the other options are performing on any particular attribute and make our judgments accordingly. Luckily, many of the decisions we make are in the context of multiple options.

We are often in the position of being able to use joint evaluations when making decisions; this is why, for example, travel services provide you with multiple itineraries.

Social Comparisons

- We can sometimes try to improve on joint evaluations by incorporating additional information. Some of these improvements come in the form of *social comparisons*. In some cases, we may not have precise reference information for a particular attribute, but we do have some idea of where our preferences fall relative to the preferences of others.

- For example, suppose you go shopping for a new phone and see that the model you like comes with three levels of memory: 128 gigabytes, 256 gigabytes, and 520 gigabytes. If you're like most people, you probably don't know your exact gigabyte needs.
  - Instead, you may engage in a simple social comparison, asking yourself: Relative to the average user, how much storage capacity am I likely to need?

  - If you're a new parent taking endless pictures and videos of your children, you may need more than the average person; thus, you might pick the 520-gig model.

- Drazen Prelec from MIT and his colleagues tested this idea in another study. They asked people to imagine that it had started raining and they had decided to buy a poncho to keep themselves dry. The vendor sold three sizes: 38, 40, or 42 inches long. Later, respondents were asked to give their height. When the researchers compared the results, not surprisingly, short people chose the 38-inch poncho, medium-sized people chose the 40-inch version, and tall people opted for the 42-inch version.
  - Different groups got the same question but with different lengths of poncho: 36, 38, and 40. Still another group got ponchos ranging from 34 to 38 inches, and another saw lengths of 32, 34, and 36.

  - In every group, short people chose the shortest option available, medium-sized people chose the middle option, and tall people chose the longest option—regardless of the actual size of the ponchos in the set. People made their evaluations by engaging in a kind of social comparison. The more difficult question would have

been: What is the right length of poncho for me? Instead, people asked themselves the relatively easy question: How tall am I relative to the rest of the population?

- Interestingly, most ponchos run between 50 and 52 inches long, which makes all of the options in this study comically short. If you had decent reference information, you would have chosen the longest one available, regardless of your height.

- People use a whole class of reference-point substitutes when they don't have valid reference information for a particular attribute. We see this kind of thing all the time in eating behavior.
  - Two decisions that we face, multiple times a day, are how much food to serve ourselves for a meal and when to stop eating.

  - You would think that we would have good reference points for these decisions. But for a variety of reasons, the signals our body sends us to let us know that we are no longer hungry tend to be relatively easy to miss.

  - For this reason, people often use external signals as reference points. How do you know when you have served yourself enough food for the meal, and how do you know when you're done? The answers are: when you've filled the plate and when you've emptied the plate. The problem with using plates as a reference frame, of course, is that plate size is variable.

  - Food consumption researchers Brian Wansink and Koert van Ittersum worked with a buffet restaurant to conduct a field experiment in which they changed the size of the plates customers were given. Sure enough, regardless of plate size, people tended to fill up their plates, and although they didn't always empty them, they came close. Customers who used larger plates served themselves 52% more food and ate 45% more food than customers who used smaller plates.

You would think that we would have good internal reference points for eating decisions, but in fact, it's more common for people to use external signals, such as plate size, as reference points.

- In an even more dramatic example, Wansink brought people into the food lab at Cornell University to have them sample some soup. The experiment had two conditions. In one, people ate the soup from normal bowls. In the other, people ate from bowls that had small holes drilled into the bottoms. As the person ate, more hot soup was pumped slowly in from a reservoir under the table. Wansink found that people in the "bottomless bowl" condition ate about 75% more soup than those who ate from a standard bowl.

- And that's the danger with all external reference points: Joint evaluations tend to be better than separate evaluations; social comparisons tend to result in more accurate evaluations; and environmental cues, such as plate size, can help with evaluations—but none of these is perfect. As with any context-dependent evaluation, these evaluations are highly sensitive to the particular options under consideration or the particular cues being used.

Suggested Reading

Hsee, "The Evaluability Hypothesis."

———, "Less Is Better: When Low-Value Options Are Valued More Highly Than High-Value Options."

Hsee and Zhang, "General Evaluability Theory."

Wansink, Painter, and North, "Bottomless Bowls: Why Visual Cues of Portion Size May Influence Intake."

Questions to Consider

1. How can the evaluability hypothesis explain the preference reversals that can occur between joint and separate evaluations of options?
2. Evaluability may be thought of as a specific type of a substitution heuristic (in which an easier problem or evaluation is substituted for a more difficult problem or evaluation). Explain evaluability from this perspective.

Lecture 23

Halo Effects and Choice

Sometimes, the information we acquire to use in decisions can be influenced by our higher-order impressions. These impressions create attribute halos that can bias our interpretation of neutral, inconsistent, or ambivalent attributes. Halo effects occur when we allow an overall impression of a thing—such as an overall favorable impression of the Coca-Cola brand—to influence our impression of specific attributes—such as taste. In other words, if—through marketing efforts, personal experience, or peer pressure—we come to believe that Coke tastes great, then that belief will color our experience when drinking Coke. Drinking exactly the same formula would not taste the same if it wasn't Coke.

Early Research in Halo Effects

- Halo effects are one of the major psychological justifications for the enormous resources that companies put into branding. Having an overall positive impression of a brand can bias subsequent evaluations of all kinds of attributes. But halo effects are not only a marketing phenomenon. They are a human phenomenon; they describe one way that people make evaluations and simplify decisions.

- The person credited with identifying halo effects is a psychologist named Edward Thorndike, in 1920. He was interested in how people evaluate other people. Thorndike noticed that when one person evaluated multiple characteristics of another person, the various evaluations tended to be far too correlated with one another. In other words, people tended to see others as more consistent across traits than they actually are.
  - In one of his studies, Thorndike had military officers rate soldiers on several dimensions: neatness, voice, physique, bearing, energy, intellect, and so on.

- Where the natural variation among people would predict diverse profiles across such a diverse set of traits, that's not what Thorndike found. Instead, there was a remarkable uniformity in the traits of any one soldier.

- The theory that underlies such halo effects is that people form an overall impression of something—say, a person or a university—then use that impression to fill in the gaps on any specific attributes they want to evaluate.

- Imagine you are an army officer and are asked to evaluate the 10 soldiers in your command on 12 attributes.
  - It's doubtful that you have a well-informed opinion about each soldier on every attribute. Even the most observant person is unlikely to have 120 evaluations filed away, although you have probably formed an overall impression of each individual as a soldier.

  - When you have specific individuating information for a particular soldier on a particular trait, you'll use that information. But if you don't have that information, you'll probably use your overall impression to fill in the blanks. You will complete the parts of that soldier's profile that you are less certain of in such a way as to be consistent with the parts you are sure about.

- If we think of decision making as a manufacturing process, halo effects fit under raw materials. They describe one way that we can make up for not having all the informational raw materials we need to make a decision.

- If you are an army officer suggesting soldiers for promotion, or a consumer trying to decide which car to buy, or a juror trying to choose an appropriate level of punishment for a criminal, you will almost never have all of the information you might like to make your decision. Rather than being paralyzed by what you don't know, you can use impressions to fill in the blanks and give you at least some chance of making a decision.

Halo Effects as Decision Shortcuts

- As with many of the decision shortcuts we've discussed, using impressions to guide our judgments doesn't always lead us astray. Particularly if you have a rich, detailed, and well-informed impression of someone or something, that impression is likely to be more helpful and accurate than not having one. In fact, some research shows that under certain circumstances, relying on general impressions can lead to more accurate decision making.

- The problem is that we often do not have detailed, accurate impressions. Instead, we have impressions that are informed by just a few observations, which we then use to over-generalize to unrelated traits and characteristics.

- This explains why, in the research on halo effects, the influence that has been studied most often is attractiveness. People who are evaluated as attractive also tend to be thought of as more intelligent, kind, friendly,

Controlling for other factors, attractive politicians are more likely to win elections.

and trustworthy. Attractive people are assumed to be more successful or have a greater potential for success. One explanation for this is that physical attractiveness is important in how people form initial impressions of others.

Halo Effects and Purchasing Decisions

- Halo effects seem to be influential in situations where we are forced to make decisions without solid reference points to rely on. Consider, for example, a typical grocery-shopping experience.

- At first blush, you might think that you have well-defined reference points for evaluating prices as a step toward making purchase decisions. You probably know how much to expect to pay for a gallon of milk or a loaf of bread. But a typical grocery or big-box store might have tens of thousands of individually priced items, and your reference prices for all those items are probably not well-defined.

- Research shows that when people evaluate prices in settings where they are not confident in their reference prices, they rely on overall impressions, specifically, on the price image of the store where they are shopping.

- For example, in one study, people were asked to evaluate the price of a two-pack of ball-point pens priced at $2.89. They were then asked to rate the attractiveness of the price. The manipulation consisted of changing the store that was ostensibly selling the pens. When people were told that the pens came from Walmart, $2.89 was rated as a low price. When they were told that the pens came from a magazine shop in airport terminals, the same price was rated as high.

- These same researchers also found that price perceptions can change what people choose to buy. The researchers showed different groups of people the same four products at the same four prices in a variety of categories.
  - One-half of participants were told that they were seeing a selection of options from a low-priced grocery store, Food 4 Less; the rest

were told that they were seeing options from a high-priced grocery store, Whole Foods.

- One of the categories participants saw was pasta sauce—the same four brands at the same four prices. But half were told they were looking at an assortment from Food 4 Less, and half were told they were looking at an assortment from Whole Foods.

- People tended shift their purchases depending on which store they thought they were buying from. When they thought they were buying from Whole Foods, they often bought the less-expensive options in the set.

- People assumed that all four of the pasta sauces at Whole Foods were expensive; thus, they selected one of the cheaper options. But when all the options were thought to be cheap, people thought they could treat themselves to a more expensive brand—even though the prices were exactly the same in both cases.

Halo Effects and Food Consumption

- Halo effects can also affect decisions about where we eat and how much. Just as we can form a high-level impression of the prices at a store, we can also form a high-level impression of the healthiness of a restaurant.
  - For example, McDonald's is widely seen as being an unhealthy place to eat, while Subway benefits from a "health halo"; it is seen as being a generally healthy fast-food option.

  - According to the theories we've discussed, the fact that Subway has a reputation for healthier foods should lead people to make judgments about its foods that are biased in favor of that impression. When people are unsure about the actual healthfulness of the foods, they will see Subway foods as healthier than they actually are and healthier than similar foods coming from restaurants with a lower overall health image.

As a result of halo effects, people enjoy wine more when they think it costs $90 a bottle than when they think it costs $10 a bottle.

- Pierre Chandon, from the INSEAD business school, and Brian Wansink, from Cornell, tested this hypothesis.
  - They sent research assistants to approach fast-food patrons at the conclusion of their meals to fill out a survey. The survey asked, among other things, for people to estimate the calories of the meal they had just consumed. As participants filled out the survey, the research assistants surreptitiously noted the meal that had been consumed, based on the wrappers left on the tray. The experimental condition consisted of whether the surveys were conducted at McDonald's or Subway.

  - Consistent with a halo-effect hypothesis, Chandon and Wansink found that people eating at Subway underestimated the number of calories in their meal more than the people eating at McDonald's.

- Using some statistics to control for actual differences in calories, the researchers estimated parameters that determined just how much people at each restaurant were underestimating. For a hypothetical 1,000-calorie meal, McDonald's patrons would, on average, estimate the meal to be 744 calories. Subway diners were even further off, estimating the meal to be only 585 calories.

- When we are estimating something we're not sure of, we can rely on our overall impressions of the store or restaurant to help. In this case, that "help" leads us to make even worse overall estimates, at least in terms of calorie count.

- People can also form instant, snap impressions of a single meal and use that impression to guide their judgments. In a series of studies conducted by Alexander Chernev, people were shown a picture of a meal and asked to estimate the number of calories it contained. Some participants saw a meal consisting of a greasy hamburger. Other participants saw exactly the same hamburger, but this time, it was paired with three celery sticks.
  - Chernev found that people who saw the hamburger by itself estimated that it contained more calories than meals that consisted of both the hamburger and the celery. Some people estimated that the burger by itself was 697 calories. Other people estimated that the burger and the celery sticks together were 642 calories. That's about an 8% reduction in calories by adding food to the plate.

  - This is another halo effect. When making an estimate about the number of calories in a meal, people first form an impression of the meal as a whole, then use that impression to guide their calorie estimate.

- Halo effects are nearly everywhere. They represent a common way for people to overcome the limitations of not having full knowledge when making decisions. By using general impressions to fill in gaps, we are able to create enough information to feed into our cognitive machinery to produce a decision.

Suggested Reading

Chernev, "The Dieter's Paradox."

McClure, Li, Tomlin, Cypert, Montague, and Montague, "Neural Correlates of Behavioral Preference for Culturally Familiar Drinks."

Thorndike, "A Constant Error in Psychological Ratings."

Questions to Consider

1. How do halo-effect evaluations differ from reference-point evaluations?
2. What are the advantages and disadvantages of using halos as a decision-making tool?

Lecture 24

The Four Rs of Decision Making

As we've seen, there are multiple approaches to studying how people make decisions. Economists; sociologists; philosophers; doctors; statisticians; and of course, psychologists have all weighed in. But the general approach that underlies this work is not without some detractors. The biggest criticism leveled against theory development in psychology is that it seems to be getting increasingly granular and complex, rather than more elegant and general. Still, understanding the theories can help us understand others better, design situations that make certain choices more likely, and make better decisions ourselves. For this reason, we'll close the course with a list of empirical generalizations—important principles to remember when you try to understand your own decision making or that of others.

Reference Points Matter

- Many of the theories we've discussed are based on reference points or were about scenarios in which people lacked good reference points.

- Loss aversion and its most prominent implication, the endowment effect, are both reference-point effects. We know that losses loom larger than gains, but how is a gain or loss determined? The answer is: by comparing it to a reference point.

- The behavioral economist Richard Thaler developed a stylized example to illustrate this point. Suppose you ran the only gas station in town, and your credit-card processor charges you a transaction fee ($0.05 per gallon) that you want to pass along to your customers. Should you:
  - Post a low price for gas on your street-side sign, then hit credit-card customers with the $0.05 per gallon penalty when they get to the pump?

If you use some particular theory of decision making to design a new teaching approach in your classroom, remember that whatever theory you've chosen, there may be a half dozen equally valid theories at play in your classroom.

- Post the higher price for gas and offer cash customers a rate discounted by $0.05 cents per gallon?

- To make your decision, you must predict how customers would respond to each of these mathematically equivalent options.
  - Suppose that the base price—the one advertised on the sign by the road—serves as the reference point. (Remember: Yours is the only gas station in town.)

  - In the first case, your cash customers pay what they expected to pay: the posted price. Their experience will be relatively neutral. But the credit-card customers will pay a higher rate relative to the advertised price. For them, this higher price will be experienced as a loss, and they won't be happy.

- In contrast, if you post the higher base price, the credit-card customers pay the advertised rate; they are at their reference point and will experience a relatively neutral transaction. But the cash customers pay less than the reference point. They are in gain territory and feel great about buying gas from you.

- Without changing the actual prices you charge either group, you've gone from some of your customers feeling neutral and the rest feeling unhappy to one group feeling happy and the rest neutral—just by changing the reference point.

- If we want to understand how people evaluate options and ultimately make decisions, we must understand what reference points they bring to those decisions.

- Of course, we've also discussed some of the many decision shortcuts people use when they don't have access to reference points, such as picking the status quo option, relying on halos, or avoiding extreme options.

- If you want to understand and anticipate someone's decision making, start with reference points. If this person is unlikely to have a well-defined set of references, can you anticipate which workaround he or she is likely to use? Can you provide reference points that favor one option over another?

Reasons Matter

- Not surprisingly, people often make decisions by picking options they feel they can justify to others and to themselves. What is interesting, however, is that the reasons that drive choice don't have to be logical or compelling. When making a choice where there is no clearly superior option, seemingly almost any reason can serve as grounds for the choice.

If you're looking to influence a customer's decision, you can provide reference points, such as uniqueness, quality, low price, and so on.

- Reason-based choice is the explanation for the phenomenon discovered by Eldar Shafir that it is possible for the same option to be both more likely to be selected and more likely to be rejected.

- If an option has both positive and negative features, then choosing one of those options can focus us on the positive features—the ones that

provide reasons for choosing one option over the other. In contrast, when rejecting one of those options, we tend to focus on negative attributes—those that provide reasons for eliminating an option.

- If you are trying to understand someone's decisions, ask yourself: What reasons did this person have for picking the options he or she did?
  - You can look to the easy explanations, of course: Maybe the person simply liked this color or flavor the best.
  - But sometimes, the reasons driving choice are more trivial and contextual. Maybe this option was the most unique in the set, and the decision maker feels the need to stand out from the crowd. Maybe the options were equally attractive overall, but one option dominated on the more important attribute.

Resources Matter

- The fact that people are limited in terms of attention, effort, and self-control has two implications:
  - First, our decision making is a function of the resources we have available to us. We have different decision rules and multiple cognitive systems that are geared toward either making fast and easy, resource-conserving decisions or slow and deliberative, resource-consuming decisions. We will slip into the easier, resource-conserving mode any time we are exhausted or distracted.
  - Second, because decisions consume these limited resources, people have become strategic in how they spend them. We've developed satisficing rules, habitual responses, and availability heuristics.
- It is only when we really care about something that we typically bother to pull out the heavier artillery in our decision-making arsenals. This can lead to a resource mismatch between those creating a decision setting and those making the decision.
  - If you are a brand manager at Tide, then Tide is one of the most important things in your life. Because you care about Tide, you

devote cognitive resources to making it better and effectively communicating its benefits to potential customers.

- But most potential customers care little about laundry detergent. They ignore new benefits promoted in the ads and stylish innovations in the package design.

- As a brand manager, what can you do about this mismatch? First, you can ask how many resources people are likely to devote to the decision you want them to make. Is the product something they care about? Are you talking to car enthusiasts about some new and novel engine part? Is the outcome of this decision consequential? Are you talking to someone who has just been diagnosed with heart disease about treatment options?
  - If so, the person is more likely to devote resources to that problem. As a result, the decision is likely to be based on a more thorough assessment of the information, more System 2 processing, more long-term thinking, and decision rules that facilitate making tradeoffs between options.

  - In contrast, if the decision is inconsequential, is likely to overwhelm the decision maker, or is likely to be made in a setting that will be distracting or exhausting, then you should anticipate that the person will not devote significant resources to the decision. Expect the incorporation of less information; a greater reliance on intuitive, System 1 processing; and the use of heuristics and simple and frugal decision rules.

Replacement Matters

- *Replacement* is the idea that people have many workarounds when they are presented with difficult tasks; thus, they often substitute or replace a difficult task with an easier one. Many of the heuristics we've discussed, such as the availability heuristic, can be characterized as replacement.

- Making estimates, including likelihood estimates, is difficult. Doing it right means gathering information and processing it carefully. Instead, people often use the availability heuristic to replace the difficult estimation problem with a much easier one.

- Which presidential candidate will best manage international crises and encourage economic growth at home, all while safeguarding civil liberties and keeping us safe? If that's too difficult to determine, you might try to decide which candidate you'd rather have a beer with or which of them just seems more "presidential."

A Final Word of Advice

- Here's one last bit of advice about applying decision-making theories in real life: Stack the deck. Don't try to be elegant and subtle. If you want to change the way some group of people is making decisions, use a sledgehammer.

- The reason for this is that human decisions have a high-causal density. It can take a great deal of effort to break through the noise.

- As an example, consider a program developed by Richard Thaler and finance professor Shlomo Benartzi to help people save more money toward retirement. The two turned to research on decision making for guidance and layered several theories on top of one another.
  - The program, called Save More Tomorrow (SMarT), was not a typical savings plan. First, people who agreed to participate started off by contributing nothing to their savings accounts. Instead, they simply committed to start contributing a portion of their next raise and to increase that contribution with each subsequent raise.

  - This program cleverly takes advantages of several insights into decision making. First, it is difficult to resist immediate temptations, but in the future, those temptations are less tempting. Thus, if you're asked if you are willing to start saving

three months from now, you are far more likely to say yes than if you're asked to start saving now.

- Second, the SMarT program respects loss aversion. By starting to save now, you will reduce the size of your current paycheck, which feels stretched enough as it is. But in this program, the contributions come as a reduction on an increase, which means that you never feel the loss.

- Finally, although people were free to drop out of the plan at any time, the program front-loaded commitments to continue to increase contributions. We know that the status quo is compelling and that people often continue to do what they've always done out of habit. In this case, that means not changing anything and sticking with the plan.

- By layering these insights on top of one another, Thaler and Benartzi created a successful tool for improving decision making. In the first test of the plan, employees who enrolled increased their average savings contributions from 3.5% to 11.6% in just a little over two years. And almost everyone who started in the program stayed.

- The human brain still presents science with a host of mysteries. We have by no means figured it all out, but the science of decision making has uncovered some remarkable things. And it points the way toward more discoveries to be made in answering the question: How do we decide?

Suggested Reading

Plous, *The Psychology of Judgment and Decision Making*.

Thaler and Benartzi, "Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving."

Questions to Consider

1. What is the criticism of the descriptive (psychological) approach to studying decision making? What counterarguments might proponents of that approach use?
2. What are the four foundational ideas that summarize the key insights from this course?

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