

Framing and the Reversal of Preferences

The following is one of the most famous problems in the decision-making literature. Please make the best choice possible (adapted from Tversky and Kahneman, 1981):

Problem 1. Imagine that the United States is preparing for the outbreak of an unusual Asian disease that is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the programs are as follows.

Program A: If Program A is adopted, 200 people will be saved.

Program B: If Program B is adopted, there is a one-third probability that 600 people will be saved and a two-thirds probability that no people will be saved.

Which of the two programs would you favor?

There are a number of factors you might consider when evaluating these options. For example, what will be the impact of each program on the broader society? Who is most at risk for the disease? Which option would provide the greatest benefit? There are many other questions you might ask. But if you had to pick Plan A or Plan B based only on the information given in the problem, which program would you choose?

Most people choose Program A—more on this preference in a few paragraphs. For now, let's consider how you might think through this decision. One simple rule for making decisions is to always select the alternative with the highest expected value—the strategy that provides the best overall outcome. But, as you can see, the expected values of the two programs are equal. Program A will definitely save 200 lives. Program B has a one-third chance of saving 600 lives or, on average, 200 lives.

The simple argument for an expected-value decision rule is that decisions made according to this rule will, in the aggregate, be optimal. But consider the following scenarios:

Big positive gamble: You can (a) receive \$10 million for sure (expected value = \$10 million) or (b) flip a coin and receive \$22 million for heads but nothing for tails (expected value = \$11 million). An expected-value decision rule would require you to pick (b). What would you do?

Lawsuit: You are being sued for \$500,000 and estimate that you have a 50 percent chance of losing the case (expected value = -\$250,000). However, the other side is willing to accept an out-of-court settlement of \$240,000 (expected value = -\$240,000). An expected-value decision rule would lead you to settle out of court. Ignoring attorney's fees, court costs, aggravation, and so on, would you (a) fight the case, or (b) settle out of court?

Most people would choose (a) in both cases, demonstrating that situations exist in which people do not follow an expected-value decision rule. Understanding when and how people deviate from expected value leads to the concept of risk preference. To explain departures from the expected-value decision rule, Daniel Bernoulli (1738) first suggested replacing the criterion of expected monetary value with the criterion of expected utility. Expected-utility theory suggests that each level of an outcome is associated with an expected degree of pleasure or net benefit, called utility. The expected utility of an uncertain choice is the weighted sum of the utilities of the possible outcomes, each multiplied by its probability. While an expected-value approach to decision making would treat \$1 million as being worth twice as much as \$500,000, a gain of \$1 million does not always create twice as much expected utility as a gain of \$500,000. Most individuals do not obtain as much utility from the second \$500,000 as they did from the first \$500,000.

When we prefer a certain \$480,000 over a 50 percent chance of \$1 million, we are described as risk averse, since we are giving up expected value to reduce risk. Similarly, in the Big Positive Gamble problem above, taking the \$10 million is a risk-averse choice, since it has a lower expected value and lower risk. In contrast, fighting the lawsuit would be a risk-seeking choice, since it has a lower expected value and a higher risk. Essentially, expected utility refers to the maximization of utility, or experienced benefit, rather than simply a maximization of the arithmetic average of the possible courses of action. While expected utility departs from the logic of expected value, it provides a useful and consistent logical structure—and decision researchers see following the logic of expected utility as rational behavior.

Now consider a second version of the Asian Disease Problem (from Tversky and Kahneman, 1981):

Problem 2. Imagine that the United States is preparing for the outbreak of an unusual Asian disease that is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the scientific estimates of the consequences of the programs are as follows.

Program C: If Program C is adopted, 400 people will die.

Program D: If Program D is adopted, there is a one-third probability that no one will die and a two-thirds probability that 600 people will die.

Which of the two programs would you favor?

Close examination of the two sets of programs in Problems 1 and 2 shows that they are objectively the same. Saving two hundred people (Program A) offers the same objective outcome as losing four hundred people (Program C), and programs B and D are also objectively identical. However, informal empirical investigation demonstrates that most individuals choose Program A in the first set (72 percent in Tversky and Kahneman's 1981 sample) and Program D in the second set (78 percent in Tversky and Kahneman's 1981 sample). While the two sets of choices are objectively identical, changing the description of outcomes from lives saved to lives lost is sufficient to shift prototypic choice from risk-averse to risk-seeking behavior.

Individuals treat risks concerning perceived gains (for example, saving lives—Programs A and B) differently from risks concerning perceived losses (losing lives—Programs C and D). Kahneman and Tversky's (1979) prospect theory describes the fact that even perceived differences based on a change in the "framing" of choices—from losses to gains—can dramatically affect how people answer the question. In the decision literature, and in this chapter, the term framing refers to alternative wordings of the same objective information that significantly alter the model decision, though differences between frames should have no effect on the rational decision. Problems 1 and 2 are objectively the same. Problem 1 is framed in terms of saving lives. Most of us, when we make decisions about gains, are risk averse; thus, our tendency to take the sure \$10 million in the Big Gamble problem. In contrast, Problem 2 is framed in terms of losses. Most of us, when we make decisions regarding losses, are risk seeking. Thus, many would fight the law suit in the example above, despite the lower expected value relative to Problem 1. Kahneman and Tversky's amazing insight is that you can take the same objective problem, change the frame, and get predictably different results.

The typical decision maker evaluates outcomes relative to a neutral reference point. Consequently, the location of the reference point is critical to whether the decision is positively or negatively framed and affects the resulting risk preference of the decision maker. The Asian Disease Problem illustrates the importance of reference points. In the positively framed case, the question is, how many lives can be saved? Saved from what? Saved from the possible loss of all 600 lives. Thus, the loss of 600 lives is the neutral reference point. In contrast, in the negatively framed case, the question is, how many lives will be lost? Lost from what? Lost from the existing state of having all 600 people alive.

For another example of the importance of this reference point shift, consider the following scenario:

Problem 3. You were given 100 shares of stock in XYZ Corporation two years ago, when the value of the stock was \$20 per share. Unfortunately, the stock has dropped to \$10 per share during the two years that you have held the asset. The corporation is currently drilling for oil in an area that may turn out to be a big "hit." On the other hand, they may find nothing. Geological analysis suggests that if they hit, the stock is expected to go back up to \$20 per share. If the well is dry, however, the value of the stock will fall to \$0 per share. Do you want to sell your stock now for \$10 per share?

What is your reference point in this problem? Is it the amount you can gain (the amount that you receive for the stock above \$0 per share), or is it the amount you can

lose (the amount that the stock has fallen from \$20 per share when you sell it)? If you cognitively adopt \$0 per share as your reference point, you will be risk averse and will likely to take the sure “gain” by selling the stock now. If your reference point is \$20 per share, however, you will likely to be risk seeking and will hold onto the stock rather than accept a sure “loss.”

How should this knowledge of the impact of reference points affect your decisions? First, when facing a risky decision, you should identify your reference point. Next, consider whether other reference points exist, and whether they are just as reasonable. If the answer is yes, think about your decision from multiple perspectives and examine any contradictions that emerge. At this point, you will be prepared to make your decision with a full awareness of the alternative frames in which the problem could have been presented.

Rational decision makers should be immune to the framing of choices, yet we now know that frames can have amazingly strong effects on decisions. Over the past twenty-five years, framing has generated a great deal of excitement in the fields of decision theory, psychology, marketing, law, medicine, finance, organizational behavior, and economics. The concept has been responsible for helping researchers develop a more thorough understanding of errors and inconsistencies in human judgment. In the early editions of this book, we focused simply on gain/loss frames. In recent years, there have been amazing discoveries in the way in which frames that should have no effect on our decisions exhibit profound effects. This broader definition of framing is the topic of the current chapter. In this chapter, we will examine dramatic preference reversals in the following contexts: (1) how framing can lead to a portfolio of decisions that few of us would want, yet are likely to choose; (2) how the perception of “pseudocertainty” can affect judgment; (3) how framing causes us to purchase more insurance than we need; (4) how we evaluate the quality of a transaction; (5) how ownership creates a different frame for valuation; (6) how our mental accounts affect how we frame decisions; (7) how we overvalue acts of commission versus acts of omission; (8) the differences between calling something a “bonus” versus calling it a “rebate”; and (9) whether we evaluate options separately or simultaneously.

FRAMING AND THE IRRATIONALITY OF THE SUM OF OUR CHOICES

Tversky and Kahneman (1981) asked 150 subjects the following questions.

Problem 4. Imagine that you face the following pair of concurrent decisions. First, examine both decisions, and then indicate the options you prefer.

Decision A

Choose between:

- a. a sure gain of \$240
- b. a 25 percent chance to gain \$1,000, and a 75 percent chance to gain nothing

Decision B

Choose between:

c. a sure loss of \$750

d. a 75 percent chance to lose \$1,000, and a 25 percent chance to lose nothing

In Decision A, 84 percent of subjects chose (a) and only 16 percent chose (b). In Decision B, 87 percent of subjects chose (d) and only 13 percent chose (c). The majority chose "a sure gain of \$240" in Decision A because of our tendency to be risk averse concerning gains and positively framed questions. By contrast, the majority chose "a 75 percent chance to lose \$1,000" in Decision B because of our tendency to be risk seeking concerning losses and negatively framed questions. Combining the responses to the two problems, 73 percent of respondents chose (a) and (d), while only 3 percent chose (b) and (c).

Now consider the following problems presented by Tversky and Kahneman (1981) to eighty-six subjects (who were not previously exposed to Problem 4):

Problem 5. Choose between:

e. a 25 percent chance to win \$240, and a 75 percent chance to lose \$760

f. a 25 percent chance to win \$250, and a 75 percent chance to lose \$750

Not surprisingly, all eighty-six subjects chose (f) over (e). In fact, (f) dominates (e) in all respects. Why is this problem interesting? When you combine (a) and (d) (the preferred choices) in Problem 4, (e) results, whereas when you combine choices (b) and (c) (the choices not preferred), (f) results.

Adding choices (a) and (d) = (e):

$$(100\%)(\$240) + [(75\%)(-\$1,000) + (25\%)(\$0)] = (25\%)(\$240) + (75\%)(-\$760)$$

Adding choices (b) and (c) = (f):

$$[(25\%)(\$1,000) + (75\%)(\$0)] + (100\%)(-\$750) = (25\%)(\$250) + (75\%)(-\$750)$$

The sum of the undesirable choices *dominates* the sum of the desirable choices! Thus, the framing of the combined problem in two parts results in a reversal of preferences.

Why should this finding interest managers? Many interconnected decisions in the real world, such as portfolio selection, budgeting, and funding for new projects, can occur one decision at a time or in groups of decisions. The findings suggest that the natural sequential nature of the decision-making process in organizations is likely to enhance the potential for inconsistency and nonrational choice. Sales departments are encouraged to think in terms of the acquisition of corporate gains, while credit offices are encouraged to frame decisions in terms of avoiding corporate losses. To arrive at a coherent strategy for making judgments under uncertainty, individuals and organizations need to become more aware of this bias and develop procedures for identifying and integrating risky decisions across organizations.

By being risk averse some of the time and risk seeking at other times, we are likely to adopt a decision portfolio that is just as inferior as selecting the preceding choices (a) and (d). To override our intuitive tendency for our risk preferences to be highly affected by the problem frame, Kahneman and Lovallo (1993, see also Rabin and Thaler, 2000) have argued that we would generally be better off following an expected-value rule for most decisions. This can be seen in the famous story of Nobel

Prize-winning economist Paul Samuelson (1963), who offered a colleague a coin-toss gamble. If the colleague won the toss, he would receive \$200, but if he lost, he would lose \$100. Samuelson was offering his colleague a positive expected value with risk. The colleague, being risk averse, refused the single bet, but said that he would be happy to toss the coin one hundred times! The colleague understood that the bet had a positive expected value, and that across lots of bets, the odds virtually guaranteed a profit. Yet with only one trial, he had a 50 percent chance of regretting taking the bet. Yet the colleague doubtless faced many gambles in life (such as whether to invest extra money from this month's pay in stocks, bonds, or money markets), and would have fared better in the long run by maximizing his expected value on each decision, as his preference for running the bet one hundred times suggests. Each of us also encounters "small gambles" in life, and we should try to follow the same strategy. Though risk aversion may make us want to turn down each individual opportunity for gain, the aggregated risk of all of the positive expected-value gambles we came across would become infinitesimal and the potential profit quite large. Deviations from risk neutrality in the real world should probably be reserved for critically important decisions such as job acceptances, house buying, acquisitions, etc., after careful consideration of the problem from multiple frames. In contrast, most of us tend to be risk averse toward some choices and risk seeking toward others, enacting a suboptimal portfolio of decisions. Unless the decision is very important, a simple and effective strategy is to use expected value as the basis for decision making.

WE LIKE CERTAINTY, EVEN PSEUDOCERTAINTY

People underweight high-probability events but appropriately weight events that are certain (Kahneman and Tversky, 1979). Thus, if an event has a probability of 1.0 or zero, we tend to accurately evaluate the event's probability. However, if the event has a probability of .99, we tend to respond as the expected-utility framework would expect us to respond to a probability of less than .99. As a result, Slovic, Lichtenstein, and Fischhoff (1982) observe that "any protective action that reduces the probability of harm from, say, .01 to zero will be valued more highly than an action that reduces the probability of the same harm from .02 to .01" (p. 24). In other words, people value the creation of certainty over an equally valued shift in the level of uncertainty.

Interestingly, the perception of certainty (that is, the perception that the probability of an event is zero or 1.0) can be easily manipulated. Slovic et al. (1982) consider the best way to advertise a disaster insurance policy that covers fire but not flood. The policy can be accurately advertised either as "full protection" against fire or as a reduction in the overall probability of loss from natural disasters. The full-protection advertisement will make the policy most attractive to potential buyers. This is because the full-protection option reduces perceived uncertainty for loss from fire to zero, whereas the overall disaster policy reduces uncertainty some incremental amount to a value still above zero. The perceived certainty that results from the full-protection framing of this advertisement has been labeled "pseudocertainty" (Slovic et al., 1982).

Slovic et al. (1982) provided empirical evidence of the strength of the pseudocertainty effect in the context of disease vaccination. Two forms of a questionnaire were created. Form 1 described a disease that was expected to afflict 20 percent of the population. Subjects in this condition were asked if they would receive a vaccine that

protected half of the individuals vaccinated. Form 2 described two mutually exclusive and equally probable strains of the disease, each of which was expected to afflict 10 percent of the population. In this case, vaccination was said to give complete protection (certainty) against one strain and no protection against the other. Would you take the vaccine described in Form 1? What about the vaccine described in Form 2? In either case, the vaccine would objectively reduce one's overall risk from 20 percent to 10 percent. Slovic et al. found that Form 2 (pseudocertainty) was more appealing than Form 1 (probabilistic). Some 57 percent of subjects who were given Form 2 said that they would get the vaccination, compared with only 40 percent of the subjects who received Form 1.

In the following problems, Tversky and Kahneman (1981) simultaneously investigated the impact of certainty and pseudocertainty:

Problem 6. Which of the following options do you prefer?

- a. a sure win of \$30
- b. an 80 percent chance to win \$45

Problem 7. Consider the following two-stage game. In the first stage, there is a 75 percent chance to end the game without winning anything, and a 25 percent chance to move into the second stage. If you reach the second stage you have a choice between:

- c. a sure win of \$30
- d. an 80 percent chance to win \$45

Decide whether you prefer (c) or (d). Your choice must be made before the game starts—that is, before the outcome of the first stage is known.

Problem 8. Which of the following options do you prefer?

- e. a 25 percent chance to win \$30
- f. a 20 percent chance to win \$45

Tversky and Kahneman (1981) presented each of these problems to a different group of subjects. In Problem 6, 78 percent of the subjects chose (a) and 22 percent chose (b). In Problem 7, 74 percent of the subjects chose (c) and 26 percent chose (d). In Problem 8, 42 percent of the subjects chose (e) and 58 percent chose (f). Some interesting contrasts result. Consider Problem 7: By combining the first and second part of the problem, it becomes evident that (c) offers a .25 chance to win \$30 and (d) offers a $.25 \times .80 = .20$ chance to win \$45. This is the same choice offered in Problem 8! Yet the modal choice has shifted. In Problem 7, if you lose in the first stage, it does not matter what choice you made. If you win in the first stage, Problem 7 reduces to Problem 6. Consequently, there seems to be no reason to respond differently to Problems 6 and 7. Since Problem 7 is equivalent to Problems 6 and 8, it can be inferred that Problems 6 and 8 should also be treated similarly. However, subjects responded similarly to Problems 6 and 7, but differently to Problem 8. Why this discrepancy in response to Problem 8?

The difference between Problems 6 and 8 illustrates a phenomenon that Tversky and Kahneman (1981) call the *certainty effect*: “A reduction of the probability of an outcome has more importance when the outcome was initially certain than when it was merely probable” (p. 455). The discrepancy, in response to objectively identical Problems 7 and 8, illustrates the *pseudocertainty effect* (Slovic et al., 1982; Tversky and Kahneman, 1981). The prospect of winning \$30 is more attractive in Problem 7 than in Problem 8 because of the perceived certainty (“a sure win”) associated with choice (c). However, this potential “certainty” is contingent upon reaching the second stage of the game, which still makes the outcome uncertain.

The certainty and pseudocertainty effects lead to judgmental inconsistencies. The certainty effect makes us more apt to be interested in reducing the likelihood of certain events than uncertain events. Under the pseudocertainty effect, we are more likely to favor options that assure us certainty than those that only reduce uncertainty. Rationally, any constant reduction of risk in an uncertain situation should have the same value for the decision maker. For example, reducing the risk of cancer from 20 percent to 10 percent should have the same value as a reduction from 10 percent to 0 percent. But perceived certainty, or “pseudocertainty,” has a special value to most people. Manipulations of pseudocertainty have important implications for the design of communications about medical treatments, personal insurance, corporate liability protection, and a variety of other forms of protection. The data suggest that individuals may buy insurance not only to protect against risk, but also to eliminate the worry caused by any amount of uncertainty (Tversky and Kahneman, 1981).

THE FRAMING AND THE OVERSELLING OF INSURANCE

What is an insurance premium? It is a certain loss (the premium) that you accept in exchange for the reduction of a small probability of a large loss. Virtually all insurance provides customers with negative expected value—that’s how insurance companies make a profit. Interestingly, Schoemaker and associates (Hershey and Schoemaker, 1980; Schoemaker and Kunreuther, 1979) and Slovic et al. (1982) have found that framing a sure loss as an insurance premium makes the loss more attractive—even when the objective amount of loss is the same. Slovic et al. (1982) asked study participants to pick between a sure loss (insurance premium) versus a risky option that had a small probability of a significant loss. For half of the participants, the risk-free option was called a certain loss. For the other half, the risk-free option was called an insurance premium. Study participants were much more likely to choose the risk-free loss when it was called an insurance premium than when it was called a certain loss.

Kahneman and Tversky (1979) and Hershey and Schoemaker (1980) argue that the word “insurance” triggers pervasive social norms: “How can you not carry insurance?” and “All good citizens carry insurance.” Buying insurance is something most of us do without considering an alternative strategy. When was the last time you considered dropping your car insurance (assuming that you live in a state where it is legal to be uninsured)?

The framing of insurance and warranties may explain a very strange set of consumer decisions. After agreeing to buy a new automobile, consumers are typically offered the option of purchasing an extended warranty. The salesperson typically notes

that, "For just a few dollars more per month, you'll never have to worry about repairs." Why do nearly half of new car buyers purchase extended warranties? It could be because they are a good deal. But this does not appear to be the case. Car dealers make a great deal of money on warranties. Documents in a recent lawsuit filed against Nissan show that the typical extended warranty cost \$795. A mere \$131 went toward covering repairs, \$109 went to Nissan for administrative costs, and the remaining \$555 was straight dealer profit. It seems that the vividness of a costly repair, coupled with a social norm favoring insurance and warranties, leads many consumers to make a risk-averse choice that they would probably not make if they considered their options more carefully. As we have seen, people are more likely to accept a certain loss if they view it as insurance rather than as a sure monetary loss. Consumers would be better off if they just said "no" to all extended warranties, put the money saved in the bank, and used it to pay for necessary repairs. Across their life span, they will be making a far better set of decisions.

WHAT'S IT WORTH TO YOU?

The term *transactional utility* was introduced by Thaler (1985) and can be seen in the following scenario. Read this scenario twice—first with the words in parentheses and excluding the words in brackets, and second with the words in brackets and excluding the words in parentheses.

You are lying on the beach on a hot day. All you have to drink is ice water. For the last hour you have been thinking about how much you would enjoy a nice cold bottle of your favorite brand of beer. A companion gets up to go make a phone call and offers to bring back a beer from the only nearby place where beer is sold (a fancy resort hotel) [a small, rundown grocery store]. He says that the beer might be expensive and asks how much you are willing to pay for it. He says that he will buy the beer if it costs as much as or less than the price you state. But if it costs more than the price you state, he will not buy it. You trust your friend, and there is no possibility of bargaining with the (bartender) [store owner]. What price do you tell him?

Notice some of the features of this dual problem. First, in both the hotel and the grocery store versions, you get the same product. Second, there is no possible negotiation on price. Third, there will be no advantage to the resort hotel "atmosphere," since you are going to drink the beer on the beach. According to expected-utility theory, people should be willing to pay the same amount in both versions of the scenario. In fact, Thaler found that participants in an executive development program were willing to pay significantly more if the beer was purchased from the "fancy resort hotel." Twenty years ago, the results were medians of \$2.65 for a beer bought at the resort and \$1.50 for a beer bought at the store.

Why does this contradiction occur? Thaler suggests the reason is that while "paying \$2.50 for a beer at a fancy hotel would be an expected annoyance, paying \$2.50 at a grocery store would be an outrageous 'rip-off.'" This leads to the conclusion that something else matters besides the value you place on the commodity acquired. Did you ever buy something because it was "too good a deal to pass up," despite the fact that

you had no need for the product? Thaler explains this phenomenon by suggesting that purchases are affected by both acquisition utility and transactional utility. *Acquisition utility* describes the value you place on a commodity (in this case, the beer). *Transactional utility* refers to the quality of the deal that you receive, evaluated in reference to “what the item should cost.” Obviously, paying \$2.50 for a beer at a grocery store leads to a greater negative transactional utility than paying \$2.50 at the fancy resort hotel. One can argue that the inclusion of transactional utility in decision making is not rational, but it does describe our behavior.

Now, consider the following two problems, adapted from Tversky and Kahneman (1981):

Problem 9. Imagine that you are about to purchase a high-tech mouse for \$50. The computer salesperson informs you that the mouse you wish to buy is on sale at the store’s other branch, located a twenty-minute drive away. You have decided to buy the mouse today, and will either buy it at the current store or drive twenty minutes to the other store. What is the highest price that the mouse could cost at the other store such that you would be willing to travel there for the discount?

Problem 10. Imagine that you are about to purchase a laptop computer for \$2,000. The computer salesperson informs you that this computer is on sale at the store’s other branch, located a twenty-minute drive from where you are now. You have decided to buy the computer today, and will either buy it at the current store or drive to the store a twenty-minute drive away. What is the highest price that you would be willing to pay at the other store to make the discount worth the trip?

What is a rational way of deciding whether to buy the mouse or the laptop in the current store or to drive twenty minutes to the other store? Most people quickly conclude that you should compare the value of twenty minutes of your time plus the cost of travel versus the expected savings. This would mean that the minimum discount demanded for each of the two products should be similar. In contrast, most people demand a greater discount in absolute dollars to make the computer trip than to make the mouse trip. Why? The issue of transactional utility enters into our assessments of the value of our time. Most people will be willing to travel the twenty minutes only to get a “very good deal.” A \$40 (2 percent) savings is not a big discount on the computer, but it is an outstanding deal on the mouse (you would be saving 80 percent). Normatively, however, the difference in percentage reduction is irrelevant. One should simply compare the savings obtained to the value of the time spent, and this value should remain consistent across decisions.

Personally, I find Tversky, Kahneman, and Thaler’s insights very informative regarding how I use my own time. The items described in this section forced me to think about how I, having grown up in a family that taught me to clip coupons, trade off time and money. I learned that, due to System 1 thinking, even a decision researcher can develop patterns of behavior that are inconsistent with his preferred values. These problems clarify the importance of spending more time on search when significant amounts of money are at stake and spending less time on search for items of small

value. Far too many people have mastered the skill of saving \$10 or \$12 by going to three grocery stores on Saturday, while failing to be thorough in their search for large purchases—like which house to buy.

THE VALUE WE PLACE ON WHAT WE OWN

Imagine that you purchased a painting from an up-and-coming artist five years ago for \$50. The artist has since become very famous, and the painting is now worth about \$1,000. Imagine the minimum amount that you believe would lead you to sell this painting. Now, also think about how much you would be willing to pay for a similar-quality painting.

Most people would demand far more to sell the painting than the amount they would be willing to pay for a similar painting, or the amount that they would pay for that exact same painting if they did not own it. This pattern is called the *endowment effect* (Thaler, 1980).

In any exchange, a buyer must be willing to pay at least the minimum amount that a seller is willing to accept—otherwise no agreement takes place. Objectively, the valuation of a commodity should be based on its true value. However, the value that a seller places on a commodity often includes not only its intrinsic worth, but also value based on his or her attachment to the item.

In a very clever experiment, Kahneman, Knetsch, and Thaler (1990) placed mugs in front of one-third of the participants in their study. These “sellers” were told that they owned the mug and had the option of selling it if a price, to be determined later, was acceptable to them. They were then given a list of possible selling prices, ranging from \$0.50 to \$9.50 (in 50-cent increments), and were told to indicate for each possible price whether they would sell the mug for that amount or keep it.

Another third of the participants—the “buyers”—were told that they would be given a sum of money which they could keep or use it to buy a mug. They were also asked their preferences between a mug and sums of money ranging from \$0.50 to \$9.50. The remaining third of the participants—the “choosers”—were given a questionnaire indicating that they would be given a choice between either a mug or a sum of money. They also marked their preferences between the mug and sums of money ranging from \$0.50 to \$9.50. All three groups were assured that their answers would not influence either the predetermined price of the mug or the amount of money to be received in lieu of the mug.

The results reveal a great deal about how our role in a buyer-seller relationship affects our value assessments. Sellers required a median value of \$7.12 for the mug, the buyers \$2.87, and the choosers \$3.12. The buyers and choosers had very similar evaluations of the worth of the mug. In contrast, ownership made the mug much more valuable for the sellers; differences of 2:1 are common in such endowment experiments. The implication of this endowment effect is that people tend to overvalue what they own. The frame of ownership creates value that is inconsistent with a rational analysis of the worth that the commodity brings to the individual. This inconsistent valuation partially explains why so many home sellers set an inappropriately high value on their homes and find themselves without any bidders for extended periods of time. An understanding of the endowment effect is critical to making wise assessments of the value of your commodities.

Dick Thaler gave his University of Chicago MBA students the following pair of hypothetical problems, which were very realistic and easy to imagine at the time:

Problem 11. It is 1998, and Michael Jordan and the Bulls are about to play their final championship game. You would very much like to attend. The game is sold out, and you won't have another opportunity to see Michael Jordan play for a long time, if ever. You know someone who has a ticket for sale. What is the most you would be willing to pay for it?

Problem 12. It is 1998, and Michael Jordan and the Bulls are about to play their final championship game. You have a ticket to the game and would very much like to attend. The game is sold out, and you won't have another opportunity to see Michael Jordan play for a long time, if ever. What is the least that you would accept for a ticket?

Thaler reports that while his students were willing to pay only \$330, on average, in Problem 11, they demanded \$1,920, on average, in Problem 12. I can identify with this behavior, yet am also bothered by it. How much is the ticket worth? Without knowing the answer, it is far too likely that you will hold onto it long after it makes sense to give it up for a great price. The same holds true for anything you or your company owns—cars, houses, stocks, divisions of a firm, and so on.

MENTAL ACCOUNTING

The previous two sections are consistent with Thaler's (1999) work on mental accounting, which shows that people have a variety of "mental accounts" that they use to organize, evaluate, and keep track of a variety of financial activities, such as money for vacation, a renovation, this month's budget, etc. Interestingly, we apply strikingly different decisions rules to different mental accounts. The previous two sections highlighted specific aspects of mental accounting in action. This section adds other interesting components of our mental accounts.

Thaler (1999) relates a story of traveling to Switzerland to give a paid talk to a group of executives. After the talk, Thaler and his spouse traveled around the country, at a time when the dollar was weak and travel costs were high. Thaler notes that, knowing that the travel expenses would still total far less than his speaking fee, he had no trouble spending money on the trip. He then offers a mental comparison between this story and a similar story in which he earns the same speaking fee in New York, then travels with his spouse to Switzerland. In the latter story, the high costs of Swiss travel would be more bothersome. Essentially, when costs come out of the same account (the Swiss trip account), they seem less important than when they come out of a different account (the New York talk account). I can relate to the Swiss travel story, and I expect that that readers can as well.

Shafir and Thaler (1998; Thaler, 1999) asked a group of subscribers to a wine newsletter to consider the following problem:

Problem 13. Suppose you bought a case of a good 1982 Bordeaux in the futures market for \$20 a bottle. The wine now sells at auction for about \$75 a bottle. You have decided to drink a bottle.

Which of the following best captures your sense of the cost of your drinking this bottle?

- a. \$0
- b. \$20
- c. \$20 plus interest
- d. \$75
- e. -\$55 (you're drinking a \$75 bottle for which you paid only \$20)

Shafir and Thaler (1998; Thaler, 1999) report that the percentages for each of the answers were (a) 30 percent, (b) 18 percent, (c) 7 percent, (d) 20 percent, and (e) 25 percent. The authors note that the newsletter was published by an economist, Orley Ashenfelter, and that most of respondents who answered "d" were also economists—the answer consistent with economic analysis. The rest of us do not think about the value of our assets based on what they are currently worth. Rather, we either treat costs as something that we have already expensed away (option a), as the cost that we paid (option b), or in terms of the value of the transaction (option e—you made money by making a good purchase).

Your mental accounts can also affect your satisfaction with outcomes that you did not choose. Consider the following two outcomes (adapted from Thaler, 1985):

You receive a letter from the IRS saying that you made a minor arithmetic mistake in your tax return and must send them \$100. You receive a similar letter the same day from your state tax authority saying you owe them \$100 for a similar mistake. There are no other repercussions from either mistake.

You receive a letter from the IRS saying that you made a minor arithmetic mistake in your tax return and must send them \$200. There are no other repercussions from the mistake.

Which situation would be more upsetting? Most people are more upset by (a), the two small losses, than by (b), the one larger loss, despite the fact that the two sets of outcomes are equal. This emotional reaction is consistent with the nature of our reactions to losses; specifically, in assessing each loss that hits us, the first dollars lost hurt more than additional dollars lost. So, just as you learned earlier that most people do not perceive losing \$200 to be twice as bad as losing \$100, two losses from two different mental accounts for \$100 each feels worse than one larger loss for \$200. The reverse occurs with gains. The benefit of a given amount of money would be perceived as greater if it were given in smaller discrete payments rather than all at once, since we value \$100 as more than half of what we value \$200. So, do not give your significant other many gifts at once. Separating them will create more total joy!

Finally, Thaler (1999) tells an interesting story about how a colleague uses mental accounting to avoid becoming annoyed by the small losses that he, like all of us, incurs on a moderately regular basis. At the beginning of each year, this colleague sets up a fund that he will use to pay for annoying losses, such as speeding tickets and library fines. When those minor annoyances occur, he simply pays the cost from the account. At the end of the year, he gives the balance in the account to the United Way.

Apparently, this form of mental accounting reduces the man's annoyance about unexpected and petty expenditures. I am not sure what the net impact of the story is on charitable giving, but I like the idea. Once you set aside an amount of money into an account, the details of how you spend it become less bothersome.

DO NO HARM, THE OMISSION BIAS, AND THE STATUS QUO

Bazerman, Baron, and Shonk (2001) posed the following question:

Problem 14. Which option do you prefer:

If you die in an accident, your heart will be used to save another person's life. In addition, if you ever need a heart transplant, there will be a 90 percent chance that you will get a heart.

If you die in an accident, you will be buried with your heart in your body. In addition, if you ever need a heart transplant, there will be a 45 percent chance that you will get a heart.

In this problem, most people chose (a). So why does the United States maintain an organ donation policy that resembles (b)? In the United States, about 50,000 people are on waiting list for organs at any given time. More than a third of them will die before an organ is found. The number of organ donors has declined in recent decades, due to increased use of seatbelts and motorcycle helmets, and only 4,500 of the 11,000 eligible donors actually donate their organs. If we could double this figure, we could save an additional one-quarter of the approximately 15,000 people who die each year in the United States because of the lack of organs.

This situation exists despite the fact that we know how to increase the number of organs available for donation. Bazerman et al. (2001) argue that either of two changes could at least double the number of lives saved. First, we could provide preferential access to organs for those who have previously signed up to be donors. We believe that this system would provide the necessary incentives to dramatically increase enrollment in organ-donation programs. Second, and alternatively, like many other countries (including Austria, Belgium, France, and Sweden), we could presume consent to organ donation (an opt-out program), rather than presuming nonconsent (an opt-in program). That is, we could change the default in the United States to assume that eligible people are organ donors upon death unless they specifically opt out of the organ-donation system. Johnson and Goldstein (2003) document that European countries with an opt-in program similar to that of the United States have donations rates that fall only between 4 and 28 percent. In contrast, European countries with opt-out programs have rates ranging from 86 to 100 percent.

When so many lives could be saved through an opt-out program, why would any country settle for an opt-in program, as the United States does? The answer lies in the psychology of the evaluation of losses and gains. Tversky and Kahneman (1991) have documented that losses loom larger in our minds than gains. This explains why Paul Samuelson's colleague, as discussed earlier in the chapter, might pass on betting on one flip of the coin. Along these lines, consider that virtually any change in

government policy will create benefits and costs. Moving to an opt-out program would save lives (an important gain), but would also have costs salient to some individuals, such as the prospect of being buried without all of their organs (a comparatively less important issue). Policy makers often display an irrational preference for harms of omission (e.g., letting people die) over harms of commission (e.g., the dead losing their organs), even when the harms of inaction are much larger than the harms of action. Ritov and Baron (1990) have labeled this the omission bias.

When contemplating risky choices, many people follow the rule of thumb, "Do no harm." Implicit in this advice is the notion that "do" means "do through action," making harms of omission easy to ignore (Ritov and Baron, 1990). Interestingly, psychologists have found that on the personal level, while actions generate more regret in the short run, omissions produce more regret over time (Gilovich and Medvec, 1995). Many potential trades exist that require society to cause small harms as a means to a greater benefit. In a study of hypothetical vaccination decisions, Ritov and Baron (1990) found that many people expressed an unwillingness to vaccinate children against a disease that was expected to kill ten out of 10,000 children when the vaccine itself would kill five out of 10,000 through side effects. These people would not tolerate any deaths from the "commission" of vaccinating—even when their decision would cause five additional deaths. Thus, too often we maintain the status quo rather than acting to improve our outcomes.

When a person gets an offer for a new job that is much better than their old job on some dimensions and marginally worse on others, they often turn down the offer. For many decision makers, these losses will be more salient than any gain, even when the losses are much smaller. Why? One feature of the omission bias is that it usually supports the status quo, an irrational barrier to change. Risky decisions usually require action. Therefore, when contemplating a change, people are more likely to attend to the risk of change than to the risk of failing to change. Taking losses more seriously than gains, they will be motivated to preserve the status quo.

Now consider a problem adapted from Kahneman and Tversky (1982):

Problem 15. Please read about Paul and George and assess who would feel worse:

Paul owns shares in Company A. During the past year he considered switching to stock in Company B, but he decided against it. He now finds that he would have been better off by \$1,200 if he had switched to the stock of Company B.

George owned shares in Company B. During the past year he switched to stock in Company A. He now finds that he would have been better off by \$1,200 if he had kept his stock in Company B.

Kahneman and Tversky found, as you would probably predict, that most people think that George will feel much worse than Paul. We feel worse about bad events that we caused by action than we do about bad events caused by inaction. These feelings not only affect our own choices in life, but are incorporated into the U.S. legal system, which holds pharmaceutical firms liable for harms produced unintentionally from generally well-researched and well-produced vaccines, but not for the harm caused by the

decision to not produce new vaccines due to the threat of lawsuits (Baron and Ritov, 1993). As a result, far too many people become sick or die from the failure to bring beneficial drugs and vaccines to market. Similarly, the same countries that strongly punish those who participate in crimes that lead to death have no “bystander” laws that would punish those who could rescue someone from a deadly situation, but fail to do so.

REBATE/BONUS FRAMING

In September 2001, the United States government paid \$38 billion to tax-paying U.S. citizens—\$300, \$500, or \$600 per individual, depending on annual income. Government officials and the media used the term “rebate” to describe these payments, which the Bush administration argued would fuel spending and energize the flagging economy. Epley, Idson, and Mak (2005) have conducted a trio of studies that shows that the way the government framed the program—specifically, through the use of the term “rebate”—dramatically limited its effectiveness. These researchers provide fascinating evidence that if the government had described the payments as “bonuses” instead of “rebates,” more citizens would have immediately spent the money instead of saving it, creating a greater stimulus to the economy.

In their first study, Epley et al. showed that the terms “rebate” and “bonus” create very different mental states within taxpayers concerning how they feel the money should be used. The researchers reminded participants, all of whom were taxpayers, that the federal government had issued checks to all taxpayers approximately six months earlier. One group of participants, the “rebate” participants, read this statement: “proponents of this tax cut argued that the government collected more tax revenue than was needed to cover its expenses, resulting in a tax surplus” that should be returned to taxpayers “as withheld income.” In contrast, the “bonus” participants read: “proponents of this tax cut argued that the costs of running the government were lower than expected, resulting in a budget surplus” that should be returned to taxpayers “as bonus income.” Both groups of participants were then asked to recall what percentage of their checks they spent and what percentage they saved. “Rebate” participants remembered spending 25 percent and saving 75 percent, while “bonus” participants remembered spending 87 percent and saving 13 percent. Due to random assignment, there is no reason to believe that participants in the two conditions actually spent substantially different amounts. Rather, the data suggest that people associate “bonus” with spending and “rebate” with saving. Epley et al. argue that the word “bonus” creates the image of surplus cash, while “rebate” conveys the image of money that simply returns you to the appropriate status quo.

In their second study, Epley et al. gave Harvard undergraduate student participants \$50, described as either a tuition rebate or a bonus. In a follow-up a week later, the researchers asked the students how much of the \$50 they saved and how much they spent. On average, “rebate” participants reported spending \$10 and saving \$40, while “bonus” participants reported spending \$22 and saving \$28; bonus participants spent more than twice as much as rebate participants. Because the students’ reports could have been inaccurate, the researchers conducted a third study in which they gave Harvard undergraduates a \$25 windfall framed either as “bonus money” or “rebate

money." Epley et al. then set up a "lab store" and offered products for sale at about 20 percent off standard prices. On average, rebate participants spent only \$2.43, while bonus participants spent \$11.16, or more than four times as much.

These studies show the amazing power of framing, the importance of knowing how you can be affected by framing, and the relevance of framing to important decisions. Clearly, the U.S. government could have stimulated the economy far more with a bonus campaign instead of a rebate plan.

JOINT VERSUS SEPARATE PREFERENCE REVERSALS

Imagine that you independently assess two options and place a higher value on Option A than on Option B. You might then logically infer that if you then chose between the two options, you would select Option A over Option B. But in Chapter 1, you read about Hsee's (1998) study, in which participants evaluating two options individually placed greater value on an overfilled small cup of ice cream than on an underfilled larger cup, even when the latter contained more ice cream. When they compared the two servings side by side, they reversed their assessment. This section focuses on a similar set of preference reversals that violate the very simple condition of logical consistency.

An extensive literature on separate versus joint preference reversals now exists. Here, I examine a selective set of examples in which people place a higher value on one option than another when looking at them individually, but reverse their preference when considering two or more options at the same time (Bazerman, Loewenstein, and White, 1992). I will provide at least two explanations for these reversals, which can help clarify when we can expect them to occur.

Consider two salary packages: Package A pays \$27,000 in year 1, \$26,000 in year 2, \$25,000 in year 3, and \$24,000 in year 4. Package B pays \$23,000 in year 1, \$24,000 in year 2, \$25,000 in year 3, and \$26,000 in year 4. Hsee (1996) found that when undergraduate participants were asked to report how likely they would be to accept each of the offers, Package B was more likely than Package A to be acceptable when participants evaluated just one of the two options. But when they consider the two options together, Package A was much more acceptable. When assessing one option at a time, participants did not like to see pay go down over time. But when assessing both simultaneously, it was easy for them to see that Package A provides more money, and more quickly.

In a very different context, Hsee (1998) asked participants to imagine that they were in the market for a music dictionary and then to evaluate either one or two music dictionaries. The Large Dictionary had 20,000 words and a torn cover. The Intact Dictionary had 10,000 words and an intact cover. Participants examined either one dictionary or both and reported the highest amount they were willing to pay for each. When participants assessed their willingness to pay for both, they valued the Large Dictionary more than the Intact Dictionary (\$27 versus \$19, on average). By contrast, participants who assessed only one of the two dictionaries valued the Intact Dictionary more than the Large Dictionary (\$24 versus \$20, on average). The torn cover mattered more when participants assessed only one option, but the number of words mattered more when they assessed the dictionaries jointly.

Kahneman and Ritov (1994) showed similar inconsistencies for different types of environmental or social issues. Participants were presented with headlines that highlighted specific problems and asked to either report their level of support for government intervention in one particular cause (separate condition), or to choose between two causes by stating which one they would support more (joint condition). In separate evaluations, consistent with the affect heuristic (Slovic et al., 2002), people leaned toward "affectively arousing" environmental causes (those that triggered strong emotions), such as spotted owls, coral reefs, and toxic spills. When choosing between causes, however, participants tended to prefer causes directly relevant to people, such as skin cancer, multiple myeloma, and lead-based paint. For example, while the cause of improving the plight of a "threatened Australian mammal species" was slightly more important to people than "skin cancer in farm workers" when participants assessed them one at a time, "skin cancer in farm workers" won by more than a 2-to-1 margin when participants selected between the two causes.

In some political opinion polls, citizens are asked whether or not they approve of a particular candidate. In other polls, citizens are asked which of two candidates they would vote for. Sometimes the inferences that pollsters might make from approval polls do not match up with voting intentions. Lowenthal (1996) provides some clarity on how this can occur. She found that separate evaluations of individual candidates reversed themselves in pair evaluations and voting behavior. Specifically, she examined voter preference for two hypothetical candidates. One candidate was expected to deliver 10,000 new jobs, but was rumored to have evaded paying personal taxes. The other candidate would probably deliver 5,000 new jobs, and had no rumors of misconduct. When participants assessed the candidates individually in an approval poll, the clean candidate received much more favorable assessments. But when asked to vote between them, the candidate expected to deliver more jobs won by almost a 2-to-1 margin.

These examples document a growing body of evidence that demonstrates inconsistencies in preferences across joint versus separate evaluations (Bazerman, Moore, Tenbrunsel, Wade-Benzoni, and Blount, 1999; Hsee, Loewenstein, Blount, and Bazerman, 1999). In interpreting these examples, note that they all involve outcome pairs distinguished along two attributes. One attribute is preferred in separate evaluation, and the other attribute is preferred in joint evaluation. There are at least two explanations for these effects: the "want/should" explanation and the "evaluability" explanation.

Bazerman, Tenbrunsel, and Wade-Benzoni's (1998) want/should explanation views a tension between what an individual wants to do versus what the individual thinks he or she should do. Consistent with the affect heuristic (Slovic et al., 2002), Bazerman et al. (1998) essentially argue that the more affectively arousing option, or the "want" option, will be valued more highly in separate evaluations, while the more logical and reasoned option, or the "should" option, will be valued more highly in joint evaluations. Supporting the face validity of the want/should distinction, O'Connor, De Dreu, Schroth, Barry, Lituchy, and Bazerman (2002) show that people think of the affectively arousing option as the option that they want, and the more logical option as the option they believe they should choose. Essentially, Bazerman et al. (1998) argue that we often act on our affective preferences when assessing one option at a time, but that joint assessment triggers more reasoned analysis. In other words, System 1 thinking will be comparatively more prevalent in separate evaluations, while System 2 thinking will be comparatively more prevalent in joint evaluations.

The evaluability hypothesis (Bazerman et al., 1992; Hsee, 1996; Hsee et al., 1999) offers a more cognitive explanation of separate versus joint preference reversals. This argument suggests that separate versus joint reversals are driven by differences in the ability of attributes to be evaluated, or their "evaluability." When two options require a tradeoff between a hard-to-evaluate attribute (such as the number of words in the dictionary) and an easy-to-evaluate attribute (such as the cover torn), the hard-to-evaluate attribute will have less impact in separate evaluation than in joint evaluation. In separate evaluation, people often have difficulty assessing the desirability of an option based on a hard-to-evaluate attribute (is 10,000 words a good amount?); as a result, the hard-to-evaluate attribute has little influence on decision making. In joint evaluation, having comparison data on the hard-to-evaluate attribute for both options provides additional information and increases the attribute's evaluability. Thus, the number of words in a dictionary has much more meaning when you can compare the number of words to the number in another dictionary. In contrast, you do not need to have comparative information to know that a torn cover is bad.

The task of separate evaluation is complex. In this section, we have highlighted two processes that can lead to changes in the weight that attributes receive between joint and separate evaluations. First, based on the affect heuristic, people will go with their gut response, paying primary attention to the attribute that creates emotional arousal. Second, attributes that are hard to evaluate will be underweighted in separate evaluations. Clearly, both processes are at work in creating separate versus joint preference reversals. We will return to these reversals in Chapter 6, when we explore the conditions under which people obsess about social comparison processes.

CONCLUSION AND INTEGRATION

The categories of framing effects and reversals of preference covered in this chapter demonstrate some of the key findings in the field of behavioral decision research. The Asian disease problem that opened the chapter is a particularly important finding in the history of the field. Prior to this result, and the development of Kahneman and Tversky's (1979) prospect theory, the behavioral decision literature was largely ignored by economists. Simon's concept of bounded rationality, discussed in Chapter 1, was explained away as a rational strategy, adapting for the costs of search. The heuristics and biases explored in Chapter 2 were discounted for similar reasons. But the framing effects described in this chapter showed large effects on how people make decisions based on what even economists would agree was normatively irrelevant information. This problem, which challenged the dominant economic paradigm more than twenty-five years ago, has become an exemplar of the kind of data that is most convincing in creating a productive dialogue between psychologists and economists. The numerous other framing effects that have been documented continue this tradition, and partially account for the growth of the fields of behavioral economics and behavior finance.

One question that often emerges from these studies is whether or not these effects generalize to the real world. Three editions ago, I was optimistic about this question, but did not have the data to be convincing. Since then, numerous excellent studies have used framing effects to explain why taxi drivers drive more hours on slow days than on busy ones (Camerer, Babcock, Loewenstein, and Thaler, 1997), why so many people pay for line insurance on their telephones (Thaler and Ziemba, 1988), the conditions

under which negotiators are most likely to reach an impasse (see Chapter 10), and a wide variety of investment mistakes (the topic of Chapter 7). Camerer (2000) also does an excellent job of summarizing the very positive evidence of the relevance of framing effects in the real world.