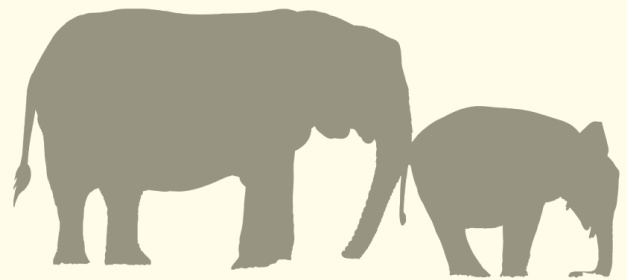


Richard H. Thaler
Cass R. Sunstein

Nudge



Improving Decisions
About Health, Wealth,
and Happiness

INTRODUCTION

The Cafeteria

A friend of yours, Carolyn, is the director of food services for a large city school system. She is in charge of hundreds of schools, and hundreds of thousands of kids eat in her cafeterias every day. Carolyn has formal training in nutrition (a master's degree from the state university), and she is a creative type who likes to think about things in nontraditional ways.

One evening, over a good bottle of wine, she and her friend Adam, a statistically oriented management consultant who has worked with supermarket chains, hatched an interesting idea. Without changing any menus, they would run some experiments in her schools to determine whether the way the food is displayed and arranged might influence the choices kids make. Carolyn gave the directors of dozens of school cafeterias specific instructions on how to display the food choices. In some schools the desserts were placed first, in others last, in still others in a separate line. The location of various food items was varied from one school to another. In some schools the French fries, but in others the carrot sticks, were at eye level.

From his experience in designing supermarket floor plans, Adam suspected that the results would be dramatic. He was right. Simply by rearranging the cafeteria, Carolyn was able to increase or decrease the consumption of many food items by as much as 25 percent. Carolyn learned a big lesson: school children, like adults, can be greatly influenced by small

changes in the context. The influence can be exercised for better or for worse. For example, Carolyn knows that she can increase consumption of healthy foods and decrease consumption of unhealthy ones.

With hundreds of schools to work with, and a team of graduate student volunteers recruited to collect and analyze the data, Carolyn believes that she now has considerable power to influence what kids eat. Carolyn is pondering what to do with her newfound power. Here are some suggestions she has received from her usually sincere but occasionally mischievous friends and coworkers:

1. Arrange the food to make the students best off, all things considered.
2. Choose the food order at random.
3. Try to arrange the food to get the kids to pick the same foods they would choose on their own.
4. Maximize the sales of the items from the suppliers that are willing to offer the largest bribes.
5. Maximize profits, period.

Option 1 has obvious appeal, yet it does seem a bit intrusive, even paternalistic. But the alternatives are worse! Option 2, arranging the food at random, could be considered fair-minded and principled, and it is in one sense neutral. But if the orders are randomized across schools, then the children at some schools will have less healthy diets than those at other schools. Is this desirable? Should Carolyn choose that kind of neutrality, if she can easily make most students better off, in part by improving their health?

Option 3 might seem to be an honorable attempt to avoid intrusion: try to mimic what the children would choose for themselves. Maybe that is really the neutral choice, and maybe Carolyn should neutrally follow people's wishes (at least where she is dealing with older students). But a little thought reveals that this is a difficult option to implement. Adam's experiment proves that what kids choose depends on the order in which the items are displayed. What, then, are the true preferences of the children? What does it mean to say that Carolyn should try to figure out what the students would choose "on their own"? In a cafeteria, it is impossible to avoid some way of organizing food.

Option 4 might appeal to a corrupt person in Carolyn's job, and manip-

ulating the order of the food items would put yet another weapon in the arsenal of available methods to exploit power. But Carolyn is honorable and honest, so she does not give this option any thought. Like Options 2 and 3, Option 5 has some appeal, especially if Carolyn thinks that the best cafeteria is the one that makes the most money. But should Carolyn really try to maximize profits if the result is to make children less healthy, especially since she works for the school district?

Carolyn is what we will be calling a *choice architect*. A choice architect has the responsibility for organizing the context in which people make decisions. Although Carolyn is a figment of our imagination, many real people turn out to be choice architects, most without realizing it. If you design the ballot voters use to choose candidates, you are a choice architect. If you are a doctor and must describe the alternative treatments available to a patient, you are a choice architect. If you design the form that new employees fill out to enroll in the company health care plan, you are a choice architect. If you are a parent, describing possible educational options to your son or daughter, you are a choice architect. If you are a salesperson, you are a choice architect (but you already knew that).

There are many parallels between choice architecture and more traditional forms of architecture. A crucial parallel is that there is no such thing as a “neutral” design. Consider the job of designing a new academic building. The architect is given some requirements. There must be room for 120 offices, 8 classrooms, 12 student meeting rooms, and so forth. The building must sit on a specified site. Hundreds of other constraints will be imposed—some legal, some aesthetic, some practical. In the end, the architect must come up with an actual building with doors, stairs, windows, and hallways. As good architects know, seemingly arbitrary decisions, such as where to locate the bathrooms, will have subtle influences on how the people who use the building interact. Every trip to the bathroom creates an opportunity to run into colleagues (for better or for worse). A good building is not merely attractive; it also “works.”

As we shall see, small and apparently insignificant details can have major impacts on people’s behavior. A good rule of thumb is to assume that “everything matters.” In many cases, the power of these small details comes from focusing the attention of users in a particular direction. A wonderful example of this principle comes from, of all places, the men’s

rooms at Schiphol Airport in Amsterdam. There the authorities have etched the image of a black housefly into each urinal. It seems that men usually do not pay much attention to where they aim, which can create a bit of a mess, but if they see a target, attention and therefore accuracy are much increased. According to the man who came up with the idea, it works wonders. “It improves the aim,” says Aad Kieboom. “If a man sees a fly, he aims at it.” Kieboom, an economist, directs Schiphol’s building expansion. His staff conducted fly-in-urinal trials and found that etchings reduce spillage by 80 percent.¹

The insight that “everything matters” can be both paralyzing and empowering. Good architects realize that although they can’t build the perfect building, they can make some design choices that will have beneficial effects. Open stairwells, for example, may produce more workplace interaction and more walking, and both of these are probably desirable. And just as a building architect must eventually build some particular building, a choice architect like Carolyn must choose a particular arrangement of the food options at lunch, and by so doing she can influence what people eat. She can nudge.*

Libertarian Paternalism

If, all things considered, you think that Carolyn should take the opportunity to nudge the kids toward food that is better for them, Option

*Please do not confuse *nudge* with *noodge*. As William Safire has explained in his “On Language” column in the *New York Times Magazine* (October 8, 2000), the “Yiddishism *noodge*” is “a noun meaning ‘pest, annoying nag, persistent complainer.’ . . . To *nudge* is ‘to push mildly or poke gently in the ribs, especially with the elbow.’ One who *nudges* in that manner—‘to alert, remind, or mildly warn another’—is a far *geshrei* from a *noodge* with his incessant, bothersome whining.” *Nudge* rhymes with *judge*, while the *oo* sound in *noodge* is pronounced as in *book*.

While we are all down here, a small note about the reading architecture of this book when it comes to footnotes and references. Footnotes such as this one that we deem worth reading are keyed with a symbol and placed at the bottom of the page, so that they are easy to find. We have aimed to keep these to a minimum. Numbered endnotes contain information about source material. These can be skipped by all but the most scholarly of readers. When the authors of cited material are mentioned in the text, we sometimes add a date in parentheses—Smith (1982), for example—to enable readers to go directly to the bibliography without having first to find the endnote.

1, then we welcome you to our new movement: *libertarian paternalism*. We are keenly aware that this term is not one that readers will find immediately endearing. Both words are somewhat off-putting, weighted down by stereotypes from popular culture and politics that make them unappealing to many. Even worse, the concepts seem to be contradictory. Why combine two reviled and contradictory concepts? We argue that if the terms are properly understood, both concepts reflect common sense—and they are far more attractive together than alone. The problem with the terms is that they have been captured by dogmatists.

The libertarian aspect of our strategies lies in the straightforward insistence that, in general, people should be free to do what they like—and to opt out of undesirable arrangements if they want to do so. To borrow a phrase from the late Milton Friedman, libertarian paternalists urge that people should be “free to choose.”² We strive to design policies that maintain or increase freedom of choice. When we use the term *libertarian* to modify the word *paternalism*, we simply mean liberty-preserving. And when we say liberty-preserving, we really mean it. Libertarian paternalists want to make it easy for people to go their own way; they do not want to burden those who want to exercise their freedom.

The paternalistic aspect lies in the claim that it is legitimate for choice architects to try to influence people’s behavior in order to make their lives longer, healthier, and better. In other words, we argue for self-conscious efforts, by institutions in the private sector and also by government, to steer people’s choices in directions that will improve their lives. In our understanding, a policy is “paternalistic” if it tries to influence choices in a way that will make choosers better off, *as judged by themselves*.³ Drawing on some well-established findings in social science, we show that in many cases, individuals make pretty bad decisions—decisions they would not have made if they had paid full attention and possessed complete information, unlimited cognitive abilities, and complete self-control.

Libertarian paternalism is a relatively weak, soft, and nonintrusive type of paternalism because choices are not blocked, fenced off, or significantly burdened. If people want to smoke cigarettes, to eat a lot of candy, to choose an unsuitable health care plan, or to fail to save for retirement, libertarian paternalists will not force them to do otherwise—or even make things hard for them. Still, the approach we recommend does count as pa-

ternalistic, because private and public choice architects are not merely trying to track or to implement people's anticipated choices. Rather, they are self-consciously attempting to move people in directions that will make their lives better. They nudge.

A nudge, as we will use the term, is any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting the fruit at eye level counts as a nudge. Banning junk food does not.

Many of the policies we recommend can and have been implemented by the private sector (with or without a nudge from the government). Employers, for example, are important choice architects in many of the examples we discuss in this book. In areas involving health care and retirement plans, we think that employers can give employees some helpful nudges. Private companies that want to make money, and to do good, can even benefit from environmental nudges, helping to reduce air pollution (and the emission of greenhouse gases). But as we shall show, the same points that justify libertarian paternalism on the part of private institutions apply to government as well.

Humans and Econs: Why Nudges Can Help

Those who reject paternalism often claim that human beings do a terrific job of making choices, and if not terrific, certainly better than anyone else would do (especially if that someone else works for the government). Whether or not they have ever studied economics, many people seem at least implicitly committed to the idea of *homo economicus*, or economic man—the notion that each of us thinks and chooses unflinchingly well, and thus fits within the textbook picture of human beings offered by economists.

If you look at economics textbooks, you will learn that *homo economicus* can think like Albert Einstein, store as much memory as IBM's Big Blue, and exercise the willpower of Mahatma Gandhi. Really. But the folks that we know are not like that. Real people have trouble with long division if they don't have a calculator, sometimes forget their spouse's birthday,

and have a hangover on New Year's Day. They are not homo economicus; they are homo sapiens. To keep our Latin usage to a minimum we will hereafter refer to these imaginary and real species as Econs and Humans.

Consider the issue of obesity. Rates of obesity in the United States are now approaching 20 percent, and more than 60 percent of Americans are considered either obese or overweight. There is overwhelming evidence that obesity increases risks of heart disease and diabetes, frequently leading to premature death. It would be quite fantastic to suggest that everyone is choosing the right diet, or a diet that is preferable to what might be produced with a few nudges.

Of course, sensible people care about the taste of food, not simply about health, and eating is a source of pleasure in and of itself. We do not claim that everyone who is overweight is necessarily failing to act rationally, but we do reject the claim that all or almost all Americans are choosing their diet optimally. What is true for diets is true for other risk-related behavior, including smoking and drinking, which produce more than five hundred thousand premature deaths each year. With respect to diet, smoking, and drinking, people's current choices cannot reasonably be claimed to be the best means of promoting their well-being. Indeed, many smokers, drinkers, and overeaters are willing to pay third parties to help them make better decisions.

But our basic source of information here is the emerging science of choice, consisting of careful research by social scientists over the past four decades. That research has raised serious questions about the rationality of many judgments and decisions that people make. To qualify as Econs, people are not required to make perfect forecasts (that would require omniscience), but they are required to make unbiased forecasts. That is, the forecasts can be wrong, but they can't be systematically wrong in a predictable direction. Unlike Econs, Humans predictably err. Take, for example, the "planning fallacy"—the systematic tendency toward unrealistic optimism about the time it takes to complete projects. It will come as no surprise to anyone who has ever hired a contractor to learn that everything takes longer than you think, even if you know about the planning fallacy.

Hundreds of studies confirm that human forecasts are flawed and biased. Human decision making is not so great either. Again to take just one example, consider what is called the "status quo bias," a fancy name for in-

ertia. For a host of reasons, which we shall explore, people have a strong tendency to go along with the status quo or default option.

When you get a new cell phone, for example, you have a series of choices to make. The fancier the phone, the more of these choices you face, from the background to the ring sound to the number of times the phone rings before the caller is sent to voice mail. The manufacturer has picked one option as the default for each of these choices. Research shows that whatever the default choices are, many people stick with them, even when the stakes are much higher than choosing the noise your phone makes when it rings.

Two important lessons can be drawn from this research. First, never underestimate the power of inertia. Second, that power can be harnessed. If private companies or public officials think that one policy produces better outcomes, they can greatly influence the outcome by choosing it as the default. As we will show, setting default options, and other similar seemingly trivial menu-changing strategies, can have huge effects on outcomes, from increasing savings to improving health care to providing organs for lifesaving transplant operations.

The effects of well-chosen default options provide just one illustration of the gentle power of nudges. In accordance with our definition, a nudge is any factor that significantly alters the behavior of Humans, even though it would be ignored by Econs. Econs respond primarily to incentives. If the government taxes candy, they will buy less candy, but they are not influenced by such “irrelevant” factors as the order in which options are displayed. Humans respond to incentives too, but they are also influenced by nudges.* By properly deploying both incentives and nudges, we can improve our ability to improve people’s lives, and help solve many of society’s major problems. And we can do so while still insisting on everyone’s freedom to choose.

*Alert readers will notice that incentives can come in different forms. If steps are taken to increase people’s cognitive effort—as by placing fruit at eye level and candy in a more obscure place—it might be said that the “cost” of choosing candy is increased. Some of our nudges do, in a sense, impose cognitive (rather than material) costs, and in that sense alter incentives. Nudges count as such, and qualify as libertarian paternalism, only if any costs are low.

A False Assumption and Two Misconceptions

Many people who favor freedom of choice reject any kind of paternalism. They want the government to let citizens choose for themselves. The standard policy advice that stems from this way of thinking is to give people as many choices as possible, and then let them choose the one they like best (with as little government intervention or nudging as possible). The beauty of this way of thinking is that it offers a simple solution to many complex problems: Just Maximize (the number and variety of) Choices—full stop! The policy has been pushed in many domains, from education to prescription drug insurance plans. In some circles, Just Maximize Choices has become a policy mantra. Sometimes the only alternative to this mantra is thought to be a government mandate which is derided as “One Size Fits All.” Those who favor Just Maximize Choices don’t realize there is plenty of room between their policy and a single mandate. They oppose paternalism, or think they do, and they are skeptical about nudges. We believe that their skepticism is based on a false assumption and two misconceptions.

The false assumption is that almost all people, almost all of the time, make choices that are in their best interest or at the very least are better than the choices that would be made by someone else. We claim that this assumption is false—indeed, obviously false. In fact, we do not think that anyone believes it on reflection.

Suppose that a chess novice were to play against an experienced player. Predictably, the novice would lose precisely because he made inferior choices—choices that could easily be improved by some helpful hints. In many areas, ordinary consumers are novices, interacting in a world inhabited by experienced professionals trying to sell them things. More generally, how well people choose is an empirical question, one whose answer is likely to vary across domains. It seems reasonable to say that people make good choices in contexts in which they have experience, good information, and prompt feedback—say, choosing among ice cream flavors. People know whether they like chocolate, vanilla, coffee, licorice, or something else. They do less well in contexts in which they are inexperienced and poorly informed, and in which feedback is slow or infrequent—say, in choosing between fruit and ice cream (where the long-term effects are

slow and feedback is poor) or in choosing among medical treatments or investment options. If you are given fifty prescription drug plans, with multiple and varying features, you might benefit from a little help. So long as people are not choosing perfectly, some changes in the choice architecture could make their lives go better (as judged by their own preferences, not those of some bureaucrat). As we will try to show, it is not only possible to design choice architecture to make people better off; in many cases it is easy to do so.

The first misconception is that it is possible to avoid influencing people's choices. In many situations, some organization or agent *must* make a choice that will affect the behavior of some other people. There is, in those situations, no way of avoiding nudging in some direction, and whether intended or not, these nudges will affect what people choose. As illustrated by the example of Carolyn's cafeterias, people's choices are pervasively influenced by the design elements selected by choice architects. It is true, of course, that some nudges are unintentional; employers may decide (say) whether to pay employees monthly or biweekly without intending to create any kind of nudge, but they might be surprised to discover that people save more if they get paid biweekly because twice a year they get three pay checks in one month. It is also true that private and public institutions can strive for one or another kind of neutrality—as, for example, by choosing randomly, or by trying to figure out what most people want. But unintentional nudges can have major effects, and in some contexts, these forms of neutrality are unattractive; we shall encounter many examples.

Some people will happily accept this point for private institutions but strenuously object to government efforts to influence choice with the goal of improving people's lives. They worry that governments cannot be trusted to be competent or benign. They fear that elected officials and bureaucrats will place their own interests first, or pay attention to the narrow goals of self-interested private groups. We share these concerns. In particular, we emphatically agree that for government, the risks of mistake, bias, and overreaching are real and sometimes serious. We favor nudges over commands, requirements, and prohibitions in part for that reason. But governments, no less than cafeterias (which governments frequently run), have to provide starting points of one or another kind. This is not avoidable. As we shall emphasize, they do so every day through the rules they

set, in ways that inevitably affect some choices and outcomes. In this respect, the antinudge position is unhelpful—a literal nonstarter.

The second misconception is that paternalism always involves coercion. In the cafeteria example, the choice of the order in which to present food items does not force a particular diet on anyone, yet Carolyn, and others in her position, might select some arrangement of food on grounds that are paternalistic in the sense that we use the term. Would anyone object to putting the fruit and salad before the desserts at an elementary school cafeteria if the result were to induce kids to eat more apples and fewer Twinkies? Is this question fundamentally different if the customers are teenagers, or even adults? Since no coercion is involved, we think that some types of paternalism should be acceptable even to those who most embrace freedom of choice.

In domains as varied as savings, organ donations, marriage, and health care, we will offer specific suggestions in keeping with our general approach. And by insisting that choices remain unrestricted, we think that the risks of inept or even corrupt designs are reduced. Freedom to choose is the best safeguard against bad choice architecture.

Choice Architecture in Action

Choice architects can make major improvements to the lives of others by designing user-friendly environments. Many of the most successful companies have helped people, or succeeded in the marketplace, for exactly that reason. Sometimes the choice architecture is highly visible, and consumers and employers are much pleased by it. (The iPod and the iPhone are good examples because not only are they elegantly styled, but it is also easy for the user to get the devices to do what they want.) Sometimes the architecture is taken for granted and could benefit from some careful attention.

Consider an illustration from our own employer, the University of Chicago. The university, like many large employers, has an “open enrollment” period every November, when employees are allowed to revise the selections they have made about such benefits as health insurance and retirement savings. Employees are required to make their choices online. (Public computers are available for those who would otherwise not have

Internet access.) Employees receive, by mail, a package of materials explaining the choices they have and instructions on how to log on to make these choices. Employees also receive both paper and email reminders.

Because employees are human, some neglect to log on, so it is crucial to decide what the default options are for these busy and absent-minded employees. To simplify, suppose there are two alternatives to consider: those who make no active choice can be given the same choice they made the previous year, or their choice can be set back to “zero.” Suppose that last year an employee, Janet, contributed one thousand dollars to her retirement plan. If Janet makes no active choice for the new year, one alternative would be to default her to a one thousand-dollar contribution; another would be to default her to zero contribution. Call these the “status quo” and “back to zero” options. How should the choice architect choose between these defaults?

Libertarian paternalists would like to set the default by asking what reflective employees in Janet’s position would actually want. Although this principle may not always lead to a clear choice, it is certainly better than choosing the default at random, or making either “status quo” or “back to zero” the default for everything. For example, it is a good guess that most employees would not want to cancel their heavily subsidized health insurance. So for health insurance the status quo default (same plan as last year) seems strongly preferred to the back to zero default (which would mean going without health insurance).

Compare this to the employee’s “flexible spending account,” in which an employee sets aside money each month that can be used to pay for certain expenditures (such as uninsured medical or child care expenses). Money put into this account has to be spent each year or it is lost, and the predicted expenditures might vary greatly from one year to the next (for example, child care expenses go down when a child enters school). In this case, the zero default probably makes more sense than the status quo.

This problem is not merely hypothetical. We once had a meeting with three of the top administrative officers of the university to discuss similar issues, and the meeting happened to take place on the final day of the employees’ open enrollment period. We mentioned this and asked whether the administrators had remembered to meet the deadline. One said that he was planning on doing it later that day and was glad for the reminder. An-

other admitted to having forgotten, and the third said that he was hoping that his wife had remembered to do it! The group then turned to the question of what the default should be for a supplementary salary reduction program (a tax-sheltered savings program). To that point, the default had been the “back to zero” option. But since contributions to this program could be stopped at any time, the group unanimously agreed that it would be better to switch to the status quo “same as last year” default. We are confident that many absent-minded professors will have more comfortable retirements as a result.

This example illustrates some basic principles of good choice architecture. Choosers are human, so designers should make life as easy as possible. Send reminders, and then try to minimize the costs imposed on those who, despite your (and their) best efforts, space out. As we will see, these principles (and many more) can be applied in both the private and public sectors, and there is much room for going beyond what is now being done.

A New Path

We shall have a great deal to say about private nudges. But many of the most important applications of libertarian paternalism are for government, and we will offer a number of recommendations for public policy and law. Our hope is that that those recommendations might appeal to both sides of the political divide. Indeed, we believe that the policies suggested by libertarian paternalism can be embraced by Republicans and Democrats alike. A central reason is that many of those policies cost little or nothing; they impose no burden on taxpayers at all.

Many Republicans are now seeking to go beyond simple opposition to government action. As the experience with Hurricane Katrina showed, government is often required to act, for it is the only means by which the necessary resources can be mustered, organized, and deployed. Republicans want to make people’s lives better; they are simply skeptical, and legitimately so, about eliminating people’s options.

For their part, many Democrats are willing to abandon their enthusiasm for aggressive government planning. Sensible Democrats certainly hope that public institutions can improve people’s lives. But in many domains, Democrats have come to agree that freedom of choice is a good and even

indispensable foundation for public policy. There is a real basis here for crossing partisan divides.

Libertarian paternalism, we think, is a promising foundation for bipartisanship. In many domains, including environmental protection, family law, and school choice, we will be arguing that better governance requires less in the way of government coercion and constraint, and more in the way of freedom to choose. If incentives and nudges replace requirements and bans, government will be both smaller and more modest. So, to be clear: *we are not for bigger government, just for better governance.*

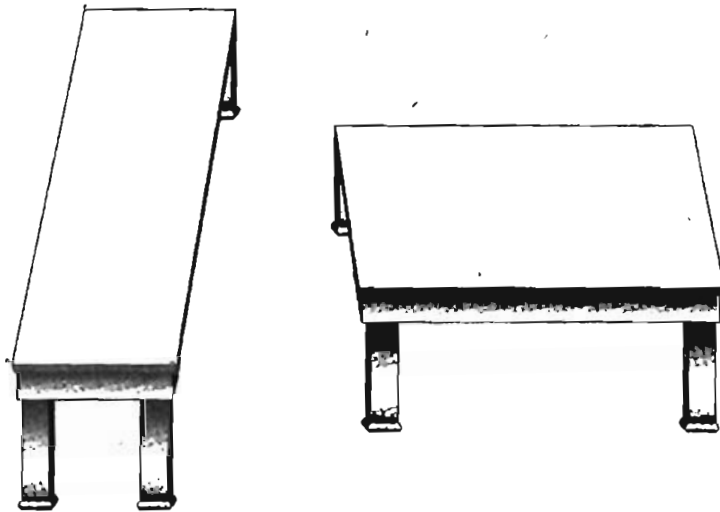
Actually we have evidence that our optimism (which we admit may be a bias) is more than just rosy thinking. Libertarian paternalism with respect to savings, discussed in Chapter 6, has received enthusiastic and widespread bipartisan support in Congress, including from current and former conservative Republican senators such as Robert Bennett (Utah) and Rick Santorum (Pa.) and liberal Democrats such as Rahm Emanuel of Illinois. In 2006 some of the key ideas were quietly enacted into law. The new law will help many Americans have more comfortable retirements but costs essentially nothing in taxpayer dollars.

In short, libertarian paternalism is neither left nor right, neither Democratic nor Republican. In many areas, the most thoughtful Democrats are going beyond their enthusiasm for choice-eliminating programs. In many areas, the most thoughtful Republicans are abandoning their knee-jerk opposition to constructive governmental initiatives. For all their differences, we hope that both sides might be willing to converge in support of some gentle nudges.

1

BIASES AND BLUNDERS

Have a look, if you will, at these two tables:

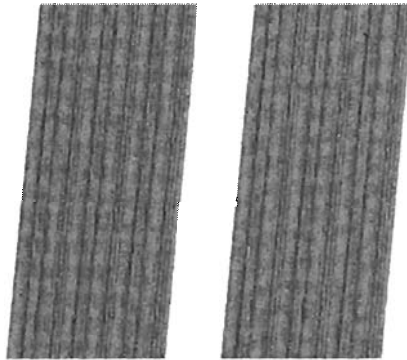


I.I.

Two tables (Adapted from Shepard [1990])

Suppose that you are thinking about which one would work better as a coffee table in your living room. What would you say are the dimensions of the two tables? Take a guess at the ratio of the length to the width of each. Just eyeball it.

If you are like most people, you think that the table on the left is much longer and narrower than the one on the right. Typical guesses are that the ratio of the length to the width is 3:1 for the left table and 1.5:1 for the right



1.2.

Tabletops (Adapted from Shepard [1990])

table. Now take out a ruler and measure each table. You will find that the two table tops are identical. Measure them until you are convinced, because this is a case where seeing is not believing. (When Thaler showed this example to Sunstein at their usual lunch haunt, Sunstein grabbed his chopstick to check.)

What should we conclude from this example? If you see the left table as longer and thinner than the right one, you are certifiably human. There is nothing wrong with you (well, at least not that we can detect from this test). Still, your judgment in this task was biased, and predictably so. No one thinks that the right table is thinner! Not only were you wrong; you were probably confident that you were right. If you like, you can put this visual to good use when you encounter others who are equally human and who are disposed to gamble away their money, say, at a bar.

Now consider Figure 1.2. Do these two shapes look the same or different? Again, if you are human, and have decent vision, you probably see these shapes as being identical, as they are. But these two shapes are just the table tops from Figure 1.1, removed from their legs and reoriented. Both the legs and the orientation facilitate the illusion that the table tops are different in Figure 1.1, so removing these distracters restores the visual system to its usual amazingly accurate state.*

*One of the tricks used in drawing these tables is that vertical lines look longer than horizontal lines. As a result, the Gateway Arch in St. Louis looks taller than it is wide, although the height actually equals the width.

These two figures capture the key insight that behavioral economists have borrowed from psychologists. Normally the human mind works remarkably well. We can recognize people we have not seen in years, understand the complexities of our native language, and run down a flight of stairs without falling. Some of us can speak twelve languages, improve the fanciest computers, and/or create the theory of relativity. However, even Einstein would probably be fooled by those tables. That does not mean something is wrong with us as humans, but it does mean that our understanding of human behavior can be improved by appreciating how people systematically go wrong.

To obtain that understanding, we need to explore some aspects of human thinking. Knowing something about the visual system allowed Roger Shepard (1990), a psychologist and artist, to draw those deceptive tables. He knew what to draw to lead our mind astray. Knowing something about the cognitive system has allowed others to discover systematic biases in the way we think.

How We Think: Two Systems

The workings of the human brain are more than a bit befuddling. How can we be so ingenious at some tasks and so clueless at others? Beethoven wrote his incredible ninth symphony while he was deaf, but we would not be at all surprised if we learned that he often misplaced his house keys. How can people be simultaneously so smart and so dumb? Many psychologists and neuroscientists have been converging on a description of the brain's functioning that helps us make sense of these seeming contradictions. The approach involves a distinction between two kinds of thinking, one that is intuitive and automatic, and another that is reflective and rational.¹ We will call the first the Automatic System and the second the Reflective System. (In the psychology literature, these two systems are sometimes referred to as System 1 and System 2, respectively.) The key features of each system are shown in Table 1.1.

The Automatic System is rapid and is or feels instinctive, and it does not involve what we usually associate with the word *thinking*. When you duck because a ball is thrown at you unexpectedly, or get nervous when your airplane hits turbulence, or smile when you see a cute puppy, you are using

Table 1.1
Two cognitive systems

<i>Automatic System</i>	<i>Reflective System</i>
Uncontrolled	Controlled
Effortless	Effortful
Associative	Deductive
Fast	Slow
Unconscious	Self-aware
Skilled	Rule-following

your Automatic System. Brain scientists are able to say that the activities of the Automatic System are associated with the oldest parts of the brain, the parts we share with lizards (as well as puppies).²

The Reflective System is more deliberate and self-conscious. We use the Reflective System when we are asked, “How much is 411 times 37?” Most people are also likely to use the Reflective System when deciding which route to take for a trip and whether to go to law school or business school. When we are writing this book we are (mostly) using our Reflective Systems, but sometimes ideas pop into our heads when we are in the shower or taking a walk and not thinking at all about the book, and these probably are coming from our Automatic Systems. (Voters, by the way, seem to rely primarily on their Automatic System.³ A candidate who makes a bad first impression, or who tries to win votes by complex arguments and statistical demonstrations, may well run into trouble.)*

Most Americans have an Automatic System reaction to a temperature given in Fahrenheit but have to use their Reflective System to process a temperature given in Celsius; for Europeans, the opposite is true. People speak their native languages using their Automatic Systems and tend to struggle to speak another language using their Reflective Systems. Being truly bilingual means that you speak two languages using the Automatic System. Accomplished chess players and professional athletes have pretty

*It is possible to predict the outcome of congressional elections with frightening accuracy simply by asking people to look quickly at pictures of the candidates and say which one looks more competent. These judgments, by students who did not know the candidates, forecast the winner of the election two-thirds of the time! (Toderov et al. [2005]; Benjamin and Shapiro [2007])

fancy intuitions; their Automatic Systems allow them to size up complex situations rapidly and to respond with both amazing accuracy and exceptional speed.

One way to think about all this is that the Automatic System is your gut reaction and the Reflective System is your conscious thought. Gut feelings can be quite accurate, but we often make mistakes because we rely too much on our Automatic System. The Automatic System says that “the airplane is shaking, I’m going to die,” while the Reflective System responds, “Planes are very safe!” The Automatic System says, “That big dog is going to hurt me,” and the Reflective System replies, “Most pets are quite sweet.” (In both cases, the Automatic System is squawking all the time.) The Automatic System starts out with no idea how to play golf or tennis. Note, however, that countless hours of practice enable an accomplished golfer to avoid reflection and to rely on her Automatic System—so much so that good golfers, like other good athletes, know the hazards of “thinking too much” and might well do better to “trust the gut,” or “just do it.” The Automatic System can be trained with lots of repetition—but such training takes a lot of time and effort. One reason why teenagers are such risky drivers is that their Automatic Systems have not had much practice, and using the Reflective System is much slower.

To see how intuitive thinking works, try the following little test. For each of the three questions, begin by writing down the first answer that comes to your mind. Then pause to reflect.

1. A bat and ball cost \$1.10 in total. The bat costs \$1.00 more than the ball. How much does the ball cost? _____ cents
2. If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets? _____ minutes
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 of the lake? _____ days

What were your initial answers? Most people say 10 cents, 100 minutes, and 24 days. But all these answers are wrong. If you think for a minute, you will see why. If the ball costs 10 cents and the bat costs one dollar more than the ball, meaning \$1.10, then together they cost \$1.20, not \$1.10. No one who bothers to check whether his initial answer of 10 cents could pos-

sibly be right would give that as an answer, but research by Shane Frederick (2005) (who calls this series of questions the cognitive reflection test) finds that these are the most popular answers even among bright college students.

The correct answers are 5 cents, 5 minutes, and 47 days, but you knew that, or at least your Reflective System did if you bothered to consult it. Econs never make an important decision without checking with their Reflective Systems (if they have time). But Humans sometimes go with the answer the lizard inside is giving without pausing to think. If you are a television fan, think of Mr. Spock of *Star Trek* fame as someone whose Reflective System is always in control. (Captain Kirk: “You’d make a splendid computer, Mr. Spock.” Mr. Spock: “That is very kind of you, Captain!”) In contrast, Homer Simpson seems to have forgotten where he put his Reflective System. (In a commentary on gun control, Homer once replied to a gun store clerk who informed him of a mandatory five-day waiting period before buying a weapon, “Five days? But I’m mad now!”)

One of our major goals in this book is to see how the world might be made easier, or safer, for the Homers among us (and the Homer lurking somewhere in each of us). If people can rely on their Automatic Systems without getting into terrible trouble, their lives should be easier, better, and longer.

Rules of Thumb

Most of us are busy, our lives are complicated, and we can’t spend all our time thinking and analyzing everything. When we have to make judgments, such as guessing Angelina Jolie’s age or the distance between Cleveland and Philadelphia, we use simple rules of thumb to help us. We use rules of thumb because most of the time they are quick and useful.

In fact, there is a great collection edited by Tom Parker titled *Rules of Thumb*. Parker wrote the book by asking friends to send him good rules of thumb. For example, “One ostrich egg will serve 24 people for brunch.” “Ten people will raise the temperature of an average size room by one degree per hour.” And one to which we will return: “No more than 25 percent of the guests at a university dinner party can come from the economics department without spoiling the conversation.”

Although rules of thumb can be very helpful, their use can also lead to systematic biases. This insight, first developed decades ago by two Israeli psychologists, Amos Tversky and Daniel Kahneman (1974), has changed the way psychologists (and eventually economists) think about thinking. Their original work identified three heuristics, or rules of thumb—anchoring, availability, and representativeness—and the biases that are associated with each. Their research program has come to be known as the “heuristics and biases” approach to the study of human judgment. More recently, psychologists have come to understand that these heuristics and biases emerge from the interplay between the Automatic System and the Reflective System. Let’s see how.

Anchoring

Suppose we are asked to guess the population of Milwaukee, a city about two hours north of Chicago, where we live. Neither of us knows much about Milwaukee, but we think that it is the biggest city in Wisconsin. How should we go about guessing? Well, one thing we could do is start with something we do know, which is the population of Chicago, roughly three million. So we might think, Milwaukee is a major city, but clearly not as big as Chicago, so, hmmm, maybe it is one-third the size, say one million. Now consider someone from Green Bay, Wisconsin, who is asked the same question. She also doesn’t know the answer, but she does know that Green Bay has about one hundred thousand people and knows that Milwaukee is larger, so guesses, say, three times larger—three hundred thousand.

This process is called “anchoring and adjustment.” You start with some anchor, the number you know, and adjust in the direction you think is appropriate. So far, so good. The bias occurs because the adjustments are typically insufficient. Experiments repeatedly show that, in problems similar to our example, people from Chicago are likely to make a high guess (based on their high anchor) while those from Green Bay guess low (based on their low anchor). As it happens, Milwaukee has about 580,000 people.⁴

Even obviously irrelevant anchors creep into the decision-making process. Try this one yourself. Take the last three digits of your phone number and add two hundred. Write the number down. Now, when do you think Attila the Hun sacked Europe? Was it before or after that year? What is your best guess? (We will give you one hint: It was after the birth of Jesus.) Even

if you do not know much about European history, you do know enough to know that whenever Attila did whatever he did, the date has nothing to do with your phone number. Still, when we conduct this experiment with our students, we get answers that are more than three hundred years later from students who start with high anchors rather than low ones. (The right answer is 411.)

Anchors can even influence how you think your life is going. In one experiment, college students were asked two questions: (a) How happy are you? (b) How often are you dating? When the two questions were asked in this order the correlation between the two questions was quite low (.11). But when the question order was reversed, so that the dating question was asked first, the correlation jumped to .62. Apparently, when prompted by the dating question, the students use what might be called the “dating heuristic” to answer the question about how happy they are. “Gee, I can’t remember when I last had a date! I must be miserable.” Similar results can be obtained from married couples if the dating question is replaced by a lovemaking question.⁵

In the language of this book, anchors serve as nudges. We can influence the figure you will choose in a particular situation by ever-so-subtly suggesting a starting point for your thought process. When charities ask you for a donation, they typically offer you a range of options such as \$100, \$250, \$1,000, \$5,000, or “other.” If the charity’s fund-raisers have an idea of what they are doing, these values are not picked at random, because the options influence the amount of money people decide to donate. People will give more if the options are \$100, \$250, \$1,000, and \$5,000, than if the options are \$50, \$75, \$100, and \$150.

In many domains, the evidence shows that, within reason, the more you ask for, the more you tend to get. Lawyers who sue cigarette companies often win astronomical amounts, in part because they have successfully induced juries to anchor on multimillion-dollar figures. Clever negotiators often get amazing deals for their clients by producing an opening offer that makes their adversary thrilled to pay half that very high amount.

Availability

How much should you worry about hurricanes, nuclear power, terrorism, mad cow disease, alligator attacks, or avian flu? And how much

care should you take in avoiding risks associated with each? What, exactly, should you do to prevent the kinds of dangers that you face in ordinary life?

In answering questions of this kind, most people use what is called the availability heuristic. They assess the likelihood of risks by asking how readily examples come to mind. If people can easily think of relevant examples, they are far more likely to be frightened and concerned than if they cannot. A risk that is familiar, like that associated with terrorism in the aftermath of 9/11, will be seen as more serious than a risk that is less familiar, like that associated with sunbathing or hotter summers. Homicides are more available than suicides, and so people tend to believe, wrongly, that more people die from homicide.

Accessibility and salience are closely related to availability, and they are important as well. If you have personally experienced a serious earthquake, you're more likely to believe that an earthquake is likely than if you read about it in a weekly magazine. Thus vivid and easily imagined causes of death (for example, tornadoes) often receive inflated estimates of probability, and less-vivid causes (for example, asthma attacks) receive low estimates, even if they occur with a far greater frequency (here a factor of twenty). So, too, recent events have a greater impact on our behavior, and on our fears, than earlier ones. In all these highly available examples, the Automatic System is keenly aware of the risk (perhaps too keenly), without having to resort to any tables of boring statistics.

The availability heuristic helps to explain much risk-related behavior, including both public and private decisions to take precautions. Whether people buy insurance for natural disasters is greatly affected by recent experiences.⁶ In the aftermath of an earthquake, purchases of new earthquake insurance policies rise sharply—but purchases decline steadily from that point, as vivid memories recede. If floods have not occurred in the immediate past, people who live on floodplains are far less likely to purchase insurance. And people who know someone who has experienced a flood are more likely to buy flood insurance for themselves, regardless of the flood risk they actually face.

Biased assessments of risk can perversely influence how we prepare for and respond to crises, business choices, and the political process. When Internet stocks have done very well, people might well buy Internet stocks,

even if by that point they've become a bad investment. Or suppose that people falsely think that some risks (a nuclear power accident) are high, whereas others (a stroke) are relatively low. Such misperceptions can affect policy, because governments are likely to allocate their resources in a way that fits with people's fears rather than in response to the most likely danger.

When "availability bias" is at work, both private and public decisions may be improved if judgments can be nudged back in the direction of true probabilities. A good way to increase people's fear of a bad outcome is to remind them of a related incident in which things went wrong; a good way to increase people's confidence is to remind them of a similar situation in which everything worked out for the best. The pervasive problems are that easily remembered events may inflate people's probability judgments, and that if no such events come to mind, their judgments of likelihoods might be distorted downward.

Representativeness

The third of the original three heuristics bears an unwieldy name: representativeness. Think of it as the similarity heuristic. The idea is that when asked to judge how likely it is that A belongs to category B, people (and especially their Automatic Systems) answer by asking themselves how similar A is to their image or stereotype of B (that is, how "representative" A is of B). Like the other two heuristics we have discussed, this one is used because it often works. We think a 6-foot-8-inch African-American man is more likely to be a professional basketball player than a 5-foot-6-inch Jewish guy because there are lots of tall black basketball players and not many short Jewish ones (at least not these days). Stereotypes are sometimes right!

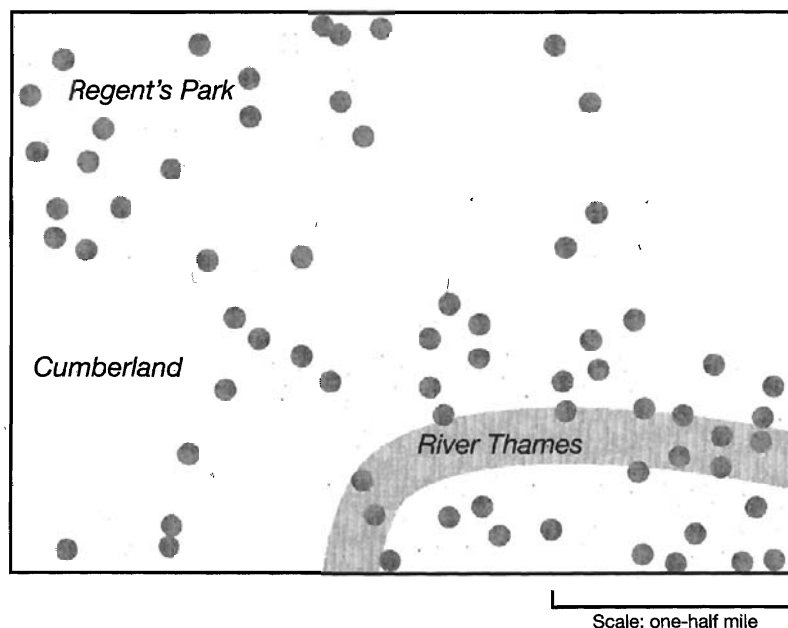
Again, biases can creep in when similarity and frequency diverge. The most famous demonstration of such biases involves the case of a hypothetical woman named Linda. In this experiment, subjects were told the following: "Linda is thirty-one years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice and also participated in antinuclear demonstrations." Then people were asked to rank, in order of the probability of their occurrence, eight possible futures for Linda. The two crucial

answers were “bank teller” and “bank teller and active in the feminist movement.” Most people said that Linda was less likely to be a bank teller than to be a bank teller and active in the feminist movement.

This is an obvious logical mistake. It is, of course, not logically possible for any two events to be more likely than one of them alone. It just has to be the case that Linda is more likely to be a bank teller than a feminist bank teller, because all feminist bank tellers are bank tellers. The error stems from the use of the representativeness heuristic: Linda’s description seems to match “bank teller and active in the feminist movement” far better than “bank teller.” As Stephen Jay Gould (1991) once observed, “I know [the right answer], yet a little homunculus in my head continues to jump up and down, shouting at me—‘but she can’t just be a bank teller; read the description!’” Gould’s homunculus is the Automatic System in action.

Use of the representativeness heuristic can cause serious misperceptions of patterns in everyday life. When events are determined by chance, such as a sequence of coin tosses, people expect the resulting string of heads and tails to be representative of what they think of as random. Unfortunately, people do not have accurate perceptions of what random sequences look like. When they see the outcomes of random processes, they often detect patterns that they think have great meaning but in fact are just due to chance. You might flip a coin three times, see it come up heads every time, and conclude that there is something funny about the coin. But the fact is that if you flip any coin a lot, it won’t be so unusual to see three heads in a row. (Try it and you’ll see. As a little test, Sunstein, having just finished this paragraph, flipped a regular penny three times—and got heads every time. He was amazed. He shouldn’t have been.)

A less trivial example, from the Cornell psychologist Tom Gilovich (1991), comes from the experience of London residents during the German bombing campaigns of World War II. London newspapers published maps, such as the one shown in Figure 1.3, displaying the location of the strikes from German V-1 and V-2 missiles that landed in central London. As you can see, the pattern does not seem at all random. Bombs appear to be clustered around the River Thames and also in the northwest sector of the map. People in London expressed concern at the time because the pattern seemed to suggest that the Germans could aim their bombs with great precision. Some Londoners even speculated that the blank spaces



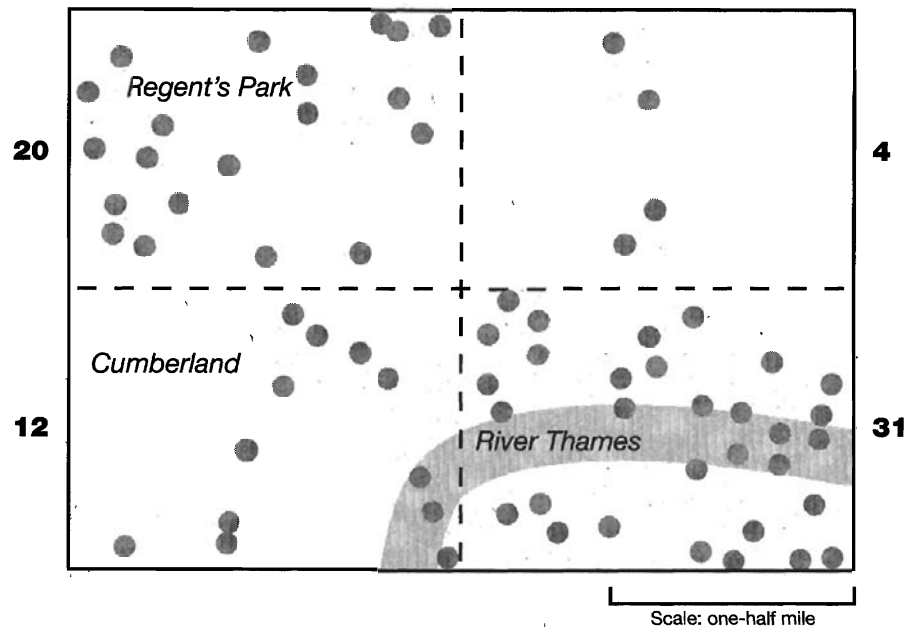
1.3.

Map of London showing V-1 rocket strikes (Adapted from Gilovich [1991])

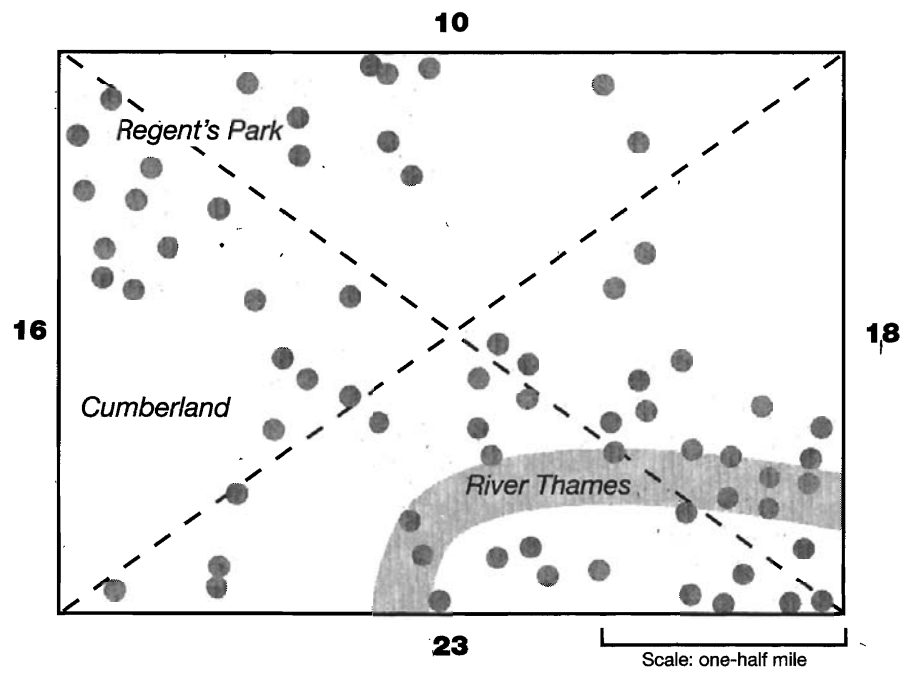
were probably the neighborhoods where German spies lived. They were wrong. In fact the Germans could do no better than aim their bombs at Central London and hope for the best. A detailed statistical analysis of the dispersion of the location of the bomb strikes determined that within London the distribution of bomb strikes was indeed random.

Still, the location of the bomb strikes does not *look* random. What is going on here? We often see patterns because we construct our informal tests only after looking at the evidence. The World War II example is an excellent illustration of this problem. Suppose we divide the map into quadrants, as in Figure 1.4a. If we then do a formal statistical test—or, for the less statistically inclined, just count the number of hits in each quadrant—we do find evidence of a nonrandom pattern. However, nothing in nature suggests that this is the right way to test for randomness. Suppose instead we form the quadrants diagonally as in Figure 1.4b. We are now unable to reject the hypothesis that the bombs land at random. Unfortunately, we do not subject our own perceptions to such rigorous alternative testing.

Gilovich (with colleagues Vallone and Tversky [1985]) is also responsible for perhaps the most famous (or infamous) example of misperception of randomness, namely the widely held view among basketball fans that



a



b

I.4.
 Map of London showing V-1 rocket strikes, with vertical-horizontal grid (a) and diagonal grid (b). The figures outside the grid refer to the number of dots in the quadrant. (Adapted from Gilovich [1991])

there is a strong pattern of “streak shooting.” We will not go into this in detail, because our experience tells us that the cognitive illusion here is so powerful that most people (influenced by their Automatic System) are unwilling even to consider the possibility that their strongly held beliefs might be wrong. But here is the short version. Most basketball fans think that a player is more likely to make his next shot if he has made his last shot, or even better, his last few shots. Players who have hit a few shots in a row, or even most of their recent shots, are said to have a “hot hand,” which is taken by all sports announcers to be a good signal about the future. Passing the ball to the player who is hot is taken to be an obvious bit of good strategy.

It turns out that the “hot hand” is just a myth. Players who have made their last few shots are no more likely to make their next shot (actually a bit less likely). Really.

Once people are told these facts, they quickly start forming alternative versions of the hot-hand theory. Maybe the defense adjusts and guards the “hot” player more closely. Maybe the hot player adjusts and starts taking harder shots. These are fine observations that need to be investigated. But notice that, before seeing the data, when fans were asked about actual shooting percentages after a series of made shots, they routinely subscribed to the hot-hand theory—no qualifiers were thought necessary. Many researchers have been so sure that the original Gilovich results were wrong that they set out to find the hot hand. To date, no one has found it.⁷

Jay Koehler and Caryn Conley (2003) performed a particularly clean test using the annual three-point shooting contest held at the National Basketball Association All-Star Game. In this contest, the players (among the best three-point shooters in the league) take a series of shots from behind the three-point shooting arc. Their goal is to make as many shots as possible in sixty seconds. Without any defense or alternative shots, this would seem to be an ideal situation in which to observe the hot hand. However, as in the original study, there was no evidence of any streakiness. This absence of streak shooting did not stop the announcers from detecting sudden temperature variations in the players. (“Dana Baros is hot!” “Legler is on fire!”) But these outbursts by the announcers had no predictive power. Before the announcers spoke of hotness, the players had made

80.5 percent of their three previous shots. After the hotness pronouncements, players made only 55.2 percent—not significantly better than their overall shooting percentage in the contest, 53.9 percent.

Of course, it is no great problem if basketball fans are confused about what they see when they are watching games on television. But the same cognitive biases occur in other, more weighty domains. Consider the phenomenon of “cancer clusters.” These can cause a great deal of private and public consternation, and they often attract sustained investigations, designed to see what on earth (or elsewhere) could possibly have caused a sudden and otherwise inexplicable outbreak of cancer cases. Suppose that in a particular neighborhood we find an apparently elevated cancer rate—maybe ten people, in a group of five hundred, have been diagnosed with cancer within the same six-month period. Maybe all ten people live within three blocks of one another. And in fact, American officials receive reports of more than one thousand suspected cancer clusters every year, with many of these suspected clusters investigated further for a possible “epidemic.”⁸

The problem is that in a population of three hundred million, it is inevitable that certain neighborhoods will see unusually high cancer rates within any one-year period. The resulting “cancer clusters” may be products of random fluctuations. Nonetheless, people insist that they could not possibly occur by chance. They get scared, and sometimes government wrongly intervenes on their behalf. Mostly, though, there is thankfully nothing to worry about, except for the fact that the use of the representativeness heuristic can cause people to confuse random fluctuations with causal patterns.

Optimism and Overconfidence

Before the start of Thaler’s class in Managerial Decision Making, students fill out an anonymous survey on the course Web site. One of the questions is “In which decile do you expect to fall in the distribution of grades in this class?” Students can check the top 10 percent, the second 10 percent, and so forth. Since these are MBA students, they are presumably well aware that in any distribution, half the population will be in the top 50 percent and half in the bottom. And only 10 percent of the class can, in fact, end up in the top decile.

Nevertheless, the results of this survey reveal a high degree of unrealistic optimism about performance in the class. Typically less than 5 percent of the class expects their performance to be below the median (the 50th percentile) and more than half the class expects to perform in one of the top two deciles. Invariably, the largest group of students put themselves in the second decile. We think this is most likely explained by modesty. They really think they will end up in the top decile, but are too modest to say so.

MBA students are not the only ones overconfident about their abilities. The “above average” effect is pervasive. Ninety percent of all drivers think they are above average behind the wheel, even if they don’t live in Lake Wobegon. And nearly everyone (including some who are rarely seen smiling) thinks he has an above-average sense of humor. (That is because they know what is funny!) This applies to professors, too. About 94 percent of professors at a large university were found to believe that they are better than the average professor, and there is every reason to think that such overconfidence applies to professors in general.⁹ (Yes, we admit to this particular failing.)

People are unrealistically optimistic even when the stakes are high. About 50 percent of marriages end in divorce, and this is a statistic most people have heard. But around the time of the ceremony, almost all couples believe that there is approximately a zero percent chance that their marriage will end in divorce—even those who have already been divorced!¹⁰ (Second marriage, Samuel Johnson once quipped, “is the triumph of hope over experience.”) A similar point applies to entrepreneurs starting new businesses, where the failure rate is at least 50 percent. In one survey of people starting new businesses (typically small businesses, such as contracting firms, restaurants, and salons), respondents were asked two questions: (a) What do you think is the chance of success for a typical business like yours? (b) What is your chance of success? The most common answers to these questions were 50 percent and 90 percent, respectively, and many said 100 percent to the second question.¹¹

Unrealistic optimism can explain a lot of individual risk taking, especially in the domain of risks to life and health. Asked to envision their future, students typically say that they are far less likely than their classmates to be fired from a job, to have a heart attack or get cancer, to be divorced after a few years of marriage, or to have a drinking problem. Gay men sys-

tematically underestimate the chance that they will contract AIDS, even though they know about AIDS risks in general. Older people underestimate the likelihood that they will be in a car accident or suffer major diseases. Smokers are aware of the statistical risks, and often even exaggerate them, but most believe that they are less likely to be diagnosed with lung cancer and heart disease than most nonsmokers. Lotteries are successful partly because of unrealistic optimism.¹²

Unrealistic optimism is a pervasive feature of human life; it characterizes most people in most social categories. When they overestimate their personal immunity from harm, people may fail to take sensible preventive steps. If people are running risks because of unrealistic optimism, they might be able to benefit from a nudge. In fact, we have already mentioned one possibility: if people are reminded of a bad event, they may not continue to be so optimistic.

Gains and Losses

People hate losses (and their Automatic Systems can get pretty emotional about them). Roughly speaking, losing something makes you twice as miserable as gaining the same thing makes you happy. In more technical language, people are “loss averse.” How do we know this?

Consider a simple experiment.¹³ Half the students in a class are given coffee mugs with the insignia of their home university embossed on it. The students who do not get a mug are asked to examine their neighbor’s mugs. Then mug owners are invited to sell their mugs and nonowners are invited to buy them. They do so by answering the question “At each of the following prices, indicate whether you would be willing to (give up your mug/buy a mug).” The results show that those with mugs demand roughly twice as much to give up their mugs as others are willing to pay to get one. Thousands of mugs have been used in dozens of replications of this experiment, but the results are nearly always the same. Once I have a mug, I don’t want to give it up. But if I don’t have one, I don’t feel an urgent need to buy one. What this means is that people do not assign specific values to objects. When they have to give something up, they are hurt more than they are pleased if they acquire the very same thing.

It is also possible to measure loss aversion with gambles. Suppose I ask

you whether you want to make a bet. Heads you win $\$X$, tails you lose $\$100$. How much does X have to be for you to take the bet? For most people, the answer to this question is somewhere around $\$200$. This implies that the prospect of winning $\$200$ just offsets the prospect of losing $\$100$.

Loss aversion helps produce inertia, meaning a strong desire to stick with your current holdings. If you are reluctant to give up what you have because you do not want to incur losses, then you will turn down trades you might have otherwise made. In another experiment, half the students in a class received coffee mugs (of course) and half got large chocolate bars. The mugs and the chocolate cost about the same, and in pretests students were as likely to choose one as the other. Yet when offered the opportunity to switch from a mug to a candy bar or vice versa, only one in ten switched.

As we will see, loss aversion operates as a kind of cognitive nudge, pressing us not to make changes, even when changes are very much in our interests.

Status Quo Bias

Loss aversion is not the only reason for inertia. For lots of reasons, people have a more general tendency to stick with their current situation. This phenomenon, which William Samuelson and Richard Zeckhauser (1988) have dubbed the “status quo bias,” has been demonstrated in numerous situations. Most teachers know that students tend to sit in the same seats in class, even without a seating chart. But status quo bias can occur even when the stakes are much larger, and it can get us into a lot of trouble.

For example, in retirement savings plans, such as 401(k)s, most participants pick an asset allocation and then forget about it. In one study conducted in the late 1980s, participants in TIAA-CREF, the pension plan of many college professors, the median number of changes in the asset allocation of the lifetime of a professor was, believe it or not, zero. In other words, over the course of their careers, more than half of the participants made exactly no changes to the way their contributions were being allocated. Perhaps even more telling, many married participants who were sin-

gle when they joined the plan still have their mothers listed as their beneficiaries!

Status quo bias is easily exploited. Many years ago American Express wrote Sunstein a cheerful letter telling him that he could receive, for free, three-month subscriptions to five magazines of his choice. Free subscriptions seem like a bargain, even if the magazines rarely get read, so Sunstein happily made his choices. What he didn't realize was that unless he took some action to cancel his subscription, he would continue to receive the magazines, paying for them at the normal rate. For about a decade, he has continued to subscribe to magazines that he hardly ever reads. (He keeps intending to cancel those subscriptions, but somehow never gets around to it. We hope to get around to discussing procrastination in the next chapter.)

One of the causes of status quo bias is a lack of attention. Many people adopt what we will call the “yeah, whatever” heuristic. A good illustration is the carryover effect in television viewing. Network executives spend a lot of time working on scheduling because they know that a viewer who starts the evening on NBC tends to stay there. Since remote controls have been pervasive in this country for decades, the actual “switching” costs in this context are literally one thumb press. But when one show ends and the next one comes on, a surprisingly high number of viewers (implicitly) say, “yeah, whatever” and keep watching. Nor is Sunstein the only victim of automatic renewal of magazine subscriptions. Those who are in charge of circulation know that when renewal is automatic, and when people have to make a phone call to cancel, the likelihood of renewal is much higher than it is when people have to indicate that they actually want to continue to receive the magazine.

The combination of loss aversion with mindless choosing implies that if an option is designated as the “default,” it will attract a large market share. Default options thus act as powerful nudges. In many contexts defaults have some extra nudging power because consumers may feel, rightly or wrongly, that default options come with an implicit endorsement from the default setter, be it the employer, government, or TV scheduler. For this and other reasons, setting the best possible defaults will be a theme we explore often in the course of this book.

Framing

Suppose that you are suffering from serious heart disease and that your doctor proposes a grueling operation. You're understandably curious about the odds. The doctor says, "Of one hundred patients who have this operation, ninety are alive after five years." What will you do? If we fill in the facts in a certain way, the doctor's statement will be pretty comforting, and you'll probably have the operation.

But suppose the doctor frames his answer in a somewhat different way. Suppose that he says, "Of one hundred patients who have this operation, ten are dead after five years." If you're like most people, the doctor's statement will sound pretty alarming, and you might not have the operation. The Automatic System thinks: "A significant number of people are dead, and I might be one of them!" In numerous experiments, people react very differently to the information that "ninety of one hundred are alive" than to the information that "ten of one hundred are dead"—even though the content of the two statements is exactly the same. Even experts are subject to framing effects. When doctors are told that "ninety of one hundred are alive," they are more likely to recommend the operation than if told that "ten of one hundred are dead."¹⁴

Framing matters in many domains. When credit cards started to become popular forms of payment in the 1970s, some retail merchants wanted to charge different prices to their cash and credit card customers. (Credit card companies typically charge retailers 1 percent of each sale.) To prevent this, credit card companies adopted rules that forbade their retailers from charging different prices to cash and credit customers. However, when a bill was introduced in Congress to outlaw such rules, the credit card lobby turned its attention to language. Its preference was that if a company charged different prices to cash and credit customers, the credit price should be considered the "normal" (default) price and the cash price a discount—rather than the alternative of making the cash price the usual price and charging a surcharge to credit card customers.

The credit card companies had a good intuitive understanding of what psychologists would come to call "framing." The idea is that choices depend, in part, on the way in which problems are stated. The point matters a great deal for public policy. Energy conservation is now receiving a lot of

attention, so consider the following information campaigns: (a) If you use energy conservation methods, you will save \$350 per year; (b) If you do not use energy conservation methods, you will lose \$350 per year. It turns out that information campaign (b), framed in terms of losses, is far more effective than information campaign (a). If the government wants to encourage energy conservation, option (b) is a stronger nudge.

Framing works because people tend to be somewhat mindless, passive decision makers. Their Reflective System does not do the work that would be required to check and see whether reframing the questions would produce a different answer. One reason they don't do this is that they wouldn't know what to make of the contradiction. This implies that frames are powerful nudges, and must be selected with caution.

So What?

Our goal in this chapter has been to offer a brief glimpse at human fallibility. The picture that emerges is one of busy people trying to cope in a complex world in which they cannot afford to think deeply about every choice they have to make. People adopt sensible rules of thumb that sometimes lead them astray. Because they are busy and have limited attention, they accept questions as posed rather than trying to determine whether their answers would vary under alternative formulations. The bottom line, from our point of view, is that people are, shall we say, nudge-able. Their choices, even in life's most important decisions, are influenced in ways that would not be anticipated in a standard economic framework. Here is one final example to illustrate.

One of the most scenic urban thoroughfares in the world is Chicago's Lake Shore Drive, which hugs the Lake Michigan coastline that is the city's eastern boundary. The drive offers stunning views of Chicago's magnificent skyline. There is one stretch of this road that puts drivers through a series of S curves. These curves are dangerous. Many drivers fail to take heed of the reduced speed limit (25 mph) and wipe out. Recently, the city has employed a new way of encouraging drivers to slow down.

At the beginning of the dangerous curve, drivers encounter a sign painted on the road warning of the lower speed limit, and then a series of white stripes painted onto the road. The stripes do not provide much if any



I.5.
Lake Shore Drive, Chicago (Courtesy of the city of Chicago)

tactile information (they are not speed bumps) but rather just send a visual signal to drivers. When the stripes first appear, they are evenly spaced, but as drivers reach the most dangerous portion of the curve, the stripes get closer together, giving the sensation that driving speed is increasing (see Figure 1.5). One's natural instinct is to slow down. When we drive on this familiar stretch of road, we find that those lines are speaking to us, gently urging us to touch the brake before the apex of the curve. We have been nudged.