

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, not 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.

PART

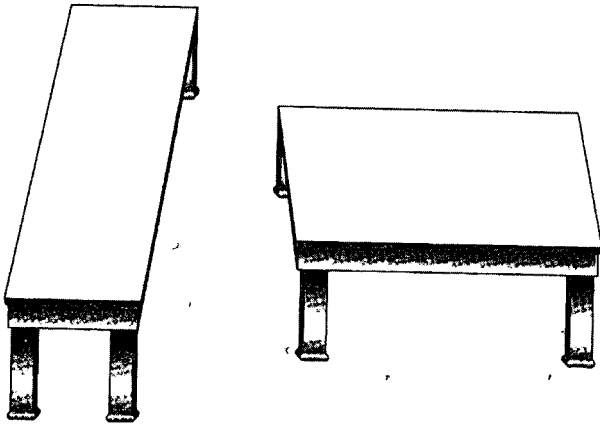
I

HUMANS AND ECONS

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, hm, 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!

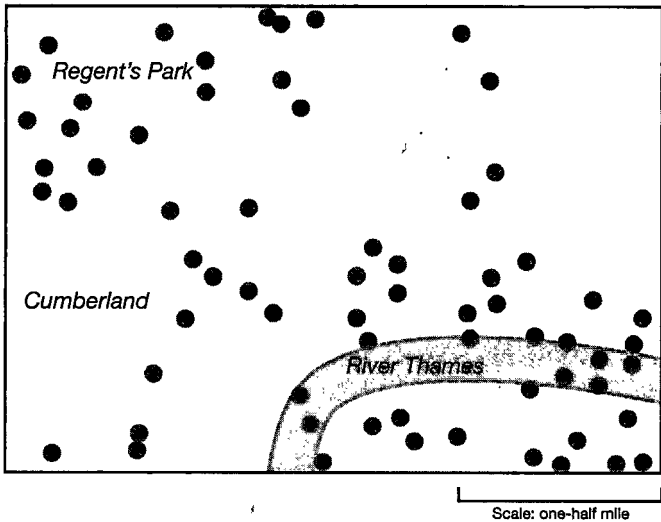
Again, biases can creep in when similarity and frequency diverge. The most famous demonstration of such biases involves the case of a hypothetical woman named Linda. In this experiment, subjects were told the following: "Linda is thirty-one years old, single, outspoken, and very bright. She majored in 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

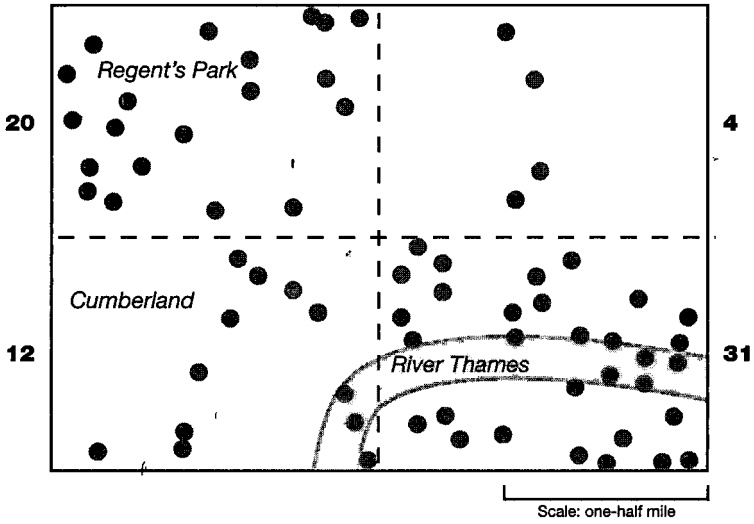


1.3.
Map of London showing V-1 rocket strikes (Adapted from Gilovich [1991])

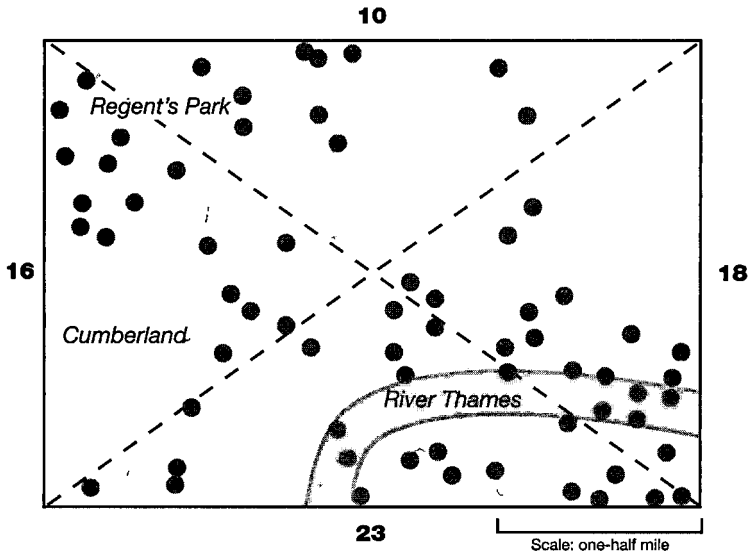
were probably the neighborhoods where German spies lived. They were wrong. In fact the Germans could do no better than aim their bombs at Central London and hope for the best. A detailed statistical analysis of the dispersion of the location of the bomb strikes determined that within London the distribution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

1.4.

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.

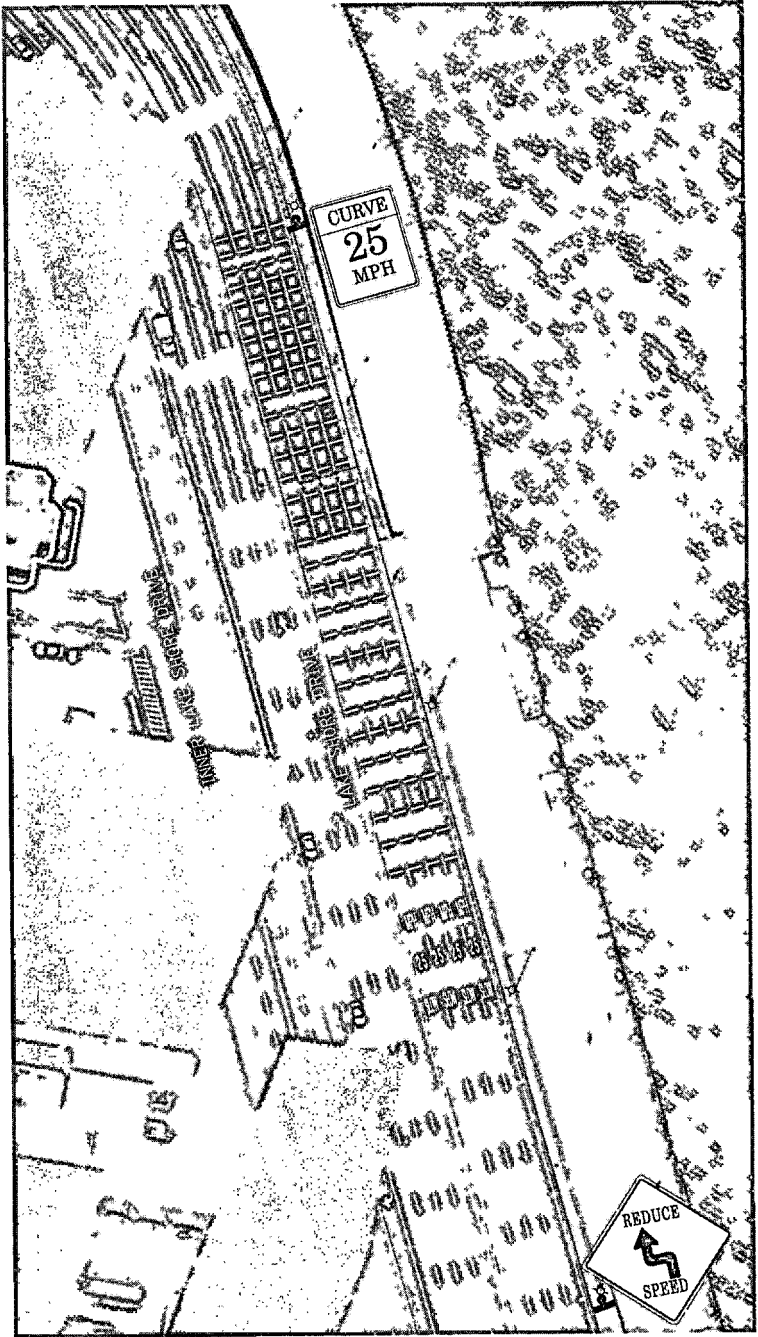
Framing works because people tend to be somewhat mindless, passive decision makers. Their Reflective System does not do the work that would be required to check and see whether reframing the questions would produce a different answer. One reason they don't do this is that they wouldn't know what to make 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



1.5.
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.

2

RESISTING TEMPTATION

Temptation

Many years ago, Thaler was hosting dinner for some guests (other than-young economists) and put out a large bowl of cashew nuts to nibble on with the first bottle of wine. Within a few minutes it became clear that the bowl of nuts was going to be consumed in its entirety, and that the guests might lack sufficient appetite to enjoy all the food that was to follow. Leaping into action, Thaler grabbed the bowl of nuts, and (while sneaking a few more nuts for himself) removed the bowl to the kitchen, where it was put out of sight.

When he returned, the guests thanked him for removing the nuts. The conversation immediately turned to the theoretical question of how they could possibly be happy about the fact that there was no longer a bowl of nuts in front of them. (You can now see the wisdom of the rule of thumb mentioned in Chapter 1 about a cap on the proportion of economists among attendees at a dinner party.) In economics (and in ordinary life), a basic principle is that you can never be made worse off by having more options, because you can always turn them down. Before Thaler removed the nuts the group had the choice of whether to eat the nuts or not—now they didn't. In the land of Econs, it is against the law to be happy about this!

To help us understand this example, consider how the preferences of the group seemed to evolve over time. At 7:15, just before Thaler removed the nuts, the dinner guests had three options: eat a few nuts; eat all the nuts; and eat no more nuts. Their first choice would be to eat just a few more

nuts, followed by eating no more nuts. The worst option was finishing the bowl, since that would ruin dinner. But by 7:30, had the nuts remained on the table, the group would have finished the bowl, thereby reaching their least favorite option. Why would the group change its mind in the space of just fifteen minutes? Or do we really want to say that the group has changed its mind?

In the language of economics, the group is said to display behavior that is *dynamically inconsistent*. Initially people prefer A to B, but they later choose B over A. We can see dynamic inconsistency in many places. On Saturday morning people might say that they prefer exercising to watching television, but once the afternoon comes, they are on the couch at home watching the football game. How can such behavior be understood?

Two factors must be introduced in order to understand the cashew phenomenon: temptation and mindlessness. Human beings have been aware of the concept of temptation at least since the time of Adam and Eve, but for purposes of understanding the value of nudges, that concept needs elaboration. What does it mean for something to be “tempting”?

As with Supreme Court Justice Potter Stewart’s “I know it when I see it” adage about pornography, temptation is easier to recognize than to define. Our preferred definition requires recognizing that people’s state of arousal varies over time. To simplify things we will consider just the two end points: hot and cold. When Sally is very hungry and appetizing aromas are emanating from the kitchen, we can say she is in a hot state. When Sally is thinking abstractly on Tuesday about the right number of cashews she should consume before dinner on Saturday, she is in a cold state. We will call something “tempting” if we consume more of it when hot than when cold. None of this means that decisions made in a cold state are always better. For example, sometimes we have to be in a hot state to overcome our fears about trying new things. Sometimes dessert really is delicious, and we do best to go for it. Sometimes it is best to fall in love. But it is clear that when we are in a hot state, we can often get into a lot of trouble.

Most people realize that temptation exists, and they take steps to overcome it. The classic example is that of Ulysses, who faced the peril of the Sirens and their irresistible songs. While in a cold state, Ulysses instructed his crew to fill their ears with wax so that they would not be tempted by the music. He also asked the crew to tie him to the mast so that he could listen

for himself but be restrained from submitting to the temptation to steer the ship closer when the music put him into a hot state.

Ulysses successfully solved his problem. For most of us, however, self-control issues arise because we underestimate the effect of arousal. This is something the behavioral economist George Loewenstein (1996) calls the “hot-cold empathy gap.” When in a cold state, we do not appreciate how much our desires and our behavior will be altered when we are “under the influence” of arousal. As a result, our behavior reflects a certain naïveté about the effects that context can have on choice. Tom is on a diet and agrees to go out on a business dinner, thinking that he will be able to limit himself to one glass of wine and no dessert. But the host orders a second bottle of wine and the waiter brings by the dessert cart, and all bets are off. Marilyn thinks that she can go into a department store when they are having a big sale and just see whether they have something on sale that she really needs. She ends up with shoes that hurt (but were 70 percent off). Robert thinks he will engage only in safe sex, but then must make all the crucial decisions while aroused. Similar problems affect those who have problems with smoking, alcohol, a failure to exercise, excessive borrowing, and insufficient savings.

Self-control problems can be illuminated by thinking about an individual as containing two semiautonomous selves, a far-sighted “Planner” and a myopic “Doer.” You can think of the Planner as speaking for your Reflective System, or the Mr. Spock lurking within you, and the Doer as heavily influenced by the Automatic System, or everyone’s Homer Simpson. The Planner is trying to promote your long-term welfare but must cope with the feelings, mischief, and strong will of the Doer, who is exposed to the temptations that come with arousal. Recent research in neuroeconomics (yes, there really is such a field) has found evidence consistent with this two-system conception of self-control. Some parts of the brain get tempted, and other parts are prepared to enable us to resist temptation by assessing how we should react to the temptation.¹ Sometimes the two parts of the brain can be in severe conflict—a kind of battle that one or the other is bound to lose.

Mindless Choosing

The cashew problem is not only one of temptation. It also involves the type of mindless behavior we discussed in the context of inertia. In many situations, people put themselves into an “automatic pilot” mode, in which they are not actively paying attention to the task at hand. (The Automatic System is very comfortable that way.) On a Saturday morning when we set out to run an errand, we can easily find ourselves driving our usual route to work—until we realize we are headed in the opposite direction from our intended destination, the grocery store. On a Sunday morning, we follow our ordinary routine with coffee and the newspaper—until we realize that we had arranged to meet a friend for brunch an hour earlier. Eating turns out to be one of the most mindless activities we do. Many of us simply eat whatever is put in front of us. That is why even massive bowls of cashews are likely to be consumed completely, regardless of the quality of the food that is soon to be arriving.

The same is true of popcorn—even stale popcorn. A few years ago, Brian Wansink and his colleagues ran an experiment in a Chicago movie theater in which moviegoers found themselves with a free bucket of stale popcorn.² (It had been popped five days earlier and stored so as to ensure that it would actually squeak when eaten.) People were not specifically informed of its staleness, but they didn’t like the popcorn. As one moviegoer said, “It was like eating Styrofoam packing peanuts.” In the experiment, half of the moviegoers received a big bucket of popcorn and half received a medium-sized bucket. On average, recipients of the big bucket ate about 53 percent more popcorn—even though they didn’t really like it. After the movie, Wansink asked the recipients of the big bucket whether they might have eaten more because of the size of their bucket. Most denied the possibility, saying, “Things like that don’t trick me.” But they were wrong.

The same is true of soup. In another Wansink (2006) masterpiece, people sat down to a large bowl of Campbell’s tomato soup and were told to eat as much as they wanted. Unbeknownst to them, the soup bowls were designed to refill themselves (with empty bottoms connected to machinery beneath the table). No matter how much soup subjects ate, the bowl never emptied. Many people just kept eating, not paying attention to the fact that they were really eating a great deal of soup, until the experiment

was (mercifully) ended. Large plates and large packages mean more eating; they are a form of choice architecture, and they work as major nudges. (Hint: if you would like to lose weight, get smaller plates, buy little packages of what you like, and don't keep tempting food in the refrigerator.)

When self-control problems and mindless choosing are combined, the result is a series of bad outcomes for real people. Millions of Americans still smoke in spite of the evidence that smoking has terrible health consequences, and, significantly, the overwhelming majority of smokers say that they would like to quit. Nearly two-thirds of Americans are overweight or obese. Many people never get around to joining their company's retirement savings plan, even when it is heavily subsidized. Together, these facts suggest that significant numbers of people could benefit from a nudge.

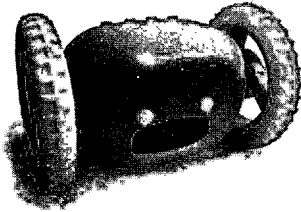
Self-Control Strategies

Since people are at least partly aware of their weaknesses, they take steps to engage outside help. We make lists to help us remember what to buy at the grocery store. We buy an alarm clock to help us get up in the morning. We ask friends to stop us from having dessert or to fortify our efforts to quit smoking. In these cases, our Planners are taking steps to control the actions of our Doers, often by trying to change the incentives that Doers face.

Unfortunately, Doers are often difficult to rein in (think of controlling Homer), and they can foil the best efforts of Planners. Consider the mundane but revealing example of the alarm clock. The optimistic Planner sets the alarm for 6:15 A.M., hoping for a full day of work, but the sleepy Doer turns off the alarm and goes back to sleep until 9:00. This can lead to fierce battles between the Planner and the Doer. Some Planners put the alarm clock on the other side of the room, so the Doer at least has to get up to turn it off, but if the Doer crawls back into bed, all is lost. Fortunately, enterprising firms sometimes offer to help the Planner out.

Consider the alarm clock "Clocky," pictured in Figure 2.1. Clocky is the "alarm clock that runs away and hides if you don't get out of bed." With Clocky, the Planner sets the number of snooze minutes the Doer will be permitted in the morning. When that number runs out, the clock jumps off the night stand and moves around the room making annoying sounds.

clocky™



PRODUCT

Clocky® (patent pending) is an alarm clock that runs away and hides if you don't get out of bed on time. The alarm sounds, you press the snooze, and Clocky will roll off of the bedside table, jump to the floor, and wheel away, bumping mindlessly into objects until he finds a spot to rest. When the alarm sounds again, you must awaken to search for him. Clocky will find new spots everyday, kind of like a hide-and-seek game.

Clocky alarm clocks were designed to reinterpret the common alarm clock into something that is not stressful and obnoxious but amusing and a better fit between humans and technology.

2.1.

Clocky advertisement (Used by permission of nanda llc.)

The only way to turn the damn thing off is to get out of bed and find it. By that time, even a groggy Doer is awake.

Planners have a number of available strategies, such as Clocky, to control recalcitrant Doers, but they can sometimes use some help from outsiders. We will be exploring how private and public institutions can provide that help. In daily life, one strategy involves informal bets. Thaler once helped a young colleague by using this strategy. The colleague (let's call him David) had been hired as a new faculty member with the expectation that he would complete the requirements for his Ph.D. before he arrived, or at worst within his first year as a faculty member. David had lots of incentives

to finish his thesis, including a strong financial incentive: until he graduated the university treated him as an "instructor" rather than an assistant professor and did not make its normal contributions to his retirement plan, which amounted to 10 percent of his salary (thousands of dollars a year). David's inner Planner knew that he needed to stop procrastinating and get his thesis done, but his Doer was involved in many other more exciting projects and always put off the drudgery of writing up the thesis. (Thinking about new ideas is usually more fun than writing up old ones.)

That is when Thaler intervened by offering David the following deal. David would write Thaler a series of checks for \$100, payable on the first day of each of the next few months. Thaler would cash each check if David did not put a copy of a new chapter of the thesis under his door by midnight of the corresponding month. Furthermore, Thaler promised to use the money to have a party to which David would not be invited. David completed his thesis on schedule four months later, never having missed a deadline (though most chapters were completed within mere minutes of being due). It is instructive that this incentive scheme worked even though David's monetary incentive from the university was greater than \$100 a month, just from the retirement contribution alone.

The scheme worked because the pain of having Thaler cash the check and consume some good wine without him was more salient than the rather abstract and pallid forgone contribution to his retirement savings plan. Many of Thaler's friends have threatened to go into business competing with him on this incentive plan, though Thaler points out that in order to go into this business, you have to be known as a big enough jerk actually to cash the check.

Sometimes friends can adopt such betting strategies together. John Romalis and Dean Karlan, two economists, adopted an ingenious arrangement for weight loss. When John and Dean were in graduate school in economics, they noticed that they were putting on weight, especially during the period when they were on the job market and being wined and dined by potential employers. They made a pact. Each agreed to lose thirty pounds over a period of nine months. If either failed, he had to pay the other \$10,000. The bet was a big success; both met their target. They then turned to the more difficult problem of keeping the weight off. The rules they adopted were that on one day's notice, either one could call for a

weigh-in. If either was found to be over the target weight, he would have to pay the other an agreed sum. In four years, there were several weigh-ins, and only once was either one over target (the resulting fine was paid in full immediately). Notice that as in the case of David's thesis bet, Dean and John were acknowledging that without the bet to encourage them, they would have eaten too much, even though they still would have wanted to lose the weight.

More formal versions of these strategies are easy to imagine. In Chapter 16 we will encounter the Web site *Stickk.com* (of which Karlan is a co-founder), which gives people a method by which their Planners can constrain their Doers. In some situations, people may even want the government to help them deal with their self-control problems. In extreme cases, governments might ban some items (such as heroin use, prostitution, and drunken driving). Such bans can be seen as pure rather than libertarian paternalism, though third-party interests are also at stake. In other cases, individuals may prefer a less intrusive role for the government. For example, smokers might benefit from cigarette taxes, which discourage consumption without forbidding it.³ Also, some states have attempted to help gamblers by creating a mechanism by which they can put themselves on a list of people who are banned from casinos (again see Chapter 16 for details). Since no one is required to sign up, and since a refusal to do so is close to costless, this approach really can be counted as libertarian as we understand the term.

One interesting example of a government-imposed self-control strategy is daylight saving time (or summer time, as it is called in many parts of the world). Surveys reveal that most people think that daylight saving time is a great idea, primarily because they enjoy the "extra" hour of daylight during the evening. Of course, the number of daylight hours on a given day is fixed, and setting the clocks ahead one hour does nothing to increase the amount of daylight. The simple change of the labels on the hours of the day, calling "six o'clock" by the name "seven o'clock," nudges us all into waking up an hour earlier. Along with having more time to enjoy an evening softball game, we end up saving energy too. Historical note: the idea was first suggested by Benjamin Franklin during his tenure as an American delegate in Paris. A well-known skinflint, Franklin calculated that thousands of pounds of candle wax could be saved with his idea. However, the idea did not catch on until World War I.

In many cases, markets provide self-control services, and government is not needed at all. Companies can make a lot of money by strengthening Planners in their battle with Doers, often doing well by doing good. An interesting example is a distinctive financial services institution that used to be quite popular: the Christmas savings club. Here is how a Christmas club typically works. In November (around Thanksgiving) a customer opens an account at her local bank and commits herself to depositing a given amount (say \$10) each week for the next year. Funds cannot be withdrawn until a year later, when the total amount is redeemed, just in time for the Christmas shopping season. The usual interest rate on these accounts is close to zero.

Think about the Christmas club in economic terms. This is an account with no liquidity (you can't take your money out for a year), high transaction costs (you have to make deposits every week), and a near-zero rate of return. It is an easy homework exercise in an economics class to prove that such an institution cannot exist. Yet for many years Christmas clubs were widely used, with billions of dollars in investments. If we realize that we are dealing with Humans rather than Econs, it is not hard to explain why the clubs flourished. Households lacking enough money for Christmas giving would resolve to solve the problem next year by joining a Christmas club. The inconvenience of making the deposits and the loss of money paid in interest would be small prices to pay in return for the assurance of having enough money to buy gifts. And think back to Ulysses, tying himself to the mast—the fact that money could not be withdrawn was a plus, not a minus. The absence of liquidity was precisely the point. Christmas clubs are in many ways an adult version of a child's piggy bank, designed to make it easier to put money in than to take money out. The fact that it is hard to withdraw money is entirely the point of the device.

While Christmas clubs still exist, they have been made unnecessary for most households by the advent of credit cards.* Since Christmas shopping can now be financed, households no longer find it necessary to save up in

*Although Christmas clubs have become unpopular, most Americans still make use of a non-interest bearing savings vehicle that might be called the Easter account. Three-quarters of Americans get refunds when they file their tax return, with the average refund being more than two thousand dollars. If these refunds were described as interest-free loans to the government, they would probably not be so popular. Al-

advance. This is not to say, of course, that the new regime is in all respects better. Saving at a zero percent interest rate with no opportunity to withdraw the funds may seem dumb, and it is clearly worse than just depositing the money into an interest-bearing account, but earning a zero interest rate may well be preferable to paying 18 percent or more on credit card debt.

The market battle between credit cards and Christmas clubs is a good illustration of a more general point, one to which we will return. Markets provide strong incentives for firms to cater to the demands of consumers, and firms will compete to meet those demands, whether or not those demands represent the wisest choices. One firm might devise a clever self-control device such as a Christmas club, but that firm cannot prevent another firm from offering to lend people money in anticipation of the receipts of those funds. Credit cards and Christmas clubs compete, and indeed both are offered by the same institutions—banks. While competition does drive down prices, it does not always lead to an outcome that is best for consumers.

Even when we're on our way to making good choices, competitive markets find ways to get us to overcome our last shred of resistance to bad ones. At O'Hare Airport in Chicago, two food vendors compete across the aisle from each other. One sells fruit, yogurt, and other healthy foods. The other sells Cinnabons, sinful cinnamon buns that have a whopping 730 calories and 24 grams of fat. Your Planner may have set the course for the yogurt and fruit stand, but the Cinnabon outlet blasts the aromas from their ovens directly into the walkway in front of the store. Care to guess which of the two stores always has the longer line?

Mental Accounting

Alarm clocks and Christmas clubs are external devices people use to solve their self-control problems. Another way to approach these problems is to adopt internal control systems, otherwise known as *mental ac-*

though taxpayers could adjust their withholding rates to reduce the size of their refund, and in principle could earn interest on these funds throughout the year, many prefer to get the refund as a way of being forced to save. When the refund comes, it feels like a windfall.

counting. Mental accounting is the system (sometimes implicit) that households use to evaluate, regulate, and process their home budget. Almost all of us use mental accounts, even if we're not aware that we're doing so.

The concept is beautifully illustrated by an exchange between the actors Gene Hackman and Dustin Hoffman in one of those extra features offered on DVDs. Hackman and Hoffman were friends back in their starving artist days, and Hackman tells the story of visiting Hoffman's apartment and having his host ask him for a loan. Hackman agreed to the loan, but then they went into Hoffman's kitchen, where several mason jars were lined up on the counter, each containing money. One jar was labeled "rent," another "utilities," and so forth. Hackman asked why, if Hoffman had so much money in jars, he could possibly need a loan, whereupon Hoffman pointed to the food jar, which was empty.

According to economic theory (and simple logic), money is "fungible," meaning that it doesn't come with labels. Twenty dollars in the rent jar can buy just as much food as the same amount in the food jar. But households adopt mental accounting schemes that violate fungibility for the same reasons that organizations do: to control spending. Most organizations have budgets for various activities, and anyone who has ever worked in such an organization has experienced the frustration of not being able to make an important purchase because the relevant account is already depleted. The fact that there is unspent money in another account is considered no more relevant than the money sitting in the rent jar on Dustin Hoffman's kitchen counter.

At the household level, violations of fungibility are everywhere. One of the most creative examples of mental accounting was invented by a finance professor we know. At the beginning of each year, he designates a certain amount of money (say \$2,000) as his intended gift to the United Way charity. Then if anything bad happens to him during the year—a parking ticket, for example—he mentally deducts the fine against the United Way gift. This provides him "insurance" against minor financial mishaps.*

You can also see mental accounting in action at the casino. Watch a gambler who is lucky enough to win some money early in the evening. You

*You might think that this deprives the United Way of money, but not so. The professor has to make sure his intended gift is large enough to cover all his mishaps.

might see him take the money he has won and put it into one pocket and put the money he brought with him to gamble that evening (yet another mental account) into a different pocket. Gamblers even have a term for this. The money that has recently been won is called “house money” because in gambling parlance the casino is referred to as the house. Betting some of the money that you have just won is referred to as “gambling with the house’s money,” as if it were, somehow, different from some other kind of money. Experimental evidence reveals that people are more willing to gamble with money that they consider house money.⁴

This same mentality affects people who never gamble. When investments pay off, people are willing to take big chances with their “winnings.” For example, mental accounting contributed to the large increase in stock prices in the 1990s, as many people took on more and more risk with the justification that they were playing only with their gains from the past few years. Similarly, people are far more likely to splurge impulsively on a big luxury purchase when they receive an unexpected windfall than with savings that they have accumulated over time, even if those savings are fully available to be spent.

Mental accounting matters precisely because the accounts are treated as nonfungible. True, the mason jars used by Dustin Hoffman (and his parents’ generation) have largely disappeared. But many households continue to designate accounts for various uses: children’s education, vacations, retirement, and so forth. In many cases these are literally different accounts, as opposed to entries in a ledger. The sanctity of these accounts can lead to seemingly bizarre behavior, such as simultaneously borrowing and lending at very different rates. David Gross and Nick Souleles (2002) found that the typical household in their sample had more than \$5,000 in liquid assets (typically in savings accounts earning less than 5 percent a year) and nearly \$3,000 in credit card balances, carrying a typical interest rate of 18 percent or more. Using the money from the savings account to pay off the credit card debt amounts to what economists call an arbitrage opportunity—buying low and selling high—but the vast majority of households fail to take advantage.

Just as with Christmas clubs, though, this behavior might not be as stupid as it looks. Many of these households have borrowed up to the limits that their credit cards set. They may realize that if they paid off the credit

card debt from the savings account, they would soon run up the cards to their limits once again. (And credit card companies, fully aware of this, are often more than willing to extend more credit to those who have reached the limit, as long as they aren't yet falling behind on interest payments.) Keeping the money in the separate accounts is thus another costly self-control strategy, just like the Christmas club.

Of course, many people do not suffer from an inability to save. Some people actually have trouble spending. If their problem is extreme, we call such people misers, but even regular folks can find that they don't give themselves enough treats. We have a friend named Dennis who has adopted a clever mental accounting strategy to deal with this problem. When Dennis turned sixty-five, he started collecting Social Security payments, although both he and his wife continue to work full-time. Since he has been a good saver over the years (in part because his employer has a mandatory and generous retirement plan), Dennis wanted to be sure he would do the things he enjoys (especially trips to Paris with lots of eating) now while he is still healthy, and not be put off by the expense. So he opened a special savings account for his Social Security checks and has designated the money in this account as a "fun account." A fancy new bike or a case of good wine would be acceptable purchases from this account, but a repair to the roof would certainly not.

For each of us, using mental accounts can be extremely valuable. They make life both more fun and more secure. Many of us could benefit from a near-sacrosanct "rainy day" account *and* from a freely available "entertainment and fun" account. Understanding mental accounts would also improve public policy. As we will see, if we want to encourage savings, it will be important to direct the increased savings into a mental (or real) account where spending it will not be too big a temptation.

3

FOLLOWING THE HERD

The Reverend Jim Jones was the founder and leader of the People's Temple. In 1978 Jones, facing charges of tax evasion, moved most of his one thousand followers from San Francisco to a small settlement in Guyana, which he named Jonestown. Facing a federal investigation for reported acts of child abuse and torture, Jones decided that his followers should poison their children and then themselves. They prepared vats of poison. A few people resisted; a few others shouted out their protest, but they were silenced. Following Jones's orders, and the social pressures imposed by one another, mothers and fathers duly poisoned their children. Then they poisoned themselves. Their bodies were found arm in arm, lying together.¹

Econs (and some economists we know) are pretty unsociable creatures. They communicate with others if they can gain something from the encounter, they care about their reputations, and they will learn from others if actual information can be obtained, but Econs are not followers of fashion. Their hemlines would not go up and down except for practical reasons, and ties, if they existed at all in a world of Econs, would not grow narrower and wider simply as a matter of style. (By the way, ties were originally used as napkins; they actually had a function.) Humans, on the other hand, are frequently nudged by other Humans. Sometimes massive social changes, in markets and politics alike, start with a small social nudge.

Humans are not exactly lemmings, but they are easily influenced by the statements and deeds of others. (Again by the way, lemmings do not really

commit mass suicide by following one another into the ocean. Our widely shared and somewhat defamatory beliefs about lemmings are based on an all-too-human urban legend—that is, people believe this because they are following other people. By contrast, the tale of mass suicide at Jonestown is no legend.) If you see a movie scene in which people are smiling, you are more likely to smile yourself (whether or not the movie is funny); yawns are contagious, too. Conventional wisdom has it that if two people live together for a long time, they start to look like each other. This bit of folk wisdom turns out to be true. (For the curious: they grow to look alike partly because of nutrition—shared diets and eating habits—but much of the effect is simple imitation of facial expressions.) In fact couples who end up looking alike also tend to be happier!

In this chapter, we try to understand how and why social influences work. An understanding of those influences is important in our context for two reasons. First, most people learn from others. This is usually good, of course. Learning from others is how individuals and societies develop. But many of our biggest misconceptions also come from others. When social influences have caused people to have false or biased beliefs, then some nudging may help. The second reason why this topic is important for our purposes is that one of the most effective ways to nudge (for good or evil) is via social influence. In Jonestown, that influence was so strong that an entire population committed suicide. But social influences have also created miracles, large and small. In many cities, including ours, dog owners now carry plastic bags when they walk their dogs, and strolling through the park has become much more pleasant as a result. This has happened even though the risk of being fined for unclean dog walking is essentially zero. Choice architects need to know how to encourage other socially beneficial behavior, and also how to discourage events like the one that occurred in Jonestown.

Social influences come in two basic categories. The first involves information. If many people do something or think something, their actions and their thoughts convey information about what might be best for you to do or think. The second involves peer pressure. If you care about what other people think about you (perhaps in the mistaken belief that they are paying some attention to what you are doing—see below), then you might go along with the crowd to avoid their wrath or curry their favor.

For a quick glance at the power of social nudges, consider just a few research findings:

1. Teenage girls who see that other teenagers are having children are more likely to become pregnant themselves.*
2. Obesity is contagious. If your best friends get fat, your risk of gaining weight goes up.
3. Broadcasters mimic one another, producing otherwise inexplicable fads in programming. (Think reality television, *American Idol* and its siblings, game shows that come and go, the rise and fall and rise of science fiction, and so forth.)
4. The academic effort of college students is influenced by their peers, so much so that the random assignments of first-year students to dormitories or roommates can have big consequences for their grades and hence on their future prospects. (Maybe parents should worry less about which college their kids go to and more about which roommate they get.)
5. Federal judges on three-judge panels are affected by the votes of their colleagues. The typical Republican appointee shows pretty liberal voting patterns when sitting with two Democratic appointees, and the typical Democratic appointee shows pretty conservative voting patterns when sitting with two Republican appointees. Both sets of appointees show far more moderate voting patterns when they are sitting with at least one judge appointed by a president of the opposing political party.²

The bottom line is that Humans are easily nudged by other Humans. Why? One reason is that we like to conform.

Doing What Others Do

Imagine that you find yourself in a group of six people, engaged in a test of visual perception. You are given a ridiculously simple task. You are

*For this and all the other examples, we leave out the implied phrase “holding everything else constant.” So what we mean here is that controlling for other risk factors that predict teenage pregnancy, girls are more likely to get pregnant if they see other girls doing so.

supposed to match a particular line, shown on a large white card, to the one of three comparison lines, projected onto a screen, that is identical to it in length.

In the first three rounds of this test, everything proceeds smoothly and easily. People make their matches aloud, in sequence, and everyone agrees with everyone else. But on the fourth round, something odd happens. The five other people in the group announce their matches before you—and every one makes an obvious error. It is now time for you to make your announcement. What will you do?

If you are like most people, you think it is easy to predict your behavior in this task: You will say exactly what you think. You'll call it as you see it. You are independent-minded and so you will tell the truth. But if you are a Human, and you really participated in the experiment, you might well follow those who preceded you, and say what they say, thus defying the evidence of your own senses.

In the 1950s Solomon Asch (1995), a brilliant social psychologist, conducted a series of experiments in just this vein. When asked to decide on their own, without seeing judgments from others, people almost never erred, since the test was easy. But when everyone else gave an incorrect answer, people erred more than one-third of the time. Indeed, in a series of twelve questions, nearly three-quarters of people went along with the group at least once, defying the evidence of their own senses. Notice that in Asch's experiment, people were responding to the decisions of strangers, whom they would probably never see again. They had no particular reason to want those strangers to like them.

Asch's findings seem to capture something universal about humanity. Conformity experiments have been replicated and extended in more than 130 experiments from seventeen countries, including Zaire, Germany, France, Japan, Norway, Lebanon, and Kuwait (Sunstein, 2003). The overall pattern of errors—with people conforming between 20 and 40 percent of the time—does not show huge differences across nations. And though 20 to 40 percent of the time might not seem large, remember that this task was very simple. It is almost as if people can be nudged into identifying a picture of a dog as a cat as long as other people before them have done so.

Why, exactly, do people sometimes ignore the evidence of their own senses? We have already sketched the two answers. The first involves the in-

formation conveyed by people's answers; the second involves peer pressure and the desire not to face the disapproval of the group. In Asch's own studies, several of the conformists said, in private interviews, that their initial perceptions must have been wrong. If everyone in the room accepts a certain proposition, or sees things in a certain way, you might conclude that they are probably right. Remarkably, recent brain-imaging work has suggested that when people conform in Asch-like settings, they actually see the situation as everyone else does.³

On the other hand, social scientists generally find less conformity, in the same basic circumstances as Asch's experiments, when people are asked to give anonymous answers. People become more likely to conform when they know that other people will see what they have to say. Sometimes people will go along with the group even when they think, or know, that everyone else has blundered. Unanimous groups are able to provide the strongest nudges—even when the question is an easy one, and people ought to know that everyone else is wrong.

Asch's experiments involved evaluations with pretty obvious answers. Most of the time, it isn't hard to assess the length of lines. What if the task is made a bit more difficult? The question is especially important for our purposes, because we are particularly interested in how people are influenced, or can be influenced, in dealing with problems that are both hard and unfamiliar. Some key studies were undertaken in the 1930s by the psychologist Muzafer Sherif (1937). In Sherif's experiment, people were placed in a dark room, and a small pinpoint of light was positioned at some distance in front of them. The light was actually stationary, but because of a perceptual illusion called the autokinetic effect, it appeared to move. On each of several trials, Sherif asked people to estimate the distance that the light had moved. When polled individually, subjects did not agree with one another, and their answers varied significantly from one trial to another. This is not surprising; because the light did not move, any judgment about distance was a stab in the literal dark.

But Sherif found big conformity effects when people were asked to act in small groups and to make their estimates in public. Here the individual judgments converged and a group norm, establishing the consensus distance, quickly developed. Over time, the norm remained stable within particular groups, thus leading to a situation in which different groups made,

and were strongly committed to, quite different judgments. There is an important clue here about how seemingly similar groups, cities, and even nations can converge on very different beliefs and actions simply because of modest and even arbitrary variations in starting points.

Sherif also tried a nudge. In some experiments, he added a confederate—his own ally, unbeknownst to the people in the study. When he did that, something else happened. If the confederate spoke confidently and firmly, his judgment had a strong influence on the group's assessment. If the confederate's estimate was much higher than those initially made by others, the group's judgment would be inflated; if the confederate's estimate was very low, the group's estimate would fall. A little nudge, if it was expressed confidently, could have major consequences for the group's conclusion. The clear lesson here is that consistent and unwavering people, in the private or public sector, can move groups and practices in their preferred direction.

More remarkable still, the group's judgments became thoroughly internalized, so that people would adhere to them even when reporting on their own—indeed even a year later, and even when participating in new groups whose members offered different judgments. Significantly, the initial judgments were also found to have effects across “generations.” Even when enough fresh subjects were introduced and others retired so that all the participants were new to the situation, the original group judgment tended to stick, although the person who was originally responsible for it had been long gone.⁴ In a series of experiments, people using Sherif's basic method have shown that an arbitrary “tradition,” in the form of some judgment about the distance, can become entrenched over time, so that many people follow it notwithstanding its original arbitrariness.⁵

We can see here why many groups fall prey to what is known as “collective conservatism”: the tendency of groups to stick to established patterns even as new needs arise. Once a practice (like wearing ties) has become established, it is likely to be perpetuated, even if there is no particular basis for it. Sometimes a tradition can last for a long time, and receive support or at least acquiescence from large numbers of people, even though it was originally the product of a small nudge from a few people or perhaps even one. Of course, a group will shift if it can be shown that the practice is caus-

ing serious problems. But if there is uncertainty on that question, people might well continue doing what they have always done.

An important problem here is “pluralistic ignorance”—that is, ignorance, on the part of all or most, about what other people think. We may follow a practice or a tradition not because we like it, or even think it defensible, but merely because we think that most other people like it. Many social practices persist for this reason, and a small shock, or nudge, can dislodge them.⁶ A dramatic example is communism in the former Soviet bloc, which lasted in part because people were unaware how many people despised the regime. Dramatic but less world-historical changes, rejecting long-standing practices, can often be produced by a nudge that starts a kind of bandwagon effect.

Additional experiments, growing out of Asch’s basic method, find large conformity effects for judgments of many different kinds.⁷ Consider the following finding. People were asked, “Which one of the following do you feel is the most important problem facing our country today?” Five alternatives were offered: economic recession, educational facilities, subversive activities, mental health, and crime and corruption. Asked privately, a mere 12 percent chose subversive activities. But when exposed to an apparent group consensus unanimously selecting that option, 48 percent of people made the same choice!

In a similar finding, people were asked to consider this statement: “Free speech being a privilege rather than a right, it is proper for a society to suspend free speech when it feels threatened.” Asked this question individually, only 19 percent of the control group agreed, but confronted with the shared opinion of only four others, 58 percent of people agreed. These results are closely connected with one of Asch’s underlying interests, which was to understand how Nazism had been possible. Asch believed that conformity could produce a very persistent nudge, ultimately generating behavior (such as the events in Jonestown) that might seem unthinkable.

Whether or not Asch’s work provides an adequate account of the rise of fascism, or the events in Jonestown, there is no question that social pressures nudge people to accept some pretty odd conclusions—and those conclusions might well affect their behavior. An obvious question is whether choice architects can exploit this fact to move people in better di-

rections. Suppose, for example, that a city is trying to encourage people to exercise more, so as to improve their health. If many people are exercising, the city might be able to produce significant changes simply by mentioning that fact. A few influential people, offering strong signals about appropriate behavior, can have a similar effect.

Consider Texas's imaginative and stunningly successful effort to reduce littering on its highways.⁸ Texas officials were enormously frustrated by the failure of their well-funded and highly publicized advertising campaigns, which attempted to convince people that it was their civic duty to stop littering. Many of the litterers were men between the ages of eighteen and twenty-four, who were not exactly impressed by the idea that a bureaucratic elite wanted them to change their behavior. Public officials decided that they needed "a tough-talking slogan that would also address the unique spirit of Texas pride." Explicitly targeting the unresponsive audience, the state enlisted popular Dallas Cowboys football players to participate in television ads in which they collected litter, smashed beer cans in their bare hands, and growled, "Don't mess with Texas!" Other spots included popular singers, such as Willie Nelson.

People can now get all kinds of "Don't Mess with Texas" products, from decals to shirts to coffee mugs. One popular decal offers patriotic colors, reflecting both the U.S. flag, and—perhaps more important—the Texas flag (Figure 3.1)!

About 95 percent of Texans now know this slogan, and in 2006 "Don't Mess with Texas" was voted America's favorite slogan by a landslide and was honored with a parade down New York City's Madison Avenue. (We are not making this up. Only in America, to be sure.) More to the point: Within the first year of the campaign, litter in the state had been reduced by a remarkable 29 percent. In its first six years, there was a 72 percent reduction in visible roadside litter. All this happened not through mandates, threats, or coercion but through a creative nudge.

The Spotlight Effect

One reason why people expend so much effort conforming to social norms and fashions is that they think that others are closely paying attention to what they are doing. If you wear a suit to a social event where



3.1

Don't Mess with Texas logo (Used with permission of Don't Mess with Texas, Texas Department of Transportation)

everyone else has gone casual, you feel like everyone is looking at you funny and wondering why you are such a geek. If you are subject to such fears, here is a possibly comforting thought: they aren't really paying as much attention to you as you think.

Tom Gilovich and his colleagues have demonstrated that people fall prey to what he calls the "spotlight effect."⁹ In a typical experiment, Gilovich's team started by doing some research about which entertainer would be most unhip to display on the front of a T-shirt. This research was conducted in the late 1990s, and the winner of this dubious honor was the singer Barry Manilow. When a student arrived for the experiment, he was told to put on a T-shirt with Barry Manilow's picture prominently displayed on the front. The student was then asked to join another group of students who were busy filling out questionnaires. After a minute or so, the experimenter returned, and told the student wearing the T-shirt that he now realized he wanted him to participate in a different study. The student and the experimenter then left the room. At this point the student was asked to guess how many of the other students in the room would be able to identify who was on his T-shirt. The average guess was a bit less than half, 46 percent. In fact, only 21 percent of the group could say who was pictured on his T-shirt.

The moral is that people are paying less attention to you than you believe. If you have a stain on your shirt, don't worry, they probably won't notice. But in part because people do think that everyone has their eyes fixed on them, they conform to what they think people expect.

Cultural Change, Political-Change, and Unpredictability

Might culture and politics be affected by conformity? Might companies be able to make money by enlisting conformity? Consider some evidence involving music downloads. Matthew Salganik and his coauthors (2006) created an artificial music market, with 14,341 participants who were visitors to a Web site popular with young people. The participants were given a list of previously unknown songs from unknown bands. They were asked to listen to a brief selection of any songs that interested them, to decide which songs (if any) to download, and to assign a rating to the songs they chose. About half of the participants were asked to make their decisions independently, based on the names of the bands and the songs and their own judgment about the quality of the music. The other half could see how many times each song had been downloaded by other participants. Each participant in this second group was also randomly assigned to one or another of eight possible "worlds," each of which evolved on its own; those in any particular world could see only the downloads in their own world. A key question was whether people would be affected by the choices of others—and whether different music would become popular in the different "worlds."

Were people nudged by what other people did? There is not the slightest doubt. In all eight worlds, individuals were far more likely to download songs that had been previously downloaded in significant numbers, and far less likely to download songs that had not been as popular. Most strikingly, the success of songs was quite unpredictable, and the songs that did well or poorly in the control group, where people did not see other people's judgments, could perform very differently in the "social influence worlds." In those worlds, most songs could become popular or unpopular, with much depending on the choices of the first downloaders. The identical song could be a hit or a failure simply because other people, at the start, were seen to choose to have downloaded it or not.

In many domains people are tempted to think, after the fact, that an outcome was entirely predictable, and that the success of a musician, an actor, an author, or a politician was inevitable in light of his or her skills and characteristics. Beware of that temptation. Small interventions and even coincidences, at a key stage, can produce large variations in the outcome. Today's hot singer is probably indistinguishable from dozens and even hundreds of equally talented performers whose names you've never heard. We can go further. Most of today's governors are hard to distinguish from dozens or even hundreds of politicians whose candidacies badly fizzled.

The effects of social influences may or may not be deliberately planned by particular people. For a vivid and somewhat hilarious example of how social influences can affect beliefs even if no one plans anything, consider the Seattle Windshield Pitting Epidemic.¹⁰ In late March 1954, a group of people in Bellingham, Washington, noticed some tiny holes, or pits, on their windshields. Local police speculated that the pits had resulted from the actions of vandals, using BBs or buckshot. Soon thereafter, a few people in cities south of Bellingham reported similar damage to their windshields. Within two weeks, the apparent work of vandals had gone even farther south, to the point where two thousand cars were reported as damaged—these evidently not the work of vandals. The threat approached Seattle. The Seattle newspapers duly reported the risk in mid-April, and soon thereafter, several reports of windshield pits came to the attention of local police.

Before long those reports reached epidemic proportions, leading to intense speculation about what on earth, or elsewhere, could possibly be the cause. Geiger counters found no radioactivity. Some people thought that some odd atmospheric event must have been responsible; others invoked sound waves and a possible shift in the earth's magnetic field; still others pointed to cosmic rays from the sun. By April 16 no fewer than three thousand windshields in the Seattle area were reported to have been "pitted," and Seattle's mayor promptly wrote the governor and President Eisenhower: "What appeared to be a localized outbreak of vandalism in damaged auto windshields and windows in the northern part of Washington State has now spread throughout the Puget Sound area. . . . Urge appropriate federal (and state) agencies be instructed to cooperate with local authorities on emergency basis." In response, the governor created a committee of scientists to investigate this ominous and startling phenomenon.

Their conclusion? The damage, such as it was, was probably “the result of normal driving conditions in which small objects strike the windshields of cars.” A later investigation, supporting the scientists’ conclusion, found that brand new cars lacked pits. The eventual judgment was that the pits “had been there all along, but no one had noticed them until now.” (You might have a look at your car right now; if you’ve had it for a while, there’s probably a pit, or two, or more.)

The Seattle Windshield Pitting Epidemic was an extreme example of unintentional social nudging, but every day we are influenced by people who are not trying to influence us. Most of us are affected by the eating habits of our eating companions, whatever their intentions. As we have said, obesity is contagious; you’re more likely to be overweight if you have a lot of overweight friends. An especially good way to gain weight is to have dinner with other people.¹¹ On average, those who eat with one other person eat about 35 percent more than they do when they are alone; members of a group of four eat about 75 percent more; those in groups of seven or more eat 96 percent more.*

We are also greatly influenced by consumption norms within the relevant group. A light eater eats much more in a group of heavy eaters. A heavy eater will show more restraint in a light-eating group. The group average thus exerts a significant influence. But there are gender differences as well. Women often eat less on dates; men tend to eat a lot more, apparently with the belief that women are impressed by a lot of manly eating. (Note to men: they aren’t.) So if you want to lose some weight, look for a thin colleague to go to lunch with (and don’t finish the food on her plate).

If you find yourself nudged by your friends’ eating choices, it is unlikely to be because one or another friend decided to nudge you. At the same time, social influences are often used strategically. In particular, advertisers are entirely aware of the power of social influences. Frequently they emphasize that “most people prefer” their own product, or that “growing numbers of people” are switching from another brand, which was yester-

*A colleague who raises chickens tells us that they behave the same way. A chicken who has already eaten enough to feel sated will start eating again if a hungry chicken is brought into the next cage.

day's news, to their own, which represents the future. They try to nudge you by telling you what most people are now doing.

Candidates for public office, or political parties, do the same thing; they emphasize that "most people are turning to" their preferred candidates, hoping that the very statement can make itself true. Nothing is worse than a perception that voters are leaving a candidate in droves. Indeed, a perception of that kind helped to account for the Democratic nomination of John Kerry in 2004. When Democrats shifted from Howard Dean to John Kerry, it was not because each Democratic voter made an independent judgment on Kerry's behalf. It was in large part because of a widespread perception that other people were flocking to Kerry. Duncan Watts's amusing account (2004) is worth quoting at length:

A few weeks before the Iowa caucuses, Kerry's campaign seemed dead, but then he unexpectedly won Iowa, then New Hampshire, and then primary after primary. How did this happen? . . . When *everyone* is looking to someone else for an opinion—trying, for example, to pick the Democratic candidate they think everyone else will pick—it's possible that whatever information other people might have gets lost, and instead we get a cascade of imitation that, like a stampeding herd, can start for no apparent reason and subsequently go in any direction with equal likelihood. . . . We think of ourselves as autonomous individuals, each driven by our internal abilities and desires and therefore solely responsible for our own behavior, particularly when it comes to voting. No voter ever admits—even to herself—that she chose Kerry because he won New Hampshire.

Do social influences matter to the economy? There is no question. As for eating and political choices, so too for money: People's investment decisions are often influenced by the investment decisions of their friends and neighbors. Sometimes it is rational to follow what others have done, but not always, and when investors travel in herds, they can get into serious trouble. Consider the case of investment clubs, which perform especially poorly when members are conformists. In such clubs, too little information gets out; people follow those who speak first and, as a result, the club

makes poor investment decisions and everyone loses a lot of money. Social influences can also have significant effects on the entire market. In fact, they played a key role in producing the recent speculative boom and resulting financial crisis of 2008.

The best account has been given by Robert Shiller, who emphasizes the role of psychological factors and herd behavior in volatile markets. Shiller contends that “the most important single element to be reckoned with in understanding this or any other speculative boom is the *social contagion* of boom thinking, mediated by the common observation of rapidly rising prices.” He urges that in the process of social contagion, public knowledge is subject to a kind of escalation or spiral, in which most people come to think that optimistic view is correct simply because everyone else seems to accept it. As the media endorses that view, people end up believing that we are in a “new era,” and feedback loops help to bring about ever-increasing prices. In his words, the “price-story-price loop repeats again and again during a speculative bubble.” Eventually the bubble is bound to pop, because it depends on social judgments that cannot be sustained over the long term.

Of course it is always possible to provide an explanation of an event in hindsight, but Shiller predicted it well in advance, and with explicit reference to the effects of social interactions in producing the real estate bubble. His account offers large lessons for other bubbles, including the Internet bubble of the 1990s. There is a warning here for private investors, who should be wary of herd behavior. When your neighbor tells you that you can’t lose money buying (fill in the blank here) that is probably a good sign that it is time to get out of that type of investment. There are also lessons for policymakers, who should understand that when people are influencing one another, dramatic upward movements in markets may produce serious risks for investors and for the economy itself.

Social Nudges as Choice Architecture

The general lesson is clear. If choice architects want to shift behavior and to do so with a nudge, they might simply inform people about what other people are doing. Sometimes the practices of others are sur-

prising, and hence people are much affected by learning what they are. Consider four examples.

Conformity and Tax Compliance

In the context of tax compliance, a real-world experiment conducted by officials in Minnesota produced big changes in behavior.¹² Groups of taxpayers were given four kinds of information. Some were told that their taxes went to various good works, including education, police protection, and fire protection. Others were threatened with information about the risks of punishment for noncompliance. Others were given information about how they might get help if they were confused or uncertain about how to fill out their tax forms. Still others were just told that more than 90 percent of Minnesotans already complied, in full, with their obligations under the tax law.

Only one of these interventions had a significant effect on tax compliance, and it was the last. Apparently some taxpayers are more likely to violate the law because of a misperception—plausibly based on the availability of media or other accounts of cheaters—that the level of compliance is pretty low. When informed that the actual compliance level is high, they become less likely to cheat. It follows that either desirable or undesirable behavior can be increased, at least to some extent, by drawing public attention to what others are doing. (Note to political parties: If you would like to increase turnout, please do *not* lament the large numbers of people who fail to vote.)*

Preserving Petrified Wood

In many contexts, of course, the incidence of undesirable behavior is high. This unhappy fact seems to be a real obstacle to change: if people follow one another, we might end up with a vicious cycle or even a spiral. Is it nonetheless possible to nudge people in better directions?

*In the same category is the finding that people are more likely to recycle if they learn that lots of people are recycling. If a hotel wants people to reuse their towels, for environmental or economic reasons, it would do well to emphasize that most other guests are reusing their towels. The hotel would do even better to provide guests with information about how responsible the previous guests in their room have been!

An ingenious study suggests an affirmative answer, and it reinforces the view that the specific framing of the problem can have a powerful effect. The study was conducted in the Petrified Forest National Park in Arizona, where some visitors like to take souvenir samples home with them, a practice that threatens the very existence of the park. Signs at the park implore people not to take samples away. The question at issue is what the signs should say. The investigators, led by Robert Cialdini, the great guru of social influence who is a professor down the road in Tempe, were pretty sure that the signs currently being used in the park could be improved.¹³ So he arranged an experiment.

In all the conditions of the experiment, pieces of petrified wood were scattered along a trail, tempting visitors to take something with them. At two-hour intervals, the language on the signs along the trail was varied. Some signs, similar to those currently used in the park, stressed how bad the problem was: "Many past visitors have removed the petrified wood from the park, changing the natural state of the Petrified Forest." Other signs emphasized an injunctive norm: "Please don't remove the petrified wood from the park, in order to preserve the natural state of the Petrified Forest." Cialdini's theory predicted that the positive, injunctive norm would be more effective than the negative, informational one. This prediction was confirmed.¹⁴

Socializing Nondrinking

A related example is the "social norms" approach, which tries to reduce drinking and other undesirable activities.¹⁵ Consider, for instance, the problem of alcohol abuse by (mostly underage) college students. A survey by the Harvard School of Public Health found that about 44 percent of college students engaged in binge drinking in the two-week period preceding the survey.¹⁶ This is, of course, a problem, but a clue to how to correct it lies in the fact that most students believe that alcohol abuse is far more pervasive than it actually is.¹⁷

Misperceptions of this kind result in part from the availability heuristic. Incidents of alcohol abuse are easily recalled, and the consequence is to inflate perceptions. College students are influenced by their beliefs about what other college students do, and hence alcohol abuse will inevitably in-

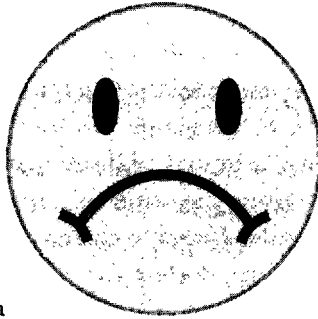
crease if students have an exaggerated sense of how much other students are drinking.

Alert to the possibility of changing behavior by emphasizing the statistical reality, many public officials have tried to nudge people in better directions. Montana, for example, has adopted a large-scale educational campaign, one that has stressed the fact that strong majorities of citizens of Montana do not drink.¹⁸ One advertisement attempts to correct misperceived norms on college campuses by asserting, "Most (81 percent) of Montana college students have four or fewer alcoholic drinks each week." Montana applies the same approach to cigarette smoking with an advertisement suggesting that "Most (70 percent) of Montana teens are tobacco free." The strategy has produced big improvements in the accuracy of social perceptions and also statistically significant decreases in smoking.¹⁹

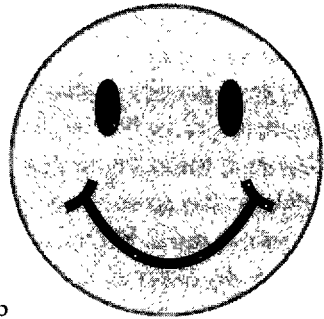
Smiles, Frowns, and Saving Energy

Social nudges can also be used to decrease energy use. To see how, consider a study of the power of social norms, involving nearly three hundred households in San Marcos, California.²⁰ All of the households were informed about how much energy they had used in previous weeks; they were also given (accurate) information about the average consumption of energy by households in their neighborhood. The effects on behavior were both clear and striking. In the following weeks, the above-average energy users significantly decreased their energy use; the below-average energy users significantly increased their energy use. The latter finding is called a boomerang effect, and it offers an important warning. If you want to nudge people into socially desirable behavior, do not, by any means, let them know that their current actions are better than the social norm.

But here is an even more interesting finding. About half of the households were given not merely descriptive information but also a small, non-verbal signal that their energy consumption was socially approved or socially disapproved. More specifically those households that consumed more than the norm received an unhappy "emoticon," like Figure 3.2a, whereas those that consumed less than the norm received a happy emoticon, like Figure 3.2b.



a



b

3.2

Visual feedback given to power customers in San Marcos, California

Unsurprisingly, but significantly, the big energy users showed an even larger decrease when they received the unhappy emoticon. The more important finding was that when below-average energy users received the happy emoticon, the boomerang effect completely disappeared! When they were merely told that their energy use was below average, they felt that they had some “room” to increase consumption, but when the informational message was combined with an emotional nudge, they didn’t adjust their use upward.

Many people, including Republicans and Democrats alike, are arguing for energy conservation on grounds of national security, economic growth, and environmental protection. To promote energy conservation, a great deal can be done with well-chosen social nudges. We will have more to say about how choice architecture can be used to help the environment later.

Priming

Thus far we have been focusing on people’s attention to the thoughts and behavior of other people. Closely related work shows the power of “priming.” Priming refers to the somewhat mysterious workings of the Automatic System of the brain. Research shows that subtle influences can increase the ease with which certain information comes to mind. Imagine playing a word-association game with Homer Simpson and you will get the idea. Sometimes the merest hint of an idea or concept will trig-

ger an association that can stimulate action. These “primes” occur in social situations, and their effects can be surprisingly powerful.

In surveys, people are often asked whether they are likely to engage in certain behavior—to vote, to lose weight, to purchase certain products. Those who engage in surveys want to catalogue behavior, not to influence it. But social scientists have discovered an odd fact: when they measure people’s intentions, they affect people’s conduct. The “mere-measurement effect” refers to the finding that when people are asked what they intend to do, they become more likely to act in accordance with their answers. This finding can be found in many contexts. If people are asked whether they intend to eat certain foods, to diet, or to exercise, their answers to the questions will affect their behavior.²¹ In our parlance, the mere-measurement effect is a nudge, and it can be used by private or public nudgers.

Campaign officials want to encourage their supporters to vote. How can they do that? One obvious method is to emphasize the stakes; another is to decrease the cost and burdens, by making it easier for people to get to the polls. But there is another way. It turns out that if you ask people, the day before the election, whether they intend to vote, you can increase the probability of their voting by as much as 25 percent!²² Or suppose that the goal is to increase new purchases of a certain product, such as cell phones or automobiles. A study of a nationally representative sample of more than forty thousand people asked a simple question: Do you intend to buy a new car in the next six months?²³ The very question increased purchase rates by 35 percent. Or suppose that an official wants to encourage people to take steps to improve their own health. With respect to health-related behavior, significant changes have been produced by measuring people’s intentions.²⁴ If people are asked how often they expect to floss their teeth in the next week, they floss more. If people are asked whether they intend to consume fatty foods in the next week, they consume less in the way of fatty foods.

The nudge provided by asking people what they intend to do can be accentuated by asking them when and how they plan to do it. This insight falls into the category of what the great psychologist Kurt Lewin called “channel factors,” a term he used for small influences that could either facilitate or inhibit certain behaviors. Think about the “channel” as similar

to the path a river takes after the spring snow melt. The path can be determined by seemingly tiny changes in the landscape. For people, Lewin argued that similarly tiny factors can create surprisingly strong inhibitors to behavior that people “want” to take. Often we can do more to facilitate good behavior by removing some small obstacle than by trying to shove people in a certain direction. An early illustration of Lewin’s idea was produced by Leventhal, Singer, and Jones (1965) on the campus of Yale University. The subjects were Yale seniors who were given some persuasive education about the risks of tetanus and the importance of going to the health center to receive an inoculation. Most of the students were convinced by the lecture and said that they planned to go get the shot, but these good intentions did not lead to much action. Only 3 percent actually went and got the shot.

Other subjects were given the same lecture but were also given a copy of a campus map with the location of the health center circled. They were then asked to look at their weekly schedules, make a plan for when they would go and get the shot, and look at the map and decide what route they would take. With these nudges, 28 percent of the students managed to show up and get their tetanus shot. Notice that this manipulation was very subtle. The students were all seniors and surely knew where the health center was located (Yale is not a huge campus), and they were not given an actual appointment. Still, nine times as many students got shots, illustrating the potential power of channel factors.

Slightly broadening these findings, social scientists have found that they can “prime” people into certain forms of behavior by offering simple and apparently irrelevant cues. It turns out that if certain objects are made visible and salient, people’s behavior can be affected. Objects characteristic of business environments, such as briefcases and boardroom tables, make people more competitive, less cooperative, and less generous.²⁵ Smells matter too: mere exposure to the scent of an all-purpose cleaner makes people keep their environment cleaner while they eat.²⁶ In both cases, people were not consciously aware of the effect of the cue on their behavior. Or consider this one: people’s judgments about strangers are affected by whether they are drinking iced coffee or hot coffee! Those given iced coffee are more likely to see other people as more selfish, less sociable, and,

well, colder than those who are given hot coffee.²⁷ This, too, happens quite unconsciously.

The three social influences that we have emphasized—information, peer pressure, and priming—can easily be enlisted by private and public nudgers. As we will see, both business and governments can use the power of social influence to promote many good (and bad) causes.