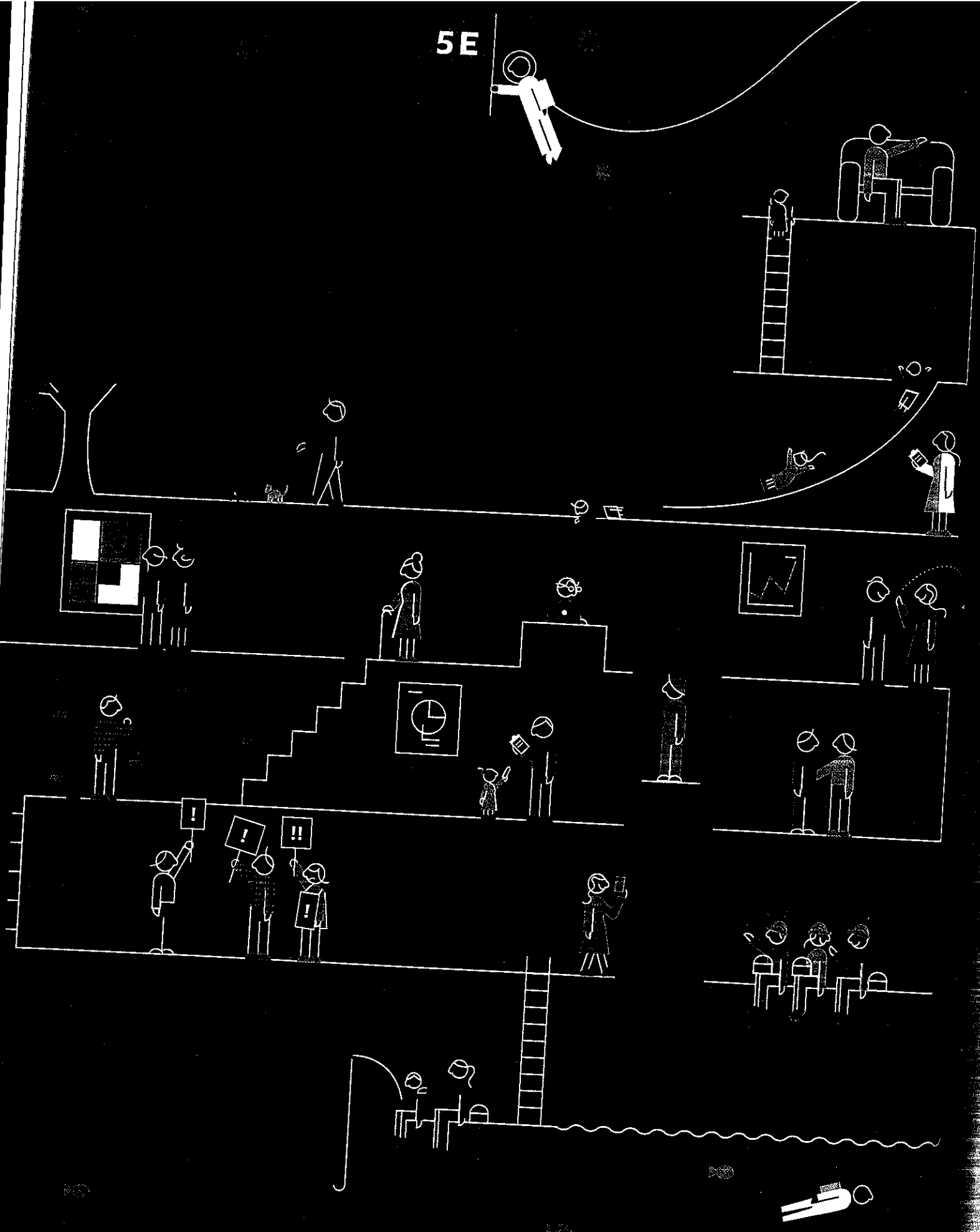


5E



FIFTH EDITION

Social Psychology

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אוניברסיטת בן-גוריון בנגב
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Social Cognition: Thinking about People and Situations

EARLY IN THE MORNING ON JUNE 28, 1993, New York State troopers on Long Island's Southern State Parkway noticed a Mazda pickup truck with no license plates. When they motioned for the driver to pull over, he sped off, leading them on a 25-minute chase that ended when the Mazda slammed into a utility pole. After arresting the driver, the officers noticed a foul odor emanating from under a tarp in the back of the truck. When the tarp was removed, the officers discovered the badly decomposed body of a 22-year-old woman. Subsequent investigation implicated the driver, Joel Rifkin, in the murders of 16 other women, making him the most prolific serial killer in New York State history.

Those who knew Rifkin expressed shock at the news. One neighbor told reporters, "When I would come home at 1 or 2 in the morning, if I saw the garage light on, I'd feel safe because I knew Joel was around." A second neighbor said he was "simply a gentle young man." Classmates asserted he was "not the kind of guy who would do something like this."

As this story makes clear, social judgments can have serious consequences. Mistaking a serial killer as someone who's "gentle" and "safe" can be a lethal error. More generally, effective action requires sound judgment about other people and the world around us. "How will my professor react if I ask for more time?" "Are they developing nuclear weapons?" "Can I trust my boyfriend?"

This chapter's discussion of social cognition—and sources of error in judgments about the social world—proceeds in five parts, each focusing on a critical aspect of social judgment: (1) Our judgments are only as accurate as the quality of the information on which they are based, and the information available to us in everyday life is not always representative or complete. (2) The way information is

OUTLINE

Studying Social
Cognition

The Information
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How Information Is
Presented

How We Seek
Information

Top-Down Processing:
Using Schemas to
Understand New
Information

Reason, Intuition, and
Heuristics

What determines whether we think of foreign travel as "expanding our horizon" versus "walking around in another country"?

How might the labels applied to migrant workers affect our views of immigration?

"All human knowledge is uncertain, inexact, and partial!"

—BERTRAND RUSSELL

"Many complain about their memory; few about their judgment."

—LA ROCHEFOUCAULD

presented, including the order in which it is presented and how it is framed, can affect the judgments we make. (3) We don't just passively take in information. We often actively seek it out, and a pervasive bias in how we do so can distort the conclusions we reach. (4) Our preexisting knowledge and mental habits can influence how we construe new information and thus substantially influence judgment. (5) Two mental systems, reason and intuition, underlie social cognition, and their complex interplay determines the judgments we make. ■

Studying Social Cognition

The field of social cognition involves the study of how people think about the social world and arrive at judgments that help them interpret the past, understand the present, and predict the future. One of the earliest and most fundamental principles of social psychology is the construal principle introduced in Chapter 1: if we want to know how a person will react in a given situation, we must understand how the person interprets that situation.

The story that opened this chapter does more than testify to the importance of the social judgments we make in everyday life. It also highlights the fact that our judgments are not always flawless. We trust some people we shouldn't. We make some investments that turn out to be unwise.

Errors in judgment are informative to psychologists because they provide particularly helpful clues about how people think about others and make inferences about them. The strategy of scrutinizing mistakes has a long tradition in psychology. Perceptual psychologists study illusions because they help reveal general principles of perception. Psycholinguists study speech errors to learn about speech production. Mistakes can reveal a great deal about how a system works by showing its limitations. Thus, researchers interested in social cognition have often explored the limitations of everyday judgment.

The Information Available for Social Cognition

Understanding other people depends on accurate information. But sometimes we have only fragmentary information on which to base our assessments; sometimes the available information is misleading; sometimes the way we acquire information biases the conclusions we reach. Each of these circumstances presents special challenges to achieving an accurate understanding of others.

Minimal Information: Inferring Personality from Physical Appearance

A lack of sufficient information on which to base a sound judgment rarely stops people from making judgments about a person or situation. Consider how quickly we form impressions of complete strangers based on the briefest glances. The term *snap judgment* exists for a reason. In a telling empirical demonstration of how quickly we can make judgments about others, Janine Willis and Alex

Todorov (2006) showed participants a large number of faces and had them rate how trustworthy, competent, likable, aggressive, or attractive each person seemed. Some participants were given as much time as they wanted to make each rating, and their trait judgments were used as the "gold standard" of comparison—the most telling impressions an individual could form based solely on photographs. Other participants were also asked to rate the photos, but after seeing each face for only a second, half a second, or a tenth of a second. As it turned out, hurried trait judgments corresponded remarkably well with the more reflective assessments. A great deal of what we conclude about people based on their faces is determined almost instantaneously. In fact, the correlation between judgments made at leisure and those made in a tenth of a second was almost as high as the correlation between judgments made at leisure and those made in a full second.

PERCEIVING TRUST AND DOMINANCE What is it that people think they see in brief glances at another person's face? To find out, Todorov and his colleagues had participants rate a large number of photographs of different faces on the personality dimensions people tend to mention spontaneously when describing faces (Todorov, Said, Engell, & Oosterhof, 2008). When they looked at how all these judgments correlated with one another, they found that two dimensions stand out. One is a positive-negative dimension, involving such assessments as whether someone is seen as trustworthy or untrustworthy, aggressive or not aggressive. The other dimension centers around power, involving assessments such as whether someone seems confident or bashful, dominant or submissive. It appears, then, that people are set to make quite important judgments about others: whether they should be approached or avoided (dimension 1), and whether they're likely to be top dog or underdog (dimension 2). Todorov used computer models to generate faces that represent various combinations of these two dimensions, including faces that are more extreme on each trait dimension than would ever be encountered in real life (Figure 4.1). In these faces, you can see the hypermasculine features, such as a very pronounced jaw, that make someone look dominant, and the features, such as the shape of the eyebrows and eye sockets, that make someone look trustworthy.

If you look at the faces that are seen as trustworthy and not dominant, you'll notice that they tend to look like baby faces. Indeed, extensive research by Leslie Zebrowitz and her colleagues has shown that adults with such baby-faced features as large round eyes, a large forehead, high eyebrows, and a rounded, relatively small chin are assumed to possess many of the characteristics associated with the very young (Berry & Zebrowitz-McArthur, 1986; Zebrowitz & Montepare, 2005). They are judged to be relatively weak, naive, and submissive, whereas adults with small eyes, a small forehead, and an angular, prominent chin tend to be judged as strong, competent, and dominant.

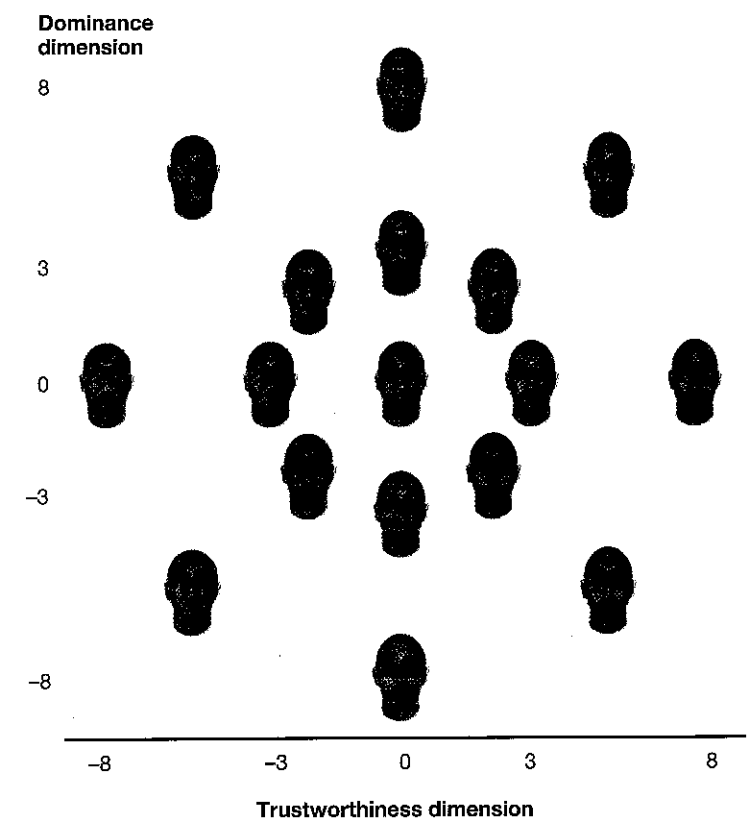


FIGURE 4.1
JUDGING FACES
These computer-generated faces show variations on the two independent dimensions of trustworthiness (x-axis) and dominance (y-axis).
Source: Adapted from Todorov et al., 2008.

It makes sense that we consider adults with baby faces to be relatively harmless and helpless. The renowned ethologist Konrad Lorenz (1950/1971) speculated that the cuteness of the young in many mammalian species triggers a hardwired, automatic reaction that helps ensure the young and helpless receive adequate care. The automatic nature of our response to infantile features makes it more likely that we would overgeneralize and come to see even adults with such features as trustworthy and friendly. These assessments have dramatic consequences: baby-faced individuals receive more favorable treatment as defendants in court (Zebrowitz & McDonald, 1991), but they have a harder time being seen as appropriate for “adult” jobs, such as banking (Zebrowitz, Tenenbaum, & Goldstein, 1991).

THE ACCURACY OF SNAP JUDGMENTS How accurate are the snap judgments we make about people based on their appearance or very brief samples of their behavior? Are people with baby faces, for example, really more likely to be weak or submissive? Are the facial features people associate with different personality traits valid cues to those traits? Are brief samples of people’s behavior—psychologists call them “thin slices” of behavior—reliable guides to what they’re really like?

Note that sometimes it’s as important to know what other people *think* someone is like as it is to know that person’s true characteristics. In those cases, the pertinent question boils down to how well snap judgments predict more considered consensus opinion. And the evidence indicates that they predict rather well. For example, in one study, participants were shown, for 1 second, pictures of the Republican and Democratic candidates in U.S. congressional elections and asked to indicate which candidates looked more competent. Those judged to be more competent by most of the participants won 69 percent of the races (Todorov, Mandisodza, Goren, & Hall, 2005). These judgments of competence might lack validity: the person judged to be more competent might not actually be more competent. However, what matters in predicting the outcome of elections is not what is really true, but what the electorate believes to be true.

In another line of research, participants were shown thin slices of professors’ performance in the classroom (three 10-second silent video clips) and asked to rate the professors on a variety of dimensions, such as how anxious, competent, active, and warm they seemed. These relatively quick assessments correlated significantly with students’ evaluations of their professors at the end of the semester (Ambady & Rosenthal, 1993). In other words, the quick reactions did a decent job of predicting later judgments based on exposure to much larger samples of behavior. But we still don’t know that these reactions are valid with respect to what the professors are really like—how competent they might be judged by educational experts, for example, or how well their students do on exams compared with students in another professor’s class.

In still another study, participants were able to determine sexual orientation at beyond chance levels on the basis of 10-second clips of gay, lesbian, and heterosexual individuals sitting in a chair (Ambady, Hallahan, & Conner, 1999). (Their study cast doubt, incidentally, on the concept of “gaydar.”)

The available evidence thus indicates that there is often some validity even to impressions based on extremely brief exposure to other people’s behavior. Nevertheless, it’s probably unwise to put too much confidence in our snap judgments, because in general they contain only a kernel of truth (Pound, Penton-Voak, & Brown, 2007; Zebrowitz, Voinescu, & Collins, 1996). But they do provide a kernel.



Misleading Firsthand Information: Pluralistic Ignorance

Some of the information we have about the world, including our immediate impressions of others, comes to us through direct experience. The rest comes to us secondhand, through gossip, the mass media, biographies, textbooks, and so on. In many cases, information collected firsthand is more accurate because it has the advantage of not having been filtered by someone else, who might slant things in a particular direction. But firsthand experiences can also be deceptive, as when we fail to pay close attention to information about events that occur before our eyes or when we misconstrue their true meaning. Our firsthand experience can also be unrepresentative, as it tends to be, for example, when judging what the students at a given university are like based on the one or two encountered during a campus tour or when judging what “the locals” in a foreign country are like from the few we encounter at hotels or museums.

Some of the firsthand information we acquire about people is inaccurate because it’s intended to be. People often mislead us by acting in ways that don’t reflect their true attitudes or beliefs. One especially noteworthy example is the phenomenon of **pluralistic ignorance**, which occurs whenever people act in ways that conflict with their private beliefs because of a concern for the social consequences. It’s embarrassing to admit you didn’t understand a lecture when you suspect that everyone else did, so you act like you aren’t befuddled. However, when everyone follows that logic, they all mislead one another about the true group norm.

Pluralistic ignorance is particularly common in situations where “toughness” is valued and people are afraid to show their kinder, gentler impulses. Gang members, for example, have been known privately to confess their objections to brutal initiation procedures and the lack of concern for human life, but they’re afraid to say so because of the fear of being ridiculed by their peers. The result is that few of them realize how many of their fellow gang members share their private reservations (Matza, 1964).

INFANTILE FEATURES IN YOUNG MAMMALS

Do you find these baby animals cute? Do you feel warmth and compassion toward them? You should. Psychologists and ethologists argue that the features associated with the very young in virtually all mammalian species trigger emotions that encourage caregiving and hence survival.

pluralistic ignorance Misperception of a group norm that results from observing people who are acting at variance with their private beliefs out of a concern for the social consequences; those actions reinforce the erroneous group norm.



DRAWING STRONG CONCLUSIONS FROM LIMITED INFORMATION

We often form strong impressions of what something is like, such as the students at this university, based on the few people we happen to meet during a brief visit.

More recently, Nicole Shelton and Jennifer Richeson (2005) examined another form of pluralistic ignorance, one with profound implications for interactions between members of different ethnic groups. The researchers predicted that people might worry that someone from another ethnic group would not be interested in talking to them. Initiating conversation would therefore seem risky, something they might want to avoid out of fear of being rejected. As a result, no opening gesture is made and no contact is established. When Shelton and Richeson asked students a series of focused questions to probe this issue, they found that although the students generally attributed their own failure to initiate contact to their fear of rejection, they assumed that the other person didn't initiate contact because of a lack of interest in establishing friendships across ethnic lines. And when both people assume the other isn't interested, neither one makes the effort to become friends.

Misleading Firsthand Information: Self-Fulfilling Prophecies

In early January of 1981, Joseph Granville, financial writer and author of the *Granville Market Letter*, wrote that the stock market was headed for a steep decline and advised his readers to "sell everything." Remarkably, stocks tumbled the very next day in what was then the biggest day of trading in the history of the New York Stock Exchange. Had Granville seen something that other analysts missed? Or did his advice lead to a sell-off that helped cause the very decline he predicted? This question highlights another way in which firsthand information can be misleading: we can fail to notice that our own behavior has brought about what we're seeing. This phenomenon is called the **self-fulfilling prophecy**: our expectations lead us to behave in ways that elicit the very behavior we expect from others. If we think someone is unfriendly, we're likely to offer something of a cold shoulder ourselves, which is likely to elicit the very coldness we anticipated.

The most famous demonstration of the impact of self-fulfilling prophecies is a study in which researchers told elementary school teachers that aptitude tests indicated that several of their students could be expected to "bloom" intellectually in the coming year (Rosenthal & Jacobson, 1968). In reality, the students so described were chosen randomly. Nevertheless, the expectation that certain students would undergo an intellectual growth spurt set in motion a pattern of student-teacher interaction that led those students to score higher on IQ tests administered at the end of the year (Jussim, 1986; Smith, Jussim, & Eccles, 1999).

In another notable study, Saul Kassin, Christine Goldstein, and Ken Savitsky (2003) had some students commit a mock crime (stealing \$100 from a locked laboratory cabinet) and other students simply visit the scene of the crime. These students were then questioned by student interrogators who were led to believe they were likely to be guilty or innocent. The interrogators who thought their suspects were likely to be guilty asked more incriminating questions and generally conducted more

self-fulfilling prophecy The tendency for people to act in ways that bring about the very thing they expect to happen.



SELF-FULFILLING PROPHECIES

A teacher who believes a student is capable is likely to act toward the student in ways that bring out the best in that student, thereby confirming the teacher's initial belief.

vigorous and aggressive interrogations. This in turn led these suspects to act more defensively, which made them appear guilty to a group of observers who listened to tapes containing only the suspects' comments (with the interrogators' questions removed). When the interrogators thought someone was guilty, he or she acted in ways that elicited apparent evidence of guilt.

Note that if a prophecy is to be self-fulfilling, some mechanism must be at work to translate a person's expectation into action that would then confirm the prophecy. In the study of teachers' expectations, the mechanism was the teachers' behavior. They gave the alleged "bloomers" more attention and encouragement and challenged them with more difficult material. This helped these students to later score higher on IQ tests, thus fulfilling the prophecy. Not all prophecies have that link. Someone might think you're rich, but that belief wouldn't make it so. In fact, some prophecies can even be self-negating, as when a driver believes that "nothing bad can happen to me" and therefore drives recklessly (Dawes, 1988).

Misleading Secondhand Information

Do you believe that global warming is caused by humans? That Walt Disney was anti-Semitic? That your roommate's father is a good parent? Opinions like these are based to a large extent on secondhand information. Few of us have any firsthand knowledge of the links between industrialization and climatological data. None of us knows firsthand what Walt Disney thought about Jews. And for most people, knowledge of their roommate's father is limited to whatever stories the roommate has told about him.

What are some of the variables that influence the accuracy of secondhand information? What factors reduce the reliability of secondhand information, and when do these factors come into play?

IDEOLOGICAL DISTORTIONS People who transmit information often have an ideological agenda—a desire to foster certain beliefs or behaviors—that leads them to accentuate some elements of a story and suppress others. Sometimes such motivated distortion is relatively "innocent": the person relaying the message fervently believes it but chooses to omit certain inconvenient details that might detract from its impact. As U.S. Undersecretary of State Dean Acheson remarked when preparing President Harry Truman for a 1947 speech, sometimes it is necessary to be "clearer than the truth."

Of course, not all distortions are so innocent. People often knowingly provide distorted accounts for the express purpose of misleading. In American politics, Republicans and Democrats call attention to all kinds of misleading statistics to make the other party look bad. In areas of intense ethnic strife, such as Yemen, the Congo, Gaza, and Kashmir, all sides wildly exaggerate their own righteousness and inflate tales of atrocities committed against them (even though the reality is often bad enough).

DISTORTIONS IN THE SERVICE OF ENTERTAINMENT: OVER-EMPHASIS ON BAD NEWS One of the most pervasive causes of distortion in secondhand accounts is the desire to entertain. On a small scale, this happens in the stories people tell one another,



"Here it is—the plain, unvarnished truth. Varnish it."

sometimes embellished to make them more interesting. Being trapped in an elevator with 20 people for an hour is more intriguing than being trapped with 6 people for 15 minutes. So we round up, generously. On a larger scale, the desire to entertain distorts the messages people receive through the mass media. One way print and broadcast media can attract an audience is to report—indeed, overreport—negative, violent, and sensational events. Bad news tends to be more newsworthy than good news—or, as the news world puts it, “If it bleeds, it leads.”

The media do indeed provide a distorted view of reality, without necessarily intending to. In the world as the media present it, 80 percent of all crime is violent; in the real world, only 20 percent of reported crimes are violent (Center for Media and Public Affairs, 2000; Marsh, 1991; Sheley & Askins, 1981). In addition, news coverage of crime doesn’t correlate with the rise and fall of the crime rate. There is just as much coverage during the best of times as there is during the worst of times (Garofalo, 1981; Windhauser, Seiter, & Winfree, 1991). The world presented in film and television dramas is even more violent than TV news coverage (Gerbner, Gross, Morgan, & Signorielli, 1980). As a result, it’s scarcely surprising that although the crime rate in the United States is much lower than it was 20 years ago, most people think it has increased.

EFFECTS OF THE BAD-NEWS BIAS The bad-news bias can lead people to believe they are more at risk of victimization than they really are. Investigators have conducted surveys that ask people how much television they watch and their impressions of the prevalence of crime: “How likely do you think it is that you or one of your close friends will have their house broken into during the next year?” “If a child were to play alone in a park each day for a month, what do you think that child’s chances are of being the victim of a violent crime?”

Such studies have consistently found a positive correlation between the amount of time spent watching TV and the fear of victimization. As with all correlational studies, however, this finding by itself is difficult to interpret. Perhaps there is something about the kind of people who watch a lot of television, besides their viewing habits, that makes them feel vulnerable. To address this problem, researchers have collected data from a variety of other measures (income, gender, race, residential location) and examined whether the findings hold up when these other variables are statistically controlled. An interesting pattern emerges. The correlation between TV viewing habits and perceived vulnerability is substantially reduced among people living in low-crime neighborhoods, but it remains strong among those living in high-crime areas (Doob & MacDonald, 1979; Gerbner et al., 1980). People who live in dangerous areas and don’t watch much TV feel safer than their neighbors who watch a lot.

Thus, the violence depicted in TV programs can make the world appear to be a dangerous place, especially when the televised images resonate with what people see in their own environment.

JUST HOW FAKE IS THE NEWS? People from both ends of the political spectrum in the United States have recently taken to accusing some in the news

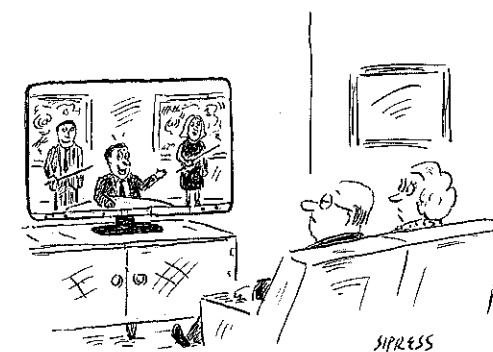
Burst Your Bubble

Were you astonished when Donald Trump won the presidency in 2016? Were you surprised when Mitt Romney didn’t win the presidency in 2012? If your answer to either of these questions is yes, you may be living in a news bubble not entirely of your own making. Once you click on a few stories or commentaries with a heavily liberal or conservative bias, the Internet will then supply you with large amounts of ideologically congruent news and opinion pieces. Thus, in the 2016 U.S. presidential campaign, supporters of Hillary Clinton received news that was mostly favorable to her and unfavorable to Donald Trump, allowing many of them to remain unaware of the grievances of working-class and middle class white voters who were decisive in handing a victory to Trump. In the 2012 presidential campaign, Romney supporters, inundated primarily with news that was in line with their views, felt that although Romney was behind in the polls, the enthusiasm of his supporters greatly exceeded that of Obama supporters. Romney himself was so convinced that he would win that he allegedly did not prepare a concession speech and had to wing it once the results were clear.

When the only information we receive is that which serves to support our preexisting viewpoints, we’re not getting the full picture about current events. And the more people become trapped in news bubbles, the more intractable become the nation’s political divisions and the more confident people become that those on the other side are tremendously misguided and are consuming

fake and biased news (Westfall, Van Boven, Chambers, & Judd, 2015).

Fortunately, there are a number of Internet applications that can help burst your bubble. One such application, “Escape Your Bubble,” seeds your Facebook feed with views opposite to your own. Another application, “Outside Your Bubble,” brings you comments from across the political spectrum and strips them of partisan venom, rephrasing them as neutral observations so that you can assess them objectively rather than rejecting them simply on the basis of their tone. These and other applications will ensure you get news and opinions that differ from your own.



“That was Brad with the Democratic weather. Now here’s Tammy with the Republican weather.”

media of chronically making false statements. Is fake news a real thing? Absolutely. And it’s not just a recent phenomenon: think about the various conspiracy theories and hoaxes that have been reported by the media throughout modern history. But how big a problem is fake news today? It’s hard to answer this question definitively, as comprehensive data that bear on it are not easy to come by. And although the truthfulness of some news stories, such as the claim that Pope Francis endorsed Donald Trump during the 2016 U.S. presidential campaign, are relatively easy to verify or disprove, other stories and claims are murkier and may be exaggerated rather than outright lies. Meanwhile, social media can magnify the impact of any fake or hyperbolic news story because it provides a ready means to spread news widely and quickly—although recent findings suggest that social media’s role in inflating the impact of fake news during the 2016 U.S. presidential election may have been more modest than many people assumed (Allcott & Gentzkow, 2017). The bottom line is that it can be difficult for the average consumer of news to discern truth from fiction.

However, the core mission of journalism is still to discover and disseminate the truth, making it likely that the willful spreading of misinformation is more the exception than the rule. But it’s not necessary for a news outlet to lie to try



TV VIOLENCE AND BELIEF IN VICTIMIZATION

Viewing crime shows such as *Blue Bloods* makes people feel unsafe. People who don’t watch much TV feel safer than those living in the same neighborhood who do watch TV frequently.

WikiLeaks CONFIRMS Hillary Sold Weapons to ISIS... Then Drops Another BOMBHELL!



CUES TO FAKERY

Extreme improbability is one cue that a news item is fake; being sent the item on social media is another reason to exercise some skepticism.

to influence public opinion in the direction of its own biases. The choice of experts to quote is one way to influence the reader's (or viewer's) judgment. Liberal newspapers are more likely to quote liberal sources, and conservative newspapers are more likely to quote conservative sources. In the most reliable outlets, deliberate errors in reporting the facts are rare. But selective reporting of sources can have a big impact on the conclusions that a reader, listener, or viewer is likely to reach.

Anchors on cable news shows often ask their guests leading questions, praise responses they like, and rebut those they don't like. Some anchors fail to correct any factual errors or misrepresentations by a politician or "expert" who appears on the show if the error in question fits the show's ideological leanings. Because of these tendencies, if you consume liberal papers and TV shows to the exclusion of conservative ones, your views will probably be tugged in a liberal direction, whereas if your news diet is made up exclusively of conservative papers and TV shows, your views will probably be guided in a conservative direction. In the media age we live in, and a highly partisan one at that, it's hard to resist the influence of the slanted secondhand reports we receive of what's going on in the world. It's therefore all the more important to be on the lookout for such biases and to try to get information from multiple sources to get a variety of viewpoints.

← LOOKING BACK

The quality of our judgments derives in part from the quality of the information on which our judgments are based. Sometimes we have very little information at our disposal, as when we have to make snap judgments about other people based only on physical appearance and small samples of their behavior. Research indicates that when people make snap judgments, they tend to agree with one another to a remarkable degree. The information available for closer examination may suffer from a number of potential biases. Even firsthand information can be biased, as when people behave in ways that don't reflect their true attitudes or when people act in ways that elicit from others the very behavior they were expecting. Information received secondhand can also lead to errors, as when communicators distort information in the interest of profit or ideology. This may account for the heightened fear that accompanies exposure to the media's overreporting of negative, violent, and sensational news stories and for the news reports that are frequently biased, even though they may not contain any outright misstatements of fact.

How Information Is Presented

To understand the powerful impact of how information is presented, we can start by considering the marketing and advertising of products. In the modern world of material abundance, companies often produce more than enough to satisfy the needs

of society, and they find it useful to further stimulate "need" so that there will be a larger demand for their products. By manipulating the messages people receive about various products through marketing, producers hope to influence consumers' buying impulses. The key to successful marketing, in turn, is not simply the selection of *what* information to present, but *how* to present it. Countless studies have demonstrated that slight variations in the presentation of information—*how* it is presented and even *when* it is presented—can have profound effects on people's judgments.

Order Effects

How happy are you with your life in general? How many dates have you been on in the past month? If you're like most people, there may have been some connection, but often not a strong one, between your responses to the two questions. After all, there is more to life than dating. Indeed, when survey respondents were asked these two questions in this order, the correlation between their responses was .32, only a slight relationship. But when another group was asked the two questions in the opposite order, the correlation between their responses was twice as strong: .67. Asking about their recent dating history in the first question made them very aware of how that part of their life was going, which then had a notable impact on their assessment of their happiness generally (Strack, Martin, & Schwarz, 1988; see also Haberstroh, Oyserman, Schwarz, Kiihnen, & Ji, 2002; Tourangeau, Rasinski, & Bradburn, 1991).

Results such as these provide striking confirmation of something many people grasp intuitively—that the order in which items are presented can have a powerful influence on judgment. This is why we worry so much about whether we should go first or last in any kind of performance—interviewing for a job, say, or giving a classroom presentation. Sometimes the information presented first exerts the most influence, a phenomenon known as a **primacy effect**. Other times the information presented last has the most impact, a phenomenon known as a **recency effect**. These two are collectively referred to as *order effects*.

As a rough general rule, primacy effects most often occur when the information is ambiguous, so that what comes first influences how the later information is interpreted. Consider a study in which Solomon Asch (1946) asked people to evaluate a hypothetical individual described by the following terms: intelligent, industrious, impulsive, critical, stubborn, and envious. The individual was rated favorably, no doubt because of the influence of the two very positive terms that began the list—*intelligent* and *industrious*. A second group read the same trait adjectives in the opposite order and formed a much less favorable impression, because the first two descriptive terms—*stubborn* and *envious*—are negative. Thus, there was a substantial primacy effect. Traits presented at the beginning of the list had more impact than those presented later on. Etiquette books (and your parents) are right: first impressions are crucial. Note that all the traits in Asch's experiment have different shades of meaning, and how each is construed depends on the information already encountered. Take the word *stubborn*. When it follows positive traits, such as *intelligent* and *industrious*, people interpret it charitably, as steadfast or determined. However, when it follows *envious*, it is seen more negatively, as closed-minded or rigid (Asch & Zukier, 1984; Biernat, Manis, & Kobryniewicz, 1997; Hamilton & Zanna, 1974).

Recency effects, in contrast, typically result when the last items come more readily to mind. Information remembered obviously receives greater weight than

primacy effect A type of order effect: the disproportionate influence on judgment by information presented first in a body of evidence.

recency effect A type of order effect: the disproportionate influence on judgment by information presented last in a body of evidence.

information forgotten, so later items sometimes exert more influence on judgment than information presented earlier.

Framing Effects

Order effects are a type of **framing effect**: the way information is presented, including the order of presentation, can “frame” the way it’s processed and understood. Asking survey respondents first about how many dates they’ve had recently frames the question about life in a way that highlights the importance of one’s dating life to overall well-being.

Order effects are a type of “pure” framing effect: the frame of reference is changed by reordering the information, even though the content of the information remains exactly the same. Consider the (probably apocryphal) story of the monk whose request to smoke while he prayed was met with a disapproving stare by his superior. When he mentioned this to a friend, he was told: “Ask a different question. Ask if you can pray while you smoke.” The request is the same in both versions. But there is a subtle difference in the frame of reference. The latter presupposes smoking; the former doesn’t.

SPIN FRAMING Framing effects aren’t limited to the order in which information is presented. *Spin framing* is a less straightforward form of framing that varies the content, not just the order, of what is presented. A company whose product is of higher quality than competing products will introduce information that frames the consumer’s choice as one of quality. Another company whose product has a lower price will feature information that frames the consumer’s choice as one of savings.

Participants in political debates use spin framing to highlight some aspects of the relevant information and not others. Thus, we hear advocates of different positions talk of “pro-choice” versus “pro-life,” “illegal aliens” versus “undocumented workers,” even “torture” versus “enhanced interrogation.” The power of such terms to frame, or spin, the relevant issues led the United States in 1947 to change the name of the War Department to the more benign-sounding Defense Department.

More recently, people have been encouraged to view dubious assertions as “alternative facts.”

Politicians (and some polling organizations with a political mission) engage in spin framing when they conduct opinion polls to gather support for their positions. People are more likely to say they are in favor of repealing a “death” tax than an “inheritance” tax. And asking people whether they are in favor of “tax relief” is almost guaranteed to elicit strong support because the very word *relief* implies that taxes are a burden from which relief is needed (Lakoff, 2004). Because it’s so easy to slant public opinion in a given direction, it’s important to check the source of the poll and to be mindful of the exact wording of the questions. As former Israeli Prime Minister Shimon Peres noted, opinion polls are “like perfume—nice to smell, dangerous to swallow.”

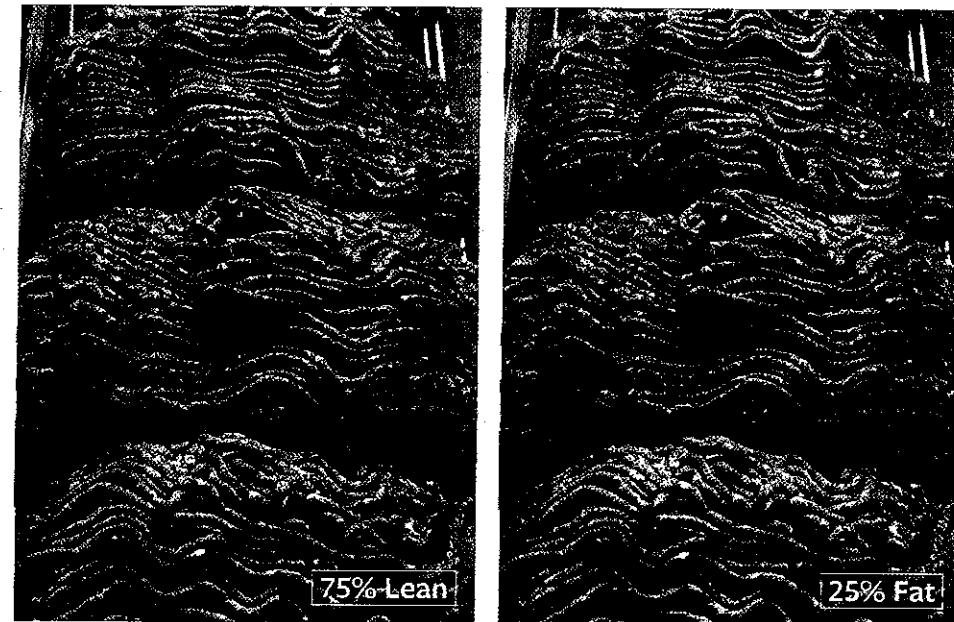
POSITIVE AND NEGATIVE FRAMING Nearly everything in life is a mixture of good and bad. Ice cream tastes great, but it’s full of saturated fat. Loyalty is a virtue, but it can make a person blind to another’s faults. The mixed nature of

framing effect The influence on judgment resulting from the way information is presented, such as the order of presentation or the wording.



SPIN FRAMING

Describing these people as “illegal aliens” creates a more unfavorable impression than describing them as “undocumented workers.”



POSITIVE VS. NEGATIVE FRAMING

A piece of meat that is 75 percent lean is no different from one that is 25 percent fat, but one label emphasizes the negative and makes it seem less appealing and the other emphasizes the positive.

most things means that they can be described, or framed, in ways that emphasize the good or the bad, with predictable effects on people’s judgments. A piece of meat described as 75 percent lean seems more appealing than one described as 25 percent fat (Levin & Gaeth, 1988); people feel much safer using a condom described as having a 90 percent success rate than one described as having a 10 percent failure rate (Linville, Fischer, & Fischhoff, 1993). Notice that the exact same information is provided in each frame; only the focus is different. Also note that there is no “correct” frame. It is every bit as valid to state that a piece of meat is 75 percent lean as it is to state that it is 25 percent fat.

These sorts of framing effects can influence judgments and decisions of the greatest consequence, even among individuals with considerable expertise on the topic in question. In one study, for example, over 400 physicians were asked whether they would recommend surgery or radiation for patients diagnosed with a certain type of cancer (McNeil, Pauker, Sox, & Tversky, 1982). Some were told that of 100 previous patients who had the surgery, 90 lived through the postoperative period, 68 were still alive after a year, and 34 were still alive after 5 years. Eighty-two percent of these physicians recommended surgery. Others were given exactly the same information, but framed in different language: that 10 died during surgery or the postoperative period, 32 had died by the end of the first year, and 66 had died by the end of five years. Only 56 percent of the physicians given the information in this form recommended surgery.

Because negative information tends to attract more attention and have greater psychological impact than positive information (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Rozin & Royzman, 2001), information framed in negative terms tends to elicit a stronger response. The results just described reflect that tendency: Ten people dying sounds more threatening than 90 out of 100 surviving.

Temporal Framing

Suppose one of your friends e-mails you today and asks if you can come over next Saturday morning at 9:00 to help him move. You’re free that day and he’s a good friend, so of course you say yes. Now suppose that on a Saturday morning

at 8:30, your friend e-mails to ask if you can come over in half an hour and help him move. It's cold out and you still feel sleepy, so you write back that you're not feeling well—or maybe you don't write back at all, pretending you never saw the e-mail. Why were you so eager to help when asked a week in advance, but so reluctant when asked on the day in question?

You probably have had similar feelings of being at odds with a decision made by an earlier version of yourself. Your earlier self might have thought it was a good idea to take an extra-heavy course load this semester, but now your present self is frazzled and sleep deprived. How could you have thought this would be a good idea?

Why does something often seem like a brilliant idea at one time and a terrible idea at another? The key to understanding this type of disparity is to recognize that we think about actions and events within a particular time perspective—a *temporal frame*—belonging to the distant past, the present moment, the immediate future, and so on.

According to **construal level theory**, the temporal perspective from which people view events has important and predictable implications for how they construe them (Fiedler, 2007; Liberman, Sagristano, & Trope, 2002; Trope & Liberman, 2003, 2010, 2012). Any action or event can be thought of at a low level of abstraction, rich in concrete detail—for example, chewing your food, carrying a friend's couch up the stairs, or giving a panhandler a dollar. But actions and events can also be thought of at a higher level of abstraction, rich in meaning but stripped of detail—dining out, helping a friend, or being generous (recall the discussion in Chapter 3 about the role of high-level, abstract versus low-level concrete construals in self-control). It turns out that we tend to think of distant events, those from long ago or far off in the future, in abstract terms and tend to think of events close at hand in concrete terms. Next week you'll be dining out, but right now you're chewing your food. Next month you'll help a friend move, but later this afternoon you'll be carrying your friend's chair up the stairs.

This difference in construal has important implications for what people think and how they act in their everyday lives, and it explains many inconsistent

construal level theory A theory about the relationship between temporal distance (and other kinds of distance) and abstract or concrete thinking: psychologically distant actions and events are thought about in abstract terms; actions and events that are close at hand are thought about in concrete terms.

TEMPORAL DISTANCE AND CONSTRUAL

When an event is far in the future, we think of it in broad, abstract terms (for example, exploring foreign lands); when an event is close at hand, we think about it in narrower, more concrete terms (for example, packing for the trip).



preferences. Decisions that sound great in the abstract are sometimes less thrilling when fleshed out in all their concrete detail, so we regret making some commitments. You think of a heavy course load a year from now as “furthering my education,” or “expanding my horizons.” That sounds great, so you accept the challenge. But when the time comes, you experience the heavy course load as “studying” or “spending time in the library,” which is less inspiring, so you question your earlier decision to take on this burden. In contrast, sometimes decisions are more enticing at the concrete level and less desirable at the abstract level, producing the opposite sort of inconsistency. At the abstract level you might have sworn that you'd stick to your diet no matter what (because you don't want to “pig out”), yet when you're standing in front of the buffet, you find it easy to indulge (because you're only “sampling the different options”).

← LOOKING BACK

The way information is presented can affect judgment. Primacy effects occur when information presented first has more impact than information presented later, often because the initial information influences the way later information is construed. Recency effects occur when information presented later is better remembered and thus has more impact. People are also susceptible to how information is framed. Sometimes people deliberately spin information so as to influence our judgment by changing our frame of reference. The temporal framing of an event—whether it will occur soon or far in the future—also influences how we think of it; far-off events are construed in more abstract terms, and imminent events are construed more concretely.

How We Seek Information

Suppose a friend gives you several potted plants for your dorm room or apartment and says, “I'm not sure, but they might need frequent watering. You should check that out.” How would you go about checking? If you're like most people, you would water them often and see how they do. What you would *not* do is give a lot of water to some, very little to the others, and compare the results.

Confirmation Bias

When evaluating a proposition (a plant needs frequent watering; a generous allowance spoils a child; Hispanics highly value family life), people more readily, reliably, and vigorously seek out evidence that would support the proposition rather than information that would contradict the proposition. This tendency is known as the **confirmation bias** (Klayman & Ha, 1987; Skov & Sherman, 1986).

In one study that examined the confirmation bias, Jennifer Crocker asked one group of participants to determine whether working out the day before an important tennis match makes a player more likely to win (Crocker, 1982). Another group was asked to determine whether working out the day before a match makes a player more likely to *lose*. Both groups could examine any of four types of information before coming to a conclusion: the number of players in a

confirmation bias The tendency to test a proposition by searching for evidence that would support it.

sample who worked out the day before and won their match, the number of players who worked out and lost, the number of players who didn't work out the day before and won, and the number of players who didn't work out and lost. In fact, all four types of information are needed to make a valid determination. You have to calculate and compare the success rate of those who worked out the day before the match with the success rate of those who didn't. If the first ratio is higher than the second, then working out the day before increases the chances of winning.

But participants tended not to seek out all the necessary information. Instead, as **Figure 4.2** makes clear, participants exhibited the confirmation bias: they were especially interested in examining information that could potentially confirm the proposition they were investigating. Those trying to find out whether practicing leads to winning were more interested in the number of players who practiced and won than those trying to find out whether practicing leads to losing—and vice versa (Crocker, 1982).

This tendency to seek confirming information can lead to all sorts of false beliefs, because we can find supportive evidence for almost anything (Gilovich, 1991; Shermer, 1997). Are people more likely to come to harm when there is a full moon? There will certainly be many months in which hospital ERs are unusually busy during the full moon. Do optimistic people live longer? You can probably think of some very elderly people who are unusually upbeat. But evidence consistent with a proposition is not enough to draw a firm conclusion, as there might be even more evidence against it—more days with empty ERs during the full moon,

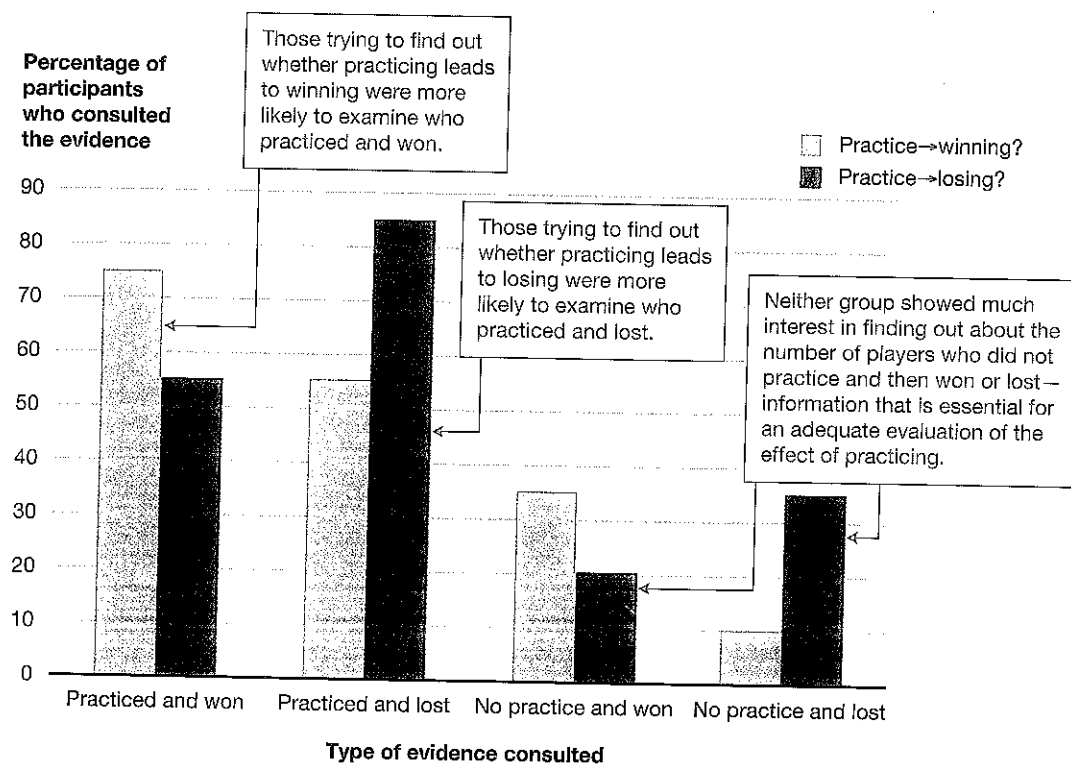
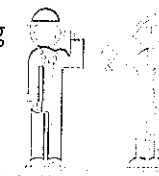


FIGURE 4.2
THE CONFIRMATION BIAS
Light green bars represent the responses of participants trying to determine whether practicing the day before a tennis match makes a player more likely to win. Dark green bars represent the responses of participants trying to find out whether practicing the day before makes a player more likely to lose.
Source: Adapted from Crocker, 1982.

A CLOSER LOOK

Overconfidence: A Pervasive Bias of Human Judgment

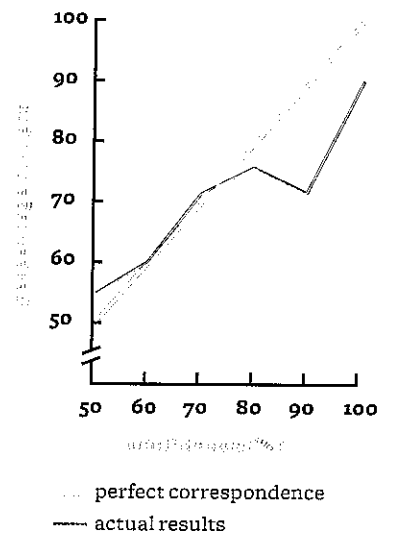
The overconfidence bias, the tendency for individuals to have greater confidence in their judgments and decisions than their actual accuracy merits, is one of the most pronounced and consistent biases documented by psychologists. If people were perfectly “calibrated,” their accuracy would match their confidence. They would be 100% accurate when they are 100% confident, 70% accurate when they are 70% confident, and so forth. But people’s confidence frequently exceeds their accuracy, and this bias appears in numerous areas, including physical ability, test performance, and general knowledge.



“Heavier than air flying machines are impossible.”
Lord Kelvin, president of British Royal Society, 1895

“They couldn’t hit an elephant at this dist— ...”
last words of General John Sedgwick before being shot by
Confederate fire in the U.S. Civil War Battle of Spotsylvania, 1864

In a classic study of overconfidence, people answered 20 two-alternative general-knowledge questions and judged the probability that each answer was correct. The white line indicates perfect correspondence between accuracy and expressed confidence. The pink line depicts participants’ average accuracy rates for particular levels of confidence. The fact that the pink line lies below the white line indicates that participants were more confident than they were accurate.



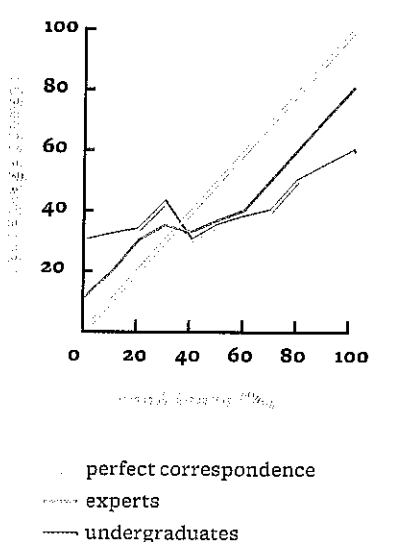
Are You Overconfident?

To answer the following questions, get a friend to give you the answers or look up the answers for yourself. You probably won't know the exact length of the Nile, but you can range between 4,000 and 5,000 miles. The year Mozart was born is 1756. The gestation period of an Asian elephant is 18 months. The number of books in the Old Testament is 39. The deepest known point in Earth's oceans is 11,033 meters.

1. Length of Nile River (x to y miles)
2. Martin Luther King's age at death (x to y years)
3. Number of countries in European Union (x to y countries)
4. Number of books in Old Testament (x to y books)
5. Diameter of the Moon (x to y miles)
6. Weight of a 787 airplane (x to y tons)
7. Year Mozart was born (x to y years)
8. Gestation period of Asian elephant (x to y days)
9. Shortest air distance from London to Tokyo (x to y miles)
10. Deepest known point in Earth's oceans (x to y feet)

Forecasting Study

In a long-term forecasting study, experts and undergraduate students assessed the probability of various events, such as whether the Apartheid system in South Africa would become more entrenched, stay the same, or end (three possible answers to each question). These assessments were then compared with what actually happened. The yellow and purple lines depict participants’ average accuracy rates for different levels of confidence. The experts did better than the undergraduates, but they were still highly overconfident.



answer key: 1) 4,187; 2) 29; 3) 28; 4) 39; 5) 2,160; 6) 130; 7) 1756; 8) 645; 9) 5,959; 10) 36,198

Sources: Quotations and overconfidence test: Adapted from Russo & Shoemaker, 1990; Classic study Koriat, Lichtenstein, & Fischhoff, 1980; Experts/nonexperts study: Tetlock, 2005.

more pessimists living long lives. The danger of the confirmation bias, then, is that if we look mainly for one type of evidence, we are likely to find it. To truly test a proposition, we must seek out the evidence against it as well as the evidence for it.

In the social realm, the confirmation bias can lead people to ask questions that shape the answers they get, thereby providing illusory support for the very thing they're trying to find out. In one telling study, researchers asked one group of participants to interview someone and determine whether the target person was an extravert; another group was asked to determine whether the target person was an introvert (Snyder & Swann, 1978). Participants selected their interview questions from a list provided. Those charged with determining whether the target was an extravert tended to ask questions that focused on sociability ("In what situations are you most talkative?"). Those charged with determining whether the target was an introvert tended to ask questions that focused on social withdrawal ("In what situations do you wish you could be more outgoing?"). Of course, if you ask people about times when they are most sociable, they are likely to answer in ways that will make them seem relatively outgoing, even if they aren't. And if you ask about their social reticence, they will almost certainly answer in ways that make them seem relatively introverted—again, even if they aren't. In a powerful demonstration of this tendency, the investigators tape-recorded the interview sessions, edited out the questions, and then played the responses to another, uninformed set of participants. These latter participants rated those who had been interviewed by someone testing for extraversion as more outgoing than those who had been interviewed by someone testing for introversion.

It's easy to see how the confirmation bias, in concert with all the information available on the Internet, can result in highly polarized beliefs. If you want to find out whether the Trump campaign colluded with Russia's KGB and search the Internet for confirmatory information, you'll find quite a bit. Or if you're curious about whether President Barack Obama had Trump Tower bugged during the 2016 presidential campaign, a confirmatory search will turn up some evidence of that, too. *Some* evidence is out there in apparent support of even the most outlandish propositions. That's why a balanced search for both confirmatory and disconfirmatory information is essential to sound judgment. But as we have seen, people don't recognize the need to seek out information

from all sides of an issue, and doing so is made even harder by the fact that modern technologies create "information bubbles" where confirmatory information is shared by members of like-minded communities.

One study examined which sites people visited, "liked," and forwarded on Facebook (Quattrociochi, Scala, & Sunstein, 2016). The investigators identified people for whom 95 percent of their "likes" were for posts that embraced various conspiracy theories (for example, that there is no link between HIV and AIDS, but powerful forces want people to believe there is) and people for whom 95 percent of their "likes" were for posts that embraced scientific claims (for example,

the discovery of gravitational waves). The investigators found that the more these individuals favored one type of post over the other, the more their *friends* tended to be highly polarized as well, and the more often these individuals responded to the occasional post that challenged their beliefs by going to (or returning to) posts that reinforced their beliefs. To have an ideological position is to be surrounded, especially in today's world, by information that supports that position.

Motivated Confirmation Bias

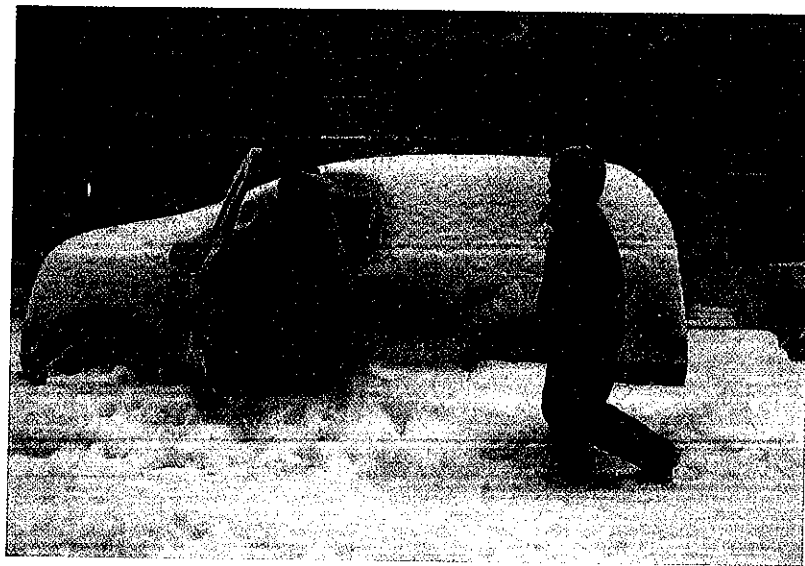
People can fall prey to the confirmation bias even when they have no particular motivation to confirm a particular outcome. You may not care whether a given type of plant needs a lot of water, but if someone suggests that it does, you will evaluate that suggestion by looking disproportionately at evidence that might confirm it.

But some of the time, of course, people are motivated to deliberately search for evidence that supports their preferences or expectations. Someone who wants a given proposition to be true may sift through the relevant evidence with special vigor to uncover information that confirms its validity. In such cases, information that supports what a person wants to be true is readily accepted, whereas information that contradicts what the person would like to believe is subjected to critical scrutiny and often discounted (Dawson, Gilovich, & Regan, 2002; Ditto & Lopez, 1992; Druckman & Bolsen, 2011; Gilovich, 1983, 1991; Kruglanski & Webster, 1996; Kunda, 1990; Pyszczynski & Greenberg, 1987; Slothuus & de Vreese, 2010).

In one notable examination of this type of motivated confirmation bias, proponents and opponents of capital punishment read about studies of the death penalty's effectiveness as a deterrent to committing a crime (Lord, Ross, & Lepper, 1979). Some read state-by-state comparisons purportedly showing that crime rates are not any lower in states with the death penalty than in states without the death penalty, but they also read about how crime rates within a few states decreased as soon as the death penalty was put in place. Other participants read about studies showing the exact opposite: state-by-state comparisons that made the death penalty look effective and before-and-after comparisons that made it look ineffective. Those who favored the death penalty interpreted the evidence, whichever set they were exposed to, as strongly supporting their position. Those opposed to the death penalty thought the evidence warranted the opposite conclusion. Both sides jumped on the problems associated with the studies that contradicted their positions, but they readily embraced the studies that supported them. Their preferences tainted how they viewed the pertinent evidence.

← LOOKING BACK

Efforts to acquire needed information are often compromised by two pronounced types of confirmation bias. One type occurs when we look for evidence consistent with propositions or hypotheses we wish to evaluate. To evaluate a proposition satisfactorily, however, it's necessary to examine evidence both for it and against it. The other type of confirmation bias occurs when we want a given proposition to be true; we seek out and embrace evidence that confirms our beliefs or preferences and explain away evidence that contradicts them.



SEARCHING FOR EVIDENCE THAT FITS OUR BELIEFS

People who deny the reality of global warming often seize on episodes like these to support their skepticism ("Would we have weather like this if the planet were really getting warmer?"). Those who are worried about climate change are likely to seize on them to support *their* view ("This is precisely the extreme weather we can expect as a result of climate change").

Top-Down Processing: Using Schemas to Understand New Information

bottom-up processing “Data-driven” mental processing, in which an individual forms conclusions based on the stimuli encountered in the environment.

top-down processing “Theory-driven” mental processing, in which an individual filters and interprets new information in light of preexisting knowledge and expectations.

Understanding the world involves the simultaneous operation of bottom-up and top-down processing. **Bottom-up processing** takes in relevant stimuli from the outside world, such as text on a page, gestures in an interaction, or sound patterns at a cocktail party. At the same time, **top-down processing** filters and interprets bottom-up stimuli in light of preexisting knowledge and expectations. The meaning of stimuli is not passively recorded; it is actively *construed*.

Preexisting knowledge is necessary for understanding. What we know about human nature and about different social contexts allows us to determine, for example, whether another person’s tears are the product of joy or sadness. What we know about norms and customs enables us to decide whether a gesture is hostile or friendly. Our preexisting knowledge, furthermore, is not filed away bit by bit. It is organized in coherent configurations, or schemas, in which related information is stored together. For example, information about Hillary Clinton, 2016 Democratic candidate for president, is tightly connected to information about Hillary Clinton, Wellesley graduate; Hillary Clinton, former First Lady; and Hillary Clinton, former secretary of state (Bartlett, 1932; Markus, 1977; Nisbett & Ross, 1980; Schank & Abelson, 1977; Smith & Zarate, 1990). We have schemas for all sorts of things, such as a fast-food restaurant chain (so-so food, bright primary colors for decor, limited choices, cheap), a party animal (boisterous, drinks to excess, exuberant but clumsy dancer), and an action film (good guy establishes good guy credentials, bad guy gains the upper hand, good guy triumphs and bad guy perishes in eye-popping pyrotechnical finale).

The Influence of Schemas

The various schemas we possess affect our judgments in many ways: by directing our attention, structuring our memories, and influencing our interpretations (Brewer & Nakamura, 1984; Hastie, 1981; Taylor & Crocker, 1981). Without schemas, our lives would be a buzzing confusion. But schemas can also sometimes lead us to mischaracterize the world.

ATTENTION Attention is selective. We can’t focus on everything, and the knowledge we bring to a given situation enables us to direct our attention to what’s most important and largely ignore everything else. The extent to which our schemas and expectations guide our attention was powerfully demonstrated by an experiment in which participants watched a videotape of two teams of three people, each passing a basketball back and forth (Simons & Chabris, 1999). The members of one team wore white shirts, and the members of the other team wore black shirts. The researchers asked each participant to count the number of passes the members of one of the teams made. Forty-five seconds into the action, a person wearing a gorilla costume strolled into the middle of the action. Although a large gorilla might seem hard to miss, only half the participants noticed it! The participants’ schemas about what is likely to happen in a game of catch directed their attention so intently to some parts of the videotape that they failed to see a rather dramatic stimulus they weren’t expecting.



MEMORY Because schemas influence attention, they also influence memory. We are most likely to remember stimuli that have captured our attention. Indeed, memory has been described as “attention in the past tense” (Goleman, 1985).

Researchers have documented the impact of schemas on memory in a great many experiments (Fiske & Taylor, 1991; Hastie, 1981; Hirt, 1990; Stangor & McMillan, 1992). In one study, students watched a videotape of a husband and wife having dinner together (Cohen, 1981). Half of them were told that the wife was a librarian, the other half that she was a waitress. The students later took a quiz that assessed their memory of what they had witnessed. The central question was whether their memories were influenced by their stereotypes (schemas about particular groups in society) of librarians and waitresses. The researchers asked them, for example, whether the woman was drinking wine (librarian stereotype) or beer (waitress stereotype) and whether she had received a history book (librarian) or romance novel (waitress) as a gift. The tape had been constructed to contain an equal number of items consistent and inconsistent with each stereotype.

Did the participants’ preexisting knowledge influence what they recalled? It did indeed. Students who thought the woman was a librarian recalled librarian-consistent information more accurately than librarian-inconsistent information; those who thought she was a waitress recalled waitress-consistent information more accurately than waitress-inconsistent information. Information that fits a preexisting schema often enjoys an advantage in recall (Carli, 1999; Zadny & Gerard, 1974).

CONSTRUAL Schemas influence not only what information we focus on and remember, but also the way we interpret, or construe, that information (DeCoster & Claypool, 2004; Loersch & Payne, 2011). To understand how this works, meet Donald, a fictitious person who has been used as a stimulus in numerous experiments on the effect of prior knowledge on social judgment:

Donald spent a great amount of his time in search of what he liked to call excitement. He had already climbed Mt. McKinley, shot the Colorado rapids in a kayak, driven in a demolition derby, and piloted a jet-powered boat—without knowing very much about boats. He had risked injury, and even death, a number of times. Now he was in search of new excitement. He was thinking, perhaps, he would do some skydiving or maybe cross the Atlantic in a sailboat. By the way he acted one could readily guess that Donald was well

EXPECTATIONS GUIDE ATTENTION

Because people don’t expect to see a gorilla in the middle of a game of catch, only half the participants who watched this video saw it. Schemas can be so strong that they prevent us from seeing even very dramatic stimuli we don’t expect to see.

aware of his ability to do many things well. Other than business engagements, Donald's contacts with people were rather limited. He felt he didn't really need to rely on anyone. Once Donald made up his mind to do something it was as good as done no matter how long it might take or how difficult the going might be. Only rarely did he change his mind even when it might well have been better if he had. (Higgins, Rholes, & Jones, 1977, p. 145)

In one early study featuring Donald as the stimulus, students participated in what they thought were two unrelated experiments (Higgins, Rholes, & Jones, 1977). In the first, they viewed a number of trait words projected on a screen as part of a perception experiment. Half the participants were shown the words *adventurous*, *self-confident*, *independent*, and *persistent* among a set of ten traits. The other half were shown the words *reckless*, *conceited*, *aloof*, and *stubborn*. After completing the ostensible perception experiment, the participants moved on to the second study on reading comprehension, in which they read the short paragraph about Donald and rated him on a number of trait scales. The investigators were interested in whether the words that participants encountered in the first experiment would lead them to apply different schemas and thus affect their evaluations of Donald.

As the investigators expected, participants who had previously been exposed to the words *adventurous*, *self-confident*, *independent*, and *persistent* formed more favorable impressions of Donald than did those who were shown the less flattering words. Thus, participants' schemas about personality traits like adventurousness and

recklessness influenced the kind of inferences they made about Donald. The broader point is that information that is most accessible in memory can influence how we construe new information. This is most likely to occur when the stimulus, like many of Donald's actions, is ambiguous (Trope, 1986). In such cases, we must rely more heavily on top-down processes to compensate for the inadequacies of the information obtained from the bottom up.

BEHAVIOR We've seen how schemas influence our attention, memory, and construal. Can they also influence behavior? Absolutely. Studies have shown that certain types of behavior are elicited automatically when people are exposed to stimuli in the environment that bring to mind a particular action or schema (Loersch & Payne, 2011; Weingarten et al., 2016). Such exposure is called **priming** a concept or schema.

In one study, participants played a simplified game of blackjack in which a computer dealt them two cards and they had to decide whether to bet that the sum of their two cards would exceed the sum of two cards that would soon appear for the "dealer" (the computer) or whether they wanted to pass and go to the next round. If they decided to bet, they won 5 points if their cards were higher than the dealer's and lost 5 points if they were lower. On some trials, the word *gamble* or *wager* was **subliminally** presented right before the participants made their decisions; on other trials, the word *fold* or *stay* appeared. Even though the primes were presented too quickly for participants to consciously perceive them, participants were more likely to bet on trials preceded by the



ADVENTUROUS OR RECKLESS?

Recent exposure to concepts like "self-confident" and "independent" makes people more likely to see this young person eating insects as "adventurous." Exposure to concepts like "conceited" and "stubborn" encourages seeing her as "reckless."

priming The presentation of information designed to activate a concept and hence make it accessible. A prime is the stimulus presented to activate the concept in question.

subliminal Below the threshold of conscious awareness.

word *gamble* or *wager* than on trials preceded by the word *fold* or *stay* (Payne, Brown-Iannuzzi, & Loersch, 2016).

Other studies of this sort found that priming participants with dollar signs increased their betting on a laboratory slot machine (Gibson & Zielaskowski, 2013) and that activating the goal of achievement led people to persevere longer at difficult tasks (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001; Weingarten et al., 2016). Moreover, playing German music in a liquor store appears to boost sales of German wine at the expense of French wine, whereas playing French music appears to boost sales of French wine—even if customers don't realize what type of music is being played (North, Hargreaves, & McKendrick, 1999).

Which Schemas Are Activated and Applied?

In the librarian/waitress study described earlier, there is little doubt about which schema participants applied to the information in the videotape. The experimenter informed them that the woman was a librarian (or waitress), and they viewed the videotape through the lens of their librarian (or waitress) schema. In real life, however, the situation is often more complicated. You might know that besides being a librarian, the woman is a triathlete, a Republican, and a gourmet cook. Which schema (or combination of schemas) is likely to be thought of, or activated?

RECENT ACTIVATION Schemas can be brought to mind, or activated, in various ways. Recent activation of a schema is one of the most common determinants of which schemas get activated. If a schema has been brought to mind recently, it tends to be more accessible and hence ready for use (Ford & Kruglanski, 1995; Herr, 1986; Sherman, Mackie, & Driscoll, 1990; Srull & Wyer, 1979, 1980; Todorov & Bargh, 2002).

In the "Donald" study described earlier, for example, recent exposure to trait adjectives such as *adventurous* or *reckless* influenced participants' impressions of Donald (Higgins et al., 1977). By exposing participants to words implying adventurousness or recklessness, the researchers were trying to prime participants' schemas for those traits. Of course, exposure to stimuli other than words can activate schemas. People's judgments and behavior have been shown to be influenced by schemas primed by features of the surrounding environment, such as the objects in a room or the color of the walls (Aarts & Dijksterhuis, 2003; Kay, Wheeler, Bargh, & Ross, 2004); cultural symbols, such as a country's flag (Carter, Ferguson, & Hassin, 2011; Ehrlinger et al., 2011; Hassin, Ferguson, Shidlovsky, & Gross, 2007); feedback from one's own body (Epley & Gilovich, 2001; Jostmann, Lakens, & Schubert, 2009; Priester, Cacioppo, & Petty, 1996); even a passing smell (Holland, Hendricks, & Aarts, 2005).

FREQUENT ACTIVATION AND CHRONIC ACCESSIBILITY You may have noticed that people differ in the schemas they tend to use when evaluating others. Employers at high-tech firms are often concerned with whether job candidates are smart, sales managers with whether employees are persuasive, and those involved in the entertainment business with whether an actress or actor has charisma. As these examples illustrate, the role of the evaluator and the context in which a target person is encountered often influence which traits or schemas are used. But sometimes it's simply a matter of habit. If a person uses a particular schema frequently, it may become chronically accessible and therefore likely to



THE INFLUENCE OF CHRONICALLY ACCESSIBLE SCHEMAS ON PERCEPTION AND JUDGMENT

Certain schemas, such as “hipster” or “techie,” are used a lot and therefore are highly available and readily applied to new stimuli.

be used still more often in the future (Higgins, King, & Mavin, 1982). A frequently activated schema functions much like a recently activated one: its heightened accessibility increases the likelihood that it will be applied to understanding a new stimulus.

CONSCIOUSNESS OF ACTIVATION: NECESSARY OR NOT? Carefully conducted interviews with participants at the end of many priming experiments have found that few, if any, of them suspected that there was any connection between the two parts of the study—the initial priming phase and the subsequent judgment phase. This finding raises the question of how conscious a person must be of a stimulus for it to effectively prime a given schema. Research suggests a clear-cut answer: we don’t need to be conscious of the stimulus at all. A great many studies have shown that stimuli presented outside of conscious awareness can prime a schema sufficiently to influence subsequent information processing (Bargh, 1996; Debnar & Jacoby, 1994; Devine, 1989b; Draine & Greenwald, 1998; Ferguson, 2008; Ferguson, Bargh, & Nayak, 2005; Greenwald, Klinger, & Liu, 1989; Klinger, Burton, & Pitts, 2000; Lepore & Brown, 1997; Welsh & Ordonez, 2014). Thus, schemas can be primed even when the presentation of the activating stimuli is subliminal (Box 4.2).

EXPECTATIONS Sometimes people apply a schema because of a preexisting expectation about what they will encounter (Hirt, MacDonald, & Erikson, 1995; Sherman et al., 1990; Stangor & McMillan, 1992). The expectation activates the schema, and the schema is then readily applied. If the expectation is warranted, it saves considerable mental energy. For example, applying a “haggling” schema to a given commercial transaction allows us to dismiss the stated price without much thought or anxiety, and it frees us to make a counteroffer. Misapplying the haggling schema, however, can lead to the embarrassment of making a counteroffer when haggling is not appropriate. Expectations thus influence information processing by priming the schema, and the schema is readily applied at the slightest hint that it is applicable.

LOOKING BACK

Knowledge structures, or schemas, play a crucial role in judgment. Schemas influence judgment by guiding attention, influencing memory, and determining how information is construed. Schemas can also directly influence behavior. Schemas are particularly likely to exert an influence if they have been recently activated (and hence primed) or are habitually used, and we needn’t be aware of the recent or chronic activation of a schema for it to exert its effects. Schemas normally allow us to make judgments and to take action quickly and accurately, but they can also mislead.

Reason, Intuition, and Heuristics

Suppose you were offered a chance to win \$10 by picking, without looking, a red marble from a bowl containing a mixture of red and white marbles. You can make your selection from either of two bowls: a small bowl with 1 red marble and

“I know too well the weakness and uncertainty of human reason to wonder at its different results.”

—THOMAS JEFFERSON

Subtle Situational Influence

Words, sights, sounds, and other stimuli can influence how we act, for good or for ill, even when we’re not consciously aware of them. Consider the following findings.

- Want to make your employees be more creative? Have them work in a green or blue environment—and be sure they don’t work in a red environment (Lichtenfeld, Elliot, Maier, & Pekrun, 2012; Mehta & Zhu, 2009).
- Green, as in environmental greenery, can help reduce violence. People living in public housing surrounded by greenery commit fewer violent crimes than people in nearby public housing surrounded by concrete (Kuo & Sullivan, 2001b).
- Want to get lots of hits on your dating profile? Wear a red shirt in your profile photo or at least put a red border around your picture. Both men and women are considered sexier when dressed in red or just surrounded by red (Elliot et al., 2010).
- Want taxpayers to support education bond issues? Lobby to make schools the primary voting location. Want to get the voters to outlaw late abortion? Lobby to have voters cast their ballots in churches. The associations people have to the buildings that serve as polling stations influence how they vote (Berger, Meredith, & Wheeler, 2008).
- Want people to pay more consistently for the office coffee they consume by putting the agreed-upon fee in the “honest

box”? On the wall near the box, put up a poster of anything with eyes (even a symbolic stick-figure face). A nonconscious sense of being observed makes people more likely to be on their best behavior (Bateson, Nettle, & Roberts, 2006; Haley & Fessler, 2005).

- Want someone to be deeply concerned about the threat posed by climate change? Have them fill out a survey about carbon emissions in an especially hot room. People take the threat of global warming more seriously when they are feeling uncomfortably warm themselves (Risen & Critcher, 2011).

This list might remind you of the stand-up comic who follows a rapid-fire series of one-liners with the statement, “I’ve got a million of these.” And indeed, social psychologists have offered no shortage of demonstrations of the influence of incidental stimuli on people’s behavior. The most obvious implication of this research is that we can influence people’s behavior by attending to the details of their surrounding physical environment. A less obvious implication is that if we want to free ourselves of these kinds of influences, we should try to consider important propositions and potential courses of action in a number of different settings, if possible. That way, incidental stimuli associated with the different environments are likely to cancel each other out, resulting in more sound judgments and decisions.

9 white marbles or a large bowl with 9 red marbles and 91 white marbles. Which bowl would you choose?

If you’re like most people, you might experience some conflict here. The rational thing to do is to select the small bowl because it offers better odds: 10 percent versus 9 percent (Figure 4.3). But there are 9 potential winning marbles in the large bowl and only 1 in the other. The greater number of winning marbles gives many people a gut feeling that they should select from the large

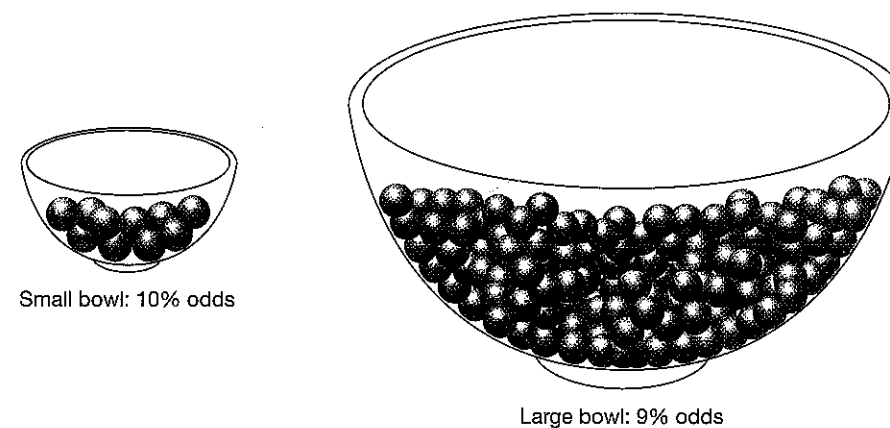


FIGURE 4.3
INTUITION AND REASON

Even though a small bowl with just 1 red marble and 9 white ones provides a better chance of choosing a winning (red) marble, people often select the larger bowl, with more red marbles and many more white marbles, knowing full well that they’re giving themselves lower odds of winning, thereby letting intuition override reason.

bowl, regardless of the objective odds. Indeed, in one experiment, 61 percent of those who faced this decision chose the larger bowl, even though that bowl gave them lower odds of winning (Denes-Raj & Epstein, 1994).

These results show that we're often "of two minds" about certain problems. Indeed, a great deal of research suggests that our responses to stimuli are guided by two systems of thought analogous to intuition and reason (Epstein, 1991; Evans, 2007; Kahneman & Frederick, 2002; Sloman, 2002; Stanovich & West, 2002; Strack & Deutsch, 2004). The intuitive system operates quickly and automatically, is based on associations, and performs many of its operations simultaneously—in parallel. The rational system is slower and more controlled, is based on rules and deduction, and performs its operations one at a time—serially.

The rapid, parallel nature of the intuitive system means that it virtually always produces some output—an "answer" to the prevailing problem—and does so very quickly. That output is sometimes overridden by the output of the slower, more deliberate rational system. For instance, if you had to predict the outcome of the next coin flip after witnessing five heads in a row, your intuitive system would quickly tell you that six heads in a row is rare and that you should therefore bet on tails. But then your rational system might remind you of a critical feature of coin flips that you may have learned in a statistics or probability course: the outcomes of consecutive flips are independent of each other—the odds are always 50-50—so you should ignore what happened on the earlier flips (Figure 4.4).

Note that several things can happen with the output of these two systems: (1) The two systems can agree. For example, you might have a good feeling about one job candidate over another (the intuitive system), and that candidate's qualifications might fit your rule to "always go with the person with more experience" (the rational system). (2) As in the coin-flip example, the two systems can disagree, and the message from the rational system can override the message from the intuitive system. (3) Finally, the intuitive system can produce a response that "seems right" and can do so with such speed that the rational system is never engaged. In that case, you simply go with the flow—that is, with the quick output of the intuitive system.

The rest of this chapter focuses on the latter pattern, drawing from Amos Tversky and Daniel Kahneman's work on the heuristics of judgment. Their work



What's more likely on the next flip, heads or tails? Rationally, it's clear that the chances of either outcome are the same (.5). But intuitively, it feels as though tails is more likely.

FIGURE 4.4
INTUITIVE PROCESSING AND MISTAKEN JUDGMENT

When watching a series of coin flips and seeing several heads in a row, nearly everyone has an intuitive feeling that the next flip is going to be a tail. With the right education, however, that intuitive impulse is suppressed in light of a rational realization that the outcomes of coin flips are independent of one another, and the chances of heads on the next flip are the same as they always are, 50-50.

has had a great impact—not only in psychology, but also in economics, management, law, medicine, political science, and statistics (Gilovich, Griffin, & Kahneman, 2002; Kahneman, Slovic, & Tversky, 1982; Tversky & Kahneman, 1974). Tversky and Kahneman have argued that the intuitive system automatically performs certain mental operations—assessments of how easily something comes to mind or of how similar two entities are—that powerfully influence judgment. They refer to these mental operations as **heuristics**: mental shortcuts that provide serviceable, if usually rather inexact, answers to common problems of judgment. They yield answers that feel right and therefore often forestall more effortful, rational deliberation.

Tversky and Kahneman have argued that although these heuristics generally serve us well, they sometimes distort our judgments. Our intuitive system generates an assessment relevant to the task at hand and suggests what may seem like a perfectly acceptable answer to the problem. But without a deeper, more considered analysis, important considerations might be ignored and our judgments systematically biased. Let's examine how such biases can arise in the context of two of the most important and extensively researched heuristics: the availability heuristic and the representativeness heuristic. We rely on the **availability heuristic** when we judge the frequency or probability of some event by how readily pertinent instances come to mind. We use the **representativeness heuristic** when we try to categorize something by judging how similar it is to our conception of the typical member of the category.

The Availability Heuristic

Which Midwestern state has more tornadoes each year: Nebraska or Kansas? Even though they both average the same number, you, like most people, may have answered Kansas. If so, then you were guided by the availability heuristic. For most people, thinking about the frequency of tornadoes in Kansas immediately brings to mind the one in the classic film *The Wizard of Oz*.

We can't prevent ourselves from assessing the ease with which we can think of examples from Nebraska and Kansas, and once we've made such assessments, they seem to give us our answer. It's easier to think of a tornado in Kansas (even though it was fictional) than one in Nebraska, so we conclude that Kansas

heuristics Intuitive mental operations, performed quickly and automatically, that provide efficient answers to common problems of judgment.

availability heuristic The process whereby judgments of frequency or probability are based on how readily pertinent instances come to mind.

representativeness heuristic The process whereby judgments of likelihood are based on assessments of similarity between individuals and group prototypes or between cause and effect.

THE AVAILABILITY HEURISTIC

People often judge the likelihood of an event by how readily pertinent examples come to mind. (A) While tornadoes occur with equal frequency in both Nebraska and Kansas, people tend to think they are more common in Kansas because of familiarity with (B) *The Wizard of Oz*, in which a tornado in Kansas whisks Dorothy and her dog Toto to the land of Oz.



probably has more tornadoes. The implicit logic seems compelling: if examples can be quickly recalled, there must be many of them. Usually that's true. It's easier to think of male CEOs of Fortune 500 companies than female CEOs, successful Russian novelists than successful Norwegian novelists, and instances of German military aggression than Swiss military aggression—precisely because there are more male CEOs, more successful Russian novelists, and more instances of German military aggression. The availability heuristic, therefore, often serves us well. The ease with which relevant examples can be brought to mind—how available they are—is often an accurate guide to overall frequency or probability.

Often, but not always. Certain events may simply be more memorable or retrievable than others, making availability a poor indicator of true number or probability. Nebraska has as many tornadoes as Kansas, but none is as memorable as the one in *The Wizard of Oz*. In an early demonstration of the availability heuristic, Kahneman and Tversky (1973a) asked people whether there are more words that begin with the letter *r* or more words that have *r* as the third letter. A large majority thought more words begin with *r*, but in fact more words have *r* in the third position. Because words are stored in memory in some rough alphabetical fashion, words that begin with *r* (*rain*, *rowdy*, *redemption*) are easier to recall than those with *r* as the third letter (*nerd*, *harpoon*, *barrister*). The latter words, although more plentiful, are harder to access.

BIASED ASSESSMENTS OF RISK One area where the availability heuristic can lead to trouble in everyday life harks back to the earlier discussion of negative information being overreported in the news. If people assess their risk by how easily they can bring to mind various hazards, they will be especially worried about those hazards they hear a lot about in the media and not as worried about hazards that receive less attention, even if the latter are equally (or more) lethal (Slovic, Fischhoff, & Lichtenstein, 1982).

For example, do more people die each year by homicide or by suicide? As you've surely noticed, homicides receive much more media coverage, so most people think they are more common. In reality, suicides outnumber homicides in the United States by a ratio of 3 to 2. Are people more likely to die by accident or from disease? Statistics indicate that disease claims more than 16 times as many lives as accidents, but because accidents (being more dramatic) receive disproportionate media attention, most people erroneously consider them responsible for about as many deaths as disease.

People typically overestimate the frequency of dramatic events that claim the lives of many people at once. Deaths due to plane crashes, earthquakes, and tornadoes are good examples. In contrast, people underestimate the commonness of silent individual deaths, such as those resulting from emphysema and stroke.

Table 4.1 lists the most overestimated and underestimated hazards.

BIASED ESTIMATES OF CONTRIBUTIONS TO JOINT PROJECTS Another example of how the availability heuristic can distort everyday judgment involves the dynamics of joint projects. People sometimes work together on a project and then afterward decide who gets the bulk of the credit. Suppose you work with someone on a class project and turn in a single paper. Whose name is listed first? What if you and an acquaintance are hired to write a computer program for a lump-sum payment. How do you split the money?

Now that you know about the availability heuristic, you might expect that people would tend to overestimate their own contributions to such projects

TABLE 4.1 BIASED ASSESSMENTS OF FREQUENT CAUSES OF DEATH

Most Overestimated	Most Underestimated
Motor vehicle accidents	Diabetes
Tornadoes	Lightning
Flood	Stroke
All cancers	Asthma
Fire	Emphysema
Homicide	Tuberculosis

Source: Adapted from Slovic, Fischhoff, & Lichtenstein, 1982.

(Kruger & Savitsky, 2009; Ross & Sicoly, 1979; Savitsky, Adelman, & Kruger, 2012; Schroeder, Caruso, & Epley, 2016). After all, we devote a lot of energy and attention to our own contributions, so they should be more available than the contributions of everyone else. In one early test of this idea, married couples were asked to apportion responsibility for various tasks or outcomes in their daily life: how much each contributed to keeping the house clean, maintaining the social calendar, starting arguments, and so on (Ross & Sicoly, 1979). The respondents tended to give themselves more credit than their partners did. In most cases, when the estimates made by the two participants were summed, they exceeded the logically allowable maximum of 100 percent. (In our favorite example, a couple was asked to estimate their relative contributions to making breakfast. The wife said her share was 100 percent, on the reasonable grounds that she bought the food, prepared it, set the table, cleared the table, and washed the dishes. The husband estimated his contribution to be 25 percent—because he fed the cat!)

How do we know it's the availability heuristic rather than a motivational bias that gives rise to this phenomenon? In other words, maybe people overestimate their contributions simply because they want to see themselves, and have others see them, in the most favorable light. This would certainly be the logical conclusion if the effect held true only for positive items. But the investigators found that the overestimation of a person's own contributions held for negative outcomes (such as starting arguments) as well as positive outcomes (such as taking care of the house), making it clear that availability plays a large role in this effect.

AVAILABILITY'S CLOSE COUSIN: FLUENCY Just as examples of some categories are easier to think of than others, some individual stimuli are easier to process



OVERESTIMATING THE FREQUENCY OF DRAMATIC DEATHS

People tend to overestimate the likelihood of dramatic causes of death that kill many people at once, such as building fires. Because these catastrophes receive a great deal of coverage in the media, they come to mind easily when we consider the relative risk of different hazards.

OVERESTIMATING CONTRIBUTIONS

Because people's own contributions are much more salient than those of their coworkers, they tend to overestimate how much of a contribution they have made to the group's overall output. All these people probably think they have more to help their friend move than most of the other people did.

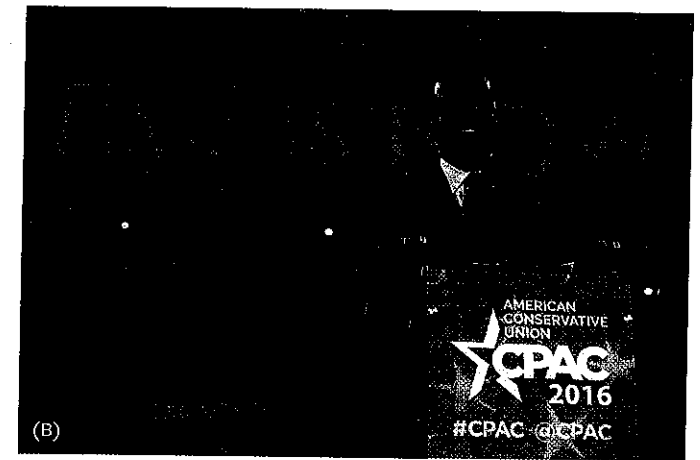
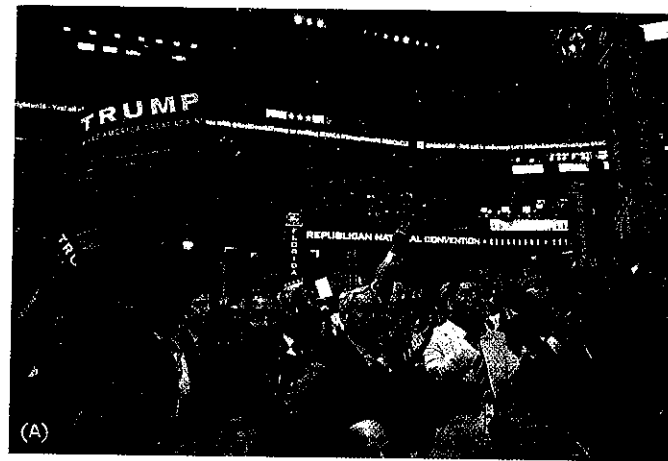


fluency The feeling of ease (or difficulty) associated with processing information.

than others. Psychologists use the term **fluency** to refer to the ease (or difficulty) associated with information processing. A clear image is easy to process, or fluent. An irregular word (like *imbroglio*) is hard to process, or disfluent.

The subjective experience of fluency, much like the subjective sense of availability, influences all sorts of judgments people are called on to make (Jacoby & Dallas, 1981; Oppenheimer, 2008). For example, we judge fluent names to be more famous, fluent objects to be more prototypical members of their categories, and common adages that rhyme to be more valid and truthful than those that don't (Jacoby, Woloshyn, & Kelley, 1989; McGlone & Tofiqbakhsh, 2000; Whittlesea & Leboe, 2000). Fluency also influences the perceived difficulty of a task that's being described. When the font (typeface) of a recipe is hard to read, people assume the dish would be hard to cook (Song & Schwarz, 2008).

In addition to such direct effects on judgment, fluency appears to influence *how* people process relevant information. A feeling of disfluency while processing information leads people to take something of a "slow down, be careful" approach to making judgments and decisions. Researchers have examined this tendency using the Cognitive Reflection Test (Frederick, 2005). In one study, the test was printed in either a normal, **highly readable font** or a degraded, **hard-to-read font**. Performing well on the Cognitive Reflection Test requires stifling an immediate gut feeling to get the correct answer to each question. For example: "A bat and ball cost \$1.10 in total. The bat costs \$1 more than the ball. How much does the ball cost?" You need to think beyond the immediate response of 10 cents to arrive at the correct response of 5 cents ($\$0.05 + \$1.05 = \$1.10$). Participants gave more correct answers when the questions were presented in a degraded, and hence disfluent, font (Alter, Oppenheimer, & Epley, 2013; Alter, Oppenheimer, Epley, & Eyre, 2007). The difficulty of merely reading the question caused them to slow down, giving their more analytical, reflective cognitive processes a chance to catch up with their immediate intuitive response.



The Representativeness Heuristic

We sometimes find ourselves wondering whether someone is a member of a particular category. Is he gay? Is she a Republican? In making such assessments, we automatically assess the extent to which the person in question *seems* gay or Republican. In so doing, we rely on what Kahneman and Tversky (1972) have dubbed the representativeness heuristic. Instead of focusing on the true question of interest—"Is it likely that this person is a Republican?"—we ask, "Does this person seem like a Republican?" or "Is this person similar to my prototype of a Republican?" The use of the representativeness heuristic thus reflects an implicit assumption that a member of a given category ought to resemble the category prototype (that, say, Republicans are fiscally and socially conservative and have conventional tastes in films, music, and fashion).

The representativeness heuristic can be useful in making accurate judgments about people and events. Group members often resemble the group prototype (after all, the prototype must come from somewhere). The degree of resemblance between person and group can thus be a helpful guide to group membership. The strategy is effective to the extent that our prototype of that category has some validity and the members of the category cluster around the prototype—that is, are at least similar to the prototype if not exactly the same.

But even when the prototype has some validity, the representativeness heuristic can create difficulties if we rely on it exclusively. The problem is that a strong sense of resemblance can blind us to other potentially useful sources of information. One source of useful information, known as **base-rate information**, concerns our knowledge of relative frequency of the members of a given category. How many members of the category in question are there relative to the members of all other categories? The individual in question is more likely to be a Republican if the local population includes a lot of Republicans. But a strong sense of representativeness sometimes leads us to ignore base-rate likelihood, which could (and should) be put to good use.

THE RESEMBLANCE BETWEEN MEMBERS AND CATEGORIES: BASE-RATE NEGLECT Many studies have documented this tendency to ignore or underutilize base-rate information when assessing whether someone belongs to a particular category (Ajzen, 1977; Bar-Hillel, 1980; Ginosar & Trope, 1980; Tversky & Kahneman, 1982). In one of the earliest studies, Kahneman and Tversky (1973b)

THE REPRESENTATIVENESS HEURISTIC

(A) Images like this can give people a specific sense of what a representative Republican is like. (B) But many Republicans aren't at all like the stereotype, so we can be surprised when we learn that a person who doesn't fit the stereotype is a Republican.

base-rate information

Information about the relative frequency of events or of members of different categories in a population.

asked participants to consider the following description of Tom W., supposedly written during Tom's senior year in high school by a psychologist who based his assessment on Tom's responses on personality tests. The participants were also told that Tom is now in graduate school.

Tom W. is of high intelligence, although lacking in true creativity. He has a need for order and clarity and for neat and tidy systems in which every detail finds its appropriate place. His writing is rather dull and mechanical, occasionally enlivened by somewhat corny puns and by flashes of imagination of the sci-fi type. He has a strong drive for competence. He seems to have little feel and little sympathy for other people and does not enjoy interacting with others. Self-centered, he nonetheless has a deep moral sense. (Kahneman & Tversky, 1973b, p. 238)

One group of participants ranked nine academic disciplines (including computer science, law, and social work) in terms of the likelihood that Tom chose them as his field of specialization. A second group ranked the nine disciplines in terms of how similar they thought Tom was to the typical student in each discipline. A final group did not see the description of Tom; they merely estimated the percentage of all graduate students in the United States who were enrolled in each of the nine disciplines.

How should the participants assess the likelihood that Tom would choose each discipline for graduate study? They should certainly assess how similar Tom is to the type of person who pursues each field of study—that is, they should consider how representative Tom is of the people in each discipline. But representativeness is not a perfect guide. Some of the least lawyerly people study law, and some of the least people-oriented individuals pursue social work. Therefore, any additional useful information should also be considered, such as the proportion of all graduate students in each field (or base-rate information). Clearly, Tom is more likely to be in a field that has 1,000 students on campus than one that has 10. A savvy judgment, then, would somehow combine representativeness with an assessment of the popularity of each field.

Table 4.2 lists the rankings of the nine disciplines by each of the three groups of participants—those assessing likelihood, similarity, and base rate. Notice that the rankings of the *likelihood* that Tom chose to study each of the disciplines are virtually identical to the rankings of Tom's *similarity* to the students in each discipline. In other words, the participants' responses were based entirely on how much the description of Tom resembled the typical student in each field. By basing their responses exclusively on representativeness, the participants failed to consider the other useful source of information: base-rate frequency. As you can also see from Table 4.2, the likelihood rankings didn't correspond at all to what the participants knew about the overall popularity of each of the fields. Useful information was ignored.

It's important to note, however, that although it's common to neglect base-rate information, it isn't inevitable (Bar-Hillel & Fischhoff, 1981). Certain circumstances encourage the use of base-rate information. It's particularly helpful if the base-rate information has some causal significance to the task at hand (Ajzen, 1977; Tversky & Kahneman, 1982). For example, if you were given a description of an individual's academic strengths and weaknesses and were asked to predict whether the person passed an exam, you would certainly take into account the fact that 70 percent of the students who took the exam failed (that the base rate

TABLE 4.2 THE REPRESENTATIVENESS HEURISTIC

Participants ranked nine academic disciplines in terms of the likelihood that Tom W. chose that particular field, the perceived similarity between Tom W. and the typical student in that field, or the number of graduate students enrolled in that field.

Discipline	Likelihood	Similarity	Base Rate
Business administration	3	3	3
Computer science	1	1	8
Engineering	2	2	5
Humanities and education	8	8	1
Law	6	6	6
Library science	5	4	9
Medicine	7	7	7
Physical and life sciences	4	5	4
Social science and social work	9	9	2

Source: Adapted from Kahneman & Tversky, 1973B.

of failure was 70 percent). Note that the base rate has causal significance in this case: the fact that 70 percent of the students failed means that the exam was difficult, and the difficulty of the exam is part of what *causes* a person to fail. People use the base rate in such contexts because its relevance is obvious. When the base rate is not causally relevant, as in the Tom W. experiment, its relevance is less obvious. If twice as many people major in business as in the physical sciences, it would be *more likely* that Tom W. is a business major, but it wouldn't *cause* him to be a business major. The relevance of the base rate is thus less apparent.

THE RESEMBLANCE BETWEEN CAUSE AND EFFECT The representativeness heuristic also affects people's assessments of cause and effect (Downing, Sternberg, & Ross, 1985; Gilovich & Savitsky, 2002). For example, people are predisposed to look for and accept causal relationships in which "like goes with like." Big effects are thought to have big causes, small effects to have small causes, complicated effects to have complicated causes, and so on. This assumption is often valid. Being hit with a small mallet typically produces a smaller bruise than being hit with a large mallet. Resolving the complicated mess in the Middle East will probably require complex, sustained negotiation, not some simple suggestion that has yet to be made. But sometimes small causes create big effects, and vice versa: tiny viruses give rise to devastating diseases like Ebola and AIDS; splitting the nucleus of the atom releases an awesome amount of energy.

Health and medicine are areas in which the impact of representativeness on judgments of cause and effect is particularly striking. Many people think you should avoid milk (or other dairy products) if you have a cold and give up potato chips if you have acne. Why? Because milk seems representative of phlegm, and the greasiness of potato chips seems representative of the oily skin that often accompanies acne. For centuries, Western physicians believed that yellow



BOX 4.3

Not So Fast: Critical Thinking about Representativeness and the Regression Effect

To cut back on illegal driving practices (such as speeding, running red lights, and driving in bus lanes), local authorities in the United States and many other countries have been installing more and more safety cameras at especially hazardous locations. Some people have complained that it's just a way for municipalities to increase revenue from the fines they charge for violations. But others passionately maintain that these cameras have increased road safety. One group estimated that safety cameras in the United Kingdom save over 100 lives a year and result in over 4,000 fewer collisions (PA Consulting Group, 2005).

Alas, the purported safety benefit is substantially overstated. It fails to take into account a statistical phenomenon that plagues sound judgment in all walks of life: the regression effect. The **regression effect** is the statistical tendency, when any two variables are imperfectly correlated, for extreme values of one of them to be associated with less extreme values of the other. Tall parents tend to have tall kids, but not as tall as the parents themselves. Extremely attractive people tend to marry attractive partners, but not as attractive as they are themselves. Students with the worst scores on the midterm tend to do badly on the final, but not as badly as they did initially.

What does this have to do with traffic safety? Cameras are installed where they

are most needed—in locations where there have been a large number of recent collisions. Given that the number of accidents at one time is imperfectly correlated with the number of accidents afterward, locations where there were an unusually large number of accidents are likely to have fewer accidents afterward, regardless of the presence of safety cameras. When the regression effect is taken into account, the best estimate is that safety cameras in the UK save 24 lives a year, not over 100. They work, in other words, but not as well as they seem to work.

People often fail to see the regression effect for what it is and instead conclude that they've encountered some important phenomenon (like an exaggerated effect of safety cameras). Psychologists refer to this as the **regression fallacy**. If you're a sports fan, for example, you've probably heard of the *Sports Illustrated* jinx. The idea is that appearing on the cover of *Sports Illustrated* is bad luck: it's often followed by an unfortunate outcome, such as an injury, the end of a winning streak, or a loss in a key game or match. Of course it is! People appear on the cover of *Sports Illustrated* precisely when they're at their peak, and so, on average, they will tend not to do as well in the near future. It's pure statistical regression, not a jinx.

The lesson for research should be clear. We're often most interested in helping people who are most in need, such as

those who have been depressed for a long time and finally seek treatment, individuals whose arthritis has become unbearable, or students sent to the counselor's office for classroom disruption. Because these people are at such a low point, they are likely to experience improvement, whether or not their problems are addressed. That can make it tricky to assess the effectiveness of any treatment they receive. Among other things, the regression effect reinforces the importance of conducting research with a suitable control group: it allows researchers to determine whether the improvement seen in the treatment group is greater than that in the control group.

Why do people so often overlook the regression effect and commit the regression fallacy? One explanation is that regression runs counter to the representativeness heuristic. The most representative outcome for an athlete pictured on the cover of *Sports Illustrated* is success, not failure; the most representative outcome for someone who is extremely depressed is further sadness, not an uptick in mood. Because the mind makes predictions based on representativeness, we often find results that regress toward the mean surprising, and we invent explanations to make sense of the surprise.

vegetables were good for people with jaundice (which turns the skin yellow). To be sure, people are affected by what they eat—they gain weight by eating lots of fat and sugar and develop an orange tint to the skin by consuming too much carotene.

Sometimes, however, we take this belief that "you are what you eat" to magical extremes. In one experiment, college students were asked to make inferences about the attributes of members of (hypothetical) tribes (Nemeroff & Rozin,

1989). One group read about a tribe that ate wild boar and hunted sea turtles for their shells, a second group read about a tribe that ate sea turtles and hunted wild boar for their tusks. The students' responses indicated that they assumed the characteristics of the food would "rub off" on the tribe members. Members of the turtle-eating tribe were considered better swimmers and more generous; those who ate wild boar were thought to be more aggressive and more likely to have beards.

Another area where representativeness affects causal judgments is the realm of pseudoscientific belief systems. Consider, for example, the case of astrological signs and representative personality traits. A central tenet of astrology is that an individual's personality is influenced by the astrological sign under which the person was born. And the personalities said to characterize individuals of a certain astrological sign tend to resemble the features we associate with that sign's namesake. For example, people whose astrological sign is Leo (the lion) are said to be proud; people whose astrological sign is Aries (the ram) are supposedly quick-tempered and headstrong; Capricorns (the goat) are hardworking and down-to-earth; Virgos (the virgin) are modest and retiring; and so on. The personality profiles that supposedly accompany various astrological signs have been shown time and again to have absolutely no validity (Abell, 1981; Schick & Vaughn, 1995; Zusne & Jones, 1982).

Why, then, is astrology so popular? Part of the reason is that astrology takes advantage of people's use of the representativeness heuristic. Each of the personality profiles has some superficial appeal because each draws on the intuition that like goes with like. Who is more inclined to be vacillating than a Gemini (a Twin)? Who is more likely to be fair and balanced than a Libra (the Scales)?

The Joint Operation of Availability and Representativeness

The representativeness and availability heuristics sometimes operate in tandem. For example, a judgment that two things belong together—that one is representative of the other—can make an instance in which they do occur together readily available, that is, easy to bring to mind as evidence that the two things belong together. The joint effect of these two heuristics can thus create an **illusory correlation** between two variables, or the belief that they are correlated when in fact they are not. A judgment of representativeness leads us to expect an association between the two entities, and this expectation in turn makes instances in which they are paired unusually memorable.

A classic set of experiments by Loren and Jean Chapman (1967) highlights how readily people form illusory correlations and how consequential they can be. The Chapmans were struck by a paradox observed in the practice of clinical psychology. Clinicians often claim that they find so-called projective personality tests helpful in making clinical diagnoses, but systematic research has shown most of these tests to be completely lacking in validity. Projective tests require people to respond to unstructured and ambiguous stimuli, such as the famous Rorschach inkblots, thus "projecting" their personalities onto what they see. Why would intelligent, conscientious, and well-trained clinicians believe that

regression fallacy The failure to recognize the influence of the regression effect and to offer a causal theory for what is really a simple statistical regularity.



"For what it's worth, next week all your stars and planets will be in good aspect for you to launch an invasion of England."

illusory correlation The belief that two variables are correlated when in fact they are not.



ILLUSORY CORRELATION IN CLINICAL JUDGMENT

Clinicians have been shown to "see" connections between responses to projective tests—like the Rorschach test shown here—and various pathological conditions. These illusory correlations are the product of the joint influence of availability and representativeness.

such tests can diagnose mental or emotional problems when they cannot? Why, in other words, do some clinicians perceive an illusory correlation between their clients' conditions and their clients' responses on such tests?

To find out, the Chapmans first asked numerous clinicians about which of their clients' specific test responses tended to indicate the presence of which specific pathological conditions. Much of their work focused on the Draw-a-Person Test, in which the client draws a picture of a person and the therapist interprets the picture for signs of various psychopathologies. The clinicians reported that they observed many connections between particular drawings and specific conditions—drawings and pathologies that seem, intuitively, to belong together. People suffering from paranoia, for example, were thought to be inclined to draw unusually large or small eyes. People excessively insecure about their intelligence were thought to be likely to draw a large (or small) head.

To investigate these illusory correlations further, the Chapmans gathered a sample of 45 Draw-a-Person pictures: 35 drawn by psychotic patients in a nearby hospital and 10 drawn by graduate students in clinical psychology. They then attached a phony statement to each picture that supposedly described the condition of the person who drew it. Some came with the description "is suspicious of other people," others with the description "has had problems of sexual impotence," and so on. The researchers were careful to avoid any correlation between the nature of the drawings and the condition attached to each one. For example, "is suspicious of other people" appeared just as often on pictures with average eyes as on pictures with large or small eyes.

These pictures (with accompanying pathologies) were then shown to college students who had never heard of the Draw-a-Person Test. Although the study was carefully designed so there was no connection between the pictures and specific conditions, the students nonetheless "saw" the same relationships reported earlier by the clinical psychologists. To the students, too, it seemed that prominent eyes were likely to have been drawn by individuals who were suspicious of others. This finding suggests, of course, that the clinical psychologists were not detecting any real correlations between pathological conditions and responses on the Draw-a-Person Test. Instead, they were "detecting" the same nonexistent associations that the undergraduate students were seeing—illusory correlations produced by the availability and representativeness heuristics working together. Certain pictures seem representative of specific pathologies (for example, prominent eyes and being suspicious of other people), and therefore instances in which the two are observed together (a suspicious individual drawing a person with large eyes) are particularly noteworthy and memorable.

In a final study, the Chapmans asked another group of students to indicate the extent to which various conditions (suspiciousness, impotence, dependence) "called to mind" different parts of the body (eyes, sexual organs, mouth). Tellingly, their responses matched the correlations reported by the earlier groups of clinicians and students. In addition to highlighting the joint influence of availability and representativeness, these findings exemplify a much broader point about human judgment: when associations or propositions seem plausible, people often believe them, regardless of the evidence.

← LOOKING BACK

Two mental systems guide our judgments and decisions: one akin to intuition and the other akin to reason. The intuitive system operates quickly and automatically, while the rational system tends to be more deliberate and controlled. These systems can lead to the same judgments or to opposite judgments—or the intuitive system may produce a satisfying judgment so quickly that the rational system is never engaged. The quick assessments made by the intuitive system are often based on heuristics, which can sometimes bias judgment. The availability heuristic may lead to biased assessments of risk and biased estimates of people's contributions to joint projects. The representativeness heuristic may result in neglecting base-rate information and lead to mistaken assessments of cause and effect. When these two heuristics operate together, they can lead to an illusory correlation between two variables.

Chapter Review

SUMMARY

Studying Social Cognition

- By studying errors in judgment, psychologists can understand how people make judgments and learn what can be done to avoid mistakes.

The Information Available for Social Cognition

- Sometimes people make judgments on the basis of very little information, such as making personality judgments based on physical appearance.
- Mistaken inferences can arise from *pluralistic ignorance*, which tends to occur when people are reluctant to express their misgivings about a perceived group norm; their reluctance in turn reinforces the false norm.
- People's judgments can seem to them more accurate than they really are because of the *self-fulfilling prophecy*. More specifically, people can draw mistaken inferences about others that seem valid because they act in ways that elicit the very behavior they were expecting—behavior that wouldn't have happened otherwise.
- Information received secondhand often does not provide a full account of what happened, instead stressing certain elements at the expense of others.
- Negative information is more likely to be reported than positive information, which can lead people to believe they are more at risk of various calamities than they actually are.

How Information Is Presented

- The way information is presented, such as the order of presentation, can affect judgment. A *primacy effect*

arises when the information presented first is more influential because it affects the interpretation of subsequent information. A *recency effect* arises when information presented last is more influential, often because it is more available in memory.

- Order effects are a type of *framing effect*. Other framing effects involve a change of the language or structure of the information presented to create a desired effect.
- The temporal framing of an event can also influence how it is interpreted. Far-off events are construed in more abstract terms, whereas imminent events are construed more concretely.

How We Seek Information

- People tend to examine whether certain propositions are true by searching for information consistent with the proposition in question. This *confirmation bias* can lead people to believe things that aren't true because evidence can generally be found to support even the most questionable propositions.
- People are sometimes motivated to find evidence supporting a preexisting conclusion and so they do so disproportionately, coming to the conclusion that their preferred conclusion is more valid than it really is.

Top-Down Processing: Using Schemas to Understand New Information

- Schemas influence the interpretation of information. They are important *top-down* tools for understanding the world, as opposed to the *bottom-up* processing of information from the world.
- Schemas guide attention, memory, and the construal of information, and they can directly prompt behavior.
- Being exposed to certain stimuli (such as a plastic shovel) often has the effect of *priming* the concepts with which they're associated (the beach), making those concepts momentarily more accessible.
- In general, the more recently and the more frequently a schema has been activated, the more likely it is to be applied to new information. Conscious awareness of a schema is not required for it to have an influence.

Reason, Intuition, and Heuristics

- People have two systems for processing information: an intuitive system and a rational system. Intuitive responses are based on rapid, associative processes, whereas rational responses are based on slower, rule-based reasoning.
- *Heuristics* are mental shortcuts that provide people with sound judgments most of the time, although they sometimes lead to errors in judgment.

- People use the *availability heuristic* when judging the frequency or probability of some event by how readily relevant instances come to mind. It can cause people to overestimate their own contributions to group projects, and it can lead to faulty assessment of the risks posed by memorable hazards.
- The sense of *fluency* people experience when processing information can influence the judgments they make about it. Disfluent stimuli lead to more reflective thought.
- People use the *representativeness heuristic* when trying to categorize something by judging how similar it is to

- their conception of the typical member of a category or when trying to make causal attributions by assessing how similar an effect is to a possible cause. Sometimes this leads people to overlook highly relevant considerations, such as *base-rate information*—how many members of the category there are in a population.
- Operating together, availability and representativeness can produce potent *illusory correlations*, which result from thinking that two variables are correlated, both because they resemble each other and because the simultaneous occurrence of two similar events stands out more than that of two dissimilar events.

THINK ABOUT IT

1. How valid are snap judgments? Do brief exposures to a person's physical appearance or "thin slices" of the individual's behavior provide meaningful information about what that person is really like? What are possible consequences of snap judgments?
2. What role might pluralistic ignorance play in the problem of binge drinking on college campuses? What could school administrators do to reduce pluralistic ignorance in this context?
3. How does the desire to entertain tend to bias the kinds of stories that are reported most frequently in the media? What effects might this bias have on people's beliefs about the world?
4. If you were developing an advertising campaign for a fitness class, what kinds of framing strategies might you use to increase the chances of people signing up for the class? In particular, consider spin framing, positive and negative framing, and temporal framing.
5. Suppose you're about to go on a blind date when a mutual friend warns you that your date can be a little cold and unfriendly. According to research on the confirmation bias, how might this information influence the impression you ultimately form about your date?
6. Research on priming suggests that it is possible for a stimulus to activate a schema even if a person is not consciously aware of the stimulus. Can you think of ways that you might be able to use priming to influence others' behavior?
7. Imagine you're working on a group project with three other students and you are all asked to indicate your individual contribution to the project, relative to the other group members' contributions, in the form of a percentage. If you were to sum the individual percentages reported by each group member, would you expect it to add up to roughly 100 percent? Why or why not?

The answer guidelines for the think about it questions can be found at the back of the book . . . 

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