Thinking Critically About Moral Issues

Justify moral judgments

Make morality a priority

Promote happiness

Discover the "Natural Law"

The Thinker's Guide to Moral Decision-Making

Your moral compass

Consider the ethic of justice

Consider the ethic of care

Choose to be a moral person

Develop an informed intuition

Accept responsibility
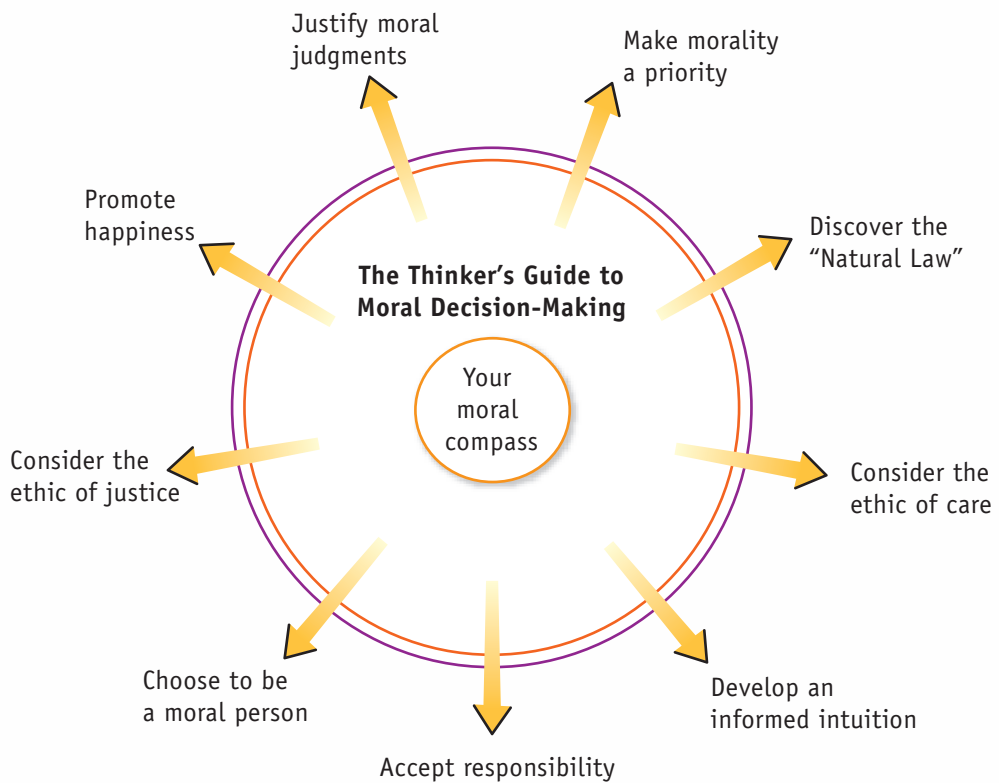
The abilities that you develop as a critical thinker are designed to help you think your way through all of life's situations. One of the most challenging and complex of life's areas is the realm of moral issues and decisions. Every day of your life you make moral choices, decisions that reflect your own internal moral compass. Often we are not aware of the deeper moral values that drive our choices, and we may even be oblivious to the fact that the choices we are making have a moral component. For example, consider the following situations:

- You consider purchasing a research paper from an online service, and you plan to customize and submit the paper as your own.
- As part of a mandatory biology course you are taking, you are required to dissect a fetal pig, something which you find morally offensive.
- A friend of yours has clearly had too much to drink at a party, yet he's insisting that he feels sober enough to drive home.
- The romantic partner of a friend of yours begins flirting with you.
- You find yourself in the middle of a conversation with people you admire in which mean-spirited things are being said about a friend of yours.
- Although you had plans to go away for the weekend, a friend of yours is extremely depressed and you're concerned about leaving her alone.
- A good friend asks you to provide some "hints" about an upcoming exam that you have already taken.
- You and several others were involved in a major mistake at work, and your supervisor asks you to name the people responsible.
- A homeless woman asks you for a donation, but you're not convinced that she will use your money constructively.
- Although you have a lot of studying to do, you had promised to participate in a charity walk-a-thon.

These and countless other situations like them are an integral part of the choices that we face each day as we shape our lives and create ourselves. In each case, the choices involved share the following characteristics:

- The choices involve your treatment of other people (or animals).
- There may not be one obvious "right" or "wrong" answer, and the dilemma can be discussed and debated.
- There are likely to be both positive and/or negative consequences to yourself or others, depending on the choices that you make.
- Your choices are likely to be guided by values to which you are committed and that reflect a moral reasoning process that leads to your decisions.
- The choices involve the concept of moral responsibility.

Critical thinking plays a uniquely central role in helping us to develop enlightened values, use informed moral reasoning, and make well-supported ethical

conclusions. Most areas of human study are devoted to describing the world and how people behave, the way things *are*. Ethics and morality are concerned with helping people evaluate how the world *ought* to be and what courses of action people *should* take; to do this well, we need to fully apply our critical-thinking abilities. Thinking critically about moral issues will provide you with the opportunity to refine and enrich your own moral compass, so that you will be better equipped to successfully deal with the moral dilemmas that we all encounter in the course of living. As the Greek philosopher Aristotle observed:

> The ultimate purpose in studying ethics is not as it is in other inquiries, the attainment of theoretical knowledge; we are not conducting this inquiry in order to know what virtue is, but in order to become good, else there would be no advantage in studying it.

This was precisely how Socrates envisioned his central mission in life, to remind people of the moral imperative to attend to their souls and create upstanding character and enlightened values within themselves:

> For I do nothing but go about persuading you all, old and young alike, not to take thought for your persons or your properties, but first and chiefly to care about the greatest improvement of your soul. I tell you that virtue is not given by money, but that from virtue comes money and every other good of man, public as well as private. This is my teaching.

What Is Ethics?

Ethics and *morals* are terms that refer to the principles that govern our relationships with other people: the ways we *ought* to behave, the rules and standards that we *should* employ in the choices we make. The ethical and moral concepts that we use to evaluate these behaviors include right and wrong, good and bad, just and unjust, fair and unfair, responsible and irresponsible.

The study of **ethics** is derived from the ancient Greek word *ethos*, which refers to moral purpose or character—as in "a person of upstanding character." *Ethos* is also associated with the idea of "cultural customs or habits." In addition, the etymology of the word **moral** can be traced back to the Latin word *moralis*, which also means "custom." Thus, the origins of these key concepts reflect both the private and the public nature of the moral life: we strive to become morally enlightened people, but we do so within the social context of cultural customs.

ethical, moral of or concerned with the judgment of the goodness or badness of human action and character

Ethical and *moral* are essentially equivalent terms that can be used interchangeably, though there may be shadings in meaning that influence which term is used. For example, we generally speak about medical or business "ethics" rather than

"morality," though there is not a significant difference in meaning. *Value* is the general term we use to characterize anything that possesses intrinsic worth, that we prize, esteem, and regard highly, based on clearly defined standards. Thus, you may value your devoted pet, your favorite jacket, and a cherished friendship, each based on different *standards* that establish and define their worth to you. One of the most important value domains includes your *moral values*, those personal qualities and rules of conduct that distinguish a person (and group of people) of upstanding character. Moral values are reflected in such questions as

- Who is a "good person" and what is a "good action"?
- What can we do to promote the happiness and well-being of others?
- What moral obligations do we have toward other people?
- When should we be held morally responsible?
- How do we determine which choice in a moral situation is right or wrong, just or unjust?

Although thinking critically about moral values certainly involves the moral customs and practices of various cultures, its true mandate goes beyond simple description to analyzing and evaluating the justification and logic of these moral beliefs. Are there universal values or principles that apply to all individuals in all cultures? If so, on what basis are these values or principles grounded? Are some ethical customs and practices more enlightened than others? If so, what are the reasons or principles upon which we can make these evaluations? Is there a "good life" to which all humans should aspire? If so, what are the elements of such a life, and on what foundation is such an ideal established? These are questions that we will be considering in this chapter, but they are questions of such complexity that you will likely be engaged in thinking about them throughout your life.

Who is a moral person? In the same way that you were able to define the key qualities of a critical thinker, you can describe the essential qualities of a moral person.

Thinking Activity 9.1

WHO IS A MORAL PERSON?

Think of someone you know whom you consider to be a person of outstanding moral character. This person doesn't have to be perfect—he or she doubtless has flaws. Nevertheless, this is a person you admire, someone you would like to emulate. After fixing this person in your mind, write down this person's qualities that, in your mind, qualify him or her as a morally upright individual. For each quality, try to think of an example of when the person displayed it. For example:

Moral Courage: Edward is a person I know who possesses great moral courage. He is always willing to do what he believes to be the right thing, even if his point of view is unpopular with the other people involved. Although he may endure

criticism for taking a principled stand, he never compromises and instead calmly explains his point of view with compelling reasons and penetrating questions.

If you have an opportunity, ask some people you know to describe their idea of a moral person, and compare their responses to your own.

For millennia, philosophers and religious thinkers have endeavored to develop ethical systems to guide our conduct. But most people in our culture today have not been exposed to these teachings in depth. They have not challenged themselves to think deeply about ethical concepts, nor have they been guided to develop coherent, well-grounded ethical systems of their own. In many cases people attempt to navigate their passage through the turbulent and treacherous waters of contemporary life without an accurate moral compass, relying instead on a tangled mélange of childhood teachings, popular wisdom, and unreliable intuitions. These homegrown and unreflective ethical systems are simply not up to the task of sorting out the moral complexities in our bewildering and fast-paced world; thus, they end up contributing to the moral crisis described in the following passage by the writer M. Scott Peck:

> A century ago, the greatest dangers we faced arose from agents outside ourselves: microbes, flood and famine, wolves in the forest at night. Today the greatest dangers—war, pollution, starvation—have their source in our own motives and sentiments: greed and hostility, carelessness and arrogance, narcissism and nationalism. The study of values might once have been a matter of primarily individual concern and deliberation as to how best to lead the "good life." Today it is a matter of collective human survival. If we identify the study of values as a branch of philosophy, then the time has arrived for all women and men to become philosophers—or else.

How does one become a "philosopher of values"? By thinking deeply and clearly about these profound moral issues, studying the efforts of great thinkers through the ages who have wrestled with these timeless questions, discussing these concepts with others in a disciplined and open-minded way, and constructing a coherent ethical approach that is grounded on the bedrock of sound reasons and commitment to the truth. In other words, you become a philosopher by expanding your role as a critical thinker and extending your sophisticated thinking abilities to the domain of moral experience. This may be your most important personal quest. As Socrates emphasized, your values constitute the core of who you are. If you are to live a life of purpose, it is essential that you develop an enlightened code of ethics to guide you.

Thinking Activity 9.2

WHAT ARE MY MORAL VALUES?

You have many values—the guiding principles that you consider to be most important—that you have acquired over the course of your life. Your values deal with every aspect of your experience. The following questions are designed to elicit

some of your values. Think carefully about each of the questions, and record your responses along with the reasons you have adopted that value. In addition, describe several of your moral values that are not addressed in these questions. A sample student response is included below.

- Do we have a moral responsibility toward less fortunate people?
- Is it wrong to divulge a secret that someone has confided in you?
- Should we eat meat? Should we wear animal skins?
- Should we try to keep people alive at all costs, no matter what their physical or mental condition?
- Is it wrong to kill someone in self-defense?
- Should people be given equal opportunities, regardless of race, religion, or gender?
- Is it wrong to ridicule someone, even if you believe it's in good fun?
- Should you "bend the rules" to advance your career?
- Is it all right to manipulate people into doing what you want if you believe it's for their own good?
- Is there anything wrong with pornography?
- Should we always try to take other people's needs into consideration when we act, or should we first make sure that our own needs are taken care of?
- Should we experiment with animals to improve the quality of our lives?

I do believe that we have a moral obligation to those less fortunate than us. Why can a homeless person evoke feelings of compassion in one person and complete disgust in another? Over time, observation, experience, and intuition have formed the cornerstones of my beliefs, morally and intellectually. As a result, compassion and respect for others are moral values that have come to characterize my responses in my dealings with others. As a volunteer in an international relief program in Dehra Dun, India, I was assigned to various hospitals and clinics through different regions of the country. In Delhi, I and the other volunteers were overwhelmed by the immense poverty—thousands of people, poor and deformed, lined the streets—homeless, hungry, and desperate. We learned that over 300 million people in India live in poverty. Compassion, as Buddhists describe it, is the spontaneous reaction of an open heart. Compassion for all sentient beings, acknowledging the suffering and difficulties in the world around us, connects us not only with others but with ourselves.

After you have completed this activity, examine your responses as a whole. Do they express a general, coherent, well-supported value system, or do they seem more like an unrelated collection of beliefs of varying degrees of clarity? This activity is a valuable investment of your time because you are creating a record of beliefs that you can return to and refine as you deepen your understanding of moral values.

Your Moral Compass

The purpose of the informal self-evaluation in Thinking Activity 9.2 is to illuminate your current moral code and initiate the process of critical reflection. Which of your moral values are clearly articulated and well grounded? Which are ill defined and tenuously rooted? Do your values form a coherent whole, consistent with one another, or do you detect fragmentation and inconsistency? Obviously, constructing a well-reasoned and clearly defined moral code is a challenging journey. But if we make a committed effort to think critically about the central moral questions, we can make significant progress toward this goal.

Your responses to the questions in Thinking Activity 9.2 reveal your current values. Where did these values come from? Parents, teachers, religious leaders, and other authority figures have sought to inculcate values in your thinking, but friends, acquaintances, and colleagues do as well. And in many cases they have undoubtedly been successful. Although much of your values education was likely the result of thoughtful teaching and serious discussions, in many other instances people may
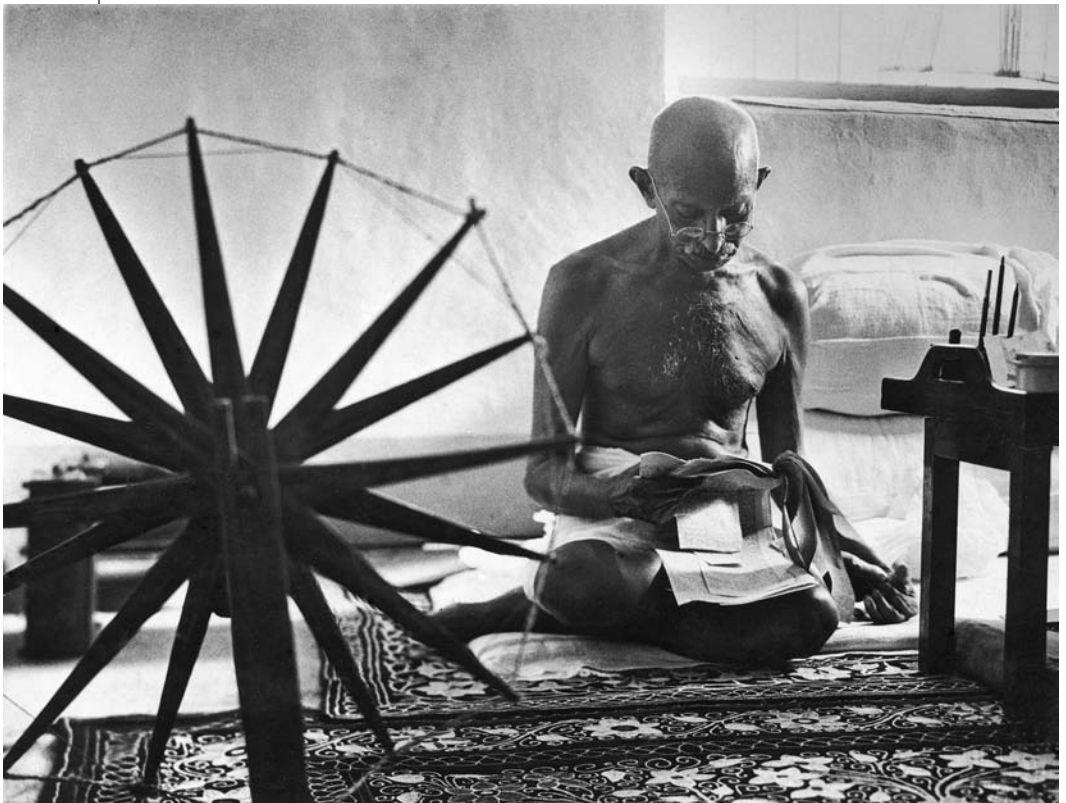
have bullied, bribed, threatened, and manipulated you into accepting their way of thinking. It's no wonder that our value systems typically evolve into a confusing patchwork of conflicting beliefs.

In examining your values, you probably also discovered that, although you had a great deal of confidence in some of them ("I feel very strongly that animals should never be experimented on in ways that cause them pain because they are sentient creatures just like ourselves"), you felt less secure about other values ("I feel it's usually wrong to manipulate people, although I often try to influence their attitudes and behavior—I'm not sure of the difference"). These differences in confidence are likely related to how carefully you have examined and analyzed your values. For example, you may have been brought up in a family or religion with firmly fixed values that you have adopted but never really scrutinized or evaluated, wearing these values like a borrowed overcoat. When questioned, you might be at a loss to explain exactly why you believe what you do, other than to say, "This is what I was taught." In contrast, you may have other values that you consciously developed, the product of thoughtful reflection and the crucible of experience. For example, doing volunteer work with a disadvantaged group of people may have led to the conviction that "I believe we have a profound obligation to contribute to the welfare of people less fortunate than ourselves."

In short, most people's values are not systems at all: they are typically a collection of general principles ("Do unto others . . ."), practical conclusions ("Stealing is wrong because you might get caught"), and emotional pronouncements ("Euthanasia is wrong because it seems heartless"). This hodgepodge of values may reflect the serendipitous way they were acquired over the course of your life, and these values likely comprise the current moral compass that you use to guide your decisions in moral situations, even though you may not be consciously aware of it. Your challenge is to create a more refined and accurate compass, an enlightened system of values that you can use to confidently guide your moral decisions.

One research study that analyzed the moral compasses that young people use to guide their decision-making in moral situations asked interviewees, "If you were unsure of what was right or wrong in a particular situation, how would you decide what to do?" (Think about how *you* would respond to this question.) According to the researcher, here's how the students responded:

- I would do what is best for everyone involved: 23 percent.
- I would follow the advice of an authority, such as a parent or teacher: 20 percent.
- I would do whatever made me happy: 18 percent.
- I would do what God or the Scriptures say is right: 16 percent.
- I would do whatever would improve my own situation: 10 percent.
- I do not know what I would do: 9 percent.
- I would follow my conscience: 3 percent.

Each of these guiding principles represents a different moral theory that describes the way people reason and make decisions about moral issues. However, moral values not only describe the way people behave; they also suggest that this is the way people ought to behave. For example, if I say, "Abusing children is morally wrong," I am not simply describing what *I* believe; I am also suggesting that abusing children is morally wrong for *everyone*. Let's briefly examine the moral theories represented by each of the responses just listed.

I Would Follow My Conscience

We could describe this as a psychological theory of morality because it holds that we should determine right and wrong based on our psychological moral sense. Our conscience is that part of our mind formed by internalizing the moral values we were raised with, generally from our parents but from other authority figures and peers as well. If that moral upbringing has been intelligent, empathic, and fair-minded, then our conscience can serve as a fairly sound moral compass to determine right and wrong. The problem with following our conscience occurs when the moral values we have internalized are *not* intelligent, empathic, or fair-minded. For example, if we were raised in an environment that encouraged racist beliefs or condoned child abuse, then our conscience might tell us that these are morally acceptable behaviors.

I Do Not Know What I Would Do

This statement expresses a morally agnostic theory of morality that holds there is no way to determine clearly what is right or wrong in moral situations. This view is a form of relativism because it suggests that there is no universal common standard to determine how we ought to behave toward each other. Although we are often confused about the right course of action in complex moral situations, the moral agnostic theory is problematic because it does not permit us to evaluate the conduct of others. For example, if someone robs you and beats you up, you have no basis on which to say, "That was a morally wrong thing for that person to do." Instead, you have to tolerate such conduct because there is no ultimate right or wrong.

## I Would Do Whatever Would Improve My Own Situation

We could describe this viewpoint as a pragmatic theory of morality because the right action is based on what works well for advancing the speaker's interests, while the wrong action is determined by what works against the speaker's interests. For example, if you are trying to decide whether you should volunteer at a local drug treatment center, you might conclude that this is the right thing to do because it will help you in your training as a psychologist and will look good on your résumé. The problem with this sort of moral reasoning is that you could also use it to justify cheating on an upcoming exam (if you were assured of not getting caught!) or hurting someone's reputation so that you could get ahead. At its heart, the pragmatic theory of morality can be used to justify any actions that serve the individual interests of anyone, from Mother Teresa to Adolf Hitler!

I Would Do What God or the Scriptures Say Is Right

This statement expresses a theist theory of morality that holds that right and wrong are determined by a supernatural supreme being ("God"). We determine what this supreme being wants us to do through divinely inspired writings (the Scriptures or holy books) or through divinely inspired messengers (priests, ministers, prophets, the pope). As an absolutist moral theory, this view holds that there are absolute moral principles that all humans should follow, and these principles are determined by the supreme being that created them. The strength of this moral theory lies in the fact that many religions embody values that are intelligent, empathic, and fair-minded, and the devotion of these religions' followers encourages them to act in these morally upright ways. The potential problem with this moral perspective is that all religions don't agree regarding moral values, and so we are left to determine which religion is the right one on which to base our moral views. In addition, there have been many historical instances in which religion has been used to justify actions that, by any standard, are cruel and inhuman, including torture, murder, and human sacrifice. There is
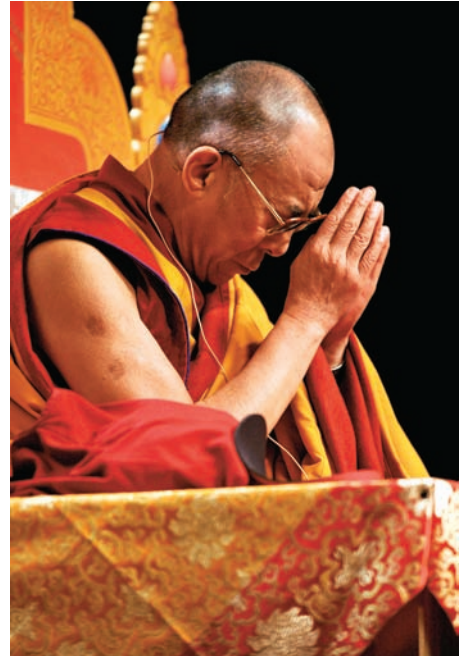
always a danger when we surrender our critical-thinking faculties completely to another authority, as is shown by the actions of those who join cults.

I Would Do Whatever Made Me Happy

This statement reflects a slightly more refined version of the hedonist moral theory, which advises people to do whatever brings them pleasure. Although this is certainly an understandable goal in life—almost everybody wants to be happy—there are significant problems when we apply this way of thinking to the moral realm and our relationships with other people. For example, suppose you are contemplating an action that will make you very happy—stealing a new BMW convertible, for example—but will make someone else very unhappy, namely, the owner of the car. According to this moral theory, the right thing to do might be to steal the car, assuming that you didn't experience feelings of guilt or risk getting caught, feelings that would interfere with your happiness. In other words, the trouble with doing whatever makes you happy is the same difficulty we saw with doing whatever improves your situation. Neither moral theory takes into account the interests or rights of other people; thus, when your interests conflict with someone else's, your interests always prevail. If everyone thought this way, then our world would be an even more dangerous and unpleasant place to live!

I Would Follow the Advice of an Authority, Such as a Parent or Teacher

This authoritarian moral theory is analogous to the theist moral theory ("I would do what God or the Scriptures say is right") in the sense that according to both theories, there are clear values of right and wrong and we should ask authorities to find out what these are. The difference is, of course, that in the theist view, this authority is a supreme being, while the authoritarian view holds that the authority is human. The same difficulties we saw with the theist view carry over to the authoritarian perspective because, although the values of parents and teachers often reflect wisdom and insight, many times they do not. How can we tell the difference between the appropriate and inappropriate values of these authorities? And what do we do when these authorities disagree with each other, as they often do? If we have deferred our critical judgment to the authorities, then we are at their mercy. But if we are prepared to evaluate critically the values of authorities, accepting what makes sense and discarding what doesn't, then we need another source for our moral values.

I Would Do What Is Best for Everyone Involved

This response expresses an altruistic moral theory, a view in which the interests of other people are held to be as important as our own when we are trying to decide what to do. For example, if you are trapped with other students in a burning theater, the morally right course of action is to work for everyone's safe escape, not simply for your own. This moral perspective is an important part of many of the prominent world religions, and it is embodied in the Golden Rule: "Do unto others as you would have them do unto you." In other words, deciding on the morally right thing to do requires that we mentally and emotionally place ourselves in the positions of other people who might be affected by our action and then make our decision based on what will be best for their interests as well as for our own. By adopting this moral view, we eliminate many of the difficulties of other moral theories. For example, we will be reluctant to act in ways that harm other people because if we were in their position, we wouldn't want to be harmed that way ourselves. However, it is often difficult to determine what's best for everyone involved. Even more problematic is the question, What action should we take when the best interests of people conflict with one another? This is a very common moral dilemma.

Thinking Activity 9.3

ANALYZING MORAL DILEMMAS

The following dilemmas ask you to respond with decisions based on moral reasoning. After thinking carefully about each situation, do the following:

- Describe the decision that you would make in this situation and explain why.
- Identify the moral value(s) or principle(s) on which you based your decision.

- At the conclusion of the activity, compare the moral values that you used. Did you find that you consistently used the same values to make decisions, or did you use different values? If you used different ones, how did the various values relate to one another?
- Based on this analysis, describe your general conclusions about your own moral compass.

1. *The Lifeboat:* You are the captain, and your ship struck an iceberg and sank. There are thirty survivors, but they are crowded into a lifeboat designed to hold just seven. With the weather stormy and getting worse, it is obvious that many of the passengers will have to be thrown out of the lifeboat, or it will sink and everyone will drown. Will you have people thrown over the side? If so, on what basis will you decide who will go? Age? Health? Strength? Gender? Size?

2. *The Whistle-Blower:* You are employed by a large corporation that manufactures baby formula. You suspect that a flaw in the manufacturing process has resulted in contamination of the formula in a small number of cases. This contamination can result in serious illness, even death. You have been told by your supervisor that everything is under control and warned that if you blow the whistle by going public, you will be putting the entire company in jeopardy from multimillion-dollar lawsuits. You will naturally be fired and blackballed in the industry. As the sole provider in your household, your family depends on you. What do you do?

3. *The Mad Bomber:* You are a police lieutenant heading an investigation of a series of bombings that have resulted in extensive damage, injuries, and deaths. Your big break comes when you capture the person who you are certain is the so-called mad bomber. However, he tells you that he has placed a number of devices in public locations and that they will explode, at the cost of many innocent lives and injuries. You believe that your only chance of extracting the locations of these bombs is to torture this person until he tells. If you decide to do this, both your career and the legal case against the mad bomber will be placed in jeopardy. What do you do?

4. *The Patient:* As a clinical psychologist, you are committed to protecting the privacy of your patients. One afternoon, a patient tells you that her husband, who has been abusing her physically and mentally for years, has threatened to kill her, and she believes he will. You try to convince her to leave him, but she tells you that she has decided to kill *him.* She is certain that he would find her wherever she went, and she feels that she will be safe only when he is dead. What do you do?

5. *The Friend:* As the director of your department, you are in charge of filling an important vacancy. Many people have applied, including your best friend, who has been out of work for over a year and needs a job desperately. Although your friend would likely perform satisfactorily, there are several more experienced and talented candidates who would undoubtedly perform better. You

have always prided yourself on hiring the best people, and you have earned a reputation as someone with high standards who will not compromise your striving for excellence. Whom do you hire?

As you think your way through the moral dilemmas in Thinking Activity 9.3, you will probably find yourself appealing to the basic moral principles that you typically use to guide your actions. Of course, what makes these examples moral dilemmas is the fact that they involve a conflict of traditional moral principles.

1. The Lifeboat involves a conflict between these moral beliefs:
    - It is wrong to take any innocent life.
    - It is right to save *some* lives rather than threaten *all* the lives on board.
2. The Whistle-Blower involves a conflict between these moral beliefs:
    - It is wrong to knowingly jeopardize the health of children.
    - It is right to protect the welfare of your family and your career.
3. The Mad Bomber involves a conflict between these moral beliefs:
    - It is wrong to harm a human being.
    - It is right to save the lives of many innocent people.
4. The Patient involves a conflict between these moral beliefs:
    - It is wrong to violate the confidentiality of a professional relationship.
    - It is right to prevent someone from committing murder.
5. The Friend involves a conflict between these moral beliefs:
    - It is wrong to hire someone who is not the best-qualified candidate for the job.
    - It is right to try to help and support your friend.

A moral dilemma is a situation in which at least two different moral principles to which you are appealing seem ethically sound and appropriate; the problem is that they contradict each other. What should you do when this happens? How do you decide which principle is more right? There is no simple answer to this question, just as there is no easy answer to the question, What do you do when experts disagree? In both cases, you need to think critically to arrive at intelligent and informed conclusions.

Moral dilemmas can provoke intense angst and vigorous debate. For example, you might be faced with the decision of which employees to fire to keep your company afloat. Employees working for companies that manufacture baby formula, contraceptives such as the Dalkon Shield, and tobacco products have often found themselves in a moral dilemma: Do they risk their own job and those of their coworkers by alerting the public to the dangers of a product? You yourself may have been in a job situation in which telling the truth or objecting to an unethical practice would have jeopardized your position or opportunity for advancement. Many therapists, clergy members, lawyers, and doctors wrestle daily with issues of

confidentiality. We all have to decide when it is morally appropriate to break our promises to avoid a greater evil or achieve a greater good. There are countless instances in which we are forced to balance our feelings of personal obligation with our objective or professional analysis.

In addition to these kinds of ethical situations, you will undoubtedly confront other types of moral dilemmas that are at least as problematic. It is possible that at some point in your life you will have to make a right-to-die decision regarding a loved one nearing the end of life. You might also find yourself in a situation in which you are torn between ending a difficult marriage or remaining as a full-time parent of young children. Or you might be tempted to take advantage of an investment opportunity that, while not illegal, is clearly unethical. Dealing with complicated, ambiguous moral challenges is an inescapable part of the human condition. Because these situations can't be avoided, you need to develop the insight and conceptual tools to deal with them effectively.

The Thinker's Guide to Moral Decision-Making

After wrestling with the moral dilemmas presented in the previous section, you might be wondering exactly how people develop a clear sense of right and wrong to guide them through complex moral situations. The answer is found by applying to moral issues the same critical-thinking abilities we have been developing in the activities presented throughout this book to create "The Thinker's Guide to Moral Decision-Making." Consider the following guide a moral blueprint for constructing your own personal moral code. Using the concepts and principles provided by this guide, you can create a moral philosophy to analyze successfully almost any moral situation and to make informed decisions that you can justify with confidence.

Make Morality a Priority

To live a life that achieves your moral potential, you must work to become aware of the moral issues that you face and strive to make choices that are grounded in thoughtful reflection and supported by persuasive reasoning. By living a morally enlightened life, you are defining yourself as a person of substance, a person with a vision that informs the quality of your relationships with others.

STRATEGY: During the next week, identify the moral issues that you encounter in your daily life and that involve other people—choices related to right and wrong, good and evil, matters just and unjust. Select several of these moral choices, and think about the approach that you used in making each decision: What was the issue? What choices could you have made? Why did you make the choice that you did? If you had it to do over again, would you make the same choice? Why or why not?

Visual Thinking

"What Homeless Person?"
How is the couple in this photo behaving in relation to the homeless person on the sidewalk? Why? What kinds of moral judgments do people make about homeless people? Do you think these judgments are justified? Why or why not?

Recognize That a Critical-Thinking Approach to Ethics Is Based on Reason

Some ethical viewpoints are "better"—more enlightened—than other viewpoints, based on the supporting reasons and evidence. The logic of ethical statements demands that they be supported by reasons. Ethical viewpoints are not a matter of taste, like your preferred hairstyle or your favorite kind of pizza. Unlike moral judgments, it *does* make sense to say, "I like pepperoni pizza, but I can't give you a reason why. I just like it!" But it would *not* make sense for someone to say,

"Your taste in pizza is wrong." Ethical judgments are very different from expressions of taste. They are independent of personal preferences and are evaluated in the public arena. When someone says, "I think that child abuse is immoral," they are not expressing a personal preference that applies only to them. They are making a pronouncement that they believe applies to everyone: child abuse is immoral for all people. And they should be prepared to justify their conclusion with a rationale that others can discuss and evaluate. Unlike matters of taste, it *does* make sense to disagree with someone's ethical judgment: "I don't agree that legalized gambling is immoral because. . . ." Ethical statements are usually intended to be universally true.

As a result, ethical views are primarily statements of reason, *not* expressions of emotion. When you express your moral disapproval toward child abuse, you are communicating what you think about this issue based presumably on a thoughtful analysis. If someone asks, "Why do you think this?" you should be able to provide persuasive reasons that support your conclusion. Of course, there may be strong feelings that accompany your moral belief about child abuse, but you are primarily making a statement based on reason. When you express feelings, you may be accurately describing your emotional state ("I *feel* angry when I hear stories about child abuse"), but you are not expressing a moral point of view that you believe applies to everyone.

> STRATEGY: Whenever you express your moral judgments, develop
> the habit of explaining why you believe that this is a moral perspective
> that others should support. Similarly, when others offer their moral
> judgments—as many people are eager to do—be sure to ask them
> *why* they believe what they do (even if you agree with their
> conclusion).

Include the Ethic of Justice in Your Moral Compass

We are all different from one another, and unless these differences pose some threat to other people, our individuality should be respected. A critical-thinking approach to ethics is founded on the principle of impartiality: it is our moral obligation to treat everyone equally, with the same degree of consideration and respect, unless there is some persuasive reason not to. This is the basic principle of the ethic of justice. For example, differences among people based on race, religion, gender, or sexual orientation pose no threat to society, and so the people involved deserve to be treated with the same respect everyone is entitled to. However, if a person threatens the rights of others—assaulting, stealing, raping, killing—then that person is not entitled to be treated like everyone else. He or she needs to be segregated from the rest of society and possibly rehabilitated.

The ethic of justice emphasizes the intentions or motivations behind an action, not the consequences. It expresses the conviction that you experience when, confronted by a moral decision, you respond, "I have to do my duty. It's the principle of the thing. Regardless of the consequences, it's important for me to do what's right." This emphasis on moral duty through reason was perhaps best articulated by the German philosopher Immanuel Kant: through reasoning, we can analyze moral situations, evaluate possible choices, and then choose the one we believe is best. Kant based his approach to ethics on a universal rational principle (the "Categorical Imperative") that every virtuous person should obey: "Act only according to that maxim by which you can at the same time will that it should become a universal law." Should you spread unflattering gossip about an unpopular coworker, even if you think the person deserves it? Applying this principle, you should do it only if you believe that all people in all situations should spread unflattering gossip. Most people would be reluctant to sign on for this sort of universal rule.

But why should you go along with this categorical imperative in the first place? Because, as first and foremost a rational creature, you are necessarily committed to a belief in logical consistency. How could you defend doing something that you would condemn other people for doing? What qualities make you so unique, so superior to everyone else, that you are not bound by the same rules and requirements? Your intrinsic value is no greater and no worse than any other rational person. Reason dictates that everyone's interests must be treated the same, without special consideration. We should be willing to make every personal choice a universal law.

> STRATEGY: As you deliberate the various moral choices in your life, both small (Should I cut ahead in line?) and large (Should I pursue my own self-interest at the risk of hurting someone else?), make a conscious effort to universalize your anticipated actions. Would you be willing to have everyone take this same action in similar circumstances? If not, evaluate whether the action is truly morally justified and consistent with the other moral values you hold.

Kant also formulated a second version of the Categorical Imperative in the following way: "Act so that you treat humanity, whether in your own person or in that of another, always as an end and never as a means only." Because all people possess the same intrinsic value, a value that is defined by an ability to understand their options and make free choices, we should always act in a way that respects their inherent dignity as rational agents. Imagine, for example, that you want to sell something: Is it all right to manipulate people's feelings so that they will buy? Or suppose that your child or friend is planning to do something that you don't think is in their best interests: Is it permissible to manipulate their thinking indirectly so that they will make a different choice? According to Kant, both of these actions are morally wrong because you are not treating the people involved as "ends," rational

agents who are entitled to make their own choices. Instead, you are treating them as a "means" to an end, even though you may believe that your manipulation is in their best interests. The morally right thing to do is to tell them exactly what you are thinking and then give them the opportunity to reason through the situation and make their own choices.

> STRATEGY: Think about some recent instances in which you attempted to influence someone's thoughts, feelings, or behavior. Did you make a clear case for your recommendation, respecting the person's right to make a free choice? Or did you try to manipulate him or her by using techniques designed to influence the person without his or her knowledge or to coerce the person against his or her wishes? If you discover examples of such manipulation, try to imagine how things would have turned out if you had taken a more forthright approach.

Thinking Activity 9.4

EVALUATING MY MORAL BELIEFS WITH REASON

Apply Kant's two formulations of the Categorical Imperative to the ethical beliefs that you expressed in Thinking Activity 9.2 on page 309.

1. Act only according to that maxim by which you can at the same time will that it should become a universal law.
2. Act so that you treat humanity, whether in your own person or in that of another, always as an end and never as a means only.

How do your ethical beliefs measure up? Are they consistent with Kant's formulations? Think about a moral dilemma that you recently agonized over. Does either formulation of the Categorical Imperative point you in a clearer direction?

## Include the Ethic of Care in Your Moral Compass

The ethic of care is built on empathy, a critical-thinking commitment to view issues and situations from multiple perspectives. According to an empathetic point of view, achieving happiness and fulfillment in life does not mean pursuing your own narrow desires; instead it involves pursuing your aspirations in a context of genuine understanding of other people. When you actively work to transcend your own perspective and think within other points of view, particularly those with which you disagree, you are gaining a deeper and richer understanding. You need to listen carefully to people who disagree with you and try to appreciate how their thinking brought them to their conclusion. Perspective-taking is the cornerstone of many of the world's ethical systems such as the Golden Rule: "Do unto others as you would

Thinking Critically About Visuals

Ethics and Emotions

People for the Ethical Treatment of Animals (PETA) is an animal-rights advocacy group that supports modern alternatives to the use of animals for medical and other experiments and other compassionate choices for clothing and entertainment. The March of Dimes is an organization that promotes healthy pregnancies and supports research to prevent birth defects and premature deliveries.
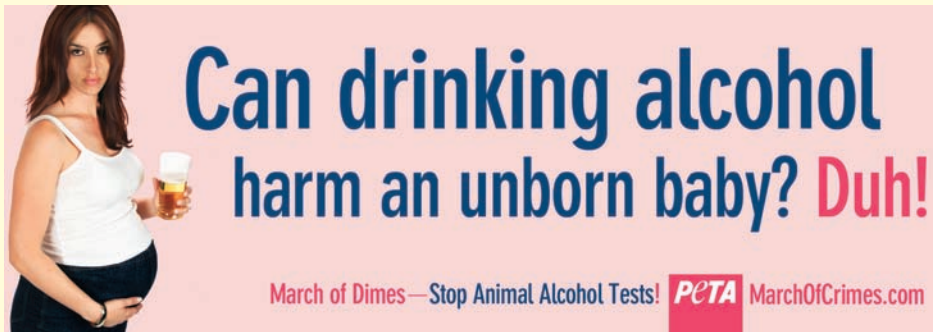
Visit both the March of Dimes website at www.marchofdimes.com and the "March of Crimes" site listed on the PETA poster. How does the PETA poster use irony to advance its argument? What ethical actions or positions does PETA urge people to take?

have them do unto you." In other words, strive to place yourself in the position of the object of your moral judgment and see how that affects your evaluation. For instance, if you are trying to evaluate the morality of racism, imagine that you are the target of the evaluation. You didn't choose your racial heritage; it's just who you are. From this vantage point, do you think that you should be treated differently, discriminated against, and condemned as being alien and inferior?

Americans for Medical Progress is a non-profit advocacy group of physicians, researchers, veterinarians, and others that works to promote awareness of the benefits of animal research as well as the need to support humane treatment of research animals.

How would you characterize the ethical position of Americans for Medical Progress on animal research? In your own words, describe the four key arguments about animal research that this advertisement anticipates and addresses. Finally, compare the visual used in this advertisement with that used by PETA. Which visual makes a stronger ethical argument, in your opinion, the one for or against animal research?

STRATEGY: Increase your ability to empathize by making a special effort to transcend your own perspective and to place yourself in other people's shoes. In your dealings with others, use your imagination to experience what you believe they are thinking and feeling, and observe whether this viewpoint influences your attitudes and actions toward them.

Accept Responsibility for Your Moral Choices

From a critical-thinking perspective, morality makes sense only if we assume that people are able to make free choices for which they are responsible. When people choose courses of action that we consider to be "right," we judge them as morally "good." On the other hand, when they choose courses of action that we consider to be "wrong," we condemn them as morally "evil." For example, when Princess Diana was the victim of a fatal car crash, it was widely reported that the photographers who were pursuing her (the *paparazzi*) were preoccupied with taking photographs of the carnage rather than helping the victims. In France, not actively aiding a person in distress actually violates the law, while in most countries the photographers' actions would not be considered illegal. Nevertheless, most people would judge their failure to help and their efforts to profit from this tragedy to be wrong. They were judged this way because they had a choice to make; they were aware of their options, their motivations, and the consequences of their actions. By choosing to take photographs rather than assist, they were motivated by greed and were diminishing the chances of survival for the occupants in the car.

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Now, imagine that you are driving down a street in your neighborhood, within the speed limit and stone sober, when a child darts out from between two parked cars. Though you brake instantly, you nevertheless hit the child. Is your action wrong—immoral, unethical? Most people would say no. This was an accident that was unavoidable, not the result of a free choice, and so you should not be held responsible for the tragedy. You were not faced with clear options from which to choose, you were not motivated by evil intentions, and you had no way of foreseeing the consequences of your action.

To be held morally accountable, for good or ill, your actions need to be the result of free choices. And to exercise your freedom, you need to have insight into your options, your motivations, and the consequences of your actions. This is the uniquely human gift; we have the intelligence, the imagination, and the reflective insight to consider a range of options and make choices. Sometimes we choose wisely, sometimes we choose poorly, but in all instances we are responsible for the choices that we make.

> STRATEGY: Strengthen your moral integrity by actively seeking to acknowledge your moral failings and then by committing yourself to improve. Self-honesty will build your inner strength and moral fiber, and you will find that moral integrity of this sort is both rewarding and habit forming.

Seek to Promote Happiness for Oneself and Others

Evaluating moral choices involves examining the intent or motivation behind the choice as well as the consequences of the action. In the case of the photographers at the scene of Princess Diana's fatal crash, their intent—to secure photographs that they could sell for a great deal of money rather than aid the victims—was certainly morally reprehensible. Their actions represented an inversion of common moral values because they placed money higher than human life. But in addition to the immorality of their intent, the consequences of their actions were also catastrophic because three of the four passengers died. We'll never know if their assistance could have made a difference to the victims. Had Princess Diana and the others survived the accident, the actions of the photographers, while still immoral in intent, might not have been judged so harshly. But with fatal consequences, their choices were evaluated even more gravely: they contributed to the accident by pursuing the car, they took photographs instead of helping the victims, and those who were able to went on to sell their photos for large sums of money. In the minds of many people, it doesn't get much worse than that.

Promoting human happiness—and its corollary, diminishing human suffering—have been mainstays of many ethical systems through the ages. Most people are perfectly willing to pursue their own happiness: it's the way we're genetically programmed and taught as well. However, you don't receive moral accolades for pursuing your own interests only. Moral recognition is typically earned by devoting your time and resources to enhancing the happiness of others, sometimes at the expense of your own interests. This moral value is founded on the principle of perspective-taking, which we

explored earlier. Identifying with another's situation can generate the desire to assist the person, who could just as easily have been you ("There but for the grace of God . . ."). Perspective-taking is the wellspring of charitable acts toward others.

But this moral concept is relevant in our ordinary dealings with people also. All things being equal, it makes sense to promote the happiness of others through your words and actions. Being friendly, generous, supportive, understanding, sympathetic, helpful—these and other similar traits enhance the quality of others' lives, usually at a minimal cost to yourself. This is not to suggest that you should devote yourself to promoting the interests of others to the exclusion of your own. In fact, if you don't take care of your own interests, you probably won't be able to sustain the inner resources needed to help others. Self-interest and selfishness are not the same thing. Pursuing your self-interest is ethically appropriate and necessary for your own physical and emotional health. But if you are devoted exclusively to pursuing your interests, then your life is morally empty. And if you are intent on pursuing your interests at the expense of other people, then you are being selfish. When you take more than your share of dessert, diminishing the portions of others, or you step on other people to advance your career, you are guilty of selfishness.

Promoting human happiness is the foundation of the ethical approach developed by Jeremy Bentham, a philosopher who was concerned with British social problems in the late eighteenth and early nineteenth centuries. From his perspective, good and right are defined in terms of what brings about the greatest pleasure for the greatest number of people, a moral theory that became known as utilitarianism. Another British philosopher, John Stuart Mill, argued that we need to distinguish the "higher pleasures" (intellectual stimulation, aesthetic appreciation, education, healthfulness) from the "lower pleasures" (animal appetites, laziness, selfishness). Otherwise, he declared mischievously, it would seem preferable to be a contented pig rather than a discontented human, a conclusion that is surely absurd:

> It is better to be a human being dissatisfied than a pig satisfied; better to be Socrates dissatisfied than a fool satisfied. And if the fool, or the pig, are of a different opinion, it is because they only know their own side of the question. The other party to the comparison knows both sides.

But even this more refined notion of higher pleasures seems too limited. We need to expand the concept of pleasure to the more general idea of human happiness in a deep and rich sense. It *does* make sense for us to promote human happiness if this means helping other people secure shelter, food, and health care; providing education and creating opportunities for career success; protecting their freedom and supporting their quest for personal fulfillment. If we view human happiness within this larger framework, then helping the greatest number of people achieve it is surely a morally good and ethically right goal to pursue.

STRATEGY: Think about specific ways in which you can increase the happiness of the people in your life. These may involve bestowing a small kindness on someone you know casually or making a more significant commitment to

someone to whom you are very close. Create and implement a plan for doing this during the next few days and then evaluate the results of your efforts. How did applying the extra effort to make others happy make you feel? How did they respond? Doesn't it make sense to continue this effort and even to increase it?

Thinking Activity 9.5

WHAT IS MY IDEA OF HUMAN HAPPINESS?

What do you consider to be the ingredients of human happiness? What things do you believe most people need to achieve genuine happiness? Review the moral values that you identified in Thinking Activity 9.2 on page 309 and identify which ones promote human happiness as you have defined it. Can you think of other moral values that might contribute to the happiness of yourself and others?

Seek to Develop an Informed Intuition

When you find yourself in the throes of a moral decision, there may come a point when you have a clear intuition about what course of action you should take. Is this your conscience speaking to you? Is this your moral compass pointing you in the right direction? Can you trust your intuition?

To answer these questions, it's necessary to understand how the human mind operates. One dominant aspect of your thinking process is its synthesizing quality: It is continually trying to construct a picture of the world that is intelligible, and this picture is updated on an instantaneous basis as circumstances change. Your mind does this by taking into account all available information, utilizing appropriate concepts, and integrating all of this into a pattern that makes sense. When this pattern clicks into place, like fitting the final piece into a jigsaw puzzle, you experience an intuition. While some of these processes are conscious, others are unconscious, sometimes giving your intuition a mysterious aura. Many of your intuitions are commonplace: deciding on an ingredient when creating a new recipe or having the clear sense that someone you just met is not entirely trustworthy. Although these intuitions may seem to be coming out of the blue, they are generally the result of your accumulated experience, insight, and the information you are picking up at the moment. When you taste the sauce of your new dish, your accumulated expertise tells you what the recipe needs. When you meet a person for the first time, you are picking up a great deal of information about him or her on subtle and even subliminal levels communicated not just by words and appearance, but by facial expressions, gestures, voice tone, eye contact, and so on. As you absorb this information at a dizzying rate, it is fed into your mental computer, programmed with lessons about people learned through years of experience. A pattern emerges, and . . . presto, an intuition!

These sorts of informed intuitions are often quite reliable because they are based on a great deal of experience, reflection, knowledge, insight, and expertise. But there are many uninformed intuitions as well, and these are not reliable. In fact, they can be catastrophic because they are *not* based on sufficient experience, reflection, knowledge, insight, and expertise. For example, imagine that you have just learned how to play chess, and suddenly you are struck with the intuitive certainty that you should sacrifice your queen. Because this intuition is not the product of accumulated knowledge and insight, it may very well lose you the game. If you think back on your own life, you can doubtless identify intuitions that seemed certain at the time but turned out to be tragically—or comically—wrong. You may have experienced the thunderbolt of true love, and several months later wondered what you were thinking at the time. The point is that an intuition is only as sound as the foundation of experience, knowledge, insight, and expertise upon which it is based.

This is precisely the same situation with moral intuition. If your moral intuition is informed, the product of a great deal of thought and reflection, then it has a high degree of credibility. But if your moral intuition is uninformed, the product of inaccurate information or inadequate experience, then your intuition is not credible. People with depraved and underdeveloped moral sensibilities will have instincts and intuitions that reflect their diminished moral understanding. There is nothing magical or infallible about your conscience or moral intuition: If you have consciously worked at becoming a moral person, a person of character and integrity, then your intuitions will be largely trustworthy. But if you have not consciously striven to develop and refine your moral sensibilities, or if you have been raised in an environment saturated with destructive values like prejudice and violence, then you should be very suspicious of your moral intuitions.

While your intuitions may seem initially certain, further reflection can plant seeds of doubt that eventually threaten that initial certainty. Moral judgments are not factual statements that we can easily prove or disprove through observation and experimentation. In most moral situations, the facts are known—it's the interpretation of the facts and what to do about the situation that poses the moral problem. When a woman discovers that the fetus developing inside her is severely malformed and disabled, the facts of the situation are fairly straightforward. What is not clear is what moral choice she and the father of the fetus should make: whether to have an abortion or confront the challenge of raising a severely retarded and physically disabled child. While it makes sense to gather as much accurate information as possible to anticipate what this child's life will be like and the impact it will have on the lives of the other family members, no amount of information will add up to making the moral decision. It's an entirely different category of reasoning, a deliberative process that often involves moral uncertainty and a profound sense of responsibility. Each one of us confronts this same anguish when we struggle with difficult moral questions for which there aren't any clear, unambiguous answers. In these circumstances, appealing to one's moral intuition simply doesn't seem adequate.

STRATEGY: Imagine an ideal, perfect human being. What personal qualities would such a person possess? How would such a person treat other people? What moral vision and specific moral values would such a person display? Using these explorations, construct a composite portrait of an ideal person that you can use to guide your own moral intuitions.

Thinking Activity 9.6

THINKING ABOUT MY MORAL INTUITION

Think about the way you arrive at moral decisions. How do you know when you are doing the right thing? Where does your sense of moral certainty come from? Do you experience moral intuitions about good and evil, right and wrong? Consider the values that you identified in Thinking Activity 9.2 on page 309 and other of your values as well. To what extent are they based on your moral intuition of right and wrong? How would you justify these values to a skeptical acquaintance? What does it feel like when you have a moral intuition?

Discover the "Natural Law" of Human Nature

There have been centuries of energetic efforts to provide a foundation for moral intuition, a grounding that will remove it from the grip of social conditioning and the shadows of inscrutable mystery. Once again, it was the ancient Greeks who first elaborated this approach by making a distinction between Nature (*physis*) and Convention (*nomos*). The social conventions of a society are the human-made customs and beliefs, laws, and tastes that are peculiar to that society. That's why when you examine the numerous cultures in the world, past and present, you find a spectacular diversity in the social fabrics of each society: You are observing the social conventions that are relative to each individual society.

Nature, however, embodies the vast realm of truth that exists on a deeper level than social conventions that exist on the surface. These natural truths are *not* relative to each society: They are constant from culture to culture, and from age to age. These truths are rooted in the fundamental nature of what it means to be human. According to this view, there is a natural law based on man's and woman's essential natures that is universal and binding on all people. We can discover these natural moral truths through reason and reflection, and they have been articulated in the greatest legal and moral philosophies and theological systems of Western culture. The challenge for each individual and culture is to discover this immutable natural law that underlies the specific conventions of any society. It is an effort that the religious thinker St. Thomas Aquinas devoted his life to, and that America's founding fathers sought to articulate in the Declaration of Independence and Constitution.

> We hold these truths to be self-evident that all men are created equal, that they are endowed by their Creator with certain inalienable rights. . . .

To discover the specifics of the natural law, we need to develop an in-depth understanding of the essential nature of men and women, not simply as they currently are, but as they could be if they were fully morally developed. What are the basic requirements of human fulfillment? What are the most enlightened values that humans can aspire to? What are the norms of conduct that foster the most meaningful and productive society? What are the conditions that maximize the exercise of individual freedom and personal growth? What are the moral responsibilities that we have to each other as members of an interdependent human community?

To answer these difficult questions, many people turn to religion. After all, if we are indeed God's creations (whatever your religion's conception of God), designed in God's image, then it makes sense that, by understanding our true nature, we will be following the path of both moral and spiritual enlightenment. In fact, it would be shocking if there was *not* an essential identity between the ethics of our religion and our natural moral intuitions. By following what Thomas Aquinas described as the dictates of reason, we are able to discover God's ethic encoded in our human nature, in the same way that we are able to display the mysteries of the physical universe through the study of science. In other words, we can use our critical-thinking abilities to reveal the essential moral nature of people—the ideal image of fulfilled human potential—and then use this image to inform our moral choices and guide our personal development.

Choose to Be a Moral Person

An individual can possess a comprehensive understanding of moral concepts and approaches and *not* be a moral person. How is that possible? Just as people can possess an array of critical-thinking abilities and yet choose not to use them, so people can be a walking compendium of moral theory and yet not choose to apply it to their lives. To achieve an enlightened moral existence in your own life, you need to *choose* to be a moral person struggling to live a moral life. You need to value morality, to aspire to an enhanced moral awareness, to exert the motivation and commitment required to reach this lofty but reachable goal.

Once you have developed a clear understanding of your moral code, the struggle has just begun. Becoming a morally enlightened person—a person of character, compassion, and integrity—is a hard-won series of accomplishments, not a one-time award like winning an Oscar. Every day confronts you with new choices and unexpected challenges, many of which you cannot possibly anticipate. With your moral code in hand to guide you, you need to commit yourself to making the choices that best express your moral philosophy of life. As a reflective critical thinker, you will be conscious of the choices you are making and the reasons you are making them, and you will learn from experience, refining your code of ethics and improving

your moral choices through self-exploration. Achieving moral enlightenment is an ongoing process, and it is a struggle that is not for the faint-hearted. But it is a struggle that cannot be avoided if you are to live a life of purpose and meaning, created by a self that is authentic and, as Aristotle would have said, "great souled."

The psychologist Abraham Maslow conducted a comprehensive study of the qualities of what he considered to be self-actualized people, and he found that people with healthy human personalities also had strong moral characters. Morally mature, psychologically healthy people think, decide, and act in accordance with thoughtfully developed moral standards, are open-minded about their moral beliefs, defend them with reasoned argument when they are challenged, and change or modify them when they are shown to be false or unjustified. Their conclusions are based on their own reflective analysis, rather than on being unquestioning "children of their culture." And they are fully committed to living their values, recognizing that ethics is not an intellectual game: It's a light that guides their moral growth and personal evolution.

These considerations provide a convincing answer to the question: "Why be moral?" As it turns out, becoming a moral person helps you become a psychologically healthy person; promoting the happiness of others frequently enhances your own happiness. Often adages are clichéd and empty of meaning, but in this case,

"Virtue is its own reward" contains a substantial measure of truth, a point noted by Socrates in his observation that doing wrong "will harm and corrupt that part of ourselves that is improved by just actions and destroyed by unjust actions." As a free individual, you create yourself through the choices that you make much like a sculptor gradually forms a figure through countless cuts of the chisel. If you create yourself as a moral person, you create a person of character and worth, with an acute sense of right and wrong and the power to choose appropriately. But if you don't choose to create yourself as a moral person, you gradually become corrupted. You lose your moral sensitivity, developing a moral blindness that handicaps your ability to see yourself or the world clearly. It is no wonder that Socrates believed that "It is better to suffer wickedness than to commit it." You gain true power when you possess the unfettered and unrestrained ability to choose freely. Choosing immorality binds your hands, one loop of thread at a time, until your freedom of movement disappears. In the same way that substance abusers gradually surrender their freedom of choice to their destructive cravings, so immoral people have only the illusion of genuine freedom in their lives. While moral people enjoy healthy personalities and spiritual wholeness, immoral people are corrupted at their core, progressively ravaged by a disease of the spirit.

> STRATEGY: Develop the habit of conducting a regular appraisal of your self and your life. Ask—and answer—questions such as these: Am I achieving my goals as a moral person? As a critical thinker? As a creative individual? Then use this evaluation regularly to maintain a much-needed perspective on your life, reminding yourself of the big picture and applying it to guide your evolution into the most worthy person you can become.

Thinking Activity 9.7

NURTURING YOUR MORAL GROWTH

No matter how highly evolved you are as a moral person, you can achieve a more enlightened state by choosing to nurture your moral growth. Your critical-thinking abilities will give you the means to explore the moral dimensions of your experience with insight, and your personal dedication to moral improvement will provide you with the ongoing motivation. Remember that becoming a moral person is both a daily and a lifetime project. Nurture your continued moral growth by cultivating the qualities that we have been exploring in this section.

- Make morality a priority.
- Recognize that ethics is based on reason.
- Include the ethic of justice in your moral compass.
- Include the ethic of care in your moral compass.
- Accept responsibility for your moral choices.

- Seek to promote human happiness.
- Develop an informed moral intuition.
- Discover the natural law of human nature.
- Choose to be a moral person.

Thinking Passage

THINKING AND ACTING MORALLY

In this chapter we examined the process of thinking critically about ethics and moral behavior. But is this merely an academic exercise, or can you make the connection between theory and the choices you make on a daily basis? The following essay, "The Disparity Between Intellect and Character," is by Robert Coles, a professor of psychiatry and medical humanities at Harvard University, who has focused much of his work on the moral development of people, especially children. In this essay he explores the question of how someone can be intellectually knowledgeable about ethics and yet not act ethically or be an ethical person, as well as what responsibility the college community has to encourage students to become more ethically enlightened.

The Disparity Between Intellect and Character
by Robert Coles

Over 150 years ago, Ralph Waldo Emerson gave a lecture at Harvard University, which he ended with the terse assertion: "Character is higher than intellect." Even then, this prominent man of letters was worried (as many other writers and thinkers of succeeding generations would be) about the limits of knowledge and the nature of a college's mission. The intellect can grow and grow, he knew, in a person who is smug, ungenerous, even cruel. Institutions originally founded to teach their students how to become good and decent, as well as broadly and deeply literate, may abandon the first mission to concentrate on a driven, narrow book learning— a course of study in no way intent on making a connection between ideas and theories on one hand and, on the other, our lives as we actually live them.

Students have their own way of realizing and trying to come to terms with the split that Emerson addressed. A few years ago, a sophomore student of mine came to see me in great anguish. She had arrived at Harvard from a Midwestern, working-class background. She was trying hard to work her way through college, and, in doing so, cleaned the rooms of some of her fellow students. Again and again, she encountered classmates who apparently had forgotten the meaning of

please, or *thank you*—no matter how high their Scholastic Assessment Test scores—students who did not hesitate to be rude, even crude toward her.

One day she was not so subtly propositioned by a young man she knew to be a very bright, successful premed student and already an accomplished journalist. This was not the first time he had made such an overture, but now she had reached a breaking point. She had quit her job and was preparing to quit college in what she called "fancy, phony Cambridge."

The student had been part of a seminar I teach, which links Raymond Carver's fiction and poetry with Edward Hopper's paintings and drawings—the thematic convergence of literary and artistic sensibility in exploring American loneliness, both its social and its personal aspects. As she expressed her anxiety and anger to me, she soon was sobbing hard. After her sobs quieted, we began to remember the old days of that class. But she had some weightier matter on her mind and began to give me a detailed, sardonic account of college life, as viewed by someone vulnerable and hardpressed by it. At one point, she observed of the student who had propositioned her: "That guy gets all A's. He tells people he's in Group I (the top academic category). I've taken two moral-reasoning courses with him, and I'm sure he's gotten A's in both of them—and look at how he behaves with me, and I'm sure with others."

She stopped for a moment to let me take that in. I happened to know the young man and could only acknowledge the irony of his behavior, even as I wasn't totally surprised by what she'd experienced. But I was at a loss to know what to say to her. A philosophy major, with a strong interest in literature, she had taken a course on the Holocaust and described for me the ironies she also saw in that tragedy—mass murder of unparalleled historical proportion in a nation hitherto known as one of the most civilized in the world, with a citizenry as well educated as that of any country at the time.

Drawing on her education, the student put before me names such as Martin Heidegger, Carl Jung, Paul De Man, Ezra Pound—brilliant and accomplished men (a philosopher, a psychoanalyst, a literary critic, a poet) who nonetheless had linked themselves with the hate that was Nazism and Fascism during the 1930s. She reminded me of the willingness of the leaders of German and Italian universities to embrace Nazi and Fascist ideas, of the countless doctors and lawyers and judges and journalists and schoolteachers, and, yes, even members of the clergy—who were able to accommodate themselves to murderous thugs because the thugs had political power. She pointedly mentioned, too, the Soviet Gulag, that expanse of prisons to which millions of honorable people were sent by Stalin and his brutish accomplices—prisons commonly staffed by psychiatrists quite eager to label those victims of a vicious totalitarian state with an assortment of psychiatric names, then shoot them up with drugs meant to reduce them to zombies.

I tried hard, toward the end of a conversation that lasted almost two hours, to salvage something for her, for myself, and, not least, for a university that I much

respect, even as I know its failings. I suggested that if she had learned what she had just shared with me at Harvard—why, *that* was itself a valuable education acquired. She smiled, gave me credit for a "nice try," but remained unconvinced. Then she put this tough, pointed, unnerving question to me: "I've been taking all these philosophy courses, and we talk about what's true, what's important, what's *good*. Well, how do you teach people to *be* good?" And she added: "What's the point of *knowing* good, if you don't keep trying to *become* a good person?"

I suddenly found myself on the defensive, although all along I had been sympathetic to her, to the indignation she had been directing toward some of her fellow students, and to her critical examination of the limits of abstract knowledge. Schools are schools, colleges are colleges, I averred, a complaisant and smug accommodation in my voice. Thereby I meant to say that our schools and colleges these days don't take major responsibility for the moral values of their students, but, rather, assume that their students acquire those values at home. I topped off my surrender to the *status quo* with a shrug of my shoulders, to which she responded with an unspoken but barely concealed anger. This she expressed through a knowing look that announced that she'd taken the full moral measure of me.

Suddenly, she was on her feet preparing to leave. I realized that I'd stumbled badly. I wanted to pursue the discussion, applaud her for taking on a large subject in a forthright, incisive manner, and tell her she was right in understanding that moral reasoning is not to be equated with moral conduct. I wanted, really, to explain my shrug—point out that there is only so much that any of us can do to affect others' behavior, that institutional life has its own momentum. But she had no interest in that kind of self-justification—as she let me know in an unforgettable aside as she was departing my office: "I wonder whether Emerson was just being 'smart' in that lecture he gave here. I wonder if he ever had any ideas about what to *do* about what was worrying him—or did he think he'd done enough because he'd spelled the problem out to those Harvard professors?"

She was demonstrating that she understood two levels of irony: One was that the study of philosophy—even moral philosophy or moral reasoning—doesn't necessarily prompt in either the teacher or the student a determination to act in accordance with moral principles. And, further, a discussion of that very irony can prove equally sterile—again carrying no apparent consequences as far as one's everyday actions go.

When that student left my office (she would soon leave Harvard for good), I was exhausted and saddened—and brought up short. All too often those of us who read books or teach don't think to pose for ourselves the kind of ironic dilemma she had posed to me. How might we teachers encourage our students (encourage *ourselves*) to take that big step from thought to action, from moral analysis to fulfilled moral commitments? Rather obviously, community service offers us all a chance to put our money where our mouths are; and, of course,

such service can enrich our understanding of the disciplines we study. A reading of *Invisible Man* (literature), *Tally's Corners* (sociology and anthropology), or *Childhood and Society* (psychology and psychoanalysis) takes on new meaning after some time spent in a ghetto school or a clinic. By the same token, such books can prompt us to think pragmatically about, say, how the wisdom that Ralph Ellison worked into his fiction might shape the way we get along with the children we're tutoring—affect our attitudes toward them, the things we say and do with them.

Yet I wonder whether classroom discussion, *per se*, can't also be of help, the skepticism of my student notwithstanding. She had pushed me hard, and I started referring again and again in my classes on moral introspection to what she had observed and learned, and my students more than got the message. Her moral righteousness, her shrewd eye and ear for hypocrisy hovered over us, made us uneasy, goaded us.

She challenged us to prove that what we think intellectually can be connected to our daily deeds. For some of us, the connection was established through community service. But that is not the only possible way. I asked students to write papers that told of particular efforts to honor through action the high thoughts we were discussing. Thus goaded to a certain self-consciousness, I suppose, students made various efforts. I felt that the best of them were small victories, brief epiphanies that might otherwise have been overlooked, but had great significance for the students in question.

"I thanked someone serving me food in the college cafeteria, and then we got to talking, the first time," one student wrote. For her, this was a decisive break with her former indifference to others she abstractly regarded as "the people who work on the serving line." She felt that she had learned something about another's life and had tried to show respect for that life.

The student who challenged me with her angry, melancholy story had pushed me to teach differently. Now, I make an explicit issue of the more than occasional disparity between thinking and doing, and I ask my students to consider how we all might bridge that disparity. To be sure, the task of connecting intellect to character is daunting, as Emerson and others well knew. And any of us can lapse into cynicism, turn the moral challenge of a seminar into yet another moment of opportunism: I'll get an A this time, by writing a paper cannily extolling myself as a doer of this or that "good deed"!

Still, I know that college administrators and faculty members everywhere are struggling with the same issues that I was faced with, and I can testify that many students will respond seriously, in at least small ways, if we make clear that we really believe that the link between moral reasoning and action is important to us. My experience has given me at least a measure of hope that moral reasoning and reflection can somehow be integrated into students'—and teachers'—lives as they actually live them.
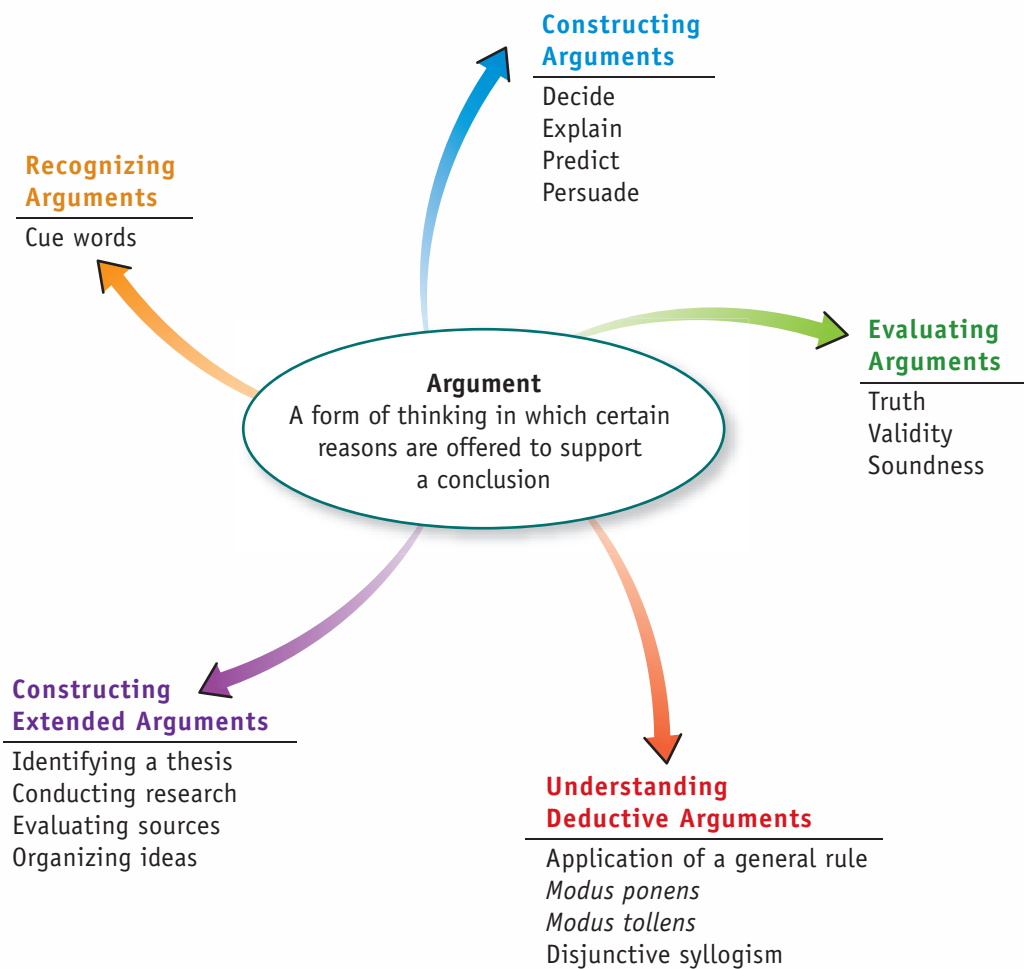
Questions for Analysis

1. The following quote appears near the beginning of the chapter:

   The ultimate purpose in studying ethics is not as it is in other inquiries, the attainment of theoretical knowledge; we are not conducting this inquiry in order to know what virtue is, but in order to become good, else there would be no advantage in studying it. —*Aristotle*

   How would Robert Coles respond to this quote? How do you respond to this quote?

2. How do you explain the fact that morally evil people can be highly educated in terms of ethics and religion? In other words, how do you account for the gap that sometimes occurs between knowledge of ethics and being an ethical person?

3. If you were in Coles's position, what would have been your response to the student's concerns regarding the disconnect between ethics and education?

4. Do you think that colleges have a moral obligation to help students become more ethical individuals? Why or why not?

5. If you were teaching a course in ethics, what would be your major goals for the course? For example, in addition to exposing students to the major ethical theories in philosophy, would you also want to encourage students to become more thoughtful and enlightened moral individuals?

10 Constructing Arguments

Constructing Arguments

Decide
Explain
Predict
Persuade

Recognizing Arguments

Cue words

Argument
A form of thinking in which certain reasons are offered to support a conclusion

Evaluating Arguments

Truth
Validity
Soundness

Constructing Extended Arguments

Identifying a thesis
Conducting research
Evaluating sources
Organizing ideas

Understanding Deductive Arguments

Application of a general rule
Modus ponens
Modus tollens
Disjunctive syllogism

Consider carefully the following dialogue about whether marijuana should be legalized:

DENNIS: Did you hear about the person who was sentenced to fifteen years in prison for possessing marijuana? I think this is one of the most outrageously unjust punishments I've ever heard of! In most states, people who are convicted of armed robbery, rape, or even murder don't receive fifteen-year sentences. And unlike the possession of marijuana, these crimes violate the rights of other people.

CAROLINE: I agree that this is one case in which the punishment doesn't seem to fit the crime. But you have to realize that drugs pose a serious threat to the young people of our country. Look at all the people who are addicted to drugs, who have their lives ruined, and who often die at an early age of overdoses. And think of all the crimes committed by people to support their drug habits. As a result, sometimes society has to make an example of someone—like the person you mentioned—to convince people of the seriousness of the situation.

DENNIS: That's ridiculous. In the first place, it's not right to punish someone unfairly just to provide an example. At least not in a society that believes in justice. And in the second place, smoking marijuana is nothing like using drugs such as heroin or even cocaine. It follows that smoking marijuana should not be against the law.

CAROLINE: I don't agree. Although marijuana might not be as dangerous as some other drugs, smoking it surely isn't good for you. And I don't think that anything that is a threat to your health should be legal.

DENNIS: What about cigarettes and alcohol? We *know* that they are dangerous. Medical research has linked smoking cigarettes to lung cancer, emphysema, and heart disease, and alcohol damages the liver. No one has proved that marijuana is a threat to our health. And even if it does turn out to be somewhat unhealthy, it's certainly not as dangerous as cigarettes and alcohol.

CAROLINE: That's a good point. But to tell you the truth, I'm not so sure that cigarettes and alcohol should be legal. And in any case, they are already legal. Just because cigarettes and alcohol are bad for your health is no reason to legalize another drug that can cause health problems.

DENNIS: Look—life is full of risks. We take chances every time we cross the street or climb into our car. In fact, with all of these loonies on the road, driving is a lot more hazardous to our health than any of the drugs around. And many of the foods we eat can kill. For example, red meat contributes to heart disease, and artificial sweeteners can cause cancer. The point is if people want to take chances with their health, that's up to them. And many people in our society like to mellow out with marijuana. I read somewhere that over 70 percent of the people in the United States think that marijuana should be legalized.

CAROLINE: There's a big difference between letting people drive cars and letting them use dangerous drugs. Society has a responsibility to protect people from themselves. People often do things that are foolish if they are encouraged or given the opportunity to. Legalizing something like marijuana encourages people to use it,

Visual Thinking

"Let Herbs Grow Free!"
Would you be inclined to join a "Legalize Marijuana" protest like this one? Why do some people believe that marijuana should be legalized? Why do others believe that it shouldn't?

especially young people. It follows that many more people would use marijuana if it were legalized. It's like society saying, "This is all right—go ahead and use it."

DENNIS: I still maintain that marijuana isn't dangerous. It's not addictive—like heroin is—and there is no evidence that it harms you. Consequently, anything that is harmless should be legal.

CAROLINE: Marijuana may not be physically addictive like heroin, but I think that it can be psychologically addictive because people tend to use more and more of it over time. I know a number of people who spend a lot of their time getting high. What about Carl? All he does is lie around and get high. This shows that smoking it over a period of time definitely affects your mind. Think about the people you know who smoke a lot—don't they seem to be floating in a dream world? How are they ever going to make anything of their lives? As far as I'm concerned, a pothead is like a zombie—living but dead.

DENNIS: Since you have had so little experience with marijuana, I don't think that you can offer an informed opinion on the subject. And anyway, if you do too

much of anything, it can hurt you. Even something as healthy as exercise can cause problems if you do too much of it. But I sure don't see anything wrong with toking up with some friends at a party or even getting into a relaxed state by yourself. In fact, I find that I can even concentrate better on my schoolwork after taking a little smoke.

CAROLINE: If you believe that, then marijuana really *has* damaged your brain. You're just trying to rationalize your drug habit. Smoking marijuana doesn't help you concentrate—it takes you away from reality. And I don't think that people can control it. Either you smoke and surrender control of your life, or you don't smoke because you want to retain control. There's nothing in between.

DENNIS: Let me point out something to you: Because marijuana is illegal, organized crime controls its distribution and makes all the money from it. If marijuana were legalized, the government could tax the sale of it—like cigarettes and alcohol—and then use the money for some worthwhile purpose. For example, many states have legalized gambling and use the money to support education. In fact, the major tobacco companies have already copyrighted names for different marijuana brands—like "Acapulco Gold." Obviously, they believe that marijuana will soon become legal.

CAROLINE: Just because the government can make money out of something doesn't mean that they should legalize it. We could also legalize prostitution or muggings and then tax the proceeds. Also, simply because the cigarette companies are prepared to sell marijuana doesn't mean that it makes sense to. After all, they're the ones who are selling us cigarettes.

Continue this dialogue, incorporating other views on the subject of legalizing marijuana.

Recognizing Arguments

The preceding discussion is an illustration of two people engaging in *dialogue*, which we have defined (in Chapter 2) as the systematic exchange of ideas. Participating in this sort of dialogue with others is one of the keys to thinking critically because it stimulates you to develop your mind by carefully examining the way you make sense of the world. Discussing issues with others encourages you to be mentally active, to ask questions, to view issues from different perspectives, and to develop reasons to support conclusions. It is this last quality of thinking critically—supporting conclusions with reasons—that we will focus on in this chapter and the next.

When we offer reasons to support a conclusion, we are considered to be presenting an **argument**.

argument A form of thinking in which certain statements (reasons) are offered in support of another statement (a conclusion)

At the beginning of the dialogue, Dennis presents the following argument against imposing a fifteen-year sentence for possession of marijuana (argument 1):

REASON: Possessing marijuana is not a serious offense because it hurts no one.

REASON: There are many other more serious offenses in which victims' basic rights are violated—such as armed robbery, rape, and murder—for which the offenders don't receive such stiff sentences.

CONCLUSION: Therefore, a fifteen-year sentence is an unjust punishment for possessing marijuana.

Can you identify an additional reason that supports this conclusion?

REASON:

The definition of *argument* given here is somewhat different from the meaning of the concept in our ordinary language. In common speech, "argument" usually refers to a dispute or quarrel between people, often involving intense feelings (for example: "I got into a terrible argument with the idiot who hit the back of my car"). Very often these quarrels involve people presenting arguments in the sense in which we have defined the concept, although the arguments are usually not carefully reasoned or clearly stated because the people are so angry. Instead of this common usage, in this chapter we will use the word's more technical meaning.

Using our definition of *argument*, we can define, in turn, the main ideas that make up an argument, which includes **reasons** that are presented to support an argument's **conclusion**.

> **reasons** Statements that support another statement (known as a conclusion), justify it, or make it more probable

> **conclusion** A statement that explains, asserts, or predicts on the basis of statements (known as reasons) that are offered as evidence for it

The type of thinking that uses argument—reasons in support of conclusions—is known as *reasoning*, and it is a type of thinking you have been doing throughout this book, as well as in much of your life. We are continually trying to explain, justify, and predict things through the process of reasoning.

Of course, our reasoning—and the reasoning of others—is not always correct. For example, the reasons someone offers may not really support the conclusion they are supposed to. Or the conclusion may not really follow from the reasons stated. These difficulties are illustrated in a number of the arguments contained in the dialogue on marijuana. Nevertheless, whenever we accept a conclusion as likely or true

based on certain reasons or whenever we offer reasons to support a conclusion, we are using arguments to engage in reasoning—even if our reasoning is weak or faulty. In this chapter and the next, we will be exploring both the way we construct effective arguments and the way we evaluate arguments to develop and sharpen our reasoning ability.

Let us return to the dialogue on marijuana. After Dennis presents the argument with the conclusion that the fifteen-year prison sentence is an unjust punishment, Caroline considers that argument. Although she acknowledges that in this case "the punishment doesn't seem to fit the crime," she goes on to offer another argument (argument 2), giving reasons that lead to a conclusion that conflicts with the one Dennis drew:

REASON: Drugs pose a very serious threat to the young people of our country.

REASON: Many crimes are committed to support drug habits.

CONCLUSION: As a result, sometimes society has to make an example of someone to convince people of the seriousness of the situation.

Can you identify an additional reason that supports this conclusion?

REASON:

Cue Words for Arguments

Our language provides guidance in our efforts to identify reasons and conclusions. Certain key words, known as *cue words*, signal that a reason is being offered in support of a conclusion or that a conclusion is being announced on the basis of certain reasons. For example, in response to Caroline's conclusion that society sometimes has to make an example of someone to convince people of the seriousness of the situation, Dennis gives the following argument (argument 3):

REASON: In the first place, it's not right to punish someone unfairly just to provide an example.

REASON: In the second place, smoking marijuana is nothing like using drugs such as heroin or even cocaine.

CONCLUSION: It follows that smoking marijuana should not be against the law.

In this argument, the phrases *in the first place* and *in the second place* signal that reasons are being offered in support of a conclusion. Similarly, the phrase *it follows that* signals that a conclusion is being announced on the basis of certain reasons. Here is a list of the most commonly used cue words for reasons and conclusions:

Cue words signaling reasons:

since	in view of
for	first, second

Cue words signaling reasons:

because	in the first (second) place
as shown by	may be inferred from
as indicated by	may be deduced from
given that	may be derived from
assuming that	for the reason that

Cue words signaling conclusions:

therefore	then
thus	it follows that
hence	thereby showing
so	demonstrates that
(which) shows that	allows us to infer that
(which) proves that	suggests very strongly that
implies that	you see that
points to	leads me to believe that
as a result	allows us to deduce that
consequently	

Of course, identifying reasons, conclusions, and arguments involves more than looking for cue words. The words and phrases listed here do not always signal reasons and conclusions, and in many cases arguments are made without the use of cue words. However, cue words do help alert us that an argument is being made.

Thinking Activity 10.1

IDENTIFYING ARGUMENTS WITH CUE WORDS

1. Review the dialogue on marijuana and underline any cue words signaling that reasons are being offered or that conclusions are being announced.

2. With the aid of cue words, identify the various arguments contained in the dialogue on marijuana. For each argument, describe

   a. The *reasons* offered in support of a conclusion
   b. The *conclusion* announced on the basis of the reasons

   Before you start, review the three arguments we have examined thus far in this chapter.

3. Go back to the additional arguments you wrote on page 343. Reorganize and add cue words if necessary to clearly identify your reasons as well as the conclusion you drew from those reasons.

Thinking Passages

LEGALIZING DRUGS

Two essays that discuss the issue of whether drugs should be legalized are located on the student website at **college.hmco.com/pic/chaffeetc9e**. The first passage, "Drugs," is written by Gore Vidal, a well-known essayist and novelist. The second, "The Case for Slavery," is authored by the *New York Times* editor and columnist A. M. Rosenthal. After carefully reading the essays, answer the questions that follow.

ONLINE RESOURCES
Visit the student website for *Thinking Critically* at **college.hmco.com/pic/chaffeetc9e** to read "Drugs" by Gore Vidal and "The Case for Slavery" by A. M. Rosenthal, and for questions for analysis.

Police check men on the street during an anti-narcotics operation.

Arguments Are Inferences

When you construct arguments, you are composing and relating to the world by means of your ability to infer. As you saw in Chapter 9, *inferring* is a thinking process that you use to reason from what you already know (or believe to be the case) to form new knowledge or beliefs. This is usually what you do when you construct arguments. You work from reasons you know or believe in to form conclusions based on these reasons.

Just as you can use inferences to make sense of different types of situations, so you can also construct arguments for different purposes. In a variety of situations, you construct arguments to do the following:

- decide
- explain
- predict
- persuade

An example of each of these different types of arguments follows. After examining each example, construct an argument of the same type related to issues in your own life.

We Construct Arguments to Decide

REASON: Throughout my life, I've always been interested in all different kinds of electricity.

REASON: There are many attractive job opportunities in the field of electrical engineering.

CONCLUSION: I will work toward becoming an electrical engineer.

REASON:

REASON:

CONCLUSION:

We Construct Arguments to Explain

REASON: I was delayed in leaving my house because my dog needed an emergency walking.

REASON: There was an unexpected traffic jam caused by motorists slowing down to view an overturned chicken truck.

CONCLUSION: Therefore, I was late for our appointment.

REASON:

REASON:

CONCLUSION:

We Construct Arguments to Predict

REASON: Some people will always drive faster than the speed limit allows, whether the limit is 55 or 65 mph.

REASON: Car accidents are more likely to occur at higher speeds.

CONCLUSION: It follows that the newly reinstated 65-mph speed limit will result in more accidents.

REASON:

REASON:

CONCLUSION:

We Construct Arguments to Persuade

REASON: Chewing tobacco can lead to cancer of the mouth and throat.

REASON: Boys sometimes are led to begin chewing tobacco by ads for the product that feature sports heroes they admire.

CONCLUSION: Therefore, ads for chewing tobacco should be banned.

REASON:

REASON:

CONCLUSION:

Evaluating Arguments

To construct an effective argument, you must be skilled in evaluating the effectiveness, or soundness, of arguments that have already been constructed. You must investigate two aspects of each argument independently to determine the soundness of the argument as a whole:

1. How true are the reasons being offered to support the conclusion?
2. To what extent do the reasons support the conclusion, or to what extent does the conclusion follow from the reasons offered?

We will first examine each of these ways of evaluating arguments separately and then see how they work together.

Truth: How True Are the Supporting Reasons?

The first aspect of the argument you must evaluate is the truth of the reasons that are being used to support a conclusion. Does each reason make sense? What evidence is being offered as part of each reason? Do you know each reason to be true based on your experience? Is each reason based on a source that can be trusted? You use these questions and others like them to analyze the reasons offered and to determine how true they are. As you saw in Chapter 5, evaluating the sort of beliefs usually found as reasons in arguments is a complex and ongoing challenge. Let us evaluate the truth of the reasons presented in the dialogue at the beginning of this chapter about whether marijuana should be legalized.

Argument 1

REASON: Possessing marijuana is not a serious offense.

EVALUATION: As it stands, this reason needs further evidence to support it. The major issue of the discussion is whether possessing (and using) marijuana is in fact a serious offense or no offense at all. This reason would be strengthened by stating: "Possessing marijuana is not as serious an offense

as armed robbery, rape, and murder, according to the overwhelming majority of legal statutes and judicial decisions."

REASON: There are many other more serious offenses—such as armed robbery, rape, and murder—for which criminals don't receive such stiff sentences.

EVALUATION: The accuracy of this reason is highly doubtful. It is true that there is wide variation in the sentences handed down for the same offense. The sentences vary from state to state and also vary within states and even within the same court. Nevertheless, on the whole, serious offenses like armed robbery, rape, and murder do receive long prison sentences.

The real point here is that a fifteen-year sentence for possessing marijuana is extremely unusual when compared with other sentences for marijuana possession.

Argument 2

REASON: Drugs pose a very serious threat to the young people of our country.

EVALUATION: As the later discussion points out, this statement is much too vague. "Drugs" cannot be treated as being all the same. Some drugs (such as aspirin) are beneficial, while other drugs (such as heroin) are highly dangerous. To strengthen this reason, we would have to be more specific, stating, "Drugs like heroin, amphetamines, and cocaine pose a very serious threat to the young people of our country." We could increase the accuracy of the reason even more by adding the qualification "*some* of the young people of our country" because many young people are not involved with dangerous drugs.

REASON: Many crimes are committed to support drug habits.

EVALUATION:

Argument 3

REASON: It's not right to punish someone unfairly just to provide an example.

EVALUATION: This reason raises an interesting and complex ethical question that has been debated for centuries. The political theorist Machiavelli stated that "the ends justify the means," which implies that if we bring about desirable results, it does not matter how we go about doing so. He would therefore probably disagree with this reason since using someone as an example might bring about desirable results, even though it might be personally unfair to the person being used as an example. In our society, however, which is based on the idea of fairness under the law, most people would probably agree with this reason.

REASON: Smoking marijuana is nothing like using drugs such as heroin or even cocaine.

EVALUATION:

Thinking Activity 10.2

EVALUATING THE TRUTH OF REASONS

Review the other arguments from the dialogue on marijuana that you identified in Thinking Activity 10.1 (page 346). Evaluate the truth of each of the reasons contained in the arguments.

Validity: Do the Reasons Support the Conclusion?

In addition to determining whether the reasons are true, evaluating arguments involves investigating the relationship between the reasons and the conclusion. When the reasons support the conclusion so that the conclusion follows from the reasons being offered, the argument is **valid**.* If, however, the reasons do *not* support the conclusion so that the conclusion does *not* follow from the reasons being offered, the argument is **invalid**.

> **valid argument** An argument in which the reasons support the conclusion so that the conclusion follows from the reasons offered

> **invalid argument** An argument in which the reasons do not support the conclusion so that the conclusion does not follow from the reasons offered

One way to focus on the concept of validity is to *assume* that all the reasons in the argument are true and then try to determine how probable they make the conclusion. The following is an example of one type of valid argument:

REASON: Anything that is a threat to our health should not be legal.

REASON: Marijuana is a threat to our health.

CONCLUSION: Therefore, marijuana should not be legal.

This is a valid argument because if we assume that the reasons are true, then the conclusion necessarily follows. Of course, we may not agree that either or both of the reasons are true and thus not agree with the conclusion. Nevertheless, the structure of the argument is valid. This particular form of thinking is known as *deduction*, and we will examine deductive reasoning more closely in the pages ahead.

A different type of argument starts on the bottom of the next page.

*In formal logic, the term *validity* is reserved for deductively valid arguments in which the conclusions follow necessarily from the premises. (See the discussion of deductive arguments later in this chapter.)

Thinking Critically About Visuals

The Changing Rules of Love

Many states and municipalities are changing their laws in order to allow same-sex couples to marry, or at least to claim a formal "civil union" that guarantees such couples the same civic rights as heterosexual married people.
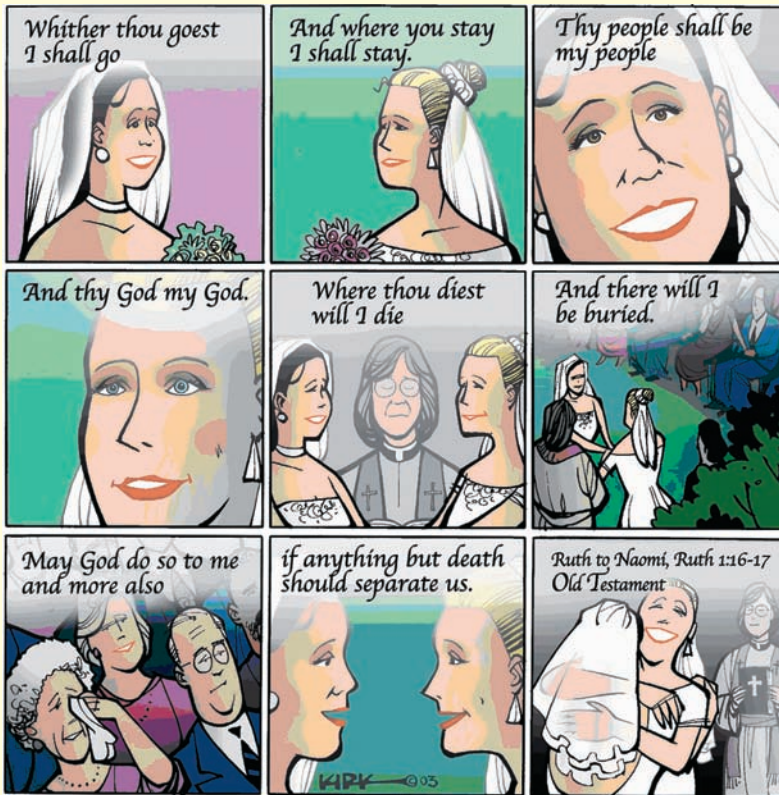

Do you believe that same-sex marriage is a personal issue, a civic concern, or something in between? Why did the cartoonist choose these particular words for his characters to speak, and how do you read these familiar words in this new context?

REASON: As part of a project in my social science class, we selected 100 students in the school to be interviewed. We took special steps to ensure that these students were representative of the student body as a whole (total students: 4,386). We asked the selected students whether they

The Saturday Evening Post, first published in 1821, is the oldest continuously published magazine in America. In the early to mid-twentieth century, its cover illustrations depicted a sunny, mythic America.
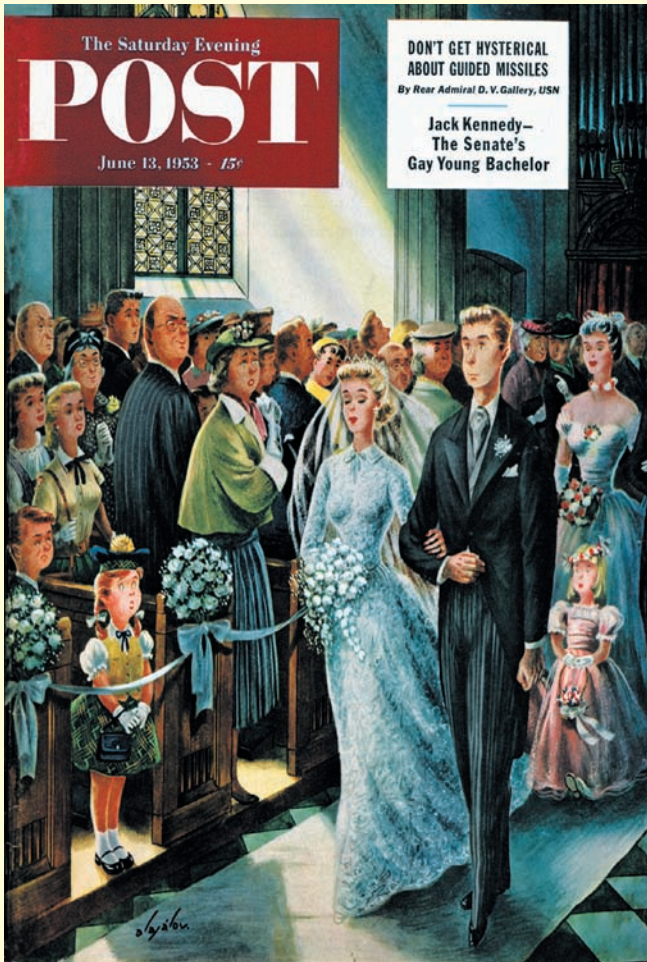
The issue of same-sex marriage is just one of many challenges to traditional concepts of family in contemporary American culture. Were you to make an argument about marriage in America today, what kinds of illustrations would you use to support your claims? Are there similarities or differences between these two images that would support your argument about the changing nature of American marriage?

thought the United States should actively try to overthrow foreign governments that the United States disapproves of. Of the 100 students interviewed, 88 students said the United States should definitely *not* be involved in such activities.

CONCLUSION: We can conclude that most students in the school believe the United States should not be engaged in attempts to actively overthrow foreign governments that the United States disapproves of.

This is a persuasive argument because if we assume that the reason is true, then it provides strong support for the conclusion. In this case, the key part of the reason is the statement that the 100 students selected were representative of the entire 4,386 students at the school. To evaluate the truth of the reason, we might want to investigate the procedure used to select the 100 students to determine whether this sample was in fact representative of all the students. This particular form of thinking is an example of *induction*, and we will explore inductive reasoning more fully in Chapter 11.

The following argument is an example of an invalid argument:

REASON: George W. Bush believes that the Star Wars missile defense shield should be built to ensure America's national defense because it provides the capability to intercept incoming nuclear missiles.

REASON: George W. Bush is the president of the United States.

CONCLUSION: Therefore, the Star Wars missile defense shield should be built.

This argument is *not* valid because even if we assume that the reasons are true, the conclusion does not follow. Although George W. Bush is the president of the United States, that fact does not give him any special expertise on the subject of sophisticated radar designs for weapons systems. Indeed, this is a subject of such complexity and global significance that it should not be based on any one person's opinion, no matter who that person is. This form of invalid thinking is a type of *fallacy*, and we will investigate fallacious reasoning in Chapter 11.

The Soundness of Arguments

When an argument includes both true reasons and a valid structure, the argument is considered to be *sound*. When an argument has either false reasons or an invalid structure, however, the argument is considered to be *unsound*.

True reasons Valid structure	→ Sound argument
False reasons Valid structure	→ Unsound argument
True reasons Invalid structure	→ Unsound argument
False reasons Invalid structure	→ Unsound argument

From this chart, we can see that in terms of arguments, "truth" and "validity" are not the same concepts. An argument can have true reasons and an invalid structure or false reasons and a valid structure. In both cases the argument is *unsound.* To be sound, an argument must have both true reasons and a valid structure. For example, consider the following argument:

> REASON: For a democracy to function most effectively, its citizens should be able to think critically about the important social and political issues.
>
> REASON: Education plays a key role in developing critical-thinking abilities.
>
> CONCLUSION: Therefore, education plays a key role in ensuring that a democracy is functioning most effectively.

A good case could be made for the soundness of this argument because the reasons are persuasive, and the argument structure is valid. Of course, someone might contend that one or both of the reasons are not completely true, which illustrates an important point about the arguments we construct and evaluate. Many of the arguments we encounter in life fall somewhere between complete soundness and complete unsoundness because we are often not sure if our reasons are completely true. Throughout this book we have found that developing accurate beliefs is an ongoing process and that our beliefs are subject to clarification and revision. As a result, the conclusion of any argument can be only as certain as the reasons supporting the conclusion.

To sum up, evaluating arguments effectively involves both the truth of the reasons and the validity of the argument's structure. The degree of soundness an argument has depends on how accurate our reasons turn out to be and how valid the argument's structure is.

Understanding Deductive Arguments

We use a number of basic argument forms to organize, relate to, and make sense of the world. As already noted, two of the major types of argument forms are **deductive arguments** and *inductive arguments.* In the remainder of this chapter, we will explore various types of deductive arguments, reserving our analysis of inductive arguments for Chapter 11.

The deductive argument is the one most commonly associated with the study of logic. Though it has a variety of valid forms, they all share one characteristic: If you accept the supporting reasons (also called *premises*) as true, then you must necessarily accept the conclusion as true.

deductive argument An argument form in which one reasons from premises that are known or assumed to be true to a conclusion that follows necessarily from these premises

For example, consider the following famous deductive argument:

> **REASON/PREMISE:** All men are mortal.
> **REASON/PREMISE:** Socrates is a man.
> **CONCLUSION:** Therefore, Socrates is mortal.

In this example of deductive thinking, accepting the premises of the argument as true means that the conclusion necessarily follows; it cannot be false. Many deductive arguments, like the one just given, are structured as *syllogisms*, an argument form that consists of two supporting premises and a conclusion. There are also, however, a large number of *invalid* deductive forms, one of which is illustrated in the following syllogism:

> **REASON/PREMISE:** All men are mortal.
> **REASON/PREMISE:** Socrates is a man.
> **CONCLUSION:** Therefore, all men are Socrates.

In the next several pages, we will briefly examine some common valid deductive forms.

Application of a General Rule

Whenever we reason with the form illustrated by the valid Socrates syllogism, we are using the following argument structure:

> **PREMISE:** All *A* (men) are *B* (mortal).
> **PREMISE:** *S* is an *A* (Socrates is a man).
> **CONCLUSION:** Therefore, *S* is *B* (Socrates is mortal).

This basic argument form is valid no matter what terms are included. For example:

> **PREMISE:** All politicians are untrustworthy.
> **PREMISE:** Bill White is a politician.
> **CONCLUSION:** Therefore, Bill White is untrustworthy.

Notice again that with any valid deductive form, *if* we assume that the premises are true, then we must accept the conclusion. Of course, in this case there is considerable doubt that the first premise is actually true.

When we diagram this argument form, it becomes clear why it is a valid way of thinking:

The *first premise* states that classification *A* (men) falls within classification *B* (mortal).

The *second premise* states that *S* (Socrates) is a member of classification *A* (men).

The *conclusion* simply states what has now become obvious—namely, that *S* (Socrates) must fall within classification *B* (mortal).
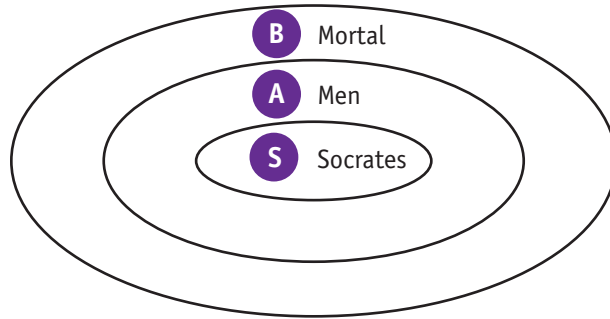
Although we are usually not aware of it, we use this basic type of reasoning whenever we apply a general rule in the form *All A is B*. For instance:

PREMISE: All children eight years old should be in bed by 9:30 P.M.
PREMISE: You are an eight-year-old child.
CONCLUSION: Therefore, you should be in bed by 9:30 P.M.

Review the dialogue at the beginning of this chapter and see if you can identify a deductive argument that uses this form.

PREMISE:
PREMISE:
CONCLUSION:

Describe an example from your own experience in which you use this deductive form.

Modus Ponens

A second valid deductive form that we commonly use in our thinking goes by the name *modus ponens*—that is, "affirming the antecedent"—and is illustrated in the following example:

PREMISE: If I have prepared thoroughly for the final exam, then I will do well.
PREMISE: I prepared thoroughly for the exam.
CONCLUSION: Therefore, I will do well on the exam.

When we reason like this, we are using the following argument structure:

PREMISE: If *A* (I have prepared thoroughly), then *B* (I will do well).
PREMISE: *A* (I have prepared thoroughly).
CONCLUSION: Therefore, *B* (I will do well).

Like all valid deductive forms, this form is valid no matter what specific terms are included. For example:

> PREMISE: If the Democrats are able to register 20 million new voters, then they will win the presidential election.
> PREMISE: The Democrats were able to register more than 20 million new voters.
> CONCLUSION: Therefore, the Democrats will win the presidential election.

As with other valid argument forms, the conclusion will be true *if* the reasons are true. Although the second premise in this argument expresses information that can be verified, the first premise would be more difficult to establish.

Review the dialogue at the beginning of this chapter and see if you can identify any deductive arguments that use this form.

Modus Tollens

A third commonly used valid deductive form has the name *modus tollens*—that is, "denying the consequence"—and is illustrated in the following example:

> PREMISE: If Michael were a really good friend, he would lend me his car for the weekend.
> PREMISE: Michael refuses to lend me his car for the weekend.
> CONCLUSION: Therefore, Michael is not a really good friend.

When we reason in this fashion, we are using the following argument structure:

> PREMISE: If *A* (Michael is a really good friend), then *B* (he will lend me his car).
> PREMISE: Not *B* (he won't lend me his car).
> CONCLUSION: Therefore, not *A* (he's not a really good friend).

Again, like other valid reasoning forms, this form is valid no matter what subject is being considered. For instance:

> PREMISE: If Iraq were genuinely interested in world peace, it would not have invaded Kuwait.
> PREMISE: Iraq did invade Kuwait (that is, Iraq did not "not invade" Kuwait).
> CONCLUSION: Therefore, Iraq is not genuinely interested in world peace.

This conclusion—and any other conclusion produced by this form of reasoning—can be considered accurate if the reasons are true. In this case, the second premise would be easier to verify than the first.

Review the dialogue at the beginning of this chapter and see if you can identify any deductive arguments that use this reasoning form.

Disjunctive Syllogism

A fourth common form of a valid deductive argument is known as a *disjunctive syllogism.* The term *disjunctive* means presenting several alternatives. This form is illustrated in the following example:

> PREMISE: Either I left my wallet on my dresser, or I have lost it.
> PREMISE: The wallet is not on my dresser.
> CONCLUSION: Therefore, I must have lost it.

When we reason in this way, we are using the following argument structure:

> PREMISE: Either *A* (I left my wallet on my dresser) or *B* (I have lost it).
> PREMISE: Not *A* (I didn't leave it on my dresser).
> CONCLUSION: Therefore, *B* (I have lost it).

This valid reasoning form can be applied to any number of situations and still yield valid results. For example:

> PREMISE: Either your stomach trouble is caused by what you are eating, or it is caused by nervous tension.
> PREMISE: You tell me that you have been taking special care with your diet.
> CONCLUSION: Therefore, your stomach trouble is caused by nervous tension.

To determine the accuracy of the conclusion, we must determine the accuracy of the premises. If they are true, then the conclusion must be true.

Review the dialogue at the beginning of this chapter and see if you can identify any deductive arguments that use this reasoning form.

All these basic argument forms—application of a general rule, *modus ponens, modus tollens,* and disjunctive syllogism—are found not only in informal, everyday conversations but also at more formal levels of thinking. They appear in academic disciplines, in scientific inquiry, in debates on social issues, and elsewhere. Many other argument forms—both deductive and inductive—also constitute human reasoning. By sharpening your understanding of these ways of thinking, you will be better able to make sense of the world by constructing and evaluating effective arguments.

Thinking Activity 10.3

EVALUATING ARGUMENTS

Analyze the following arguments by completing these steps:

1. Summarize the reasons and conclusions given.

2. Identify which, if any, of the following deductive argument forms are used.

- Application of a general rule
- *Modus ponens* (affirming the antecedent)
- *Modus tollens* (denying the consequence)
- Disjunctive syllogism

3. Evaluate the truth of the reasons that support the conclusion.

For if the brain is a machine of ten billion nerve cells and the mind can somehow be explained as the summed activity of a finite number of chemical and electrical reactions, [then] boundaries limit the human prospect—we are biological and our souls cannot fly free.

—Edward O. Wilson, *On Human Nature*

The state is by nature clearly prior to the family and to the individual, since the whole is of necessity prior to the part.

—Aristotle, *Politics*

There now is sophisticated research that strongly suggests a deterrent effect [of capital punishment]. Furthermore, the principal argument against the deterrent effect is weak. The argument is that in most jurisdictions where capital punishment has been abolished there has been no immediate, sharp increase in what had been capital crimes. But in those jurisdictions, the actual act of abolition was an insignificant event because for years the death penalty had been imposed rarely, if at all. Common sense—which deserves deference until it is refuted—suggests that the fear of death can deter some premeditated crimes, including some murders.

—George F. Will, *Cleveland Plain-Dealer,* March 13, 1981

If the increased power which science has conferred upon human volitions is to be a boon and not a curse, the ends to which these volitions are directed must grow commensurately with the growth of power to carry them out. Hitherto, although we have been told on Sundays to love our neighbor, we have been told on weekdays to hate him, and there are six times as many weekdays as Sundays. Hitherto, the harm that we could do to our neighbor by hating him was limited by our incompetence, but in the new world upon which we are entering there will be no such limit, and the indulgence of hatred can lead only to ultimate and complete disaster.

—Bertrand Russell, "The Expanding Mental Universe"

The extreme vulnerability of a complex industrial society to intelligent, targeted terrorism by a very small number of people may prove the fatal challenge to which Western states have no adequate response. Counterforce alone will never suffice. The real challenge of the true terrorist is to the basic values of a society. If there is no commitment to shared values in Western society—and if none are imparted in our amoral institutions of higher learning—no increase in police and burglar alarms will suffice to preserve our society from the specter that haunts us—not a bomb from above but a gun from within.

—James Billington, "The Gun Within"

To fully believe in something, to truly understand something, one must be intimately acquainted with its opposite. One should not adopt a creed by default,

because no alternative is known. Education should prepare students for the "real world" not by segregating them from evil but by urging full confrontation to test and modify the validity of the good.

—Robert Baron, "In Defense of 'Teaching' Racism, Sexism, and Fascism"

The inescapable conclusion is that society secretly *wants* crime, *needs* crime, and gains definite satisfactions from the present mishandling of it! We condemn crime; we punish offenders for it; but we need it. The crime and punishment ritual is a part of our lives. We need crimes to wonder at, to enjoy vicariously, to discuss and speculate about, and to publicly deplore. We need criminals to identify ourselves with, to envy secretly, and to punish stoutly. They do for us the forbidden, illegal things we *wish* to do and, like scapegoats of old, they bear the burdens of our displaced guilt and punishment—"the iniquities of us all."

—Karl Menninger, "The Crime of Punishment"

Thinking Activity 10.4

FREEDOM OF SPEECH ON THE INTERNET

Some people argue that the Internet should not be regulated in any form; people should be free to do and say whatever they wish on their web pages, in chatrooms, and via email. Others say that new technologies enable new possibilities for abuse and call for new regulations. For arguments and information about this issue, go to the student website at **college.hmco.com/pic/chaffeetc9e**.

ONLINE RESOURCES
Visit the student website for *Thinking Critically* at **college.hmco.com/pic/chaffeetc9e** to find out more about freedom of speech on the Internet.

Constructing Extended Arguments

The purpose of mastering the forms of argument is to become a sophisticated critical thinker who can present her or his ideas to others effectively. The art of discussing and debating ideas with others was explored in Chapter 2. We saw then that effective discussion involves

- Listening carefully to other points of view
- Supporting views with reasons and evidence

- Responding to the points being made
- Asking—and trying to answer—appropriate questions
- Working to increase understanding, not simply to "win the argument"

Although learning to discuss ideas with others in an organized, productive fashion is crucial for thinking critically, it is equally important to be able to present your ideas in written form. Term papers, interoffice memos, research analyses, grant proposals, legal briefs, evaluation reports, and countless other documents that you are likely to encounter require that you develop the skills of clear, persuasive writing. Composing your ideas develops your mind in distinctive, high-level ways. When you express your ideas in writing, you tend to organize them into more complex relationships, select your terms with more care, and revise your work after an initial draft. As a result, your writing is often a more articulate and comprehensive expression of your ideas than you could achieve in verbal discussions. And the process of expressing your ideas in such a clear and coherent fashion has the simultaneous effect of sharpening your thinking. As you saw in Chapter 6, language and thinking are partners that work together to create meaning and communicate ideas. How well you perform one of these activities is directly related to how well you perform the other.

Writing an Extended Argument

Learning to construct extended arguments is one of the most important writing skills that you need to develop. Since an argument is a form of thinking in which you are trying to present reasons to support a conclusion, it is likely that much of your writing will fall into this category. Composing thoughtfully reasoned and clearly written arguments is very challenging, and few people are able to do it well. In the same way that many discussions are illogical, disorganized, and overly emotional, much of argumentative writing is also ineffective.

ONLINE RESOURCES
Visit the student website for *Thinking Critically* at **college.hmco.com/pic/chaffeetc9e**, in the section "Constructing Extended Arguments," to review guidelines on presenting your ideas in this essential form and to complete Thinking Activity 10.5.

Thinking Activity 10.5

COMPOSING AN EXTENDED ARGUMENT

Select a current issue of interest to you. (Possible choices are animal rights, mandatory HIV testing, human cloning, and so on.) Following the guidelines in the section "Constructing Extended Arguments" on the student website, create an extended argument that explores the issue by

- Defining a thesis
- Conducting research (Locate at least two articles about the issue you have selected and use them as resources.)
- Organizing ideas (List arguments on both sides of the issue, organizing them into premises and conclusions. Make notes evaluating the strengths and weaknesses of each argument. Identify the most important arguments and make an outline.)

Before composing your essay, examine the two sets of extended arguments, one on legalizing drugs on the student website and one on human cloning (page 364). Note how each author organizes the essay and examine the types of arguments used. Your essay should begin with a paragraph that introduces the issue and should end with a paragraph that sums up and concludes it.

Final Thoughts

In this chapter we have focused mainly on deductive arguments, an argument form in which it is claimed that the premises constitute conclusive evidence for the truth of the conclusion. In a correct deductive argument, which is organized into a valid deductive form, if the premises are true, the conclusion must be true; it cannot be false.

Although *deductive* forms of reasoning are crucial to our understanding the world and making informed decisions, much of our reasoning is nondeductive. The various nondeductive argument forms are typically included under the general category of *inductive* reasoning. In contrast to deductive arguments, inductive arguments rarely provide conclusions that are totally certain. The premises offer evidence in support of the conclusion, but the conclusion does not follow necessarily from the premises. We will explore the area of inductive reasoning more fully in the next chapter.

Thinking Passages

FOR AND AGAINST HUMAN CLONING

Read the news report by Maggie Fox about the first successful experiment in cloning a human embryo. Then evaluate the two arguments that follow, each of which carefully examines the repercussions. "No Fear," written by Richard T. Hull, a philosophy professor, articulates a perspective that focuses on the positive aspects and scientific potential of cloning human cells. "Even If It Worked, Cloning Wouldn't Bring Her Back," by Thomas H. Murray, president of the Hastings Center, a bioethics research institute, argues that cloning is an imprecise science that cannot "change the fact of death nor deflect the pain of grief."

U.S. Company Says It Cloned Human Embryo for Cells

by Maggie Fox

Washington (Reuters)—A U.S. company said on Sunday it had cloned a human embryo for the first time ever in a breakthrough aimed not at creating a human being but at mining the embryo for stem cells used to treat diseases.

Biotechnology company Advanced Cell Technology Inc. (ACT), based in Worcester, Massachusetts, said it hopes the experiment will lead to tailored treatments for diseases ranging from Parkinson's to juvenile diabetes.

It also coaxed a woman's egg cell into becoming an early embryo on its own, without any kind of fertilization.

Although animals have been cloned repeatedly since Dolly the sheep made her appearance in 1997, and although there were no real technical barriers to making a cloned human embryo, the research crosses a line that may leave many around the world uneasy and even hostile.

The company was at pains to stress that it did not intend to create ranks of genetically identical babies.

"Our intention is not to create cloned human beings, but rather to make lifesaving therapies for a wide range of human disease conditions, including diabetes, strokes, cancer, AIDS, and neurodegenerative disorders such as Parkinson's and Alzheimer's disease," Dr. Robert Lanza, a vice president at ACT, said in a statement.

The goal is to take a piece of skin and grow a new heart for a heart patient, or some brain tissue for an Alzheimer's patient, or vital pancreatic cells for a diabetes patient. But the announcement quickly drew criticism from those fearing the step would lead to the cloning of a human being.

The U.S. Congress has moved to outlaw all human cloning. A proposed new law is under consideration by the Senate, where lawmakers expressed some alarm at Sunday's news.

Michael West, chief executive officer of ACT, hinted that moves in Congress were why the company moved so quickly to report its findings. Federal law prohibits the use of taxpayer money for experimenting on human embryos but ACT is a privately funded company and can do as it pleases—for now.

The House has already backed a broad ban on this type of research, and President Bush has praised the bill. The Senate has not yet taken up companion legislation, and several senators said they did not want to rush into legislation without fully understanding the scientific implications.

Visual Thinking

Cloning Mammals

In this photo you are looking at the result of the first cloned animal—what is your reaction? Should limited cell cloning be pursued if it can help cure serious human illnesses? Why or why not? Should the actual cloning of people be permitted? Why or why not?

Source of Stem Cells

Advanced Cell Technology said it had used cloning technology to grow a tiny ball of cells that could then be used as a source of stem cells. Embryonic stem cells are a kind of master cell that can grow into any kind of cell in the body.

"Scientifically, biologically, the entities we are creating are not an individual. They're only cellular life," West told NBC's *Meet the Press.*

ACT Vice President Joe Cibelli, who led the research, said his team had used classic cloning technology using a human egg and a human skin cell. They removed the DNA from the egg cell and replaced it with DNA from the nucleus of the adult cell.

The egg began dividing as if it had been fertilized by a sperm, but was stopped from becoming a baby—at the stage at which it was still a ball of cells. The same technology has been used to clone sheep, cattle and monkeys.

The company did not say whether it had successfully removed embryonic stem cells from the cloned embryo.

The company also reported a second breakthrough in its paper, published in the online journal *E-biomed: Journal of Regenerative Medicine.* Researchers took a human egg cell and got it to progress to the embryo stage without any kind of fertilization, either by sperm or outside genetic material.

The process is known as parthenogenesis, and occurs in insects and microbes but not naturally in higher animals.

Second Breakthrough—"Virgin" Conception

"You hesitate to describe it as a virgin birth, but it is sort of in that vein," John Rennie, editor-in-chief of *Scientific American* magazine, which publishes an article by ACT scientists in its January [2002] issue and whose reporter watched some of ACT's work in progress, said in a phone interview.

"That is an amazing accomplishment in its own right and, like cloning, something that people once thought was impossible in mammals."

Both cloning and stem cell technology are highly controversial areas of research in the United States. Stem cells are valued by scientists because they could be used to treat many diseases, including cancer and AIDS.

They can come from adults but the most flexible sources so far seem to be very early embryos—so small they are only a ball of a few cells. Such embryos, usually left over from attempts to make test-tube babies, are destroyed in the process, so many people oppose it.

President Bush decided earlier this year that federal funds could be used for research on embryonic stem cells, but only on those that had been created before August [2001], found at 11 different academic and private laboratories.

When combined with cloning technology, the hope is that patients could be the source of their own tissue or organs, a technology known as therapeutic cloning.

"Human therapeutic cloning could be used for a host of age-related diseases," said West.

Reproduction Now in Hands of Men

Groups that have traditionally opposed abortion and embryo experimentation were quick to condemn the research.

"Some may call it a medical breakthrough. I believe it is a moral breakdown," Raymond Flynn, president of the National Catholic Alliance and a former U.S. ambassador to the Vatican, said in a statement.

"Human reproduction is now in the hands of men, when it rightfully belongs in the hands of God."

But the Biotechnology Industry Organization supported the research.

"Those of us who have testified before Congress on BIO's behalf regarding this issue have stated repeatedly that reproductive cloning is untested, unsafe, and morally repugnant," BIO president Carl Feldbaum said in a statement.

"BIO does, however, support therapeutic applications of cloning of cells and tissues—techniques that would not result in cloned children, but could produce treatments and cures for some of humanity's most vexing diseases and disabilities, especially and most immediately diabetes and Parkinson's."

The company said it had grown only a single embryo as far as the six-cell stage. But West said that had the embryo been placed in a woman's womb, it could possibly have grown into a human being.

"We took extreme measures to ensure that a cloned human could not result from this technology," he said.

In August, three researchers considered mavericks in the scientific community said they planned to clone people to help infertile couples, but experts told a meeting of the National Academy of Scientists that they lacked the needed skills.

No Fear

by RICHARD T. HULL

My typical reaction to noteworthy scientific advances is amazement and joy: amazement at the complexity of scientific knowledge and its rate of expansion, joy at living in a time when there is so much promise offered by science for having a major impact on human destiny. As a humanist, I see the ability of my species to manage its own evolution to be one of its most wonderful emerging properties, an ability that distinguishes humans from every other species. So I am deeply suspicious of attempts to impose bans on specific efforts to extend to humans new technologies achieved in animal models.

The Power of Science

The modern biological journey we are on, viewed unclouded by irrational fears and sweeping theological generalizations, is truly extraordinary. The cloning of a female sheep in Scotland stands as testimony to the power of the scientific method. Again and again, things we seem to know are overturned by the scientific testing of those knowledge claims. The cloning of Dolly from nucleus material taken from a cell of her progenitor's udder and inserted into an unfertilized egg (sans nucleus) was stunning. It refuted the widely held belief that the specialization of cells that goes on through the development and maintenance of an organism is an irreversible, linear process.

Such a belief underlies the distinction many held between a fertilized ovum and a body cell. People found it tempting to call the former an individual human being, the latter merely an individual human cell because of the supposed difference in potential. But now we know that most of our cells have the potential, if situated and manipulated appropriately, to generate an individual human being.

We have yet to hear from the theologians on this point, but my guess is that the status of the fertilized ovum in such circles is going to have to be fundamentally rethought as a result of this advance. Once again, when science and faith have been put to the test, beliefs generated by faith have not survived. The production of Dolly is on a par with Galileo pointing his telescope at the moon and seeing mountains and craters.

Nor do I view kindly the efforts of the Clinton administration to block the extension of this technology to humans. I hope the intent was a temporary moratorium to permit the President's Commission on Bioethics time to assemble the testimony of a variety of experts and commentators to quiet the fears fanned by the media's sensationalism. But I fear that the result may be a chilling effect on our most advanced researchers in this field.

The similar knee-jerk reaction of the British government in ending the grant to Dr. Ian Wilmut under which Dolly was brought about was alarming. It is implausible to say that the aims of the grant have been completed when the experiment produced but a single sheep out of several hundred attempts. Such a success is but a first indicator of possibilities, not the perfection of a technology. Withdrawal of funding in the face of the initial reports of the media must give any scientist in this field serious doubts about continuing investigations, even on the remaining questions to be answered in animal models.

Undeterred Inquiry

Those remaining questions, of course, should be answered before proceeding to human applications. They include the question of whether the DNA of an adult animal's cells has "aged." We know that errors of transcription in the DNA of specialized body cells accumulate as those cells divide and are replaced during the animal's life. Such mutations come from environmental factors (radiation, exposure to chemicals) that produce genetic breakage and from errors caused by imperfect replication. And there seems to be a theoretical limit in humans of about 50 cell divisions, after which division of a line of cells ceases and the cells simply age and die. The question these facts pose, then, is whether the DNA of Dolly's progenitor cell, taken from a six-year-old adult ewe's udder, carries with it such signs of aging. We simply don't know whether Dolly was born "six years old" or whether she faces the prospect of a life as lengthy as that of a sheep produced sexually. And we don't know whether Dolly will contract earlier the kinds of cancers and other age-related diseases that sheep produced sexually will.

Moreover, Dolly was the only ewe born of several hundred attempts at the same procedure. Why the procedure worked in roughly 0.3% of the cases and none of the others needs to be understood. The technology of cloning must be improved before it is commercially viable in animal husbandry, let alone appropriate to try in humans. . . .

Should such matters be controlled by governmental panels? Governmental panels are poor substitutes for the good sense and open communications of scientists working towards the same goal. What possible expertise does a congressman or senator have that is relevant to the question of whether the technology is good enough to try on a human? Such "solons"—wise lawgivers—are not dedicated to the rational advance of scientific questions—at least, not as their prime mission. They are, for the most part, motivated to reflect the interests of the strongest contributors among the groups they represent. And the presidency is also subject to pressures of media sensationalism, special interest groups, and polls.

False Alarms

Contrast the humanistic view of cloning with some of the more irrational concerns raised about Dolly and the prospect of cloning humans.

Handicapped infants will surely be the unavoidable result of early cloning attempts. If the standard of producing no damaged, handicapped infants were the litmus test of a method of human reproduction, the species should have stopped sexual reproduction long ago since it is the chief source of such unfortunates!

Cloning humans will contravene nature's wisdom in constantly mixing the human gene pool. The claim here is that having children genetically identical with their parents and grandparents and greatgrandparents will eventually weaken human diversity and deny future generations the benefits of what in the plant world is called "hybrid vigor." I have mentioned the two questions that are related to the genetic health and longevity of cloned individuals, and they must surely be answered before we proceed to introduce the technology into human reproduction. But just as the presence of carrots in the human diet doesn't mean we will necessarily all turn yellow from overindulgence in carotene-bearing foods, so the presence of cloning in medicine's arsenal doesn't mean that at some future date all humans will be clones of past generations. As an expensive medical therapy, cloning will have a small number of takers. And the worry associated with its development is no greater than the worries associated with the development of *in vitro* fertilization, or artificial inseminations, and probably considerably less than those associated with surrogacy.

No Exact Copies

Egomaniacal individuals will have themselves cloned to achieve a kind of immortality. We already know enough about the interaction between heredity and environment to know that it's impossible to reproduce all the influences that go into the making of an individual. Big egos may seize upon cloning as a kind of narcissistic self-recreation just as individuals now seize upon sexual reproduction as a kind of narcissistic self-recreation. When people do have children for narcissistic reasons, they are usually disappointed that the children don't turn out as their parents did. Because of the essentially unreproducible nature of

environmental influences, cloning won't be any more successful at producing copies of their progenitors than sexual reproduction is. Yet another disappointment for big egos!

Cloning will be used to create embryos that can be frozen, then thawed and gestated as organ farms for their progenitors to harvest when facing major organ failure. This interesting worry—interesting because it may have some basis—deserves serious reflection. Given the way the fact of cloning transforms the question of the special status of the fertilized ovum, we may be on the verge of rethinking the whole question of what abortion is. If even the most conservative positions must now reopen the question of when the individual human begins, we may come to see harvesting fetal organs to be more like taking specialized cells from a culture than like taking organs from a baby.

Mastering the Genetic Code

But the more interesting possibility is that the development of cloning technology will be accompanied by mastery of the genetic code by which genes are turned on or off to sequence specialization. It may be possible in the future to clone individual organs without having to employ the medium of the fetus. Such a process should be faster than a nine-month gestation, and the availability of artificial womb technology (or some equivalent suitable for organ cloning) would make possible enormously important advances in organ transplantation that would be free of the complications of immune system suppression necessary for transplanting genetically non-identical organs. So while there are potential moral problems and temptations along the way, we should not recoil from them. As is nearly always the case with scientific advances, the likely potential benefits vastly outweigh the possible risks.

Those with religious scruples concerning cloning and other future biomedical technologies need not employ them. Plenty of existing children need adoption; a more rational routine retrieval practice for transplantable organs would increase the supply; real wombs, whether owned or rented, will continue to provide an ample supply of human babies. Those of us who see the future of humankind in evolving greater and greater control over our destinies, who see human strivings and human achievements as the source of humanity's value, say this: cancel the executive orders, unchain our science, minimize its regulation, and let us rejoice in its fruits.

Even If It Worked, Cloning Wouldn't Bring Her Back

by THOMAS H. MURRAY

Eleven days ago, as I awaited my turn to testify at a congressional hearing on human reproductive cloning, one of five scientists on the witness list took the

microphone. Brigitte Boisselier, a chemist working with couples who want to use cloning techniques to create babies, read aloud a letter from "a father, (Dada)." The writer, who had unexpectedly become a parent in his late thirties, describes his despair over his 11-month-old son's death after heart surgery and 17 days of "misery and struggle." The room was quiet as Boisselier read the man's words: "I decided then and there that I would never give up on my child. I would never stop until I could give his DNA—his genetic make-up—a chance."

I listened to the letter writer's refusal to accept the finality of death, to his wish to allow his son another opportunity at life through cloning, and I was struck by the futility and danger of such thinking. I had been asked to testify as someone who has been writing and teaching about ethical issues in medicine and science for more than 20 years; but I am also a grieving parent. My 20-year-old daughter's murder, just five months ago, has agonizingly reinforced what I have for years argued as an ethicist: Cloning can neither change the fact of death nor deflect the pain of grief.

Only four years have passed since the birth of the first cloned mammal—Dolly the sheep—was announced and the possibility of human cloning became real. Once a staple of science fiction, cloning was now the stuff of scientific research. A presidential commission, of which I am a member, began to deliberate the ethics of human cloning; scientists disavowed any interest in trying to clone people; and Congress held hearings but passed no laws. A moratorium took hold, stable except for the occasional eruption of self-proclaimed would-be cloners such as Chicago-based physicist Richard Seed and a group led by a man named Rael who claims that we are all clones of alien ancestors.

Recently, Boisselier, Rael's chief scientist, and Panos Zavos, an infertility specialist in Kentucky, won overnight attention when they proclaimed that they would indeed create a human clone in the near future. The prospect that renegade scientists might try to clone humans reignited the concern of lawmakers, which led to the recent hearings before the House Energy and Commerce subcommittee on oversight and investigations.

Cloning advocates have had a difficult time coming up with persuasive ethical arguments. Indulging narcissism—so that someone can create many Mini-Me's—fails to generate much support for their cause. Others make the case that adults should have the right to use any means possible to have the child they want. Their liberty trumps everything else; the child's welfare barely registers, except to avoid a life that would be worse than never being born, a standard akin to dividing by zero—no meaningful answer is possible. The strategy that has been the most effective has been to play the sympathy card—and who evokes more sympathy than someone who has lost a child?

Sadly, I'm in a position to correct some of these misunderstandings. I'm not suggesting that my situation is the same as that of the letter's author. Not better.

Not worse. Simply different. His son was with him for less than a year, our daughter for 20; his son died of disease in a hospital; Emily, daughter to Cynthia and me, sister to Kate and Matt, Nicky and Pete, was reported missing from her college campus in early November. Her body was found more than five weeks later. She had been abducted and shot.

As I write those words, I still want to believe they are about someone else, a story on the 11 o'clock news. Cynthia and I often ask each other, how can this be our life? But it is our life. And Emily, as a physical, exuberant, loving presence, is not in the same way a part of it anymore. Death changes things and, I suspect, the death of a child causes more wrenching grief than any other death. So I am told; so my experience confirms.

I want to speak, then, to the author of that letter, father to father, grieving parent to grieving parent; and to anyone clinging to unfounded hope that cloning can somehow repair the arbitrariness of disease, unhappiness and death. I have nothing to sell you, I don't want your money, and I certainly don't want to be cruel. But there are hard truths here that some people, whether through ignorance or self-interest, are obscuring.

The first truth is that cloning does not result in healthy, normal offspring. The two scientific experts on animal cloning who shared the panel with Boisselier reported the results of the cattle, mice and other mammals cloned thus far: They have suffered staggering rates of abnormalities and death; some of the females bearing them have been injured and some have died. Rudolf Jaenisch, an expert on mouse cloning at MIT's Whitehead Institute for Biomedical Research, told the subcommittee that he did not believe there was a single healthy cloned mammal in existence—not even Dolly, the sheep that started it all, who is abnormally obese.

Scientists do not know why cloning fails so miserably. One plausible explanation begins with what we already know—that as the cells of an embryo divide and begin to transform into the many varieties of tissue that make up our bodies, most of the genes in each cell are shut down, leaving active only those that the cell needs to perform its specific role. A pancreatic islet cell, for example, needs working versions of the genes that recognize when a person needs the hormone insulin, then cobble it together and shunt it into the bloodstream. All of that individual's other genetic information is in that islet cell, but most of it is chemically locked, like an illegally parked car immobilized by a tire boot.

To make a healthy clone, scientists need to unlock every last one of those tire boots in the cell that is to be cloned. It is not enough to have the genes for islet cells; every gene will be needed sometime, somewhere. Unless and until scientists puzzle out how to restore all the genes to their original state, we will continue to see dead, dying and deformed clones.

You do not need to be a professional bioethicist, then, to see that trying to make a child by cloning, at this stage in the technology, would be a gross

violation of international standards protecting people from overreaching scientists, a blatant example of immoral human experimentation.

Some scientists claim they can avoid these problems. Zavos, who spoke at the hearing, has promised to screen embryos and implant only healthy ones. But Zavos failed to give a single plausible reason to believe that he can distinguish healthy from unhealthy cloned embryos.

Now for the second truth: Even if cloning produced a healthy embryo, the result would not be the same person as the one whose genetic material was used. Each of us is a complex amalgam of luck, experience and heredity. Where in the womb an embryo burrows, what its mother eats or drinks, what stresses she endures, her age—all these factors shape the developing fetus. The genes themselves conduct an intricately choreographed dance, turning on and off, instructing other genes to do the same in response to their interior rhythms and to the pulses of the world outside. How we become who we are remains a mystery.

About the only thing we can be certain of is that we are much more than the sum of our genes. As I said in my testimony, perhaps the best way to extinguish the enthusiasm for human cloning would be to clone Michael Jordan. Michael II might well have no interest in playing basketball but instead long to become an accountant. What makes Michael I great is not merely his physical gifts, but his competitive fire, his determination, his fierce will to win.

Yet another hard truth: Creating a child to stand in for another—dead—child is unfair. No child should have to bear the oppressive expectation that he or she will live out the life denied to his or her idealized genetic avatar. Parents may joke about their specific plans for their children; I suspect their children find such plans less amusing. Of course, we should have expectations for our children: that they be considerate, honest, diligent, fair and more. But we cannot dictate their temperament, talents or interests. Cloning a child to be a reincarnation of someone else is a grotesque, fun-house mirror distortion of parental expectations.

Which brings me to the final hard truth: There is no real escape from grief.

Cynthia and I have fantasized about time running backward so that we could undo Emily's murder. We would give our limbs, our organs, our lives to bring her back, to give her the opportunity to live out her dream of becoming an Episcopal priest, of retiring as a mesmerizing old woman sitting on her porch on Cape Cod, surrounded by her grandchildren and poodles.

But trying to recreate Emily from her DNA would be chasing an illusion. Massive waves of sorrow knock us down, breathless; we must learn to live with them. When our strength returns we stagger to our feet, summon whatever will we can, and do what needs to be done. Most of all we try to hold each other up. We can no more wish our grief away than King Canute could stem the ocean's tide.

So I find myself wanting to say to the letter writer, and to the scientists who offer him and other sorrowing families false hope: There are no technological fixes for grief; cloning your dear dead son will not repair the jagged hole ripped out of

the tapestry of your life. Your letter fills me with sadness for you and your wife, not just for the loss of your child but also for the fruitless quest to quench your grief in a genetic replica of the son you lost. It would be fruitless even—especially—if you succeeded in creating a healthy biological duplicate. But there is little chance of that.

Emily lived until a few months shy of her 21st birthday. In those years our lives became interwoven in ways so intricate that I struggle for words to describe how Cynthia and I now feel. We were fortunate to have her with us long enough to see her become her own person, to love her wholeheartedly and to know beyond question that she loved us. Her loss changes us forever. Life flows in one direction; science cannot reverse the stream or reincarnate the dead.

The Emily we knew and loved would want us to continue to do what matters in our lives, to love each other, to do good work, to find meaning. Not to forget her, ever: We are incapable of that. Why would we want to? She was a luminous presence in our family, an extraordinary friend, a promising young philosopher. And we honor her by keeping her memory vibrant, not by trying to manufacture a genetic facsimile. And that thought makes me address the letter's author once more: I have to think that your son, were he able to tell you, would wish for you the same.
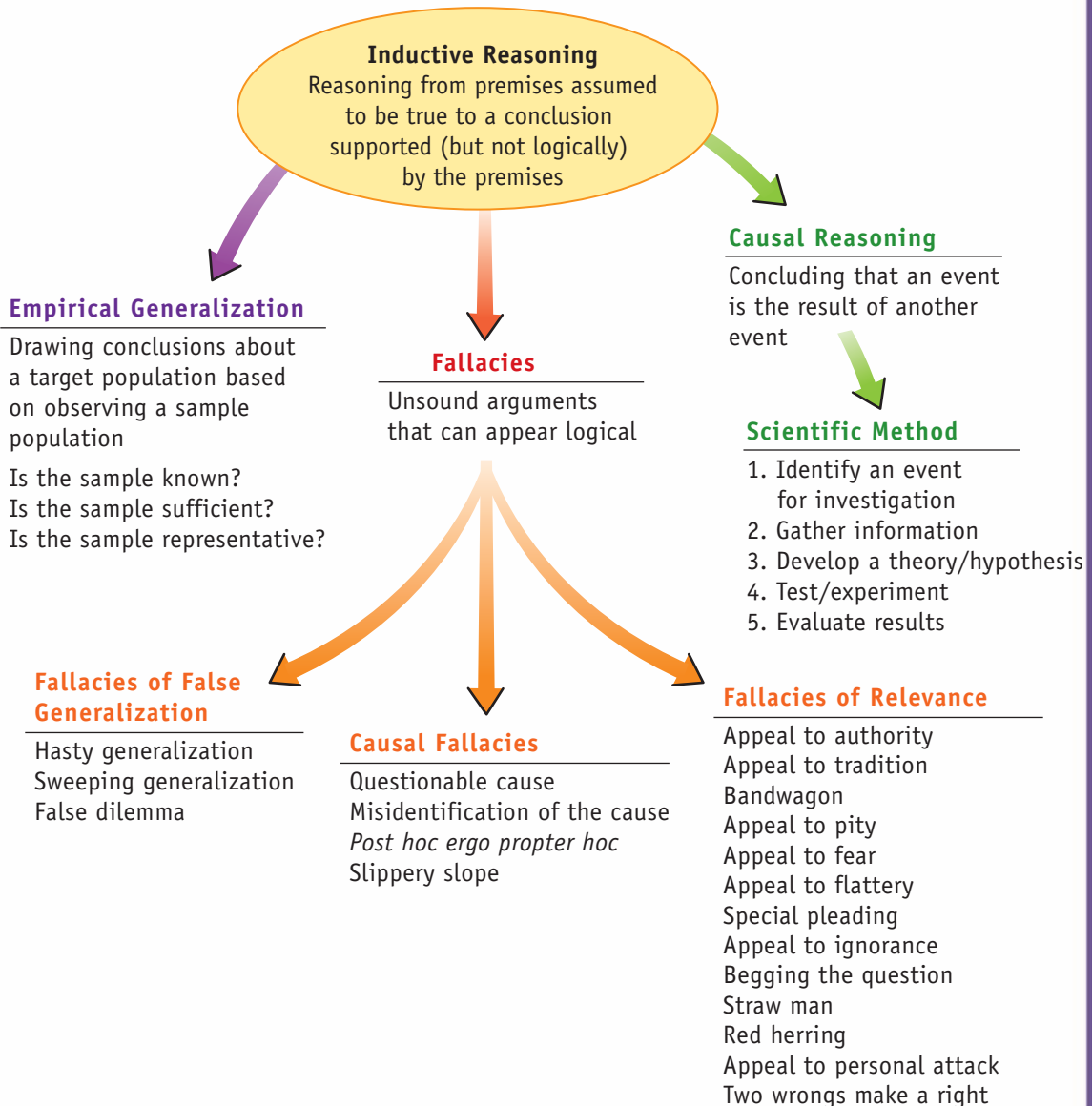
Questions for Analysis

For each article on human cloning, do the following:

1. Identify the arguments that were used and summarize the reasons and conclusion for each.

2. Describe the types of argument forms that you identified.

3. Evaluate the *truth* of the reasons that support the conclusion for each of the arguments that you identified and the *validity* of the logical form.

4. Imagine that you have been asked by the president to prepare a position paper on human cloning that he can use to shape the government's policy. Construct an extended argument regarding human cloning, using the format described on the student website at **college.hmco.com/pic/chaffeetc9e**. Be sure to include arguments on both sides of the issue and end with your own reasoned analysis and conclusion. Be sure to include specific policy recommendations that you believe the government should take with respect to cloning.

ONLINE RESOURCES
Visit the student website for *Thinking Critically* at **college.hmco.com/pic/chaffeetc9e** for guidelines on presenting your ideas as an extended argument.

Inductive Reasoning
Reasoning from premises assumed to be true to a conclusion supported (but not logically) by the premises

Empirical Generalization

Drawing conclusions about a target population based on observing a sample population

Is the sample known?
Is the sample sufficient?
Is the sample representative?

Fallacies

Unsound arguments that can appear logical

Causal Reasoning

Concluding that an event is the result of another event

Scientific Method

1. Identify an event for investigation
2. Gather information
3. Develop a theory/hypothesis
4. Test/experiment
5. Evaluate results

Fallacies of False Generalization

Hasty generalization
Sweeping generalization
False dilemma

Causal Fallacies

Questionable cause
Misidentification of the cause
Post hoc ergo propter hoc
Slippery slope

Fallacies of Relevance

Appeal to authority
Appeal to tradition
Bandwagon
Appeal to pity
Appeal to fear
Appeal to flattery
Special pleading
Appeal to ignorance
Begging the question
Straw man
Red herring
Appeal to personal attack
Two wrongs make a right

Reasoning is the type of thinking that uses arguments—reasons in support of conclusions—to decide, explain, predict, and persuade. Effective reasoning involves using all of the intellectual skills and critical attitudes we have been developing in this book, and in this chapter we will further explore various dimensions of the reasoning process.

Inductive Reasoning

Chapter 10 focused primarily on *deductive reasoning*, an argument form in which one reasons from premises that are known or assumed to be true to a conclusion that follows necessarily from the premises. In this chapter we will examine **inductive reasoning**, an argument form in which one reasons from premises that are known or assumed to be true to a conclusion that is supported by the premises but does not follow logically from them.

> **inductive reasoning** An argument form in which one reasons from premises that are known or assumed to be true to a conclusion that is supported by the premises but does not necessarily follow from them

When you reason inductively, your premises provide evidence that makes it more or less probable (but not certain) that the conclusion is true. The following statements are examples of conclusions reached through inductive reasoning.

1. A recent Gallup Poll reported that 74 percent of the American public believes that abortion should remain legalized.

2. On the average, a person with a college degree will earn over $1,140,000 more in his or her lifetime than a person with just a high-school diploma.

3. In a recent survey twice as many doctors interviewed stated that if they were stranded on a desert island, they would prefer Bayer Aspirin to Extra Strength Tylenol.

4. The outbreak of food poisoning at the end-of-year school party was probably caused by the squid salad.

5. The devastating disease AIDS is caused by a particularly complex virus that may not be curable.

6. The solar system is probably the result of an enormous explosion—a "big bang"—that occurred billions of years ago.

The first three statements are forms of inductive reasoning known as *empirical generalization*, a general statement about an entire group made on the basis of observing some members of the group. The final three statements are examples of *causal reasoning*, a form of inductive reasoning in which it is claimed that an event (or events) is the result of the occurrence of another event (or events). We will be

exploring the ways each of these forms of inductive reasoning functions in our lives and in various fields of study.

In addition to examining various ways of reasoning logically and effectively, we will also explore certain forms of reasoning that are not logical and, as a result, are usually not effective. These ways of pseudo-reasoning (false reasoning) are often termed **fallacies:** arguments that are not sound because of various errors in reasoning. Fallacious reasoning is typically used to influence others. It seeks to persuade not on the basis of sound arguments and critical thinking but rather on the basis of emotional and illogical factors.

> **fallacies** Unsound arguments that are often persuasive and appearing to be logical because they usually appeal to our emotions and prejudices, and because they often support conclusions that we want to believe are accurate

Empirical Generalization

One of the most important tools used by both natural and social scientists is empirical generalization. Have you ever wondered how the major television and radio networks can accurately predict election results hours before the polls close? These predictions are made possible by the power of **empirical generalization**, a first major type of inductive reasoning that is defined as reasoning from a limited sample to a general conclusion based on this sample.

> **empirical generalization** A form of inductive reasoning in which a general statement is made about an entire group (the "target population") based on observing some members of the group (the "sample population")

Network election predictions, as well as public opinion polls that occur throughout a political campaign, are based on interviews with a select number of people. Ideally, pollsters would interview everyone in the *target population* (in this case, voters), but this, of course, is hardly practical. Instead, they select a relatively small group of individuals from the target population, known as a *sample*, who they have determined will adequately represent the group as a whole. Pollsters believe that they can then generalize the opinions of this smaller group to the target population. And with a few notable exceptions (such as in the 1948 presidential election, when New York governor Thomas Dewey went to bed believing he had been elected president and woke up a loser to Harry Truman, and the 2000 election, when Al Gore was briefly declared the presidential winner over George W. Bush), these results are highly accurate.

There are three key criteria for evaluating inductive arguments:

- Is the sample known?
- Is the sample sufficient?
- Is the sample representative?

Is the Sample Known?

An inductive argument is only as strong as the sample on which it is based. For example, sample populations described in vague and unclear terms—"highly placed sources" or "many young people interviewed," for example—provide a treacherously weak foundation for generalizing to larger populations. In order for an inductive argument to be persuasive, the sample population should be explicitly known and clearly identified. Natural and social scientists take great care in selecting the members in the sample groups, and this is an important part of the data that is available to outside investigators who may wish to evaluate and verify the results.

Is the Sample Sufficient?

The second criterion for evaluating inductive reasoning is to consider the size of the sample. It should be sufficiently large enough to give an accurate sense of the group as a whole. In the polling example discussed earlier, we would be concerned if only a few registered voters had been interviewed, and the results of these interviews were then generalized to a much larger population. Overall, the larger the sample, the more reliable the inductive conclusions. Natural and social scientists have developed precise guidelines for determining the size of the sample needed to achieve reliable results. For example, poll results are often accompanied by a qualification such as "These results are subject to an error factor of ± 3 percentage points." This means that if the sample reveals that 47 percent of those interviewed prefer candidate X, then we can reliably state that 44 to 50 percent of the target population prefer candidate X. Because a sample is usually a small portion of the target population, we can rarely state that the two match each other exactly—there must always be some room for variation. The exceptions to this are situations in which the target population is completely homogeneous. For example, tasting one cookie from a bag of cookies is usually enough to tell us whether or not the entire bag is stale.

Is the Sample Representative?

The third crucial element in effective inductive reasoning is the *representativeness* of the sample. If we are to generalize with confidence from the sample to the target population, then we have to be sure the sample is similar to the larger group from which it is drawn in all relevant aspects. For instance, in the polling example the sample population should reflect the same percentage of men and women, of Democrats and Republicans, of young and old, and so on, as the target population. It is obvious that many characteristics, such as hair color, favorite food, and shoe size, are not relevant to the comparison. The better the sample reflects the target population in terms of *relevant* qualities, the better the accuracy of the generalizations. However, when the sample is *not* representative of the target population—for example, if the election pollsters interviewed only females between the ages of thirty

and thirty-five—then the sample is termed *biased*, and any generalizations about the target population will be highly suspect.

How do we ensure that the sample is representative of the target population? One important device is *random selection*, a selection strategy in which every member of the target population has an equal chance of being included in the sample. For example, the various techniques used to select winning lottery tickets are supposed to be random—each ticket is supposed to have an equal chance of winning. In complex cases of inductive reasoning—such as polling—random selection is often combined with the confirmation that all of the important categories in the population are adequately represented. For example, an election pollster would want to be certain that all significant geographical areas are included and then would randomly select individuals from within those areas to compose the sample.

Understanding the principles of empirical generalization is of crucial importance to effective thinking because we are continually challenged to construct and evaluate this form of inductive argument in our lives.

Thinking Activity 11.1

EVALUATING INDUCTIVE ARGUMENTS

Review the following examples of inductive arguments. (Additional examples are included on the student website at **college.hmco.com/pic/chaffeetc9e**.) For each argument, evaluate the quality of the thinking by answering the following questions:

1. Is the sample known?
2. Is the sample sufficient?
3. Is the sample representative?
4. Do you believe the conclusions are likely to be accurate? Why or why not?

Link Between Pornography and Antisocial Behavior? In a study of a possible relationship between pornography and antisocial behavior, questionnaires went out to 7,500 psychiatrists and psychoanalysts whose listing in the directory of the American Psychological Association indicated clinical experience. Over 3,400 of these professionals responded. The result: 7.4 percent of the psychiatrists and psychologists had cases in which they were convinced that pornography was a causal factor in antisocial behavior; an additional 9.4 percent were suspicious; 3.2 percent did not commit themselves; and 80 percent said they had no cases in which a causal connection was suspected.

To Sleep, Perchance to Die? A survey by the Sleep Disorder Clinic of the VA hospital in La Jolla, California (involving more than one million people), revealed that people who sleep more than ten hours a night have a death rate 80 percent higher than those who sleep only seven or eight hours. Men who sleep less than four hours a night have a death rate 180 percent higher, and women with less [than four hours] sleep have a rate 40 percent higher. This might be taken as indicating that too much or too little sleep causes death.

"Slow Down, Multitaskers" Think you can juggle phone calls, email, instant messages, and computer work to get more done in a time-starved world? Several research reports provide evidence of the limits of multitasking. "Multitasking is going to slow you down, increasing the chances of mistakes," according to David E. Meyer, a cognitive scientist at the University of Michigan. The human brain, with its hundred billion neurons and hundreds of trillions of synaptic connections, is a cognitive powerhouse in many ways. "But a core limitation is an inability to concentrate on two things at once," according to Rene Marois, a neuroscientist at Vanderbilt University. In a recent study, a group of Microsoft workers took, on average, 15 minutes to return to serious mental tasks, like writing reports or computer code, after responding to incoming email or instant messages. They strayed off to reply to other messages or to browse news, sports, or entertainment websites.

ONLINE RESOURCES
Visit the student website for *Thinking Critically* at **college.hmco.com/pic/chaffeetc9e** for additional examples of inductive arguments.

Thinking Activity 11.2

DESIGNING A POLL

Select an issue that you would like to poll a group of people about—for example, the population of your school or your neighborhood. Describe in specific terms how you would go about constructing a sample both large and representative enough for you to generalize the results to the target population accurately.

Fallacies of False Generalization

In Chapter 7 we explored the way that we form concepts through the interactive process of generalizing (identifying the common qualities that define the boundaries of the concept) and interpreting (identifying examples of the concept). This generalizing and interpreting process is similar to the process involved in constructing empirical generalizations, in which we seek to reach a general conclusion based on a limited number of examples and then apply this conclusion to other examples. Although generalizing and interpreting are useful in forming concepts, they also can give rise to fallacious ways of thinking, including the following:

- Hasty generalization
- Sweeping generalization
- False dilemma

Hasty Generalization

Consider the following examples of reasoning. Do you think that the arguments are sound? Why or why not?

> My boyfriends have never shown any real concern for my feelings. My conclusion is that men are insensitive, selfish, and emotionally superficial.

> My mother always gets upset over insignificant things. This leads me to believe that women are very emotional.

In both of these cases, a general conclusion has been reached that is based on a very small sample. As a result, the reasons provide very weak support for the conclusions that are being developed. It just does not make good sense to generalize from a few individuals to all men or all women. The conclusions are *hasty* because the samples are not large enough and/or not representative enough to provide adequate justification for the generalization.

 Of course, many generalizations are more warranted than the two given here because the conclusion is based on a sample that is larger and more representative of the group as a whole. For example:

> I have done a lot of research in a variety of automotive publications on the relationship between the size of cars and the gas mileage they get. In general, I think it makes sense to conclude that large cars tend to get fewer miles per gallon than smaller cars.

In this case, the conclusion is generalized from a larger and more representative sample than those in the preceding two arguments. As a result, the reason for the last argument provides much stronger support for the conclusion.

Sweeping Generalization

Whereas the fallacy of hasty generalization deals with errors in the process of generalizing, the fallacy of *sweeping generalization* focuses on difficulties in the process of interpreting. Consider the following examples of reasoning. Do you think that the arguments are sound? Why or why not?

> Vigorous exercise contributes to overall good health. Therefore, vigorous exercise should be practiced by recent heart attack victims, people who are out of shape, and women who are about to give birth.

> People should be allowed to make their own decisions, providing that their actions do not harm other people. Therefore, people who are trying to commit suicide should be left alone to do what they want.

In both of these cases, generalizations that are true in most cases have been deliberately applied to instances that are clearly intended to be exceptions to the generalizations because of special features that the exceptions possess. Of course, the use of sweeping generalizations stimulates us to clarify the generalization, rephrasing it to exclude instances, like those given here, that have special features. For example, the

first generalization could be reformulated as "Vigorous exercise contributes to overall good health, *except for* recent heart attack victims, people out of shape, and women who are about to give birth." Sweeping generalizations become dangerous only when they are accepted without critical analysis and reformulation.

Review the following examples of sweeping generalizations, and in each case (a) explain *why* it is a sweeping generalization and (b) reformulate the statement so that it becomes a legitimate generalization.

1. A college education stimulates you to develop as a person and prepares you for many professions. Therefore, all persons should attend college, no matter what career they are interested in.

2. Drugs such as heroin and morphine are addictive and therefore qualify as dangerous drugs. This means that they should never be used, even as painkillers in medical situations.

3. Once criminals have served time for the crimes they have committed, they have paid their debt to society and should be permitted to work at any job they choose.

False Dilemma

The fallacy of the *false dilemma*—also known as the "either/or" fallacy or the "black-or-white" fallacy—occurs when we are asked to choose between two extreme alternatives without being able to consider additional options. For example, we may say, "Either you're for me or against me," meaning that a choice has to be made between these alternatives. Sometimes giving people only two choices on an issue makes sense ("If you decide to swim the English Channel, you'll either make it or you won't"). At other times, however, viewing situations in such extreme terms may be a serious oversimplification—for it would mean viewing a complicated situation in terms that are too simple.

The following statements are examples of false dilemmas. After analyzing the fallacy in each case, suggest different alternatives than those being presented.

EXAMPLE: "Everyone in Germany is a National Socialist—the few outside the party are either lunatics or idiots." (Adolf Hitler, quoted by the *New York Times*, April 5, 1938)

ANALYSIS: This is an oversimplification. Hitler is saying that if you are not a Nazi, then you are a lunatic or an idiot. By limiting the population to these groups, Hitler was simply ignoring all the people who did not qualify as Nazis, lunatics, or idiots.

1. America—love it or leave it!

2. She loves me; she loves me not.

3. Live free or die.

4. If you're not part of the solution, then you're part of the problem. (Eldridge Cleaver)

5. If you know about BMWs, you either own one or you want to.

Thinking Passage

DETECTING FALLACIES OF FALSE GENERALIZATION

In the article entitled "She's Not Really Ill . . . ," columnist (and humorist) Maureen Dowd acknowledges at the outset that she's likely guilty of making a sweeping generalization with her statement "All women have gone crazy." After reading the article, answer the questions that follow.

She's Not Really Ill . . .

by MAUREEN DOWD

Washington—I usually avoid sweeping generalizations.

Lately, however, I have come to the unavoidable conclusion that all women have gone crazy. O.K., maybe not all. But certainly most.

Sure, it's a little inflammatory to claim that most women are nuts and on drugs and that the drugs are clearly not working. But I have some anecdotal evidence to back it up.

First of all, I noticed that a lot of women I know are wacko-bango.

Then a doctor pal confided that she's surprised at how many of her female patients act loony even though they're on mood-smoothing pills—sometimes multiple meds.

Then another friend who took a bunch of high school seniors on a spring vacation mentioned that all the girls were on anti-anxiety and antidepression drugs, some to get an extra edge as they aimed for Ivy League colleges. (Let's not even start on the kiddie hordes on Ritalin.)

And finally, another friend told me she goes to a compounding pharmacy in L.A. where she gets testosterone to jump her libido, or sensurround, a cocktail with ingredients like estrogen, progesterone, DHEA, pregnenelone and tryptophan.

The sequel to *Valley of the Dolls* is being published later this month. Jacqueline Susann, it turned out, was Cassandra in Pucci.

It isn't only neurotic Hollywood beauties any more. Now America is the Valley of the Dolls.

In Ms. Susann's 1966 book, the women had to go to third-rate hotels on New York's West Side to medical offices with dirty windows and sweet-talk doctors

into giving them little red, yellow or blue dolls. Now doctors and pharmaceutical companies sweet-talk patients into feel-good pills.

When I mentioned to a doctor a while ago that I was not in a serious relationship, he asked brightly, "Would you like antidepressants?"

Young professional women in Washington tell girlfriends in a tizzy: "Take a Paxil."

It isn't just women, of course. A young guy I know went in for a check-up last week and told his internist he was on edge because he's getting married and moving out of the country for a big new job.

The doctor proposed an antidepressant called Serzone. My friend refused, pointing out that you're supposed to be nervous before you get married and start a new job.

Doctors now want to medicate you for living your life.

"We're treating a level of depression that would not have been considered a serious illness in the past," says Peter Kramer, who wrote *Listening to Prozac*. Now we're listening to ads touting "Prozac Weekly."

Women have always popped mood-altering pills more than men. Studies show that women in most cultures have twice the rates of depression that men do. And now they feel entitled to speak up about their suffering.

A top psychiatrist told me women take more dolls because they're "hormonally more complicated and biologically more vulnerable. Depression is the downside of attachment, and women are programmed to attach more strongly and punished more when they lose attachments."

There's an antidepressant for women who compulsively shop called Celexa. The *Washington Post* reported recently that Eli Lilly repackaged Prozac as the angelic Sarafem, in a pink and lavender capsule, and launched a multimillion-dollar ad campaign, with a woman irritably yanking a grocery cart, suffering from a new malady ominously called PMDD, premenstrual dysphoric disorder, an uber-PMS psychiatrists say may not be real.

Sales soared for "Prozac in drag," as Dr. Kramer calls it, adding: "The liltingly soft name Sarafem sounds like Esperanto for a beleaguered husband's fantasy—a serene wife."

He finds it ironic that Prozac, the drug that was supposed to help career women assert themselves, has morphed into Sarafem, a mother's little helper to soothe anxious housewives, as Miltown and Valium did in the Stepford wife era.

"Cooking fresh food for a husband's just a drag, so she buys an instant cake and she burns her frozen steak," the Rolling Stones sang in 1966.

So women began taking mood dolls because they felt bored and dissatisfied, home with the kids.

And now that women can have a family and a career, they need mood dolls to give them the confidence and energy to juggle all that stress.

Progress. Don't ya love it?

Questions for Analysis

1. Identify all of the sweeping generalizations, hasty generalizations, and false dilemmas that Dowd includes in her article.

2. What is the major point that Dowd is making in the article? Why do you think she decided to use generalization fallacies to make her point? Do you think the approach is effective? Why or why not?

3. Do you think that drugs are being overprescribed and overused to deal with psychological and emotional problems? If so, provide an example of what you consider to be an excessive use of prescription medications.

4. Why do you think our society is turning increasingly to pharmaceutical solutions for emotional and behavioral problems? For example, Ritalin and other drugs are increasingly being prescribed to deal in school with such children's behavioral and emotional problems as "attention deficit hyperactivity disorder." In 2001, doctors wrote almost 20 million monthly prescriptions for stimulant drugs for children, especially boys, a 13 percent increase over the previous year. From 2002 to 2006, doctors wrote an average of 36 million monthly prescriptions for stimulant drugs for children. In many cases the schools recommended or insisted that the drugs be taken. Some people believe that this is a dangerous trend, that these drugs may have long-term consequences for children, and that there is no scientific basis for the diagnosis of the disorder for which the drugs are prescribed. What do you think?

Causal Reasoning

A second major type of inductive reasoning is **causal reasoning**, a form in which an event (or events) is claimed to be the result of the occurrence of another event (or events).

> **causal reasoning** A form of inductive reasoning in which an event (or events) is claimed to be the result of another event (or events)

As you use your thinking abilities to try to understand the world you live in, you often ask the question "Why did that happen?" For example, if the engine of your car is running roughly, your natural question is "What's wrong?" If you wake up one morning with an upset stomach, you usually ask yourself, "What's the cause?" Or maybe the softball team you belong to has been losing recently. You typically wonder, "What's going on?" In each of these cases you assume that there is some factor (or factors) responsible for what is occurring, some *cause* (or causes) that results in the *effect* (or effects) you are observing (the rough engine, the upset stomach, the losing team).

As you saw in Chapter 8, causality is one of the basic patterns of thinking we use to organize and make sense of our experience. For instance, imagine how bewildered you would feel if a mechanic looked at your car and told you there was no explanation for the poorly running engine. Or suppose you take your upset stomach to the doctor, who examines you and then concludes that there is no possible causal explanation for the malady. In each case you would be understandably skeptical of the diagnosis and would probably seek another opinion.

The Scientific Method

Causal reasoning is also the backbone of the natural and social sciences; it is responsible for the remarkable understanding of our world that has been achieved. The *scientific method* works on the assumption that the world is constructed in a complex web of causal relationships that can be discovered through systematic investigation. Scientists have devised an organized approach for discovering causal relationships and testing the accuracy of conclusions. The sequence of steps is as follows:

1. Identify an event or a relationship between events to be investigated.
2. Gather information about the event (or events).
3. Develop a hypothesis or theory to explain what is happening.
4. Test the hypothesis or theory through experimentation.
5. Evaluate the hypothesis or theory based on experimental results.

How does this sequence work when applied to the situation of the rough-running engine mentioned earlier?

1. ***Identify an event or a relationship between events to be investigated.*** In this case, the event is obvious—your car's engine is running poorly, and you want to discover the cause of the problem so that you can fix it.

2. ***Gather information about the event (or events).*** This step involves locating any relevant information about the situation that will help solve the problem. You initiate this step by asking and trying to answer a variety of questions: When did the engine begin running poorly? Was this change abrupt or gradual? When did the car last have a tune-up? Are there other mechanical difficulties that might be related? Has anything unusual occurred with the car recently?

3. ***Develop a hypothesis or theory to explain what is happening.*** After reviewing the relevant information, you will want to identify the most likely explanation of what has happened. This possible explanation is known as a **hypothesis**. (A *theory* is normally a more complex model that involves a number of interconnected hypotheses, such as the theory of quantum mechanics in physics.)

> **hypothesis** A possible explanation that is introduced to account for a set of facts and that can be used as a basis for further investigation

Although your hypothesis may be suggested by the information you have, it goes beyond the information as well and so must be tested before you commit yourself to it. In this case the hypothesis you might settle on is "water in the gas." This hypothesis was suggested by your recollection that the engine troubles began right after you bought gas in the pouring rain. This hypothesis may be correct or it may be incorrect—you have to test it to find out.

Visual Thinking

Curing Disease
The woman in the photo on the left is an AIDS patient in a hospice run by Buddhist monks. As depicted in the photo on the right, many thousands of scientists around the world are actively seeking cures for a wide range of human illnesses, including AIDS, the plague of our times. Do you know anyone who is engaged in disease-related research?

When you devise a plausible hypothesis to be tested, you should keep three general guidelines in mind:

- *Explanatory power:* The hypothesis should effectively explain the event you are investigating. The hypothesis that damaged windshield wipers are causing the engine problem doesn't seem to provide an adequate explanation of the difficulties.
- *Economy:* The hypothesis should not be unnecessarily complex. The explanation that your engine difficulty is the result of sabotage by an unfriendly neighbor is possible but unlikely. There are simpler and more direct explanations you should test first.
- *Predictive power:* The hypothesis should allow you to make various predictions to test its accuracy. If the "water in the gas" hypothesis is accurate, you can predict that removing the water from the gas tank and gas line should clear up the difficulty.

4. ***Test the hypothesis or theory through experimentation.*** Once you identify a hypothesis that meets these three guidelines, the next task is to devise an experiment to test its accuracy. In the case of your troubled car, you would test your hypothesis by pouring several containers of "dry gas" into the tank, blowing out the gas line, and cleaning the fuel injection valve. By removing the moisture in the gas system, you should be able to determine whether your hypothesis is correct.

5. ***Evaluate the hypothesis or theory based on experimental results.*** After reviewing the results of your experiment, you usually can assess the accuracy of your hypothesis. If the engine runs smoothly after you remove moisture from the gas line, then this strong evidence supports your hypothesis. If the engine does *not* run smoothly after your efforts, then this persuasive evidence suggests that your hypothesis is not correct. There is, however, a third possibility. Removing the moisture from the gas system might improve the engine's performance somewhat but not entirely. In that case you might want to construct a *revised* hypothesis along the lines of "Water in the gas system is partially responsible for my rough-running engine, but another cause (or causes) might be involved as well."

If the evidence does not support your hypothesis or supports a revised version of it, you then begin the entire process again by identifying and testing a new hypothesis. The natural and social sciences engage in an ongoing process of developing theories and hypotheses and testing them through experimental design. Many theories and hypotheses are much more complex than our "moisture in the gas" example and take years of generating, revising, and testing. Determining the subatomic structure of the universe and finding cures for various kinds of cancers, for example, have been the subjects of countless theories and hypotheses, as well as experiments to test their accuracy. We might diagram this operation of the scientific process as follows:

Acceptance, rejection, or revison of a theory/hypothesis

Predictions

Theory/hypothesis

Experimental testing

Information
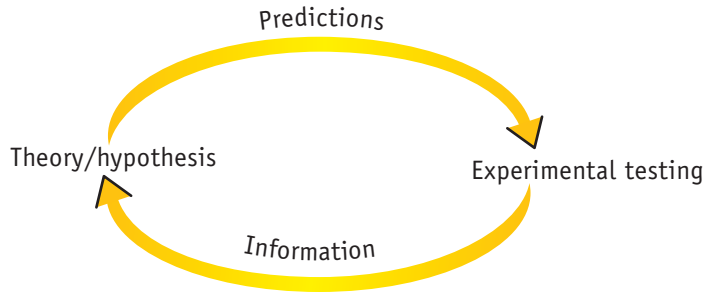
Thinking Activity 11.3

APPLYING THE SCIENTIFIC METHOD

Select one of the following situations or describe a situation of your own choosing. Then analyze the situation by working through the various steps of the scientific method listed directly after.

- Situation 1: You wake up in the morning with an upset stomach.
- Situation 2: Your grades have been declining all semester.
- Situation 3: (Your own choosing)

1. ***Identify an event or a relationship between events to be investigated.*** Describe the situation you have selected.

2. ***Gather information about the event (or events).*** Elaborate the situation by providing additional details. Be sure to include a variety of possible causes for the event. (For example, an upset stomach might be the result of food poisoning, the flu, anxiety, etc.)

3. ***Develop a hypothesis or theory to explain what is happening.*** Based on the information you have described, identify a plausible hypothesis or theory that (a) explains what occurred, (b) is clear and direct, and (c) leads to predictions that can be tested.

4. ***Test the hypothesis or theory through experimentation.*** Design a way of testing your hypothesis that results in evidence proving or disproving it.

5. ***Evaluate the hypothesis or theory based on experimental results.*** Describe the results of your experiment and explain whether the results lead you to accept, reject, or revise your hypothesis.

In designing the experiment in Thinking Activity 11.3, you may have used one of two common reasoning patterns.

REASONING PATTERN 1: *A* caused *B* because *A* is the only relevant common element shared by more than one occurrence of *B*.

For example, imagine that you are investigating your upset stomach, and you decide to call two friends who had dinner with you the previous evening to see if they have similar symptoms. You discover they also have upset stomachs. Because dining at "Sam's Seafood" was the only experience shared by the three of you that might explain the three stomach problems, you conclude that food poisoning may in fact be the cause. Further, although each of you ordered a different entrée, you all shared an appetizer, "Sam's Special Squid," which suggests that you may have identified the cause. As you can see, this pattern of reasoning looks for the common thread linking different occurrences of the same event to identify the cause; stated more simply, "The cause is the common thread."

REASONING PATTERN 2: *A* caused *B* because *A* is the only relevant difference between this situation and other situations in which *B* did not take place.

For example, imagine that you are investigating the reasons that your team, which has been winning all year, has suddenly begun to lose. One way of approaching this situation is to look for circumstances that might have changed at the time your team's fortunes began to decline. Your investigation yields two possible explanations. First, your team started wearing new uniforms about the time it started losing. Second, one of your regular players was sidelined with a foot injury. You decide to test the first hypothesis by having the team begin wearing the old uniforms again. When this doesn't change your fortunes, you conclude that the missing player may be the cause of the difficulties, and you anxiously await the player's return to see if your reasoning is accurate. As you can see, this pattern of reasoning looks for relevant differences linked to the situation you are trying to explain; stated more simply, "The cause is the difference."

Controlled Experiments

Although our analysis of causal reasoning has focused on causal relationships between specific events, much of scientific research concerns causal factors influencing populations composed of many individuals. In these cases the causal relationships tend to be much more complex than the simple formulation *A causes B*. For example, on every package of cigarettes sold in the United States appears a message such as "Surgeon General's Warning: Smoking Causes Lung Cancer, Heart Disease, Emphysema, and May Complicate Pregnancy." This does not mean that every cigarette smoked has a direct impact on one's health, nor does it mean that everyone who smokes moderately, or even heavily, will die prematurely of cancer, heart disease, or emphysema. Instead, the statement means that if you habitually smoke, your chances of developing one of the diseases normally

associated with smoking are significantly higher than are those of someone who does not smoke or who smokes only occasionally. How were scientists able to arrive at this conclusion?

The reasoning strategy scientists use to reach conclusions like this one is the *controlled experiment*, and it is one of the most powerful reasoning strategies ever developed. There are three different kinds of controlled experiment designs:

1. Cause-to-effect experiments (with intervention)
2. Cause-to-effect experiments (without intervention)
3. Effect-to-cause experiments

Cause-to-Effect Experiments (with Intervention) The first of these forms of reasoning, known as *cause-to-effect experiments (with intervention)*, is illustrated by the following example. Imagine that you have developed a new cream you believe will help cure baldness in men and women and you want to evaluate its effectiveness. What do you do? To begin with, you have to identify a group of people who accurately represent all of the balding men and women in the United States because testing the cream on all balding people simply isn't feasible. This involves following the guidelines for inductive reasoning described in the last section. It is important that the group you select to test be *representative* of all balding people (known as the *target population*) because you hope your product will grow hair on all types of heads. For example, if you select only men between the ages of twenty and thirty to test, the experiment will establish only whether the product works for men of these ages. Additional experiments will have to be conducted for women and other age groups. This representative group is known as a *sample*. Scientists have developed strategies for selecting sample groups to ensure that they fairly mirror the larger group from which they are drawn.

Once you have selected your sample of balding men and women—say, you have identified 200 people—the next step is to divide the sample into two groups of 100 people that are alike in all relevant respects. The best way to ensure that the groups are essentially alike is through the technique we examined earlier called *random selection*, which means that each individual selected has the same chance of being chosen as everyone else. You then designate one group as the experimental group and the other group as the control group. You next give the individuals in the experimental group treatments of your hair-growing cream, and you give either no treatments or a harmless, non-hair-growing cream to the control group. At the conclusion of the testing period, you compare the experimental group with the control group to evaluate hair gain and hair loss.

Suppose that a number of individuals in the experimental group do indeed show evidence of more new hair growth than the control group. How can you be sure this is because of the cream and not simply a chance occurrence? Scientists have developed a formula for statistical significance based on the size of the sample and the frequency of the observed effects. For example, imagine that thirteen persons in your experimental group show evidence of new hair growth, whereas

no one in the control group shows any such evidence. Statisticians have determined that we can say with 95 percent certainty that the new hair growth was caused by your new cream—that the results were not merely the result of chance. This type of experimental result is usually expressed by saying that the experimental results were significant at the 0.05 level, a standard criterion in experimental research. The diagram below shows the cause-to-effect experiment (with intervention).
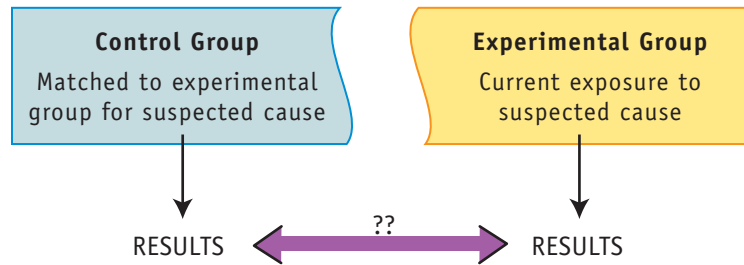
Cause-to-Effect Experiments (with Intervention)
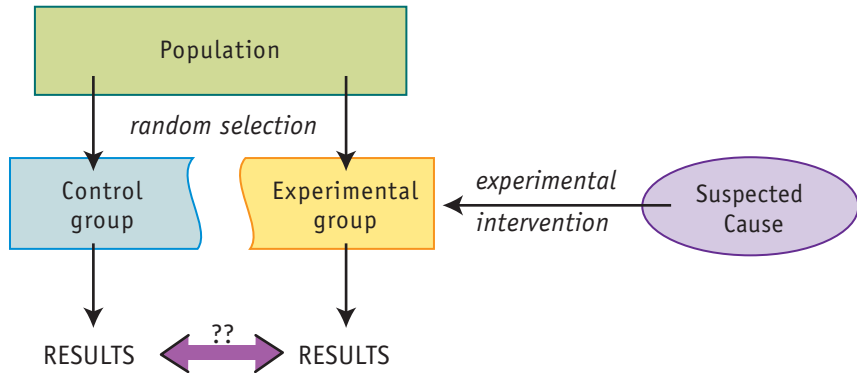
Cause-to-Effect Experiments (Without Intervention) A second form of controlled experiment is known as the *cause-to-effect experiment (without intervention)*. This form of experimental design is similar to the one just described except that the experimenter does not intervene to expose the experimental group to a proposed cause (like the hair-growing cream). Instead, the experimenter identifies a cause that a population is already exposed to and then constructs the experiment. For example, suppose you suspect that the asbestos panels and insulation in some old buildings cause cancer. Because it would not be ethical to expose people intentionally to something that might damage their health, you would search for already existing conditions in which people are being exposed to the asbestos. Once located, these individuals (or a representative sample) could be used as the experimental group. You could then form a control group of individuals who are not exposed to asbestos but who match the experimental group in all other relevant respects. You could then investigate the health experiences of both groups over time, thereby evaluating the possible relationship between asbestos and cancer. The diagram at the top of the next page illustrates the procedure used in cause-to-effect experiments (without intervention).
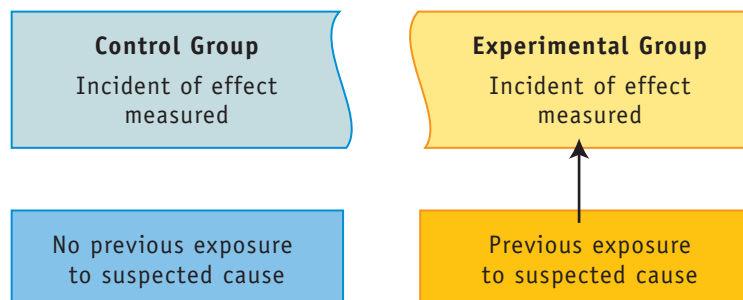
Cause-to-Effect Experiments (without Intervention)

Control Group	Experimental Group
Matched to experimental group for suspected cause	Current exposure to suspected cause

RESULTS ⬅ ?? ➡ RESULTS

Effect-to-Cause Experiments A third form of reasoning employing the controlled experimental design is known as the *effect-to-cause experiment.* In this case the experimenter works backward from an existing effect to a suspected cause. For example, imagine that you are investigating the claim by many Vietnam veterans that exposure to the chemical defoliant Agent Orange has resulted in significant health problems for them and for children born to them. Once again, you would not want to expose people to a potentially harmful substance just to test a hypothesis. And unlike the asbestos case we just examined, people are no longer being exposed to Agent Orange as they were during the Vietnam War. As a result, investigating the claim involves beginning with the effect (health problems) and working back to the suspected cause (Agent Orange). In this case the target population would be Vietnam veterans who were exposed to Agent Orange, so you would draw a representative sample from this group. You would form a matching control group from the population of Vietnam veterans who were not exposed to Agent Orange. Next, you would compare the incidence of illnesses claimed to have been caused by Agent Orange and evaluate the proposed causal relation. The diagram below illustrates the procedure used in effect-to-cause experiments.

Effect-to-Cause Experiments

Control Group	Experimental Group
Incident of effect measured	Incident of effect measured
No previous exposure to suspected cause	Previous exposure to suspected cause

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Thinking Activity 11.4

EVALUATING EXPERIMENTAL RESULTS

Read the following experimental situations. (Additional situations are included on the student website at **college.hmco.com/pic/chaffeetc9e**.) For each situation

1. Describe the proposed causal relationship (the theory or hypothesis).
2. Identify which kind of experimental design was used.
3. Evaluate
   a. The representativeness of the sample
   b. The randomness of the division into experimental and control groups

4. Explain how well the experimental results support the proposed theory or hypothesis.

Mortality Shown to Center Around Birthdays A new study, based on 2,745,149 deaths from natural causes, has found that men tend to die just before their birthdays, while women tend to die just after their birthdays. Thus an approaching birthday seems to prolong the life of women and precipitate death in men. The study, published in the journal *Psychosomatic Medicine*, found 3 percent more deaths than expected among women in the week after a birthday and a slight decline the week before. For men, deaths peaked just before birthdays and showed no rise above normal afterward.

A Shorter Life for Lefties A survey of 5,000 people by Stanley Coren found that while 15 percent of the population at age ten was left-handed, there was a pronounced drop-off as people grew older, leaving 5 percent among fifty-year-olds and less than 1 percent for those age eighty and above. Where have all the lefties gone? They seem to have died. Lefties have a shorter life expectancy than righties, by an average of nine years in the general population, apparently due to the ills and accidents they are more likely to suffer by having to live in a "right-handed world."

Nuns Offer Clues to Alzheimer's and Aging The famous "Nun Study" is considered by experts on aging to be one of the most innovative efforts to answer questions about who gets Alzheimer's disease and why. Studying 678 nuns at seven convents has shown that folic acid may help stave off Alzheimer's disease, and that early language ability may be linked to lower risk of Alzheimer's because nuns who packed more ideas into the sentences of their early autobiographies were less likely to get Alzheimer's disease six decades later. Also, nuns who expressed more positive emotions in their autobiographies lived significantly longer—in some cases 10 years longer—than those expressing fewer positive emotions.

Thinking Activity 11.5

DESIGNING A SCIENTIFIC EXPERIMENT

Construct an experimental design to investigate a potential causal relationship of your own choosing. Be sure that your experimental design follows the guidelines established.

- A clearly defined theory or hypothesis expressing a proposed relationship between a cause and an effect in a population of individuals
- Representative samples
- Selection into experimental and control groups
- A clear standard for evaluating the evidence for or against the theory or hypothesis

Thinking Passage

RESEARCHING CURES AND PREVENTION

Human history is filled with examples of misguided causal thinking—bleeding people's veins and applying leeches to reduce fever, beating and torturing emotionally disturbed people to drive out the devils thought to possess them, sacrificing young women to ensure the goodwill of the gods, and so on. When the bubonic plague ravaged Europe in the fourteenth century, the lack of scientific understanding led to causal explanations like "God's punishment of the unholy" and "the astrological position of the planets."

Contrast this fourteenth-century plague with what some people have termed the plague of the twentieth and twenty-first centuries—acquired immune deficiency syndrome (AIDS). We now have the knowledge, reasoning, and technical capabilities to investigate the disease in an effective fashion, though no cure or preventative inoculation has yet been developed.

ONLINE RESOURCES
Visit the student website for *Thinking Critically* at **college.hmco.com/pic/chaffeetc9e** to read an excerpt from a World Health Organization report that describes the political, social, and medical responses to the ongoing AIDS epidemic. After reading the selection online, answer the questions below.

Questions for Analysis

1. Name and explain the different processes that the World Health Organization's "3 by 5" initiative is taking to address the AIDS epidemic in developing countries.
2. Construct an experimental design that would test the distribution of antiretroviral therapy in developing countries described in paragraphs 5 and 6. Be sure that your experimental design follows the guidelines detailed in Thinking Activity 11.5.

3. Go to the United Nations Programme on HIV/AIDS website at <http://www
   .unaids.org/en/default.asp>. Look up information about how UNAIDS is
   addressing the epidemic in a specific country. What are the unique obstacles to
   fighting HIV/AIDS in that country? What steps is UNAIDS taking to help over-
   come those obstacles? Think about HIV/AIDS prevention efforts in your own
   community. What kinds of obstacles do educators and health care workers face
   in combating AIDS in your community? (For example, students might be too
   embarrassed or reluctant to discuss safe sex with a health care worker.) What
   would you propose as an effective, unique way to teach you and your peers about
   HIV/AIDS safety and prevention?

Thinking Passage

TREATING BREAST CANCER

Scientific discovery is rarely a straightforward, uninterrupted line of progress.
Rather, it typically involves confusing and often contradictory results, false starts
and missteps, and results that are complex and ambiguous. It is only in retrospect
that we are able to fit all of the pieces of the scientific puzzle into their proper
places.

The race to discover increasingly effective treatments for breast cancer is a
compelling example of the twisted path of scientific exploration. One American
woman in eight develops breast cancer, and it is the health threat women fear
most, although heart disease is by far the leading cause of death (ten times more
lethal than breast cancer). But women have been receiving conflicting advice on
the prevention and cure of breast cancer, based on scientific studies that have
yielded seemingly confusing results: For example, one study concluded that sup-
port groups for women with advanced breast cancer extended their lives an aver-
age of eighteen months, whereas another found that such groups had no impact
on life expectancy.

But it is a recent study on the efficacy of mammograms that is causing the widest
and most disturbing confusion. This study, reported in a British medical journal,
asserts that the promise of regular mammograms is an illusion: Mammograms have
no measurable impact on reducing the risk of death or avoiding mastectomies! The
article entitled "Study Sets Off Debate over Mammograms' Value" provides an
analysis of this bewildering situation and provides a window into the complex
process of scientific discovery.

ONLINE RESOURCES
Visit the student website for *Thinking Critically* at **college.hmco.com/pic/chaffeetc9e**
to read "Study Sets Off Debate over Mammograms' Value." After reading the selection,
respond to the questions that follow online.

Causal Fallacies

Because causality plays such a dominant role in the way we make sense of the world, it is not surprising that people make many mistakes and errors in judgment in trying to determine causal relationships. The following are some of the most common fallacies associated with causality:

- Questionable cause
- Misidentification of the cause
- *Post hoc ergo propter hoc*
- Slippery slope

Questionable Cause

The fallacy of *questionable cause* occurs when someone presents a causal relationship for which no real evidence exists. Superstitious beliefs, such as "If you break a mirror, you will have seven years of bad luck," usually fall into this category. Some people feel that astrology, a system of beliefs tying one's personality and fortunes in life to the position of the planets at the moment of birth, also falls into this category.

Consider the following passage from St. Augustine's *Confessions.* Does it seem to support or deny the causal assertions of astrology? Why or why not?

> Firminus had heard from his father that when his mother had been pregnant with him, a slave belonging to a friend of his father's was also about to bear. It happened that since the two women had their babies at the same instant, the men were forced to cast exactly the same horoscope for each newborn child down to the last detail, one for his son, the other for the little slave. Yet Firminus, born to wealth in his parents' house, had one of the more illustrious careers in life whereas the slave had no alleviation of his life's burden.

Other examples of this fallacy include explanations like those given by fourteenth-century sufferers of the bubonic plague who claimed that "the Jews are poisoning the Christians' wells." This was particularly nonsensical since an equal percentage of Jews were dying of the plague as well. The evidence did not support the explanation.

Misidentification of the Cause

In causal situations we are not always certain about what is causing what—in other words, what is the cause and what is the effect. *Misidentifying the cause* is easy to do. For example, which are the causes and which are the effects in the following pairs of items? Why?

- Poverty and alcoholism
- Headaches and tension
- Failure in school and personal problems
- Shyness and lack of confidence
- Drug dependency and emotional difficulties

Of course, sometimes a third factor is responsible for both of the effects we are examining. For example, the headaches and tension we are experiencing may both be the result of a third element—such as some new medication we are taking. When this occurs, we are said to commit the fallacy of *ignoring a common cause*. There also exists the fallacy of *assuming a common cause*—for example, assuming that both a sore toe and an earache stem from the same cause.

Post Hoc Ergo Propter Hoc

The translation of the Latin phrase *post hoc ergo propter hoc* is "After it, therefore because of it." It refers to those situations in which, because two things occur close together in time, we assume that one caused the other. For example, if your team wins the game each time you wear your favorite shirt, you might be tempted to conclude that the one event (wearing your favorite shirt) has some influence on the other event (winning the game). As a result, you might continue to wear this shirt "for good luck." It is easy to see how this sort of mistaken thinking can lead to all sorts of superstitious beliefs.

Consider the causal conclusion arrived at by Mark Twain's fictional character Huckleberry Finn in the following passage. How would you analyze the conclusion that he comes to?

> I've always reckoned that looking at the new moon over your left shoulder is one of the carelessest and foolishest things a body can do. Old Hank Bunker done it once, and bragged about it; and in less than two years he got drunk and fell off a shot tower and spread himself out so that he was just a kind of layer. . . . But anyway, it all come of looking at the moon that way, like a fool.

Can you identify any of your own superstitious beliefs or practices that might have been the result of *post hoc* thinking?

Slippery Slope

The causal fallacy of *slippery slope* is illustrated in the following advice:

> Don't miss that first deadline, because if you do, it won't be long before you're missing all your deadlines. This will spread to the rest of your life, as you will be late for every appointment. This terminal procrastination will ruin your career, and friends and relatives will abandon you. You will end up a lonely failure who is unable to ever do anything on time.

Slippery slope thinking asserts that one undesirable action will inevitably lead to a worse action, which will necessarily lead to a worse one still, all the way down the "slippery slope" to some terrible disaster at the bottom. Although this progression may indeed happen, there is certainly no causal guarantee that it will. Create slippery slope scenarios for one of the following warnings:

- If you get behind on one credit card payment . . .
- If you fail that first test . . .
- If you eat that first fudge square . . .

Review the causal fallacies just described and then identify and explain the reasoning pitfalls illustrated in the following examples:

- The person who won the lottery says that she dreamed the winning numbers. I'm going to start writing down the numbers in my dreams.

- Yesterday I forgot to take my vitamins, and I immediately got sick. That mistake won't happen again!

- I'm warning you—if you start missing classes, it won't be long before you flunk out of school and ruin your future.

- I always take the first seat in the bus. Today I took another seat, and the bus broke down. And you accuse me of being superstitious!

- I think the reason I'm not doing well in school is that I'm just not interested. Also, I simply don't have enough time to study.

Visual Thinking

Slipping and Sliding

The fallacy of slippery slope suggests that one undesirable action will inevitably lead to others, taking you down the slippery slope to some unavoidable terrible disaster at the bottom. Can you think of an example in which you have used this kind of thinking ("If you continue to _____, then things will get progressively worse until you ultimately find yourself _____")? What are some strategies for clarifying this sort of fallacious thinking?
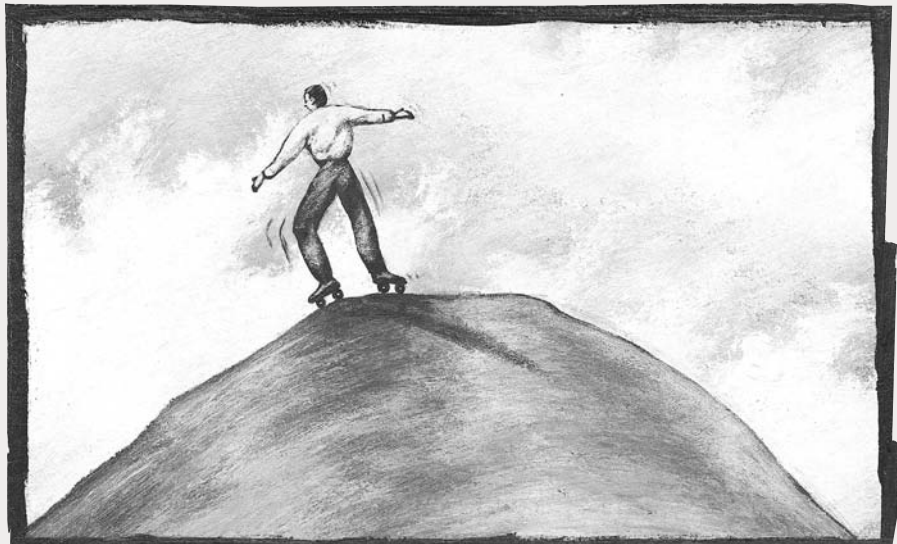
Many people want us to see the cause and effect relationships that they believe exist, and they often utilize questionable or outright fallacious reasoning. Consider the following examples:

- Politicians assure us that a vote for them will result in "a chicken in every pot and a car in every garage."
- Advertisers tell us that using this detergent will leave our wash "cleaner than clean, whiter than white."
- Doctors tell us that eating a balanced diet will result in better health.
- Educators tell us that a college degree is worth an average of $1,140,000 additional income over an individual's life.
- Scientists inform us that nuclear energy will result in a better life for all.

In an effort to persuade us to adopt a certain point of view, each of these examples makes certain causal claims about how the world operates. As critical thinkers, it is our duty to evaluate these various causal claims in an effort to figure out whether they are sensible ways of organizing the world.

Explain how you might go about evaluating whether each of the following causal claims makes sense:

EXAMPLE: Taking the right vitamins will improve health.

EVALUATION: Review the medical research that examines the effect of taking vitamins on health; speak to a nutritionist; speak to a doctor.

- Sweet Smell deodorant will keep you drier all day long.
- Allure perfume will cause people to be attracted to you.
- Natural childbirth will result in a more fulfilling birth experience.
- Aspirin Plus will give you faster, longer-lasting relief from headaches.
- Listening to loud music will damage your hearing.

Fallacies of Relevance

Many fallacious arguments appeal for support to factors that have little or nothing to do with the argument being offered. In these cases, false appeals substitute for sound reasoning and a critical examination of the issues. Such appeals, known as *fallacies of relevance*, include the following kinds of fallacious thinking, which are grouped by similarity into "fallacy families":

- Appeal to authority
- Appeal to tradition
- Bandwagon
- Appeal to pity
- Appeal to fear

- Appeal to flattery
- Special pleading

- Appeal to ignorance
- Begging the question
- Straw man
- Red herring
- Appeal to personal attack
- Two wrongs make a right

Appeal to Authority

In Chapter 5, we explored the ways in which we sometimes *appeal to authorities* to establish our beliefs or prove our points. At that time, we noted that to serve as a basis for beliefs, authorities must have legitimate expertise in the area in which they are advising—like an experienced mechanic diagnosing a problem with your car. People, however, often appeal to authorities who are not qualified to give an expert opinion. Consider the reasoning in the following advertisements. Do you think the arguments are sound? Why or why not?

> Hi. You've probably seen me out on the football field. After a hard day's work crushing halfbacks and sacking quarterbacks, I like to settle down with a cold, smooth Maltz beer.

> SONY. Ask anyone.

> Over 11 million women will read this ad. Only 16 will own the coat.

Each of these arguments is intended to persuade us of the value of a product through appeal to various authorities. In the first case, the authority is a well-known sports figure; in the second, the authority is large numbers of people; and in the third, the authority is a select few, appealing to our desire to be exclusive ("snob appeal"). Unfortunately, none of these authorities offer legitimate expertise about the product. Football players are not beer experts; large numbers of people are often misled; exclusive groups of people are frequently mistaken in their beliefs. To evaluate authorities properly, we have to ask:

- What are the professional credentials on which the authorities' expertise is based?
- Is their expertise in the area they are commenting on?

Appeal to Tradition

A member of the same fallacy family as appeal to authority, *appeal to tradition* argues that a practice or way of thinking is "better" or "right" simply because it is older, it is traditional, or it has "always been done that way." Although traditional

beliefs often express some truth or wisdom—for example, "Good nutrition, exercise, and regular medical check-ups are the foundation of good health"—traditional beliefs are often misguided or outright false. Consider, for example, the belief that "intentional bleeding is a source of good health because it lets loose evil vapors in the body" or traditional practices like Victorian rib-crushing corsets or Chinese footbinding. How do we tell which traditional beliefs or practices have merit? We need to think critically, evaluating the value based on informed reasons and compelling evidence. Critically evaluate the following traditional beliefs:

- Spare the rod and spoil the child.
- Children should be seen and not heard.
- Never take "no" for an answer.
- I was always taught that a woman's place was in the home, so pursuing a career is out of the question for me.
- Real men don't cry—that's the way I was brought up.

Bandwagon

Joining the illogical appeals to authority and tradition, the fallacy *bandwagon* relies on the uncritical acceptance of others' opinions, in this case because "everyone believes it." People experience this all the time through "peer pressure," when an unpopular view is squelched and modified by the group opinion. For example, you may change your opinion when confronted with the threat of ridicule or rejection from your friends. Or you may modify your point of view at work or in your religious organization in order to conform to the prevailing opinion. In all of these cases your views are being influenced by a desire to "jump on the bandwagon" and avoid getting left by yourself on the side of the road. The bandwagon mentality also extends to media appeals based on views of select groups such as celebrities or public opinion polls. Again, critical thinking is the tool that you have to distinguish an informed belief from a popular but uninformed belief. Critically evaluate the following bandwagon appeals:

- I used to think that _____ was my favorite kind of music. But my friends convinced me that only losers enjoy this music. So I've stopped listening to it.
- Hollywood celebrities and supermodels agree: Tattoos in unusual places are very cool. That's good enough for me!
- In the latest Gallup Poll, 86 percent of those polled believe that economic recovery will happen in the next six months, so I must be wrong.

Appeal to Pity

Consider the reasoning in the following arguments. Do you think that the arguments are sound? Why or why not?

> I know that I haven't completed my term paper, but I really think that I should be excused. This has been a very difficult semester for me. I caught every kind of flu that came around. In addition, my brother has a drinking problem, and this has been very upsetting to me. Also, my dog died.

> I admit that my client embezzled money from the company, your honor. However, I would like to bring several facts to your attention. He is a family man, with a wonderful wife and two terrific children. He is an important member of the community. He is active in the church, coaches a Little League baseball team, and has worked very hard to be a good person who cares about people. I think that you should take these things into consideration in handing down your sentence.

In each of these *appeal to pity* arguments, the reasons offered to support the conclusions may indeed be true. They are not, however, relevant to the conclusion. Instead of providing evidence that supports the conclusion, the reasons are designed to make us feel sorry for the person involved and therefore agree with the conclusion out of sympathy. Although these appeals are often effective, the arguments are not sound. The probability of a conclusion can be established only by reasons that support and are relevant to the conclusion.

Of course, not every appeal to pity is fallacious. There *are* instances in which pity may be deserved, relevant, and decisive. For example, if you are soliciting a charitable donation, or asking a friend for a favor, an honest and straightforward appeal to pity may be appropriate.

Appeal to Fear

Consider the reasoning in the following arguments. Do you think that the arguments are sound? Why or why not?

> I'm afraid I don't think you deserve a raise. After all, there are many people who would be happy to have your job at the salary you are currently receiving. I would be happy to interview some of these people if you really think that you are underpaid.

> If you continue to disagree with my interpretation of *The Catcher in the Rye*, I'm afraid you won't get a very good grade on your term paper.
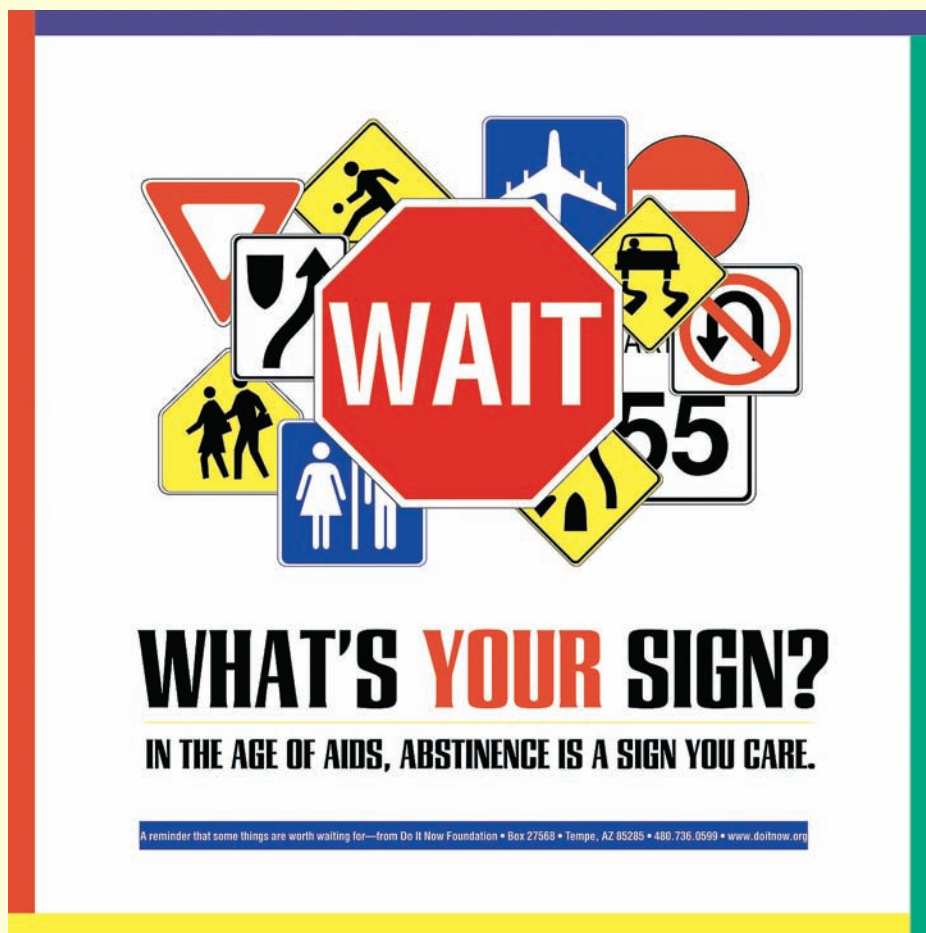
In both of these arguments, the conclusions being suggested are supported by an *appeal to fear*, not by reasons that provide evidence for the conclusions. In the first case, the threat is that if you do not forgo your salary demands, your job may be in jeopardy. In the second case, the threat is that if you do not agree with the teacher's interpretation, you will fail the course. In neither instance are the real issues—Is a salary increase deserved? Is the student's interpretation legitimate?—being discussed. People who appeal to fear to support their conclusions are interested only in prevailing, regardless of which position might be more justified.

Thinking Critically About Visuals

Stop and Think

This poster was created by the Do It Now Foundation, formed in 1968 to provide education and outreach about drug abuse but which now addresses a wide range of health and social issues such as sexuality, eating disorders, and alcoholism.

WAIT

WHAT'S YOUR SIGN?

IN THE AGE OF AIDS, ABSTINENCE IS A SIGN YOU CARE.

A reminder that some things are worth waiting for—from Do It Now Foundation • Box 27568 • Tempe, AZ 85285 • 480.736.0599 • www.doitnow.org

Many school districts and private groups promote an "abstinence-only" approach to sex education, or encourage young people to remain virgins until marriage. Reasons given for abstinence education range from moral and religious principles (including "purity pledges" and "secondary virginity") to avoidance of pregnancy and sexually transmitted diseases. Do a Web search using terms such as *abstinence education* and *secondary virginity* to find sites with information on such programs and organizations. What kinds of appeals—or fallacies—do these websites use to promote their message? Examine the origins and assumptions behind each site's message.

The Campaign to End AIDS was founded in 2005 as a coalition of diverse people living with HIV/AIDS, their families and caretakers, and others. The group advocates accessible and affordable health care for people with HIV/AIDS, research into treatments and cures, and HIV education and prevention.

Both of these images use the universally understood sign for STOP, but to convey very different messages. Are either or both of these messages effective examples of inductive reasoning? What are the causal relationships implied by each message, and how clearly does each message use causal reasoning to support its claim?

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Appeal to Flattery

Flattery joins the emotions of pity and fear as a popular source of fallacious reasoning. This kind of apple polishing is designed to influence the thinking of others by appealing to their vanity as a substitute for providing relevant evidence to support your point of view. Of course, flattery is often a harmless lubricant for social relationships, and it can also be used in conjunction with compelling reasoning. But *appeal to flattery* enters the territory of fallacy when it is the main or sole support of your claim, such as "This is absolutely the best course I've ever taken. And I'm really hoping for an A to serve as an emblem of your excellent teaching." Think critically about the following examples:

- You have a great sense of humor, boss, and I'm particularly fond of your racial and homosexual jokes. They crack me up! And while we're talking, I'd like to remind you how much I'm hoping for the opportunity to work with you if I receive the promotion that you're planning to give to one of us.

- You are a beautiful human being, inside and out. Why don't you stay the night?

- You are *so* smart. I wish I had a brain like yours. Can you give me any hints about the chemistry test you took today? I'm taking it tomorrow.

Special Pleading

This fallacy occurs when someone makes him- or herself a special exception, without sound justification, to the reasonable application of standards, principles, or expectations. For example, consider the following exchange:

"Hey, hon, could you get me a beer? I'm pooped from work today."
   "Well, I'm exhausted from working all day, too! Why don't you get it yourself?"
   "I need you to get it because I'm really thirsty."

As we saw in Chapter 4, we view the world through our own lenses, and these lenses tend to see the world as tilted toward our interests. That's why *special pleading* is such a popular fallacy: We're used to treating our circumstances as unique and deserving of special consideration when compared to the circumstances of others. Of course, other people tend to see things from a very different perspective. Critically evaluate the following examples:

- I know that the deadline for the paper was announced several weeks ago and that you made clear there would be no exceptions, but I'm asking you to make an exception because I experienced some very bad breaks.

- I really don't like it when you check out other men and comment on their physiques. I know that I do that toward other women, but it's a "guy thing."

- Yes, I would like to play basketball with you guys, but I want to warn you: As a woman, I don't like getting bumped around, so keep your distance.

- I probably shouldn't have used funds from the treasury for my own personal use, but after all I *am* the president of the organization.

Appeal to Ignorance

Consider the reasoning in the following arguments. Do you think that the arguments are sound? Why or why not?

> You say that you don't believe in God. But can you prove that He doesn't exist? If not, then you have to accept the conclusion that He does in fact exist.

> Greco Tires are the best. No others have been proved better.

> With me, abortion is not a problem of religion. It's a problem of the Constitution. I believe that until and unless someone can establish that the unborn child is not a living human being, then that child is already protected by the Constitution, which guarantees life, liberty, and the pursuit of happiness to all of us.

When the *appeal to ignorance* argument form is used, the person offering the conclusion is asking his or her opponent to *disprove* the conclusion. If the opponent is unable to do so, then the conclusion is asserted to be true. This argument form is not valid because it is the job of the person proposing the argument to prove the conclusion. Simply because an opponent cannot *dis*prove the conclusion offers no evidence that the conclusion is in fact justified. In the first example, for instance, the fact that someone cannot prove that God does not exist provides no persuasive reason for believing that he does.

Begging the Question

This fallacy is also known as *circular reasoning* because the premises of the argument assume or include the claim that the conclusion is true. For example:

> "How do I know that I can trust you?"
> "Just ask Adrian; she'll tell you."
> "How do I know that I can trust Adrian?"
> "Don't worry; I'll vouch for her."

Begging the question is often found in self-contained systems of belief, such as politics or religion. For example:

> "My religion worships the one true God."
> "How can you be so sure?"
> "Because our Holy Book says so."
> "Why should I believe this Holy Book?"
> "Because it was written by the one true God."

In other words, the problem with this sort of reasoning is that instead of providing relevant evidence in support of a conclusion, it simply goes in a circle by assuming the truth of what it is supposedly proving. Critically evaluate the following examples:

- Smoking marijuana has got to be illegal. Otherwise, it wouldn't be against the law.

- Of course, I'm telling you the truth. Otherwise, I'd be lying.

Visual Thinking

Fallacies in Action

What fallacies do you think are being put forward by the two debaters in this illustration? How persuasive have you found those techniques to be in your own life, from your perspectives as both a speaker and a listener?
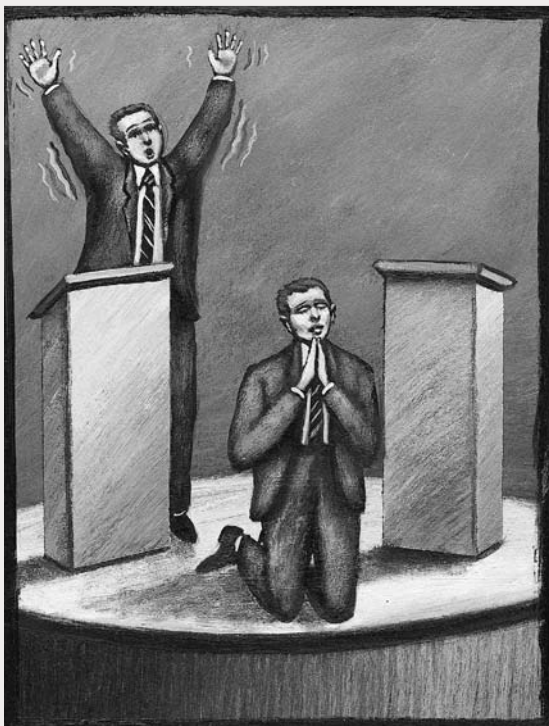
Straw Man

This fallacy is best understood by visualizing its name: You attack someone's point of view by creating an exaggerated *straw man* version of the position, and then you knock down the straw man you just created. For example, consider the following exchange:

"I'm opposed to the missile defense shield because I think it's a waste of money."

"So you want to undermine the security of our nation and leave the country defenseless. Are you serious?"

The best way to combat this fallacy is to point out that the straw man does not reflect an accurate representation of your position. For instance:

"On the contrary, I'm very concerned about national security. The money that would be spent on a nearly useless defense shield can be used to combat terrorist threats, a much more credible threat than a missile attack. Take your straw man somewhere else!"

How would you respond to the following arguments?

- You're saying that the budget for our university has to be reduced by 15 percent to meet state guidelines. That means reducing the size of the faculty and student population by 15 percent, and that's crazy.

- I think we should work at keeping the apartment clean; it's a mess.

- So you're suggesting that we discontinue our lives and become full-time maids so that we can live in a pristine, spotless, antiseptic apartment. That's no way to live!

Red Herring

Also known as "smoke screen" and "wild goose chase," the *red herring* fallacy is committed by introducing an irrelevant topic in order to divert attention from the original issue being discussed. So, for example:

I'm definitely in favor of the death penalty. After all, overpopulation is a big problem in our world today.

Although this is certainly a novel approach to addressing the problem of overpopulation, it's not really relevant to the issue of capital punishment. Critically evaluate the following examples:

- I think all references to sex should be eliminated from films and music. Premarital sex and out-of-wedlock childbirths are creating moral decay in our society.

- I really don't believe that grade inflation is a significant problem in higher education. Everybody wants to be liked, and teachers are just trying to get students to like them.

Appeal to Personal Attack

Consider the reasoning in the following arguments. Do you think that the arguments are valid? Why or why not?

Your opinion on this issue is false. It's impossible to believe anything you say.

How can you have an intelligent opinion about abortion? You're not a woman, so this is a decision that you'll never have to make.

Appeal to personal attack has been one of the most frequently used fallacies through the ages. Its effectiveness results from ignoring the issues of the argument and

focusing instead on the personal qualities of the person making the argument. By trying to discredit the other person, this argument form tries to discredit the argument—no matter what reasons are offered. This fallacy is also referred to as the *ad hominem* argument, which means "to the man" rather than to the issue, and *poisoning the well* because we are trying to ensure that any water drawn from our opponent's well will be treated as undrinkable.

The effort to discredit can take two forms, as illustrated in the preceding examples. The fallacy can be abusive in the sense that we are directly attacking the credibility of our opponent (as in the first example). The fallacy can be *circumstantial* in the sense that we are claiming that the person's circumstances, not character, render his or her opinion so biased or uninformed that it cannot be treated seriously (as in the second example). Other examples of the circumstantial form of the fallacy would include disregarding the views on nuclear plant safety given by an owner of one of the plants or ignoring the views of a company comparing a product it manufactures with competing products.

Two Wrongs Make a Right

This fallacy attempts to justify a morally questionable action by arguing that it is a response to another wrong action, either real or imagined, in fact, that *two wrongs make a right*. For example, someone undercharged at a store might justify keeping the extra money by reasoning that "I've probably been overcharged many times in the past, and this simply equals things out." Or he or she might even speculate, "I am likely to be overcharged in the future, so I'm keeping this in anticipation of being cheated." This is a fallacious way of thinking because each action is independent and must be evaluated on its own merits. If you're overcharged and knowingly keep the money, that's stealing. If the store knowingly overcharges you, that's stealing as well. If the store inadvertently overcharges you, that's a mistake. Or as expressed in a common saying, "Two wrongs *don't* make a right." Critically evaluate the following examples:

- Terrorists are justified in killing innocent people because they and their people have been the victims of political repression and discriminatory policies.
- Capital punishment is wrong because killing murderers is just as bad as the killings they committed.

Thinking Activity 11.6

IDENTIFYING FALLACIES

Locate (or develop) an example of each of the following kinds of false appeals. For each example, explain why you think that the appeal is not warranted.

1. Appeal to authority

2. Appeal to pity

3. Appeal to fear

4. Appeal to ignorance

5. Appeal to personal attack

The Critical Thinker's Guide to Reasoning

This book has provided you with the opportunity to explore and develop many of your critical thinking and reasoning abilities. As you have seen, these abilities are complex and difficult to master. The process of becoming an accomplished critical thinker and effective reasoner is a challenging quest that requires ongoing practice and reflection. This section will present a critical thinking/reasoning model that will help you pull together the important themes of this book into an integrated perspective. This model is illustrated on page 412. To become familiar with the model, you will be thinking through an important issue that confronts every human being: Are people capable of choosing freely?

What Is My Initial Point of View?

Reasoning always begins with a point of view. As a critical thinker, it is important for you to take thoughtful positions and express your views with confidence. Using this statement as a starting point, respond as specifically as you can:

I believe (or don't believe) that people can choose freely because . . .

Here is a sample response:

I believe that people are capable of choosing freely because when I am faced with choosing among a number of possibilities, I really have the feeling that it is up to me to make the choice that I want to.
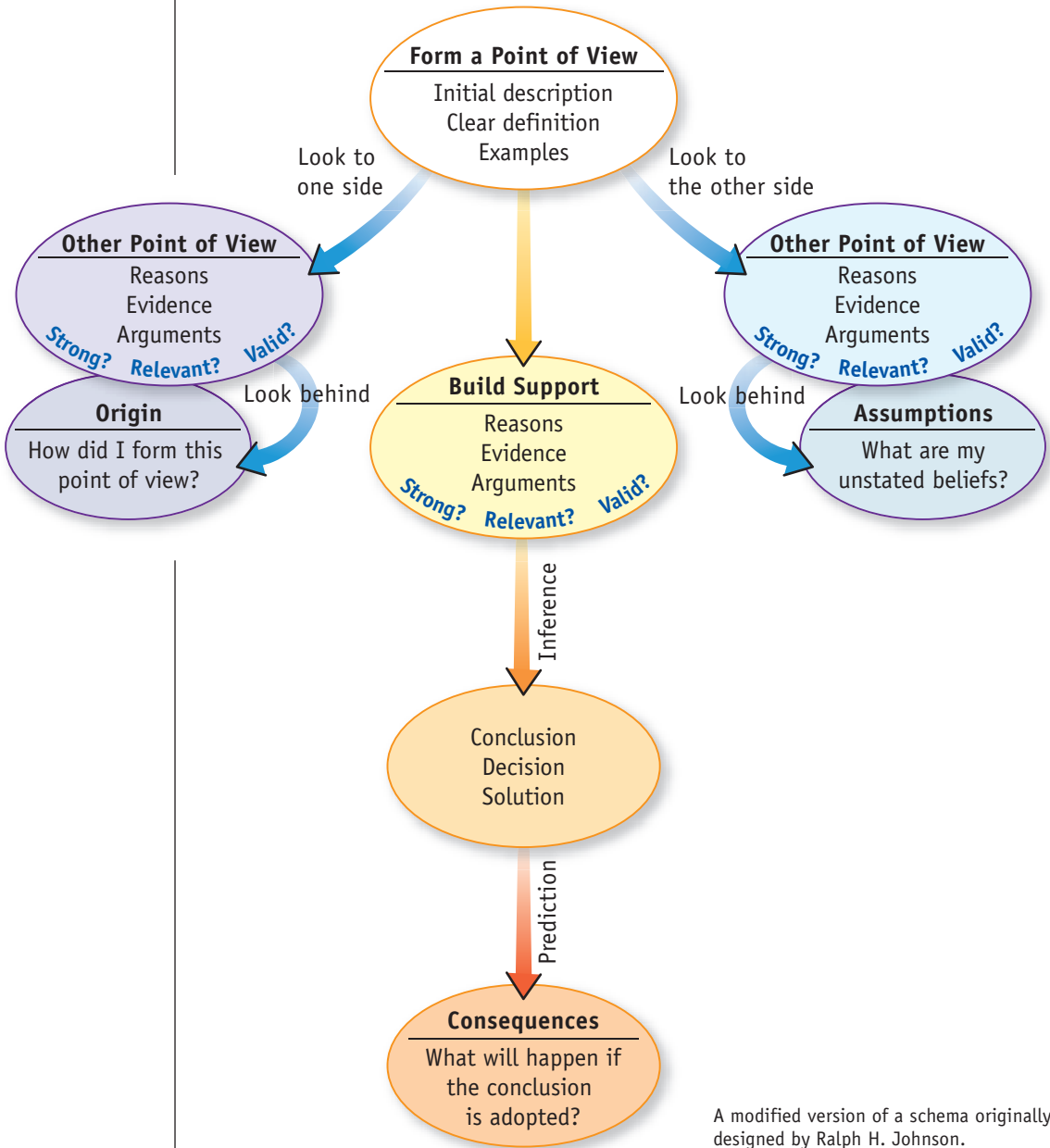
How Can I Define My Point of View More Clearly?

After you state your initial point of view, the next step is to define the issues more clearly and specifically. As you have seen, the language that we use has multiple levels of meaning, and it is often not clear precisely what meaning(s) people are expressing. To avoid misunderstandings and sharpen your own thinking, it is essential that you clarify the key concepts as early as possible. In this case the central concept is "choosing freely." Respond by beginning with the following statement:

From my point of view, the concept of "choosing freely" means . . .

Here is a sample response:

From my point of view, the concept of "choosing freely" means that when you are faced with a number of alternatives, you are able to make your selection based solely on what you decide, not on force applied by other influences.

Form a Point of View
Initial description
Clear definition
Examples

Look to
one side

Look to
the other side

Other Point of View
Reasons
Evidence
Arguments
Strong?   *Relevant?*   *Valid?*

Other Point of View
Reasons
Evidence
Arguments
Strong?   *Relevant?*   *Valid?*

Look behind

Look behind

Origin
How did I form this
point of view?

Build Support
Reasons
Evidence
Arguments
Strong?   *Relevant?*   *Valid?*

Assumptions
What are my
unstated beliefs?

Inference

Conclusion
Decision
Solution

Prediction

Consequences
What will happen if
the conclusion
is adopted?

A modified version of a schema originally
designed by Ralph H. Johnson.

What Is an Example of My Point of View?

Once your point of view is clarified, it's useful to provide an example that illustrates your meaning. As you saw in Chapter 7, the process of forming and defining concepts involves the process of generalizing (identifying general qualities) and the process of interpreting (locating specific examples). Respond to the issue we have been considering by beginning with the following statement:

An example of a free choice I made (or was unable to make) is . . .

Here is a sample response:

An example of a free choice I made was deciding what area to major in. There are a number of career directions I could have chosen to go out with, but I chose my major entirely on my own, without being forced by other influences.

What Is the Origin of My Point of View?

To fully understand and critically evaluate your point of view, it's important to review its history. How did this point of view develop? Have you always held this view, or did it develop over time? This sort of analysis will help you understand how your perceiving "lenses" regarding this issue were formed. Respond to the issue of free choice by beginning with the following statement:

I formed my belief regarding free choice . . .

Here is a sample response:

I formed my belief regarding free choice when I was in high school. I used to believe that everything happened because it had to, because it was determined. Then when I was in high school, I got involved with the "wrong crowd" and developed some bad habits. I stopped doing schoolwork and even stopped attending most classes. I was on the brink of failing when I suddenly came to my senses and said to myself, "This isn't what I want for my life." Through sheer willpower, I turned everything around. I changed my friends, improved my habits, and ultimately graduated with flying colors. From that time on, I knew that I had the power of free choice and that it was up to me to make the right choices.

What Are My Assumptions?

Assumptions are beliefs, often unstated, that underlie your point of view. Many disputes occur and remain unresolved because the people involved do not recognize or express their assumptions. For example, in the very emotional debate over abortion, when people who are opposed to abortion call their opponents "murderers," they are assuming the fetus, at *any* stage of development from the fertilized egg onward, is a

"human life" since murder refers to the taking of a human life. When people in favor of abortion call their opponents "moral fascists," they are assuming that antiabortionists are merely interested in imposing their narrow moral views on others.

Thus, it's important for all parties to identify clearly the assumptions that form the foundation of their points of view. They may still end up disagreeing, but at least they will know what they are arguing about. Thinking about the issue that we have been exploring, respond by beginning with the following statement:

When I say that I believe (or don't believe) in free choice, I am assuming . . .

Here is a sample response:

When I say that I believe in free choice, I am assuming that people are often presented with different alternatives to choose from, and I am also assuming that they are able to select freely any of these alternatives independent of any influences.

What Are the Reasons, Evidence, and Arguments That Support My Point of View?

Everybody has opinions. What distinguishes informed opinions from uninformed opinions is the quality of the reasons, evidence, and arguments that support the opinions. Respond to the issue of free choice by beginning with the following statement:

There are several reasons, pieces of evidence, and arguments that support my belief (or disbelief) in free choice. First, . . . Second, . . . Third, . . .

Here is a sample response:

There are several reasons, pieces of evidence, and arguments that support my belief in free choice. First, I have a very strong and convincing personal intuition when I am making choices that my choices are free. Second, freedom is tied to responsibility. If people make free choices, then they are responsible for the consequences of their choices. Since we often hold people responsible, that means we believe that their choices are free. Third, if people are not free, and all of their choices are determined by external forces, then life would have little purpose and there would be no point in trying to improve ourselves. But we do believe that life has purpose, and we do try to improve ourselves, suggesting that we also believe that our choices are free.

What Are Other Points of View on This Issue?

One of the hallmarks of critical thinkers is that they strive to view situations from perspectives other than their own, to "think empathically" within other viewpoints, particularly those of people who disagree with their own. If we stay entrenched in our own narrow ways of viewing the world, the development of our minds will be severely limited. This is the only way to achieve a deep and full understanding of

life's complexities. In working to understand other points of view, we need to iden-
tify the reasons, evidence, and arguments that have brought people to these con-
clusions. Respond to the issue we have been analyzing by beginning with the fol-
lowing statement:

> A second point of view on this issue might be . . . A third point of view on
> this issue might be . . .

Here is a sample response:

> A second point of view on this issue might be that many of our choices are conditioned
> by experiences that we have had in ways that we are not even aware of. For example,
> you might choose a career because of someone you admire or because of the expecta-
> tions of others, although you may be unaware of these influences on your decision.
> Or you might choose to date someone because he or she reminds you of someone from
> your past, although you believe you are making a totally free decision. A third point of
> view on this issue might be that our choices are influenced by people around us,
> although we may not be fully aware of it. For example, we may go along with a group
> decision of our friends, mistakenly thinking that we are making an independent choice.

What Is My Conclusion, Decision, Solution, or Prediction?

The ultimate purpose of reasoning is to reach an informed and successful conclu-
sion, decision, solution, or prediction. Chapters 1 and 3 described reasoning
approaches for making decisions and solving problems; Chapters 2 and 5 analyzed
reaching conclusions; Chapter 9 explored the inferences we use to make predic-
tions. With respect to the sample issue we have been considering—determining
whether we can make free choices—the goal is to achieve a thoughtful conclusion.
This is a complex process of analysis and synthesis in which we consider all points
of view; evaluate the supporting reasons, evidence, and arguments; and then con-
struct our most informed conclusion. Respond to our sample issue by using the fol-
lowing statement as a starting point:

> After examining different points of view and critically evaluating the rea-
> sons, evidence, and arguments that support the various perspectives, my
> conclusion about free choice is . . .

Here is a sample response:

> After examining different points of view and critically evaluating the reasons,
> evidence, and arguments that support the various perspectives, my conclusion about
> free choice is that we are capable of making free choices but that our freedom is
> sometimes limited. For example, many of our actions are conditioned by our past
> experience, and we are often influenced by other people without being aware of it.
> In order to make free choices, we need to become aware of these influences and

then decide what course of action we want to choose. As long as we are unaware of these influences, they can limit our ability to make free, independent choices.

What Are the Consequences?

The final step in the reasoning process is to determine the *consequences* of our conclusion, decision, solution, or prediction. The consequences refer to what is likely to happen if our conclusion is adopted. Looking ahead in this fashion is helpful not simply for anticipating the future but also for evaluating the present. Identify the consequences of your conclusion regarding free choice by beginning with the following statement:

The consequences of believing (or disbelieving) in free choice are . . .

Here is a sample response:

The consequences of believing in free choice are taking increasing personal responsibility and showing people how to increase their freedom. The first consequence is that if people are able to make free choices, then they are responsible for the results of their choices. They can't blame other people, bad luck, or events "beyond their control." They have to accept responsibility. The second consequence is that, although our freedom can be limited by influences of which we are unaware, we can increase our freedom by becoming aware of these influences and then deciding what we want to do. If people are not able to make free choices, then they are not responsible for what they do, nor are they able to increase their freedom. This could lead people to adopt an attitude of resignation and apathy.

Thinking Activity 11.7

APPLYING THE "GUIDE TO REASONING"

Identify an important issue in which you are interested, and apply "The Critical Thinker's Guide to Reasoning" to analyze it.

- What is my initial point of view?
- How can I define my point of view more clearly?
- What is an example of my point of view?
- What is the origin of my point of view?
- What are my assumptions?
- What are the reasons, evidence, and arguments that support my point of view?
- What are other points of view on this issue?
- What is my conclusion, decision, solution, or prediction?
- What are the consequences?

Thinking Passages

THINKING CRITICALLY ABOUT AUTHORITY

The following reading selections demonstrate graphically the destructive effects of failing to think critically and suggest ways to avoid these failures. After reading these provocative selections, answer the questions that follow.

Critical Thinking and Obedience to Authority

by JOHN SABINI and MAURY SILVER

In his 1974 book, *Obedience to Authority*, Stanley Milgram reports experiments on destructive obedience. In these experiments the subjects are faced with a dramatic choice, one apparently involving extreme pain and perhaps injury to someone else. When the subject arrives at the laboratory, the experimenter tells him (or her) and another subject—a pleasant, avuncular, middle-aged gentleman (actually an actor)—that the study concerns the effects of punishment on learning. Through a rigged drawing, the lucky subject wins the role of teacher and the experimenter's confederate becomes the "learner."

In the next stage of the experiment, the teacher and learner are taken to an adjacent room; the learner is strapped into a chair and electrodes are attached to his arm. It appears impossible for the learner to escape. While strapped in the chair, the learner diffidently mentions that he has a heart condition. The experimenter replies that while the shocks may be painful, they cause no permanent tissue damage. The teacher is instructed to read to the learner a list of word pairs, to test him on the list, and to administer punishment—an electric shock—whenever the learner errs. The teacher is given a sample shock of 45 volts (the only real shock administered in the course of the experiment). The experimenter instructs the teacher to increase the level of shock one step on the shock generator for each mistake. The generator has thirty switches labeled from 15 to 450 volts. Beneath these voltage readings are labels ranging from "SLIGHT SHOCK" to "DANGER: SEVERE SHOCK," and finally "XX."

The experiment starts routinely. At the fifth shock level, however, the confederate grunts in annoyance, and by the time the eighth shock level is reached, he shouts that the shocks are becoming painful. Upon reaching the tenth level (150 volts), he cries out, "Experimenter, get me out of here! I won't be in the experiment any more! I refuse to go on!" This response makes plain the intensity of the pain and underscores the learner's right to be released. At the 270-volt level, the learner's response becomes an agonized scream, and at 300 volts the learner refuses to answer further. When the voltage is increased from 300 volts to 330 volts,

Visual Thinking

Milgram's Experiment

In this actual photo from Milgram's obedience study, the man being strapped into the chair for the experiment is one of Milgram's research assistants and will receive no shock. What do you think the research assistant thought of the experiment? In his place, would you have been surprised by the findings?

the confederate shrieks in pain at each shock and gives no answer. From 330 volts on, the learner is heard from no more, and the teacher has no way of knowing whether the learner is still conscious or, for that matter, alive (the teacher also knows that the experimenter cannot tell the condition of the victim since the experimenter is in the same room as the teacher).

Typically the teacher attempts to break off the experiment many times during the session. When he tries to do so, the experimenter instructs him to continue. If he refuses, the experimenter insists, finally telling him, "You must continue. You have no other choice." If the subject still refuses, the experimenter ends the experiment.

We would expect that at most only a small minority of the subjects, a cross section of New Haven residents, would continue to shock beyond the point where the victim screams in pain and demands to be released. We certainly would expect

that very, very few people would continue to the point of administering shocks of 450 volts. Indeed, Milgram asked a sample of psychiatrists and a sample of adults with various occupations to predict whether they would obey the orders of the experimenter. All of the people asked claimed that they would disobey at some point. Aware that people would be unwilling to admit that they themselves would obey such an unreasonable and unconscionable order, Milgram asked another sample of middle-class adults to predict how far other people would go in such a procedure. The average prediction was that perhaps one person in a thousand would continue to the end. The prediction was wrong. In fact, 65 percent (26/40) of the subjects obeyed to the end.

It is clear to people who are not in the experiment what they should do. The question is, *What features of the experimental situation make this clear issue opaque to subjects?* Our aim is to suggest some reasons for such a failure of thinking and action and to suggest ways that people might be trained to avoid such failures— not only in the experiment, of course, but in our practical, moral lives as well. What are some of the sources of the failure?

The experimental conditions involve entrapment, and gradual entrapment affects critical thought. One important feature inducing obedience is the gradual escalation of the shock. Although subjects in the end administered 450-volt shocks, which is clearly beyond the limits of common morality and, indeed, common sense, they began by administering 15-volt shocks, which is neither. Not only did they begin with an innocuous shock, but it increased in innocuous steps of 15 volts. This gradualness clouds clear thinking: we are prepared by our moral training to expect moral problems to present themselves categorically, with good and evil clearly distinguished. But here they were not. By administering the first shock, subjects did two things at once—one salient, the other implicit. They administered a trivial shock, a morally untroublesome act, and they in that same act committed themselves to a policy and procedure which ended in clear evil.

Surely in everyday life, becoming entrapped by gradual increases in commitment is among the most common ways for us to find ourselves engaging in immoral acts, not to mention simple folly. The corrective cannot be, of course, refusing to begin on any path which *might* lead to immorality, but rather to foresee where paths are likely to lead, and to arrange for ourselves points beyond which we will not go. One suspects that had the subjects committed themselves— publicly—to some shock level they would not exceed, they would not have found themselves pushing the 450-volt lever. We cannot expect to lead, or expect our young to lead, lives without walking on slopes: our only hope is to reduce their slipperiness.

Distance makes obedience easier. Another force sustaining obedience was the *distance* between the victim and the subject. Indeed, in one condition of the experiment, subjects were moved physically closer to the victim; in one condition they had to hold his hand on the shock plate (through Mylar insulation to pro-

tect the teachers from shock). Here twelve out of forty subjects continued to the end, roughly half the number that did so when the subjects were farther from their victim.

Being closer to the victim did not have its effect by making subjects think more critically or by giving them more information. Rather it intensified their *discomfort* at the victim's pain. Still, being face to face with someone they were hurting probably caused them at least to focus on their victim, which might well be a first step in their taking seriously the pain they were causing him.

Both the experimenter's presence and the objective requirements of the situation influenced decisions to obey authority. The experimenter's *presence* is crucial to the subjects' obedience. In one version of the experiment he issued his commands at a distance, over the phone, and obedience was significantly reduced—to nine out of forty cases. The experimenter, then, exerts powerful *social influence* over the subjects.

One way to think about the experimenter's influence is to suppose that subjects uncritically cede control of their behavior to him. But this is too simple. We suggest that if the experimenter were to have told the subjects, for example, to shine his shoes, every subject would have refused. They would have refused because shining shoes is not a sensible command within the experimental context. Thus, the experimenter's ability to confuse and control subjects follows from his issuing commands which make sense given the ostensible purpose of the experiment; he was a guide, for them, to the experiment's objective requirements.

This interpretation of the experimenter's *role* is reinforced by details of his behavior. For example, his language and demeanor were cold—bureaucratic rather than emotional or personal. The subjects were led to see his commands to them as his dispassionate interpretations of something beyond them all: the requirements of the experiment.

Embarrassment plays a key role in decisions to obey authority. The experimenter entrapped subjects in another way. Subjects could not get out of the experiment without having to explain and justify their abandoning their duty to the experiment and to him. And how were they to do this?

Some subjects attempted to justify their leaving by claiming that they could not bear to go on, but such appeals to "personal reasons" were rebutted by the experimenter's reminding them of their duty to stay. If the subjects could not escape the experiment by such claims, then how could they escape? *They could fully escape his power only by confronting him on moral grounds.* It is worth noting that this is something that virtually none of the hundreds of subjects who took part in one condition or another fully did. Failing to address the experimenter in moral terms, even "disobedient" subjects just passively resisted; they stayed in their seats refusing to continue until the experimenter declared the experiment over. They did *not* do things we might expect them to: leave, tell the experimenter off, release the victim from his seat, and so on. Why did even the disobedient subjects not confront the experimenter?

One reason seems too trivial to mention: confronting the experimenter would be embarrassing. This trivial fact may have much to do with the subjects' obedience. To confront the experimenter directly, on moral grounds, would be to disrupt in a profound way implicit expectations that grounded this particular, and indeed most, social interaction: namely, that the subject and experimenter would behave as competent moral actors. Questioning these expectations is on some accounts, at least, the source of embarrassment.

Subjects in Milgram's experiment probably did not realize that it was in part embarrassment that [was] keeping them in line. Had they realized that—had they realized that they were torturing someone to spare themselves embarrassment—they might well have chosen to withstand the embarrassment to secure the victim's release. But rather we suspect that subjects experience their anticipation of embarrassment as a nameless force, a distressing emotion they were not able to articulate. Thus the subjects found themselves unable to confront the experimenter on moral grounds and unable to comprehend why they could not confront the experimenter.

Emotional states affect critical thought. Obviously the emotions the subjects experienced because of the embarrassment they were avoiding and the discomfort produced by hearing the cries of the victim affected their ability to reason critically. We do not know much about the effects of emotion on cognition, but it is plausible that it has at least one effect—a focusing of attention. Subjects seem to suffer from what Milgram has called "Tunnel Vision": they restricted their focus to the technical requirements of the experimental task, for these, at least, were clear. This restriction of attention is both a consequence of being in an emotional state more generally, and it is a strategy subjects used to avoid unwanted emotional intrusions. This response to emotion is, no doubt, a formidable obstacle to critical thought. To reject the experimenter's commands, subjects had to view their situation in a perspective different from the technical one the experimenter offered them. But their immediate emotional state made it particularly difficult for them to do just that: to look at their own situation from a broader, moral perspective.

How can we train individuals to avoid destructive obedience? Our analysis leads to the view that obedience in the Milgram experiment is not primarily a result of a failure of knowledge, or at least knowledge of the crucial issue of what is right or wrong to do in this circumstance. People do not need to be told that torturing an innocent person is something they should not do—even in the context of the experiment. Indeed, when the experimenter turns his back, most subjects are able to apply their moral principles and disobey. The subjects' problem instead is not knowing how to break off, how to make the moral response without social stickiness. If the subjects' defect is not primarily one of thinking correctly, then how is education, even education in critical thinking, to repair the defect? We have three suggestions.

First, we must teach people how to confront authority. We should note as a corollary to this effort that teaching has a wide compass: we teach people how to ride bikes, how to play the piano, how to make a sauce. Some teaching of how to do things we call education: we teach students how to do long division, how to parse sentences, how to solve physics problems. We inculcate these skills in students not by, or not only by, giving them facts or even strategies to remember, but also by giving them certain sorts of experiences, by correcting them when they err, and so on. An analogy would be useful here. Subjects in the Milgram experiment suffered not so much from a failure to remember that as center fielders they should catch fly balls as they did from an inability to do so playing under lights at night, with a great deal of wind, and when there is ambiguity about whether time-out has been called. To improve the players' ability to shag fly balls, in game conditions, we recommend practice rather than lectures, and the closer the circumstances of practice to the conditions of the actual game, the more effective the practice is likely to be.

Good teachers from Socrates on have known that the intellect must be trained; one kind of training is in criticizing authority. We teachers are authorities and hence can provide practice. Of course, we can only do that if we *remain* authorities. Practice at criticizing us if we do not respect our own authority is of little use. We do not have a recipe for being an authority who at the same time encourages criticism, but we do know that is what is important. And sometimes we can tell when we are either not encouraging criticism or when we have ceased being an authority. Both are equally damaging.

Practice with the Milgram situation might help too; it might help for students to "role play" the subjects' plight. If nothing else, doing this might bring home in a forcible way the embarrassment that subjects faced in confronting authority. It might help them develop ways of dealing with this embarrassment. Certainly, it would at least teach them that doing the morally right thing does not always "feel" right, comfortable, natural. There is no evidence about whether such experiences generalize, but perhaps they do.

If they are to confront authority assertively, individuals must also be taught to use social pressure in the service of personal values. Much of current psychology and education sees thought, even critical thought, as something that goes on within individuals. But we know better than this. Whether it be in science, law, or the humanities, scholarship is and must be a public, social process. To train subjects to think critically is to train them to expose their thinking to others, to open *themselves* to criticism, from their peers as well as from authority. We insist on this in scholarship because we know that individual thinking, even the best of it, is prey to distortions of all kinds, from mere ignorance to "bad faith."

Further, the support of others is important in another way. We know that subjects who saw what they took to be two other naive subjects disobey, and thus implicitly criticize the action of continuing, were very likely to do so themselves.

A subject's sense that the experimenter had the correct reading was undermined by the counter reading offered by the "other subjects." Public reinforcement of our beliefs can liberate us from illegitimate pressure. The reason for this is twofold.

Agreement with others clarifies the cognitive issue and helps us see the morally or empirically right answer to questions. But it also can have another effect—a nonrational one.

We have claimed that part of the pressure subjects faced in disobeying was produced by having to deal with the embarrassment that might emerge from confrontation. Social support provides a counter-pressure. Had the subjects committed themselves publicly to disobedience before entering the experiment then they could have countered pressures produced by disobedience (during the experiment) by considering the embarrassment of admitting to others (after the experiment) that they had obeyed. Various self-help groups like Alcoholics Anonymous and Weight Watchers teach individuals to manage social pressures to serve good ends.

Social pressures are forces in our lives whether we concede them or not. The rational person, the person who would keep his action in accord with his values, must learn to face or avoid those pressures when they act to degrade his action, but equally important he ought to learn to *employ* the pressure of public commitment, the pressure implicit in making clear to others what he values, in the service of his values.

Students should know about the social pressures that operate on them. They should also learn how to use those pressures to support their own values. One reason we teach people to think critically is so that they may take charge of their own creations. We do not withhold from engineers who would create buildings knowledge about gravity or vectors or stresses. Rather we teach them to enlist this knowledge in their support.

A second area requires our attention. We need to eliminate intellectual illusions fostering nonintellectual obedience. These are illusions about human nature which the Milgram experiment renders transparent. None of these illusions is newly discovered; others have noticed them before. But the Milgram experiment casts them in sharp relief.

The most pernicious of these illusions is the belief, perhaps implicit, that only evil people do evil things and that evil announces itself. This belief, in different guises, bewildered the subjects in several ways.

First, the experimenter looks and acts like the most reasonable and rational of people: a person of authority in an important institution. All of this is, of course, irrelevant to the question of whether his commands are evil, but it does not seem so to subjects. The experimenter had no personally corrupt motive in ordering subjects to continue, for he wanted nothing more of them than to fulfill the requirements of the experiment. So the experimenter was not seen as an evil man, as a man with corrupt desires. He was a man, like Karl Adolf Eichmann, who

ordered them to do evil because he saw that evil as something required of him (and of them) by the requirements of the situation they faced together. Because we expect our morality plays to have temptation and illicit desire arrayed against conscience, our ability to criticize morally is subverted when we find evil instructions issued by someone moved by, of all things, duty. [For a fuller discussion of this point, see Hannah Arendt's *Eichmann in Jerusalem* (1965), where the issue is placed in the context of the Holocaust.]

And just as the experimenter escaped the subjects' moral criticism because he was innocent of evil desire, the subjects escaped their own moral criticism because *they too* were free of evil intent: they did not *want* to hurt the victim; they really did not. Further, some subjects, at least, took action to relieve the victim's plight—many protested the experimenter's commands, many tried to give the victim hints about the right answers—thus further dramatizing their purity of heart. And because they acted out of duty rather than desire, the force of their conscience against their own actions was reduced. But, of course, none of this matters in the face of the evil done.

The "good-heartedness" of people, their general moral quality, is something very important to us, something to which we, perhaps rightly, typically pay attention. But if we are to think critically about the morality of our own and others' acts, we must see through this general fact about people to assess the real moral quality of the acts they do or are considering doing.

A second illusion from which the subjects suffered was a confusion about the notion of responsibility. Some subjects asked the experimenter who was responsible for the victim's plight. And the experimenter replied that he was. We, and people asked to predict what they would do in the experiment, see that this is nonsense. We see that the experimenter cannot discharge the subjects' responsibility—no more than the leader of a bank-robbing gang can tell his cohorts, "Don't worry. If we're caught, I'll take full responsibility." We are all conspirators when we participate in planning and executing crimes.

Those in charge have the right to assign *technical* responsibility to others, responsibility for executing parts of a plan, but moral responsibility cannot be given, taken away, or transferred. Still, these words—mere words—on the part of the experimenter eased subjects' "sense of responsibility." So long as the institutions of which we are a part are moral, the need to distinguish technical from moral responsibility need not arise. When those institutions involve wanton torture, we are obliged to think critically about this distinction.

There is a third illusion illustrated in the Milgram experiment. When subjects threatened to disobey, the experimenter kept them in line with prods, the last of which was, "You have no choice; you must go on." Some subjects fell for this, believed that they had no choice. But this is also nonsense. There may be cases in life when we *feel* that we have no choice, but we know we always do. Often feeling we have no choice is really a matter of believing that the cost of moral action is

greater than we are willing to bear—in the extreme we may not be willing to offer our lives, and sometimes properly so. Sometimes we use what others have done to support the claim that we have no choice; indeed, some students interpret the levels of obedience in the Milgram experiment as proof that the subjects had no choice. But we all know they did. Even in extreme situations, we have a choice, whether we choose to exercise it or not. The belief that our role, our desires, our past, or the actions of others preclude our acting morally is a convenient but illusory way of distancing ourselves from the evil that surrounds us. It is an illusion from which we should choose to disabuse our students.

Pressure to Go Along with Abuse Is Strong, but Some Soldiers Find Strength to Refuse
by ANAHAD O'CONNOR

The images of prisoner abuse still trickling out of Iraq show a side of human behavior that psychologists have sought to understand for decades. But the murky reports of a handful of soldiers who refused to take part bring to light a behavior psychologists find even more puzzling: disobedience.

Buried in his report earlier this year on Abu Ghraib prison in Iraq, Maj. Gen. Antonio M. Taguba praised the actions of three men who tried to stop the mistreatment of Iraqi detainees. They are nowhere to be seen in the portraits of brutality that have touched off outrage around the world.

Although details of their actions are sketchy, it is known that one soldier, Lt. David O. Sutton, put an end to one incident and alerted his commanders. William J. Kimbro, a Navy dog handler, "refused to participate in improper interrogations despite significant pressure" from military intelligence, according to the report. And Specialist Joseph M. Darby gave military police the evidence that sounded the alarm.

In numerous studies over the past few decades, psychologists have found that a certain percentage of people simply refuse to give in to pressure—by authorities or by peers—if they feel certain actions are wrong.

The soldiers have been reluctant to elaborate on what they saw and why they came forward. In an interview with *The Virginian-Pilot* in Norfolk, [VA], Lieutenant Sutton, a Newport News police sergeant, said, "I don't want to judge, but yes, I witnessed something inappropriate and I reported it."

The public will assume that there was widespread corruption, he told another local paper, "when in reality, it's just one bad apple."

In the noted experiment 40 years ago when Dr. Stanley Milgram showed that most people will deliver a lethal dose of electricity to another subject if instructed to do so by a scientist in a white lab coat, a minority still said no.

"These people are rare," said Dr. Elliot Aronson, a professor of psychology at the University of California, Santa Cruz, who studies social influence. "It's really hard for us to predict in advance who is going to resist by looking at things like demographic data or religious background."

The men singled out by General Taguba dissented despite the threat of being ridiculed or even court-martialed for not following orders. Psychologists believe they may have been guided by a strong moral compass and past experiences with conformity.

"It is sometimes the case that they themselves have been scapegoated or turned on by the crowd," said Dr. John Darley, a professor of psychology and public affairs at Princeton. "If you go back into the lives of these people you can often find some incident that has made very vivid to them the pressures of conformity working on the others in the group."

People who break from the crowd to blow the whistle, history shows, are often the most psychologically distanced from the situation. In 1968, Hugh Thompson, a helicopter pilot, was flying over Vietnam as G.I.'s were killing civilians. The soldiers on the ground had been told that the village, My Lai, was a Vietcong stronghold. But from above Mr. Thompson could see there was no enemy fire. He landed his helicopter, rescued some villagers, and told his commanders about the massacre.

What happened there, and what occurred at Abu Ghraib, Dr. Darley said, was a slow escalation.

Referring to reports that the guards were told to "soften up" the prisoners for interrogation, he said that it apparently "drifted more and more toward humiliation."

"Perhaps they thought they were doing the right thing," he said. "But someone who didn't get caught up at the start, someone who walks in and hasn't been involved in the escalation, like the pilot Thompson, can see the process for what it really is."

Mr. Thompson was supported by his gunner, Larry Colburn, who helped him round up civilians and radioed for help.

It is not clear when the three men cited in General Taguba's report tried to interfere with the interrogations or whether they had contact with one another. But a transcript of a court-martial hearing on May 1 suggests that additional officers who knew one another also tried to pass reports of the scandal up the chain of command.

Dr. Solomon E. Asch showed in experiments on compliance half a century ago that people are more likely to break from a group if they have an ally. Subjects in his experiment were asked to look at different lines on a card and judge their lengths. Each subject was unknowingly placed in a group of "confederates" who

deliberately chose a line that was obviously wrong. About a third of the time, the subjects would give in and go along with the majority.

But if one confederate broke from the group and gave another answer, even a wrong answer, the subjects were more likely to give the repsonse they knew was correct.

"The more you feel support for your dissent, the more likely you are to do it," said Dr. Danny Axsom, an associate professor of psychology at Virginia Tech.

A lack of supervision, which General Taguba pointed out in his report, and confusion over the chain of command, Dr. Axsom said, may have also emboldened the three soldiers.

"There was less perceived legitimacy," he said. "If it's clear who the authority is, then you're more likely to obey. If it's not, then the legitimacy of the whole undertaking is undermined."

The power to resist coercion reflects what psychologists call internal locus of control, or the ability to determine one's own destiny. People at the other end of the scale, with external locus of control, are more heavily influenced by authority figures. They prefer to put their fate in the hands of others.

"If they fail a test, it's the teacher's fault; if they do poorly at a job, it's the boss's fault," said Dr. Thomas Ollendick, a professor of psychology at Virginia Tech. "They put the blame for everything outside of themselves. They are high in conformity because they believe someone else [is] in charge."

The average person, research shows, falls somewhere in the middle of the scale. People who voluntarily enlist in the military, knowing they will take orders, Dr. Ollendick suggested, may be more likely to conform. "These are people who are being told what to do," he said. "The ones who are conforming from the outset feel they can't change the system they're in. Those who blow the whistle can go above the situation and survive. They can basically endure whatever negative consequences might come from their actions."
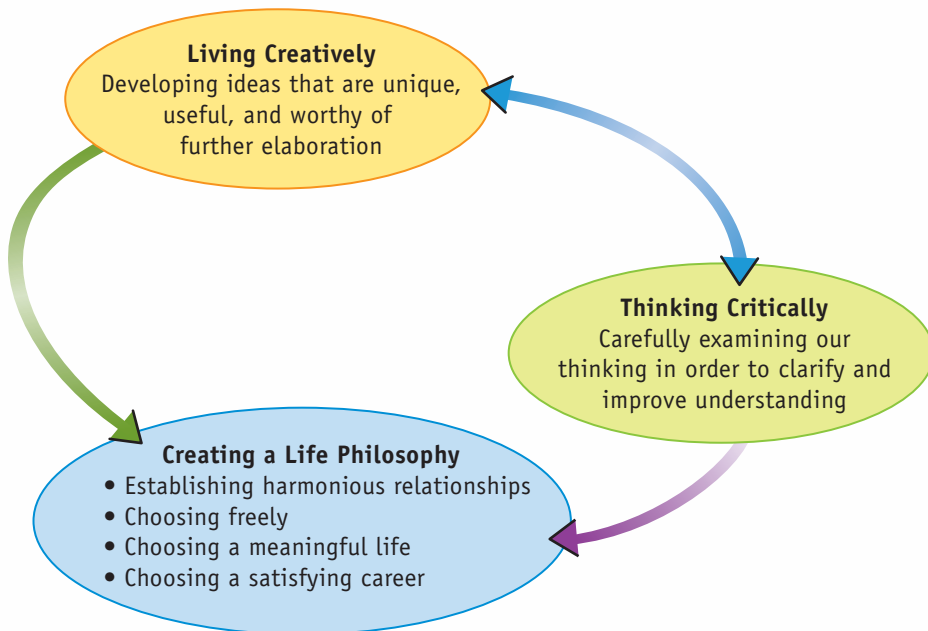
Questions for Analysis

1. Sabini and Silver describe the reasons they believe that the majority of subjects in the Stanley Milgram experiment were willing to inflict apparent pain and injury on an innocent person. Explain what you believe were the most significant reasons for the absence of critical thinking and moral responsibility by many individuals.

2. O'Connor's article focuses on three individuals who were able to resist the pressures to inflict pain on Iraqi prisoners at Abu Ghraib prison. Why were these individuals able to retain their critical-thinking abilities and sense of moral responsibility in the face of powerful pressures to do otherwise, including the obedience to authority?

3. Sabini and Silver argue that the ability to think critically must be developed within a social context, that we must expose our thinking to the criticism of

others because "individual thinking, even the best of it, is prey to distortions of all kinds, from mere ignorance to 'bad faith.' " Explain how "allies" were helpful in enabling those at Abu Ghraib prison to resist the pressure to conform to the prevailing norm of prisoner abuse.

4. Sabini and Silver contend that in order to act with critical thinking and moral courage, people must be taught to confront authority, and the individuals highlighted in O'Connor's article demonstrated precisely this ability. Explain how you think people can be taught and encouraged to confront authority in a constructive way.

5. "Even in extreme situations, we have a choice, whether we choose to exercise it or not. The belief that our role, our desires, our past, or the actions of others preclude our acting morally is a convenient but illusory way of distancing ourselves from the evil that surrounds us." Evaluate this claim in light of the behavior of the military and intelligence personnel at Abu Ghraib prison, both those who participated in prisoner abuse and those who resisted such participation.

Living Creatively
Developing ideas that are unique, useful, and worthy of further elaboration

Thinking Critically
Carefully examining our thinking in order to clarify and improve understanding

Creating a Life Philosophy
• Establishing harmonious relationships
• Choosing freely
• Choosing a meaningful life
• Choosing a satisfying career

Living a Life Philosophy

As the artist of your own life, your brush strokes express your philosophy of life, a vision that incorporates your most deeply held values, aspirations, and convictions. The challenge you face is to create a coherent view of the world that expresses who you are as well as the person you want to become. It should be a vision that not only guides your actions but also enables you to understand the value of your experiences, the significance of your relationships, and the meaning of your life.

The quality of your life philosophy is a direct result of your abilities to think critically and think creatively, abilities that you have been developing while working on activities presented throughout this book. But a life philosophy is incomplete until it is acted upon through the decisions you make, decisions made possible by your ability to choose freely. These are the three life principles of human transformation upon which this book is based. These three principles are interlocking pieces of the puzzle of your life. Working together as a unified force, these principles can illuminate your existence: answering questions, clarifying confusion, creating meaning, and providing fulfillment.

- *Think critically:* When used properly, your thinking process acts like a powerful beacon of light, illuminating the depths of your personality and the breadth of your experience. Clear thinking is a tool that helps you disentangle the often-confused jumble of thoughts and feelings that compose much of your waking consciousness. By becoming a more powerful critical thinker, you are acquiring the abilities you need to achieve your goals, solve problems, and make intelligent decisions. Critical thinkers are people who have developed thoughtful and well-founded beliefs to guide their choices in every area of their lives. In order to develop the strongest and most accurate beliefs possible, you need to become aware of your own biases, explore situations from many different perspectives, and develop sound reasons to support your points of view.

- *Live creatively:* Creativity is a powerful life force that can infuse your existence with meaning. Working in partnership with critical thinking, creative thinking helps you transform your life into a rich tapestry of productivity and success. When you approach your life with a mindful sense of discovery and invention, you can continually create yourself in ways limited only by your imagination. A creative lens changes everything for the better: Problems become opportunities for growth, mundane routines become challenges for inventive approaches, relationships become intriguing adventures. When you give free rein to your creative impulses, every aspect of your life takes on a special glow. You are able to break out of unthinking habitual responses and live fully in every minute, responding naturally and spontaneously. It sounds magical, and it is.

- *Choose freely:* People can transform themselves only if they choose to take different paths in their lives—and only if their choices are truly free. To exercise genuine freedom, you must have the insight to understand all of your options

and the wisdom to make informed choices. When you fully accept your freedom, you redefine your daily life and view your future in a new light. By working to neutralize the constraints on your autonomy and guide your life in positive directions, you see alternatives that were not previously visible, having been concealed by the limitations of your previous vision. Your future becomes open, a field of rich possibilities that you can explore and choose among. A life that is free is one that is vital and exciting, suffused with unexpected opportunities and the personal fulfillment that comes from a life well lived.

Your "self" is, in its essence, a dynamic life force that is capable of thinking critically, creating, and choosing freely. These three essential dimensions of your self exist optimally when they work together in harmonious unity. When working together, these three basic elements create a person who is intelligent, creative, and determined—the ingredients for success in any endeavor. But consider the disastrous consequences of subtracting any of these elements from the dynamic equation. If you lack the ability to think critically, you won't be able to function very well in most challenging careers because you will have difficulty thinking clearly, solving complex problems, and making intelligent decisions. What's more, whatever creative ideas you come up with will be rootless, lacking an intelligible framework or practical strategies for implementing them. You will be an impractical dreamer, condemned to a life of frustrated underachieving. Without insight into yourself, your freedom will be imprisoned because you won't be able to see your choices clearly or to liberate yourself from the influences that are constraining you.

If you lack the ability to think creatively, then your thinking abilities may enable you to perform in a solid, workmanlike fashion, but your work will lack imagination, you will be afraid to try original approaches because of the risk of failure, and your personality will be lacking the spontaneous sparkle that people admire and are drawn to. You will in time become a competent but unimaginative "worker-bee," performing your duties with predictable adequacy but never rising to the lofty heights that you are capable of attaining. Your choices will be as limited as your imagination, and your habitual choices of safe and secure paths will eventually create a very small canvas for your personal portrait.

If you lack the ability to choose freely, then your abilities to think critically or creatively cannot save you from a life of disappointment. Though you may be able to clearly analyze and understand, you will lack the will to make the difficult choices and stay the course when you encounter obstacles and adversities. And though you may develop unique and valuable ideas, your inability to focus your energies and make things happen will doom these ideas to anonymity. Because you lack the will to create yourself as a strong individual of character and integrity, the people you encounter will come to view you as a shallow-rooted reed that bends with the wind of superficial trends, not as someone deserving of authority and responsibility.

Think of what you aspire to have: a life of purpose and meaning, the respect and devotion of those around you, success and fulfillment in your chosen endeavors, and a secure sense of who you are, a person with the courage and vision to accomplish

great things. These aspirations are within your grasp, but only if you develop all of these fundamental dimensions of your self to their fullest potential: the abilities to think critically, think creatively, and choose freely.

Choosing Freely

You have the power to create yourself through the choices that you make, but only if your choices are truly free. To exercise genuine freedom, you must possess the insight to understand all of your options and the wisdom to make informed choices. In many instances passive, illogical, and superficial thinking inhibits people's abilities to make intelligent choices and erodes their motivation to persevere when obstacles are encountered. You can learn to redefine your daily life in a new light and enhance its value through free choices derived from thinking critically and creatively. The problem is that we get so caught up in routine, so mired in the day-to-day demands of reality and the pressures of conformity, that we don't even *see* alternatives to our condition, much less act on them. Our complaints often outnumber our shining moments as we tend to focus on the forces and people who have thwarted our intentions:

If only that person hadn't sabotaged my career, I would have . . .
If only I had had a chance to meet the right person . . .
If only I had gotten the breaks now and then . . .
If only I could get rid of my habitual tendency to _____, I would . . .
If only other people were as dependable and caring as I am . . .
If only I had been given the advantages of a different background . . .
If only the world had not become so competitive . . .
If only I had been given the opportunity to show what I could do . . .

These complaints, and the millions of others like them, bitterly betray W. E. Henley's notion that "I am the master of my fate, I am the captain of my soul." It is much more common for people to believe that fate mastered them and that they never had sufficient opportunity to live life "their way." Instead of feeling free, we often feel beleaguered, trying desperately to prevent our small dinghy from getting swamped in life's giant swells rather than serenely charting a straight course in our sleek sailboat.

The end result is that when people think of "being free," they often conjure up a romantic notion of "getting away" from their concerns and responsibilities, imagining a world where anything is possible, and there is plenty of money to pay for it. However appealing this fantasy may be, it is a misconceived and unrealistic notion of freedom. Genuine freedom consists of making thoughtful choices from among the available options, choices that reflect your genuine desires and deepest values, and resisting the pressures to surrender your autonomy to external pressures *or* internal forces. How can you accomplish this?

To begin with, you need to *make freedom a priority* in your life. Achieving greater freedom for yourself is based on placing a high value on personal freedom. If you are primarily focused on meeting your needs within the existing structure of your life, then maximizing your choices and enlarging the scope of your life may

not be a top priority. However, if you feel dissatisfied with the status quo and long to increase your options and your ability to choose them, increasing your personal freedom will be a very important goal.

> STRATEGY: Complete a brief inventory of your life, identifying some of the areas you would like to change as well as those you are basically satisfied with but would like to enrich. Think about the ways in which increasing your personal freedom and making different choices could help you achieve these life goals.

A second strategy for increasing your personal freedom is to *willingly accept your freedom and responsibility*. The most important and disturbing element of personal freedom is that it necessarily involves personal responsibility. And personal responsibility is the main reason that people are so reluctant to embrace their freedom and, in fact, actively seek to "escape" from it. If you acknowledge that your choices are free, then you must accept that you are responsible for the outcomes resulting from your choices. When people are successful, it is easy for them to take full responsibility for their accomplishments. But when failure occurs, people tend to dive for cover, blaming others or forces beyond their control. This is exactly what's going on in all the "if only" statements listed previously and any others like them: They each express the belief that if only some outside force had not intervened, the person would have achieved the goal she or he had set. However, in many instances, these explanations are bogus, and these efforts to escape from freedom are illegitimate. They represent weak and inauthentic attempts to deny freedom *and* responsibility.

Your reaction to responsibility is an effective barometer of your attitude toward freedom. If you are comfortable with your personal responsibility, able openly to admit your mistakes as well as to take pleasure in your successes, this attitude is an indication that you accept your freedom. Similarly, if you take pride in your independence, welcoming the opportunity to make choices for which you are solely responsible, this attitude also reveals a willing embracing of your freedom.

> STRATEGY: Create a "responsibility chart" that evaluates your acceptance of responsibility (and freedom) in various areas of your life. On one side of the page, describe common activities in which you are engaged ("Decisions at work," "Conflicts with my partner"), and on the other side, list typical judgments that you make ("I am solely responsible for that mistaken analysis"; "You made me do that embarrassing thing, and I can't forgive you"). After several days of record-keeping and reflection, you should begin to get an increasingly clear picture of the extent to which you accept (or reject) your personal freedom.

A third way to increase your freedom is to *emphasize your ability to create yourself*. Although you may not be fully aware of it, you have your own psychological theory of human nature, which is expressed in how you view yourself and deal with other people. Do you believe that your personality is determined by your genetic

history or by the environmental circumstances that have shaped you? Or do you believe that people are able to transcend their histories and choose freely?

> STRATEGY: Instead of explaining your (and others') behavior entirely in terms of genes and environmental conditioning, develop the habit of analyzing your behavior in terms of the choices you make. Many people triumph over daunting odds while others fail miserably, despite having every advantage in life. What are the key ingredients of such triumphs? They are an unshakable belief in the ability to choose one's destiny and the determination to do so.

Increasing your freedom necessarily involves a fourth strategy, *becoming aware of constraints on your freedom and willing yourself to break free from them.* Freedom consists of making thoughtful choices that reflect your authentic self, your genuine desires and deepest values. But there are many forces that threaten to limit your freedom and even repress it altogether. The limits to your freedom can either come from outside yourself (*external constraints*) or they can come from within yourself (*internal constraints*). While external factors may limit your freedom—for example, being incarcerated or working at a dead-end job—the more challenging limits are imposed by yourself through internal constraints. For instance, people don't generally procrastinate, smoke, suffer anxiety attacks, feel depressed, or engage in destructive relationships because someone is coercing them to do so. Instead, they are victimizing themselves in ways that they are often unaware of. How can you tell if your choice originates from your genuine self or from an internal constraint? There is no simple answer. You have to think critically about your situation in order to understand it fully, but here are some questions to guide your reflective inquiry:

- Do you feel that you are making a free, unconstrained choice and that you could easily "do otherwise" if you wanted to? Or do you feel that your choice is in some sense beyond your conscious control, that you are in the grip of a force that does not reflect your genuine self, a compulsion that has in some way "taken possession" of you?

- Does your choice add positive qualities to your life: richness of experience, success, happiness? Or does your choice have negative results that undermine many of the positive goals that you are striving for?

- If you are asked why you are making a certain choice, are you able to provide a persuasive, rational explanation? Or are you at a loss to explain why you are behaving this way, other than to say, "I can't help myself."

In order to remove constraints, you first have to become aware that they exist. For example, if someone is manipulating you to think or feel a certain way, you can't begin to deal with the manipulation until you first become aware of it. Similarly, you can't solve a personal problem, such as insecurity or emotional immaturity, without first acknowledging that it *is* a problem and then developing insight into the internal forces that are driving your behavior. Once you have achieved this deeper level of understanding, you are then in a position to choose a different future for yourself,

using appropriate decision-making and problem-solving approaches such as those that we have been developing and addressing throughout this book.

> STRATEGY: Identify the external limitations (people or circumstances) on your freedom, and think about ways to remove these constraints. Then identify—as best you can—the internal compulsions that are influencing you to act in ways at variance with your genuine desires. Use the critical and creative thinking abilities you have been developing to diminish or eliminate their influence.

Finally, maximizing your freedom involves *creating new options to choose from* instead of passively accepting the choices that are initially presented to you. The most vigorous exercise of freedom involves actively creating alternatives that may not be on the original menu of options. This talent involves both thinking critically by taking active initiatives and thinking creatively by generating unique possibilities. For example, if you are presented with a project at work, you should not restrict yourself to considering the conventional alternatives for meeting the goals; instead, actively seek improved possibilities. If you are enmeshed in a problem situation with someone else, you should not permit the person to establish the alternatives from which to choose; instead, work to formulate new or modified ways of solving the problem. Too often people are content to sit back and let the situation define their choices instead of taking the initiative to shape the situation in their own way. Critical and creative thinkers view the world as a malleable environment that they have a responsibility to form and shape. This perspective liberates them to exercise their freedom of choice to the fullest extent possible.

Active thinking, like passive thinking, is habit forming. But once you develop the habit of looking beyond the information given—to transcend consistently the framework within which you are operating—you will be increasingly unwilling to be limited by the alternatives determined by others. Instead, you will seek to create new possibilities and actively shape situations to fit your needs.

> STRATEGY: When you find yourself in situations with different choices, make a conscious effort to identify alternatives that are different from those explicitly presented. You don't necessarily have to choose the new options you have created if they are not superior to the others, but you do want to start developing the habit of using your imagination to look beyond the circumstances as presented.

Deciding on a Career

> Work is a search for daily meaning as well as daily bread, for recognition as well as cash . . . in short, for a life rather than a Monday through Friday sort of dying.
>
> —Studs Terkel, *Working*

"What are you going to be when you grow up?" In childhood this question is fun to contemplate because life is an adventure, and the options seem unlimited.

Visual Thinking

Weighing Your Decision Carefully
Why do many people tend to make quick decisions rather than approaching their decisions thoughtfully and analytically? Describe a decision you made that was based on thoughtful analysis. How did it turn out?
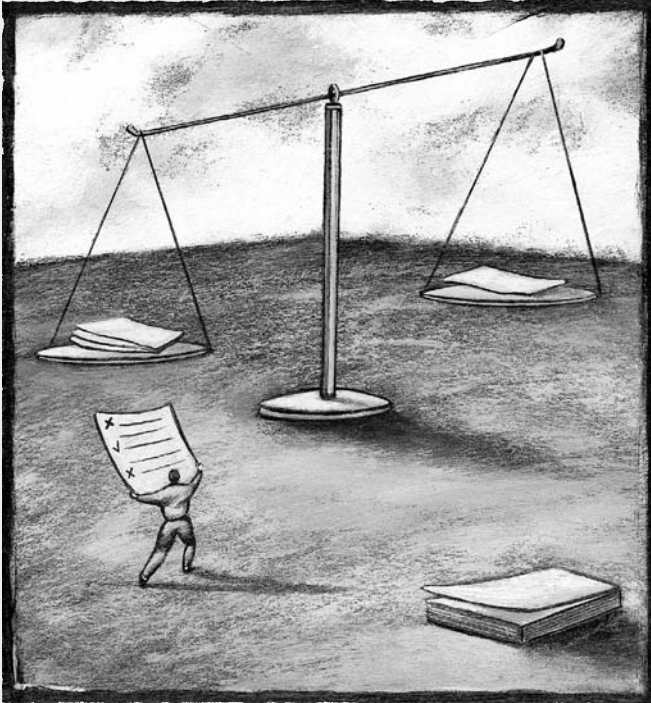
However, now that you are "grown up," this question may elicit more anxiety than enjoyment. "What am I going to be?" "Who am I going to be?" Enrolling in college is certainly an intelligent beginning. The majority of professional careers require a college education, and the investment is certainly worthwhile in monetary terms. But having entered college, many students react by asking, "Now what?"

Perhaps you entered college right out of high school, or perhaps you are returning to college after raising a family, working in a variety of jobs, or serving in the armed forces. The question is the same: "What is the right decision to make about your career future?" Some people have no idea how to answer this question; others have a general idea about a possible career (or careers) but aren't sure exactly which career they want or precisely how to achieve their career goals. Even if you feel sure about your choice, it makes sense to engage in some serious career exploration to ensure that you fully understand your interests and abilities as well as the full range of career choices that match your talents.

Most college students will change their majors a number of times before graduating. Although many students are concerned that these changes reveal instability and confusion, in most cases they are a healthy sign. They suggest that the students are actively engaged in the process of career exploration: considering possible choices, trying them out, and revising their thinking to try another possibility. Often we learn as much from discovering what we don't want as from what we do want. The student who plans to become a veterinarian may end up concluding, "I never want to see a sick animal the rest of my life," as one of my students confided after completing a three-month internship at a veterinary hospital.

The best place to begin an intelligent analysis of your career future is by completing a review of what you already know about your career orientation. Your personal history contains clues regarding which career directions are most appropriate for you. By examining the careers you have considered in your life, and by analyzing the reasons that have motivated your career choices, you can begin creating a picture of yourself that will help you define a fulfilling future. With these considerations in mind, complete the following activity as a way to begin creating your own individual "career portrait." Start by describing two careers that you have considered for yourself in the past few years along with the reason(s) for your choices, and then complete Thinking Activity 12.1.

Thinking Activity 12.1

THINKING ABOUT YOUR CAREER PLANS

Describe in a two-page paper your current thoughts and feelings about your career plans. Be very honest, and include the following:

1. A specific description of the career(s) you think you might enjoy
2. A description of the history of this choice(s) and the reasons why you think you would enjoy it (them)
3. The doubts, fears, and uncertainties you have concerning your choice(s)
4. The problems you will have to solve and the challenges you will have to overcome in order to achieve your career goal

Thinking Errors in Career Decisions

Too often, people choose careers for the wrong reasons, including the following:

- They consider only those job opportunities with which they are familiar and fail to discover countless other career possibilities.
- They focus on certain elements—such as salary or job security—while ignoring others—like job satisfaction or opportunities for advancement.
- They choose careers because of pressure from family or peers rather than selecting careers that they really want.

- They drift into jobs by accident or circumstance and never reevaluate their options.
- They fail to understand fully their abilities and long-term interests, and what careers will match these.
- They don't pursue their "dream jobs" because they are afraid that they will not succeed.
- They are reluctant to give up their current unsatisfactory job for more promising possibilities because of the risk and sacrifice involved.

Whatever the reasons, the sad fact is that too many people wind up with dead-end, unsatisfying jobs that seem more like lifetime prison sentences than their "field of dreams." However, such depressing outcomes are not inevitable. This text is designed to help you develop the thinking abilities, knowledge, and insight you will need to achieve the appropriate career.

Creating Your Dream Job

One of the powerful thinking abilities you possess is the capacity to think imaginatively. In order to discover the career that is right for you, it makes sense to use your imagination to create an image of the job that you believe would make you feel most fulfilled. Too often people settle for less than they have to because they don't believe they have any realistic chance to achieve their dreams. Using this self-defeating way of thinking almost guarantees failure in a career quest. Another thinking error occurs when people decide to pursue a career simply because it pays well, even though they have little interest in the work itself. This approach overlooks the fact that in order to be successful over a long period of time, you must be continually motivated—otherwise you may "run out of gas" when you most need it. Interestingly enough, when people pursue careers that reflect their true interests, their success often results in financial reward because of their talents and accomplishments, even though money wasn't their main goal!

So the place to begin your career quest is with your dreams, not with your fears. To get started, it's best to imagine an ideal job in as much detail as possible. Of course, any particular job is only one possibility within the field of your career choice. It is likely that you will have a number of different jobs as you pursue your career. However, your imagination works more effectively when conjuring up specific images, rather than images in general. You can begin this exploratory process by completing Thinking Activity 12.2.

Thinking Activity 12.2

DESCRIBING YOUR DREAM JOB

Write a two-page description of your ideal job. Spend time letting your imagination conjure up a specific picture of your job, and don't let negative impulses

("I could never get a job like that!") interfere with your creative vision. Be sure to address each of the four dimensions of your ideal job:

1. Physical setting and environment in which you would like to spend your working hours

2. Types of activities and responsibilities you would like to spend your time performing

3. Kinds of people you would like to be working with

4. Personal goals and accomplishments you would like to achieve as part of your work

Finding the Right Match

In Chapter 1 you learned how to use your thinking abilities to begin identifying your interests, abilities, and values. Discovering who you are is one part of identifying an appropriate career. The second part involves researching the careers that are available to determine which ones match your interests, abilities, and values.

Visual Thinking

A Bad Hair Day?

There are countless careers that people don't consider because they are unfamiliar. What unusual occupation do you think is depicted in this photo? What would you expect to be the educational background and training of this person? What are three of the most unusual careers that you can think of? After sharing with the class, were you surprised at some of the unusual careers other students identified? Are any of interest to you?

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There are literally thousands of different careers, most of which you probably have only a vague notion about. How do you find out about them? There are a number of tools at your disposal. To begin with, your college probably has a career resource center that likely contains many reference books, periodicals, DVDs, CDs, and software programs describing various occupations. Career counselors are also available either at your school or in your community. Speaking to people working in various careers is another valuable way to learn about what is really involved in a particular career. Work internships, summer jobs, and volunteer work are other avenues for learning about career possibilities and whether they might be right for you.

As you begin your career explorations, don't lose sight of the fact that your career decisions will likely evolve over time, reflecting your growth as a person and the changing job market. Many people alter their career paths often, so you should avoid focusing too narrowly. Instead, concentrate on preparing for broad career areas and developing your general knowledge and abilities. For example, by learning to think critically, solve problems, make intelligent decisions, and communicate effectively, you are developing the basic abilities needed in almost any career. As an "educated thinker," you will be able to respond quickly and successfully to the unplanned changes and unexpected opportunities that you will encounter as you follow—and create—the unfolding path of your life.

Thinking Passages

FINDING MEANING IN WORK

Do you work to live, or live to work? In difficult economic times, "work" becomes a necessity and an anxiety; we search for (and stay in) jobs that may not fulfill us creatively or intellectually but may simply keep us solvent and insured. In the previous pages, you worked through a series of thinking exercises designed to help you balance your natural talents and skills with your need to find a career path. The following readings describe attitudes about, and approaches to, kinds of "work" that seem more like vocations than mere jobs. A *vocation* is, literally, a calling; when you have a vocation to do something, you simply cannot imagine yourself doing anything else. In the first essay, college teacher Carlo Rotella describes the fierce commitment of his student Russell to the art and science of boxing. The dedication and discipline Russell develops in the ring will serve him well in any career or, indeed, in any sphere of his life. Then, physicist Alan Lightman describes the joy of "patient, brilliant, solitary work" that motivates many scientists.

Cut Time

by Carlo Rotella

Russell, a pleasant young man who split his time between the college on the hill (where I taught) and the boxing gym down below, came up at the end of class one day to tell me that a card of fights would be held in a couple of weeks in nearby Allentown, Pennsylvania. He knew I was interested in boxing and thought I might like to go; also he needed a ride.

I had figured he was not stopping by to continue our discussion of "Bartleby the Scrivener." Seated front and center, in a posture of polite interest but not taking many notes, Russell followed the action in class without committing to it. Some students, infighters, sit up front to get your attention, but others do it for the opposite reason: one way to avoid getting hit is to get in too close, nestled cozily against your opponent's clavicle, where he cannot apply the leverage to hurt you (unless he fouls by head-butting, ear-biting, or calling on people who do not raise their hands). Russell did the reading and wrote his papers, but he was not swept up by fictions and make-believe characters. The class met in the afternoon just before he headed down the hill to the Larry Holmes Training Center, and I suspected that he daydreamed about the imminent shock of punching rather than concentrating on the literary matters at hand.

Every once in a while, though, Russell would say something that reminded me that he was paying attention. Impressed by Frederick Douglass's late-round TKO of the overseer Covey, he spoke up to remind us that this scene dramatized the red-blooded ideal of self-making with one's own two hands. But he had also been

moved to speak by Melville's Bartleby, who comprehensively rejects one of the fight world's foundational principles: protect yourself at all times. Russell, breaking form, had his hand up first and initiated the discussion of Bartleby with references to Gandhi, Martin Luther King, and the difficult principle of moral inaction. Russell encouraged us to consider whether the pacific Bartleby, by preferring to do nothing, was acting decisively against the grain of his situation, or was simply not much good with his hands and therefore destined to be acted upon by a world that kept the hard knocks coming in a steady stream. At least that is what I took him to mean, and I got busy parlaying it into a general discussion in which Russell, having said his piece, declined to participate further.

Once the other students had risen to the bait and were doing the talking, I had a chance to look Russell over for new damage: this week it was a thick, dark line, resembling lavishly applied lampblack, that ran under his right eye from nose to cheekbone. Another black eye, and this one a prizewinner. One of the quiet dramas of having Russell in class was seeing what kind of punishment he had incurred of late. He was so placid in his manner, so Bartleby-like in his pale decency, that I was always jarred by the various lumps, welts, and bruises that passed over his face like weather fronts. Having seen him spar in the gym, I should not have been surprised. He was strong but not quick; and he came straight at his antagonist, equably accepting blows as the price of getting into range to deliver the one-twos he favored. I knew that Russell's style ensured that he would get hit often, even on his best days; but when I saw the marks of his latest lesson on his face, a little click of alarmed recognition still ran through me—registering somewhere in a roped-off area of my mind devoted to boxing—as I managed the discussion and scrawled on the blackboard, chalk dust all over my hands and on the thighs of my pants where I wiped them.

I gestured at the new black eye when Russell stopped to talk with me after class. He just said, "Sterling," looked at the floor, and shook his head, smiling faintly. Sterling was one of the gym's rising stars, a teenager already poised and smooth in the ring. Russell had several years and a few pounds on Sterling, although neither advantage did him much good. Sterling was so preternaturally fast and clever that he had fallen half in love with the idea of his own genius; that—and a tendency to switch back and forth too promiscuously between right- and left-handed stances in order to baffle his opponents—was his only evident weakness. He was the kind of evasive, willowy counterpuncher that solid hitters long to pummel. Russell, for one, believed with doctrinaire intensity that he could hurt Sterling if only he could catch him. I had not seen the two of them spar together, but I had seen Russell's face after their sessions and I had seen both of them spar with others, so I could imagine the encounters: Russell following Sterling doggedly around the ring, absorbing jabs and the occasional speed-blurred combination as he sought to fix the skinny body and weaving head in his sights long enough to throw a meaningful punch. When Russell drifted far away

in thought during class, I assumed he was pursuing Sterling in his mind's eye in the hope of finally nailing him with a big right hand.

On our drive down to the fights later that month, Russell described himself as discouraged about boxing. He had been scheduled to make his first amateur fight in the Golden Gloves, but he had canceled it. He knew he was not ready. I asked if Sterling was still beating him up in the sparring ring, and he said, "Well, yeah, him, but also everybody else. A while ago I was walking around with two black eyes and loose cartilage in my nose and I started to get . . . *discouraged* thinking about it." Russell's stated ambition was to win an official boxing match, not just to spar or fight creditably, but the accumulating pain and damage made him worry that he might be foolish to pursue this goal any further. At the same time, he was wary of giving up too easily, of mistaking for perpetual futility what might be only a difficult period of his fistic education. He said, "When I spar I'm getting really beat up, like, humiliated, in there. I can't get better until I practice more, but I can't practice without getting beat up." I asked why he could not stop now, with no significant damage done, having learned the basics of boxing, having done much to inculcate in himself the generally applicable virtue of disciplined hard work, and having absorbed an instructive dose of the kind of violent extremity from which college usually shelters a young man or woman.

Russell had two answers to that. First, the ever-present threat of pain and humiliation in boxing inspired him to rigor in his training, and he worried that if he stopped going to the gym he would backslide in other endeavors that also required discipline. "When I first got to college," he said, "I slacked off a lot, just hung out and messed around, and it really affected me—my school work, my life. But once I found boxing, I got disciplined about everything. School, eating, sleeping, everything. This week I was getting really discouraged and I didn't go down to the gym at all, and I already felt myself letting things go. You know, falling back into bad habits." Second, he said, discipline aside, "It could turn out that pain and damage are important just by themselves. That's a kind of life experience you can't get as a middle-class college student. Maybe it's worth getting banged up to learn about yourself and, you know, the rest of the world." There were guys down at the gym who had been in jail, who had been addicted to drugs, who had given and taken beatings in and out of the ring, who had been out on the streets broke and without prospects. That was what Russell meant by "life experience."

He seemed to want an argument, so I gave him one. Boxing was not the only way to sample the world beyond College Hill. Most experience of that world fell somewhere between the extremes of reading about it in books and insisting on getting punched out over and over by experts. Warming to the task, I argued that his fixation on getting hurt as the key to authentic "life experience" took the school out of the school of hard knocks, reducing an education in pugilism to an elaborate form of self-abuse. If ritual humiliation and physical damage became his

antidote to slacking off and a sheltered upbringing, wouldn't that formula for gaining "life experience" give him no reason to improve as a boxer? And, anyway, what made boxing necessarily a better path to "life experience" than college? Wasn't college, ideally, supposed to be about exactly the things he saw in boxing: rigorous self-knowledge, encounters with the wider world, the inculcation of discipline? After all, Frederick Douglass presents himself as a student first and a wordsmith last—a reader, writer, and speaker. He disdains boxing, like whiskey drinking, as a waste of a Sabbath day better spent in learning to read, and he fights only twice—when cornered, rather than going in search of beatings—in a definitively unsheltered life.

Russell said "I see that" and "Right, right" in the way a person does when he means that he has stated his position, he is pleased that you agree it is worth discussing, and there is nothing more to discuss. . . .

In the months that followed, Russell found a teacher, a retired fighter who sometimes worked with novices, and eventually declared himself ready to try the Golden Gloves. He was wrong. Russell described his amateur debut as a sort of out-of-body nightmare. He felt himself submerged in a flatfooted torpor in which he moved with desperately inappropriate serenity while the other fighter, unspeakably quick and confident, pounded him at will. Russell was not badly hurt, but he was thoroughly beaten. After the first round, the referee came to Russell's corner to ask if he wished to continue, and he did, but the referee stopped the bout in the second. Feeling himself profoundly out of place in the ring and in his own body, sustained only by courage once his craft had deserted him, seemingly unable to defend himself or fight back, Russell had frozen in the ring, as novices sometimes do. "I never got started," he told me. "It was like I wasn't even there."

I moved away from Easton soon after, but, back to visit a year later, I dropped by the Larry Holmes Training Center one afternoon. The fighters poured sweat in the late September heat. Stripped to a black tank top and shorts, Art was hitting a heavy bag steadily and well—first the left hand twice, a jab and a hook, then a right cross. Somebody was hitting the other heavy bag very hard; it jumped with each blow, and the thump-crack of sharp punching filled the long, low room. When the second hitter moved around his bag and out from behind Art, I could see it was Russell. There was a new weight and speed in his punching, and he had his legs and shoulders into the making of each punch. His diligence and his teacher's efforts had evidently paid off in an improved command of leverage. He was working on power shots: his left hooks made a perfect L from shoulder to glove, staving in the bag on one side; his straight rights imparted the illusion of animate sensitivity to the bag as it leapt away from the impact. He looked bigger than before, having begun to fill out, but, more than that, he looked looser, more competent, more alert. He had lost the quality of undersea abstraction that had always surrounded him in the gym. There was confident vigor in the way he shoved the bag away so it

would swing back at him: he looked forward to its arrival because he was going to hit it just right, with all of himself behind the gloved fist.

I raised an eyebrow at Jeff, a stocky gym regular who worked for the grounds crew up at the college in the mornings and for Larry Holmes in the afternoons. He looked over at Russell, smiled and nodded, and said, "Yeah, Russ has been getting it together. He can *hit*, man. He was in sparring with one of those boys last week and the guy's head was just going like this: bop! bop! bop!" With each *bop!* Jeff threw his head back, chin up, like a fighter getting tagged. One of Holmes's seconds, a round-bodied, characteristically surly fellow named Charlie, chimed in: "Russ can hit. No doubt about it. He had his problems for a while, he got beat up, but he stayed with it and he's getting good. He gets in there this time, he'll surprise some people. Hurt 'em." This was unlooked-for, wildly enthusiastic praise coming from Charlie, who usually ignored the younger fighters in the gym except to shoo them out of the ring when Holmes was ready to work out.

Loyal to one of the gym's most diligent regulars, if not one of its most talented, Jeff and Charlie were talking Russell up to one of his professors, but anyone could see that he had made an important step forward on the way from dabbler to fighter. It looked as if he had arrived at a sense of belonging in the gym, not because he was training next to Art, but because he was doing it right and knew himself to be doing it right. Maybe the Golden Gloves beating had helped to drive home the lesson that just wanting to be in the ring is not a good enough reason to be there; you have to accept responsibility for your part in the mutual laying on of hands. I expected that Russell would not freeze up in his next fight. He was still slow and hittable, and he might well lose; if he did, however, it would not be because he felt out of place in the ring but because he was outboxed or made mistakes or was simply not quick enough. And if the other guy let Russell start throwing punches, Russell might just give him a beating, or at least a stiff punch or two to remember him by.

When I got back home to Boston I sent Russell an e-mail saying I was pleased to see that he had made such progress in the gym. I admitted I had worried in the past that he would get seriously hurt, perhaps even in a life-changing way, because he was in the gym for the wrong reasons—to absorb "life experience" passively rather than to train actively at a craft—but I was less worried now that he had evidently got down to work in earnest. I was initially surpised, then, when Russell wrote back a couple of weeks later to announce a retirement of sorts:

> In earnest, I have become somewhat disenchanted with boxing. There seems to be a level, which I have reached, at which it has lost to some extent its seductive and mesmorizing effect. While I will always retain an interest and awe in the sport, I feel that I can understand the subtleties of the sport and could even execute them given the proper conditioning and practice. While I regard Larry and other successful boxers with the utmost respect and admiration, there seems to be a lack of transcendence into a higher state of more complete perfection in the human realm. Financial gain does not take the fighter out of the street and its culture, nor does

it provide him with any solace or real advancement. I may be sounding somewhat highbrow, however, I now realize that I have bigger fish to fry. With my college education quickly coming to a close I need to focus the resource of my time on things which will propel my advancement after graduation. I will certainly remain active in training and boxing but I realistically can no longer give it my full commitment (and just when I was starting to see the fruit of my labor) . . .

Still in need of an appropriate nickname,
Russell

Spellbound by the Eternal Riddle, Scientists Revel in Their Captivity

by ALAN LIGHTMAN

From an early age, I loved to solve puzzles. When my math teachers assigned homework, most students groaned, but I relished the job. I would save my math problems for last, right before bedtime, like bites of chocolate cake awaiting me after a long and dutiful meal of history and Latin. Then, I would devour my cake.

In geometry, I took pleasure in finding the inexorable and irrefutable relations between lines, angles and curves. In algebra, I delighted in the idea of abstraction, letting x's and y's stand for the number of nickels in a jar or the distance traveled by a train. And then solving a set of connected equations, one logical step after another. Sometimes, when the assigned problems were not challenging enough, I would make up my own problems and seek the solutions.

The biologist Barbara McClintock also enjoyed solving puzzles. In an interview with Evelyn Fox Keller, McClintock recalled that as a child she "used to love to be alone . . . just thinking about things." In high school science classes in Brooklyn, "I would solve some of the problems in ways that weren't the answers the instructor expected," she said. "It was a tremendous joy, the whole process of finding that answer, just pure joy."

Still pursuing that childlike joy in her early 40's, McClintock wondered why some kernels of Indian corn have a mixture of colors, with scattered spots of blue, red and brown. An odd puzzle, seemingly unimportant to anyone except a geneticist.

Realizing that the peculiar phenomenon could not be explained by the standard principles of genetic heredity, she began experiments to find an explanation. After five years of work—patient, brilliant, solitary work during which McClintock sometimes spent the fitful nights sleeping on a cot in her lab—she was led to the unorthodox conclusion that genes are not fixed links in the chain of a chromosome, but instead can change positions, rearrange themselves, and in doing so alter their function. For this revelation, she was awarded a Nobel Prize in 1983.

I believe that scientists of average abilities, like myself, and the great scientists, like McClintock, are propelled by the same forces. Why do I enjoy solving puzzles?

I love the mental freedom, letting my mind roam and play. Like an athlete who gets pleasure simply from jogging around the quarter-mile track, I delight in letting my mind run. It feels good to use a machine for what it was designed to do.

I love the purity of problems with a logical solution. And the certainty, which contrasts with so much that is ambiguous and bedraggled in the world of people and society. I guiltily admit that sometimes I have closed the door on a screaming daughter, refused to listen to a dejected friend, and escaped to my little desk with its white pad of paper and lovely equations.

With most problems in mathematics and science, you are guaranteed an answer, as clean and crisp as a new $20 bill. Ever wonder how busy the traffic is on your street at different times of the day? When a scientist ponders such a question, he or she sits by the window with a pencil, paper and clock and records the number of passing cars in each minute interval throughout the day.

Even though science is constantly revising itself, constantly adapting to new information and ideas, at any moment a scientist is studying a more or less definite problem, formulated to lead to a definite answer. That answer is waiting, beckoning, challenging the scientist to find it.

In looking back on his early days in science, Einstein wrote that "the nothingness of the hopes and strivings which chases most men restlessly through life came to my consciousness with considerable vitality."

"Out yonder," he continued, "there was this huge world, which exists independently of us human beings and which stands before us like a great, eternal riddle, at least partially accessible to our inspections and thinking. The contemplation of this world beckoned like a liberation . . ."

In addition to the joy of solving riddles, there is the pleasure in craftsmanship. The pleasure in building good and useful things with one's hands. As a professional scientist, I've built only ideas, with equations, but as a child I often built various gadgets, using resistors and capacitors, coils of wire, batteries, switches, photoelectric cells, magnets, chemicals of various kinds. With a thermostat, a light bulb and a padded cardboard box, I constructed an incubator for the cell cultures in my biology experiments.

After seeing the Boris Karloff "Frankenstein" movie, I felt compelled to build a spark-generating induction coil, requiring tedious weeks upon weeks of winding a mile's length of wire around an iron core. Every night, I asked myself the question: Could I make the thing work?

It was a personal question. And that is a paradox of science. Although the truths of science lie outside of human beings, as Einstein said, the motivations for doing science are not only human but intensely personal. Each scientist challenges him- or herself at a personal level. Each scientist seeks that challenge, indeed craves that challenge. Each scientist wants to feel his or her own machine revving and rumbling under the hood. Can I build this induction coil? Can I solve this equation? Can I discover the organization of genes?

It is a curious I. It is an I that comes in the warm-ups but oddly not during the heat of the race. And there lies another paradox of science. Although some scientists do indeed have astronomical egos and launch themselves toward honors and fame, during the actual moments of scientific discovery, as in all creative discoveries, the ego magically vanishes.

Something else gets under your skin, keeps you working days and nights at the sacrifice of your sleeping and eating and attention to your family and friends, something beyond the love of puzzle solving. And that other force is the anticipation of understanding something about the world that no one has ever understood before you.

Einstein wrote that when he first realized that gravity was equivalent to acceleration—an idea that would underlie his new theory of gravity—it was the "happiest thought of my life." On projects of far smaller weight, I have experienced that pleasure of discovering something new. It is an exquisite sensation, a feeling of power, a rush of the blood, a sense of living forever. To be the first vessel to hold this new thing.

All of the scientists I've known have at least one more quality in common: they do what they do because they love it, and because they cannot imagine doing anything else. In a sense, this is the real reason a scientist does science. Because the scientist must. Such a compulsion is both blessing and burden. A blessing because the creative life, in any endeavor, is a gift filled with beauty and not given to everyone, a burden because the call is unrelenting and can drown out the rest of life.

This mixed blessing and burden must be why the astrophysicist Chandrasekhar continued working until his mid-80's, why a visitor to Einstein's apartment in Bern found the young physicist rocking his infant with one hand while doing mathematical calculations with the other. This mixed blessing and burden must have been the "sweet hell" that Walt Whitman referred to when he realized at a young age that he was destined to be a poet. "Never more," he wrote, "shall I escape."

Questions for Analysis

1. What characteristics do Russell (the boxer) and Alan Lightman (the scientist) share? What motivates them to excel in their work? Are these motivations innate, or can they be developed through practice and discipline? Explain your answer with reference to your own endeavors—for example, perhaps you're a gifted mechanic or a determined, disciplined marathoner.

2. Would you describe Russell's boxing or Lightman's scientific quests as "work"? Why or why not? If you wouldn't classify it as *work*, what would you call these activities? In an email at the end of "Cut Time," Russell notes of boxing that "there seems to be a lack of transcendence into a higher state of more complete perfection in the human realm." Why is he ultimately disenchanted with boxing, and what is he looking for? What are *you* looking for in anything to which you dedicate much of your time, talent, and energy?

3. How would each of these individuals define *success?* How would you define it? Return to your description of your "dream job" that you developed in Thinking Activity 12.2. How would you determine success in that dream job? If you let go of that definition of *success,* would your dream job be something completely different?

4. In paragraph 15 of his essay, Lightman describes the "curious I." Throughout this book, we have been examining curiosity as a key characteristic of a critical thinker. How does Lightman demonstrate his own curiosity? How does curiosity keep Russell working toward his goals?

5. Does Lightman convince you—if you needed convincing—that scientists are just as creative as artists? How about boxers? In what areas of your life are you creative, and how can you use that creativity to help you find fulfillment in your work?

Thinking Critically About Personal Relationships

Another crucial area in your life that requires full use of your abilities to think critically, live creatively, and choose freely is establishing healthy relationships with others. Relating to other people is by far the most complicated and challenging kind of relating that we do. Your thinking abilities provide you with the power to untangle the complex mysteries of the relationships in your life. By thinking clearly about your social connections, you can avoid miscommunications and solve interpersonal problems when they arise. Many emotional difficulties—including insecurity, depression, anger, jealousy, selfishness, rigidity, insensitivity, narrow-mindedness, and immaturity—are the product of confused thinking. Because these "negative" emotions are responsible for the majority of relationship problems, transforming these "negatives" into "positives"—security, optimism, love, respect, support, generosity, flexibility, empathy, creativity, and maturity—makes it possible for you to have a wide range of positive, healthy relationships. Clear thinking can't make you fall in love with someone you judge to be a good candidate. But clear thinking will make it possible for you to fall in love and have a sustained, nurturing, intimate relationship. Clear thinking will make it possible for others to appreciate your best qualities, for them to experience you as a thoughtful, caring, intellectually vital person.

To understand the enigma of the human mind and the mystery of human relationships, we need to employ a logic that captures the organic connections between people. Human relationships are dynamic encounters between living persons, and almost every significant encounter changes all participants, for better or for worse. As Carl Jung observed, "The meeting of two personalities is like the contact of two chemical substances: if there is any reaction, both are transformed."

The transformational nature of human encounters occurs in less intimate relationships as well. For example, think of someone you have dealings with on a daily basis with whom you are not personally close—perhaps a coworker or supervisor at your workplace or a staff member at the school where you donate your time. Even relatively straightforward encounters with such a person typically involve complex communication, practical negotiations, emotional reactions, and all of the other

basic elements of relationships. Over time these encounters, and your reflections on them, change you as a person, influencing your ongoing creation of who you are. Even momentary encounters with others affect you: the Good Samaritan who shows you an unexpected kindness or the enraged motorist who tailgates your car's bumper, flashing his lights and making obscene gestures. The Good Samaritan's kindness may stimulate you to consider your moral responsibilities to others, even strangers, and strengthen your resolve to act more charitably. The enraged motorist may get you thinking about the pressures of modern life that cause such hostile behavior in people, insights that may help you control your own frustrations in more positive ways. When you encounter someone different from yourself, the interaction of ideas, emotions, and attitudes creates a "relationship," a living social creation that is continually changing and evolving.

The Thinker's Guide to Healthy Relationships

Though you may not have realized it, you have been developing all of the abilities needed for healthy relationships as you have worked through the ideas presented in the various chapters of this book. Here is an outline of the approach to those relationships that we will be using.

The Thinker's Guide to Healthy Relationships

- Establish goals.
- Communicate clearly.
- View your relationships from all perspectives.
- Build trust through reason.
- Foster creativity.
- Value freedom and responsibility.
- Problem-solve.

Establish Goals

Every relationship is unique and mysterious in its own way, but it is possible, if you make an effort to think clearly, to understand a great deal about what is going on, why it is happening, and how it will influence what will occur in the future. To begin, identify what goals you have for the relationship. There are general goals that apply to most relationships—being congenial, having clear communication—but there are also goals specific to the relationship in question, whether it is a relationship with a coworker, a parent, a close friend, a supervisor, a client, a niece, a babysitter, a former spouse, a doctor, or a new romantic interest. Too often, however, people don't

identify objectives or stick to a plan, so as a result they end up spending too much time with people they don't want to be with and not enough time with those they do. Or they may wreck a potentially good relationship by piling on more expectations than one person can possibly fulfill: lover, best friend, therapist, roommate, career counselor—and more! If you define the goals of the relationship more narrowly— and more realistically—the relationship might function more successfully, whereas imposing excessive expectations might serve as its death warrant.

Communicate Clearly

Faulty communication is responsible for more problems in relationships than any other factor. How often have you heard—or uttered—the lament "We just don't seem to communicate"? Clear communication involves a complex blending of thinking, language, and social skills. For example, people often talk at each other, not really listening to the other person because they are concentrating on what they're going to say next.

To engage in a productive discussion, you have to articulate your viewpoint clearly, listen carefully to the other person's response, and then respond to it or ask for clarification. When both people approach the dialogue in this fashion, within a context of mutual respect and caring, meaningful communication can take place. Also, people do have different communication styles that need to be acknowledged to avoid misunderstanding, conflict, and fractured relationships.

Another essential dimension of communicating effectively is using language that is clear and precise, a skill we explored in Chapter 6. When language is vague or ambiguous, people tend to read into the vagueness their own personal meanings, assuming that their meanings are universally shared. They are often mistaken in this assumption, and as a result, trouble follows closely behind. A simple expression like "I love you" can express an astonishing number of different meanings, depending on the individual and the particular context. And if for one person "I love you" means "I think you are an engaging person to whom I am attracted," while the other person is thinking, "You are the perfect mate for me, and I expect us to spend eternity together," then there's trouble on the horizon that's likely to hit the relationship sooner or later. Disciplining yourself to speak and behave in ways that are clear, precise, and unambiguous will work wonders in avoiding miscommunications that can begin as small problems but then snowball into much larger ones.

View Your Relationships from All Perspectives

The success of most close relationships—romantic, familial, professional, and friendly—is directly related to the extent to which you can imaginatively place yourself in the other person's situation and fully appreciate what he or she is experiencing. This in-depth empathy is what emotionally close relationships are all about. In contrast, when two people are both excessively concerned with their own self-interests— with what the other person can do for "me"—then the relationship is in serious trouble. Healthy relationships are based on shared interests, not only on self-interest.

Think back to the last significant altercation you had with someone you are close to. You undoubtedly believed that you possessed a clarity that the other person didn't and that, despite your reason and restraint, the other person was trying to coerce you into accepting his or her confused point of view. Naturally, the other person probably felt the same way. Once two (or more) people establish these one-sided and self-serving postures, things generally deteriorate until a culminating crisis forces each person to become truly aware of the other.

As a critical thinker, you can make an extra effort to view things differently by asking the other person why he or she has arrived at that point of view and then placing yourself in that position. Then you can ask the other person, "If you were in my position, how would you view the situation, and what would you do?" Exchanging roles in this way, thinking and feeling as the other person does, changes the entire tone of the discussion. Instead of exchanges becoming increasingly more rancorous ("You don't understand anything"; "You are insensitive and blind"), there is an excellent chance that both of you will work together in a more harmonious and collaborative way to achieve mutual understanding.

Build Trust Through Reason

Of course, relationships cannot be fully understood through reason any more than reason can fully disclose the mysteries of an exquisite work of art, a moving musical passage, a transcendent spiritual experience, or the spontaneous eruption of delight occasioned by humor. Your reasoning ability is powerful, but it has limits as well, and it is important to appreciate those limits and to respect them. People who try to reduce every dimension of the rich tapestry of human experience to logical categories and rational explanations are pursuing fool's gold. Still, reason helps you make sense of the contours and patterns of your emotional life as well as many other elements that form the phenomenon of human relationships.

Suppose someone whom you feel close to does something that wounds you deeply. When you confront the friend and ask why he did what he did, further imagine that his response is, "I can't give you any reason—I just did it." How would you feel? You would probably feel bewildered and angry, and for good "reason." That's because we expect people—including ourselves—to try to understand their motivations so that they can exert some control over their choices. People hurt those close to them for many different reasons: They may have been acting thoughtlessly, selfishly, stupidly, callously, unconsciously, or sadistically. There are reasons that people behave as they do, and your confidence and trust in others depends on this conviction. If your friend says to you, "I hurt you, and I'm very sorry. I was only thinking of myself during that moment and did not fully appreciate how my actions might affect you. It was a mistake, and I won't repeat it in the future," then you have a foundation upon which you can build the future of your relationship. But if your friend says to you, "I hurt you for no reason that I can identify, and I don't know if it will happen again," then you will have difficulty trusting him in the future.

Reason is the framework that makes relationships possible. The more intimate the relationship, the more important the role reason plays. This is so because in intimate relationships you are most vulnerable; your emotions are laid bare. Reason is the safety net that gives you the courage to take those halting and dangerous steps on the high wire. You build trust in the other person because you believe his or her choices are governed, or at least are influenced, by reason, and you depend on that assurance. Of course, even the best intentions can be overwhelmed by mindless passion, unruly emotions, or unexpected compulsions. But even though emotions may erupt and temporarily swamp your rational faculties, your will and determination can once again set things right, reasserting the primacy of reason in directing your emotions so that your choices reflect your highest values. That's why thoughtful people get onto the high wire again, even after they have fallen, because they have confidence that the rule of reason guides well-intentioned people.

Foster Creativity

The abilities to think critically and to think creatively work together to produce accomplished thinking and an enriched life. This is a theme explored more fully in Chapter 1, and it applies directly to fostering healthy relationships. For example, think back to the last time you began a new relationship. Wanting to make a good

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Thinking Critically About Visuals

Envisioning the Good Life

Everyone has somewhere to go in this urban street scene photographed in Tokyo, Japan.

How do you exercise your critical-thinking abilities to determine your own path in a world full of choices, obstacles, and possibilities? How does gaining distance from a crowded or difficult situation help you to gain perspective?

impression, you probably invested a great deal of creative energy in nurturing the budding romance or friendship. Now reflect on the long-term relationships in which you are currently involved: Do you find that a certain staleness has set in? Have you fallen into routine patterns of activity, doing the same things on a fixed schedule? Do your conversations revolve around the same few topics, with the same comments being made with predictable regularity? If so, don't be too hard on yourself: This deterioration is very common in relationships.

A man explores the Bonneville Salt Flats in Utah.

How might this image illustrate the quote from Fyodor Dostoyevsky on page 460: "Without a firm idea of himself and the purpose of life, man cannot live, and would sooner destroy himself than remain on earth, even if he was surrounded with bread"? How do your experiences with work, learning, and personal relationships work as lenses through which you perceive the story of this photograph? Compare your responses with those of a few classmates.

The expression "Familiarity breeds contempt" points to the chronic human trait of taking for granted the people who are most important to us, letting habit and routine sap the vitality of our relationships. Since relationships are dynamic and alive, treating them as if they were machines running on past momentum will eventually cause them to become rusty and stop working altogether. In many cases, however, they can be revived by your choosing to again bring the same creative energy to them that you invested at the beginning of the relationship and by encouraging your partner to realize his or her creative potential. The result

can be creative fusion between the two of you that will inspire you both with its power.

Value Freedom and Responsibility

Healthy relationships are ones in which the participants willingly take responsibility for themselves and value the freedom of others. Responsibility is the logical consequence of freedom, and while people cherish their personal freedom, they tend to flee from responsibility when things don't go according to plan. Consider the following situations:

- You are working collaboratively with a number of other colleagues on an important project. When your project turns out to be an embarrassing failure, your supervisor wants to know who's to blame for the fiasco. With your career on the line, what do you say?

- You are the parent of a child with an approaching birthday. You promised to purchase tickets to a special concert, but you procrastinate, and by the time you get around to buying the tickets, they're sold out. What explanation do you give your child?

If you found yourself instinctively trying to minimize your personal responsibility in these situations (and to maximize the responsibility of other people), it's not surprising. These are common human reactions. But healthy relationships are based on a willingness to assume responsibility, not evade it. By fully acknowledging your responsibility, you gain stature in the eyes of others and encourage them to accept responsibility for their own actions as well. However, if you chronically avoid taking responsibility for your mistakes and failings, you erode the trust and goodwill in relationships, and you shrink in stature.

Accepting responsibility means promoting freedom. Pursuing your own personal freedom is a natural and appropriate thing to do. But to foster healthy relationships with others, it is equally important to promote and respect their freedom. To maintain healthy relationships, you must value the autonomy of other people to make their own decisions, independent of your own wishes. Once others discover, as they likely will, that you are trying to pressure or manipulate them, you run the risk of undermining the mutual trust on which relationships are based.

Problem-Solve

Critical thinkers are problem-solvers, as we saw in Chapter 3. Problems are a natural part of life, and they are an unavoidable reality in relationships. The only question is how you are going to deal with the problems that you will inevitably encounter. You can approach problems with fear and loathing, letting them intimidate you and contaminate your relationships. Or you can approach these same problems with the confidence of a critical thinker, viewing them as

opportunities to clarify important issues and improve your relationships. Friedrich Nietzsche's observation "What doesn't kill you, makes you stronger" applies to relationships as well. The strongest, most resilient relationships are those that have been tested, have overcome adversity, and ultimately have triumphed through the efforts of all parties. The most vulnerable relationships are those that have not been tested because the participants have denied themselves the opportunity to develop coping skills and the confidence that "the first serious wave won't capsize the boat." Repeated successes with problems both large and small will breed confidence in your problem-solving abilities—and in the resilience of your most significant relationships.

Thinking Activity 12.3

IMPROVING YOUR RELATIONSHIPS

Select one of the important relationships in your life that you would like to improve. Using the strategies described in "The Thinker's Guide to Healthy Relationships," develop a plan to improve your relationship. Ask yourself the following questions:

- What are my goals?
- In what ways can I communicate more clearly?
- What is the other person's perspective?
- How can I build more trust through reason?
- In what ways can I approach this relationship more creatively?
- How can I accept more responsibility?
- What problems exist, and how can we solve them?

Choosing the "Good Life"

What is the ultimate purpose of your life? What is the "good life" that you are trying to achieve?

Psychologist Carl Rogers, who has given a great deal of thought to these issues, has concluded that the good life is

- *not* a fixed state like virtue, contentment, nirvana, or happiness
- *not* a condition like being adjusted, fulfilled, or actualized
- *not* a psychological state like drive or tension reduction

Instead, the good life is a process rather than a state of being, a direction rather than a destination. But what direction? According to Rogers, "The direction which constitutes the Good Life is that which is selected by the total organism when there is psychological freedom to move in any direction." In other words,

the heart of the good life is creating yourself through genuinely free choices once you have liberated yourself from external and internal constraints. When you are living such a life, you are able to fulfill your true potential in every area of your existence. You are able to be completely open to your experience, becoming better able to listen to yourself, to experience what is going on within yourself. You are more aware and accepting of feelings of fear, discouragement, and pain, but also more open to feelings of courage, tenderness, and awe. You are more able to live your experiences fully instead of shutting them out through defensiveness and denial.

How do you know what choices you should make, what choices will best create the self you want to be and help you achieve your good life? As you achieve psychological freedom, your *intuitions* become increasingly more trustworthy since they reflect your deepest values, your genuine desires, your authentic self. It is when we are hobbled by constraints on ourselves that our intuitions are distorted and often self-destructive. As previously noted, you need to think clearly about

yourself, to have an optimistic, self-explanatory style that enables you to approach life in the most productive way possible. When you have achieved this clarity of vision and harmony of spirit, what "feels right"—the testimony of your reflective consciousness and common sense—will serve as a competent and trustworthy guide to the choices you ought to make. The choices that emerge from this enlightened state will help you create a life that is enriching, exciting, challenging, stimulating, meaningful, and fulfilling. It will enable you to stretch and grow, to become more and to attain more of your potentialities. As author Albert Camus noted, "Freedom is nothing else but a chance to be better, whereas enslavement is a certainty of the worst."

The good life is different for each person, and there is no single path or formula for achieving it. It is the daily process of creating yourself in ways that express your deepest desires and highest values—your authentic self. Thinking critically and thinking creatively provide you with the insight to clearly see the person you want to become while choosing freely gives you the power actually to create the person you have envisioned.

> STRATEGY: Describe your ideal "good life." Make full use of your imagination, and be specific regarding the details of the life you are envisioning for yourself. Compare this imagined good life with the life you have now. What different choices do you have to make in order to achieve your good life?

The Meaning of Your Life

According to psychiatrist and concentration camp survivor Victor Frankl, "Man's search for meaning is the primary motivation in his life." A well-known Viennese psychiatrist in the 1930s, Dr. Frankl and his family were arrested by the Nazis, and he spent three years in the Auschwitz concentration camp. Every member of his family, including his parents, siblings, and pregnant wife, was killed. He himself miraculously survived, enduring the most unimaginably abusive and degrading conditions. Following his liberation by the Allied troops, he wrote *Man's Search for Meaning,* an enduring and influential work, which he began on scraps of paper during his internment. Since its publication in 1945, it has become an extraordinary bestseller, read by millions of people and translated into twenty languages. Its success reflects the profound hunger for meaning that people have continually been experiencing, trying to answer a question that, in the author's words, "burns under their fingernails." This hunger expresses the pervasive meaninglessness of our age, the "existential vacuum" in which many people exist.

Dr. Frankl discovered that even under the most inhumane conditions, it is possible to live a life of purpose and meaning. But for the majority of prisoners at Auschwitz, a meaningful life did not seem possible. Immersed in a world that no longer recognized the value of human life and human dignity, that robbed prisoners

of their will and made them objects to be exterminated, most people suffered a loss of their values. If a prisoner did not struggle against this spiritual destruction with a determined effort to save his or her self-respect, the person lost the feeling of being an individual, a being with a mind, with inner freedom and personal value. The prisoner's existence descended to the level of animal life, plunging him or her into a depression so deep that he or she became incapable of action. No entreaties, no blows, no threats would have any effect on the person's apathetic paralysis, and he or she soon died, underscoring Russian novelist Fyodor Dostoyevsky's observation, "Without a firm idea of himself and the purpose of life, man cannot live, and would sooner destroy himself than remain on earth, even if he was surrounded with bread."

Dr. Frankl found that the meaning of his life in this situation was to try to help his fellow prisoners restore their psychological health. He had to find ways for them to look forward to the future: a loved one waiting for the person's return, a talent to be used, or perhaps work yet to be completed. These were the threads he tried to weave back into the patterns of meaning in these devastated lives. His efforts led him to the following insight:

> We had to learn ourselves, and furthermore we had to teach the despairing men, that it did not matter what we expected from life, but rather *what life expected from us*. We needed to stop asking about the meaning of life but instead to think of ourselves as those who were being questioned by life, daily and hourly. Our answer must consist not in talk and meditation, but in right action and in right conduct. Life ultimately means taking the responsibility to find the right answer to its problems and to fulfill the tasks which it constantly sets for each individual.

We each long for a life of significance, to feel that in some important way our life has made a unique contribution to the world and to the lives of others. We each strive to create our self as a person of unique quality, someone who is admired by others as extraordinary. We hope for lives characterized by unique accomplishments and lasting relationships that will distinguish us as memorable individuals both during and after our time on earth.

The purpose of this book has been to help provide you with the thinking abilities you will need to guide you on your personal journey of self-discovery and self-transformation. Its intention has *not* been to provide you with answers but to equip you with the thinking abilities, conceptual tools, and personal insights to find your own answers. Each chapter has addressed an essential dimension of the thinking process, and the issues raised form a comprehensive blueprint for your life, a life that you wish to be clear in purpose and rich in meaning.

For you to discover the meaning of your life, you need to seek meaning actively, to commit yourself to meaningful projects, to meet with courage and dignity the challenges that life throws at you. You will have little chance of achieving meaning in your life if you simply wait for meaning to present itself to you or if you persist in viewing yourself as a victim of life. If you squander your

personal resources by remaining trapped in unproductive patterns, then there will be no room left in your life for genuine meaning. Reversing this negative orientation requires a radical shift of perspective from complaining about what life "owes" you to accepting the responsibility of meeting life's expectations, whether they be rewarding or cruel. Even in the dire conditions of the concentration camp, there were men like Victor Frankl who chose to act heroically, devoting themselves to comforting others or giving away their last piece of bread. They were living testament to the truth that even though life may take everything away from a person, it cannot take away "the last of the human freedoms— to choose one's attitude in any given set of circumstances, to choose one's own way."

Though you may have to endure hardship and personal tragedy, you still have the opportunity to invest your life with meaning by the way that you choose to respond to your suffering: whether you let it defeat you or whether you are able to rise above it triumphantly. Your ultimate and irreducible freedom to freely choose your responses to life's situations defines you as a person and determines the meaningfulness of your existence.

But how do you determine the "right" way to respond, select the path that will infuse your life with meaning and fulfillment? You need to think critically, think creatively, and make enlightened choices—all of the thinking abilities and life attitudes that you have been cultivating throughout your work with this book. They will provide you with the clear vision and strength of character that will enable you to create yourself as a worthy individual living a life of purpose and meaning. Your explorations of issues presented throughout this book have given you the opportunity to become acquainted with yourself and with the potential that resides within you: your unique intellectual gifts, imaginative dreams, and creative talents. As psychologist Abraham Maslow notes, you are so constructed that you naturally press toward fuller and fuller being, realizing your potentialities, becoming fully human, everything that you can become. But you alone can determine what choices you will make among all of the possibilities: which will be condemned to nonbeing and which will be actualized, creating your immortal portrait, the monument to your existence.

Clearly, the ultimate meaning of your life can never be fully realized within the confines of your own self. Meaning is encountered and created through your efforts to *go beyond* yourself. In the same way that "happiness" and "success" are the outgrowths of purposeful and productive living rather than ends in themselves, so your life's meaning is a natural by-product of reaching beyond yourself to touch the lives of others. This self-transcendence may take the form of a creative work or a heroic action that you display to the human community. It may also be expressed through your loving and intimate relationships with other people, your contribution to individual members of your human community.

What is the meaning of your life? It is the truth that you will discover as you strive, through your daily choices, to create yourself as an authentic individual, committed to enhancing the lives of others, fulfilling your own unique potential,

and attuning yourself to your spiritual nature and the mysteries of the universe. It is the reality you will find as you choose to respond to both the blessings and the suffering in your life with courage and dignity. Joy and suffering, fulfillment and despair, birth and death—these are the raw materials that life provides you. Your challenge and responsibility are to shape these experiences into a meaningful whole—guided by a philosophy of life that you have constructed with your abilities to think critically, think creatively, and choose freely. This is the path you must take in order to live a life that is rich with meaning, lived by a person who is noble and heroic—a life led as an enlightened thinker.