Critical Thinking, Reading, and Writing

The word critical here has a neutral meaning. It doesn’t mean taking a negative view or finding fault, as when someone criticizes another person for doing something wrong. Rather, critical here applies to a mental stance of examining ideas thoroughly and deeply, refusing to accept ideas merely because they seem sensible at first thought, and tolerating questions that often lack definitive answers.

What is critical thinking?

Thinking isn’t something you choose to do, any more than a fish chooses to live in water. To be human is to think. But while thinking may come naturally, awareness of how you think doesn’t. Thinking about thinking is the key to critical thinking.

Critical thinking means taking control of your conscious thought processes. If you don’t take control of those processes, you risk being controlled by the ideas of others. The essence of critical thinking is thinking beyond the obvious—beyond the flash of visual images on a television screen, the alluring promises of glossy advertisements, the evasive statements by some people in the news, the half-truths of propaganda, the manipulations of slanted language, and faulty reasoning.
How do I engage in critical thinking?

To engage in CRITICAL THINKING, you become fully aware of an idea or an action, reflect on it, and ultimately react to it. Actually, you already engage in this process numerous times every day. For example, you’re thinking critically when you meet someone new and decide whether you like the person; when you read a book and form an opinion of it based on reasonable analysis; or when you interview for a job and then evaluate its requirements and your ability to fulfill them.

Box 5-1 describes the general process of critical thinking in academic settings. This same process applies as well to reading critically (5c and 5d) and writing critically (5f).

The steps in the critical thinking process are somewhat fluid, just as are the steps in the WRITING PROCESS. Expect sometimes to combine steps, reverse their order, and return to parts of the process you thought you had completed. As you do so, remember that synthesis and evaluation are two different mental activities: Synthesis calls for making connections; evaluation calls for making judgments.

**BOX 5-1 SUMMARY**

**Steps in the critical thinking process**

1. **Summarize.** Extract and restate the material’s main message or central point. Use only what you see on the page. Add nothing.

2. **Analyze.** Examine the material by breaking it into its component parts. By seeing each part of the whole as a distinct unit, you discover how the parts interrelate. Consider the line of reasoning as shown by the evidence offered and logic used (5g). Read “between the lines” to draw inferences (5c.2), gaining information that’s implied but not stated. When reading or listening, notice how the reading or speaking style and the choice of words work together to create a tone (1c.4).

3. **Synthesize.** Pull together what you’ve summarized and analyzed by connecting it to your own experiences, such as reading, talking with others, watching television and films, using the Internet, and so on. In this way, you create a new whole that reflects your newly acquired knowledge and insights combined with your prior knowledge.

4. **Evaluate.** Judge the quality of the material now that you’ve become informed through the activities of summary, analysis, and synthesis. Resist the very common urge to evaluate before you summarize, analyze, and synthesize.
CRITICAL THINKING, READING, AND WRITING

5c  What is the reading process?

Reading is an active process—a dynamic, meaning-making interaction between the page and your brain. Understanding the reading process helps people become critical thinkers.

Making predictions is a major activity in the reading process. Your mind is constantly guessing what's coming next. When it sees what comes next, it either confirms or revises its prediction and moves on. For example, suppose you're glancing through a magazine and come upon the title “The Heartbeat.” Your mind begins guessing: Is this a love story? Is this about how the heart pumps blood? Maybe, you say to yourself, it's a story about someone who had a heart attack. Then, as you read the first few sentences, your mind confirms which guess was correct. If you see words like electrical impulse, muscle fibers, and contraction, you know instantly that you're in the realm of physiology. In a few more sentences, you narrow your prediction to either “the heart as pump” or “the heart suffering an attack.”

To make predictions efficiently, consciously decide your purpose for reading the material. People generally read for two reasons—for relaxation or for learning. Reading a popular novel helps you relax. Reading for college courses calls for you to understand material and remember it. When you read to learn, you usually have to reread. One encounter with new material is rarely enough to understand it fully.

The speed at which you read depends on your purpose for reading. When you're hunting for a particular fact, you can skim the page until you come to what you want. When you read about a subject you know well, you might read somewhat rapidly, slowing down when you come to new material. When you're unfamiliar with the subject, you need to work slowly because your mind needs time to absorb the new material.

The reading process involves your thinking on three levels, which is another reason why college work calls for much rereading, as described in Box 5-2.

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Steps in the reading process

1. **Reading for literal meaning**: Read “on the lines” to see what’s stated (5c.1).
2. **Reading to draw inferences**: Read “between the lines” to see what’s not stated but implied (5c.2).
3. **Reading to evaluate**: Read “beyond the lines” to form your own opinion about the material (5c.3).
5c.1 Reading for literal meaning

Reading for literal meaning is reading for comprehension. Your goal is to discover the main ideas, the supporting details, or, in a work of fiction, the central details of plot and character.

Reading for literal meaning is not as easy as it might sound. When you come across a new concept, think it through. Rushing through material to "cover" it rather than to understand it takes more time in the end. If the author's writing style is complex, "unpack" the sentences: Break them into smaller units or reword them in a simpler style. Also, see Box 5-3 for specific suggestions about ways to improve your reading comprehension.

BOX 5-3 SUMMARY

Ways to help your reading comprehension

1. Make associations. Link new material to what you already know, especially when you’re reading about an unfamiliar subject. You may even find it helpful to read an easier book on the subject first in order to build your knowledge base.

2. Make it easy for you to focus. If your mind wanders, be fiercely determined to concentrate. Do whatever it takes: Arrange for silence or music, for being alone or in the library with others who are studying. Try to read at your best time of day (some people concentrate better in the morning, others in the evening).

3. Allot the time you need. To comprehend new material, you must allow sufficient time to read, reflect, reread, and study. Discipline yourself to balance classes, working, socializing, and family activities. Reading and studying take time. Nothing prevents success in college as much as poor time management.

4. Master the vocabulary. If you don’t understand the key terms in your reading, you can’t fully understand the concepts. As you encounter new words, first try to figure out their meanings from context clues. Also, many textbooks list key terms and their definitions (called a glossary) at the end of each chapter or the book. Of course, nothing replaces having a good dictionary at hand.

5c.2 Reading to draw inferences

When you read for inferences, you’re reading to understand what’s suggested or implied but not stated. This is similar to the kind of critical thinking discussed in 5b. Often, you need to infer the author’s purpose.
Drawing inferences takes practice. Box 5-4 lists questions to help you read “between the lines.” A discussion of each point follows.

**Tone**

*Tone* in writing emerges from many aspects of what you write, but mostly from your word choice. Tone in writing is like tone in speaking; it can be formal, informal, pompous, sarcastic, and so on. If you read exclusively for literal meaning (5c.1), you’ll likely miss the tone and possibly the point of the whole piece.

For example, as a critical reader, be suspicious of a highly emotional tone in writing. If you find it, chances are the writer is trying to manipulate the audience. Resist this. Also as a writer, if you find your tone growing emotional, step back and rethink the situation. No matter what point you want to make, your chance of communicating successfully to an audience depends on your using a moderate, reasonable tone. For instance, the exaggerations below in the NO example (*robbing treasures, politicians are murderers*) might hint at the truth of a few cases, but they’re too extreme to be taken seriously. The language of the YES version is far more likely to deliver its intended message.

**NO** Urban renewal must be stopped. Urban redevelopment is ruining this country, and money-hungry capitalists are robbing treasures from law-abiding citizens. Corrupt politicians are murderers, caring nothing about people being thrown out of their homes into the streets.

**YES** Urban renewal is revitalizing our cities, but it has caused some serious problems. While investors are trying to replace slums with decent housing, they must also remember that they’re displacing people who don’t want to leave their familiar neighborhoods. Surely, a cooperative effort between government and the private sector can lead to creative solutions.

*Prejudice or bias*

For inferential reading, you want to detect *prejudice* or *bias*. These concepts go further than the idea that most writers try to influence readers to accept their points of view. When writing is distorted by hatred or dislike of
individuals, groups of people, or ideas, you as a critical reader want to suspect the accuracy and fairness of the material. Prejudice and bias can be worded in positive language, but critical readers aren’t deceived by such tactics. Similarly, writers can merely imply their prejudices and bias rather than state them outright. For example, suppose you read, “Poor people like living in crowded conditions because they’re used to such surroundings” or “Women are so wonderfully nurturing that they can’t succeed in business.” As a critical reader, you will immediately detect the prejudice and bias. Always, therefore, question material that rests on a weak foundation of discrimination and narrow-mindedness.

**Fact versus opinion**

Another skill in reading inferentially is the ability to differentiate fact from opinion. Facts are statements that can be verified. Opinions are statements of personal beliefs. Facts can be verified by observation, research, or experimentation, but opinions are open to debate. A problem arises when a writer intentionally blurs the distinction between fact and opinion. Critical readers will know the difference.

For example, here are two statements: a fact and an opinion.

1. Women can never make good mathematicians.
2. Although fear of math isn’t purely a female phenomenon, girls tend to drop out of math classes sooner than boys, and some adult women have an aversion to math and math-related activity that is akin to anxiety.

Reading inferentially, you can see that statement 1 is clearly an opinion. Is it worthy of consideration? Perhaps it could be open to debate, but the word never implies that the writer is unwilling to allow for even one exception. Conversely, statement 2 at least seems to be factual, though research would be necessary to confirm or deny the position.

As a reader, when you can “consider the source”—that is, find out who exactly made a statement—you hold an advantage in trying to distinguish between fact and opinion. For example, you would probably read an essay for or against capital punishment differently if you knew the writer was an inmate on death row rather than a non-inmate who wished to express an opinion. To illustrate, statement 1 is from a male Russian mathematician, as reported by David K. Shipler, a well-respected veteran reporter on Russian affairs for the New York Times. Statement 2 is from the book Overcoming Math Anxiety by Sheila Tobias, a university professor who has extensively studied why many people dislike math. Her credentials can help readers accept her statement as true. If, however, someone known for belittling women had made statement 2, a critical reader’s reaction would be quite different.

**EXERCISE 5-1** Read the following passages; then (1) list all literal information, (2) list all implied information, and (3) list the opinions stated. Refer to sections 5c.1 and 5c.2 for help.
EXAMPLE  The study found many complaints against the lawyers were not investigated, seemingly out of a “desire to avoid difficult cases.”

—Norman F. Dacey

Literal information: Few complaints against lawyers are investigated.

Implied information: The words difficult cases imply a cover-up: Lawyers, or others in power, hesitate to criticize lawyers for fear of being sued or for fear of a public outcry if the truth about abuses and errors were revealed.

Opinions: No opinions. It reports on a study.

A. It is the first of February, and everyone is talking about starlings. Starlings came to this country on a passenger liner from Europe. One hundred of them were deliberately released in Central Park, and from those hundred descended all of our countless millions of starlings today. According to Edwin Way Teale, “Their coming was the result of one man’s fancy. That man was Eugene Schieffelin, a wealthy New York drug manufacturer. His curious hobby was the introduction into America of all the birds mentioned in William Shakespeare.” The birds adapted to their new country splendidly.

—Annie Dillard, “Terror at Tinker Creek”

B. In the misty past, before Bill Gates joined the company of the world’s richest men, before the mass-marketed personal computer, before the metaphor of an information superhighway had been worn down to a cliché, I heard Roger Schank interviewed on National Public Radio. Then a computer science professor at Yale, Schank was already well known in artificial intelligence circles. Because those circles did not include me, a new programmer at Sperry Univac, I hadn’t heard of him. Though I’ve forgotten the details of the conversation, I have never forgotten Schank’s insistence that most people do not need to own computers.

That view, of course, has not prevailed. Either we own a personal computer and fret about upgrades, or we are scheming to own one and fret about the technical marvel yet to come that will render our purchase obsolete. Well, there are worse ways to spend money, I suppose. For all I know, even Schank owns a personal computer. They’re fiendishly clever machines, after all, and they’ve helped keep the wolf from my door for a long time.

—Paul De Palma, <http://www.when_is_enough_enough>.com

5c.3 Reading to evaluate

When you read to evaluate, you’re judging the writer’s work. Evaluative reading comes after you’ve summarized, analyzed, and synthesized the material (Box 5-1). Reading “between the lines” is usually concerned with recognizing tone, detecting prejudice, and differentiating fact from opinion. Reading to evaluate “beyond the lines” requires an overall assessment of the soundness of the writer’s reasoning, evidence, or observations and the fairness and perceptiveness the writer shows, from accuracy of word choice and tone to the writer’s respect for the reader.
How do I engage in critical reading?

5d. How do I engage in critical reading?

Critical reading is a process parallel to CRITICAL THINKING (5a and 5b). To read critically is to think about what you’re reading while you’re reading it. This means that words don’t merely drift by as your eyes scan the lines. To prevent that from happening, use approaches such as reading systematically (5d.1) and reading closely and actively (5d.2).

5d.1 Reading systematically

To read systematically is to use a structured plan: Preview, Read, and Review. Reading systematically closely parallels the writing process. Like PLANNING in writing, previewing gets you ready and keeps you from reading inefficiently. Like DRAFTING in writing, reading means moving through the material so that you come to understand and remember it. Like REVISION in writing, reviewing takes you back over the material to clarify, fine-tune, and make it thoroughly your own. Here are techniques for reading systematically.

1. Preview: Before you begin reading, look ahead. Glance at the pages you intend to read so that your mind can start making predictions (5c). As you look over the material, ask yourself questions. Don’t expect to answer all the questions at this point; their purpose is to focus your thoughts. To preview a chapter in a textbook, first look at the table of contents. How does this chapter fit into the whole book? What topics come before? Which come after? Now turn to the chapter you’re assigned and read all the headings, large and small. Note the boldfaced words (in darker print), and all visuals and their captions, including photographs, drawings, figures, tables, and boxes. If there’s a glossary at the end of the chapter, scan it for words you do and do not know.

2. Read: Read the material closely and actively (5d.2). Seek the full meaning at all three levels of reading: literal, inferential, and evaluative (5c). Most of all, expect to reread. Rarely can anyone fully understand and absorb college-level material in one reading. When you read, always set aside time to allow for more than one rereading.

3. Review: Go back to the spots you looked at when you previewed the material. Also, go back to other important places you discovered as you were reading. Ask yourself the same sorts of questions as when you previewed, this time answering as fully as possible. If you can’t come up with answers, reread. For best success, review in chunks—small sections that you can capture comfortably. Don’t try to cover too much material at one time and review at intervals during a course. If time permits, try discussing what you’ve read with a friend, or try teaching it to someone.

5d.2 Reading closely and actively

The secret to reading closely and actively is to annotate as you read. Annotating means writing notes to yourself in a book’s margins and using asterisks and other codes to alert you to special material (not in a library
book, of course). Some readers start annotating right away, while others wait until they’ve previewed the material. Experiment to find what works best for you. You might use two different ink colors, one for close reading (green in the examples that follow) and one for active reading (black in the examples). To annotate electronically, you might underline, highlight, and insert comments.

Close reading means annotating for content. You might, for example, number and briefly list the steps in a process or summarize major points in the margin. When you review, your marginal notes help you glance over the material and quickly recall what it’s about.

Although I like to play, and sometimes like to watch, I cannot see what possible difference it makes which team beats which. The tactics are sometimes interesting, and certainly the prowess of the players deserves applause—but most men seem to use commercial sports as a kind of narcotic, shutting out reality, rather than heightening it.

There is nothing more boring, in my view, than a prolonged discussion by laymen of yesterday’s game. These dreary conversations are a form of social alcoholism, enabling them to achieve a dubious rapport without ever once having to come to grips with a subject worthy of a grown man’s concern.

It is easy to see the opiate quality of sports in our society when tens of millions of men will spend a splendid Saturday or Sunday fall afternoon sitting stupefied in front of the TV, watching a "big game," when they might be out exercising their own flaccid muscles and stimulating their lethargic corpuscles.

Annotations of an excerpt from the essay shown in Exercise 5-2, using green for content (close reading) and black for synthesis (active reading).
How do I engage in critical reading?

**Active reading** means annotating to make connections between the material and what you already know or have experienced. This is your chance to converse on paper with the writer.

If you feel uncomfortable writing in a book, create a *double-entry notebook*. Draw a line down the center of your notebook page. On one side, write content notes (close reading). On the other, write synthesis notes (active reading). Be sure to write down exactly where in the reading you’re referring to. Illustrated on this page is a short example from a double-entry notebook (the symbol ¶ stands for “paragraph”).

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**EXERCISE 5-2**  Annotate the following essay, using one color of ink for your notes about content and another for your notes that synthesize as you connect the material to your knowledge and experience. Use the annotated excerpt on page 80 as a model.

**Sports Only Exercise Our Eyes**  
*By Sydney J. Harris*

Before I proceed a line further, let me make it clear that I enjoy physical exercise and sport as much as any man. I like to bat a
baseball, dribble a basketball, kick a soccer ball and, most of all, swat a tennis ball. A man who scorned physical activity would hardly build a tennis court on his summerhouse grounds, or use it every day.

Having made this obeisance, let me now confess that I am puzzled and upset—and have been for many years—by the almost obsessive interest in sports taken by the average American male.

Athletics is one strand in life, and even the ancient Greek philosophers recognized its importance. But it is by no means the whole web, as it seems to be in our society. If American men are not talking business, they’re talking sports, or they’re not talking at all.

This strikes me as an enormously adolescent, not to say retarded, attitude on the part of presumed adults. Especially when most of the passion and enthusiasm center on professional teams, which bear no indigenous relation to the city they play for, and consist of mercenaries who will wear any town’s insignia if the price is right.

Although I like to play, and sometimes like to watch, I cannot see what possible difference it makes which team beats which. The tactics are sometimes interesting, and certainly the prowess of the players deserves applause—but most men seem to use commercial sports as a kind of narcotic, shutting out reality, rather than heightening it.

There is nothing more boring, in my view, than a prolonged discussion by laymen of yesterday’s game. These dreary conversations are a form of social alcoholism, enabling them to achieve a dubious rapport without ever once having to come to grips with a subject worthy of a grown man’s concern.

It is easy to see the opiate quality of sports in our society when tens of millions of men will spend a splendid Saturday or Sunday afternoon sitting stupefied in front of the TV, watching a “big game,” when they might be out exercising their own flaccid muscles and stimulating their lethargic corpuscles.

Ironically, our obsession with professional athletics not only makes us mentally limited and conversationally dull, it also keeps us physically inert—thus violating the very reason men began engaging in athletic competitions. Isn’t it tempting to call this national malaise of “spectatoritis” childish? Except children have more sense, and would rather run out and play themselves.

5e How do I tell the difference between summary and synthesis?

Distinguishing between summary and synthesis is crucial in critical thinking, critical reading, and critical writing. **Summary** comes before synthesis (Box 5-1 in 5b) in the critical thinking process. To summarize is to extract the main message or central point and restate it in a sentence or two. A summary doesn’t
How do I tell the difference between summary and synthesis?

include supporting evidence or details. It is the gist, the hub, the seed of what the author is saying. Also, it isn’t your personal reaction to what the author says.

Synthesis comes after summary in the critical thinking process (Box 5-1 in 5b). To synthesize is to weave together material from several sources, including your personal prior knowledge, to create a new whole. Unsynthesized ideas and information are like separate spools of thread, neatly lined up, possibly coordinated but not integrated. Synthesized ideas and information are threads woven into a tapestry—a new whole that shows relationships.

People synthesize unconsciously all the time—interpreting and combining ideas from various sources to create new patterns. These thought processes are mirrored in the Rhetorical Strategies used in writing (4i). To synthesize, consciously apply those strategies. For instance, compare ideas in sources, contrast ideas in sources, create definitions that combine and extend definitions in individual sources, apply examples or descriptions from one source to illustrate ideas in another, and find causes and effects described in one source that explain another.

Now, let’s examine two different examples of synthesis. Their sources are the essay by Sydney J. Harris in Exercise 5-2 on pages 81–82 and the following excerpt from a long essay by Robert Lipsyte. (Lipsyte, a sports columnist for the New York Times, is writing in the spring of 1995, at the end of a nine-month US baseball strike. Lipsyte argues that commercial interests have invaded sports and, therefore, that sports no longer inspire loyalty, teach good sportsmanship, or provide young people with admirable role models.)

Baseball has done us a favor. It’s about time we understood that staged competitive sports events—and baseball can stand for all the games—are no longer the testing ground of our country’s manhood and the theater of its once seemingly limitless energy and power.

As a mirror of our culture, sports now show us spoiled fools as role models, cities and colleges held hostage and games that exist only to hawk products.

The pathetic posturing of in-your-face macho has replaced a once self-confident masculinity.

—Robert Lipsyte, “The Emasculation of Sports”

Synthesis by Comparison and Contrast

Both Harris and Lipsyte criticize professional sports, but for different reasons. In part, Harris thinks that people who passively watch sports on TV and rarely exercise are ruining their health. Lipsyte sees a less obvious but potentially more sinister effect of sports: the destruction of traditional values by athletes who are puppets of “big business.”

Synthesis by Definition

The omission of women from each writer’s discussion seems a very loud silence. Considered together, these essays define sports only in terms of males. Harris criticizes men for their inability to think and talk beyond
sports and business, an insulting and exaggerated description made even less valid by the absence of women. Lipsyte, despite the numbers of women excelling both in team and individual sports, claims that sports have lost a “once self-confident masculinity.” An extended definition would include women, even though they might prefer to avoid the negative portraits of Harris and Lipsyte.

Each synthesis belongs to the person who made the connections. Another person might make entirely different connections.

Here are techniques to help you recall prior knowledge and synthesize several sources.

- Use MAPPING to discover relationships between sources and your prior knowledge.
- Use your powers of play. Mentally toss ideas around, even if you make connections that seem outrageous. Try opposites (for example, read about athletes and think about the most non-athletic person you know). Try turning an idea upside down (for example, list the benefits of being a bad sport). Try visualizing what you’re reading about, and then tinker with the mental picture (for example, picture two people playing tennis and substitute dogs playing Frisbee or seals playing table tennis). The possibilities are endless—make word associations, think up song lyrics, draft a TV advertisement. The goal is to jump-start your thinking so that you can see ideas in new ways.
- Discuss your reading with someone else. Summarize its content, and elicit the other person’s opinions and ideas. Deliberately debate that opinion or challenge those ideas. Discussions and debates are good ways to get your mind moving.

**EXERCISE 5-3** Here is another excerpt from the essay by Robert Lipsyte quoted earlier. First, summarize the excerpt. Then, annotate it for its content and for the connections you make between Lipsyte’s ideas and your prior knowledge. Finally, write a synthesis of this excerpt and the Sydney J. Harris essay in Exercise 5-2. Words in brackets supply background information some readers might need.

We have come to see that [basketball star] Michael Jordan, [football star] Troy Aikman and [baseball star] Ken Griffey have nothing to offer us beyond the gorgeous, breathtaking mechanics of what they do. And it’s not enough, now that there’s no longer a dependable emotional return beyond the sensation of the moment itself. The changes in sports—the moving of franchises, free agency—have made it impossible to count on a player, a team, and an entire league still being around for next year’s comeback. The connection between player and fan has been irrevocably destabilized, for love and loyalty demand a future. Along the way, those many virtues of
How can I recognize and avoid logical fallacies?

Logical fallacies are flaws in reasoning that lead to illogical statements. Interestingly, most logical fallacies masquerade as reasonable statements, but in fact, they’re attempts to manipulate readers by appealing to their emotions instead of their intellects, their hearts rather than their heads.

**Hasty generalization**

A hasty generalization draws conclusions from inadequate evidence. Suppose someone says, “My hometown is the best place in the state to live,” and gives only two examples to support the opinion. That’s not enough. And
others might not feel the same way, perhaps for many reasons. Therefore, the person who makes such a statement is indulging in a hasty generalization. Stereotyping and sexism are other forms of hasty generalization.

**False analogy**

A false analogy draws a comparison in which the differences outweigh the similarities or the similarities are irrelevant. For example, “Old Joe Smith would never make a good president because an old dog can’t learn new tricks” is a false analogy. Joe Smith isn’t a dog. Also, learning the role of a president bears no comparison to a dog’s learning tricks. Homespun analogies like this have an air of wisdom about them, but they tend to fall apart when examined closely.

**Begging the question**

Begging the question, also called circular reasoning, tries to offer proof by simply using another version of the argument itself. For example, the statement “Wrestling is a dangerous sport because it is unsafe” begs the question. Because unsafe is a synonym for dangerous, the statement goes around in a circle, getting nowhere. Here’s another example of circular reasoning but with a different twist: “Wrestling is a dangerous sport because wrestlers get injured.” Here, the support for the second part of the statement “wrestlers get injured” is the argument made in the first part of the statement. Obviously, since wrestling is a popular sport, it can be safe when undertaken with proper training and practice.

**Irrelevant argument**

An irrelevant argument reaches a conclusion that doesn’t follow from the premises. Irrelevant argument is also called non sequitur (Latin for “it does not follow”). An argument is irrelevant when a conclusion doesn’t follow from the premises. Here’s an example: “Jane Jones is a forceful speaker, so she’ll make a good mayor.” You’d be on target if you asked, “What does speaking ability have to do with being a good mayor?”

**False cause**

A false cause assumes that because two events are related in time, the first caused the second. False cause is also known as post hoc, ergo propter hoc (Latin for “after this, therefore because of this”). For example, if someone claims that a new weather satellite launched last week has caused the rain that’s been falling ever since, that person is connecting two events that, while related in time, have no causal relationship to each other. The launching didn’t cause the rain.

**Self-contradiction**

Self-contradiction uses two premises that can’t both be true at the same time. Here’s an example: “Only when nuclear weapons have finally destroyed us will we be convinced of the need to control them”. This is self-contradictory.
because no one would be around to be convinced if everyone has been destroyed.

**Red herring**

A red herring, also called *ignoring the question*, tries to distract attention from one issue by introducing a second that’s unrelated to the first. Here’s an example: “Why worry about pandas becoming extinct when we haven’t solved the plight of the homeless?” You’d be on target if you asked, “What do homeless people have to do with pandas?” If the argument were to focus on proposing that the money spent to prevent the extinction of pandas should go instead to the homeless, the argument would be logical; however, the original statement is a fallacy. By using an irrelevant issue, a person hopes to distract the audience, just as putting a herring in the path of a bloodhound would distract it from the scent it’s been following.

**Argument to the person**

An argument to the person means attacking the person making the argument rather than the argument itself. It’s also known as the *ad hominem* (Latin for “to the man”) attack. When someone criticizes a person’s appearance, habits, or character instead of the merits of that person’s argument, the attack is a fallacy. Here’s an example: “We’d take her position on child abuse seriously if she were not so nasty to her husband.” You’d be on target if you were to ask, “What does nastiness to an adult, though not at all nice, have to do with child abuse?”

**Guilt by association**

Guilt by association means that a person’s arguments, ideas, or opinions lack merit because of that person’s activities, interests, or companions. Here’s an example: “Jack belongs to the International Hill Climbers Association, which declared bankruptcy last month. This makes him unfit to be mayor of our city.” That Jack is a member of a group that declared bankruptcy has nothing to do with Jack’s ability to be mayor.

**Jumping on the bandwagon**

Jumping on the bandwagon means something is right or permissible because “everyone does it.” It’s also called *ad populum* (Latin for “to the people”). This fallacy operates in a statement such as “How could bungee jumping be unhealthy if thousands of people have done it?” Following the crowd doesn’t work because research shows that many people who bungee jump suffer serious sight impairments later in life.

**False or irrelevant authority**

Using false or irrelevant authority means citing the opinion of someone who has no expertise in the subject at hand. This fallacy attempts to transfer prestige from one area to another. Many television commercials
rely on this tactic—a famous golf player praising a brand of motor oil or a popular movie star lauding a brand of cheese.

**Card-stacking**

Card-stacking, also known as *special pleading*, ignores evidence on the other side of a question. From all available facts, people choose only those facts that show the best (or worst) possible case. Many television commercials use this strategy. When three slim, happy consumers praise a diet plan, only at the very end of the ad does the announcer say—in a very low and speedy voice—that results vary. Indeed, even that statement is vague and uninformative.

**The either-or fallacy**

The either-or fallacy, also called *false dilemma*, offers only two alternatives when more exist. Such fallacies tend to touch on emotional issues, so many people accept them until they analyze the statement. Here’s an example: “Either go to college or forget about getting a job.” Obviously, this rigid, two-sided statement ignores the truth that many jobs don’t require a college education.

**Taking something out of context**

Taking something out of context deliberately distorts an idea or a fact by removing it from its previously surrounding material. Here’s an example: Suppose that a newspaper movie critic writes, “The plot was predictable and boring, but the music was sparkling.” The next day, an advertisement for the movie claims “critics call it ‘sparkling.’” Clearly, the ad has taken the critic’s words out of context (only the music was called “sparkling”) and thereby distorts the original.

**Appeal to ignorance**

Appeal to ignorance tries to make an incorrect argument based on something never having been shown to be false—or, the reverse, never having been shown to be true. Here’s an example: “Because it hasn’t been proven that eating food X doesn’t cause cancer, we can assume that it does.” The statement is a fallacy because the absence of opposing evidence proves nothing. Such appeals can be very persuasive because they prey on people’s superstitions or lack of knowledge. Often, they’re stated in the fuzzy language of *double negatives*.

**Ambiguity and equivocation**

Ambiguity and equivocation are statements open to more than one interpretation, thus concealing the truth. Here’s an example: Suppose a person is asked, “Is she doing a good job?” and the person answers, “She’s performing as expected.” The answer is a fallacy because it’s open to positive or negative interpretation.