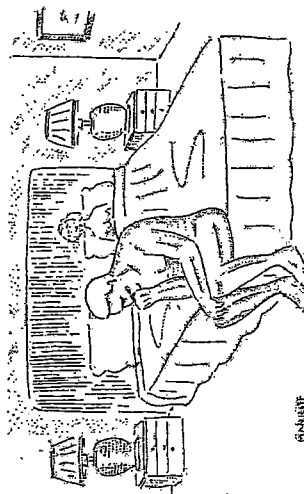


Critical Thinking

In early spring 1997 Marshall Herff Applewhite, leader of the "Heaven's Gate" doomsday cult, led 38 of his followers in a mass suicide. The victims left videotaped statements explaining their actions and beliefs. According to Applewhite and his followers, the appearance of the Hale-Bopp comet was a divine sign of salvation, and a spaceship cruising along in the tail of the comet was waiting to pick them up and take them to the "Next Level" beyond this mortal human world. This story immediately became global front-page news. Here in the United States, the three major news weeklies, *Time*, *Newsweek*, and *U.S. News & World Report*, all ran extensive cover stories, complete with elaborate sidebars on UFOs, the Internet, comets, and cults. The *Time* and *Newsweek* covers were nearly identical, with captions that read: "Inside the Web of Death" and "Follow Me: Inside the Heaven's Gate Mass Suicide."

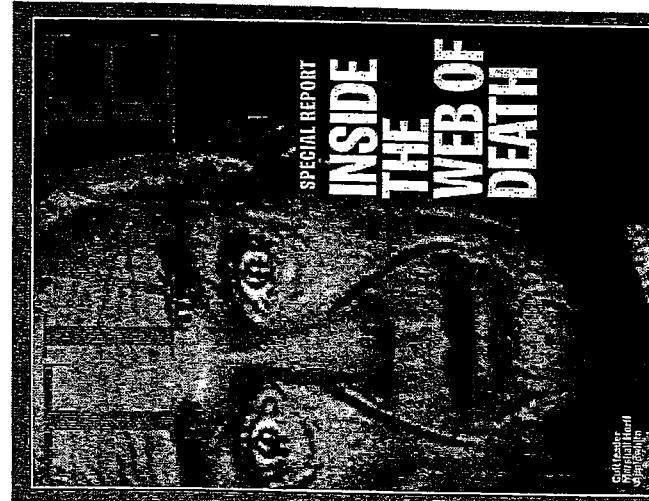


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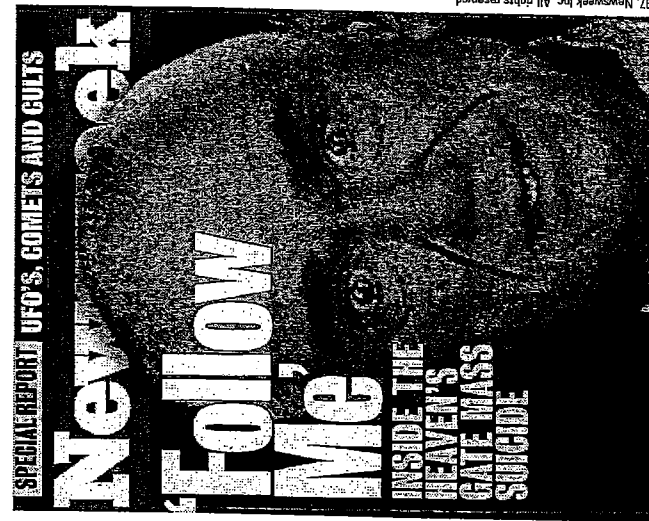
"Believe me, you're just thinking about it too much."

THE IMPORTANCE OF CRITICAL THINKING

These headlines seemed to acknowledge how bizarre the whole episode looked from the outside, while appealing to the morbid curiosity of many readers who wanted a closer look, an inside perspective, a glimpse into what makes such people tick. The *U.S. News & World Report* cover caption, though aimed in the same general direction, had a slightly different spin: "Lost Souls: How Reasonable People Can Hold Unreasonable Beliefs."



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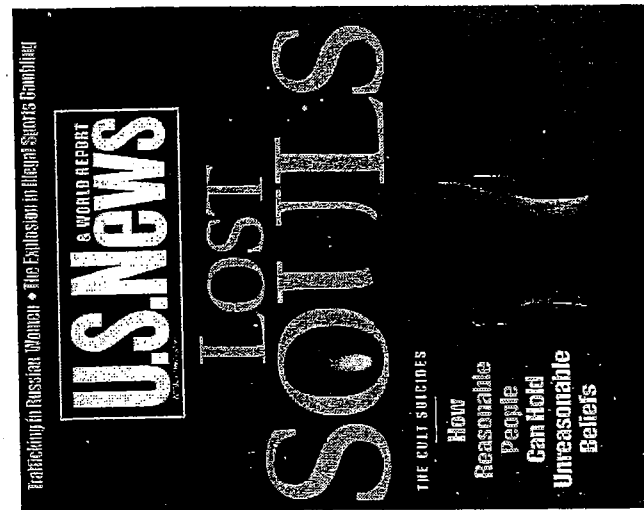


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This poses an interesting question: "How is it that reasonable people come to hold unreasonable beliefs?" Notice how this question involves a special kind of *assumption* that in Critical Thinking we call a *presupposition*. In order to entertain this question in the context of this story, you must first assume that at least some of the 39 members of the Heaven's Gate cult were "reasonable people," and you must also assume that at least some of the beliefs that led them to commit mass suicide were "unreasonable beliefs." Do you think these are "reasonable assumptions"? We'll come back to this shortly.

Note to the reader: You may be wondering why we keep italicizing certain words (like *reasonable* and *assumptions*). These are words that we think we should *define* clearly so as to avoid misunderstandings. We'll come back to this shortly.

Whether or not the members of Heaven's Gate were "reasonable people," and however "reasonable" or "unreasonable" their beliefs may have been, it certainly seems reasonable to suppose that from time to time perfectly "reasonable" people come to hold "unreasonable" beliefs about one thing or another. And this is a pretty good point at which to begin talking about Critical Thinking. The Heaven's Gate mass suicide is just an extreme case of a common tendency to be misled against our better judgment. You probably know people you consider "reasonable" who nevertheless hold or have held beliefs that you consider "not entirely reasonable" and maybe even downright "unreasonable," beliefs that maybe got them into all kinds of avoidable trouble. How does this happen? Why



197, U.S. News and World Report

is it that so many otherwise intelligent people get taken in by hucksters and confidence artists when just a little Critical Thinking would protect them from exploitation?

One answer is that there are so many interfering urges, pressures, inducements, and distractions that make it hard, even for reasonable people, to reliably differentiate between reasonable and unreasonable beliefs and courses of action. There are, in other words, many obstacles to Critical Thinking. We'll come back to this topic later in this chapter. But this also shows why Critical Thinking is so important for us each as individuals. Critical Thinking is empowering and can improve a person's chances of success in a career, as a consumer, and so on throughout the wide variety of social roles each of us may be destined to play. This is because Critical Thinking is essential to something even more fundamental and basic: *personal autonomy*. *Autonomy* comes from the Greek words *auto* for "self" and *nomos* for "regulation." An autonomous person is self-regulating or self-directing. Autonomy is empowering because it makes one less dependent upon—and so also less vulnerable to—the dictates, directions, and influence of others. A person who can make up her own mind doesn't need others to tell her what to think or do, and so is less likely to be dominated by others. But personal power can easily become perverted. So we should be wary of the similar-sounding idea that Critical Thinking might enable us to gain power over others. We have seen some actual cases where people have tried to use some of the things they've learned in Critical Thinking to humiliate, control, or otherwise take advantage of people. We would say simply that to apply Critical Thinking toward such goals is to distort, misunderstand, and misuse it. Critical Thinking should be thought of as liberating, not as a "power trip."

As important as Critical Thinking is to our individual well-being, it is equally important to us collectively as a society. As citizens of a democratic republic we enjoy a process of government that is now almost universally recognized as ideal and enlightened in its conception—where political power is held collectively by the entire citizenry and distributed equally among them, according to the "one person/one vote" principle. But Critical Thinking is essential for such a system to function properly, as one of the chief architects of the system, Thomas Jefferson, pointed out when he said,

In a republican nation, whose citizens are to be led by reason and persuasion and not by force, the art of reasoning becomes of the first importance.¹

Sadly, Critical Thinking is not as much in evidence in American political life as Jefferson would have hoped. For example, consider California's notorious turn-of-the-millennium energy crisis. Most Californians were cheerfully oblivious to looming problems in the state's electricity industry until the summer of 2000, when the electricity rates in the San Diego area abruptly tripled. All of a sudden, small businesses were being forced into bankruptcy and ratepayers were hysterically calling for boycotts and rate strikes. Elsewhere in the state, businesses carried on more or less as usual well into the fall, but then in January 2001, again seemingly without warning, the managers of the state's power grid began to an-

nounce a series of power shortages and "rolling blackouts" throughout the state. Within weeks, two of the state's largest electric utility companies, Southern California Edison and Pacific Gas and Electric Company, announced that they were on the brink of bankruptcy. We thought these events presented an opportunity to demonstrate the importance as well as some of the difficulty of thinking critically. And so, as this news was breaking, we challenged our students to research the unfolding crisis and invited them to venture opinions about what was going on and what ought to be done about it. We pointed out to our students that each of them was directly affected by the crisis, that there was no shortage of information about it available to them, and that as consumers and citizens they each had both a stake and a voice in the process.

The responses to this challenge, especially in the early stages of the exercise, were telling. Quite a few members of the class were ready to venture opinions right away. Someone would say something like "Well, I think the problem is that we Californians are just wasting a lot of electricity." Or "Well, I think the problem is that the environmentalists have kept any new power plants from being built while the population and the high-tech economy have grown so fast that demand for electricity is through the roof!" Or "Well, I think the problem is that the big energy corporations are manipulating the markets so as to drive up prices and extort rate hikes." Things got interesting when we challenged them—or when they challenged each other—to defend any of these ideas. Where did they get these ideas? How did they know that these things were true? Or if they didn't "know" that these things were true, what reason did they have for thinking these things were true? Were they just speculating? These questions led to general conversational chaos in the class, because for one thing very little actual research had gone into the formation of any of these opinions in the first place. Most of these ideas were in circulation in "the media," but did that make any of them more reasonable than the others? And how reliable were the sources? As Californians, most of us at this stage, students and instructors alike, were caught flat-footed. We were all pretty sadly ignorant of the actual nature and origins of California's energy crisis when it broke into the news, though we might not have wished to admit it.

As we began to look more deeply into the matter, the class soon learned that in 1996 California had enacted legislation that "deregulated" the electric power industry. What did this mean: "deregulate"? Did this mean that there were *no regulations at all* governing the electric power industry anymore? Well, what did it say in the legislation? At this stage, puzzlement and curiosity began to slide down through disappointment toward despair. Members of the class began to throw up their hands and show other signs of being ready to give up, and this increased when we placed a copy of the legislation² on reserve in the campus library. Some students wondered in exasperation, "Do you really expect us to go and read a 70-page government document, which refers in its opening paragraph to some 20 or so distinct sections of the state Civil Code, the Commercial Code, the Government Code, and the Public Utilities Code, whatever *they* might be?" We suggested that there might perhaps be someone out there who could digest the legislation for us and explain it to us. Let's see what there is on the sub-

ject in the library, or on the Internet. After a morning browsing the Internet and peeking into the periodical literature on the crisis, class morale was falling somewhere between cynical apathy and frustration bordering on rage. Here are some typical student reactions,

"All we're finding here is a lot of controversy among 'the experts' whose theories and analyses conflict."

"And they speak in acronyms and technical terms that no regular person can begin to understand."

"And how can you trust any of these sources anyway?! Everybody's got an axe to grind. They could all be lying!"

"If you want us to come up with answers to the energy crisis, maybe you could show us a better way of going about it, because things aren't getting any clearer. They are getting more confusing. This is like thinking in reverse. If we keep up like this, how will we ever figure out what is really going on?"

This was an example of what we teachers like to call a "teachable moment" (a moment when there's enough suspense and concentrated frustration built up in the classroom that people are ready to *learn something!*). Here was a room full of typical young adult citizens of the state of California, suddenly realizing that the state's electric energy industry had been operating for almost five years under a new set of complex and mysterious rules enacted by their own elected representatives in state government. And at the same time they were discouraged because they could make neither head nor tail of the public controversy surrounding either the legislation or the energy crisis. Can you see how perfectly this exemplifies Jefferson's point about democracy and the "art of reasoning"?

EXERCISE 1.1 | Topic for Class Discussion

Explain how Jefferson's point about democracy and the "art of reasoning" is reflected in the classroom experience reported above.

WHAT IS CRITICAL THINKING

Jefferson spoke of the "art of reasoning." That's what we mean by "Critical Thinking." You're about to embark upon a course of study in Critical Thinking, and you've got a right to know what you're getting into. *We think of Critical Thinking as a set of conceptual tools with associated intellectual skills and strategies useful for making reasonable decisions about what to do or believe.* That fancy-sounding formulation can be condensed to this: Critical Thinking is using reason to make up your mind. There are those words *reason* and *reasonable* again. Maybe now would be a good time for us to define them.

The word *reasonable* derives from the word *reason*. So let's start there. *Reason* comes from the Latin word *ratio* for "calculation" or "computation," a highly disciplined use of intelligence for problem solving. *We think of reason as the capacity to use disciplined intelligence to solve problems.* On this basis it is fairly easy to explain the meaning of other words in the same family. For example, "reasoning" can be understood as using disciplined intelligence to solve a problem or determine a course of action. A "reasonable decision" can be understood as one arrived at through the use of reason. A "reasonable person" can be understood as one who (at least ordinarily) uses reason to decide what to do or believe. An "unreasonable person" can be understood as one who is failing or refusing to use reason in deciding what to do or believe. And so on.

IS CRITICAL THINKING NEGATIVE? Lots of people seem to think that the word *critical* involves negativity almost by definition; criticism is fault-finding, a critic is a fault-finder, and so anything with the word *critical* in its name must be similarly concerned with finding faults and weaknesses and other negative things. This myth comes primarily, we think, out of a misunderstanding of the word *critical*. The word *critical* and its cognates, *criticism*, *critic*, *critique*, and so on, all derive from the Greek word *kritikos* for "discernment" or "the ability to judge," which in turn derives from the Greek word *krinein* for "decision making." This is the way we prefer to understand Critical Thinking. It is concerned with decision making—period. So, yes, it is interested in finding faults and in negative considerations, but not *only* in finding faults and other negatives. It is equally concerned with recognizing strengths and other positives. Critical Thinking is interested in the "pros" as well as the "cons."

EXERCISE 1.2 | Topic for Class Discussion

Remember that question we started out with about the members of Heaven's Gate: "How is it that reasonable people come to hold unreasonable beliefs?" Now how would you answer the question we posed in response to it: "Is it reasonable to assume that at least some members of the Heaven's Gate cult were reasonable people and also that at least some of their beliefs were unreasonable beliefs?" We'll come to this shortly.



Reason is a pretty special and important capacity. Some have held that it is a distinctively human capacity. An old tradition defines humans as the "rational animals," the *only* species with the capacity to reason. Other animals have intelligence. But, according to this particular tradition, *only humans cultivate and develop their intelligence through discipline so as to solve problems*. On the other hand, there are others who disagree with this and think that there is evidence of reason and reasoning in the behavior of at least some nonhuman animals, too.

EXERCISE 1.3 Topic for Class Discussion

What do you think about this? Do you think reason is a distinctively human capacity or not? Why? Or why not?

But whether reason is a distinctively human characteristic or not, whether it is *confined* to the human species or not, it has certainly proven to be an important species survival trait in humans. Without it we humans would be severely handicapped in the struggle for survival. It is therefore easy to see how we come to recognize reason as an *essentially human* trait, one that pertains to human beings as human beings. This does not mean that all members of the species are equally reasonable, or equally reasonable at all times. What it does mean is that we *presume* that all members of the human species have reason—in other words, that they all have the capacity to cultivate and develop their intelligence through discipline so as to solve problems. We do not restrict this presumption to exclude any category of human beings. This presumption is not gender specific. It is not restricted by age, race, or ethnicity. It applies to all human beings as human beings.

EXERCISE 1.4 Topic for Class Discussion

What do you think about this? Do you think reason is an "essentially human" trait or not? Why? Or why not?

DISCIPLINE In our definition of *reason*, the word *disciplined* is very important. So let us take a moment to reflect on the meaning of *discipline*. There are two things we think we should point out about this crucial concept right at the start. First, any discipline will have rules, or at least regularities of some kind. To master any discipline you need to learn the rules and regularities. And so secondly, discipline takes practice. Music is a good example of a "discipline." To become a musician you need to learn some rules and regularities by practicing. The same is true of Critical Thinking. Some people worry that entering into a "discipline" with all its "rules and regularities" means submitting to some form of enforced conformity to some rigid orthodoxy—in other words, that all "critical thinkers" must come out thinking in exactly the same way. This is worrisome because thinking is one way we become and manifest and express ourselves as individuals. But if we think for a minute about the comparison to music as a discipline, this worry can be dismissed. All the great musicians throughout history

have been highly distinctive individuals. The same is true of writing as a discipline. Practice leads to greater mastery, which opens up many avenues for individual self-expression. And so too with thinking.

IS THERE ROOM FOR CREATIVITY? When we said that Critical Thinking involves discipline, we meant that it involves mastering rules and regularities and requires practice. Sometimes people jump from this to the conclusion that Critical Thinking does not involve or encourage creativity. We think this stems in part from the (mistaken) idea that creativity is essentially a matter of *breaking* the rules. On the contrary, it often turns out that creativity is very much involved in *following* the rules. Sometimes it takes an original creative insight to know just how to interpret and apply the rules in a given situation. Such situations are often described as calling for "judgment" or "discretion." We hope and anticipate that you'll recognize examples of this sort of situation from time to time as you work your way through this book.

EXERCISE 1.5 Freewrite

Freewriting, like brainstorming, is a technique for liberating creative mental energy. When you freewrite, you don't worry about parallel sentence structure, split infinitives, sentence fragments, or any of the other editorial problems your instructors will nag you about when you're working on an essay. When you freewrite you don't worry about anything—even spelling—that might interfere with simply getting your ideas flowing and on paper.

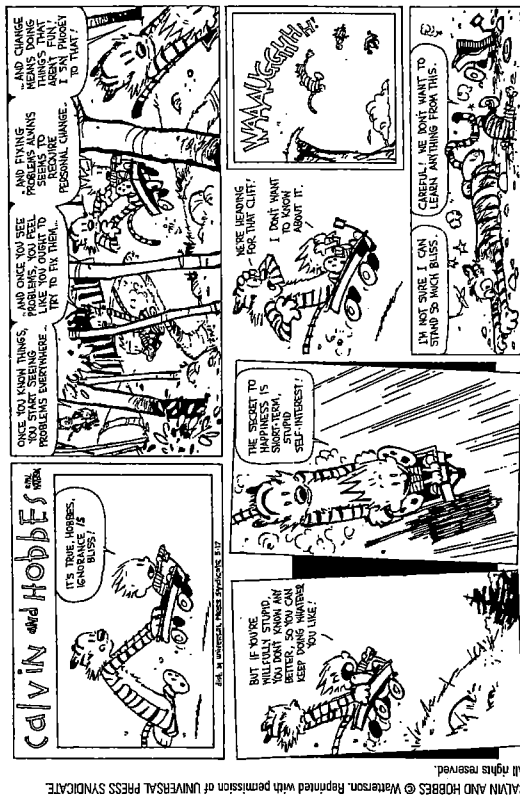
OK. So here's the exercise: Now that you've learned how we define Critical Thinking, what do you think you can gain from studying it? Take out a fresh sheet of paper and freewrite for 15 minutes on the topic: what you hope and expect to get out of a course in Critical Thinking. Don't plan what you're going to write just start writing. And don't stop to reconsider, refine, edit, or correct what you've written. Just keep writing! If you can't think of a good way to begin, just complete this sentence: "What I hope and expect to get out of a course in Critical Thinking is . . ."

When you have written for 15 minutes, finish your thought and save what you've written. We'll be coming back to this. Ready? Go.

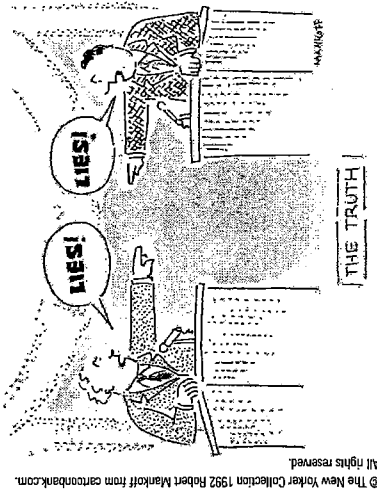
OBSTACLES TO CRITICAL THINKING

Naturally, what people actually gain from the study of Critical Thinking varies widely, depending on many variable factors. What we *hope* our students will come away with in the end boils down to this: Critical Thinking is a natural development of your reasoning capacity with many useful applications in your daily life. We *hope* that everyone who studies the concepts, skills, and strategies that we cover in this book will come to understand them as natural refinements of "common sense." And we expect that anyone who arrives at this understanding will find many occasions to apply Critical Thinking in his or her daily life.

Now this may sound very nice, but it does give rise to a bit of a puzzle: We are saying that Critical Thinking is natural for us as human beings. However, when



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that in a general discussion, where conflicting ideas are being advanced in competition against each other, the question must arise of whether one's ideas have enough of a basis to stand up and hold their own. And so we find that we really *must* look more deeply into the sources of our information and the assumptions underlying our beliefs in order to think critically about what is at issue. Now, if people have not learned how to do this sort of thing, it can seem like "thinking in reverse," probably because, at least for a while, it seems to take us *further away* from "making up our minds." The search for truth seems long and hard. This can be discouraging—raising "obstacles" to Critical Thinking. Let's start with a common "myth":

RELATIVISM/SUBJECTIVISM

Sometimes people get so discouraged, they seem to "give up" searching for the truth altogether. They even say things like "There's really no such thing as the 'truth,' at least not 'Truth' with a capital T."

EXERCISE 1.6 Agenda for Class Discussion

What do you think about this? First, what do you think the statement "There's really no such thing as 'truth,' at least not 'Truth' with a capital T" means? Second, do you think it's true? Or not? Third, make sense to ask whether it's true?

No doubt there are quite a few things that *might* be meant by this statement. But they all probably boil down to some version or variation of this: *The so-called "truth" is always "relative" to some particular "point of view"; in other words, what's "true-for-me" may not be "true-for-you."* This position is often referred to as "Relativism" or "Subjectivism." It is a big obstacle to Critical Thinking. We say it is a

we pay attention to the way people actually think and behave, the impression we get is that a lot of pretty "normal" people don't think critically very much at all, ever. Or they think critically only about certain things on certain occasions, but not at all about other things (sometimes the things that matter most). And this makes us wonder: Why isn't something as important and natural as Critical Thinking more common? Why is it that so many people seem not to be able to tell the difference between thinking critically and thinking in completely *uncritical* ways? Why is it that so many people find Critical Thinking so *unnatural*—not only so difficult, but so difficult to *understand*—when they first begin to study it? As we said earlier in this chapter, we think the answer is that there are many *obstacles* to Critical Thinking—urges, pressures, inducements, and distractions that make it hard, even for reasonable people, to think critically. In addition we are taught to believe things and understand things in ways that confuse and mislead and otherwise interfere with the natural refinement of common sense. And so, as it unfortunately turns out, many of us need to *unlearn* a fair amount before we begin to appreciate how "natural" Critical Thinking can be for us. Many people find that they need to radically reorient themselves and their thinking processes and change some deeply engrained thinking habits as they learn what it is like to think critically.

For example, let's go back and review that class discussion of California's energy crisis. It seems that people are often ready to "make up their minds" to one degree or another on the basis of . . . what? Well, often on the basis of little or no particular information, from sources whose *identity* is vague and indeterminate, and whose credibility and reliability are simply assumed. Common sense tells us

"myth," and we propose to refute it with an argument. Here is the argument: It is impossible to say or believe that "Relativism" or "Subjectivism" is true without contradicting yourself. (Try it.) Therefore, it is unreasonable to say or believe that "Relativism" or "Subjectivism" is true.

EXERCISE 1.7 Topic for Class Discussion

What do you think about this? Do you find this argument convincing? Explain. Why? Or why not?

It would not be at all surprising if the question were to arise in this discussion of what exactly we mean by "truth." This turns out to be a surprisingly deep philosophical question because there are a number of competing "philosophical theories of truth." If you are interested in learning about and considering these theories in detail, we recommend taking a course in metaphysics and/or epistemology.* For our purposes here in overcoming the obstacle to Critical Thinking posed by "Relativism/Subjectivism," we are going to assume a "commonsense understanding" of the nature of "truth." We are going to assume that truth is a relationship between a belief or a statement on the one hand and reality or the world on the other. A belief or statement is true if (and only if) it corresponds to something real. For example, if you believe or say that there is a growing hole in the earth's ozone layer, your belief or statement is true if (and only if) there *really* is a growing hole in the earth's ozone layer. Now, on the basis of this conception of truth, what can we say about the search for truth? Well, the search for truth can be long and hard. Scientists have had to work long and hard to find out about the earth's ozone layer. And to the extent that disagreement persists among scientists who have studied the earth's ozone layer, we should recognize that the search for truth may still be ongoing. But in many instances the search for truth is neither very long nor very hard at all. For example, it's not at all that difficult to find out how much you weigh, is it?

"LIMITED" RELATIVISM/SUBJECTIVISM

Often people will cling to some limited version of "Relativism/Subjectivism," even after granting that "Relativism/Subjectivism" can't *generally* be true. A popular version of "Limited Relativism/Subjectivism" is based on a distinction between "matters of fact" and "matters of opinion" that goes something like this: "Factual matters" are matters that pertain to the "facts." The "facts," in turn, are those things that are provable or knowable beyond doubt or question. Everything else is a "matter of opinion." And, when it comes to matters of opinion, there's really no such thing as the "truth," at least not "Truth" with a capital T.

* Metaphysics is the branch of philosophy concerned with the nature of reality; epistemology is the branch of philosophy concerned with belief and knowledge.

EXERCISE 1.8 Topic for Class Discussion

What do you think about this? Does this view seem any more reasonable than "General Relativism/Subjectivism"? Explain. Why? Or why not?

One way in which this sort of limited version of "Relativism/Subjectivism" may be stronger and more defensible than the general across-the-board version is that it cannot so easily be refuted by instantly deriving a self-contradiction from it. But it is still a major obstacle to Critical Thinking. One big problem with it is that almost everything, even science, turns out to be a "matter of opinion," simply because it is so hard to prove or know *anything* "beyond doubt or question." The problem arises when we give up the search for truth just because we recognize room for doubt and disagreement. Critical Thinking doesn't give up the search for truth so easily. To overcome the obstacles to Critical Thinking posed by "Relativism/Subjectivism," whether limited or not, we must cultivate an attitude of *persistence and tenacity in pursuit of the truth*. We will be coming back to this shortly.

EGOCENTRISM

Another big obstacle to Critical Thinking—a kind of opposite to "Relativism/Subjectivism"—arises out of the tendency to cherish and defend those beliefs most closely associated with one's identity. Even in science one can find examples of egocentrism standing in the way of Critical Thinking. Galileo's astronomical treatise, *Dialogue on the Two Chief Systems of the World* (1632), was a thoughtful and devastating attack on the traditional geocentric view of the universe proposed by the ancient Greek Ptolemy (second century A.D.) and accepted by most scholars and scientists of Galileo's time. Galileo's treatise was therefore an attack not only on the views these authorities held but also on the authoritative status that they were privileged to enjoy, and so also on their self-images. Their reaction was to censor Galileo. Pope Urban, who was persuaded that Simplicio, the butt of the whole dialogue, was intended to represent himself, ordered Galileo to appear before the Inquisition. Although never formally imprisoned, Galileo was threatened with torture and ordered to renounce what he had written. In 1633 he was banished to his country estate. His *Dialogue*, together with the works of Kepler and Copernicus, were placed on the Index of Forbidden Books, from which they were not withdrawn until 1835. This tendency to cherish and defend those beliefs most closely associated with one's identity is not *un-natural*. We're each naturally inclined to favor and defend ourselves and so also anything with which we identify ourselves. We are naturally "egocentric," in our thinking as well as in our interests and concerns. But this natural and understandable tendency, if left unchecked, can, as in the case of Galileo and his contemporaries, close one's mind to the possibility that one is mistaken. And that would surely stand in the way of thinking critically. In order to understand how to keep this natural inclination in healthy check, let's start with a series of "thought experiments":

EXERCISE 1.9 | Thought Experiment

Try saying, "Some of my beliefs are not true." Do you notice a problem with this? If so, explain. Do you nevertheless find it a reasonable thing to say about yourself? If so, explain.

Some people notice a problem when they say "Some of my beliefs are not true" because they recognize that part of believing something is believing that it is true. Some people find this problem manifesting itself at the level of their own particular beliefs: "If I were to do an inventory of my beliefs, wouldn't they all strike me as true?"

EXERCISE 1.10 | Thought Experiment

What do you think about this? Try the above thought experiment using some of your own beliefs. Identify 5–10 beliefs that you have. Do they all strike you as true? Or does it occur to you to wonder whether any of them might not be true? What more general conclusion, if any, do you draw from these results?

What is a belief, anyway? Think of a belief as a kind of "investment of trust or confidence." A belief, like any other investment, can be very difficult to abandon, even when evidence begins to show that it was a bad investment. Realizing and writing off a loss can be so painful that many a person will hang on to a bad investment in the hope that it will eventually turn around to be a good one. "Is this evidence really conclusive? Maybe there's something wrong with this evidence." Questioning the evidence against one of your beliefs is one thing, but when this reluctance to admit that one has made a bad investment in a belief rises to the level of *denying or refusing to heed* the evidence, then what we have is not Critical Thinking but wishful thinking.

EXERCISE 1.11 | Thought Experiment

What do you think you would do if you became aware of evidence indicating that one or more of your beliefs is not true?

Some people say, "If I found out that something was not true, I would just stop believing it." It would be nice if things were this simple, but we frequently do engage in wishful thinking and we are capable even of profound self-deception. "How can this be?" you might wonder. "How can a person know that something is not true and continue to believe it? How can a person be both the successful deceiver and the victim of the deception at the same time?" These are good questions. There is something deeply puzzling about the phenomenon of self-deception. But self-deception is a fact of human life, and we're sure that if you think for a minute or

so you'll be able to come up with an example or two from your own experience of the sort of thing we're talking about. You probably know people who have on occasion talked themselves into believing things that they knew weren't true: for example, that they were ready for the midterm exam when in fact they knew at some level that they weren't really prepared. If we were *perfectly* rational creatures we would no doubt recognize the inconsistency involved in self-deception, and so self-deception probably would never occur. But there is no doubt that it does occur. We are rational creatures, but not perfectly so. We are also (in some ways and at some times) irrational creatures, and our wishes and desires often overwhelm our good sense. So we often persist in believing what we want to believe or what we wish were true in spite of what we know or have every good reason to believe.

EXERCISE 1.12 | Thought Experiment

A moment ago we imagined someone saying, "If I were to do an inventory of my beliefs, wouldn't they strike me as true?" Try now to describe what it would actually be like to complete an inventory of your beliefs. How long would it take? How would you start? What kind of procedure would you use? How would you keep track? . . . After you've struggled with this for a while, go ahead and begin an inventory of your beliefs, on paper. Give yourself a measured five minutes and see what you come up with.

Most people are immediately struck by the realization that they have many more beliefs to keep track of than they ever would have imagined had they not been prompted to consider enumerating them. If one tried to organize an inventory of one's beliefs by sorting them into categories, a very similar realization occurs: beliefs of so many different *kinds*!

EXERCISE 1.13 | Thought Experiment

Do you have any beliefs about how many beliefs you have? For example, do you believe that you have beliefs than you can count? If so, what category would such a belief fall into? When did you realize that you had beliefs of this sort? For example, were you aware that you had beliefs of this sort before you tried thought experiment?

By this point, most people are struck by what might be described as a "Major Inventory Control Problem." This problem arises out of two conditions. First, there is uncertainty about the current inventory of beliefs. How many of these beliefs that I've just noticed have been here with me all along? And how many more beliefs do I have yet to notice? Second, there is the dynamic condition of our belief systems. In other words, our belief systems are not static. They are constantly undergoing change and revision as we deal with incoming information. Let's consider how this process normally works. We live in what has come to be known as the "in-

formation age," a label that derives from the awesome volume of information bombarding us constantly on a daily basis. Just think of the amount of material contained in the average metropolitan daily newspaper. Now multiply that by seven days a week, and then again by the number of metropolitan population centers you can think of in a few short minutes. Now add to this weekly, monthly, quarterly, and annual publications, books, radio, television—literally hundreds of separate stations, channels, and cable services, many of them broadcasting round the clock. And now add the Internet! This should be enough to make the point that there's far too much information to pay attention to, let alone absorb. Consequently, each of us has to be very selective about where we direct our attention in this overwhelming flow of information. Actually, this is nothing new or peculiar to our age. In fact, it's part of the human condition. There's always more to pay attention to than any of us has attention. And if you're like most people, even within the narrow range of information you do become aware of, you continue to be selective. Some incoming information will be actively incorporated into your belief system, while other information is rejected. What do you suppose are the main factors that govern this process? What do you suppose determines these selections? Among the most important and influential of these factors are the existing contents of our belief systems. The way we deal with incoming information is determined in large part by what we already believe. Our belief systems are "self-editing."

EXERCISE 1.14 Topic for Class Discussion

So, what do you suppose common sense would suggest at this stage?

Each of us has a large and constantly evolving belief system comprising a huge number of beliefs—so many that trying to count them seems crazy. Most of these beliefs we routinely just *assume*. In other words, we take them for granted. We regard them as true without questioning them, or determining the adequacy of whatever evidence there may be to support them, or wondering where they came from and whether those sources are reliable or not. So, if you're like most people, a large part of your belief system is probably "subterranean" and functions in a largely unexamined way, as a set of assumptions of which you are probably not even fully aware and which influences its own ongoing evolution. Based on the sheer size of a normal person's belief system, common sense surely suggests the strong probability that some of those beliefs are not true, especially as long as they remain unexamined.

EXERCISE 1.15 Thought Experiment

Suppose that you were actually able to complete a thorough inventory of each and every one of your beliefs. And suppose that you had been able to weed out each and every false or dubious item from that inventory, and now here you are at the end, considering the very last item in the inventory: Belief #457,986,312 "Some of my beliefs are not true." What do you think you should do with this belief? Would you weed it out or not? Explain.

To overcome the obstacles to Critical Thinking posed by the pitfalls of "Ego-centrism," we must cultivate an attitude of *intellectual humility*, in other words, a recognition of our fallibility or liability to error, while at the same time maintaining a patient and tenacious commitment to the pursuit of truth. But, as we shall see, even such a healthy attitude as intellectual humility can give rise to another kind of obstacle to Critical Thinking.

INTIMIDATION BY AUTHORITY

An authority is an expert source of information outside ourselves. The source can be a single individual (a parent, a teacher, a celebrity, a clergy member, the president), a group of individuals (doctors, educators, a peer group, a national consensus), or even an institution (a religion, a government agency, an educational establishment). Whatever its form, authority can exert considerable influence on our belief systems. And it's easy to see why. Consider how difficult it is to become an expert about *anything*. Nobody can ever hope to become an expert about *everything*. There's almost always going to be someone around who knows more about whatever we're interested in than we do ourselves. And so a person with a healthy attitude of intellectual humility is likely to find it helpful to consult authorities for their expert opinions.

EXERCISE 1.16 Thought Experiment

Now go back and reconsider your belief inventory with regard to sources. How many of the things that you believe can you trace back to your own direct experience? Take as an example some area of interest or concern that is of intimate personal importance to you (like your own physical health). How many of the things that you believe about your own physical health have you derived from sources other than your own direct experience? In such cases can you identify the precise source of the belief? Explain.

If you're like most of the rest of us, chances are that a lot of the things you believe you've gotten from other sources. Beliefs about world history, the direction of the economy, the events of the day, the existence of God and an afterlife, the state of your health—what are the sources of all of these beliefs? Chances are that you got many of them by relying on the words of others, sources you are in effect trusting as authorities. Again, all of this is perfectly normal and natural. But common sense should warn us that there is a risk inherent in trusting someone other than ourselves when we make up our minds. How do we know that the authority we trust is in fact reliable?

Beyond this inherent risk (a risk that can at least be managed) there is a deeper danger. We can so rely on authority that we stop thinking for ourselves. For a vivid and extreme example, look at what happened to the members of the Heaven's Gate cult. Inside the cult a rigid authoritarian regime trained members to "purify" their "vehicles" (bodies) through systematic self-denial and unquestioning obedience to authority. Punishable offenses included: "*knowingly breaking any instruction or procedure; trusting one's own judgment or using one's own*

mind; having private thoughts; curiosity; criticizing or finding fault with one's teacher or classmates." Such blind acceptance of and obedience to authority is of course incompatible with intellectual autonomy and Critical Thinking.

But just how likely is it that a normal intelligent person would be susceptible to such a debilitating abuse of trust? How vulnerable are we really to the dictates of authority? How subtle might its negative influence be? Consider a series of experiments conducted by psychologist Stanley Milgram in the 1960s.⁴ Milgram's famous experiment consisted of asking subjects to administer strong electrical shocks to people the subjects couldn't see. The subjects were told that they could control the shock's intensity by means of a shock generator with 30 clearly marked voltages, ranging from 15 to 450 volts and labeled from "Slight Shock (15)" to "XXX—Danger! Severe Shock (450)." We should point out that the entire experiment was a setup: No one was actually administering or receiving shocks. The subjects were led to believe that the "victims" were being shocked as part of an experiment to determine the effects of punishment on memory. The "victims," who were in fact confederates of the experimenters, were strapped in their seats with electrodes attached to their wrists "to avoid blistering and burning." They were told to make no noise until a "300-volt shock" was administered, at which point they were to make noise loud enough for the subjects to hear (for example, pounding on the walls as if in pain). The subjects were reassured that the shocks, though extremely painful, would cause no permanent tissue injury. When asked, a number of psychologists predicted that no more than 10 percent of the subjects would follow the instruction to administer a 450-volt shock. In fact well over half did (26 out of 40). Even after hearing the "victims" pounding, 87.5 percent of the subjects (35 out of 40) followed instructions to increase the voltage. It seems clear that many normal intelligent people, when instructed by an authority, will act against their better judgment. To overcome the obstacles to Critical Thinking posed by the intimidating influence of authority, what we need is simply to maintain our *intellectual independence*.

CONFORMISM

Further experiments seem to show that not only are people's actions susceptible to external influence, but their judgment itself is as well. For example: look at the line segments in the accompanying figure:

Which of the three lines below matches the one on the right?

- A _____
B _____
C _____

Do you trust your own perceptual judgment here? It is pretty obvious that line segment B is the one matching the line segment on the right. Do you think you could ever be persuaded to doubt your own perceptions and choose A or C? Maybe not, but experiments indicate that many normal intelligent people *can* be persuaded

to alter their perceptual judgments, even when their judgments are obviously correct. These experiments involved several hundred individuals who were asked to match lines just as you did. In each group, however, one and only one subject was naive, that is, unaware of the nature of the experiment. The others were instructed to make incorrect judgments in some cases and to exert "peer pressure" on the naive subject to change his or her correct judgment. The results: When subjects were not exposed to peer pressure, they inevitably judged correctly. But peer pressure produces a measurable and significant tendency toward conformity, the tendency increasing as the majority increased toward unanimity.⁵ What is most interesting about these results is what they show about the power of "peer pressure." Psychologically we are all, at some level, aware of our liability to error, even in our perceptual judgments. But it is still remarkable that peer pressure is powerful enough to erode people's confidence in their own perceptual experience and judgment. Consider how much *more* intimidating peer pressure must be when applied to anything more remote from you than your very own perceptual experience and judgment!

What accounts for such intimidating power? Like many other creatures, we human beings are social animals. Our chances of survival and of flourishing are greatly enhanced by association with others of our kind. We do much better in groups than as individuals. So we are naturally fearful of isolation. At the same time, cooperation among individual members and group loyalty are both essential to the successful organization of any group, to the coordination of any group project, and to the maintenance of the group as a stable entity. So there is a natural tendency in any group toward conformity and orthodoxy. And there arises within any group a hierarchy of authority through which orthodoxy is established and conformity to it is reinforced. All of this is perfectly natural and makes sense in terms of its survival value for the individual, for the group, and for the species. However, if this natural and functional tendency is not kept within healthy limits, the fear of isolation can overcome our basic common sense, increasing rather than minimizing our liability to error. To overcome the obstacles to Critical Thinking posed by the intimidating influence of authority, peer pressure, and orthodoxy, what we need is to cultivate and maintain *intellectual courage*.

ETHNOCENTRISM

Another major obstacle to Critical Thinking—a close relative of "Egocentrism"—also arises out of our natural tendency as social animals to gather together in groups and to identify ourselves with and in terms of our social groupings. To see how this happens, try the following little thought experiment:

EXERCISE 1.17 | Thought Experiment

Cultural "Categories": How many distinct cultural groups can you identify in five minutes by simply describing yourself? "I am a(n) _____." [You could even start with your name (which identifies your family).]

However narrowly or broadly these groupings are defined—from kinship groupings (families) out to something as broad as a gender—cultural categories play an important role in the formation of our individual personal identities because we identify ourselves to a large extent in terms of them. Ethnic consciousness, like self-awareness, and ethnic pride, like self-esteem, are important ingredients in a healthy personality and society. But they each have corresponding perversions that, when they arise, stand as obstacles to Critical Thinking (and cause lots of other sorts of serious grief as well). The natural human tendency to be egocentric also can affect our attitudes regarding groups with which we identify. And so there arises a tendency to believe in the superiority of our family, our circle of friends, our age group, our religion, our nation, our race, our ethnicity, our gender, our sexual orientation, our culture. Thus egocentricity, the view that mine is better—my ideas, my experience, my values, my agenda—becomes ethnocentricity, the view that ours is better—our ideas, our values, our ways. In recent years cultural identity has gained recognition as a matter of political importance. Multiculturalism is high on the agenda of most educational institutions now sensitive to the importance of cultural diversity in the community and the curriculum. Instructors now strive to reflect multiple cultural perspectives in their courses (and authors in their textbooks). In Critical Thinking cultural diversity and an awareness of alternative cultural perspectives are especially useful because of the limitations inherent in *any* given cultural perspective. An appreciation of cultural diversity contributes to open-mindedness, an essential ingredient of Critical Thinking. To overcome the obstacles to Critical Thinking posed by ethnocentrism, we must cultivate an attitude of *respectful intellectual tolerance* and maintain and strengthen our *intellectual humility*.

UNEXAMINED ASSUMPTIONS

As we write these words, the whole world is still reeling in shock over the spectacular multiple airliner hijackings and attack on the World Trade Center Towers in New York City and the Pentagon in Washington, D.C. We have no doubt that when you read these words, these stunning events will still be remembered. We can't be certain at this moment as we write precisely how they will be remembered or precisely what will have happened since, though it does seem clear at this moment (September 13, 2001, two days later) that many things will be changing in their wake. But now, as you read these words, we'd like you to try to imaginatively move yourself back in time to September 11, 2001. Perhaps you remember where you were and what you were doing when you first learned that two airliners, apparently hijacked, had flown directly into the two World Trade Center Towers in New York City—causing the eruption of massive fires that eventually resulted in the collapse of both buildings—while a third airliner had crashed directly into the Pentagon in Washington, D.C. In particular, we'd like you to try to recover a sense of the confusion, and of the urgency we all felt to know what was happening and to figure out what to do about it.

To help you conjure up the mood, let us remind you that as we write these words, thousands of people remain missing and unaccounted for, rescue work-

ers are digging through rubble searching for survivors, the New York Stock Exchange is completely shut down, as is all commercial air travel to and from within the United States. There is considerable speculation about the identities and affiliations of the perpetrators of these attacks. But, as of this moment, only a handful of fragments from the beginnings of the investigation have been made public. The FBI has obtained the passenger lists and boarding passes from the flights. Cell phone calls from passengers aboard one of the hijacked airliners report that hijackers with knives have taken control of the flight. A car has been impounded at Boston's Logan Airport. A few individuals have been "detained for questioning." There is, again, considerable speculation about the identities and affiliations of the perpetrators of the attacks. But it is already pretty well focused on a particular terrorist organization led by one Osama bin Laden, whose base of operations is reported to be in Afghanistan. President Bush, Vice President Cheney, Secretary of State Colin Powell, and other government officials, as well as the television journalists covering the story, have been careful to refer to bin Laden so far only as the "prime suspect." Meanwhile, however, the Bush administration is mobilizing an international coalition, as well as domestic public support, for a "War Against Terrorism."

EXERCISE 1.1B Thought Experiment

Now see if you can feel how difficult it is to "suspend judgment." If someone asks you, "What do you think is happening?" or "What do you think we should do about it?" you are "suspending your judgment" when you sincerely say "I don't know."

There comes a point for most people where it is no longer possible to suspend judgment. The urgency of the need we feel to initiate *some* plan of action makes the suspense unbearable. Though we may not *know* what has happened to any degree of certainty, we nevertheless feel we must do *something*. So, we begin to make "assumptions." Do you remember that "assumption" was the first of those words we said we needed to define clearly in order to avoid misunderstanding? So here is what we mean by "assumption." *An assumption is a "claim" which is taken to be true without "argument."* In this definition we use two terms, "claim" and "argument," which also need to be explained. A claim is a statement that "claims for itself (whether rightly or wrongly) the value of being true." If someone says, "Hi. How are you?" this would not be a claim—the language is not being used to make a statement that claims to be true. If someone asks you "What time is it?" this would not be a claim. But if someone says something like "The attack on the World Trade Center Towers in New York City was the work of the bin Laden terrorist organization al-Qaeda," a claim is being made. Argument is a concept that we will define and develop in detail in Chapters 3, 4, and 5 of this book. For the time being just think of an argument as support for a claim. So an assumption is a statement that claims to be true and is taken to be true without support.

EXERCISE 1.19 Find the Argument

Argument is a concept that we will define and develop in detail in Chapters 3, 4, and 5 of this book, but it is a concept we have already put to use. *Where?*

Perhaps you have heard the cliché *Beware of assumptions*; to “assume” makes an “ass” out of “u” and “me.” This is part of a widespread myth according to which all assumptions are suspect or dangerous and so we should try to avoid making any assumptions at all.

EXERCISE 1.20 Thought Experiment

Pick any topic or subject you like, and try thinking about it without making any assumptions.

The main problem with this widespread myth is that it is *practically impossible* to follow as a recommendation for how to conduct one’s reasoning. The more seriously you take it, the more paralyzed you get. All reasoning must start somewhere. When Thomas Jefferson wrote in the Declaration of Independence,

We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness,

these were the “starting points” of the reasoning. When he said “We hold these truths to be self-evident,” he was saying that he thought it reasonable to assert these claims without support, that is, as assumptions.

Of course there is *risk* involved in making *any* assumption: namely, the risk that what you are assuming is not true. No doubt we’re making some assumptions when we say this, but it seems clear that in practice it is *impossible* to reason about anything without making at least *some* assumption(s). And so, *some* such risk is inherent and inevitable in reasoning as such. In other words, there is no way to eliminate this risk entirely. But this risk increases—in other words, assumptions are more “dangerous”—to the extent that they remain *hidden*. As long as assumptions are hidden they are not open to discussion, to challenge, to debate, to deliberate consideration (as any serious claim to the truth should be). So the obvious way to keep the risk down would be to be *aware of the assumptions we’re making*. Notice that Jefferson’s assumptions in the Declaration of Independence are *not* hidden. Thus, we would replace the cliché “Beware of Assumptions” with the maxim “Be Aware of Assumptions” and posit this as a Critical Thinking “Rule of Thumb.”

CRITICAL THINKING TIP 1.1

BEWARE of Assumptions BE AWARE of Assumptions

There is also a very important corollary to this rule of thumb: *Don’t forget the assumptions you are making (don’t forget that they ARE assumptions)*. This is essential to avoiding one of those pitfalls that lead otherwise reasonable people into unreasonable beliefs and ill-advised courses of action. Assumptions in their essential nature—*by definition*—are “taken to be true without support.” So, as we just explained above, the risk of error increases as soon as we forget about the need to discuss, challenge, debate, and deliberately consider whether what we are assuming is really true. And don’t forget the point we made earlier about the difficulty this poses for many people. Seriously examining assumptions, on the basis of which you thought you were going to make up your mind, can easily seem like “thinking in reverse.”

INFERENTIAL ASSUMPTIONS

Where should we look for assumptions? Common sense would suggest that we be especially vigilant in two particular directions. Where people are making “inferences,” or “drawing conclusions”—by which we mean reasoning from one claim to another—we should look for assumptions in between the claims in the inference.

EXERCISE 1.21 Identifying Hidden Assumptions (“Between the Lines”)

Suppose a fellow student says to you, “As a society we really shouldn’t be relying on computers as much as we do.” And you wonder why, and she says, “Well, don’t forget, computers are designed and built by humans.” What is she assuming?

Notice how the reasoning here goes from her *answer* back up to the claim you challenged. But how does the reasoning get from the claim “computers are designed and built by human beings” to the claim you originally challenged “that we shouldn’t rely on computers as much as we do”? There is an assumption being made that serves as a “missing link in the chain of reasoning.” Can you figure out what this assumption is? Assumptions that play this sort of linking role are often called “Inferential Assumptions.” We’ll return to this concept in Chapters 3 and 4.

PRESUPPOSITIONS

Another important place to look for assumptions is “underneath” the claims being made. Sometimes in order to make any sense of what is stated or expressed explicitly, we are required to assume additional claims that are not stated explicitly.

EXERCISE 1.22 Identifying Hidden Assumptions (“Beneath the Surface”)

Go back and look at the *U.S. News & World Report* cover reproduced on page 5 in this chapter. Read the caption under the main headline. What two assumptions do you have to make in order to make sense of this caption?

This is the way the U.S. News & World Report cover works. The caption under the main headline "Lost Souls" reads: "How Reasonable People Can Hold Unreasonable Beliefs." In order to make sense of this caption you need to assume that the 39 members of the Heaven's Gate cult (or at least *some* of them) were "reasonable people," and you also need to assume that the beliefs that led them to commit mass suicide (or at least *some* of those beliefs) were "unreasonable beliefs." Assumptions of this kind—the kind that must be made in order for what is explicitly said to make sense—are often called "*pre-suppositions*." We'll be developing this concept also in Chapters 3 and 4.



EXERCISE 1.23 Topic for Class Discussion

On June 24, 1997, the United States Air Force issued its official explanation of the Roswell Incident. The Roswell Incident is probably the most famous incident of an alleged Earth landing of extraterrestrials, long thought by many UFO believers to involve a government cover-up, because the sightings occurred and the debris was collected on and around a government military reservation (Roswell Air Force Base in New Mexico), and because the government maintained an "official silence" about the incident for 50 years. The official explanation: An experimental high-altitude weather balloon and several humanoid "crash test dummies" fell to Earth from very high altitudes. "Conspiracy theorists" were not convinced. There was much debate. Here is an opinion we heard on the radio. How many assumptions can you identify? "There's no government cover-up, and there were no aliens. Look, if you were an alien and you were scoping out the Earthly terrain, the last place you'd go would be to one of the most highly fortified and tightly secured military installations in the United States."

From this discussion of obstacles to Critical Thinking, a sort of "portrait of the critical thinker" begins to emerge. A critical thinker is a person who combines an array of "intellectual virtues" and displays these virtues in his or her intellectual life. A critical thinker is patient, tenacious, humble, courageous, tolerant, and respectful of diversity of opinion in pursuit of the truth. The critical thinker sticks with the search for truth. The critical thinker is not in too big a hurry to have done with the search for truth, although it may be long and arduous. The critical thinker is humble in recognizing his or her own limitations and liability to error. But the critical thinker is not easily intimidated by authority or by popular opinion or peer pressure. The critical thinker recognizes the value of diverse perspectives and viewpoints and is respectful of the views of others with whom he or she may disagree. With this portrait of the critical thinker in mind, let us now return to a question we raised earlier in this chapter: How is it that reasonable people

come to hold unreasonable beliefs? Chances are that this is because people have given up the search for truth, or lost their patience and jumped to a hasty conclusion of the search for truth, or become intimidated (lost their courage and independence), or become arrogant (lost their humility) in pursuit of the truth.

EXERCISE 1.24 Critical Thinking Self-Assessment

Part 1, A Critical Thinking "Role Model": Based on your understanding of Critical Thinking as defined and explained so far in Chapter 1, identify the person(s) you think best exemplify it. Explain your selection.

Part 2, A Critical Thinking "Self-Assessment": Assess your own habits of mind in terms of the "Intellectual virtues" found in the above portrait of the critical thinker.

In the search for truth I am,

Extremely patient, relatively patient, about average, somewhat impatient, very impatient.

Very tenacious, relatively tenacious, about average, will give up easily.

Etc.

LOOKING AHEAD: ISSUES AND DISPUTES

You may have heard the expression "Reasonable people may differ. . . ." An issue is what we call a topic about which reasonable people may differ. Should there be a law against abortion? Should animals be used in medical experimentation? Does intelligent extraterrestrial life exist? What is the average temperature of the water in Lake Tahoe? Is there a global environmental crisis? What drives people to commit acts of terrorism? Does the Federal Reserve Board's raising interest rates indicate that they think the recession is over? These are all questions to which a number of significant and conflicting alternative responses are both genuinely open and defensible. These are all good examples of our concept of an issue.

Sometimes it seems as though reasonable people may differ about anything, everything, even nothing at all. It would help if we could dispense with disputes over nothing at all. So before we begin to discuss issues, let us explain more deeply what we mean by "*genuinely disputable*" by pointing out and setting aside another kind of thing that frequently passes for an issue.

MERE VERBAL DISPUTES

Philosopher William James tells the story about how on a camping trip everyone got into a dispute over the following puzzle:

The corpus of the dispute was a squirrel—a live squirrel supposed to be clinging to one side of a tree-trunk; while over against the tree's opposite side a human being was imagined to stand. This human witness tries to get sight of the squirrel by moving rapidly round the tree, but no matter how fast he goes, the squirrel moves just as fast in the opposite direction, and always keeps the tree between himself and the man, so that never a glimpse of him is caught.

The resultant problem now is this: *Does the man go round the squirrel or not?* He goes round the tree, sure enough, and the squirrel is on the tree; but does he go round the squirrel?

James's idea was that although you can easily imagine people going round and round in an endless dispute over such a puzzle, you can just as easily dissolve the puzzle by drawing a simple terminological distinction. It all depends upon what you mean by "going round" the squirrel.

If you mean passing from the north of him to the east, then to the south, then to the west, then to the north again, obviously the man does go round him, for he occupies these successive positions. But if on the contrary you mean being first in front of him, then on the right of him, then behind him, then on the left, and finally in front again, it is quite as obvious that the man fails to go round him, for by the compensating movements the squirrel makes, he keeps his belly turned towards the man all the time, and his back turned away.⁷

Since it hardly matters which meaning of "going round" the squirrel applies, this could be called a "merely verbal" dispute. To put it another way, there's no real issue here; the dispute arises out of a simple "ambiguity" (for an explanation of this concept, see the section "Ambiguity and Vagueness" in Chapter 2) in the way the puzzle is worded. A similar example is the old dispute "If a tree falls in the forest and nobody is there to hear it, is there a sound?" Clarifying the meaning of "sound" dissolves the dispute. If you're talking about sound *waves*, then presumably there are sounds whether or not anyone is there to hear the tree fall. But if you mean sound *sensations*—the experience of sound—then the falling tree makes no sound, for no one is there to experience the sound sensations.

Perhaps it would be nice if all issues were as trivial as these. Perhaps it would be nice if all disputes arose out of simple ambiguities and could be dismissed as mere "matters of semantics." On the other hand, perhaps it would be boring if all disputes were idle and there were no real, serious, and urgent issues to argue about. Reasonable people may differ about this, possibly leading to another kind of idle dispute. But in any case, most genuinely important disputes are concerned with genuine issues of one sort or another. The rest of this book will be devoted to developing and refining strategies and procedures for resolving serious disputes about real and important issues, which comprise a variety as wide as all of human interest and concern.

ISSUE ANALYSIS

CRITICAL THINKING TIP 1.2

"If we want to understand something very complex, we must approach it very simply, and therein lies our difficulty—because we always approach our problems with assertions, with assumptions or conclusions, and so we are never free to approach them with the humility they demand."

—Krishnamurti

Because they inherently involve conflict, all issues present a certain amount of psychological discomfort. They all seem to "cry out" for resolution. But a critical thinker must discipline herself to be patient in pursuit of the truth. Thus, another aspect of thinking critically that often gives the impression of "thinking in reverse" has to do with issues and their analysis. Before we begin to "make up our minds" about how to resolve a given issue, it is useful to do some analysis of the issue.

Among the immediate challenges that most issues present is their inherent complexity. Take the first of the issues we mentioned above as an example. The question whether there should be a law against abortion, even though it is worded as a simple "yes-or-no" question, is hardly a simple issue. The minute you look at it closely and begin to confront it seriously, what you will see is that what you have in front of you is not just one issue but more like a whole nest of them, resembling a can of worms. This is because there are so *many different things* under the umbrella heading of "abortion" that reasonable people can disagree about. For example, reasonable people will disagree over whether abortion belongs in the same moral category as murder, or homicide, or elective surgery, or birth control. Reasonable people will disagree over whether a woman's reproductive processes are private, and so also over whether the government may legitimately interfere with her choices. Reasonable people will disagree over whether the fetus is a person or only a potential person. Reasonable people will disagree over whether potential persons have rights. Reasonable people will disagree over whether the right to life overrides other rights that may come into conflict with it, and over whether the right to life includes the right to use another person's body as a life-support system. Even among those who agree that the law *should* restrict abortion, reasonable people will disagree, for example, over whether the restriction should be total or partial, rigid or flexible, and if partial and flexible, over what the exceptions should be, and so on. So much complexity! It seems even that there might be too many dimensions of complexity to count. The challenge this poses for human intelligence is confusion: another one of those things that make it difficult—even for reasonable people, and even when they're not distracted by external pressures or internal longings and fears—to discriminate between reasonable and unreasonable beliefs. Most interesting issues are deep and complex enough to present this sort of challenge. So the first step of issue analysis is to take the issue apart and see what subsidiary issues are contained within it.

EXERCISE 1.25 Issue Analysis I

Set the egg timer for three minutes. Then brainstorm for subsidiary issues. See how many distinct issues you can see arising out of any single one of the following issues:

- Should animals be used in medical experimentation?
- Does intelligent extraterrestrial life exist?
- What is the average temperature of the water in Lake Tahoe?
- Is there a global environmental crisis?
- What drives people to commit acts of terrorism?
- Does the Federal Reserve Board's raising interest rates indicate that they think the recession is over?

The next step is to find an approach to the issue that will help us to bring its complexity under intellectual control rather than allowing its complexity to confuse and overwhelm us. One approach that immediately occurs to many people is to narrow the focus of the inquiry. For example, rather than try to resolve the whole nest of issues we can see arising out of the abortion debate, we might confine ourselves to the issue over whether the fetus is a person or only a potential person. This approach is a reasonable one, and is often very useful. But it never completely disposes of the problem. Suppose we do narrow our focus down to the issue over the status of the fetus. Is the fetus a person or just a potential person? But here again, the minute you look closely at this issue and begin to confront it seriously, what you will see is not just one issue but a whole nest of them, resembling a can of worms. What are the biological changes that take place during fetal development? How do the criteria for personhood relate to the biology of fetal development? Is personhood simply a biological matter? Or is it an essentially political matter? Or a spiritual matter? What precisely is meant by this word *person*? What are the criteria for being a "person"?

LOGICAL PRIORITY

With any such complex inquiry what we really need is to be able to develop an *orderly agenda of inquiry*. An "agenda" is a list of things to do. The function of an agenda is to monitor progress, especially when there are a lot of things to keep track of. An agenda of inquiry would be a list of issues to resolve. Its function would be so that you can know whether you are making progress toward resolving the main issue (the issue you started with) in which the others are embedded rather than going round and round in circles or wandering aimlessly and getting lost in it all. To develop an agenda, we must "prioritize," which simply means putting things into some kind of serial order. In any agenda, something has to come first, something has to come next, and so on. There may well often be several reasonable orders to follow in an agenda of inquiry. And an agenda of inquiry probably ought to be always open to revision. Nevertheless, some ways of ordering an agenda of inquiry are more "logical" than others. Suppose we start out trying to resolve the issue of what to do about California's energy crisis. Very shortly we should notice that any resolution to this issue we might consider presupposes some resolution to the subsidiary issue of what the *causes* of the crisis are. This would indicate that the issue as to the causes of the crisis is "logically prior" to the issue as to the remedies. Similarly, any resolution to the issue of whether the fetus is a person will presuppose some resolution to the issue of what the criteria for personhood are. In other words, the issue as to the criteria for personhood is logically prior to the issue of whether the fetus is a person. Whenever we notice this sort of relationship, it makes sense to address issues in order of their logical priority.

EXERCISE 1.26 | Issue Analysis II

Now take the list of subsidiary issues you brainstormed in Exercise 1.25 and prioritize it.

ISSUE CLASSIFICATION

The next step of issue analysis comes from recognizing that there are different "types" of issues and that strategies and procedures appropriate for issues of one type may not be very appropriate for issues of other types. For example, the procedures for determining the average temperature of the water in Lake Tahoe will not be much use in resolving the question of whether animals should be used in medical experimentation. We propose to sort issues into the following three categories: Factual Issues, Evaluative Issues, and Interpretive Issues.

In this connection we are going to be using the terms "factual," "evaluative," and "interpretive" in a way that departs slightly but significantly from what we believe is current popular usage. Our impression is that people generally draw a very sharp distinction between "factual" matters on the one hand and "evaluative and interpretive" matters on the other, but also that people generally do not draw any very sharp and clear distinction at all between "evaluative" and "interpretive" matters. Popular usage seems to go something like this: "Factual matters" are matters that pertain to the "facts." The "facts" are everything that is proven or known beyond doubt or question. Everything else (values, interpretations, whatever) is a "matter of opinion" and as such can never be proven or established as true.⁸

If you agree with any of this, now we're going to try to talk you out of it. First of all, this way of talking and thinking fails to recognize the need for strategies and procedures to resolve issues about what the facts actually are. Secondly, it doesn't open up any useful strategic or procedural options for resolving evaluative or interpretive issues. We are therefore going to stipulate meanings with somewhat greater precision and utility than popular conventional usage has for the words *factual*, *evaluative*, and *interpretive*. We will use *factual* to refer to "matters that can be investigated by the methods either of *empirical science* or of *documentary research*." We will use *evaluative* to refer to "matters that concern the *merits* of things." And we will use *interpretive* to refer to "matters that concern the *meanings* of things."

These categories are neither mutually exclusive nor exhaustive. This means that a given issue may have aspects that belong to more than one of these categories or fall outside all of them. Bear in mind that the purpose of this categorical scheme has little to do with labeling issues or sorting them "correctly." It's more about clarifying the agenda of inquiry. Recognizing a given issue as belonging to a particular type is potentially valuable in determining what strategies and procedures will be most likely to lead to a resolution of the issue. To approach an issue as a factual issue is to raise questions of evidence. What sort of evidence would be relevant and decisive? What evidence is there already available which bears on the issue? What additional evidence is required? What sorts of experiment or research would be needed in order to obtain that additional evidence? To approach an issue as an evaluative issue is to raise questions of standards. To approach an issue as an interpretive issue is to raise the question of interpretive hypotheses.

FACTUAL ISSUES

In modern Olympic history which nation has won the most medals in weight lifting? What city is the world's coldest national capital? What is the average tem-

perature of the water in Lake Tahoe? All of these are factual questions. They illustrate what we mean by saying that factual matters can be investigated by doing empirical science or documentary research. If a dispute were to arise about any of these questions—say, for example, during a game of Jeopardy or Trivial Pursuit—there are already well-established procedures available for settling it. We might look the information up in a reliable source (documentary research). Or if the information is not already recorded, we could easily imagine the sort of scientific investigation by which the information could be gathered.

Having said that, we should also note right away that things are not always so simple with factual issues. Suppose that for some reason we needed to figure out how many feral cats are living in the city of San Francisco? In this case the question is not “theoretically” difficult to answer. It’s a simple factual matter of counting the cats. But in practice how in the world is anyone ever going to count all the feral (wild) cats in the city of San Francisco? They run away. They hide. They breed like, uh, feral cats. So we would need to “estimate” the number in some way. In fact, things might not be very simple even with the simple (or simple-sounding) examples we mentioned above. Suppose we were asked to determine the average temperature of the water in the Pacific Ocean. You can begin to appreciate the difficulty of determining matters of fact.

Doing good science involves both evaluation and interpretation, as does doing good documentary research. The question of whether or not there is a global environmental crisis is a good example. Suppose we approach it initially as a factual question. What sort of evidence would be relevant? Well, suppose there were hard empirical evidence of significant changes in weather patterns on a global scale. That would be relevant evidence. Notice that evaluation (of the evidence) is already involved. “Hard” evidence *has merit*; “significant” changes *merit attention*. And supposing for the moment that we do have “hard” evidence of significant global weather anomalies, we would still need some understanding of their causes in order to answer our original question. And this will involve interpreting the evidence we already have as well as additional evidence we may seek concerning, for example, extraordinary fluctuations in the average temperature in the Pacific Ocean and so on. We will discuss all of this further in Chapters 8 and 9.

EVALUATIVE ISSUES

Now let’s reconsider the first two issues we mentioned above. Should there be a law against abortion? Should animals be used in medical experimentation? One thing should be clear right away: Neither of these issues can be resolved *simply* as a matter of fact. We could not possibly hope to settle a dispute over the right and proper legal status of abortion by doing documentary research alone. Nor could we hope to settle a dispute over the use of animals in experimental medicine on the basis of empirical science alone. Not that documentation and empirical evidence are irrelevant to these issues. Just as evaluation and interpretation are important parts of any good factual inquiry, so good science and good documentary research often play a crucial role in evaluation and interpretation. But no amount of empirical evidence and/or documentation could possibly be *by itself*

decisive in either of these issues. So it would make sense to approach them initially not as factual issues, and the word *should* is a clue that they are each fundamentally evaluative issues, which raises the question of standards. What standards of evaluation are we concerned with? In each of these issues it is apparent that moral or ethical standards are central. So they will need to be clarified in the course of the inquiry. Interpretive and factual questions will take their place in the agenda of inquiry as they arise in the process of clarifying and applying these moral or ethical standards. We will discuss this further in Chapter 10.

INTERPRETIVE ISSUES

Suppose that in her first speech before the United Nations General Assembly the newly appointed U.S. ambassador makes five explicit references to human rights, free trade, opium, democracy, and Hong Kong. Is the United States “sending a message” to Beijing? And if so, what is the message? Or take this example from our earlier list of issues: Does the Federal Reserve Board’s raising interest rates indicate that they think the recession is over? These questions indicate issues concerning what things mean, or how they should be understood. Such issues frequently arise in our attempts to understand things whose meanings may be flexible, complicated, multilayered, obscure, or even deliberately veiled. Issues of this sort are probably the most complex and difficult issues procedurally that we are likely to encounter in everyday discourse. Yet they are also absolutely fundamental to the process of communication, since they have to do with the discernment of meaning. Indeed, many, perhaps most, of the activities you will be performing throughout this book involve interpretation. Deciding whether a particular passage is an argument or not involves interpretation. Deciding whether a passage is intended to serve an expressive or persuasive or informative function involves interpretation. There is no single simple procedure for resolving interpretive issues or settling interpretive disputes. Rather, a number of kinds of information are relevant to interpretation, some of which have already been mentioned and some of which we will discuss further in Chapters 2, 9, and 10.

For example, the conventions governing the use of a term or expression are relevant to its interpretation. Similarly, there are what are known as “diplomatic conventions,” which would be relevant to the interpretation of communications between one government—for example, through its U.N. ambassador—and another. In addition to conventions, information about the context surrounding a passage is relevant to its interpretation. Knowing that a particular speech was delivered before the U.N. General Assembly rather than, for example, by confidential communiqué to the Chinese ambassador, is an important piece of information that can guide us closer to an accurate understanding of what was meant. Contextual information in the case of oral communication, as well as in film and video, includes facial expression, vocal inflection, bodily posture, timing, and so on.

It should be apparent already that gathering and sifting evidence of such a wide variety, especially in living contexts, where time is of the essence, is a process of considerable complexity and subtlety. And there is a good deal of disagreement among theorists about what the proper procedures are for doing interpret-

tive work and how they should be applied in different sorts of interpretive controversy. Nevertheless, interpretation is something you are probably pretty good at by now. So you no doubt already recognize that some interpretive issues can be resolved relatively firmly and easily, whereas others are more difficult and may be quite resistant to resolution. In disputed cases, perhaps the most useful procedural strategy is the use of hypothetical reasoning. This involves formulating and testing interpretive hypotheses. A hypothesis is a particular sort of conscious assumption. It is an idea we *assume* to be true for the purpose of exploring or testing it. This procedure also has important applications in dealing with factual issues. We will be discussing it in greater detail in Chapter 9.

EXERCISE 1.27 Issue Analysis III

Number each of the following sets of questions or issues in ascending order of logical priority, first to last. Then classify each question or issue as to type. Explain your rankings and classifications.

- ☐ Should there be a law against "hate speech" on the Internet?
- ☐ What is "hate speech"?
- ☐ Should the service provider or the government be responsible for the enforcement of regulations prohibiting "hate speech" over the Internet?
- ☐ What kinds of penalties should be imposed on people who post "hate speech" on the Internet?
- ☐ Is time travel possible?
- ☐ Is time travel technically feasible?
- ☐ Is the technical feasibility of time travel worth investigating?
- ☐ What is meant by "time travel"?
- ☐ What are the defining criteria for being a person?
- ☐ Should abortion be prohibited under criminal law as a form of homicide?
- ☐ Is abortion a form of homicide?
- ☐ Is the human fetus a person?
- ☐ Should same-sex couples be allowed to join in legally sanctioned marriages?
- ☐ Will the recognition of same-sex marriages undermine the purposes of legally sanctioned marriage?
- ☐ What purpose(s) is (are) served by the institution of legally sanctioned marriage?
- ☐ Could civilization survive the collapse of an institution as important as legally sanctioned marriage as a result of the recognition of same-sex marriages?

COMPOSING AN "ISSUE STATEMENT"

An "issue statement" is a composition whose purpose is to clearly communicate an interest in a topic, a topic about which we anticipate disagreement among reasonable people. An issue statement can be composed very briefly—for example,

as a single short sentence—or at greater length—for example, as the opening chapter of a book. The ability to compose issue statements is essential both to successfully communicating our own opinions and to understanding the viewpoints of others (as we will explain in Chapter 5). Either way, composing an issue statement can and should involve careful and appropriate use of the techniques of issue analysis discussed above in this chapter. Eventually, when you compose a complete argumentative essay, a well-crafted issue statement will be an important part of your essay's introduction. We will work on this in greater detail in Chapter 13.

EXERCISE 1.28 Term Project: Issue Statement I

Compose a 250-word Issue Statement (one page standard double-spaced) incorporating your results from Exercises 1.25 and 1.26. In your Issue Statement, try not to "take sides."

EXERCISE 1.29 Issue Statement II

Compose a 250-word Issue Statement (one page standard double-spaced) presenting an issue of your choice. In your Issue Statement, try not to "take sides."

ADDITIONAL EXERCISES

As you work through the exercises throughout this book, keep in mind what we said earlier about relativism and the search for truth. There are some questions for which there's no such thing as the correct answer, and yet even in such cases, most likely some answers will be better than others. What matters most of all is how you reason your way to your answer, and whether your reasoning holds up under scrutiny. When you discuss these exercises, don't be afraid to challenge answers that may be offered by your instructors, but you should also try to understand and appreciate the reasoning your instructors may have to offer in support of their preferred answers.

EXERCISE 1.30 Let us use the term "world-view" to refer to the self-regulating system of assumptions and other beliefs according to which a person views the world or deals with incoming information. One of the most valuable things about the diversity of cultures you will find on most contemporary college campuses is what one can learn from cultures other than one's own about the limitations of one's own world-view. Here is a little exercise in self-awareness and appreciation of cultural diversity: Try to identify three items in your own world-view that are not shared by or which conflict with the world-view of a typical member of some identifiable culture other than your own. You may find it useful, perhaps even necessary, to approach one or more of your fellow students whose cultural

heritage(s) differs from your own, and learn a bit from them about the distinctive characteristics of their culture(s).

 **EXERCISE 1.31** Another of the valuable things about cultural diversity is what one can learn about common or shared humanity. Here is a follow-up exercise in cultural awareness: Try to identify three items in your own world-view that are or would be shared by a typical member of some identifiable culture other than your own.

EXERCISE 1.32 From your own experience, give an example of “self-deception” in which you or someone you know well persisted in maintaining a belief in the face of powerful contradictory evidence. As best you can, explain how this was possible for the person.

EXERCISE 1.33 Identify 10 beliefs that you hold on the basis of some external authority. As best you can, identify the authoritative source of the belief in each case. Then evaluate the authority. Is the authority generally reliable? Is the authority an appropriate one for the belief in question?

EXERCISE 1.34 Do you have access to the Internet? If so this exercise won't need much in the way of explanation. (If you don't have access to the Internet, ask your instructors where you can get access to the Internet on your campus.) Search the Internet under "Critical Thinking," and log what you find on the chart below.

[illegible]

■ EXERCISE 1.35 “Freewrite Rewrite”: Now, with this introductory chapter under your belt, review what you wrote earlier in Exercise 1.5, your freewrite on what you hope and expect to get out of a course in Critical Thinking. Have your hopes and expectations changed in any way as a result of your reading and experiences in the course so far? With the benefit of these experiences, now edit your earlier thoughts into a short essay of one or two pages on the topic of what you hope and expect to get out of a course in Critical Thinking.

GLOSSARY

assumption an unsupported claim
assumption, hidden an unstated or implied assumption
assumption, inferential hidden assumption that functions as added support linking a stated premise with a conclusion
authority an expert or source of information outside ourselves
claim a statement which is either true or false
egocentrism favoritism for oneself and the beliefs, values, traditions, and groups with which one identifies
ethnocentrism favoritism for the beliefs, values, and traditions of one's ethnic group
issue a topic about which reasonable people may disagree
issue, factual an issue to be resolved by either the methods of empirical science or documentary research
issue, evaluative an issue concerning the merits of things
issue, interpretive an issue concerning the meanings of things
logical priority a kind of order among issues where one issue presupposes a resolution of a second issue, the second is logically prior to the first
presupposition assumption required in order to make sense of what is explicitly stated
reason

1. the human capacity to use disciplined intelligence to solve problems
2. a claim used as a premise
3. a claim used as an explanation

relativism the view that the truth is "relative" and varies
subjectivism the view that the truth is "relative" or varies from individual to individual
truth the agreement of an idea with reality
truth-view the self-regulating system of assumptions and other beliefs through which a person receives and interprets new information

REFERENCES

Thomas Jefferson, "The Declaration of Independence."

² California State Assembly Bill #1890.

This series of thought experiments is derived from Jonathan Bennett's unpublished lectures on Descartes, given at the University of British Columbia, 1970–1972.