

CRITICAL THINKING

TOOLS FOR TAKING CHARGE OF
YOUR LEARNING AND YOUR LIFE

THIRD EDITION

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Foundation for Critical Thinking

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3. You read about a person who is reported to have returned from the dead as the result of being resuscitated after a heart attack. The person says there is definitely a spirit world because he met a spirit while he was dead.
4. A friend of yours claims that the universe is run according to spiritual principles, citing the experience that once, when he was alone in the desert, the universe gave him a mantra (a chant).
5. You hear a woman say that no man can truly understand a woman because there is no way, as a man, that he can have the experience of a woman.

CRITICAL THINKERS DISTINGUISH BETWEEN INFERENCES AND ASSUMPTIONS

As we have said, the elements of reasoning are interrelated. They are continually influencing and being influenced by one another. We now focus at length on the crucial relationship between two of the elements: inference and assumption. Distinguishing inferences from assumptions is an important skill to learn in critical thinking. Many people confuse the two elements. Let us begin with a review of the basic meanings.

1. Inference: An inference is a step of the mind, an intellectual act by which one concludes that something is true in light of something else being true or seeming to be true. If you were to come at me with a knife in your hand, I probably would infer that you mean to do me harm. Inferences can be accurate or inaccurate, logical or illogical, justified or unjustified.

2. Assumption: An assumption is something we take for granted or presuppose. Usually it is something we learned previously and do not question. It is part of our system of beliefs. We assume our beliefs to be true and use them to interpret the world around us. If you believe that walking late at night in big cities is dangerous and you are staying in Chicago, you will infer that it is dangerous to go for a walk late at night. You take for granted your belief that walking late at night in big cities is dangerous. If your belief is sound, your assumption is sound. If your belief is not sound, your assumption is not sound. Beliefs and, hence, assumptions, can be unjustified or justified depending upon whether we have good reasons for them. Consider this example: "I heard a scratch at the door. I got up to let the cat in." My inference was based on the assumption (my prior belief) that only the cat makes that noise and that the cat makes the noise only when wanting to be let in.

We humans naturally and regularly use our beliefs as assumptions and make inferences based on those assumptions. We must do so to make sense of where we are, what we are about, and what is happening. Assumptions and inferences permeate our lives precisely because we cannot act without them. We make judgments, form interpretations, and come to conclusions based on our beliefs.

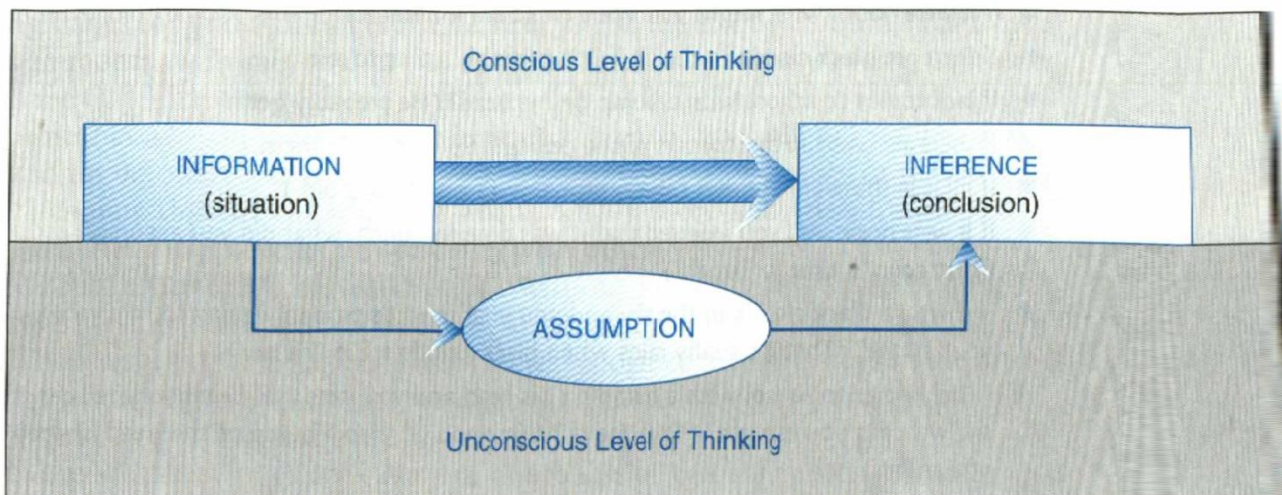
If you put humans in any situation, you give it some meaning or other. People automatically make inferences to gain a basis for understanding and action. So quickly and automatically do we make inferences that we do not, without training, notice them as such. We see dark clouds and infer rain. We hear the door slam and infer that someone has arrived. We see a frowning face and infer that the person is angry. If our friend is late, we infer that she is being inconsiderate. We meet a tall guy and infer that he is good at basketball, an Asian and infer that she gets good grades. We read a book and interpret what the various sentences and paragraphs—indeed what the whole book—is saying. We listen to what people say and make a series of inferences as to what they mean.

As we write, we make inferences as to what readers will make of what we are writing. We make inferences as to the clarity of what we are saying, what requires further explanation, what has to be exemplified or illustrated, and what does not. Many of our inferences are justified and reasonable, but some are not.

Important to critical thinking is the art of bringing what is subconscious in our thought to the level of conscious realization. This includes the skill of identifying and reconstructing the inferences we make so the various ways by which we shape our experiences become increasingly apparent to us. This skill enables us to separate our experiences into two categories: We learn to distinguish the *raw data* of our experience from our *interpretations of those data*. Eventually, we have to realize that the inferences we make are heavily influenced by our point of view and the assumptions we have made about people and situations. This enables us to broaden the scope of our outlook, to see situations from more than one point of view, and, hence, to become more open-minded.

Often, different people make different inferences because they bring different points of view to situations. They see the data differently because they begin with different assumptions. For example, if two people see a man lying in a gutter, one

EXHIBIT 4.5 *Humans routinely draw conclusions in situations. Those conclusions are based on assumptions that usually operate at an unconscious level.*



might infer, “There’s a drunken bum.” The other might infer, “There’s a man in need of help.” These inferences are based on different assumptions about the conditions under which people end up in gutters, and these assumptions are connected to the point of view about people that each has formed. The first person assumes, “Only drunks are to be found in gutters.” The second person assumes, “People lying in the gutter need help.” The first person may have developed the point of view that people are fundamentally responsible for what happens to them and ought to be able to take care of themselves. The second person may have developed the point of view that the problems people have are often caused by forces and events beyond their control. The reasoning of these two people, in terms of their inferences and assumptions, could be characterized in the following way:

Person One

Situation: A man is lying in the gutter.

Inference: That man is a bum.

Assumption: Only bums lie in gutters.

Person Two

Situation: A man is lying in the gutter.

Inference: That man needs help.

Assumption: Anyone lying in the gutter needs help.

As developing critical thinkers, we want to notice the inferences we make, the assumptions upon which we base those inferences, and the point of view we are developing about the world. To do this, we need lots of practice in noticing our inferences and then discerning the assumptions that lead to them.

10 Think for Yourself

DISTINGUISHING BETWEEN INFORMATION, INFERENCES, AND ASSUMPTIONS

As thinkers, we have to differentiate information, inferences, and assumptions. Whenever we are in any situation, we naturally make inferences and draw conclusions or give the situation meaning through our interpretations. Our inferences result from the assumptions we have made or are making.

For example:

- If it were noon, what might you infer? (It’s time for lunch.)
- If there are black clouds in the sky? (It’s probably going to rain.)
- If Jack comes to school with a bump on his head? (He probably got hit.)
- If there are webs in the corners of the ceiling? (Spiders made them.)
- If Jill is in the eighth grade? (She is probably 13 or 14 years old.)
- If it were noon and you inferred that it was time for lunch, what did you assume? (That noon is time for lunch.)
- If there are black clouds in the sky and you infer that it’s probably going to rain, what did you assume? (That it usually rains when black clouds are in the sky.)
- If Jack comes to school with a bump on his head and you infer that he must have been hit, what did you assume? (That the only time you develop a bump on the head is when you are hit.)

For this activity, use the table on page 82. In it, we provide you with situations (information). Figure out what someone might infer (rightly or wrongly) in the situation. Usually, there is a range of possible inferences different people might make, depending on their various beliefs.

Having stated what you think someone might infer, figure out the assumption that would lead someone to make that inference. As a suggestion, first figure out a likely inference (whether rational or irrational), then, and only then, figure out the assumption. The assumption will be a generalization that led the person to make the inference. We provide two examples to help you.

Our goal of becoming aware of the inferences we make and the assumptions that underlie our thinking enables us to gain command over our thinking. Because all human thinking is inferential in nature, command of our thinking depends on command of the inferences embedded in it and, thus, of the assumptions that underlie it. Consider the way in which we plan and think our way through everyday events. We think of ourselves as preparing breakfast, eating it, getting ready for class, arriving on time, sitting down in the appointed place, participating in class, making plans for lunch, paying bills, engaging in small talk, and so on.

Another way to put this is to say that we are continually interpreting our actions, giving them meanings, making inferences about what is going on in our lives. We must choose among a variety of possible meanings. For example, am I “relaxing” or “wasting time”? Am I being “determined” or “stubborn”? Am I “joining” a conversation or “butting in”? Is someone “laughing *with* me” or “laughing *at* me”? Am I “helping a friend” or “being taken advantage of”? Every time we interpret our actions, every time we give them a meaning, we are making one or more inferences based on one or more assumptions.

As humans, we continually make assumptions about ourselves, our jobs, our mates, our teachers, our parents, and the world in general. We take some things for granted simply because we can’t question everything. Sometimes we take the wrong things for granted. For example, I run off to the store (assuming that I have enough money with me) and arrive to find that I have left my money at home. I assume that I have enough gas in the car only to find that I have run out of gas. I assume that an item marked down in price is a good buy only to find that it was marked up before it was marked down. I assume that it will not (or that it will) rain. I assume that my car will start when I turn the key and press the gas pedal. I assume that I mean well in my dealings with others.

We make hundreds of assumptions without knowing it—without thinking about it. Most of these assumptions are sound and justifiable. Some, however, are not. The question then becomes: How can we recognize the inferences we are making, the assumptions upon which we are basing those inferences, and the point of view—the perspective on the world—we are forming?

There are many ways to foster our awareness of our inferences and assumptions. For one thing, all disciplined subject-matter thinking requires that we learn

INFORMATION (SITUATION)	POSSIBLE INFERENCE THAT ONE MIGHT MAKE	ASSUMPTION LEADING TO THE INFERENCE
1. You see a woman in a wheelchair.	She must have a sad life.	All people in wheelchairs have a sad life.
2. A police officer trails your car closely for several blocks.	He is going to pull me over.	Whenever a police officer trails people, he or she is going to pull them over.
3. You see a child crying next to her mother in the grocery store.		
4. You meet a beautiful woman with blond hair.		
5. You notice a man in the library reading a book by Karl Marx.		
6. The teacher asks you to stay after class to tell you that your writing greatly needs improvement.		
7. While in a restaurant, your friend orders a steak cooked very rare.		
8. A friend tells you that she is pregnant and is going to have an abortion.		
9. Your roommate insists on listening to loud music while you are trying to study.		
10. The telephone rings in the middle of the night.		
11. Your significant other does not call you when he promised.		
12. Your significant other says she would rather spend time at the library than at parties.		

to make correct assumptions about the content of what we are studying and that we become practiced in making justifiable inferences. As examples: In doing math, we make mathematical inferences based on our mathematical assumptions. In doing science, we make scientific inferences based on our scientific assumptions. In constructing historical accounts, we make historical inferences based on our historical assumptions. In each case, the assumptions we make depend on our understanding of fundamental concepts and principles.

As we become skilled in identifying our inferences and assumptions, we are in a good position to question the extent to which any one of our assumptions is justified. For example, are we justified in assuming that everyone eats lunch at noon? Are we justified in assuming that it usually rains when there are black clouds in the sky? Are we justified in assuming that bumps on the head are caused only by blows? The point is that we all make many assumptions as we go about our daily life, and we ought to be able to recognize and question them. As you develop these critical intuitions, you should increasingly notice your inferences and those of others. You should increasingly notice, what you and others are taking for granted. You should increasingly notice how your point of view shapes your experiences.

4.11 *Think for Yourself*

GETTING MORE PRACTICE IN DIFFERENTIATING INFERENCES AND ASSUMPTIONS

Using the same format as we used in Think for Yourself 4.10, come up with 12 “episodes” of thinking for yourself; include a situation, a possible inference in the situation, and the assumption leading to the inference. Use the table on page 84.

CRITICAL THINKERS THINK THROUGH IMPLICATIONS

Among the most important skills of critical thinking is the ability to distinguish between what a statement or situation actually implies and what people may merely (and wrongly) infer from it. An inference, again, is a step of the mind that results in a conclusion. If the sun rises, we can infer that it is morning, for example. Critical thinkers try to monitor their thinking so they infer only what is implied in a situation—no more, no less. If I feel ill and go to the doctor for a diagnosis, I want the doctor to infer exactly what my symptoms imply. For example, I do not want her to infer that I simply have a cold requiring no medication when I actually have a bacterial infection requiring antibiotics. My symptoms imply that I have a certain illness, which in turn implies a certain course of treatment. I want the doctor to accurately infer what my illness is, then accurately infer the proper treatment for it.