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## CLARIFYING MEANING

Critical thinking is reasonable, reflective thinking aimed at deciding what to believe and what to do. Knowing how to reflect critically on meaning is fundamental to critical thinking. Before we decide what to believe or what to do, we need to make sure that we have clearly defined the words and concepts that we use to formulate the beliefs that we are assessing, to describe the proposals we are considering, and to frame the problems we are facing and the solutions we are contemplating. Otherwise, we run the real risk that we will end up believing something we should not, doing something that will not succeed, or failing to solve the problems we tackle. In this chapter, we will study some practical strategies for constructing and evaluating definitions. But let us start by discussing in a bit more detail where definitions fit into critical thinking.

### 2.1 THE PLACE OF DEFINITIONS IN CRITICAL THINKING

Knowing how to construct and evaluate definitions is fundamental to critical thinking itself. If we are trying to decide whether to accept or believe some claim or statement, then we need to make sure that we fully understand what the claim or statement means. We may need to analyze it into elements, contrast and compare it with similar claims, and determine what else accepting or believing it would commit us to. If we are presented with several proposals or plans of action, several options for reaching some end, then before we decide on one of them we need to make sure that we understand how the plans differ and how they are similar. What would be

involved in adopting one of them over the others? What other possible courses of action are there and what would be involved in adopting them instead? Knowing how to clarify meaning by reflecting critically on it is thus fundamental to being a critical thinker.

Second, knowing how to construct and evaluate definitions is fundamental to understanding and fully engaging in an academic discipline. Every discipline or field of study has its own **fundamental concepts**, ideas, and technical terms. The concepts that are basic to biology, for instance, are very different from those that are basic to chemistry or physics. The concepts and ideas that are characteristic of archaeology are very different from those that are fundamental to anthropology or to the literary analysis of drama. These fields of study all have different fundamental concepts even though they may study the very same phenomena. Biology, chemistry, and physics all study living systems (among other things), just as archeologists, anthropologists, and literary theorists might all study ancient Greek tragedy. Different disciplines approach the same phenomena from different perspectives, and these perspectives are defined—or **framed**—by the concepts that are fundamental to each discipline. This difference is part of what makes thinking about living things from a “biological” perspective so different from thinking about them from a physical or sociological one. The same is true of business organizations. Each organization has its own ways of describing its structure and its operations and goals. Participating successfully in an organization requires understanding these concepts, and this requires knowing how to think critically about meaning. Knowing how to critically reflect on the meaning of a discipline or an organization’s fundamental concepts is thus fundamental to being able to participate in that discipline or organization.

Finally, knowing how to construct and evaluate a definition is often a fundamental step in solving problems and evaluating reasons for believing something. Sometimes, knowing how to frame or define a problem is half the work needed to solve it. Some problems are so clearly defined from the start that little or no critical reflection is required to solve them. Simple arithmetical calculations are like this. We know up front what the problem is (e.g., find the square root of some number), we know what methods are to be used, and we know what kind of answers we are looking for. But for other kinds of problems, it is not clear at the start just what the problem is, or what the best method is for approaching or solving it. With such **open-ended** problems, it might not even be clear what will count as an acceptable solution, and to solve them we may need to think hard about how to formulate the problem. The problems of ending poverty, of rejuvenating American cities, or of designing a university’s curriculum to improve student performance are open-ended problems, not because they cannot be solved, but because part of the problem is getting clear on what the problem is. Knowing how to reflect critically on problems with the goal of defining them clearly is thus central to problem solving.

In this chapter, we will study what is involved in reflecting critically on meaning. We will study a practical strategy for constructing and evaluating definitions, whether of concepts, plans, or problems. We will see how this method can be used to understand the fundamental concepts that disciplines use to frame the phenomena they study.

## 2.2 ASSERTION

It will be helpful to start by drawing attention to some basic facts about language, since we use language to formulate our claims and proposals. Some of the facts we will discuss may seem quite straightforward, but that is OK, since others of them are among the more difficult concepts in this whole book. Discussing them will provide a secure foundation for our later discussions about definitions and fundamental concepts.

Ordinarily, we use complete declarative sentences to say what we believe, to list and present our evidence, and to give our reasons. Here are some examples of complete declarative sentences.

Jones was at the scene of the crime.

Building a bridge across the river will be too costly.

Samantha ought to eat more vegetables.

Rising inflation causes unemployment.

What makes them **declarative** sentences is that they can be used to say something true or false. But not all complete sentences can be used to say something true or false. Here are some complete sentences that cannot be used to say something true or false.

Are oysters delicious?

I baptize you, "David."

I promise to pay you back next week.

Stop!

These are perfectly fine sentences and have their uses, but they cannot be used to claim that something is or is not true. They are used to ask something, to perform a baptism, to make a promise or to issue a command. They cannot be used to state truths. Since our interest in this book is with reasoning that is aimed at truth, we will focus on sentences that can be used to say something that is true.

To assert something is to claim that it is true. We use a complete declarative sentence to make an assertion.

When we use a complete declarative sentence to say something, we are making an **assertion**. To **assert** something is simply to claim that it is true. If I assert that Toronto is a city in Canada, then I am claiming that it is true that it is a city in Canada. I am, as it were, going out on a limb and making a claim about how things are. But it is important to keep in mind that just as a complete declarative sentence can be false, an assertion can also be false. If someone were to assert that Toronto is a city in the United States, then her assertion would be false. So, an assertion can be true or false.

We make an assertion when we tell someone what we believe. If the witness testifies that Jones was at the scene of the crime, then the witness is expressing his belief by asserting that Jones was there. Of course, one can also assert something without believing it; this is what makes lying possible. When a person knowingly lies, she asserts something that she knows is false: she knowingly making a false assertion. And we assert things when we provide our reasons for our beliefs too. When we state our reasons for believing something, when we collect together our evidence in support of a point of view or proposal, we are making assertions.

Different declarative sentences can be used to assert the very same thing. If I want to assert that John is a liar, I could do it using either of the following sentences.

John is a liar.

John is mendacious.

These sentences are simply different ways of asserting the same thing. They are synonymous. It is a good thing that different sentences can be used to assert the very same thing, since otherwise people who spoke different languages could never say the same things! But it does make our work as critical thinkers a little bit more difficult. For it means that we cannot keep track of what someone is asserting just by keeping track of what sentences they are using. We need to keep an eye on the possibility that they are simply repeating themselves in other words.

A complete declarative sentence can also be used to assert more than one thing. Suppose Jones used the following sentence to make an assertion.

Bill's wife is mad at him.

If we wanted to analyze what Jones asserted, we might come up with the following list.

Bill has a wife.

Bill's wife is mad.

Bill's wife is mad at him.

Each of these things is on our list because each of them is something that Jones was claiming to be true. In saying what he did, Jones asserted several things. Of course, rather than use three sentences, Jones did what we would all do and used a single sentence to assert all of them at once. This is another handy trick made possible by language. But it too makes our work as critical thinkers a bit more difficult, since (as before) it means that keeping track of what someone is asserting is not the same as keeping track of what sentences he is using. If we want to make sure that we know what someone is asserting and—what is just as important—what they are not asserting, we need to know how to analyze their assertions into their parts. After all, if they are giving us reasons to believe something, then each part might be a separate reason, even if they are all packed neatly into one long sentence.

If we do not distinguish one from the other, then we will not really appreciate their reasons. We will return to this important point in a later chapter.

## EXERCISE 1

**Comprehension Questions** (When you answer these questions, pretend that you are explaining or teaching the answer to a friend who is not in the class. Doing that will force you to put in LOTS more background information than you would if you were trying to answer them for your instructor.)

- A. What is it to assert something?
- B. Is a prediction of some future event an assertion? Explain using an example.
- C. Could the word, “Yes,” be used all on its own to make an assertion? If so, use an example to illustrate.
- D. Could a false sentence be used to make an assertion? Use an example to illustrate.
- E. Do you have to believe what you assert? Explain using an example.
- F. Compose a sentence that asserts more than three things.
- G. Compose a sentence that asserts only one thing.
- H. How many things are asserted in the following sentences:
  - a. The Earth orbits the Sun quickly.
  - b. Can I have another cookie?
  - c. I think that cookies are delicious.
  - d. I love you!

## 2.3 THE ASSERTION TEST

We saw that a person can assert more than one thing when they use a declarative sentence. If the sentence is complicated enough, they can be asserting lots and lots of things. It will be helpful to have a way to figure out exactly which things a person is asserting when they say something. In this section we will study a simple strategy for figuring this out. We will call it the **assertion test**.

We know that to assert something is to claim that it is true. So if we want to figure out how many things a person is asserting we need to ask how many things she is claiming to be true. It will be useful to have a bit of terminology. Instead of saying that the person would be asserting some “thing,” let us say that she would be asserting a **proposition**. A proposition is something that is true or false, that can be believed or denied, that one can know to be true, or that one can imagine, suppose, wonder or consider to be true. We can use complete declarative sentences to formulate propositions—that means, we put propositions into linguistic form using complete declarative sentences. Using this terminology, we can now put our question

this way: how can we figure out which propositions a person is asserting when she says something (or: how many propositions does a certain sentence formulate?).

Let us start with a relatively easy case. Consider the following sentence.

Toronto is in Canada and Buffalo is in the United States.

This sentence is a **conjunction**. That means that it is a sentence containing the word “and.” In this conjunction we can identify two complete declarative sentences joined by that “and.”

- (i) Toronto is in Canada
- (ii) Buffalo is in the United States.

We can call the sentences connected by the “and” the “conjuncts” of that conjunction and each conjunct formulates a proposition. Someone saying this complex sentence would be asserting two propositions, one for each conjunct. She would be asserting both the propositions that Toronto is in Canada and that Buffalo is in the United States. She would be claiming that both those propositions are true. This means that the conjunction she is asserting would be false if either of those propositions were false. Since she is asserting both, both have to be true for her overall assertion to be true.

We can use this example to introduce the assertion test. Suppose that someone is saying something and we want to figure out whether she is asserting a certain proposition. Let us call that proposition “P.” To decide whether she is asserting P, we start by supposing that the proposition that P is false. This can be tricky, because sometimes when we use this test, we may already believe or even know that P is in fact true. Still, we want to suppose *for the sake of figuring out what the person asserted*, that the proposition is false. Next, we ask the following question: *could her assertion be true if P were false*. If the answer is Yes, then she did not assert P. If the answer is No, then she did assert P.

The idea behind the test is this. To assert a proposition is to claim that it is true. So if a person’s assertion could be true even if a certain proposition were false, then she did not assert that proposition. That proposition could not be part of what she asserted if her assertion could be true even if that proposition were true. On the other hand, if the answer is no—that is, if her assertion would be false if that proposition were false—then that proposition was one of the things that she asserted.

To tell whether a person asserted a proposition, ask whether what she said could be true even if that proposition were false.

If Yes, then she did not assert it.

If No, then she did assert it.

The assertion test will prove enormously useful not only with definitions but in later chapters too. But it is a bit tricky to use. For it requires us to first suppose that one proposition is false and then consider whether another proposition could be true.

This little bit of mental gymnastics is tricky. But it is enormously valuable, and will come in handy in several different sections of this book. In fact, after teaching critical thinker for over a decade, I am inclined to think that being able to do this bit of mental gymnastics is the single most important critical thinking skill there is.

Let us see how the assertion test works in the conjunction case. Recall that we had the following conjunction.

Toronto is in Canada and Buffalo is in the United States.

When we use a conjunction to make an assertion, we assert all the conjuncts.

Suppose that Jane said this, and suppose that we wanted to know whether in saying this she was asserting the proposition that Toronto really is in Canada. To use the assertion test, we first suppose, *just for the sake of the test*, that the proposition that Toronto is in Canada is false (To help with this, let us suppose that Toronto is a city in Mexico.). Now we ask the following: could what Jane said be true even if the proposition that Toronto is in Canada were false. (That is, could what Jane said be true even if Toronto were a city in Mexico?) The answer is No. If that proposition were false, then what she said would be false too. For she is claiming that Toronto is in Canada. In other words, the assertion test confirms what we already knew about this case: Jane asserted the proposition that Toronto is in Canada.

That case was relatively straightforward. Here is a slightly more difficult one. Suppose that Emily said the following.

Either Calgary is in Alberta or Calgary is in Saskatchewan.

This sentence is a **disjunction**, which just means that it is a sentence containing the word “or.” We can again identify two complete declarative sentences, though in this case they are joined by an “or.” We call them *disjuncts*. For each declarative sentence we can identify a proposition: the **proposition that Calgary is in Alberta** and the **proposition that Calgary is in Saskatchewan**. Let us use the assertion test to see whether Emily asserted those propositions.

When we use a disjunction to make an assertion, we do not assert either disjunct. Rather, we assert that at least one of the disjuncts is true.

Start with the proposition that Calgary is in Alberta. To use the assertion test, we first suppose that it is false. Now we ask: could what Emily said be true even if that proposition were false? The answer is Yes. All it takes for what she said to be true is for *one or the other* of its disjuncts to be true. **They do not both need to be true.** The same goes, of course, for the other disjunct. So in saying what she did, Emily did not assert either of those two propositions. She did not claim that Calgary is in Alberta and she did not claim that Calgary is in Saskatchewan. Instead, she asserted something much more complicated: she asserted that one or the other (or perhaps both) of the disjuncts is true, but that is not the same as asserting either disjunct.

Now consider the following **conditional**.

If Stephen Harper is the Prime Minister of Canada, then the Prime Minister of Canada is male.

A conditional is a sentence containing an “if.” As with “and” and “or,” we use “if” to connect together two declarative sentences, each of which formulates a proposition. The sentence following the “if” formulates the *antecedent* (in this case, the antecedent is the proposition that Stephen Harper is Prime Minister (PM) of Canada.). The proposition following the “then” formulates the *consequent* (in this case, the consequent is the proposition that the PM of Canada is male.).

Suppose that Miranda says that sentence. Let us use the assertion test to see whether she asserted the antecedent. To use the test, we first suppose that Stephen Harper is not the PM of Canada. Next, we ask the following: could what Miranda said still be true, even if that antecedent is false? In other words, could it still be true that if Stephen Harper is the PM of Canada, then the PM of Canada is male? The answer is Yes, and that could still be true. Even if he were not in fact the PM, it would still be true that *if he were, then the PM of Canada would be male*. So this shows that in saying what she did, Miranda did not assert that Stephen Harper is the PM of Canada.

Now let us consider the consequent. Suppose that the PM of Canada is not male. Would it still be true that if Harper had been the PM, then the PM of Canada would in that case have been male? Again, the answer is Yes.

When we use a conditional to make an assertion, we do not assert the antecedent or the consequent. Rather, we assert that the truth of the antecedent is sufficient for the truth of the consequent.

This shows that when we say something with a conditional we do not assert either the antecedent or the consequent. Rather, we are asserting that a complex logical relation holds between the antecedent and the consequent; roughly, that if the antecedent were true, the consequent would be true too. In Chapter 5 we will look in a lot more detail at this logical relation. Conditionals play an essential role in our reasoning using definitions and in our reasoning about causal relations among events (which we will study in Chapter 5). But for now, keep in mind that when we say something with a conditional we are not claiming that the antecedent is true and we are not claiming that the consequent is true.

So far, we have seen that disjunctions and conditionals do not assert all of the propositions we are formulated in them. There is a final case that is worth noting. Consider the following two sentences.

Joan believes (said) that Stephen Harper is the PM of Canada.

Joan knows that Stephen Harper is the PM of Canada.

Both sentences contain **propositional noun clause**. A propositional noun clause is just a complete declarative sentence prefixed with the word “that.” We use noun



clauses like that to talk about propositions. We do this when we want to say, for instance, what a person said, or believes, or knows, or remembers.

Our two examples involve the same propositional noun clause. The proposition is that Stephen Harper is the PM of Canada. Now we can ask our question: Is that proposition asserted in either sentence? Again, we can use our assertion test to answer the question.

Let us start with the first sentence. Suppose that Ethan says it. Did he assert that Stephen Harper is the PM of Canada? That is, in saying that, did he claim that it is true that Stephen Harper is PM of Canada? Using the assertion test, let us first suppose that the proposition that Stephen Harper is PM of Canada is false. Next, we ask the following: could what Ethan said be true even if that proposition is false? That is, could it still be true that Joan believes (or said) that he is? The answer is Yes. She might believe it or say it even if it was not true. We all know from personal experience that it is possible to speak or believe false things, though we all try to avoid this. So in using this sentence, Ethan was asserting that Stephen Harper is the PM of Canada.

An assertion made with a sentence containing a propositional noun clause does not always assert that proposition.

With the following verbs, the proposition is **not** asserted:

“believes that,” “hopes that,” “thinks that,” “says that,” “asserts that.”

With these verbs, the proposition **is** asserted:

“knows that,” “remembers that,” “proves that,” “sees that.”

What about the second sentence? Suppose that Artemis says it. Did Artemis assert that Stephen Harper is the PM of Canada? Artemis said that Joan knows that Stephen Harper is the PM of Canada. Could it be true that Jane *knows* that Harper is the PM of Canada even if, as we are supposing, he was not the PM of Canada? Here the answer has got to be No. If a person knows something, then she is right. So in using that second sentence, Artemis did assert that Stephen Harper is the PM of Canada.

The assertion test is a bit tricky to use. It requires supposing something to be false, and then asking whether something else could still be true. This requires imagination and flexibility. But knowing how to tell what is being asserted and what is not is fundamental to critical thinking.

## EXERCISE 2

**A. Comprehension Questions.** (When you answer these questions, pretend that you are explaining or teaching the answer to a friend who is not in the class. Doing that will force you to put in LOTS more background information than you would if you were trying to answer them for your instructor.).

- a. What is an assertion?
- b. What is a conditional?

- c. What is the difference between a disjunction and a conjunction?
  - d. What is a non-asserted noun-clause?
  - e. Can you use a disjunction to make an assertion? Give an example?
  - f. Could a disjunction be true if both of its disjuncts were false?
  - g. Could a conjunction be true if one of its disjuncts was false?
  - h. Using the concepts we have been discussing, explain why there is something wrong with using the following sentence to make an assertion: “It is now raining, but I do not believe that it is now raining.”
- B.** What is asserted in the following?
- a. Susan sold Peter the chips and he ate them all.
  - b. Either the cook is angry or her spices are hotter than usual.
  - c. The restaurant was pretty disappointing: the fish was overcooked, the sauces were boring and the service was terrible.
  - d. Padma told me that her mother is coming to town.
  - e. Harry knows that Voldemort is back.
  - f. The First City Bank has gone bankrupt and will be closing its doors next Monday, according to bank officials.
  - g. The United Nations military intervention in Africa has produced more harm than good and has not achieved any of its main objectives, reports a local think tank.
- C.** For each of the following propositions, construct three complex sentences that formulate it but do not assert it.
- a. Oysters are delicious.
  - b. Sam believes that oysters are delicious.
  - c. Johannes knows that oysters are delicious.
- D.** Look at today’s newspaper and find three letters to the editor. List all of the assertions made in each one.

## 2.4 CONSTRUCTING AND EVALUATING DEFINITIONS

Knowing how to construct and evaluate definitions is crucial to critical thinking. We are all familiar with what happens when people mean different things by their words. If two friends are having a discussion about whether it is bad to be jealous, but they mean different things by “jealousy,” then their discussion is not going to be very productive, especially if they do not even realize they mean different things. For maybe if each realized that the other means something different by it, then they might discover that they in fact agree on more than they thought. Thinking critically about political speeches and about advertisements regularly requires thinking about the meanings of the being words. Words like “unemployment” and “productivity” are

technical words with very special definitions. In this section we will study a method for constructing and evaluating definitions. We will call it the SEEC method.

When we think of definitions we probably think first of the definitions of words and ideas. But we can also define plans and problems. To define something is just to make it clear, to distinguish it from other things with which it might be easily confused, and we can make just about anything clear. As we noted at the outset of this chapter, knowing how to construct and evaluate a definition is fundamental to critical thinking. Whether we are trying to decide whether to believe some assertion, whether to adopt some course of action, or how best to solve some problem, we have to make sure that we have a clear understanding of what the claim, course of action or problem is. And this means that we have to know how to define it. In this section we will study a practical, SEEC method for constructing a definition and we will apply it in several cases.

### CRITICAL THINKING IN CRIMINAL JUSTICE

How many child kidnappings would you say there are every year in all of the United States? According to the National Criminal Information Center (NCIC) database, over 800,000!<sup>1</sup> That is 2,000 kidnappings every week. That is more than the population of many American towns. Indeed, it is more than the entire population of Vermont, Wyoming, South Dakota, North Dakota, and Alaska. But what do they mean by “child kidnapping.” It turns out that according to the NCIC definition, child kidnapping includes: abductions by a family member, abductions by someone other than a family member, runaways, abandoned children, and lost or otherwise missing children. Most of these would not ordinarily be counted as kidnappings. In fact, of the cases that NCIC included as child kidnappings, only 115 were stereotypical kidnappings: a non-family abduction perpetrated by a slight acquaintance or stranger in which a child is detained overnight, transported at least 50 miles, held for ransom or abducted with the intent to keep the child permanently or killed. This puts a very different face on the facts. The point here is not that the 800,000 cases are not serious or troubling or even tragic, but only that if we do not know what is meant by “child kidnapping” we will not know what to make of that number.

Here is a four-step method for constructing and evaluating definitions. First, a good definition will formulate the meaning as clearly and simply as possible. This can usually take the form of a short **slogan** composed of key words. Second, a good definition will **elaborate** on that slogan by filling in some of the detail that it will inevitably leave out. The elaboration might say something about how the different key words in the slogan are related one to another. This should take no more than a few sentences. Third, a good definition will provide an **example** or two, depending on the complexity of what is being defined. The example could be from real life or it could be fictional, so long as it is clear and uncontroversial. Fourth, a good definition will mention some **contrasting** ideas or concepts, one that might easily be confused

for what is being defined. Put together, these four steps make up the SEEC method for defining something (We use it to SEEC clarity!). Let us look at each part in more detail.

## 2.5 GIVE A SLOGAN

Suppose that Matthias is trying to give a definition of an apple pie. (Maybe he had agreed to buy us one at the store, and he wanted to make sure he did not come home with the wrong thing.) So he wants to make sure that we mean by “apple pie” the same thing that he means by it. Using our SEEC method, he starts by giving us a slogan.

Ideally, the slogan should say, as clearly and briefly as possible, what it is for something to be an apple pie. We can think of the slogan as like a rule or a recipe that we can use to decide whether something is or is not an apple pie. In principle, we should be able to use the slogan as we walk through the grocery store to figure out, for each and every thing in the store, whether or not it is an apple pie. So it should be true of each and every apple pie, and it should not be true of anything that is not an apple pie. We can be a bit more precise about what this demand comes to.

Matthias’ slogan should state what is **necessary** for being an apple pie. Something is necessary for being an apple pie when a thing has to have it to be an apple pie. Without it, the thing could not be an apple pie. For instance, containing apple is necessary for being an apple pie. Nothing has been, will be, or ever could be an apple pie unless it has some apple in it. The apple can be sliced, diced, or pureed. It probably does not matter what form the apple takes. But to be an apple pie, a thing has to contain apple. This just is part of what it is for something to be an apple pie. Maybe having a bottom crust is also necessary. Perhaps having a top crust is also necessary (My father used to claim that containing extra-sharp cheddar cheese was also needed—but I am not so sure he was right about that!).

Suppose that Matthias has listed several things that are needed for something to be an apple pie. Suppose he offers the following proposed slogan:

An apple pie contains apple.

A definition’s slogan is too broad when it leaves out a necessary condition.

Is his slogan correct? Has he given us enough information? Can we use that as a rule or a recipe to figure out which things in the store are apple pies and which things are not? Well, we can use it to figure out that a porterhouse steak is not an apple pie. But if that was all we had to go on, then we might come home with an apple donut, or a jar of apple sauce. So Matthias’ slogan does give us enough information. Though it does state one necessary condition, it does not state enough of them. It leaves off some of the things that are needed for being an apple pie. In other words, his proposed slogan is **too broad**.

Suppose that Matthias revises his slogan to the following:

An apple pie contains apples, a crust, and cinnamon

A definition's slogan is too narrow when it includes a condition that is not necessary.

He has added some more conditions to his slogan. But now we can ask the following: is containing cinnamon really necessary for being an apple pie? I do not think so. It seems to me that something could be an apple pie even if it did not contain any cinnamon at all. (It might not be a *delicious* apple pie, but that is a different matter.) So, Matthias' revised slogan includes something that is not necessary for being an apple pie. In other words, his slogan is **too narrow**.

Suppose, at last, that Matthias offers us the following slogan:

An apple pie is a baked pastry with a top and a bottom crust that contains apple.

And let us suppose that he is right, and that this is a correct definition of an apple pie. He has identified several things that are needed for something to be an apple pie: being baked; having a top crust; having a bottom crust; containing apple. Though each of these things is necessary for being an apple pie, none of them is enough all by itself. All four are needed for something to be an apple pie. And together, they are all that is needed. In other words, together, those four conditions are **sufficient** for being an apple pie. Anything that meets those four conditions is guaranteed to be an apple pie.

A definition's slogan should state conditions that are individually necessary and jointly sufficient.

We have seen that something can be necessary *without being sufficient*. Containing apple is necessary for being an apple pie, but it is not sufficient. It is not enough. Something can be both necessary and sufficient at once. To see this, let us change examples. Consider the concept of being a millionaire. Owning at least one million dollars is sufficient for being a millionaire. That would be enough money to make a person a millionaire. It is also necessary; to be a millionaire you need to own at least one million dollars. So owning at least a million dollars is necessary and sufficient for being a millionaire. Now, suppose that Sergio owns 100 million dollars. That would make him a millionaire. So owning 100 million dollars is sufficient for being a millionaire. But it is not necessary. Owning that much money is more than enough. So something can be sufficient and yet not necessary. (Here is another example: getting an A is sufficient to pass this course, but it is not necessary, since a student who gets a C will also pass.)

A slogan can be **both too broad and too narrow**. Consider again the definition the NCIC used when they reported that there were 800,000 child kidnappings in the United States during 2005. Many of us would say that their definition is too broad. We would not include running away from home as a kind of kidnapping. This means that the NCIC's definition left off something that we consider necessary for being a child kidnapping. But notice that their definition of a "stereotypical kidnapping" might be

too narrow as well, for it requires that the child be transported at least 50 miles from home. I doubt that most of us would consider that really necessary for a kidnapping. The NCIC's definition of "child kidnapping" was, by ordinary standards anyway, both too narrow and too broad.

### **PRACTICAL STRATEGY: LOOK FOR COUNTEREXAMPLES**

An important step in constructing or evaluating a proposed definition is looking for **counterexamples**. A counterexample is a case, either a real one or a fictional one, that shows that the slogan is either too broad or too narrow. If you think that someone's proposed slogan is too broad or too narrow, then you need to present a counterexample. If, someone presents a counterexample to a slogan you proposed, then you must either (i) show that it is not a genuine counterexample or (ii) revise the slogan.

How bad is it for a proposed definition to be too broad or too narrow compared with our ordinary standards? While it would be good if we all had exactly the same necessary and sufficient conditions in mind when we use our words, this is not very likely. Most of us use our words in **idiosyncratic** ways, ways that are just a little bit different from the way others use them. But for practical purposes, the existence of these differences is not important, so long as we are all aware of them. It is less important that we all agree that a definition captures our own idiosyncratic usage than that we all agree on what we will mean by it for **the purposes at hand**. If we can agree, either just for the sake of the discussion or for good, on what we mean by "child kidnapping," then this will make it easier to avoid misunderstandings when we start to say what the facts are. Definitions can report actual usage, but they can also help to standardize it. Both are worthwhile goals.

It is also good for our words to remain **flexible** to deal with new or unanticipated uses. Sometimes it is better to hold off on being too precise in specifying necessary and sufficient conditions because more research and investigation may be needed before we can decide whether something really is a referent of some word. It took biologists a long time to figure out whether whales fit the definition of a *fish*, and only recently did astronomers decide that Pluto does not fit the definition of *planet*. Making these decisions required finding out more about whales and planets, and thinking hard about what we *want* our words to mean. We usually want our words to leave room to deal with unanticipated uses. Laws, for instance, are usually written so as to leave room for unexpected cases. We rely on judges and lawyers to help us decide how best to apply our words and concepts in cases that the legislators who wrote the laws could not have anticipated. If the words had no flexibility at all, if we insisted on necessary and sufficient conditions from the very start, then we would not know how to describe these new cases. Biologists want their concept of a *species* to be flexible enough to let them describe new phenomena in terms of species. Astronomers decided to adjust the definition of "planet" even though it meant deciding that Pluto was not a planet

after all, because they believe that the new definition allowed them to better say the things they wanted to say all along.

### EXERCISE 3

**Comprehension Questions.** (When you answer these questions, pretend that you are explaining or teaching the answer to a friend who is not in the class. Doing that will force you to put in LOTS more background information than you would if you were trying to answer it for your instructor.)

- a. What is the difference between a necessary and a sufficient condition?
- b. Could a necessary condition also be a sufficient one? If so, give an example.
- c. Could a sufficient condition also be necessary? If so, explain using the concepts we have discussed in this chapter, and give an example.
- d. Explain how a condition that is sufficient might not also be necessary. Give an example to illustrate your answer.
- e. If you assert that Jones is a millionaire, are you also asserting that Jones meets all of the conditions that are necessary for being a millionaire? Are you asserting that Jones meets all of the conditions that are sufficient? Explain.
- f. What conditions are necessary and sufficient for a conjunction to be true? What about for a disjunction to be true?

## 2.6 EXPAND ON THE SLOGAN

The initial statement of the meaning should be as succinct as possible. Look back at the definition we discussed in Chapter 1 of “knowledge.” We said that according to the traditional philosophical definition, knowledge is justified, true belief. This is about as succinct and slogan-like as possible. We could even make it into a bumper sticker! But it would be wrong to leave it at that, since there is still plenty of room for misunderstanding. It would be good to expand on the slogan by filling in details and by saying how the concepts used in the slogan are related to one another.

In the case of the definition of *knowledge*, it would be especially helpful to say more about what belief, justification, and truth are, and how they are related to the other two. We discussed these issues at great length in Chapter 1. But in a brief definition, it might be enough simply to say something like this:

Knowledge is justified, true belief. To know something, you have to believe that it is the case; if you do not believe it, then you do not know it. But to count as knowledge, your belief also has to be based on enough evidence. That is, it has to be justified. Finally, your belief has to be true. These three necessary conditions are independent of one another. A true belief might be unjustified; a justified belief might be false; and a person might fail to believe something true even though they have excellent reason to believe it. All three are needed, and together they are sufficient, for knowledge.

This elaboration of the brief statement of the meaning of *knowledge* fills in the missing details, by making it clearer what is meant by “justification,” and by saying something about how those three key terms are related one to the other.

## 2.7 GIVE EXAMPLES

It is almost always helpful to provide some examples. But it is not always easy to know which examples to select. Since the goal of providing a definition is to secure common understanding, the example has to be as non-controversial as possible. This means that it has to be one that everyone involved in the discussion will agree fits the slogan provided. If in constructing a definition you use an example that some people think does not fit, this will only make it harder to secure shared understanding. Remember that the goal is to reach agreement on how to talk about the facts in order to focus on disagreements about the facts themselves.

If the elaboration involves identifying and relating several concepts, as our example above does, then it would be useful to provide examples showing how the concepts are related. For instance, it would be good to supplement the elaboration of our definition of knowledge with an example of someone who has a true belief that is not justified enough for knowledge, or someone who has a false belief that is nonetheless based on pretty good evidence. The examples could be from real life, so long as everyone involved knows the story. But the example could also be fictional. The goal is always to secure mutual agreement on how the language is to be used.

With examples, more detail is almost always better. Suppose one wanted to give an example of a false but justified belief. Here is one.

A child’s belief that Santa Claus exists.

We all recognize the idea. But there is not enough in it to make it clear that it really is a case of a justified false belief. It would therefore be better to say the following.

Suppose that little Joan believes that Santa Claus exists, and believes it because her Mom and Dad have told her that he does, and that he brings presents every year. Joan’s belief is justified, since it is based on her parent’s testimony and, in general, it is reasonable to believe what your parents say unless you have good reason to doubt them. But her belief is false, since Santa does not exist. So, this is a case of a false but justified belief.

This example is laid out in much more detail, and the detail also makes it really clear how it is an example of what it is supposed to be an example of.

## 2.8 IDENTIFY CONTRASTING IDEAS

Finally, in giving a definition it is usually helpful to contrast the concept being defined with other related ones. It is best to focus on concepts that others are likely to confuse for the one you are defining. Since nobody confuses a concept for its opposite, it is



usually not very useful to identify the contradictory concept. Indeed, it is not always very clear what the opposite is. What is the opposite of knowledge? Is it false belief, or is unjustified belief the opposite of belief? What is the opposite of murder? It is much likely that someone will confuse murder with killing in self-defense or with killing by mistake than with the opposite of murder. It is more likely that someone will confuse child kidnapping with a child's agreeing to run away with a non-custodial parent. Those are the misunderstandings and confusions that definitions are intended to prevent or remedy. In the case of our definition of knowledge, it is better to contrast knowledge with certainty or with consensus opinion, or with mutual agreement. Once again, though, if one chooses as contrasting concepts ones whose meaning is controversial, then the definition will fail to prevent or remedy misunderstanding. The point of working hard to develop a definition is to resolve and avoid misunderstanding, not to generate it.

#### EXERCISE 4

- A. Comprehension Questions.** (When you answer these questions, pretend that you are explaining or teaching the answer to a friend who is not in the class. Doing that will force you to put in LOTS more background information than you would if you were trying to explain it to your instructor.)
- What is the purpose of providing a definition?
  - What is a counterexample? What are counterexamples used for?
  - When is it acceptable for a definition not to identify necessary and sufficient conditions? Explain why.
  - What is it for a slogan to be too broad? Give an example.
  - What is it for a slogan to be too narrow? Give an example.
- B.** For the following proposed definitions, find a counterexample. Identify whether it shows that the definition is too broad or too narrow.
- Oxygen: a colorless and odorless gas.
  - Apple pie: a dessert made with apples
  - Triangle: a three-sided two-dimensional figure with a 90-degree angle.
  - Violin: a stringed instrument
  - Parent: the father or mother of a human.
  - Stove: a kitchen appliance used for cooking.
- C.** Here is a definition of “murder” from the online dictionary **The Free Dictionary** by Farlex. (<http://legal-dictionary.thefreedictionary.com/murder>). (i) What does it claim is necessary and sufficient for first-degree murder? (ii) Identify the examples it provides. (iii) Identify the contrasting concepts it provides.

**murder** n. the killing of a human being by a sane person, with intent, malice aforethought (prior intention to kill the particular victim or anyone who gets in the

way), and with no legal excuse or authority. In those clear circumstances, this is first-degree murder. By statute many states make killings in which there is torture, movement of the person (kidnapping) before the killing, as an incident to another crime (as during a hold-up or rape), and the death of a police officer or prison guard all first-degree murders with or without premeditation, and with malice presumed. Second-degree murder is such a killing without premeditation, as in the heat of passion or in a sudden quarrel or fight. Malice in second-degree murder may be implied from a death due to the reckless lack of concern for the life of others (such as firing a gun into a crowd, or bashing someone with any deadly weapon). Depending on the circumstances and state laws, murder in the first or second degree may be chargeable to a person who did not actually kill, but was involved in a crime with a partner who actually did the killing or someone died as the result of the crime. (Example: In a liquor store stick-up in which the clerk shoots back at the hold-up man and kills a bystander, the armed robber can be convicted of at least second-degree murder. To be murder the victim must die within a year of the attack. Death of an unborn child who is "quick" (fetus is moving) can be murder, provided there was premeditation, malice, and no legal authority. Thus, abortion is not murder under the law. (Example: Jack Violent shoots his pregnant girlfriend, killing the fetus). Manslaughter, both voluntary and involuntary, lacks the element of malice aforethought.

- D.** For the following concepts, compare and contrast the definitions provided in three dictionaries.
- a. Automobile
  - b. Water
  - c. Tiger
  - d. Honesty
  - e. Knowledge
  - f. To eat
  - g. The tango
- E.** Using the SEEC method, formulate definitions for the following.
- a. Donut
  - b. Apple
  - c. Honesty
  - d. Regret
  - e. Chair
  - f. Planet

## 2.9 THINKING CRITICALLY ABOUT FRAMEWORKS

Different disciplines are in part defined by the concepts they use to describe, explain, and raise questions about the phenomena they study. Even though geologists and physicists are both interested in earthquakes, they think about earthquakes in different

ways. Likewise, even though sociologists and psychologists are interested in family dynamics, they typically employ different concepts for describing, explaining, and raising questions about family life. They employ different **frameworks**, even though they are thinking about the very same phenomena. A framework is simply a set of concepts and methods that define a specific perspective or point of view. Different frameworks allow for different ways of describing, explaining, and raising questions about a phenomenon. Engaging in a discipline requires understanding and being able to think with its framework. Thinking critically while engaging in a discipline requires reflecting on that discipline's framework, on the way its set of concepts is used to describe, organize, and think about the phenomena it studies.

As we saw above in our discussion of necessary and sufficient conditions, it is not always possible to provide a neat definition of a technical term. Often, this is not even desirable. We often want some flexibility in our concepts, to allow us to respond to new evidence and new discoveries in new ways. This is one reason that it is helpful when providing a definition of a discipline's key concepts to provide examples and contrasts, since providing those can do as much as necessary and sufficient conditions to prevent or remedy misunderstanding.

Let us consider an example: the case of cancer. We can theorize about cancer from many different perspectives. If we think of it from a molecular perspective, then we need to use the concepts of molecular biology to describe cancer. This will include thinking in terms of genes and proteins, and the kinds of processes, structures, and chemical interactions that occur at that level. We can also think of cancer at the cellular level, in terms of the actions and processes that cancerous cells undergo, and how cancerous cells differ from other kinds of cells; or we can think of cancer at the level of the entire organism, in terms of the animal's internal, systemic responses to cancer and to the operation of the nervous, immune, and reproductive systems. We can also think of it from a sociological level, in terms of how cancer affects family, work, and community relations. In moving from one perspective to another, we are able to describe, explain, and understand aspects of the phenomena that we cannot "see" from the other levels. The other levels lack the vocabulary for describing those aspects.

The feature of frameworks that make them valuable—that they allow us to think about a phenomenon in one clearly defined set of concepts—is also the feature that makes them limiting. There is nothing inherently wrong with this. But it is a mistake to get **stuck in a framework**. This is the mistake of not realizing that there are other perspectives on a given phenomenon, problem, or issue. We need to keep in mind that there are always different perspectives on any phenomena, issue, or problem. Indeed, changing perspectives can sometimes lead to solutions to problems that were first identified but could not be solved at a different perspective. If we were not able to think about cancer at the genetic level, our understanding of the causes of cancer would be very much poorer than it is. This is so, even though not everything about its causes can be learned at that level. Sometimes, we need to think about a phenomenon from several different perspectives at once. A doctor who discusses a patient's cancer only at the cellular level and not also at the sociological or psychological perspectives will not provide a complete treatment. If we think of the problem of urban poverty only from a sociological perspective and not also from the perspective of criminal

justice or micro-economics, we are likely to miss or overlook features of the problem that are hard to see from the sociological perspective alone.

### **PRACTICAL STRATEGY: RULE OF THREES**

When trying to define a problem, it is helpful to think about it from at least three different perspectives. This is especially important when assessing the costs and benefits of a proposed course of action. Deciding how to respond to global warming requires thinking about the problem from economic, fiscal, environmental, employment, and political perspectives, just to name a few.

Sometimes, politicians and interest groups use one framework rather than another when describing a proposed or existing policy in order to influence the public's attitudes toward that policy. The very same policy is called by one side "drilling for oil" but the other calls it "energy exploration." In principle, there is nothing wrong with a policy's being described in different frameworks, since, as we have seen, most policies and problems are multi-dimensional. The search for oil reserves has environmental and economic aspects as well as impacts on employment, on pollution, on the broader economy, on energy conservation, and on national security, just to name a few. It would be wrong to decide on a policy without having examined it (and its alternatives) from all these sides. There is no privileged perspective. So there is nothing in principle wrong with a policy's being framed in different ways by different politicians or interest groups. But it is a mistake on our part if we fail to realize which framework the policy is being presented to us from within. It is always a mistake to get **stuck in a framework**.

### **EXERCISE 5**

- A. For each of the following familiar problems, frame them in the specified way. Your goal is simply to describe the problem using the concepts that are central to the relevant field, not to offer solutions to it.
- a. The high rates of teenage pregnancy (economic and emotional).
  - b. Religious intolerance (economic and cultural).
  - c. Adolescent drug use (physiological and psychological).
  - d. Online file sharing of music and movies (economic and cultural).

### **2.10 CLARIFYING BELIEFS AND PROBLEMS**

We sometimes have to clarify beliefs and opinions or get clearer about problems that we face. The need to define our beliefs and opinions and our problems is sometimes hidden by the fact that we so often use simple "Yes/No" questions to find out what

other people think and we use simple sentences to tell them what we think, even on topics that we all know are very complicated and controversial. Public opinion surveys regularly ask people whether they support this or that government policy or proposal, and the pollsters are looking for a Yes/No answer. “Do you support the war in Iraq?” “Do you support a person’s right to own guns?” But we know that our opinions on most topics are very complex. What is more, even when we agree, we might have different reasons for agreeing. On really complex topics—abortion, capital punishment, and teenage drug use—there is room for huge difference in what we believe. But there is just as much room for differences in our reasons even when we believe the same thing. One can support capital punishment for economic reasons, or for political reasons, or out of concern for deterrence or simply because one believes that it provides the most appropriate punishment. The same is true in the case of problems. People who agree that some phenomena is a problem might disagree about what makes it a problem, and in some ways this is even more important than their agreement on its being a problem. We hear people talk about “the problem of illegal immigration,” or “the problem of underage drinking,” as if everyone who agrees that those name a problem agree on just what the problem is. In this section, we will study ways to clarify our opinions and beliefs and our problems.

We can use the SEEC method to help us to clarify our opinions and the propositions we believe. The basic approach is the very same as with definitions of concepts. It is good to find a neat, brief way to formulate our opinion, and then provide an elaboration of it, focusing on some of the key words and concepts. In some cases, it will be helpful to provide some examples, though in others it will not. In all cases, or at least cases at all interesting, it will be good to mention a few contrasting propositions, ones that are likely someone might think is the one you have in mind even though it is not. Here is an example of the use of the SEEC method to define a proposition believed.

I believe that lying to friends is always wrong. I think you have a moral duty to answer sincerely when your friends ask you questions. Telling them something that you do not really believe is just wrong. If a friend asks for my opinion on their career choice, I should take their request for my opinion and advice seriously, and tell them what I really think. If a friend asks me for my opinion on which flat screen TV to buy I should be honest with him. I do not mean that you always have to say everything that is on your mind. I think that it is sometimes better to wait until they ask for your opinion before giving it. But if a friend asks you a question it would be morally wrong not to answer it sincerely.

In this example, the first sentence states the view in a brief, slogan-like way. The next two sentences elaborate on it, by making it clear that it is moral wrongness that is at issue, and just what the author has in mind by “lying.” The next two sentences provide a couple of examples to help show what the author has in mind. The final three sentences work to contrast the author’s view with views that are pretty similar but different in important ways. It might still happen, of course, that someone misunderstands the author’s view. But if the author has worked hard to make her view as clear as she can, then she will have done her duty as a critical thinker to clarify her view. Notice that in this passage the author does not provide any evidence at all for

her opinion. She makes no effort to try to convince you that she is right that lying to friends is always wrong. Her goal is not to convince you that she is right, but merely to make it clear what her belief is. She is clarifying what it is that she believes, and not offering reasons for why she does or anyone else ought to believe it.

**PRACTICAL STRATEGY: ASK OPEN-ENDED  
CLARIFICATION QUESTIONS**

When discussing topics with other people, ask them open-ended questions, not questions that allow a “Yes” or “No” answer. This will reduce the risk that superficial agreement will mask interesting and deep differences. Instead of asking:

“Do you think that . . . ”

“Do you agree that . . . ”

Ask:

“Why do you think that . . . .”

“What do you mean by . . . ”

“What reasons are there for thinking that . . . ”

Depending on what the proposition is, you might not need to provide an example. Here is an attempt to define a belief that does not involve an example, and where it is not obvious what an example would be like.

The Montreal Canadiens are the best team in NHL history. I do not mean that they have always won the Stanley Cup, or even always made it in to the playoffs. I know that they often struggled. I also do not mean that they have always had the best players, which they plainly have not. I mean that they have the best management, coaches, and fan support system in the entire history of the NHL. They are simply the best-run team ever.

In this example, the author does not provide an example, but she does work hard to contrast what she means by “best team” with several other things that someone might take her to mean. Notice also that she offers those contrasts right after she provides the initial slogan statement of the belief. This is very helpful in this case, since it sets her up in an elegant way to offer the elaborations of her view. The SEEC method should not be thought of as a rigid formula. It is a helpful guide for thinking about what sorts of things to include when trying to clarify your meaning.

We can also use the SEEC method to help clarify our view on what makes something a problem. Here is an example.

I agree that illegal immigration is a real problem, but I see no problem with legal immigration. Illegal immigrants are people who live in the United States but do not have legal authorization to be here. That is what makes them illegal. I do not think that legal

immigrants are a problem. We should encourage more of them to come to work and live here. Some illegal immigrants are from Mexico, but illegal immigrants can come from all over the world and they pose a problem no matter where they come from. It is not especially Mexican immigrants that I think are a problem. Some people think that illegal immigrants are a problem because they think illegal immigrants are criminals. I am not sure about that. In my view, illegal immigration is a problem because once someone is here illegally we cannot find them to see if we can help them become legal and so help them to make a lasting contribution to our community. This is what makes it a problem.

The author starts by stating his opinion that illegal immigration is a problem, and then in the next few sentences tries to explain what he means by “illegal” and contrasts his view with other closely related ones. Again, he does not offer examples of illegal immigrants though he does in the final sentence mention one thing that he thinks makes being an illegal immigrant a problem. There is a fine line in this passage between clarifying your view and providing reasons to agree with it. Still, it is fairly clear that the author here is trying to state his position clearly as opposed to offering reasons to share it. We can imagine this passage as part of a discussion among people all of whom agree that illegal immigration is a problem. The author would not be trying to convince the other people that it is a problem, since they already agree that it is a problem, but to clarify what in her view makes it a problem.

### **DECIDING WHAT TO DO: CLARIFYING YOUR PROPOSALS**

Clarifying and defining are just as important in deciding what to do and in evaluating a proposed course of action. Deciding what to do involves deciding both on an end to achieve and on a means for achieving it. Both the ends and the means should be clear before one decides what to do. The SEEC method can be useful here too. It is especially important to contrast the proposed end with others with which it might easily be confused. As a handy rule of thumb: if you cannot identify three contrasting ends or means then you have not made the proposed ends or means clear enough.

We have been discussing how to use the SEEC method to help us to clearly state our own views and opinions. We can also use it to state another person’s views or opinions. This is a good thing to do if we are not sure just what their view is. By writing it out as if it was your own view, and then asking them whether it accurately states their view, you can make sure that you get their opinion. We also need to be able to state another person’s view when we wish to raise an objection to it or her reasons for believing it. In this case, we need to be especially careful that we accurately state her view. If we misstate her view, whether by accident or on purpose, we will have undermined our goal as critical thinkers, which is to try to get at the truth. The SEEC method can help us to avoid committing it by forcing us to think hard about how our opponent’s views contrast with other closely similar ones.

**EXERCISE 6**

- A.** Using the SEEC definition method as a guide, clearly state your views on the following issues. Remember, your goal here is not to give reasons to believe that your view is correct or true, but only to state it in a way that will help others avoid confusing it with other similar views. (If you do not have a fixed opinion, just pretend that you do.)
- a. Whether Sunday is better than Saturday.
  - b. Whether humans descended from other species.
  - c. When abortion should be legal.
  - d. What the country should do to reduce drug use.
  - e. How to deal with the rising costs of college education.
  - f. Whether it is sometimes OK to lie to a friend.
- B.** Look at the letters to the editor in a newspaper or magazine. Find two or three in which the author is stating his or her view on some issue of interest to you.
- a. Identify the perspective the author is taking on the issue.
  - b. Assess how well the author does at stating that view clearly.
  - c. Propose changes or additions to improve the clarity of the statement.
  - d. Identify two or three contrasting views. Remember, contrasting views are not opposite views; a contrasting view is a similar view that one might easily confuse with the one being stated.

**2.11 TECHNICAL DEFINITIONS**

Sometimes words get defined in technical ways. This is done to avoid misunderstandings and to help resolve debates and disagreements. Sometimes this happens when researchers take a word that has an ordinary use but put it to more rigorous use in their work. This happened with words like “force” and “energy” that now have very specific and pretty clearly defined uses within physics, even though their roots are in our ordinary talk about the universe. Sometimes this can lead to even more misunderstandings.

The debate over whether nicotine is addictive provides a nice example of this. In 1964, the United States Surgeon Generals’ Report stated that nicotine is not addictive. Then, in 1988, the Surgeon General’s report announced that nicotine is addictive. This looks like a pretty substantial and clear cut factual disagreement, as though the US Surgeon General’s office had changed its mind on a scientific topic that should have wide-ranging public policy consequences. But while there was considerable new information in 1988 on the physiological effects of nicotine and smoking tobacco, one relevant factor that changed in the 24 years between the reports was the definition of the word “addiction.”

In the 1964 report, the Surgeon General offered the following: “In medical and scientific terminology the practice (smoking) should be labeled habituation to



distinguish it clearly from addiction, since the biological effects of tobacco, like coffee and other caffeine-containing beverages, betel morsel chewing and the like, are not comparable to those produced by morphine, alcohol, barbiturates, and many other potent addicting drugs.”<sup>1</sup> This definition of “addiction,” which considered the production of intoxication a necessary condition for an addiction, echoes the definition that was then accepted by the World Health Organization. It seems right that, given this definition, nicotine is not addictive, since smoking a cigarette does not produce intoxication, at least certainly not like drinking alcohol or using heroin.

In 1988, though, the US Surgeon General redefined “addiction,” dropped intoxication as a necessary condition, and held that for a drug to be addictive it is sufficient that it involve highly controlled or compulsive use, produce psychoactive effects, and that its use involve behavior that is reinforced by that use. Under this new definition, nicotine did count as an addictive drug. While there is no doubt that during that 24-year period a good deal more was learned about the science and medicine of drugs and nicotine, it is important when trying to understand that debate to be clear on what “addiction” means. As recently as 1998, the Tobacco Marketing Association published the following: “The definition of addiction is wide and varied. People are addicted to the Internet. Others are addicted to shopping, sex, tea, and coffee. The line I would take is that tobacco isn’t addictive but habit forming.”

The debate over whether nicotine is an addictive substance looks on the surface like a purely scientific and factual one, but there is actually a large terminological element to the debate. All sides in the debate—the cigarette companies, the government regulators, the independent scientists—could reach agreement on all the physiological, psychological and chemical effects, including both the long term and short term effects, of nicotine use, and on how those effects are similar to and different from the effects of short or long term alcohol or heroin use, and they might still disagree about whether nicotine is addictive, simply because they mean different things by “addictive.”

In itself, this is not unusual or even very bad for researchers or ordinary people to use words in a technical way. But when people do not realize this, there is a risk that the participants will end up **talking past each other**. This mistake occurs when people in a discussion are using the same words with different meanings and are not aware of this, and so are not aware what each of them is saying. To avoid this, a good critical thinking strategy is to use the SEEC method to define our own words and those of the people we are in discussion with, in order to ensure that we all know what we mean.

## 2.12 MEANING IN ADVERTISEMENTS

It is wise to keep an eye out for special definitions in advertisements for goods and services. Given the recent rise in popularity of organic foods, many companies are marketing their products to tap into this popularity. Some are now being advertised

<sup>1</sup>United States Department of Health, Education, and Welfare [USDHEW]. (1964). 1964 Surgeon General’s Report: Smoking and Health—Report of the Advisory Committee to the Surgeon General of the Public Health Service, p. 350. Emphasis in original.

as “all natural” or “authentic,” as if this meant the same as “organic.” In fact, the use of the word “organic” is highly regulated by governments around the world. The regulations were put in place mostly to help consumers avoid being tricked by producers and to protect growers whose produce really is organically grown from less scrupulous competitors. But the standards for what counts as “organic” vary from one country to the next. In particular, the United States allows products to be labeled as organic so long as they contain no more than 5% non-organic constituents.

One company even tried to market its beers as organic, even though they were made with non-organically grown hops. Apparently, since most of beer is simply water, and since the hop flavoring is so strong that very little of it is needed, many beers already fit the official definition of “organic.” The government has no choice, if it is to regulate the use of a word, but to develop a strict definition including necessary and sufficient conditions. But this has the unintended effect of providing loopholes through which products that ought not to count can slip. In turn, these loopholes can confuse and deceive consumers and penalize producers who are not familiar with the technical definition, even though the original motivation for regulating the use of the word was to prevent consumer confusion and deception. Still, the benefits of regulating the use of that word are probably still higher than its costs.

In the case of the word “organic,” the US government regulates both the meaning of claims used with it and also the truth of those claims. It is against the law to use that word on a product to mean something other than what the government has stipulated it is to mean and it is against the law to use on a product unless that product meets the relevant standards. But there are many words whose use in advertising the government does not regulate at all. Words used on nutritional supplements and cosmetics are a good example of this. These advertisements are required, as are all advertisements, not to be deliberately misleading. To comply, the advertisements often avoid strong claims like “will eliminate wrinkles” or “will prevent the common cold” in favor of such weak claims as “will help eliminate the appearance of fine lines” and “can support the sinus and immune system.” In the case of nutritional supplements, these claims are usually accompanied by a tiny footnote that says something like: “This statement has not been evaluated by the Food & Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.” It is hard to know what the intended meaning is of the words “support the sinus system” if it is not to mean that the product can treat, cure or prevent diseases of the sinus system. This is a case where not only is the truth of those claims not being regulated by the government; neither is the meaning. Here the general advice for thinking about claims in advertising applies: buyer-beware.

When thinking critically about the claims in advertisements, identify the key words and phrases in the advertisement, find some contrasting ones, and ask why they were not used instead.

One strategy for thinking critically about the claims in advertisements is to identify the key words and phrases and look for contrasting ones that might have been used and to ask why they were not used. Why does the facial cream advertisement say

that it can help reduce the appearance of fine lines? Why did it say, “help reduce” instead of just “reduce.” Why did it mention the appearance of fine lines, instead of just fine lines? Reducing the appearance of fine lines is compatible with the continued existence of those fine lines. Is the advertisement really only claiming that the product covers up the fine lines? Then why not say that? In this way, the SEEC method, which requires us to look for closely contrasting words and concepts, can help us to think critically about claims in advertisements.

Earlier we discussed the way politicians and interest groups pick a specific framework for describing a policy in order to influence the public’s attitude to the policy. Unfortunately, but not very surprisingly, they also sometimes use misleading labels to characterize or name their preferred policy proposals. (Unfortunately, there is no law against misleading advertising of public policies.) After the attack of 9/11, the congress passed a law with huge bi-partisan support that made enormous and far-reaching changes to civil rights, the rights of criminal suspects, and the power of the government to investigate and even detain citizens. This law was called the “Patriot Act,” a name that had nothing to do with the substance or rationale for the bill, but which made opposing it rhetorically very difficult. Being opposed to the patriot act sounds like being opposed to patriotism itself. In a similar way, proposals to cut taxes are sometimes presented as “tax relief,” even when those benefiting would be multi-millionaires, who can easily afford the taxes they are required to pay. There is, of course, a serious issue about who should pay how much tax. But this debate is stymied if one side is using misleading terms to describe the problem or their proposed solution. As good critical thinkers, we need to stay on guard for this, and the SEEC method can help by reminding us to look for contrasting ways to describe a problem or solution.

## EXERCISE 7

- A. Find five advertisements in your local newspaper.
  - a. Identify the key claims made in the advertisement, and define them.
  - b. Identify three contrasting claims that one might easily confuse for that view.
  - c. Propose changes to improve the clarity of the advertisement.
- B. Look for statements by local or national politicians on issues that you care about in newspaper articles, in letters written to local newspapers, or on their websites.
  - a. Identify the framework within they discuss the issue.
  - b. Proposes changes that would clarify their views.
  - c. Identify two or three contrasting proposal or views.
- C. What necessary condition is stated in each of the following?
  - a. If you are going to succeed you need to think hard.
  - b. The audience will love this movie, but only if the action scenes are longer.
  - c. Without more water, this plant is destined to die.
  - d. To make cookie dough, you need sugar, flour, butter, and an egg.
  - e. If you love me, then you will set me free.

- D. For the following concepts, find a condition that is necessary but not sufficient, and a set of conditions that are sufficient but not necessary.
- Winning the lottery.
  - Being President of the United States.
  - Being a doctor.
  - Being an illness.
  - Being beautiful.

### CHAPTER SUMMARY

Thinking critically about what to believe or do usually requires reflecting on the meaning of concepts, claims, problems, and proposals. The **assertion test** can be used to figure out exactly what a concept or claim means. A useful method for constructing a definition involves providing a **slogan; expanding** it by explaining the relations among the slogan's key words; providing an **example** or two; and identifying some **contrasting** concepts, claims, problems, or proposals. Definitions can be evaluated by looking for **counterexamples** showing that the slogan is too broad or too narrow. Different disciplines might approach the same phenomena using different conceptual **frameworks**.

## 2.13 CRITICAL THINKING IN PRACTICE

### 2.13.1 Critical Thinking Mistakes

*False Definition.* It is a mistake for a definition's slogan to be too broad (by leaving out a necessary condition) or too narrow (by including a condition that is not necessary) or both. This is a mistake because it means that the definition's slogan is false. A counterexample to a definition is an example that shows that the definition is too narrow or too broad. The SEEC method can help us to avoid this mistake by requiring us to look for counterexamples and contrasting concepts.

*Strawman Mistake.* It is a mistake to distort or misrepresent another person's beliefs or their reasons for their beliefs. It is a mistake because it is very rude and because it prevents you and the other person from getting to the truth together. While everyone has a duty to make her beliefs and reasons clear, we all have a duty to represent each other's beliefs and reasons as clearly and charitably as we can. When in doubt, ask open-ended clarification questions to increase clarity.

*Equivocation.* It is a mistake to use words in different senses without realizing it. This is a mistake because it is hard to know if an assertion is true if we are not clear about what it means. One form of this mistake occurs during debates or conversations. It is a mistake for participants in a discussion not to recognize that they mean different things by the key words and phrases they use. This is a mistake because it will be

very hard to agree on the truth if we mean different things by our words. This can be recognized and avoided by a careful use of the SEEC method.

### 2.13.2 Critical Thinking Strategies

In this chapter we have seen two practical strategies for helping us to think critically about meaning.

*The Assertion Test.* To tell whether a proposition is among the things a person is asserting or claiming to be true, suppose that it is false and ask whether what the speaker says could still be true. If Yes, then that proposition is not among the things asserted; if No, then it is. This test can also be used to tell whether a proposed definition is too broad or too narrow, by considering counterexamples to it.

*The SEEC Method.* In constructing a definition of a concept, belief, proposal, or problem, it is helpful to formulate it as a **slogan**, to **elaborate** on it by saying more about the key concepts, to offer an **example** or two, and to provide some **contrasting** concepts, beliefs, proposals, or problems. The goal of providing a definition is to prevent or remedy misunderstanding. This method can also be used to evaluate definitions.

### 2.13.3 From Theory to Practice: Applying What We Have Learned

**2.13.3.1 Thinking Critically about Ourselves** In Chapter 1, you compiled a list of five or six character traits that you think are essential to being a morally good person, and you wrote a tentative definition of one of them. (i) Using the SEEC method for defining a concept, revise the definition including examples and contrasting concepts. (ii) Ask three or four friends how they would define the concept. Make sure you ask them open-ended questions to get them to say as much as you can. (iii) Compare and contrast the definition you developed and the ones your friends provided. What are the differences? Pay close attention to slight differences in word choice, as these often make a huge difference to the definition.

**2.13.3.2 Thinking Critically in the Classroom** Thinking critically in a discipline requires knowing how to use its concepts to describe a phenomenon and to frame questions and proposals. In Chapter 1, you compiled a list of five or six of the most fundamental concepts of ideas in your field of study. (i) Using the SEEC method, try to develop a definition of the concept. Make sure that you include contrasting concepts, which need not be central to your field of study (You might show your definition to your professor to see whether she considers it too narrow or too broad.). (ii) List five or six problems or puzzles that your field of study addresses or studies. Using the concepts of your field, define them as clearly as you can, making it clear what it is that makes them a problem or a puzzle.

**2.13.3.3 Thinking Critically at Work** Successfully participating in a company or organization requires being able to think about its structure, operations, and plans. Employees are regularly faced with problems that need to be solved. They can range

from short-term ones that are easily solved (e.g., how to get rid of excess inventory) to longer-term problems that require thinking hard about the organization's goals and structure (e.g., responding to the lower labor costs from second world competitors). The SEEC method can be used to define the problem, thereby helping us to make sure that the solutions we employ are appropriate. It is especially helpful to now and then reframe a problem, even one we have a workable solution for. Looking at a problem from a different direction, or using a different set of concepts for describing it can reveal alternative solutions. At the very least, we will get confirmation that our existing solution is still the best one.

In Chapter 1, you compiled a list of five or six problems that you or your coworkers regularly face at work. Pick one of them and define it using the SEEC method, making sure that you make it as clear as you can why it is a problem. Now, try to reframe it by describing it in a different way or from a different perspective (e.g., from a manager's as opposed to a worker's perspective, or from a client as opposed to a manager's perspective). This is probably going to be difficult, since we usually find it difficult to think outside the box.