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CRITICAL THINKING BOOK 2

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TABLE OF CONTENTS

CHAPTER 1 — INTRODUCTION TO USES AND MISUSES OF WORDS

1.1 1	INTRODUCTION	2
1.2	EMOTIONAL WORDS AND PHRASES	3
1.3	WORDS FOR SPECIAL PLEADING	5
1.4	AMBIGUITY AND THE "SLIPPERY WORD" ERROR	6
1.5	VAGUE SENTENCES	8
1.6	INCONSISTENT, CONTRADICTORY, AND	
	HYPOCRITICAL STATEMENTS	10
1.7	MISLEADING STATEMENTS, EUPHEMISMS,	
	AND DOUBLETHINK	15
1.8	MEANINGLESS WORDS AND GOBBLEDEGOOK	18
1.9	LOADED QUESTIONS	20
1.10	CHAPTER REVIEW PROBLEMS FOR CLASS	
	DISCUSSION	22
	그는 바람이 있는 것 같은 것 같은 것 같은 것 같이 가지 않는 것 같이 가지 않는 것 같이 있다.	

CHAPTER 2 — LOGIC WITHOUT QUANTIFIED STATEMENTS

2.1	REVIEW	40
2.2	IF AND ONLY IF (IFF)	47
2.3	VALIDITY	48
2.4	PROVING ARGUMENTS VALID OR INVALID	50
2.5	PROVING ARGUMENTS VALID OR INVALID	
	(CONTINUED)	54
2.6	TAUTOLOGIES	56
2.7	MORE WORD SUBSTITUTIONS	58
2.8	NEGATIONS AND OPPOSITES	60
2.9	CHAPTER REVIEW PROBLEMS FOR CLASS	
	DISCUSSION	62

CHAPTER 3 — COMMON ERRORS IN REASONING

3.1	REVIEW	68
3.2	MORE ABOUT "PROOF" BY SELECTED INSTANCES .	69
3.3	FALSE CAUSE AND ASSUMPTION CONTRARY	
	TO FACT	71
3.4	RATIONALIZATION	73
3.5	WHOLE TO PART; PART TO WHOLE	75
3.6	MORE ABOUT CIRCULAR REASONING	76
3.7	EITHER-OR AND ITS OPPOSITE, NOT DRAWING	
	THE LINE	79
3.8	SOPHISTICAL FORMULA	80
3.9	NON SEQUITUR	82
3.10	MISCELLANEOUS REASONING ERRORS	83
3.11	CHAPTER REVIEW	86

"RED HERRING"	98
AD HOMINEM	99
"OTHER THINGS ARE WORSE"	101
THE USE OF AUTHORITY	104
APPEAL TO EMOTIONS	105
APPEALS TO RADICALISM AND CONSERVATISM	107
CHAPTER REVIEW	108
	"RED HERRING" AD HOMINEM "OTHER THINGS ARE WORSE" THE USE OF AUTHORITY APPEAL TO EMOTIONS APPEALS TO RADICALISM AND CONSERVATISM CHAPTER REVIEW

CHAPTER 5 — PROBABILITIES OF TRUTH AND FALSITY

5.1	INTRODUCTION AND REVIEW	116
5.2	ABSOLUTELY, PROBABLY, AND POSSIBLY	119
5.3	TRUE OR FALSE BEYOND A REASONABLE DOUBT	122

CHAPTER 6 — LOGIC WITH QUANTIFIED STATEMENTS

6.1 6.2	"ALL" AND "NO" STATEMENTS 134 "SOME" STATEMENTS 136
6.3	EXISTENCE 138
6.4	QUANTIFIERS 141
6.5	NEGATION OF QUANTIFIED STATEMENTS 143
6.6	REVERSIBILITY 145
6.7	VALIDITY USING ONLY "ALL" AND "NO"
	STATEMENTS 147
6.8	VALIDITY USING ONLY "SOME" STATEMENTS 150
6.9	VALIDITY USING MIXED QUANTIFIERS
6.10	USING EULER CIRCLES FOR QUANTIFIED
	STATEMENTS
6.11	VALIDITY AND EULER CIRCLES
6.12	USING COMMON SENSE 159
6.13	COMPLEX STATEMENTS 161
6 14	CHAPTER BEVIEW PROBLEMS FOR CLASS
0.14	DISCUSSION 164

CHAPTER 7 — CHARACTERISTICS OF ARGUMENTS

7.1	DISTINGUISHING BETWEEN STRONG AND WEAK	170
7.2	WHICH SIDE OF THE FENCE?	173
7.3	RECOGNIZING ASSUMPTIONS	176
7.4	DISTINGUISHING BETWEEN FACT AND OPINION	180
7.5	CHAPTER REVIEW PROBLEMS FOR CLASS	
	DISCUSSION	184

CHAPTER 8 — ARGUMENTS ABOUT EVERYDAY MATTERS

	Ento	
8.1 8.2 8.3 8.4	RECOGNIZING SUPPORTING ARGUMENTS19ASKING QUESTIONS ABOUT ARGUMENTS19FINDING AND REFUTING ARGUMENTS20CHAPTER REVIEW PROBLEMS FOR CLASS21DISCUSSION21	94 99 07 10
	그는 같은 사람이 많은 것 같은 것이다. 잘 많은 것이 많이 많이 많다.	
CHAP	TER 9 — SOLVING EVERYDAY PROBLEMS	
9.1 9.2	BRAINSTORMING	24 25
BIBLI	OGRAPHY 23	39
GLOS	SARY 24	41
INDE)	Κ	44

CHAPTER 1

INTRODUCTION TO USES AND MISUSES OF WORDS

1.1	INTRODUCTION
1.2	EMOTIONAL WORDS AND PHRASES
1.3	WORDS FOR SPECIAL PLEADING
1.4	AMBIGUITY AND THE "SLIPPERY WORD" ERROR
1.5	VAGUE SENTENCES
1.6	INCONSISTENT, CONTRADICTORY, AND HYPO- CRITICAL STATEMENTS
1.7	MISLEADING STATEMENTS, EUPHEMISMS, AND DOUBLETHINK
1.8	MEANINGLESS WORDS AND GOBBLEDEGOOK
1.9	LOADED QUESTIONS
1.10	CHAPTER REVIEW PROBLEMS FOR CLASS

1.1 INTRODUCTION

You already know a good deal about critical thinking from your study of *Critical Thinking*, *Book 1* (CTB1). *In Critical Thinking Book 2* (CTB2), we'll look at many new sides of critical thinking. We'll also look more closely at some of the ideas in CTB1.

In CTB1, you were allowed to do a lot of hair-splitting in deciding on your answers. This taught you not to jump to conclusions. That was the first step toward becoming a critical thinker. In CTB2, it will be possible to split hairs, but we usually won't do it. We'll be looking for probable answers, because this is how we have to make decisions in everyday life.

In everyday life, suppose a stranger walks up and uses all of his strength to swing a baseball bat at you. It's <u>possible</u> that he's just kidding around and will check his swing before the bat reaches you. But it's <u>probable</u>¹ that he isn't just kidding around, and you'll be smart to duck instead of just standing there.

The way someone uses and misuses words can tell us a lot about whether that person thinks something is probable or merely possible. Chapter 1 takes a basic look at words and how they are used and misused. In this chapter, you'll learn to look for many kinds of words. Some will make you think "this is pleasant" or "this is unpleasant." Some will make you think one person's actions are more acceptable than another's, even though both are doing the same thing. Some words are ambiguous. Some words are substitutions for less pleasant words.

We'll also look at how words can be misused in sentences. Some words are used in two different ways in a sentence, but the speaker thinks they mean the same thing each time. Some words lose meaning because of the way they are used. Some sentences are so vague that we can't really nail down what was said.

We'll look, too, at combinations of sentences. Some combinations are inconsistent. Some are contradictory. Some are misleading. Some are written in a complicated way when they could be written more simply.

And finally, we'll take a look at what is called the "loaded question"—a question which doesn't give you a chance to say what you really mean when you answer it.

When you finish this chapter, you'll be much more aware of the ways people use words to influence your thinking.

'Recall the difference between probable and possible. Something is probable if it is more likely than not. something is possible if it has any chance at all, no matter how small a chance.

1.2 EMOTIONAL WORDS AND PHRASES

We have automatic reactions to many words. Without even being used in sentences, some words can make us think "this is pleasant" or "this is unpleasant." We say that such words have **emotional content** or that they are **emotional words**.

Examples 1:

Pleasant words: calm, friend, truth, clean, togetherness, honest, complete

Unpleasant words: stormy, opponent, falsehood, dirty, loneliness, dishonest, unfinished

Some words go beyond making us think "this is pleasant" or "this is unpleasant," and they make us think "this is marvelous" or "this is terrible." We say that such words are **emotionally loaded.**

Some words are emotionally loaded all by themselves. **Examples 2:**

Marvelous words: generous, wisdom, justice, patriot, happiness, heroic

Terrible words: stingy, stupidity, injustice, traitor, sadness, cowardly

And some words are more emotionally loaded than other words.

Examples 3:

Really marvelous words: red-blooded, mouth-watering, true-blue, exquisite, saintly, magnificent

Really terrible words: cold-blooded, two-faced, heartrending, rotten, sadistic, poverty-stricken

Two pleasant words can be combined to make a marvelous phrase. And two unpleasant words can be combined to make a terrible phrase.

Examples 4:

Marvelous: complete honesty, sweet friend, cheerful grin, American cooperation

Terrible: uncontrolled dishonesty, dirty opponent, sullen sneer, foreign interference

We might be tempted to think that using a pleasant word with an unpleasant word will give us a neutral phrase. Well, sometimes it does. But sometimes it doesn't. When it doesn't, the result can be a marvelous or a terrible phrase. **Examples 5:** (The pleasant and unpleasant words are underlined.)

- a. She walked up to him and <u>smilingly killed</u> him. (Terrible!)
- b. Money rained down from above. (Marvelous!)
- c. It was an honest mistake. (Almost neutral. Mistakes aren't good, but we don't usually think that an honest mistake is too unpleasant, either.)

The context in which a word is used can change the word's emotional effect.

Examples 6:

- a. That's a lazy cat. (Neutral.)
 - That's a lazy man. (Unpleasant.)
- b. I made noise taking the dishes out of the cupboard. (Neutral.)

I couldn't hear the speaker, because everybody around me was making noise. (Unpleasant.)

That isn't music! That's noise! (Terrible!)

The use of an emotional word is often a tipoff that an opinion rather than <u>fact</u> is being stated.

Examples 7:

- a. That's an interesting book. (Opinion.)
- b. He was unfair to me. (Opinion.)
- c. She's a good teacher. (Opinion.)
- d. The sofa had lumps in it. (Fact.)
- e. The sofa was uncomfortable. (Opinion.)

In Chapter 7, we'll take a more detailed look at telling the difference between a fact and an opinion.

Summary:

- 1. Words which we do not feel neutral about are **emotional words.** Some words have more emotional effect on us than others.
- 2. Words which have high emotional content are **emo-tionally loaded words.**
- 3. When combined, words of light, but opposite, emotional content often make an emotionally loaded phrase.
- 4. For some words, the amount of emotional content changes when the context changes.
- 5. An emotional word in a sentence usually makes the sentence an opinion rather than a fact.

CLASS DISCUSSION PROBLEMS

1. Separate the words below into three categories—pleasant, unpleasant, or neutral. (It is all right if you don't use all three categories.) Use your <u>first</u> reaction to the word to decide which category to use for it. Here are the words:

true, boring, sloppy, dependable, honor, paramedic, tidy, interesting, awkward, nasty, disorganized, champion, disloyal, clumsy, physician, talent, mismanage, failure, friendship, messy

- 2. Do two things for this problem:
 - a. Separate the words into two categories—pleasant, or unpleasant.
 - b. Combine 6 pleasant words with 6 unpleasant words to make 6 terrible phrases.

steadfast, leader, organized, counterfeit, bungling, pal, enemy, physician, false, hatred, honesty, unreliable

- 3. Do two things for this problem:
 - a. Separate the words into two categories-pleasant, or unpleasant.
 - b. Combine 5 pleasant words with 5 unpleasant words to make 5 marvelous phrases.

reformed, patience, honesty, playful, criminal, strength, unrelenting, ghost, stubborn, unbending

- 4. Tell whether the sentence is a fact or an opinion.
 - a. He's a spoiled child.
 - b. She's been the cause of trouble before.
 - c. John is a cheerleader.
 - d. Mary is a baseball nut.

1.3 WORDS FOR SPECIAL PLEADING

Remember the kind of reasoning we called "special pleading" in CTB1? ("It's OK for me to do this, but it isn't OK for other people to do it, too.") One form of special pleading is to use words of different emotional content to describe something, depending on who is involved. Example 1:

I give reasons for my errors. You make excuses for yours. She refuses to accept the responsibility for hers. They try to cover up for theirs.

Do you get the idea? We sometimes try to make our own actions (or whatever) sound acceptable or even something to be proud of. We are less generous with most friends. And we are even less generous with people we don't like and with strangers. Here is another example:

Example 2:

I believe in progress. You're always wanting to change things. He is never willing to let well enough alone. And they are wild-eyed radicals.

CLASS DISCUSSION PROBLEMS

A context is described. It is followed by two or more words. Using the context, make up a sentence which uses each word. Make the sentences sound worse as you go from describing yourself to describing other people. **Example:**

truded, broke into.

- Answer: I broke into the conversation. You intruded on the conversation.
- 1. People interrupted a private conversation—butted into, participated, interrupted.
- 2. People went to a party-crashed, intruded, dropped in.
- 3. People do not change their minds easily-obstinate, firm, pig-headed, stubborn.

- 4. People entered a room furtively—crept in, slipped into, sneaked in.
- 5. People do not waste their money—thrifty, pennypinching tightwad, stingy, miserly.
- 6. People hesitated before taking an action—cowardly, yellow-bellied, cautious.

1.4 AMBIGUITY AND THE "SLIPPERY WORD" ERROR

Sometimes the same word can have different meanings, depending on how it is used. And sometimes we can't tell for sure what is meant even when the word is used in a sentence. In this case, we say that the word or the sentence is **ambiguous**.

Example 1:

"He's a poor man." Does the speaker mean (1) the man has little money, or (2) the man is unmanly, or (3) the man isn't much of a human being, or (4) the man has a lot of troubles? Or something else?

Example 2:

We're so used to seeing signs such as these that we know exactly what they mean. The signs are not ambiguous to us. But they could be to a small child.



Now suppose an ambiguous word is used more than once in the same sentence. And suppose at least two of its different meanings are used, but the speaker acts as though it had the same meaning each time. Then the speaker has made a reasoning error called the **slippery** word error.

Example 3:

Since he is unqualified for anything, he will be an unqualified success in life. (The first time "unqualified" was used, it meant "without abilities." But the second time, it was used to mean "without exception.")

The slippery word error is sometimes used in propaganda. Example 4:

The teacher said the mean test score was 70%. So if he knew he was being mean to us, why didn't he grade the tests differently? We don't have to put up with an unfair teacher! I say we should complain to the principal and we should boycott the class until the principal makes the teacher mark us fairly! (The first time "mean" was used, it meant "average."1 The second time, it meant "unkind." The student then implied that "average" = "unkind" = "unfair.")

CLASS DISCUSSION PROBLEMS

Problems 1-5: Give at least two ways in which the sentence may have been meant.

- 1. She was really sore after losing the race.
- 2. She is a strong person.
- 3. He was a fair umpire.
- 4. I'm getting a mean wage where I work.
- 5. (People are talking about buying someone else's business.) We can discount the price now.

Problems 6-9: The sentence uses a word in two different ways. Tell each meaning the sentence gives the word.

- 6. I knew everything would be fine for me that day, and, sure enough, I got a fine for speeding.
- 7. A crust of bread is better than nothing, and nothing is better than complete happiness in life, so a crust of bread is better than complete happiness in life.
- 8. Cats make good pets, and lions are cats, so lions make good pets.
- 9. As a rule, people tend to be selfish and so, since I believe firmly in abiding by rules, I will not share my cake with you.
- 10. In Lewis Carroll's Alice in Wonderland, Alice sits at a table with the March Hare and the Mad Hatter. Nobody offers her anything to eat or drink. After some minutes of conversation, the March Hare says, "Take some more tea." Alice replies, "I've had nothing yet, so I can't take more." The Mad Hatter corrects her, "You mean you can't take less. It's very easy to take more than nothing."

There seems to be a misunderstanding here. What's causing it?

- Problem: Find the mean, the median, and the mode of 2, 4, 4, 4, 5, 5, 6, 20, and 40. Answer: Mean = $\frac{2+4+4+4+5+5+6+20+40}{9}$ = $\frac{90}{9}$ = 10. Median = 5. (5 is the "middle" number, since there are four numbers lower than, and four numbers higher than, the first 5.) Mode = 4. (4 is the number which occurs most often.)

There are three kinds of averages-mean, medlan, and mode. The mean is the average figured by adding up all the scores and then dividing the total by the number of scores. The median is found by listing the numbers in numerical order and taking the one in the middle. The mode is the number which occurs the most often. Example:

11. The newspaper ad stated, "The price is only \$39.95 with an \$8 partial refund." Suppose you bought the item at that store. How much would the item cost you?

1.5 VAGUE SENTENCES

A vague sentence is something like an ambiguous sentence. An **ambiguous** sentence has more than one meaning but seldom has more than three. And when we read an ambiguous sentence, we know exactly what it is saying, depending on which way we take it. A **vague** sentence also has more than one meaning. In fact, it is so general that we aren't at all sure of exactly what the speaker had in mind. With an ambiguous sentence, we can limit to two or three the possibilities of what the speaker meant. But with a vague sentence, we are not at all sure of what the speaker meant.

Example 1:

Question on history test: "What was the major cause of the movement westward in the United States? Explain." The student taking the test thinks, "What do you mean by "the major cause'? There were so many causes working together with each other, how do I choose just one? and even if I do choose one, what do you mean by 'the major cause'? And what do you mean by 'movement westward'? Westward from where? From the eastern seaboard? From Ohio? From Texas?" (The test question is a vague question.)

Remember the "glittering generalities" propaganda technique from CTB1? That's the one where good-sounding things are said, but when we stop to think about exactly what was meant, we can't quite nail it down. That's another example of a vague statement.

Example 2:

Political candidate: "I believe the time has come to put an end to the excessive spending habits of our state government."

I think, "Terrific! Me, too! I'm all for that! Wait a minute. Any state government has spending habits. And they should have. They have to pay for the state police and the state prisons, and they have to help pay for education. And other things. So what do <u>you</u> mean by 'excessive'? Do you mean the state should stop helping to support the schools? They should release half of the prison inmates? Or what? You're going to have to be more specific if you want my vote."

CLASS DISCUSSION PROBLEMS

1. A few days before an election, the following campaign information was distributed to voters.

IN TIMES LIKE THESE, WE NEED A MAN LIKE THIS.

TOWERS FOR STATE SENATOR

Kingston P. Towers believes the time has come to get Midstate moving again—but this time in the right direction.

Kingston also believes the time has come for Midstate to re-establish its priorities. We must put an end to the political infighting that has caused our state government to lose sight of where we are going as a people. The time has come to put politics aside and get on with the serious business of running the State of Midstate. Kingston Towers doesn't pretend to have all the answers to the many problems we face.

(There was nothing more mentioned about the items quoted above.) For the questions which follow, assume that the statements quoted above are what Towers believes.

- (1) What does Towers mean by "in times like these"?
- (2) What does Towers mean by "get Midstate moving again—but this time in the right direction"?
- (3) Towers says Midstate should "re-establish its priorities."
 - a. What things does Midstate now think are priorities which Towers thinks should not be?
 - b. What things does Midstate now consider not to be priorities which Towers thinks should be?
- (4) What does the term "political infighting" mean?
- (5) How serious does Towers feel that the political infighting in Midstate is? Support your answer.
- (6) Consider your answer to (5) above. How does Towers back up this accusation?
- (7) What does Towers mean by "lose sight of where we are going as a people"?
- (8) Where does Towers back up his statement that our state government has lost "sight of where we are going as a people"?
- (9) Towers says, "The time has come to put politics aside."
 - a. Suppose we do this. Then can we vote for him in the election? How come?
 - b. Do you think Towers has put politics aside? (He is the candidate of one of the two major U.S. political parties.)
 - c. Do you think Towers will put politics aside if he is elected?

(continued on next page)

- (10) Why do you think Towers says, "The time has come to put politics aside"?
- (11) a. What does Towers imply in his "put politics aside" sentence?
 - b. Where does he back up this implication?
- (12) The quoted statements list six problems Towers believes can and should be solved.
 - a. List at least five of these problems.
 - b. How does Towers propose to solve these problems?
 - c. Does Towers think he can solve these problems? Support your answer.
- (13) See the second line at the top of the quoted material.
 - a. So how come "we need a man like this"?
 - b. So how come we should vote for Towers?
- (14) The quoted material uses at least ten vague phrases. List at least six of them.
- 2. An advertisement states, "50% off regular price!"
 - (1) What fraction of the regular price do you get off?
 - (2) How much is the regular price?
 - (3) Suppose you know that the store's regular price on the item is \$10. Has the ad promised you a price which is 50% less than \$10? Support your answer.
- 3. An advertisement states, "Store-wide sale! Up to 50% off our regular price on all items!"
 - (1) Give three possible meanings of "store-wide sale."
 - (2) Can you now buy all merchandise in the store for less than the store's regular price?
 - (3) Suppose you choose an item which is on sale for less than the store's regular price. If the store's regular price is \$10, what percent discount will you get?
- 4. A TV advertisement says, "MIRACUCLEAN! Cleans cleaner! Shines brighter! More safe! More germ-free! Buy MIRACULEAN today!"

Which phrases are vague? Support your answer.

1.6 INCONSISTENT, CONTRADICTORY, AND HYPOCRITICAL STATEMENTS

All statements which disagree or are out of harmony with each other are **inconsistent statements.**¹ When the statements get so far apart from each other that one of them has to be true and the other has to be false, then they are **contradictory statements.**¹

'Strictly speaking, it is the ideas behind the statements which are inconsistent or contradictory. These ideas may be expressed in one sentence or in several. **Example 1** (contradictory statements):

This vase will hold six roses. This (same) vase will not hold six roses.

(Notice that the statements cannot both be true, and they cannot both be false. One of them has to be true and the other one has to be false.)

Example 2 (inconsistent statements):1

This vase will hold six roses. This (same) vase will hold at least four, and at most five, roses.

(Notice that the statements cannot both be true, but they can both be false.)

Example 3 (inconsistent statements):

This vase will hold only six roses. But I'm going to try to fit seven roses into it.

(Notice that either or both statements can be true or false. In any case, there is a lack of harmony between the two sentences, for it doesn't make sense to try to fit seven roses into a vase which is known to be able to hold only six roses.)

A hypocrite (HIP uh krit) is someone who says or does things which make it seem that he or she has goodness which he or she doesn't really have.

Example 4:

Jones never gives money to a charity unless someone he knows is watching him. When he does give, he says to his friend, "I think everyone should support this charity. It does such good work."

(Jones is a hypocrite. He wouldn't have given the money if his friend hadn't been watching him. Yet his statement was meant to give his friend the impression that he (Jones) did this sort of thing all the time.)

A person makes a **hypocritical** (hip uh KRIT ih kuhl) **statement** when the statement shows her or him to be a hypocrite. In Example 4 above, we know that Jones's statement is a hypocritical statement, since we know the way Jones really is.

Example 5:

I think it's wrong for you to do that, but I'll help you do it, anyhow.

(That's a hypocritical statement. If the speaker really thought it was wrong, then she wouldn't help the other person do it.)

A hypocritical statement is also an inconsistent statement, of course. So is special pleading.

Example 6:

I think it's wrong for you to do that, but it's OK for me to do it (even though the circumstances are the same for both of us).

(That's special pleading. But it is not hypocritical, since I'm not trying to give you the impression that I'm any better than I am.)

¹Example 2 shows a pair of **conflicting statements.** Conflicting statements are not as far apart as contradictory statements. But they show that matters have gone beyond the point of being able to settle or adjust them to agreement or harmony.

Contradictory ideas are sometimes disguised, so we'll take another look at them. First, we recall that contradictory ideas must have opposite truth values. Next, we recall from CTB1 that an "if-then" sentence is false whenever the "if" part is true and the "then" part is false. All right, now we're ready.

Someone says to you, "Suppose it is true that your skin is blue." (OK, I'll suppose that.) "Now can it also be true that your skin isn't blue?" (Of course not! Those are contradictory statements, so they can't both be true. What are you, some kind of nut?)

The person asks the same question again, but in a different way this time. "If your skin is blue, then is it true that your skin isn't blue?" (The answer is still no, idiot!)

The person decides to try something different. "Suppose that everything is possible for you." (Yeah. I like that.) "Then is it possible for you to do the impossible?"

What's your answer to that one?

CLASS DISCUSSION PROBLEMS

- 1. School rules say that 65% is the lowest passing grade. Linda and Bob were both in Mr. K's class and both ended the semester with an average of 61%. Mr. K felt that Bob did not know the material and so recorded Bob's final grade as E. He felt that Linda did have at least a "poor but passing" knowledge of the material but that she always tensed up during tests. So he recorded her final grade as D. Bob knew that Linda's and his averages had been exactly the same. So when he found that his grade was E and Linda's was D, he said that Mr. K had used inconsistent reasoning. He said that if Mr. K was going to ignore the school rules for one student, then he owed it to Bob to ignore the school rules for him, too.
 - (1) Do you think Mr. K's reasoning about passing Linda and failing Bob was inconsistent? How come?
 - (2) Was Mr. K inconsistent in applying the school rule of 65% as the lowest passing grade? Explain.
 - (3) Was Bob treated unfairly by Mr. K? Explain.
 - (4) Suppose Bob feels he knows the material as well as Linda does. If you were Bob, would'you complain to the principal? How come?
- 2. A newspaper reader wrote to the editor, "I am not well informed in regard to the legislatures of other states, but I am positive the House and Senate in Midstate must be among the worst." Explain what's wrong with this reasoning.

3. Big City's newspaper reported,

A prisoner who helped a fellow prisoner escape (but made no attempt to escape himself) from the county jail could get a longer prison term than his friend who broke out. The inmate could get seven years in prison, while the escapee, who was out eight hours before being captured, could get as little as a year and a \$500 fine. Escaping from a county jail is a misdemeanor, while aiding an escape is a felony.

Do you think these laws are consistent? How come?

4. "She takes her kids to church every Sunday so that everyone will think she's a good mother. But Monday through Saturday, she's dead drunk and the kids have to take care of themselves."

What kind of actions does this statement show—contradictory, inconsistent, hypocritical, or none of these? Explain.

5. Big City's newspaper reported the following:

The son of a Jewish survivor of Nazi Germany's Auschwitz death camp has ordered his new tenants, the local Nazi party, to move out of a building where it has set up the Adolph Eichmann' bookstore.

With a big swastika out in front, along with some Nazi flags and some men in Nazi uniforms standing about, the store opened last Monday. That was the first time that X, the building owner, knew who his tenants were.

Just down the street is the Temple ____

_, a

synagog founded by German Jews after World War II. "It's a terrible reminder for our people to have to walk by that place," said the temple secretary.

X has given the Nazis a seven-day notice ending their month-to-month rental agreement. "If they do not move out at the end of their first month, I will take the matter to the courts," X said.

- (1) X is a building owner and wants to rent the building to someone. The local Nazi party wants to rent the building from X. Yet X doesn't want to rent his building to them. Is X using inconsistent reasoning? Explain.
- (2) Do you think that X should continue to rent his building to the local Nazi party? How come?
- (3) Since X is refusing to continue the rental contract, do you think that X is trying to infringe on the Nazi party's right to freedom of speech? How come?

(continued on next page)

¹Before and during World War II, Adolph Eichmann promoted the use of gas chambers to kill Jews, and he supervised the maltreatment, deportation, and mass murder of millions of Jews in Nazi Germany.

- (4) In the third paragraph, the temple secretary was quoted.
 - a.What did "it's" refer to?
 - b.Who is "our people"?
 - c.What is "that place"?
 - d.The Nazis at the bookstore are not attempting any sort of harassment of people walking by the bookstore. So why is simply walking by it a terrible reminder?
 - e.In similar cases, some people have said, "OK, so if it upsets them to walk by it, why don't they just go a different way so that they don't have to see it?" Do you think this suggestion would solve the problem for those who are upset about walking by the bookstore? How come?
- 6. Refer again to problem 5. Mr. G, who lives near the bookstore and is Jewish, said,

The bookstore frightens me. But I believe they have the right to open this store, and they have the right to display their symbols outside so that people will know about their store. And I have the right to walk on any public property in my neighborhood without seeing this living symbol of hate and desire to destroy my people. Those rights are absolutely contradictory and I don't know what to do about that.

- (1) In the last sentence, what is meant by "those rights"?
- (2) Do you agree with Mr. G's second sentence?
- (3) Do you agree with Mr. G's third sentence?
- (4) Regardless of your answers to (2) and (3), suppose that Mr. G's second and third statements are correct. Do you agree that those rights are absolutely contradictory? How come?
- (5) Do you think Mr. G should have the right stated in his third sentence? How come?
- (6) Do you think the Nazi party should have the rights stated in Mr. G's second sentence?
- (7) Again, assume that the Nazi party and Mr. G both do have the rights stated in Mr. G's second and third sentences. Mr. G said he doesn't know what to do about these conflicting rights. What do you think should be done about them?
- 7. January is in the eleventh grade. She will never copy from someone else's paper during a test, since she believes it is wrong to cheat on a test. When other students around her try to copy from her paper, she makes no attempt to cover it. She says, "If they want to cheat, that's their business. As long as I don't do any cheating myself, my conscience is clear."

Why does this show that January is being hypocritical?

8. "Do you believe that God exists?" ("Yes, I believe that.") "And can He do anything at all?" ("Sure.") "He is absolutely all-powerful?" ("Of course.") "Then can He make a stone so heavy that He can't lift it?"

Suppose you agree with the first three answers. What's your answer to the last question?

1.7 MISLEADING STATEMENTS, EUPHEMISMS, AND DOUBLETHINK

Suppose a statement tells you the truth, but it leaves you with a false picture of the whole story. We say such a statement is **misleading.**¹

Example 1:

A 12-year-old sees a bigger kid come walking along. The 12-year-old points his loaded BB-gun at the other kid and threatens to shoot if the other kid doesn't give him some money. The bigger kid slaps the 12-year-old and takes the BB-gun away from him. A bystander who saw and heard the whole thing tells it this way: "This big kid walked up to the little kid and slapped him and took his toy away from him."

(The bystander's statement is a misleading statement.)

A **euphemism** (YOO fuh mizz uhm) is an expression used in place of a less agreeable expression.

Example 2:

Speaking of his dog, a man says, "Sport was old, and his arthritis made him moan with pain every time he tried to move, so I had him put to sleep."

("Had him put to sleep" is a euphemism for "had him killed" or "had him put to death.")

Example 3:

In a televised Senate committee hearing, a former aide to the President said something which directly contradicted a statement he had made a few weeks earlier. A senator asked him about that former statement. The aide replied, "That statement is no longer operable."

("Is no longer operable" is a euphemism for "was a lie.")

Doublethink is another kind of inconsistency or contradiction. A person may have inconsistent or contradictory thoughts without being aware of it. But the doublethink user is aware of exactly what he or she is saying.

¹In ordinary usage, any statement which gives you a false picture, including a lie, is a misleading statement. In this book, however, we want to distinguish between an outright lie and a statement which is misleading as defined in this section.

Example 4:

In George Orwell's Animal Farm, the animals revolted and ran the owner off the property. The animals ran the farm themselves with the pigs acting as the leaders. One of their seven commandments was, "All animals are equal." Little by little, the pigs took special privileges not granted to the other animals. It finally got to the point where the pigs had plenty and did almost no work, and the other animals had little and worked almost all the time they weren't sleeping. One day the animals discovered that their list of seven commandments had been replaced by a single commandment:

ALL ANIMALS ARE EQUAL

BUT SOME ANIMALS ARE MORE EQUAL THAN OTHERS.

After that, the other animals understood that the pigs should enjoy special privileges.

(The new commandment is an example of doublethink. Notice that the first part reassures all the other animals that they are equal to the pigs, but the second part says, in effect, "Even so, the pigs are better than you are.")

Doublethink is sometimes disguised with a euphemism. **Example 5**:

"You are not a prisoner here. You are a guest here—a permanent guest with certain restrictions imposed on your movements for your own safety."

(Translation: "You are not a prisoner here, but if you try to leave, we will kill you." In other words, "You are a prisoner here, so don't try to leave.")

CLASS DISCUSSION PROBLEMS

For each problem, tell whether it is an example of a misleading statement, a euphemism, or doublethink (or some combination of these).

- 1. A TV ad for a housing development said, "You'll be only minutes away from downtown Big City!" The housing development was a three-hour drive from downtown Big City.
- 2. An ad in a catalog says,

Keep your kitchen counter beautiful! Invisible plastic cutting board lets you slice, chop, carve without marring your fine counter top. Cutting board cleans easily, is more sanitary than wood.

3. A Middle East leader of an organization of guerilla groups was interviewed after launching an attack against X country. The interviewer said, "The X's say this means you want to destroy their state." The leader replied, "They are wrong. We do not want to destroy any people. It is precisely because we have been advocating coexistence that we have shed so much blood."

- 4. The war between X country and the Middle East leader's country (from problem 3 above) continued over a period of many months. At one point, X country bombed some of the other country's refugee camps, killing 75 and wounding 150. In response to criticism of these attacks, the X country leader said, "There is nobody who writes against us who cares more about those innocent victims than we do."
- 5. An ad for ELF, a small car, claimed, "ELF goes farther on a tank of gas than other cars its size." ELF's gas tank was a good deal larger than the gas tanks of the other cars of its size.
- 6. A newspaper article was headlined, "Doctors' Ignorance Shocks Educators." The article said,

Research by the teaching staff at Famous Medical College has shown that the average doctor is not aware of recent advances in medicine which could save many patients.

Although the discovery of a cure for ______ was published in a medical journal over six months ago, three out of every four doctors questioned were unaware of this cure. [Results of the questionnaires followed.]

The researchers said that the medical journal in which the cure was announced is one which is not read by the majority of doctors. They said that medicine today would be much more effective if such cures were announced in the medical journals read by most doctors.

- 7. A dog food commercial claimed, "X BRAND dog food has the vegetable protein that hamburger lacks." Being a <u>meat</u>, hamburger does, of course, lack <u>vegetable</u> protein. But vegetable protein is not as nutritional as meat protein.
- 8. The label of a canned drink said, "Fruit Juicy RED with 7 Real Fruit Juices and Other Natural Flavors." Only 1/10th of the drink was from the 7 juices. The other 9/10ths was mostly water, sugar, and corn syrup.
- 9. A newspaper reported,

The FDA announced that Big Corporation has agreed to repair 50,000 microwave ovens sold during the last two years which may be leaking excessive radiation.

The acting FDA commissioner said, "We are requiring this repair program because the door seals on these ovens can wear down with use, resulting in a leakage of radiation above that allowed by our safety standards. We see no danger from use of the ovens during the time it will take to repair them under this repair program."

- 10. A captain whose company had been ambushed said, "We engaged the enemy on all sides."
- 11. A man who picks up garbage used to be called a "garbage man." Now he is called a "sanitation engineer."

- 12. A six-volume set of books was being offered for sale for the first time. The ad said, "These volumes never sold for less than \$25.00! All six can now be yours for only \$9.95!"
- 13. Johnny is a spoiled brat and a bully. His teacher sends a note home to his parents. The note says, "Please call me to set up a conference about Johnny. He seems to be having trouble adjusting to a classroom situation."
- 14. A plumbing company advertised, "Need a new water heater? Let us install one for you on a 45-day free trial basis." The Mackeys had one installed and 30 days later decided that it wasn't a good heater and they didn't want it. When the plumbing company refused to take it out, the Mackeys reminded them of the 45-day free trial offer. The company said that that had nothing to do with taking the heater back. The deal was that the Mackeys had 45 days after the heater was installed before their first payment on it was due, so that was 45 days of free trial of the heater.
- 15. Two auto companies, B and C, each agreed to race one of its large-size cars against a similar car from the other company. B Company's car won the race.
 - (1) B Company's advertising announced, "B car wins in big auto race! C car finishes last!"
 - (2) C Company's advertising announced, "C car places second in big auto race! B car finishes next to last!"

1.8 MEANINGLESS WORDS AND GOBBLEDEGOOK

When I make up a word like "ziffer" and say to you, "All ziffers have stripes," you know I'm kidding around. We both know that "ziffer" is a **meaningless word**, and neither of us takes it seriously. But advertisers sometimes make up words to sell products, and the public is likely to think these words are meaningful.

Example 1:

To insure that your new SUPER-8 is protected against rust, each SUPER-8 goes through our exclusive new Rustoff process before it leaves the assembly line.

("Rustoff" is a meaningless word.)

Not all meaningless words are "fake" words like "ziffer" and "Rustoff." Everyday words can be meaningless (for all practical purposes) when used in certain ways. Example 2:

Come in and see our complete new carpet selection in the latest decorator colors!

(What is a "decorator" color? Why, it's a color someone uses to decorate something with, of course. So if you buy a carpet to help decorate your house, you have bought it in a "decorator" color. In this context, "decorator" is a meaningless word.)

When someone uses a long and complicated way to say something rather simple, the person is using **gobbledegook** (GOBB uhl dee gook).

Example 3:

The duties and responsibilities of the grounds supervisor shall include planting, nurturing, watering, raising, cutting, trimming, mowing, pruning, weeding, and generally fostering the health, growth, and appearance of all appropriate plant life on these premises, with the exception of plant life in the interiors of the buildings -"appropriate" to be determined by the owners of said premises after suitable consultations with the grounds supervisor-in addition to the procurement and maintenance of all necessary equipment, tools, and supplies, necessary to and concomitant with executing the aforementioned duties and responsibilities.

(Translation: The gardener is to keep the grounds around the buildings looking good and is to buy things needed for the gardening and is to keep the gardening equipment repaired. If the owners want to change the layout, they'll let the gardener know.)

Sometimes gobbledegook isn't a lot longer than the simple way to talk, but it is always more complicated. Example 4:

Handwritten reports are not acceptable. It is recommended that reports be processed by one of our personnel in our information processing center.

(Translation: We won't accept handwritten reports. Have reports typed by someone in our typing pool.)

CLASS DISCUSSION PROBLEMS

Problems 1-4: Tell why each statement is (for practical purposes) meaningless.

- 1. "This is being sold at a fraction of its original cost."
- 2. "We tested two-year-old X batteries against new batteries of other brands. In continuous use, X batteries still outlasted the other brands up to 5 times longer."
- 3. "A recent study shows that aspirin substitutes were not found safer than aspirin."
- 4. Ad for auto part: "This fits 99% of cars and trucks."

Problems 5-9: Translate the gobbledegook to simpler language.

5. Consumers are cautioned not to incinerate this container, since doing so could conceivably result in excessively rapid expansion of remaining gases resulting in an abrupt rupture of the container.

6. (This note was sent home with a student's report card.)

Your son or daughter has been selected to participate in our innovative program which is structured to allow each participant to attain at his or her highest intellectual level and in his or her most effective cognitive style under the skilled guidance of a professional educational coordinator, while at the same time allowing for disparities in abilities among the several participants in the program.

 (This is quoted from a report written by a midwest state's Board of Higher Education in their approval of a \$168,000 project, "Educational Resources Centers Joint Task Force Development.")

> The purpose of this project is to develop the capability for institutions of higher learning and community agencies and organizations to coalesce for the development of community services that would maximize the available resources from a number of institutions and provide communication and priority needs and the responses to the educational needs of a given community.

8. (This is from a regulation of the U.S. Department of Interior's National Park Service.)

No person shall prune, cut, carry away, pull up, dig, fell, bore, chop, saw, chip, pick, move, sever, climb, molest, take, break, deface, destroy, set fire to, burn, scorch, carve, paint, mark or in any manner interfere with, tamper, mutilate, misuse, disturb or damage any tree, shrub, plant, grass, flower or part thereof, nor shall any person permit any chemical, whether solid, fluid, or gaseous, to seep, drip, drain or be emptied, sprayed, dusted on, injected upon, about or into any tree, shrub, plant, grass, flower.

9. Effective immediately, all personnel will refrain from wearing such clothing, attire, or garments as might be considered to be incompatible, inconsistent, or otherwise inappropriate to the position held, with especial consideration given to the thought of whether or not such clothing, attire, or garments would be ultimately deemed by our clients to inspire a lack of confidence, faith, or reliance in the abilities of our organization to serve said clients efficaciously, effectively, efficiently, and in a trustworthy manner.

1.9 LOADED QUESTIONS

A **loaded question** is a question which is stated in a slanted way. It has built-in unfairness. In effect, it either tricks you into saying things you did not intend to say, or it makes you look bad just by the way it is asked.

There are basically five kinds of loaded questions. The first kind of loaded question makes an insinuation against you whether or not you answer the question.

Example 1:

It's obvious that this isn't the first time you've done this kind of thing, so just how many other times have you been involved in this kind of thing?

(If you answer "none," the listener is left with the impression that you're lying.)

The second kind of loaded question demands a yes or no answer when such an answer may not give a true picture. Example 2:

Do you deny that you planned this crime in detail for two months before you actually carried it out?

(Whether you answer "yes" or "no," the listener infers that you did, in fact, commit the crime.)

The third kind of loaded question demands that you choose one of two or more sides, none of which may be desirable.

Example 3:

Did you decide to be a coward by ignoring the whole thing before, or after, you found out that they were not going to threaten you?

(Whether you answer "before" or "after," you are admitting that you decided to be a coward.)

The fourth kind of loaded question practically forces you to answer it in a certain way.

Example 4:

It has been proved that especially violent TV programs are followed by crimes which are copies of this violence and for which the criminal has admitted getting the idea from the TV program. Are you, therefore, in favor of banning this kind of violence from TV?

(If you answer "no," you are saying, in effect, that you don't care if crimes are committed or people get hurt.)

The fifth kind of loaded question (sometimes called "complex question") asks several questions in one. Example 5:

Do you deny that you had done this kind of thing before, that you had planned this particular crime in detail for two months, that you forced your friend to go with you, that you got the idea for it from a TV program?

(You might wish to state that you forced your friend to go with you but deny the rest of the charges. But the guestion is worded in an "all or nothing" way.)

As you can see from the examples above, the lines between the kinds of loaded questions are not clearly drawn. For instance, insinuation (in Example 1) is also used in Examples 2 and 3. The "answer me yes-or-no" loaded guestion (in Example 2) is also used in Examples 4 and 5. But it doesn't especially matter whether or not we know what kind of loaded question it is. The important thing is to know a loaded question when we hear it and to be able to say just why we think it is loaded.

CLASS DISCUSSION PROBLEMS

Tell whether or not the problem is an example of a loaded question. If it is, tell why you think so.

- 1. Did you realize when you did it that it was an immoral thing to do, or have you no sense of right and wrong?
- 2. It has been established that there is too much violence on TV during the hours children are most likely to be watching TV. Since children often imitate what they see on TV, are you in favor of a law prohibiting such programs during these particular hours?
- 3. You've already told me you did it, so what I want to know now is, why in the world did you do that terrible thing?
- 4. A man accused of purse-snatching decided to act as his own attorney. While questioning the victim in court, he asked her, "Did you get a good look at my face when I took your purse?" (The jury convicted him.)
- 5. And do you expect us to believe this pack of lies?
- 6. The U.S. Supreme Court has ruled that our constitutional guarantee of freedom of the press extends to television. Just as TV stations can broadcast whatever they wish, TV viewers can turn off any programs they don't like. Do you agree that it would therefore be unAmerican to try to dictate to TV stations what and when they are allowed to broadcast?

1.10 CHAPTER REVIEW PROBLEMS FOR CLASS DISCUSSION

Problems 1-7: A context is described. It is followed by two or more words (or phrases). For each word (or phrase), use the context to make up a sentence which uses the word (or phrase). Make the sentences sound worse as you go from describing yourself to describing other people.

- 1. Actors and actresses were in a Broadway play—a few rave notices, smash hit, some good reviews.
- 2. Parents do not control their children—indulgent, let(s) them run wild, overly lenient.
- 3. People meet new people—pushy, friendly.
- 4. People do not want to consider other opinions—unresponsive, firm, closed-minded.
- 5. People do not want to consider new ideas—believe in the tried-and-true, against progress, stick-in-the-mud.
- 6. People find ways to cut red tape—take chances, enterprising, break(s) the rules.
- 7. People change their minds easily and often—openminded, unstable, irresolute.

What's wrong with this reasoning? "I'll prove to you that a normal bird has 12 legs. Here's how. No bird has 10 legs, and a normal bird has 2 legs more than no bird at all, so a normal bird has 12 legs."	
A reader of a well-known bishop's newspaper column wrote to him, "As a man of peace, you should take the stand that young men should not go to war. That would solve many of the problems we are subject to."	
 (1) What does "that" mean in the writer's second sentence? (2) Who is "we" in the writer's second sentence? (3) Since the writer believes that young men should not go to war, who does the writer believe should defend our country if we are attacked? (4) What does the writer mean by "many of the problems we are subject to"? (5) Why do you think the writer thought that the bishop was a "man of peace"? (6) Give two ways to interpret the sentence, "He is a man of peace." (The sentence does not mean, "He is a man during times of peace.") (7) Judging from the letter, which interpretation of "man of peace" do you think the writer called the bishop a "man of peace"? 	
A newspaper reported, "A professor at Famous University predicted that ten years from now, more than half of all workers will be producing goods or services that haven't been invented yet." Give two ways to interpret "haven't been invented yet," one of which the sentence really meant, and the other of which someone might think was meant but which wouldn't make sense.	
. In Lewis Carroll's <i>Through the Looking-Glass</i> , Alice brushed the Queen's hair. When she was done, she said the Queen looked better but really should have a lady's maid.	
"I'm sure I'll take you with pleasure!" the Queen said. "Twopence a week, and jam every other day." Alice said, "I don't want you to hire me—and I don't care for jam." "It's very good jam," said the Queen. "Well, I don't want any today, at any rate." "You couldn't have it if you did want it," the Queen said. "The rule is, jam tomorrow and jam yesterday—but never jam today." "It must come sometimes to 'jam today,'" Alice ob- jected	
"No, it can't," said the Queen. "It's jam every other day —today isn't any other day, you know."	
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- (1) What did Alice think the Queen meant by "every other day"?
- (2) What did the Queen mean by "every other day"?
- (3) If Alice had accepted the job, would she ever have had jam as part of her wages? Explain.
- 12. In Midstate, a Big City newspaper has a "Last Resort" column. People who feel they have been cheated can write to the column reporters for help. The following letter was published:

In all of the previous "instant winner" games of the Midstate Bureau of State Lottery, the tickets have said: "If the same prize amount appears in three separate boxes on this ticket, you win that prize," or words to that effect. But the new "Midstate 1000" tickets say: "Match three prize amounts and win that amount." Well, I've got a ticket with two free TICKET boxes, two \$2 boxes, and two \$5,000 boxes. That's matching three prize amounts. Why can't I win?

- (1) The writer asks, "Why can't I win?" What does this imply? (Choose one.)
 - a. He hasn't checked yet, but he takes for granted that the lottery bureau will say he can't win.
 - b. He hasn't checked yet, but he takes for granted that the lottery bureau will say he can win.
 - c. He checked with "Last Resort" about it before, and they said he couldn't win. Now he wants to know how come.
 - d. He checked with the lottery bureau and they said he couldn't win. He thinks he should win.
- (2) a. What ambiguous sentence is causing the disagreement?
 - b. How does the lottery bureau interpret the sentence?
 - c. How does the writer interpret the sentence?
 - d. Do you agree that the sentence makes sense the way the writer interprets it? How come?
- 13. Abraham Lincoln once asked a man, "If we say that a horse's tail is a leg, then how many legs does a normal horse have?" "Five," answered the man. "No, it has only four," answered Lincoln. "Saying that a tail is a leg doesn't make it a leg."
 - (1) What word or phrase is ambiguous in Lincoln's question?
 - (2) How did Lincoln interpret the ambiguous word or phrase?
 - (3) How did the other man interpret the ambiguous word or phrase?

14. If we agree to call a horse's tail a leg, then how many legs does a normal horse have? Support your answer.

15. X was the current U.S. Secretary of State. He had been the Secretary of State for several years and had served under two Presidents. X had a record of being a successful mediator between other nations who were threatening war with each other. Part of his success was because he could be trusted by both sides not to tell what went on during the negotiations. But part of his success was because he offered many millions of U.S. dollars (with the consent of the President) to both sides if they would settle their differences peacefully. A candidate for the office of U.S. President said,

Secretary of State X engages in international adventurism.¹ His dealings are secretive and his policies are amoral.¹ It's time to stop this one-man show and return to the decency and generosity and common sense of our people.

- (1) In the candidate's first sentence, does he seem to think that X is doing something good, bad, or indifferent?
- (2) How did the candidate back up his first sentence?
- (3) In his second sentence, the candidate says that X's policies are amoral.
 - a. To what kind of policies is the candidate referring?
 - b. Does the candidate think these policies are good, bad, or indifferent?
 - c. Look in the glossary at the (a) and (b) definitions of "amoral." Which of these do you think the candidate meant? How come?
 - d. Suppose that X's foreign policies were, in fact, amoral in the sense of your answer to "c" above. Do you agree with the candidate's thinking (from your answer to "b" above) about these policies? How come?
- (4) In his second sentence, the candidate says that X's dealings are secretive.
 - a. Judging from the context, to which of X's dealings was the candidate referring? (Choose one.) How come?
 - A. X's dealings with the newspapers, magazines, and TV.
 - B. All of X's dealings in general, including his personal life.
 - C. All of X's dealings in his public life.
 - D. X's dealings with foreign governments.
 - b. Does the candidate feel that X's dealings should have been secretive, or not? Or is he indifferent about it?
 - c. Do you agree with the candidate on whether or not the dealings should have been secretive? How come?

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'See the glossary.

- (5) What did the candidate imply when he said "oneman show"? (Choose one.)
 - a. X was the only one who was showing up at the negotiations.
 - b. X was bragging a lot about his accomplishments.
 - c. X was making foreign policy decisions without consulting other people in the U.S. State Department.
 - d. X was sticking his nose, uninvited, into other nations' affairs.
- (6) Does the candidate approve, or disapprove, of X's "one-man show"?
- (7) What did the candidate imply in the second part of his last sentence ("and return to ...")?
- (8) In this context, what does the candidate mean by "the decency and generosity and common sense of our people"?
- 16. Reports reached the U.S. that the government of Zerbrania, a South American country, was using extreme torture methods on prisoners in their jails. The U.S. sent a four-member team to visit Zerbrania and see what they could find out within the country. The team spent eight days there. Upon returning, one of the members said, "There are incredible tales of torture being used by the Zerbranian government. There is no reason to deny or question the truthfulness of the witnesses we interviewed. The reports we heard before we left were not exaggerated. It's just an unbelievable situation."
 - (1) "Incredible" means "very probably untrue."
 "Unbelievable" means "surpassing belief." So what did the speaker mean by his or her second statement? (Choose one.)
 - a. It is so obvious the witnesses were lying that there is no sense in questioning them further.
 - b. The witnesses were lying, but they thought they were telling the truth.
 - c. The witnesses were not exactly lying, but they exaggerated their statements.
 - d. The witnesses told the truth.
 - (2) In view of what "incredible" and "unbelievable" mean, do you think the speaker's statements were inconsistent? How come?

17. Rumors went around Bradley's neighborhood that an adult bookstore was going to open up two blocks away. Bradley got almost everyone for blocks around to sign a petition asking the City Council to block the opening. The Council allowed the store to open. Bradley organized a picket line, and they picketed the store every day for a week. The bookstore got a court order forbidding any more picketing. A week later, Bradley was in that bookstore buying some books for his own use.

Why does this show that Bradley was being hypocritical?

18. B, C, D, and E are Hollywood stars at the peaks of their careers. All get \$1 million or more for each picture made. X, an agent, said, "There's only one reason celebrities do commercials. They need the money. And there's no one you can't approach to do a commercial. If someone asks for B, I tell them to get their act straightened out and bring their eyes down to earth. Some have the nerve to ask for C at \$3,000. C wouldn't do a commercial for 100 times that. No amount of money could get stars like C or D or E to do a commercial."

Do you think X's statements are inconsistent? How come?

19. The Food and Drug Administration (FDA) proposed a ban on saccharin. The public's reaction was immediate and heated. Here is one person's letter to the editor of Big City's newspaper:

The FDA has done it again! Now we have a ban on saccharin because of a possible link to cancer in rats, when the sugar substitute is consumed in large doses.

Why can't the FDA be consistent? It is definite that there is a cancer risk from smoking. And what about the effects of overdosage of alcohol? But does the FDA ban cigarets? Does it ban alcohol? No—because our tobacco and alcohol industries won't stand for it.

A health warning such as those on cigarets could be put on saccharin, couldn't it?

- (1) Judging from the letter, does the writer approve, or disapprove, of the FDA's ban on saccharin?
- (2) a. What does the writer imply in the second question of the second paragraph (of the letter)?
 - b. Do you agree with this implication?
- (3) a. What does the first question in the second paragraph imply?
 - b. How does the writer back this up?
- (4) Do you agree that the writer has pointed out inconsistent thinking on the part of the FDA? How come?

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- (5) Does the writer suggest a way for the FDA to be consistent and yet do its duty without banning saccharin? Explain.
- (6) See the last statement of the second paragraph. This implies a serious charge against the FDA. What is this charge?
- 20. The following letter to the editor appeared in Big City's newspaper.

Violent TV teaches violence. If two minutes of commercials can influence our behavior, and the advertisers believe it can, then the other 28 minutes of aggressive brutality certainly does.

Blame TV for providing both the ideas and the motivation for the frustrated, the mentally ill, the criminal, the dull-witted and the suggestible to copy what they see on the tube. Our most gifted creative artists are working their brains overtime to inspire the potentially violent to action.

TV does not cause crime. It spreads crime, it inspires crime, it makes crime more brutal, more frequent, more random, more vicious, more bizarre, more senseless, more common and more tragic. It increases the probability of our becoming victims of the very terror we see on our sets.

- (1) Do you believe that people are influenced by commercials on TV? How come?
- (2) Does the writer believe that violent TV influences people to be violent? Support your answer.
- (3) Do you agree with the first sentence of the second paragraph? How come?
- (4) In the second paragraph, who does the writer mean by "our most gifted creative artists"?
- (5) In the second paragraph, who does the writer mean by "the potentially violent"?
- (6) In the third paragraph, the writer says that TV doesn't cause crime. Does the writer believe this? What makes you think so?
- (7) Is the writer's reasoning inconsistent? Explain.
- (8) Do you believe that TV causes crime? How come?
- (9) See the second sentence of the third paragraph. Do you agree with this? How come?
- (10) See the third sentence of the third paragraph. Do you agree with this? How come?
- (11) Go back and look at your answers to items (3), (8),
 (9), and (10). Are your answers to these either all "yes" or all "no"? If not, explain how you can have different answers and not be using inconsistent reasoning.
- 21. A psychologist says that people should take a stronger hand in managing their own careers. She also says that people often need career counseling.

Is her reasoning inconsistent or contradictory? Explain.

- 22. What happens when an irresistable force meets an immovable object?
- 23. Some of Big City's baseball fans started bringing firecrackers and bottles into the stadium. They threw the firecrackers and bottles at fans in lower decks and onto the playing field after pouring liquids from the bottles onto the people in the lower decks. Games were delayed and people were seriously injured. The majority of fans were naturally very angry about this, and they complained to the stadium management. They said it was the management's responsibility to protect them from the fans who were making the trouble. As a result, the management has instructed the stadium's security guards to search everything brought into the stadium (including sacks, purses, and briefcases) which could carry such items. Now the same fans who were demanding protection are complaining that the security guards are harassing them by searching such containers.
 - (1) Do you think the fans should have complained to the management in the first place (about the firecrackers and bottles which were thrown)? How come?
 - (2) Do you think the management should have ignored the complaints? How come?
 - (3) Do you think the management did the right thing when it instructed the security guards to search containers which could carry bottles and firecrackers? If not, what do you think the management should have done to solve the problem?
 - (4) Do you think the people who complained in the first place about lack of protection and who are now complaining about harassment are using inconsistent reasoning? How come?
- 24. People were being robbed and assaulted in Big City's downtown area. As word of this spread, people started staying away from the downtown stores and shopping instead in the suburbs. Several large stores downtown closed. Workers in the downtown office buildings were afraid to go to work, and several companies moved to other locations. The downtown area was on the way to becoming an abandoned area. The mayor ordered more police assigned to the downtown area and ordered more and brighter lighting for the night hours. Efforts were made to get businesses to reopen and to get new businesses to move in. Now people have started saving good things about the downtown area again. But a bad reputation is hard to overcome, and many people still refuse to go downtown. A letter to the editor of Big City's newspaper today says,

(continued on next page)

Our mayor tells us downtown Big City is safer than ever. Yet when our biggest department store advertised its recent downtown warehouse sale, it felt compelled to stress that there would be guarded parking.

- (1) How safe does the mayor say downtown Big City is?
- (2) If you lived in or near Big City, do you think you would believe the mayor? How come?
- (3) What is the department store's opinion of how safe downtown Big City is?
- (4) Do you think that the department store might provide guarded parking even if the store thought the guards were not needed? How come?
- (5) Do you think the department store's action (guarded parking) is consistent with the mayor's statement ("safer than ever")? How come?
- 25. Certain things had been said about an author. In his book, the author denied these things. He was sued for the way he stated this denial. The suit charged that the book "contained false, libelous and defamatory matter" in the denial. The suit also charged harmful intent and said that the author "knew the denial was libelous and false and he failed to try to ascertain whether it was true or false."

Regardless of whether or not the author was lying about the matter, what's wrong with the charges against him?

26. A newspaper reported,

Experts at a UN conference disagree with the U.S. President's warning that we are now running out of gas and oil. They hold that the world probably has enough of both for another 100 years. The experts agreed that oil and gas from the usual sources "would last at least another 40-50 years" and that other sources will extend supplies even further.

- (1) What is misleading in the newspaper's report?
- (2) Are the second and third sentences inconsistent? Explain.
- 27. Big City's newspaper refuses to run ads for X-rated movies. A reader wrote to the editor, "Your policy of refusing X-rated movie ads isn't consistent with your editorial's insistence upon First Amendment guarantees."
 - (1) What did the writer mean by "First Amendment"?
 - (2) What does the First Amendment guarantee?
 - (3) Do you agree with the reader's statement? How come?

28. The U.S. was involved in a foreign country's war. There were many protests about this from U.S. citizens. Some young men were so much against the war that they moved to other countries to avoid being drafted to fight in it. After the U.S. took its troops out of the foreign country, the next U.S. President declared a blanket pardon for those who had left the U.S. to avoid the draft. One such man said,

The President is speaking out of both sides of his mouth. Out of one side he says the war was wrong and we were right to resist the war by refusing to be drafted. But out of the other side he's saying that those who left the country, rather than fight what he himself admitted was an unjust war, were wrong.

- (1) What does "speaking out of both sides of the mouth" mean?
- (2) Do you think the President was speaking out of both sides of his mouth? How come?
- 29. Before the energy crisis, utility companies told us not to turn down the furnace thermostats at night. They said that doing so just made the furnaces work all the harder to heat the houses back up in the daytime after we turned the thermostats back up. Now these same companies are telling us to dial down at night to save fuel.

Is the advice they are giving us now consistent with the advice they gave us before the energy crisis? Explain.

30. A supermarket chain was accused of running a misleading ad about some research results. After a good deal of public pressure, a chain executive announced, "While the ad is accurate, it is being rewritten to better reflect the actual results of the research."

Has the executive admitted that the ad was misleading?

Problems 31-52: For each problem, tell whether it is an example of a misleading statement, a euphemism, double-think, or none of these.

31. It was December, and the new U.S. President was to be sworn into office in January. The Bayers received an engraved card which read

> A special invitation to commemorate the Inauguration of (name of the next President) as the President of the United States (date of the inauguration) R.S.V.P.

> > (continued on next page)
The Bayers thought it was an invitation to attend the President's inauguration in Washington. Enclosed with the card, however, was an ad from a company which makes commemorative medals. They wanted \$50 for a "gold inaugural medal."

32. In Phil Frank's comic strip, "Travels with Farley," the following conversation appeared: Farley: "Have you ever thought of moving your fort rather than try to kill off the squirrels?" Colonel: "Move my fort? That would be a virtual surrender."

Farley: "Actually, I was thinking of a wise tactical move that would give you superior placement by relocating equipment and personnel, resulting not in surrender, but 'peace with honor.' "

Colonel: "'Peace with honor'? Hmm. It does have a nice ring."

33. A movie ad said, "Acclaimed by a leading critic! 'Magnificent!' 'Beautiful!' 'Extraordinary!' 'Overwhelming!' 'Spectacular!' " The critic's statement from which these words were taken was,

> I left that magnificent theater in its beautiful surroundings feeling like an extraordinary fool for wasting my time on this poor excuse for a movie. I was fighting an overwhelming urge to kick in the teeth of the director responsible for this spectacular waste of time and money!

34. In Vossur, a country ruled by the Communist Party, less than 10% of the people are members of the Communist Party. Some of the items found in Vossur's new constitution are these:

All power in Vossur is vested in the people.

The Communist Party of Vossur is the leading and guiding force of its political system.

Vossur citizens are guaranteed freedom of speech, press, assembly, and religion, as well as freedom to choose training and education according to their abilities, provided that the freedoms mentioned in this paragraph are exercised with due account for the needs of society and in conformity with the interests of the working people and for the purpose of strengthening the Communist Party.

- 35. Every one of Mary's classmates dislikes her intensely because of her generally obnoxious behavior. On Mary's report card, the teacher writes, "Mary appears to have some difficulty in relating to her classmates."
- 36. A U.S. Senator was accused of forging her secretary's name to certain letters. "I've never forged anybody's name," the Senator said. "I might very well have signed his name in his absence, with no intent to be misleading to anyone."

37. This problem refers to the same war as problem 28. The U.S. President decided to pardon all the men who had evaded the draft during that war. He announced this decision in a speech to the American Legion (a national association of war veterans).

I do not favor a blanket amnesty, but for those who violated our draft laws, I intend to grant a blanket pardon. To me, there is a difference. Amnesty means that what you did is right. A pardon means that what you did—right or wrong—is forgiven. So pardon, yes; amnesty, no.

The dictionary defines "amnesty" as "the act by which an authority (such as a government) grants a pardon to a large group of people."

38. In Orwell's Animal Farm, Napoleon has wanted to be the leader since the animals first revolted. Finally, he overthrows the leader, Snowball, and declares himself to be the leader. Squealer, who has a way with words, and who supports Napoleon, says to the other animals,

> I trust that every animal here appreciates the sacrifice that Comrade Napoleon has made in taking this extra labour upon himself. Do not imagine, comrades, that leadership is a pleasure! On the contrary, it is a deep and heavy responsibility. No one believes more firmly than Comrade Napoleon that all animals are equal. He would be only too happy to let you make your decisions for yourselves. But sometimes you might make the wrong decisions, and then where should we be?

39. At another point in *Animal Farm*, we find this:

Meanwhile life was hard. The winter was as cold as the last one had been, and food was even shorter. Once again all rations were reduced, except those of the pigs and the dogs [the pigs' bodyguards]. A too rigid equality in rations, Squealer explained, would have been contrary to the principles of Animalism [among which was the statement, "All animals are equal."]... For the time being, certainly, it had been necessary to make a readjustment of rations (Squealer always spoke of it as a "readjustment," never as a "reduction")....

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40. A newspaper reported the following:

Statistics prove 'safe' drivers bad

Motorists with spotless driving records have most of the accidents in Midstate, safety officials said yesterday.

Figures show that 64 percent of the drivers involved in traffic accidents three and four years ago—the last years for which figures are available—were "good" drivers with clean records for the previous two years.

Only 5 percent of the total accidents during the two years involved "problem" drivers.

The overall message, according to Midstate's Secretary of State, is that "accidents are not attributable to any small group of repeaters, but are a large-group problem, happening to drivers with very good as well as very poor traffic records."

- 41. In an ad about its evening news broadcast, one of the major TV networks said that it was "the network more people are watching." The network had recently hired a new newscaster, and it was true that more people were watching than before this newscaster was hired. But still more people than that were watching each of the other major TV networks.
- 42. A car rental agency's ad says, "Now you can rent this compact . . . for just \$17.50 a day plus mileage. You only pay for the gas you use." The "plus mileage" charge often amounts to another \$15 to \$20 a day.
- 43. A racehorse fell and broke a leg. The owner got his gun and said, "I'm going to have to put him out of his misery."
- 44. An ad which ran in several magazines showed full-sized bottles of cosmetics. The ad offered a "skin care collection" free except for a \$1 postage and handling fee. People who sent in \$1 got a set of tiny vials containing no more than 1/30th ounce (less than 1 gram) of each of the products.
- 45. X company offered subscriptions to three nationallyknown magazines for a total of 60¢ a week to cover postage and handling if the subscriber would sign a 5-year contract for the magazines. (The subscriber knew that one of the magazines was issued weekly and the other two were issued monthly. The total price would be about \$4.50 a month if purchased at a store.) The contract did not state that the 60¢ a week would amount to about \$156 over the 5-year period.
- 46. Some banks advertise a "free checking account if you keep at least \$250 in the checking account at all times or if you have a savings account of at least \$500 here." If your balance falls below the minimum, the cost is usually about \$1 a month plus 10¢ for each check and each deposit.

47. A catalog for unusual items shows a small picture of a good many buttons of different colors and sizes. "125 buttons" is printed in a lower corner of the picture. Under the picture, the copy reads,

A BUSHEL OF BUTTONS! All sizes, colors, shapes! Now, you'll have the right one for shirts, blouses, pants! Bag of 125.

48. An ad for the X Food Processor included,

IT'S A FOOD SAVER...

With the X Kitchen Helper, there's no wasted food. Meat or vegetables are chopped, grated, shredded or ground down to the last piece.

A TIME SAVER...

No more standing over the chopping block for hours. Just pop your food into the X, plug it in, and presto, your meat or vegetable is prepared to perfection. In a few easy minutes, you can fix all those fancy recipes that took forever to make by hand.

IT'S A HASSLE SAVER...

No more fussing at the dinner table when you serve delicious, nutritious dishes prepared the X way.

- 49. The label on X, a leading cat food, includes a rectangle with several items listed under the headings "Nutrient," "NRC Requirements," and "X Cat Food." In each case, the "X Cat Food" number is at least equal to the "NRC Requirements" number. ("NRC Requirements" is not explained.) The label does not include the information that cats also need other nutrients in order to be healthy.
- 50. Big City's mayor announced at a news conference that Big City's major crime rate three months ago was nearly 20% lower than it had been for the same month the previous year. He said it was the greatest decrease in crime among the nine largest U.S. cities. He did not mention that in that same month, there were more violent crimes reported in Big City than in either Chicago or Los Angeles, cities with more than twice the population of Big City's. He also didn't mention that when the number of violent crimes is compared with the city's number of people, Big City still had the highest violent crime rate of any large U.S. city.
- 51. X, a top executive of a large company, was fired for goofing off and spending most of his office time on personal business. The company announced, "We agreed today to release X from his contract with us so that he will be free to pursue other interests."

52. T and S countries had many political differences. Although they were not at war, the situation was tense. In both countries, the citizens favored settling the dif- ferences peacefully. S country finally started a war by bombing one of T country's biggest cities. Knowing their own citizens would be outraged by this act, the leaders of S country announced, "Negotiations with T country have come to a dead end. We had no alter- native except to protect our interests. We simply took preventive measures to assure the preservation of our ideals."
Problems 53-59: The statement uses a euphemism. Tell what the euphemism is, and rewrite the euphemism in plain language.
 53. "Buy a pre-owned car from Al's today." 54. "In a tense situation, anyone can suffer from nervous wetness. Use Q underarm deodorant." 55. "This is a genuine imitation leather purse." 56. "We sell all kinds of boat supplies, including the latest personal preservation flotation devices." 57. Airline reservations clerk: "Will you be flying first class."
 58. Announcement from personnel office of a large company: "We have eliminated redundacies in our human resources." 59. "Our generation believes in the new morality."
Problems 60-64: Tell why each statement (for practical purposes) is meaningless.
 60. "This product is sold at all leading stores." 61. "This appetite control plan is so effective that you lose up to 6 pounds the very first weekend!" 62. "Sign up for our correspondence course in writing today! We'll give you all the help you need to become a successful author!" 63. "This offer has never been made to the public before!" 64. "Never before has there ever been a carpet sale like
 this one!" 65. This is Section 1604.2(b)(1) in the U.S. Equal Employment Opportunity Commission's pamphlet, "Guide-lines on Discrimination Because of Sex." Rewrite it in simpler language. (Hint: It can be done in one sentence.)
Many States have enacted laws or promulgated adminis- trative regulations with respect to the employment of fe- males. Among these laws are those which prohibit or limit the employment of females, e.g., the employment of fe- males in certain occupations, in jobs requiring the lifting or carrying of weights exceeding certain prescribed limits, dur- ing certain hours of the night, for more than a specified number of hours per day or per week, and for certain periods of time before and after childbirth. The Commis-
sion has found that such laws and regulations do not take into account the capacities, preferences, and abilities of in- (continued on next page)

dividual females, and, therefore, discriminate on the basis of sex. The Commission has concluded that such laws and regulations conflict with and are superseded by Title VII of the Civil Rights Act of 1964. Accordingly, such laws will not be considered a defense to an otherwise established unlawful employment practice or as a basis for the application of the bona fide occupational qualification exception.

66. This is Section 703(j) of the Equal Employment Opportunity Act of 1972. Write it in simpler language.

Nothing contained in this title shall be interpreted to require any employer, employment agency, labor organization, or joint labor-management committee subject to this title to grant preferential treatment to any individual or to any group because of the race, color, religion, sex, or national origin of such individual or group on account of an imbalance which may exist with respect to the total number or percentage of persons of any race, color, religion, sex, or national origin employed by any employer, referred or classified for employment by any employment agency or labor organization, admitted to membership or classified by any labor organization, or admitted to, or employed in, any apprenticeship or other training program, in comparison with the total number or percentage of persons of such race, color, religion, sex, or national origin in any community, State, section, or other area, or in the available work force in any community, State, section, or other area.

67. Simplify this announcement to employees of a California laboratory.

Any employee whose current salary rate exceeds the new top of the salary range for his or her classification will not be eligible for the general increase unless the new top of the salary range for his or her classification exceeds the employee's current salary rate.

68. Simplify this announcement.

It has been determined by our inventory control department that our inventory is being unexplainably depleted beyond normal expectations accounted for in the ordinary course of manufacturing and production of our several products, and increased security measures have been implemented in order to facilitate better control of inventory in order to terminate this unfortunate situation.

Problems 69-73: Tell whether or not the problem is an example of a loaded question. If your answer is yes, tell why you think so.

- 69. Do you seriously think we should believe this story —this fairy tale—you've told us?
- 70. Government regulations say that the public is not allowed to remove any plant from a National Park. Are you in favor of this regulation?

- 71. Government regulations say that the public is not allowed to take any plant from a National Park. Are you in favor of doing away with this helpful regulation, thus allowing our National Parks to suffer untold damage as a result of the public's tearing up beautiful plants?
- 72. Government regulations say that the public is not allowed to take any plant from a National Park. Are you in favor of doing away with this obsolete regulation, thus allowing the public to help keep Park plant growth down to a reasonable level instead of having so many plants fighting for space that none of the new ones grow well?
- 73. And why didn't you do your duty as a good citizen and report it to the police right away, instead of sticking your head in the sand and pretending that nothing was happening? (Assume that the person questioned did not report the matter right away.)

CHAPTER 2

LOGIC WITHOUT QUANTIFIED STATEMENTS

21	REVIEW
2.1	NEVIEW

- 2.2 IF AND ONLY IF (IFF)
- 2.3 VALIDITY
- 2.4 PROVING ARGUMENTS VALID OR INVALID
- 2.5 PROVING ARGUMENTS VALID OR INVALID (CONTINUED)
- 2.6 TAUTOLOGIES
- 2.7 MORE WORD SUBSTITUTIONS
- 2.8 NEGATIONS AND OPPOSITES
- 2.9 CHAPTER REVIEW PROBLEMS FOR CLASS DISCUSSION

2.1 REVIEW

The ideas in this section were explained in CTB1. They are included again here to remind you of them.

- 1. Capital block letters are used for complete simple thoughts. In any one problem, the same letter(s) cannot be used for different thoughts.
- 2. "~" means "not" or "it is false that."
- 3. "→" means "implies." "→" replaces the words "if" and "then."
- 4. An "or" sentence is false if and only if all of its parts are false.
- 5. An "and" sentence is true if and only if all of its parts are true.
- 6. A double negative is positive. Whenever you see " $\sim \sim$ " they cancel each other.
- 7. If one condition is enough to cause, or to guarantee, another condition, then the first is a sufficient condition for the second.
- 8. If one condition cannot exist without a second condition, then the second is a necessary condition for the first.
- 9. If one condition is a sufficient condition for another condition, then the second condition is a necessary condition for the first.
- 10. Equivalent statements are statements which have the same truth values under all conditions. They can be freely exchanged for each other.
- 11. An "if-then" sentence is false if and only if the "if" part is true and the "then" part is false.
- 12. A proposition is any statement which can be written in "if-then" form. Every proposition has a converse, an inverse, and a contrapositive.

Proposition:	P→Q
Converse:	$Q \rightarrow P$
Inverse:	$\sim P \rightarrow \sim Q$
Contrapositive:	$\sim Q \rightarrow \sim P$

- 13. A proposition and its contrapositive are equivalent statements.
- 14. The converse and inverse of a proposition are equivalent statements.
- 15. A proposition and its converse are not equivalent statements.

A proposition and its inverse are not equivalent statements.

- 16. A truth table for a statement can be made. The headings of the table are the statement and each part of the statement. The body of the table is a list of all truth values each heading can have.
- 17. An "only if" statement is an "if-then" statement in which "then" replaces "only if."

- 18. An argument is two or more statements which can be written as an (sometimes complicated) "if-then" statement. The "if" parts are called the premises of the argument. The "then" parts are called the <u>con-</u> clusions of the argument.
- 19. Words for which "if" can be substituted include "when," "whenever," "provided that," "since," "because," "in view of the fact that," and "for." (But see the paragraph and examples below item 20.)
- 20. Words for which "then" can be substituted include "hence," "so," "therefore," "thus," "consequently," "it follows that," and "only if." (But see the paragraph and examples below.)

A person may make statements which are meant to be separate statements of fact, but which can logically be put together as an "if-then" statement. In this case, the person is stating a shortened (and incomplete) argument, taking for granted that your mind will automatically understand and supply the missing premise.

Example 1:

I have an "A" average in this class. Therefore, I will pass it.

Complete argument: Anyone who has an "A" average in this class will pass it (missing premise). I have an "A" average in this class. Therefore, I will pass it.

"If-then" form: If anyone who has an "A" average in this class will pass it, and if I have an "A" average in this class, then I will pass it.

Example 2:

I'll go along with your idea, because I think it's good. Complete argument: Everyone will go along with ideas they think are good. I think your idea is good. Therefore, I'll go along with it.

"If-then" form: If everyone will go along with ideas they think are good, and if I think your idea is good, then I'll go along with it.

CLASS DISCUSSION PROBLEMS

Problems 1-7: Tell whether or not the symbols are being used correctly.

1. A = Amy will go.

2. A = Amy.

- 3. FE = Fido is an elephant.
- 4. FE = Fido.
- 5. FE = elephant.
- 6. Fe = Fido is an elephant.
- 7. F-E = Fido is an elephant.

Problems 8-22: These symbols are being used:

A = Amy will go alone.

B = Betty will go with Amy.

C = Charlene will go along, too.

Do two things for each problem:

a. Read each sentence in words.

b. Tell whether or not the sentence makes sense.

Example:

Problem: $A \rightarrow B$

Answers: a. If Amy will go alone, then Betty will go with her.

b. No. If Amy goes alone, then nobody else can go with her. So Betty can't go with her, either.

8. $A \rightarrow \sim B$ 9. $\sim A \rightarrow C$ 10. $B \rightarrow C$ 11. $\sim (A \rightarrow B)$ 12. $A \rightarrow C$ 13. ($\sim A$ and B) $\rightarrow C$ 14. ($\sim A$ and B) $\rightarrow \sim C$ 15. (B and C) $\rightarrow A$ 16. ($\sim A$ and C) $\rightarrow A$ 16. ($\sim A$ and C) $\rightarrow \sim B$ 17. A or B18. A and B19. A only if $\sim B$ 20. $\sim \sim A$ 21. $\sim (\sim A \text{ or } B)$ 22. A or (B and C)

Problems 23-43: Put each statement in the form of an "ifthen" statement. Use the words "if" and "then" in the statement you give.

23. If you promise not to repeat it, I'll tell you a secret.

24. We can send you this product only if you'll call us immediately.

25. Anyone can do well if he or she studies hard enough.

26. Someone will slip and fall if we don't get that ice off the sidewalk.

27. Having a sufficient water supply is a necessary condition for having plant life.

28. You won't do me a favor, so I won't do you one.

29. Being dead is a sufficient reason for not breathing.

30. A plane can fly only if it has sufficient fuel.

31. You can go with me, provided that you behave yourself.

32. Doing all of the required homework is a necessary condition for passing this class.

33. A necessary condition for a good credit record is making payments on time.

34. In order for me to believe you, it is necessary that you tell me the truth.

35. To get me to believe you, your telling me the truth will be sufficient.

- 36. Being caught lying is a sufficient reason for being mistrusted.
- 37. You can go with me only if there is room in the car.
- 38. Only if you can pay for it yourself will I allow you to get a bicycle.
- 39. Either Basser or Cutter committed the crime. Basser didn't do it. So Cutter must have done it.
- 40. Let me know when you're ready.
- 41. Min-Shio is taller than Ramon. Ramon is taller than Celeste. Therefore, Min-Shio is taller than Celeste.
- 42. All squares are rectangles. All rectangles have four sides. It follows that all squares have four sides.
- 43. I'll give you the report whenever you're ready for it.

Problems 44-53: Each problem shows the speaker thought she or he was drawing a logical conclusion from a stated fact. However, a premise is missing. State the speaker's complete argument, including the missing premise.

Example:

Problem: Garner wasn't there, so she couldn't have done it.

Answer: Anyone who wasn't there couldn't have done it. Garner wasn't there. So Garner couldn't have done it.

- 44. You have common sense. Thus, you should be able to figure it out.
- 45. I don't care what time the game starts, because I'm not going to it.
- 46. A tiger is not a tame animal, so it must be a wild one.
- 47. In view of the fact that you caught me red-handed, I'll admit I did it.
- 48. It doesn't matter whether or not I tell you the truth, since you won't believe me, anyhow.
- 49. Since everyone should pay his or her fair share, I will not cheat on my income tax.
- 50. I will not go dancing, for my religion forbids it.
- 51. I have explained this thoroughly to you. Consequently, I expect you to understand it now.
- 52. I will report a crime I see being committed, for I think it is my duty to do so.
- 53. Along the equator, there is a lot of rainfall and the weather is hot. Such conditions are ideal for many plants. Hence, there are jungles along the equator.

Problems 54-58: Each problem is an argument. Parts of each problem are numbered.

- a. Tell which numbers stand for premises and which numbers stand for conclusions.
- b. Restate the argument as an "if-then" sentence.

54.	All boys have purple teeth. (1) Aloysius is a boy. (2) So
55.	A tomato can't be a vegetable (1), because no fruit is a
56	vegetable (2), and a tomato is a fruit (3).
00.	(2).
57.	I guess I'll do the homework (1), since it's a course re-
58.	You do your work well (1), so you'll probably get a pro- motion (2), since you're also dependable and honest (3).
Pro son pro vers the	blems 59-61: Each numbered statement is followed by ne lettered statements. The numbered statement is a position. Tell the relation (proposition, converse, in- se, contrapositive, or none) of the lettered statement to numbered statement.
59.	If our telephone is working, I'll call you.
	a. I'll call you if our telephone is working.
	c. I'll call you only if our telephone is working.
	d. If I won't call you, then our telephone isn't working.
	f Our telephone is working so I'll call you
60.	He is an honest man, since he doesn't lie.
	a. If he is an honest man, then he doesn't lie.
	c. If he lies, then he is not an honest man.
	d. He is an honest man only if he doesn't lie.
	e. He lies only if he is not an honest man.
	g. He is an honest man. Therefore, he does not lie.
	h. He lies, provided that he is not an honest man.
61.	I'll plant a garden only if I can get seeds.
	b. I'll plant a garden if I can get seeds.
	c. I can get seeds, so I'll plant a garden.
	d. I'll plant a garden. It follows that I can get seeds.
	f. Provided that I can't get seeds, I won't plant a
	garden.
Dre	bleme 62.64. Each atotement is a proposition
-10 a.	Put the proposition in "if-then" form.
D .	State the converse of the proposition in "if-then" form.
). 1	State the inverse of the proposition in "if-then" form.
	form.
62.	If you'll help me with my spelling, I'll help you with your math
33.	I'll go swimming today only if the water is calm.
34	I'll go to bed early tonight, for I need extra sleep.

Problems 65-75: Use what you know about truth values of statements. Tell whether each statement is true or whether it is false. If you can't tell, then explain how come. Assume that "you" means you, the person who is reading the problem.

- 65. Grass is always green or all birds can fly.
- 66. Grass is always green or some birds can fly.
- 67. You are less than 3 meters tall and are more than 3 years old.
- 68. You are less than 3 meters tall and are more than 95 years old.
- 69. If you can swim, then you are less than 95 years old.
- 70. If you are more than 95 years old, then you can swim.
- 71. If you have been on the planet Jupiter, then you weigh only 10 kilograms.
- 72. If you have been on the planet Jupiter, then you weigh more than 10 kilograms.
- 73. You are very stupid only if you can read this.
- 74. You're a boy, so you can't run more than 100 kilometers an hour.
- 75. You're a girl, so you can't fly under your own power.

Problems 76-82: Accept all statements as true. Answer the questions asked.

- 76. Either Bonita or Giselle will win the scholarship. If Bonita wins it, she will use it to study law. If Giselle wins it, she will use it to study art. The scholarship will not be used to study art. Who will win the scholarship? What will the scholarship be used for?
- 77. If Larry is the tallest, then Barry is the shortest. If Cary is the tallest, then Jerry is the shortest. Either Larry or Cary is the tallest. Barry is not the shortest.

Who is the tallest? Who is the shortest?

- 78. If we go on a picnic, everyone will have a good time. If we go to the lecture, nobody will have a good time. Not everyone will have a good time. Where do we go?
- 79. If you're under three meters tall, then your hair is green. If you're three meters or more tall, then flying zebras are not pink.

What color is your hair? What color are flying zebras? 80. If Parker is rich, she will go on a long vacation.

If Parker is poor, she will not go on any vacation. Parker is not poor.

Will Parker go on a vacation?

81. If Parker is rich, she will go on a long vacation. If Parker is poor, she will not go on any vacation. It is false that Parker is either rich or poor. Will Parker go on a vacation? 82. If Parker is rich, she will go on a long vacation. If Parker is not rich and is not poor, she will go on a short vacation.

If Parker is poor, she will not go on any vacation.

It is false that Parker is either rich or poor.

Will Parker go on a vacation?

Problems 83-89: Use the symbols shown. Go back to problems 76-82 and write the statements in symbols.

- 83. Problem 76: B, G, L, A
- 84. Problem 77: LT, BS, CT, JS
- 85. Problem 78: P, E, L, N
- 86. Problem 79: U, G, P
- 87. Problem 80: R, LV, P, AV
- 88. Problem 81: R, LV, P, AV
- 89. Problem 82: R, LV, P, SV, AV

90. Here is a truth table. Look it over and tell whether or not the statement "P → Q" is equivalent to the statement "~ Q → ~ P."

Ρ	Q	~ P	~ Q	P→Q	~ Q> ~ P
Т	Т	F	F	ा	Т
Т	F	F	Т	F	F
F	Т	Т	F	Т	T
F	F	Т	Т	Ť	Т

- 91. Make a truth table to show whether or not the statement "P→Q" is equivalent to the statement "~P→ ~Q."
- 92. Make a truth table to show whether or not the statement "P →Q" is equivalent to the statement "~ P or Q."
- 93. Make a truth table to show whether or not the statement "(P and Q) - P" is always true.
- 94. Following is a list of many statements. Your job is to figure out which ones are equivalent statements. You will have more than one group of equivalent statements. You should end up with some statements left over. Group these under the heading, "Statements not equivalent to any other statement." Your answer should look something like this: "Equivalent statements: Group 1: a, b, d, f. Group 2: g, m. Statements not equivalent to any other statement: e, i, j, k."

a.	P→Q	h.	P only if Q	0.	Q, since P
b.	P because Q	1.	~ Ponly if ~ Q	р.	P when Q
с.	P provided that Q	j.	~ Q ~ P	q.	~ P ~ Q
d.	P, so Q	k.	P and Q	r.	Q→P
e.	~ Q if ~ P	1.	~ P and Q	S.	Q because P
f.	~ P or Q	m.	QIFP	t.	Q, thus P
g.	PorQ	n.	P follows from Q	u.	P. Therefore, Q

2.2 IF AND ONLY IF (IFF)

"P if and only if Q" means "P if Q, and P only if Q." In symbols, this is " $Q \rightarrow P$, and $P \rightarrow Q$." To save writing both parts, we use a two-headed arrow: $P \rightarrow Q$. Of course, $Q \rightarrow P$ means the same as $P \rightarrow Q$.

"P if and only if Q" also means "P is equivalent to Q" or "P and Q are equivalent statements." "Is equivalent to" is usually symbolized by " \equiv ."

The words "if and only if" are sometimes shortened to "iff."

Summary:

All of these statements are equivalent statements:

- 1. P if and only if Q.
- 2. P iff Q.
- 3. P→Q.
- 4. P is equivalent to Q.
- 5. $P \equiv Q$.
- 6. If P then Q, and if Q then P.
- 7. P only if Q, and Q only if P.
- 8. P if Q, and Q if P.
- 9. P is both necessary and sufficient for Q.
- 10. P can be substituted for Q.
- 11. Q can be substituted for P.
- 12. P and Q can be substituted for each other.
- 13. P and Q always agree in truth value.

CLASS DISCUSSION PROBLEMS

Problems 1-7: Look at the list of equivalent statements in this section. Tell whether or not the problem makes a statement which is also equivalent to those statements.

- 1. Q iff P.
- 2. ~ P iff ~ Q.
- 3. $\sim Q \rightarrow \sim P$, and $\sim P \rightarrow \sim Q$.
- 4. P implies Q and Q implies P.
- 5. ~ P is both necessary and sufficient for ~ Q.
- 6. ~ P is equivalent to ~ Q.
- 7. $\sim P \equiv \sim Q$.

Problems 8-13: Tell whether or not each statement is true. If you answer "no," then tell how come.

- 8. You have a square iff you have a rectangle.
- 9. Joe is the friend of both Bob and Andy iff Joe is the friend of Bob and Joe is the friend of Andy.
- 10. Melissa is over 4 years old iff she is not under 4 years old.
- 11. We have clouds iff we have rain.
- 12. Ann will dream iff she is asleep.
- 13. A person is successful iff he or she makes a lot of money.



e. $(P \rightarrow Q) \equiv (Q \rightarrow P)$

f. $(P \rightarrow Q) \equiv (\sim Q \rightarrow \sim P)$

2.3 VALIDITY

Either an argument is valid or it isn't. If the conclusion absolutely must follow from the premises, then the argument is valid. Otherwise, the argument is invalid.

Sometimes it's easy to tell that an argument is invalid. **Example 1:**

If an animal is a normal dog, then it has four legs. This cat has four legs.

So this cat is a normal dog.

But sometimes it's not so easy to tell that an argument is invalid.

Example 2:

A person will get arrested only if he or she gets caught committing a crime.

Betty gets caught committing a crime.

Therefore, Betty will get arrested.

This argument probably sounds valid to most of us. After all, we expect someone to get arrested when the person is caught committing a crime.

The trouble is, Example 2 is exactly the same form of argument as Example 1. That is, it is possible to substitute logic symbols for the words in such a way that we can't tell Example 1 and Example 2 apart. In other words, Example 1 and Example 2 are equivalent arguments. Both are invalid.

A cleverly worded argument may trick us into thinking it is valid when it is not. And some arguments are too long and complicated to tell easily whether or not they are valid. What we need is a definition for an invalid argument which depends on the <u>form</u>, rather than on the <u>words</u>, of the argument.

We'll start with what we said above. If the conclusion absolutely must follow from the premises, then the argument is valid. On the other hand, if the conclusion does not necessarily have to follow from the premises, then the argument is invalid.

And how can we tell whether or not the conclusion must follow from the premises? The simplest way is to find the answer to this question: Is it possible for the premises to be true and for the conclusion to be false? If so, the conclusion does not have to follow from the premises, so the argument is invalid. Otherwise, the argument is valid.

Definitions:

- 1. An argument is invalid iff its form is invalid.
- 2. An **argument's form is invalid** iff it is possible for it to have true premises and a false conclusion.
- 3. An argument is valid iff it is not invalid.

CLASS DISCUSSION PROBLEMS

Problems 1-11: Explain each answer you give.

- 1. Is it possible for an argument to be neither valid nor invalid?
- 2. Is it possible for an argument to be both valid and invalid?
- 3. Suppose you have two different arguments which can be symbolized the same way. And suppose one of the arguments sounds pretty good and the other one doesn't. Is it possible for one of the arguments to be valid and the other argument to be invalid?
- 4. Suppose you put an argument into symbols and find the form is invalid. And suppose you think the argument itself sounds pretty good. Is it possible that the argument is valid but its form is invalid?

- 5. Suppose it is possible for an argument's form to have true premises and a true conclusion. Is the argument valid, or is it invalid?
- 6. Suppose it is possible for an argument's form to have false premises and a true conclusion. Is the argument valid, or is it invalid?
- 7. Suppose it is possible for an argument's form to have false premises and a false conclusion. Is the argument valid, or not?
- 8. Suppose it is not possible for an argument's form to have true premises and a false conclusion. Is the argument valid, or not?
- 9. Suppose an argument has self-contradictory premises. (For example, suppose one premise says, "All roses are red," and another premise says, "Some roses are not red.") Is the argument valid, or not?
- 10. Suppose an argument has a conclusion which is always true. (For example, suppose the conclusion says, "Either Roybob is tall or he is not tall.") Is the argument valid, or not?
- 11. Suppose an argument has a conclusion which is always false. (For example, suppose the conclusion says, "Louann is tall and she is not tall.") Is the argument valid, or not?

Problems 12-17: Each problem states an argument. Tell whether or not the argument is valid. Explain your answer.

- 12. Champ is a dog. Champ is not a dog. Therefore, Champ is an invisible horse.
- 13. Marge is famous. Marge is not famous. Therefore, Marge is an invisible horse.
- 14. If Jim is rich, then he is famous. If Jim is rich, then he is not famous. Therefore, Jim is an invisible horse.
- 15. Either Pedro will go or he will stay home. Pedro will not stay home. So Pedro will go.
- 16. Pedro will go and he will stay home. Pedro will not stay home. So Pedro will go.
- 17. Heidi won a prize in gymnastics. Therefore, if Heidi is smart, then she is smart.

2.4 PROVING ARGUMENTS VALID OR INVALID

Here are the definitions from section 2.3 again: **Definitions:**

- 1. An argument is invalid iff its form is invalid.
- 2. An **argument's form is invalid** iff it is possible for it to have true premises and a false conclusion.
- 3. An argument is valid iff it is not invalid.

Proving an argument valid or invalid is a lot easier if we put the argument in symbols first instead of trying to sort out the words while we're doing the proof.

Example 1:

Problem: If Rocky bats well, he'll make the team. Rocky bats well. So Rocky will make the team. Step by step solution:

1. Put the argument into symbols. Use a separate line for each statement. Draw a line between the last premise and the conclusion. Use "::" as the symbol for "therefore" (or "so" or "thus," etc.)



2. Try to make the premises true and the conclusion false. Do one thing at a time. Follow through with the symbol you have before you start on another symbol. Here's how the work will look as you go through it.

<u>2a</u>	<u>2b</u>	<u>2c</u>	<u>2d</u>	<u>2e</u>
R → MT	R→ ^F MT	R→MT	T F R \rightarrow MT	
R	R	TR	T TR	тĂ
F∴ MT	ғ∴ <mark>Ғ</mark> т	F∴ MT	<i>F</i> .∵. ₩T	F. MT valid

Here is the explanation of steps 2a-2e.

2a: We want to see is the conclusion can be false. So we mark it "false."

2b: We follow through on the "MT," marking it the same ("false") in the rest of the problem.

2c: We want to see if the premises can be true. We mark the second premise true (because it is the easiest one to work on in this problem).

2d: We follow through on the "R," marking it the same ("true") in the rest of the problem.

2e: Now the first premise has a true "if" and a false "then." This makes the first premise false. So we mark it "false."

3. When you have everything marked, look to see if you have a false conclusion and you have premises which are all true. If you do, the argument is invalid. If you don't, the argument is valid. In Example 1, the argument is valid.

Example 2:

Problem: If Rocky bats well, he'll make the team. Rocky will make the team. So Rocky bats well.

Step by step solution:

R→MT	R → MT	F R→MT	тŔ→мт	тŔ→мт
мт	MT	МТ	МТ	тмт
∴ R	F∴ R	<i>F</i> ∴ R	F∴ R	F .: F

First, we symbolize the argument. Second, we mark the conclusion "false." Third, we mark "R" in the first premise the same way. Fourth, as soon as we marked "R" as "false" in the first premise, the first premise was true. So we mark it "true." Fifth, we want to see if the premises can be true, so we mark "MT" as "true" in the second premise. (Notice that we do not then go back to the first premise and mark "MT" there, since we have already finished with the first premise.) We end up with a false conclusion and with premises which are all true. So the argument is invalid.

CLASS DISCUSSION PROBLEMS

Use the symbols shown at the end of the problem. Prove the argument valid or invalid. To do this, put the argument into symbols. Then mark the parts true or false. (When you do a problem, you will write the symbols only once. The examples in this section wrote the symbols several times so that you could see what happened at each step.)

- If Noreen is not a lawyer, then she is a doctor. Therefore, either Noreen is a lawyer or she is a doctor. (L, D)
- 2. Fred is either a doctor or a lawyer. So if Fred is not a doctor, then he is a lawyer. (D, L)
- 3. Morton will save money on his plumbing bills only if he takes a home plumbing course. So Morton will save money on his plumbing bills if he takes a home plumbing course. (S, C)
- 4. If Rocky bats well, he'll make the team. Rocky will not make the team. So Rocky will not bat well. (R, MT)
- 5. If Marcia bats well, she'll make the team. If she makes the team, she'll be the shortstop. Marcia bats well. Therefore, Marcia will be the shortstop. (B, MT, SS)

6. If Marcia bats well, she'll make the team. If she makes the team, she'll be the shortstop. Marcia won't make the team. So Marcia will not be the shortstop. (B, MT, SS)

- 7. If Marcia bats well, she'll make the team. Marcia will make the team if and only if she will be the shortstop. Marcia won't make the team. So Marcia will not be the shortstop. (B, MT, SS)
- 8. If Marcia bats well, she'll make the team. If she makes the team, she'll be the shortstop. Marcia won't be the shortstop. So Marcia won't bat well. (B, MT, SS)
- If Jerry is good at swimming, then he is a lifeguard. If Jerry is not good at swimming, then he is a beachcomber. So Jerry is either a lifeguard or a beachcomber. (S, L, B)
- 10. If Harvey goes to college, he will be an accountant. If he goes to business school, he will be a secretary. Harvey either goes to college or goes to business school. Thus, Harvey will be either an accountant or a secretary. (C, A, BS, S)
- 11. If Harvey goes to college, he will be an accountant. If he goes to business school, he will be a secretary. Harvey will be either an accountant or a secretary. Therefore, Harvey goes either to college or to business school. (C, A, BS, S)
- 12. If Darby gets her car fixed today, she'll have to rent a loaner. But if she'll have to rent a loaner, then the car she drives won't have a parking sticker. And if the car she drives won't have a parking sticker, then she'll have to pay to park in the lot. Darby gets her car fixed today. Therefore, she'll have to pay to park in the lot. (F, L, PS, P)
- 13. If Darby gets her car fixed today, she'll have to rent a loaner. But if she'll have to rent a loaner, then the car she drives won't have a parking sticker. And if the car she drives won't have a parking sticker, then she'll have to pay to park in the lot. Darby doesn't get her car fixed today. Therefore, she won't have to pay to park in the lot. (F, L, PS, P)
- 14. If Brenda gets a paper route, she will be able to save the money she makes. Either Brenda will not be able to save the money she makes, or she will buy a bicycle. Therefore, if Brenda gets a paper route, she will buy a bicycle. (P, S, B)
- 15. If Len is good at art, then he will be an artist. If he is good at science, then he will be a scientist. Len is good at art. He is not good at science. Therefore, Len will not be a scientist. (GA, A, GS, S)

2.5 PROVING ARGUMENTS VALID **OR INVALID (CONTINUED)**

The proofs in section 2.4 started by marking the conclusion false. You can start that way, or you can start by marking one of the premises true. Start wherever it will make the proof easiest to do.

Example 1:

Argument: $P \rightarrow Q$

~ P

∴ ~ P and ~ Q

There are three different ways for an "and" sentence to be false. So you don't want to start with the conclusion. There are three different ways for the first premise to be true. So you don't want to start there. There is only one way for the second premise to be true. So start there.

Example 2:

Argument: P and ~ Q

Q and ~ R

\therefore (A \rightarrow B) and C

Again, the conclusion is an "and" sentence. You don't want to start there, since there are three different ways for it to be false. Both of the premises are "and" sentences. There is only one way for an "and" sentence to be true. So you can start with either premise. (It doesn't matter which one.)

Example 3:

Argument: P and Q

∴ ~ P or Q

Here, it doesn't matter where you start. There is only one way for an "and" sentence to be true. So you can start with the premise. There is only one way for an "or" sentence to be false. So you can start with the conclusion.

Summary:

To prove an argument valid or invalid, you can start with either a premise or the conclusion. Start with a statement which gives you no choice of ways to mark it. That is, if you start with the conclusion, make sure there is only one way for it to be false. If you start with a premise, make sure there is only one way for it to be true.

CLASS DISCUSSION PROBLEMS

- 1. Prove whether Example 1 in this section is valid or invalid.
- 2. Prove whether Example 2 in this section is valid or invalid.
- 3. Prove whether Example 3 in this section is valid or invalid.

Problems 4-10: Use the symbols shown at the end of the problem. Put the argument into symbols. Then prove whether or not the argument is valid.

- 4. Fred is not a doctor and he is not a lawyer. So it is false that Fred is either a doctor or a lawyer. (D, L)
- 5. If Eaton is a carpenter, then he works with wood. If Farmer is a plumber, then she works with pipe. Eaton does not work with wood, and Farmer does not work with pipe. So Eaton is not a carpenter, and Farmer is not a plumber. (C, W, PL, P)
- 6. If Adams plays baseball this year, she will bat at least .400. If Carson runs track this year, he will set new records. Adams plays baseball this year, and Carson runs track this year. Then Adams will bat at least .400, and Carson will set new records. (P, B, R, N)
- If Porter will go, then Quentin will go. Therefore, if Porter will go, then both Porter and Quentin will go. (P, Q)
- 8. Porter will go if and only if Quentin will go. So if Porter will go and Quentin won't go, then the moon is made of green cheese. (P, Q, M)
- 9. If we go to the parade, then we'll see the band and the floats. If we see the band, we'll hear the band play. We won't see the floats. So we won't see the band and we won't hear the band play. (P, SB, F, HB)
- 10. If we go to the parade, then we'll see the band and the floats. If we see the band, we'll hear the band play. If we don't go to the parade, then we won't hear the band play. We won't see the floats. So we won't see the band and we won't hear it play. (P, SB, F, HB)

TEASER A: Go back to Example 1 in this section. Suppose you decide to prove whether or not the argument is valid. And suppose you are stubborn and decide to start by making the conclusion false. You decide to make it false by making both parts false. This will make the second premise $(\sim P)$ false. So you do not have true premises and a false conclusion. Have you proved the argument valid? Explain. **TEASER B:** Go back to Example 1 in this section. Suppose you decide to prove whether or not the argument is valid. And suppose you are stubborn and decide to start by making the conclusion false. You decide to make it false by making the first part true and the second part false. This will make both premises true.

- a. Have you prove the argument invalid? Explain.
- b. Explain why the proof was finished after one trial in this case but was not finished after one trial in the case of TEASER A.

TEASER C: Go back to Example 1 in this section. Suppose you decide to prove whether or not the argument is valid. And suppose you decide to start by marking the first premise true. You decide to make it true by marking both parts true. This will make the second premise false. So by starting this way, you did not end up with true premises. Have you proved the argument valid? Explain.

TEASER D: Go back to Example 2 in this section. Suppose you decide to prove whether or not the argument is valid. And suppose you decide to start by marking the first premise true. This will make the second premise false. So by starting this way, you did not end up with true premises. a. Have you proved the argument valid? Explain.

- b. Explain why the proof was finished after one trial in this case but was not finished after one trial in the case of TEASER C.

TEASER E: You are given this argument:

P or Q

$\therefore P \equiv Q$

Is the argument valid, or invalid? Explain how to prove it.

2.6 TAUTOLOGIES

If a statement is always true (no matter what the conditions), then the statement is a tautology (taw tahl uh jee). Example 1:

"P or ~ P" is a tautology.

(An "or" sentence is true if either part is true. P must be either true or false. If P is true, then the sentence is true. If P is false, then \sim P is true, and the sentence is true.)

Example 2:

" $P \rightarrow P$ " is a tautology.

(If P is true, then both parts are true, so the sentence is true. If P is false, then both parts are false, so the sentence is still true.)

In Examples 1 and 2 it was easy to see that the statements were tautologies. Sometimes it is not that easy. For example, is

$[(P \rightarrow Q) \text{ and } P] \rightarrow Q$

a tautology? If the statement is an implication, then we can treat it as an argument. The argument will be valid iff the statement is a tautology.

Example 3:

Problem: Is " $((P \rightarrow Q) \text{ and } P) \rightarrow Q$ " a tautology? Solution: First, write the statement as an argument:



Then see whether or not the argument is valid. In this case, the argument is valid (prove it), so the statement is a tautology.

Example 4:

Problem: Solution:

Problem: Is " $P \equiv Q$ " a tautology?

Solution: No. If P is true and Q is false (or vice versa), the statement is false. (A tautology must <u>always</u> be true.)

CLASS DISCUSSION PROBLEMS

Tell whether or not each statement is a tautology, and tell how you know. (Hint: If you can't tell just by looking at it, then put the statement into the form of an argument. Then see whether or not the argument is valid.)

1. ~ (P or Q) \rightarrow (~ P and ~ Q) 2. (~ P and ~ Q) \rightarrow ~ (P or Q) 3. ~ (P and Q) \rightarrow (~ P or ~ Q) 4. (~ P or ~ Q) \rightarrow ~ (P and Q) 5. P \rightarrow (~ P \rightarrow P) 6. P \rightarrow (P \rightarrow ~ P) 7. [(P or Q) and ~ P] \rightarrow Q 8. [(P or Q) and R] \rightarrow [(P and R) or (Q and R)] 9. [(P or R) and (Q or R)] \rightarrow [(P and Q) or R] 10. [(P and Q) \rightarrow R] \rightarrow [P \rightarrow (Q \rightarrow R)] 11. [(P \rightarrow Q) \rightarrow R] \rightarrow [P \rightarrow (Q \rightarrow R)] 12. [P \rightarrow (Q \rightarrow R)] \rightarrow [(P \rightarrow Q) \rightarrow R]

2.7 MORE WORD SUBSTITUTIONS

We already know that we can substitute "if" for such words as "when" and "provided that." And we can substitute "then" for such words as "so" and "therefore."

The word "and" can be substituted for "but," "still," "also," "yet," "although," "however," "even though," "in spite of the fact that," and similar words. In each case, the statement says that both of two things will occur. **Examples 1:**

- a. We'll go to the party, but we'll have to leave early.
- b. Although we'll go to the party, we'll have to leave early.
- c. We'll go to the party even though we'll have to leave early.
- d. I can understand why you did that; still, I wish you hadn't.
- e. I can understand why you did that; however, I wish you hadn't.
- f. I can understand why you did that; yet, I wish you hadn't.
- g. In spite of the fact that you're very smart, you're not conceited.

The words "neither P nor Q" mean "not (P or Q)" and "not P and not Q."

Examples 2: (The statements in each set are equivalent.)

a. It is false that either Porter or Quarth committed the crime.

Neither Porter nor Quarth committed the crime. Porter did not commit the crime, and neither did

Quarth.

Porter did not commit the crime, and Quarth did not commit the crime.

b. It is not true that either Pearl or Queenie will be going. Neither Pearl nor Queenie will be going.

Pearl will not be going and Queenie will not be going. Neither one of Pearl or Queenie will be going.

Pearl will not be going, and neither will Queenie.

The words "not both P and Q" mean "it is false that (P and Q)," or "at least one of the two things is false, and maybe both are false." Another way of making this last statement is, "Either P is false or Q is false."

Examples 3: (The statements in each set are equivalent.) a. Allen and Barbara did not both fail the test.

- It is false that Allen and Barbara both failed the test. It is false that both Allen and Barbara failed the test. Either Allen did not fail the test or Barbara did not fail the test.
- b. Babette and Fritz are not both wrong.
 Either Babette is not wrong or Fritz is not wrong.
 It is false that both Babette and Fritz are wrong.
 It is false that Babette and Fritz are both wrong.

The words "if not" can be substituted for "unless." **Examples 4:** The statements in each set are equivalent.)

- a. I'll go hiking with you unless I break my leg.
 I'll go hiking with you if I don't break my leg.
 If I don't break my leg, I'll go hiking with you.
- b. Unless my alarm clock doesn't work, I'll be on time tomorrow.
 - If my alarm clock works, I'll be on time tomorrow.

c. You can't use the car unless you wash it first.
You can't use the car if you don't wash it first.
If you don't wash the car first, then you can't use it.

Summary of substitutions:

- 1. if = when = whenever = provided that = since = because = for = in view of the fact that
- 2. then = hence = so = therefore = thus = consequently = only if = it follows that
- 3. and = but = still = also = although = though = even though = yet = however = in spite of the fact that
- 4. neither P nor Q = not (P or Q) = not P and not Q
- 5. not both P and Q = not (P and Q) = not P or not Q
- 6. unless = if not

CLASS DISCUSSION PROBLEMS

Problems 1-11: Put each statement in the form of an "ifthen" statement, an "and" statement, or an "or" statement.

- 1. Tom will pass the course unless he starts goofing off.
- 2. I have something to say, but I don't think you'll want to hear it.
- 3. Although the play was good, the music could have been better.
- 4. Not both Carmen and Helmut can be hired.
- 5. Neither Karen nor Karl will get a role in the play.
- 6. I'll go with you unless you prefer that I don't.
- 7. You won't pass unless you do the homework.
- 8. I'd like to have a dog-still, a dog is a lot of trouble.
- 9. You can have a dog or a cat, but not both.
- 10. Timmy disobeyed his mother and went across the street, but he didn't get hurt.
- 11. Mark can't get to work unless he can find a ride with someone.

Problems 12-18: Use the symbols shown. Put the argument into symbols and prove it valid or invalid.

12. Mark will not be a problem unless he is in a bad mood. But Mark is not in a bad mood unless he lost the race. Mark did not lose the race. So Mark will not be a problem. (P, BM, LR)

- 13. I listen to the TV ads unless they're too loud, but when they're too loud, I just ignore them. So if I ignore the TV ads, then I don't listen to them. (LS, LD, I)
- 14. I listen to the TV ads unless they're too loud, but when they're too loud, I just ignore them. So if I don't listen to the TV ads, I ignore them. (LS, LD, I)
- 15. In spite of the fact that Ray has worked hard, he hasn't had a promotion. However, Ray would have had a promotion if he had worked hard and had good attendance. Consequently, Ray has not had good attendance. (WH, P, GA)
- 16. Provided that he does the homework, Jerry won't flunk unless he fails the tests. Jerry does the homework but fails the tests. So Jerry will flunk. (H, F, FT)
- 17. Stewart will ride with Tyler unless Tyler's car isn't running, in which case Stewart will ride with Ullman. Wagner will ride with Ullman, provided that Stewart doesn't. Wagner won't ride with Ullman. So Tyler's car is running. (ST, TC, SU, WU)
- 18. Stewart will ride with Tyler unless Tyler's car isn't running, in which case Stewart will ride with Ullman. Wagner will ride with Ullman, provided that Stewart doesn't. Stewart will not ride with both Tyler and Ullman. Wagner won't ride with Ullman. So Tyler's car is running. (ST, TC, SU, WU)

2.8 NEGATIONS AND OPPOSITES

We talked a little about negations and opposites in section 2.4 of CTB1. We'll explore them more now.

A statement and its opposite cannot both be true at the same time. Similarly, a statement and its negation cannot both be true at the same time. But both a statement and its opposite can be false at the same time, whereas a statement and its negation cannot both be false at the same time.

Example 1:

Statement: This rose is black.

Negation: This rose is not black.

Opposite: This rose is white.

In Example 1, either the rose is black or it is not. That is, if the statement is true, its negation is false. And if the statement is false, its negation is true. On the other hand, the rose does not have to be either black or white. That is, if the statement is true, its opposite is false. But suppose the rose is red. Then both the statement and its opposite are false.

Example 2:

Statement: This dog is well-trained.

Negation: This dog is not well-trained.

Opposite: This dog is poorly trained.

Again we see that both the statement and its opposite could be false. For example, the dog might have been indifferently trained or not trained at all.

In both Example 1 and Example 2 above, we see that the opposite is a stronger statement than the negation. The opposite seems to say, "The statement is false, and besides that, something else is true instead."

Example 3:

Statement: Both of them were involved.

Negation: It is false that they were both involved. Opposite: Neither of them was involved.

(Here again, the opposite is a much stronger statement than the negation. The negation merely says, "At least one of them was not involved." But the opposite says, "The first one was not involved, and the second one was not involved, either.")

Summary:

- 1. A negation and an opposite are not necessarily the same thing.
- 2. If a negation is stated, don't substitute an opposite.
- 3. If an opposite is stated, don't substitute a negation.¹

CLASS DISCUSSION PROBLEMS

Problems 1-10: Give both the negation and the opposite of each statement.

- 1. Andrea came in first in the race.
- 2. Jacob has the best paper in the class.
- 3. She is beautiful.
- 4. Angelo is a good sport.
- 5. Ruby is taller than Jennifer.
- 6. This is a flower.
- 7. That dog barks a lot.
- 8. Big City is a long way from Midville.
- 9. Marty and Sandy always fight with each other.
- 10. You never let me do what I want to do.

'There are times when it's OK to do this. An argument might state an opposite but use only a negation to get the conclusion. For example: "Andrea ran a race with 9 other people. The winner came in first. Andrea came in last. So Andrea was not the winner." In this case, the argument's third statement said that Andrea did the <u>opposite</u> of coming in first, but the conclusion shows that only the <u>negation</u> of coming in first was used.

Problems 11-15: A statement is followed by some lettered statements. Tell whether the lettered statement is the negation of or the opposite of the given statement. If the lettered statement is not the negation or the opposite, then answer "neither."

- 11. Preston came in last in the race.
 - a. Preston came in first in the race.
 - b. Preston did not come in last in the race.
 - c. Preston did not enter the race.
- 12. Fernando is intelligent.
 - a. Fernando is stupid.
 - b. Fernando is ignorant.
 - c. Fernando is not intelligent.
- 13. Tanya is very good at math.
 - a. Tanya has never learned math.
 - b. Tanya is very poor at math.
 - c. Tanya is not very good at math.
- 14. Neither Bob nor Cathy can go.
 - a. Bob can go but Cathy can't go.
 - b. Bob can't go but Cathy can go.
 - c. Bob and Cathy can both go.
 - d. Either Bob can go or Cathy can go.
- 15. I listen to the radio all the time.
 - a. I don't listen to the radio all the time.
 - b. I never listen to the radio.
 - c. I don't have a radio.
 - d. Sometimes I don't listen to the radio.
 - e. Sometimes I listen to the radio.

2.9 CHAPTER REVIEW PROBLEMS FOR CLASS DISCUSSION

1. You are given the statement, "P if and only if Q." Tell whether or not each statement listed necessarily follows from this.

- a. $P \rightarrow Q$
- b. $P \equiv Q$
- $P \equiv Q$ c. $P \rightarrow Q$
- d. ~ $P \rightarrow ~ Q$
- e. P and Q
- f. Q→P
- a. Q and P
- h. Por Q
- i. $\sim Q \rightarrow \sim P$
- j. (P and Q) or (~P and ~Q) v. $P \rightarrow (~Q \rightarrow ~P)$
- k. Q or P I. Piff Q
- m. ~ P iff ~ Q

- n. "P" and "Q" are both true.
- o. "P" and "Q" are both false.
 - p. Either "P" and "Q" are both true, or they are both false.
- q. $P \rightarrow (P \text{ and } Q)$
- r. Por~Q
- s. ~ P or Q t. $(P \rightarrow Q)$ and $(Q \rightarrow P)$ U. $(\sim P \rightarrow Q)$ u. $(\sim P \longrightarrow \sim Q)$ and $(\sim Q \longrightarrow \sim P)$
 - W. ~ $P \rightarrow (~ Q \rightarrow ~ P)$
 - x. ~ (P and ~ Q)
 - y. (P and \sim Q) \rightarrow R

2.	Suppose the statemen not this is enough to s	nt listed is true. Tell whether or show that A and B are equivalent
	statements.	
		T. A or \sim B

b. B→A

g. $(A \rightarrow B)$ and $(\cdot A \rightarrow B)$

c. A only if B

- h. $A \equiv B$
- d. $(A \longrightarrow B)$ and $(B \longrightarrow A)$

i. $A \rightarrow (A \rightarrow B)$ e. (A and B) or ($\sim A$ and $\sim B$) j. ($\sim A \rightarrow A$) and ($\sim B \rightarrow B$)

- 3. Tell whether or not each statement is true. Support vour answer.
 - a. An argument is invalid if you can find a way to make the premises true and the conclusion false.
 - b. An argument is valid if you can find a way to make the conclusion false and at least one premise false.
 - c. An argument is valid if you can make the premises true and the conclusion true.
 - d. An argument is valid if making the premises true forces the conclusion to be true.
 - e. An argument is valid if it is not possible to have true premises and a false conclusion.
 - f. An argument is invalid if you negate the conclusion, make the (negated) conclusion a premise, and then find a way to make all the premises (including the negated conclusion) true.
 - g. An argument is valid if you are unable to find a way to make it have true premises and a false conclusion.
- 4. What is a tautology?
- 5. Suppose that "P" and "Q" are equivalent statements. Then
 - a. is $P \equiv Q$ a tautology?
 - b. is $P \rightarrow Q$ a tautology?
 - c. is P iff Q a tautology?
- 6. What's the difference between a tautology and equivalent statements?
- 7. Suppose someone tells you " $P \equiv Q$ " and you don't believe it. What should you do to find out whether or not the person is right?
- 8. Prove each statement to be true.
 - a. $(P \rightarrow Q) \equiv (-Q \rightarrow -P)$ b. $(P \text{ or } Q) \equiv (Q \text{ or } P)$
 - c. (P and Q) \equiv (Q and P)
 - d. Por ~ P
 - e. $P \equiv (P \text{ and } P)$
 - f. $P \equiv (P \text{ or } P)$
 - g. [(P or Q) and \sim P] \rightarrow Q
 - h. $[(P \rightarrow Q) \text{ and } P] \rightarrow Q$
 - $[(P \rightarrow Q) \text{ and } \sim Q] \rightarrow \sim P$ 100
 - $[(P \rightarrow Q) \text{ and } (Q \rightarrow R)] \rightarrow (P \rightarrow R)$ j.
 - k. (P and Q) \rightarrow P
 - 1. $(P \rightarrow Q) \equiv [P \rightarrow (P \text{ and } Q)]$

(continued on next page)



TEASER: We know that any argument can be written in the form of an "if-then" sentence. Now, since $P \rightarrow Q$ is true if P is false or if Q is true, why isn't an argument valid if we can get either a false premise or a true conclusion? (For example: "If something is an animal, then it's a tiger. This is a tiger. So it's an animal." Now obviously the first premise is false. So how come the argument isn't valid, since we said we could treat it as an "if-then" sentence?)



CHAPTER 3

COMMON ERRORS IN REASONING

3.1	
3.2	MORE ABOUT "PROOF" BY SELECTED
3.3	FALSE CAUSE AND ASSUMPTION CONTRARY
3.4	RATIONALIZATION
3.5	WHOLE TO PART; PART TO WHOLE
3.6	MORE ABOUT CIRCULAR REASONING
3.7	EITHER-OR AND ITS OPPOSITE, NOT DRAWING THE LINE
3.8	SOPHISTICAL FORMULA
3.9	NON SEQUITUR
3.10	MISCELLANEOUS REASONING ERRORS

3.11 CHAPTER REVIEW

VIEW
Several kinds of faulty reasoning were discussed in chapters 1, 2, and 4 of CTB1. Here is a brief review:

- 1. "Proof" by failure to find a counterexample (PFFC): You suppose something is true because it hasn't been proved false. Or you suppose something is false because it hasn't been proved true.
- 2. Substitution of converse or inverse of proposition for proposition (SCP or SIP): You suppose the converse or inverse of a proposition is true just because the proposition is true. Or you hear a proposition and think that the converse or inverse of the proposition was what was said.
- 3. Circular reasoning (CR): You try to prove your point by repeating it.
- 4. "Proof" by selected instances (PSI): You assume something will always (or at least usually) be true because it's been true in all (or most) of the cases you've seen so far.
- 5. Avoiding the question (AQ): You say something which does not answer the question you were asked.
- 6. **Special pleading (SP):** You apply one set of rules to yourself (and maybe to certain other people) but a different set of rules to everyone else. Your reasons for thinking that certain things are good (or bad) or should be done (or should not be done) are inconsistent.
- 7. Faking a connection (FAC): You assume that two things are connected just because they have some things in common.

Here are some examples of faulty reasoning.

- 1. (PFFC): "I've never seen a bird that couldn't fly, so I know that all birds can fly." Or, "I've never heard of a zander, so they must not exist."
- 2. (SCP): "You said if I wanted to pass then I'd do the homework. Well, I've done the homework, so you can't flunk me now."

(SIP): "You said I wouldn't pass if I didn't do the homework. Well, I've done the homework, so you can't flunk me now."

- 3. (CR): "Since some people in any large company are corrupt, it follows that no large company is entirely free from corruption."
- 4. (PSI): "People don't care about other people. Just this morning, I saw a big kid picking on a little kid, and nobody tried to stop it."
- 5. (AQ): First person: "Why'd you do that?" Second person: "Shouldn't I have done it?"
- 6. (SP): First person: "Everybody should use good manners." Second person: "Then why did you step ahead of me to be first in the line?" First person: "I didn't want to wait any longer."

7. (FAC): "Giant Stores and Super Stores both sell the same kinds of things, so they're probably all part of one big chain of stores."

CLASS DISCUSSION PROBLEMS

Tell what kind of faulty reasoning is being used. Answer "none" if the reasoning is not faulty, or if we have not named that kind of faulty reasoning.

- 1. It's evident that Mr. Jackson is incompetent, because incompetent people are absent-minded and so is Mr. Jackson.
- 2. Of course it's OK for you to go play ball now that you've finished your homework. I already told you that you'd have to do your homework if you wanted to go play ball, didn't l?
- 3. Nobody can tell <u>me</u> it's safe to have all of those space satellites zooming around up there! After all, what goes up must come down.
- 4. That kind of gismo can't be invented. If it could, it'd have been invented by now.
- 5. Every teacher he's had has had trouble with him. He'll just never get along with teachers.
- 6. If you do your work, we'll get along well. In other words, we won't get along at all if you don't do your work.
- 7. You asked me whether or not I think we should have a national health-care plan. But I think it's more to the point to ask whether or not we need one, and that's what I'm going to tell you.
- 8. No government can succeed without the backing of the common people, because the support of everyday people is necessary to the success of any government.
- 9. Vicious dogs should not be allowed in residential neighborhoods. We think it's OK to have a guard dog at our house because the crime rate is so high in our neighborhood.

3.2 MORE ABOUT "PROOF" BY SELECTED INSTANCES

Many times we have to make generalizations (general statements) based on what we've seen so far. But we should ask whether or not the things we've seen are likely to represent everything of their kind.

Example 1:

"Every time I've hired someone who has been late for no good reason for the job interview and who has been dressed sloppily, the person has been a poor worker. From now on, everybody I hire is going to have to be neatly dressed for the interview. And the person is either going to have to be on time or have a good reason for being late."

Example 2:

"Every time I've hired someone named Jones, the person has been a poor worker. From now on, I'm not going to hire anyone named Jones."

In Examples 1 and 2, it is not likely that the speakers think everybody like that is a poor worker. Instead, they have probably decided, "There may be some exceptions to the rule that everybody like that is a poor worker. But it costs us time and money to train any worker, and a poor worker costs us more than we make from him or her. So I will not risk hiring someone like that when past experience has shown that such people almost always end up costing us money."

We have been calling such reasoning "proof" by selected instances. Yet, the first speaker's decision seems reasonable, but the second speaker's decision seems unreasonable. How come? We'll take a closer look.

<u>Usually</u>, people who are good workers try to make good impressions at job interviews. They do not dress sloppily. They are not late for interviews unless they have good reasons. In other words, there is a clear connection between dressing in sloppy clothes, along with being late for no good reason, for a job interview, and doing poor work on the job. This connection is what makes the first speaker's decision seem reasonable.

On the other hand, what connection is there between being named "Jones" and doing poor work on the job? None. And that's why the second speaker's decision seems unreasonable.

From now on, we will no longer call a generalization from selected instances a "proof" by selected instances if the generalization seems reasonable. So we will <u>not</u> call Example 1 "proof" by selected instances.

Example 3:

A scientist tries a new experiment and gets result Y. The scientist concludes that such an experiment will always result in Y.

("Proof" by selected instances. Most scientists would not draw such a conclusion. They would want to repeat the experiment and get result Y several times before they would start thinking that the experiment caused Y. Then they would try to figure out why the experiment <u>should</u> cause Y.)

Example 4:

A car insurance company has observed that it has always lost money on policies when auto repair costs go up and the price of insurance stays the same. The company decides to keep an eye on the cost of auto repairs and raise the price of the insurance accordingly.

(Reasonable. There is a direct connection between the cost of auto repairs and the amount of money the insurance company has to pay. The amount they pay has to be collected from insurance premiums.)

CLASS DISCUSSION PROBLEMS

Each problem shows that a general conclusion was reached after seeing one (or only a few) cases. Tell whether or not the conclusion is an example of "proof" by selected instances. Remember, if the conclusion seems reasonable, then you will answer "no."

- 1. Tommy, age 5, goes up to a snarling dog and tries to pet it. The dog bites him. Tommy concludes that dogs are bad news.
- 2. Grace, age 6, goes up to a snarling dog and tries to pet it. The dog bites her. Grace concludes that snarling dogs are bad news.
- 3. Broman goes to a ski resort to learn how to ski. While he is there, three skiers fall and break bones. Broman concludes that all skiers ought to be careful.
- 4. Ostrowski is a heart surgeon. She has been experimenting with a new method on animals. One of her human patients is about to die, and no accepted method of treatment will save him. Her new method may save him. With his consent, she tries the new method on him. It works. She concludes that the new method has definite possibilities for saving many heart patients.
- 5. Linda has had 6 male teachers and 8 female teachers since she started school. The male teachers were always crabbier than the female teachers. She concludes that most male teachers are crabbier than most female teachers.

3.3 FALSE CAUSE AND ASSUMPTION CONTRARY TO FACT

Someone is making the reasoning error of **false cause** if he or she says that one thing caused another, when the first thing did not really cause the second.

Example 1:

Right after the first daffodil pokes its head through the snow, warm weather sets in. I don't understand it, but somehow those daffodil blossoms cause spring.

A person makes the error of **assumption contrary to fact** when she or he says about something which happened, "If that hadn't happened, then such-and-such would be true." **Example 2:**

If Edison hadn't invented the phonograph, we wouldn't have stereo sets today.

(You can see that the statement ignores the possibility that someone else might have invented the phonograph if Edison hadn't.)

The false cause and assumption contrary to fact errors are sometimes closely related. That is, there are times when a person will use an assumption contrary to fact to show that one thing caused another (when it really didn't). When this happens, we will say the error is "assumption contrary to fact," rather than "false cause." Example 3:

Jones broke his arm just two days after he looked at the

full moon. If he hadn't looked at the full moon, he wouldn't have broken his arm.

CLASS DISCUSSION PROBLEMS

Tell what reasoning error is used. Answer "none" if we have not discussed such an error, or if there is no error.

- 1. A new car can cause a lot of trouble. Lawton bought a new car and got in an accident just a week later.
- 2. Every time Gray is late getting to the office, some big problem comes up and it takes us most of the day to take care of it. For example, yesterday Gray walks in 15 minutes late. Half an hour after that, a customer calls and complains that the order we sent was wrong. It took us four hours to track it down and straighten it out. If Gray had been on time more often, we'd have had fewer headaches to take care of.
- 3. Nobody can tell <u>me</u> it's safe to have all of those space satellites zooming around up there! After all, what goes up must come down.
- 4. If Rita hadn't come to school yesterday, she wouldn't have broken her leg.
- 5. You can't be serious about thinking that smart people go to college, because that would mean that anyone who isn't smart doesn't go to college.
- 6. Farnon had bad luck for seven years after he broke that mirror. He should've known better than to break it.
- 7. Schools cause a lot of unhappiness, since most students are unhappy when they get E's on their report cards.

- 8. Schools cause a lot of unhappiness. If we didn't have them, students wouldn't get E's on report cards and would be a lot happier.
- 9. If he weren't so conceited, people would like him a lot more.
- 10. The stockbrokers are the source of our problems. Every time the stock market goes down a lot, the country has economic troubles.

3.4 RATIONALIZATION

A person is **rationalizing**¹, or using **rationalization**², when he or she comes up with a reason which makes sense, but is untrue, to excuse someone who did something or who felt a certain way.

A rationalization is a kind of lie, of course. But a person who rationalizes is lying to herself or himself as well as to others.

Example 1:

A man is watching a football game on TV. There are 10 seconds to go, and the home team has only one yard to go for the winning touchdown. His wife calls to him from another room, asking him something. He decides to ignore her. When questioned about ignoring her, he says, "I didn't hear you. I guess you didn't talk loudly enough." (That was a lie.)

Example 2:

A man is hard-of-hearing but refuses to face it. His wife is standing less than two meters from him with her back toward him. She says something clearly in a normal voice. He says, "Speak up! How do you expect anyone to understand you when you mumble?!"

(That was a rationalization.)

From Example 2, we can see that a rationalization is a kind of false cause reasoning. The man believed that the cause of his not hearing his wife was her mumbling, rather than his own hearing problem.

The next example will show that a rationalization can also take the form of an assumption contrary to fact. **Example 3:**

A middle-aged man whose work skills are no longer needed is out of work. To show there is nothing he can do about it, he says, "There isn't any use in my trying to learn a new trade, because I'm too old for that."

¹RASH nuhl-eyes ing; or; RASH uhn uhl eyes ing ²rash nuh luh ZAY shun; or; rash uh nul uh ZAY shun A rationalization can also include the use of SCP or SIP. **Example 4:**

A middle-aged man whose skills are no longer needed is out of work. To show there is nothing he can do about it, he says, "I could learn a new trade if I weren't so old. But I can't learn a new trade at my age."

(The man is saying, "If I weren't so old, then I could learn a new trade. So if I am this old, then I can't learn a new trade." Besides rationalizing, he is substituting the inverse of a proposition for the proposition.)

We cannot always tell whether a person is lying (being dishonest with us but not with himself), rationalizing (being dishonest with himself and thinking he is being honest with us), or neither. Example 5 shows such a case.

Example 5:

Joe does something which hurts Sam. Joe says, "I didn't mean for him to get hurt. I only did it as a joke."

(If Joe did mean to hurt Sam and knows it, Joe is lying. If Joe meant to hurt Sam at the time but now believes he was only joking, Joe is rationalizing. If Joe had no idea that his action could hurt Sam, then Joe is neither lying nor rationalizing.)

Summary:

- 1. Someone is **rationalizing**, or using **rationalization**, when the person believes his or her actions or reasons were different than they really were.
- 2. A person is lying to us when he or she tells us one thing but believes another.
- 3. We cannot always tell whether a person is rationalizing, lying, or neither.
- 4. A rationalization also includes <u>false cause</u> reasoning. From now on, we will take for granted (without mentioning it) that false cause reasoning is included.
- 5. Rationalization often includes other reasoning errors. Among these are assumption contrary to fact, and substitution of a converse (or inverse) of a proposition for the proposition.

CLASS DISCUSSION PROBLEMS

Tell what reasoning error(s) is (are) used. Assume no one is lying. Answer "none" if we have not discussed such an error or if there is no error.

- 1. If the teacher hadn't nagged at me so much to do the work, I'd have done it.
- 2. It was Margaret's fault. She said I should do it, so I did.
- 3. I don't know why I can't get a job as a construction worker. I guess I'm just not good-looking enough.
- 4. I don't know why I can't get a job as a fashion model. I guess I'm just not good-looking enough.
- 5. If I'd had the same breaks as everyone else at work, I'd have been promoted long ago.

6. I'd have been a genius if only I weren't so stupid.

7. I don't know how they expect me to come up with good new ideas. All of the good ideas have already been used.

8. If it could be done, someone would've done it by now.

3.5 WHOLE TO PART; PART TO WHOLE

Someone is making the **whole to part** reasoning error when he thinks that what is true of a thing as a whole must also be true of each separate part of it.

Example 1:

A teacher asks his class to tell him what they thought of the course "on the whole." He says they are not to write their names on their papers. He promises not to read the papers until after the semester is over. When he reads the papers, he finds comments such as, "Very good!" and "Exciting!" and "Interesting!" He thinks, "I worked hard to make every single day an interesting class day. I'm glad I succeeded."

(We see that the teacher has used the <u>whole to part</u> reasoning error. He figured that the students liked every single day of the class because they liked the class as a semester course.)

Example 2:

I'm standing in the middle of this forest and can't see how to get out. So if it had only ten trees, I still couldn't see how to get out.

Someone is making the **part to whole** reasoning error when he thinks that the whole thing has to have the same properties or characteristics as the individual parts.

Example 3:

At the end of the next semester, the same teacher from Example 1 asked the class for their comments on a 3-week unit done that semester. The comments were about the same as in Example 1. The teacher thought, "I'm glad they liked that unit so well. They must have liked the whole course that well."

Example 4:

Each person chosen for the team does excellent work. Therefore, the team will do excellent work.

Notice that the part to whole error is different from "proof" by selected instances. The part to whole error says, "This is true of one or more parts of a whole thing. So it is true of the whole thing." "Proof" by selected instances says, "This is true of one or more parts of a whole thing. So it is true of all the parts of the whole thing."

Example 5:

Part to whole: "The executives I've seen so far in this company have all been well-organized. So this is a well-organized company."

"Proof" by selected instances: "The executives I've seen so far in this company have all been well-organized. So all the executives in this company are well-organized."

CLASS DISCUSSION PROBLEMS

Tell what reasoning error(s) is (are) used. Assume no one is lying. Answer "none" if we have not discussed such an error or if there is no error.

- 1. Nobody can tell <u>me</u> it's safe to have all of those space satellites zooming around up there! After all, what goes up must come down.
- 2. From here to the end of the block, the ground is level. Therefore, Earth is flat.
- 3. These three line segments can be used to make a triangle. So any three line segments can be used to make a triangle.
- 4. These three line segments can be used to make a triangle. These line segments don't have angles. So a triangle doesn't have angles.
- 5. This triangle is made up of line segments. The triangle has angles. So the line segments must have angles.
- 6. It's obvious that this car wasn't inspected before it left the factory. I'll bet they don't inspect any of their cars before they ship them out.
- 7. It's obvious that this car wasn't inspected before it left the factory. I'll bet their whole operation is sloppy.
- 8. This book is too long to read at one sitting. Therefore, I can't read any of it at one sitting.
- 9. If President Wilson had been more diplomatic in his support of The League of Nations, then World War II would never have happened.
- 10. From the fact that this school system is one of the worst in the state, you know that each school in this system is among the worst.

3.6 MORE ABOUT CIRCULAR REASONING

Circular reasoning (also called **begging the question**) tries to prove something is true by assuming it is true. ("It's true because it's true.") You saw examples of circular reasoning in its simplest form in the first section of this chapter and in CTB1. There are other cases of circular reasoning which are not quite so obvious. One of these (sometimes called "victory by definition") defines a word in such a way that it is not possible to argue with the conclusion.

Example 1: (From Lewis Carroll's Alice in Wonderland.)

"Serpent!" screamed the Pigeon.

"But I'm not a serpent, I tell you!" said Alice. "I'm a—I'm a—"

"Well! What are you?" said the Pigeon. "I can see you're trying to invent something."

"I—I'm a little girl," said Alice....

"A likely story indeed!" said the Pigeon, in a tone of the deepest contempt. "I've seen a good many little girls in my time, but never one with a neck such as that! No, no! You're a serpent, and there's no use denying it. I suppose you'll be telling me next that you never tasted an egg!"

"I have tasted eggs, certainly," said Alice, who was a very truthful child. "But little girls eat eggs quite as much as serpents do, you know."

"I don't believe it," said the Pigeon. "But if they do, why, then they're a kind of serpent—that's all I can say."

Circular reasoning also occurs when an argument ends up back where it started. In this case, it is as though the argument started at a point on a circle and went all the way around the circle.

Example 2:

Pat looked in the dictionary to find the meaning of "affection." One of the definitions said it was love. Not being quite sure of what the dictionary meant by "love," Pat looked up the word. It said that love was affection or admiration. Pat looked up "admiration." It said that admiration was high esteem. He looked up "esteem." It said that esteem was high regard. He looked up "regard." The dictionary said that regard was affection.

CLASS DISCUSSION PROBLEMS

Tell whether or not circular reasoning is used.

1. Counselor: "Ron, your grades have been falling off. How come?"

Ron: "I have a job now, and I haven't been spending as much time studying."

Counselor: "Do you have to have a job? Can you quit until you're out of school?"

Ron: "I have to work. I need the money to pay for my car."

Counselor: "Why do you need a car?" Ron: "I need it to get back and forth to work." **Problems 2-6:** These are quotations from Carroll's Alice in Wonderland and Through the Looking Glass.

2. "Why do you sit out here all alone?" said Alice "Why, because there's nobody with me!" cried Humpty Dumpty.

3. [The Knave of Hearts is on trial for stealing tarts. The King, acting as the judge, is anxious to get the trial over with. He thinks the Knave is guilty. During the trial, a piece of paper is picked up.]

"... It seems to be a letter, written by the prisoner.... It isn't a letter, after all—it's a set of verses."

"Are they in the prisoner's handwriting?" asked another of the jurymen.

"No, they're not," said the White Rabbit, "and that's the queerest thing about it."

"He must have imitated somebody else's hand," said the King. . . .

"Please, your Majesty," said the Knave, "I didn't write it, and they can't prove that I did—there's no name signed at the end."

"If you didn't sign it," said the King, "that only makes the matter worse. You *must* have meant some mischief, or else you'd have signed your name like an honest man."

The Caterpillar and Alice looked at each other for some time in silence. At last the caterpillar . . . addressed her.... "Who are you?" said the Caterpillar.

This was not an encouraging opening for a conversation. Alice replied, rather shyly, "I—I hardly know, Sir, just at present—at least I know who I was when I got up this morning, but I think I must have been changed several times since then."

"What do you mean by that?" said the Caterpillar sternly. "Explain yourself!"

"I can't explain myself, I'm afraid, Sir," said Alice, "because I'm not myself, you see."

"I don't see," said the Caterpillar.

4.

"I'm afraid I can't put it more clearly," Alice replied, very politely, "for I can't understand it myself, to begin with; and being so many different sizes in a day is very confusing."

"It isn't," said the Caterpillar. ... "Not a bit." ...

"Well, perhaps your feelings may be different," said Alice. "All I know is, it would feel very queer to me."

"You!" said the Caterpillar contemptuously. "Who are you?"

5.

6.

The Mock Turtle went on, "We had the very best of educations—in fact, we went to school every day—"

"I've been to a day school, too," said Alice. "You needn't be so proud as all that."

"With extras?" asked the Mock Turtle, a little anxiously. "Yes," said Alice. "We learned French and music." "And washing?" said the Mock Turtle.

"Certainly not!" said Alice indignantly.

"Ah! Then yours wasn't a really good school," said the Mock Turtle in a tone of great relief.

"Oh, you can't help ... going among mad people," said the Cat. "We're all mad here. I'm mad. You're mad." "How do you know I'm mad?" said Alice.

"You must be mad," said the Cat, "or you wouldn't have come here."

3.7 EITHER-OR AND ITS OPPOSITE, NOT DRAWING THE LINE

A person is using the **either-or** reasoning error when, out of more than two reasonable possibilities, she or he chooses two and says, "It's either this or that." **Example 1:**

"You say the animals here at the Dog Pound suffer needless pain when we put them to death. Would you rather have them roaming the streets in packs?"

(The speaker is using <u>either-or</u> reasoning. There are other choices of ways to treat the animals. For example, make more effort to find the owners; make more effort to find homes for them; put them to death painlessly.)

We see that the either-or reasoner draws a line where such line-drawing is not called for. We can go to the other extreme, too. That is, we take a situation where a line is needed, and we either refuse to draw it in a reasonable place or refuse to draw it at all. This reasoning error is sometimes called **not drawing the line**.

Example 2:

"Why set 65% as the lowest passing grade? What's so magic about 65%? Why not 60%? Or 50%? Why have a definite per cent at all?"

(The speaker is not drawing the line in a case where a line should be drawn. As long as the school uses grades, there has to be some impersonal standard for the grades if the grades are to be fair.¹)

^{&#}x27;You may be thinking, "Yes, there has to be <u>some</u> Impersonal standard, but that doesn't mean that the standard has to be some percent. Maybe the speaker Intends to suggest a <u>different</u> Impersonal standard, and he's just leading up to it." If so, you are right. But then, Instead of what he said, he would be more likely to say. "Why set 65% as the lowest passing grade? Why use percents at aii? Why not use such-and-such instead?" Going by what we have In Example 2, It appears that the speaker is, indeed, guilty of not drawing the line.

CLASS DISCUSSION PROBLEMS

Tell what reasoning error(s) is (are) used. Assume no one is lying. Answer "none" if we have not discussed such an error or if there is no error.

- 1. You said I could stay out until 10:00 p.m. on Fridays and Saturdays. Why not on school nights, too? What's the difference? I always get up at the same time, anyhow.
- 2. It's a simple choice. Do you want a friendly peace, or do you want war? If you want a friendly peace, then write to your people in Congress and tell them to stop what they're doing, for what they're doing will surely lead to war. It follows that if they stop what they're doing, we'll be able to have a friendly peace.
- 3. Nobody can tell <u>me</u> it's safe to have all of those space satellites zooming around up there! After all, what goes up must come down.
- 4. If my teachers had all treated me the same as they did the other kids in my classes, I'd have done a lot better in school.
- 5. It's too late for you to drop the class or switch to an audit. So either you're going to start doing better work in here, or you're going to flunk.
- 6. My 18-year-old brother gets to come and go as he pleases, but I don't. I'm 14 already, so he's only 4 years older. I don't see where that should make any difference.
- 7. If you're not really strict with kids, they'll run all over you. That's why we're so strict with our kids. At least we have a chance that they won't run all over us.

3.8 SOPHISTICAL FORMULA

A sophistical (sah fis tih kuhl) formula is a saying which sounds reasonable (but sometimes isn't) and which most people recognize. Here are some examples of such sayings: Examples 1: (These are sophistical formulas.)

- a. You can't teach an old dog new tricks.
- b. You're never too old to learn.
- c. Two heads are better than one.
- d. Too many cooks spoil the broth.
- e. Never look a gift horse in the mouth.

A person is making the **sophistical formula** reasoning error when she or he uses a sophistical formula to cut off an argument.

Example 2:

"I heard that the Smiths are breaking up their marriage." "Oh, that can't be true. I was just over there last night. They were making all kinds of plans. They're starting a business, and they were talking about where they're going on their vacation for the next three years. They've also been looking at new houses."

"Well, there must be <u>some</u> kind of serious trouble between them. Where there's smoke, there's fire."

(The first speaker thinks that the sophistical formula supports his or her illogical conclusion and allows damaging evidence against that conclusion to be ignored. In this case, it seems as though the person <u>wants</u> to ignore facts and believe gossip instead.)

CLASS DISCUSSION PROBLEMS

Tell what reasoning error(s) is (are) used. Assume no one is lying. Answer "none" if we have not discussed such an error or if there is no error.

- 1. Nobody can tell <u>me</u> it's safe to have all of those space satellites zooming around up there! After all, what goes up must come down.
- 2. "I wish I had Freyton's job. She makes twice as much as I do and doesn't work as many hours."

"Yes, but she has a lot more headaches with her job than you have with yours."

"That's OK. I'd be willing to take on the extra headaches."

"You wouldn't like her job if you had it. Remember, the grass always looks greener on the other side of the fence."

3. "Since you're always getting laid off from work and you don't like your work that much, anyhow, why don't you learn a new trade?"

"I'm too old to learn a new trade. You can't teach an old dog new tricks."

"Certainly you can learn a new trade. You're never too old to learn, you know."

4. "I'm going to give my stockbroker all of my money to handle. I've really done well listening to her advice. I'll bet all of her clients are making a mint. The company she's working for must really be great!"

"You've had a run of good luck, that's all. It's foolish to put all of your money in one spot. You should never put all of your eggs in one basket." 5. Greene and Ekland run into each other in a clothing store. Greene is looking at suits on the bargain rack. Ekland is looking at expensive suits on the next rack. Green: "They have some good bargains here. Some of the suits which were among those expensive ones are on sale for half off."

Ekland: "No, I buy only the most expensive. If they're on sale for half off, they must have something major wrong with them. You get what you pay for, you know."

3.9 NON SEQUITUR

A person is using **non sequitur**¹ (nahn <u>seck</u> wuht uhr) reasoning when his conclusion does not follow from his supporting statements. Nearly all of the reasoning errors we have studied are non sequitur reasoning. In general, we say the reasoning is non sequitur if the argument is invalid and if we have no other name to call it.

Example 1:

"All the homes in Big City are expensive, so they must all be well built."

(This is non sequitur reasoning.)

Example 2:

"I ran the 100-meter race today in 12 seconds. So I should be able to run the 200-meter race tomorrow in 24 seconds."

(This is "part to whole" reasoning. It is also non sequitur reasoning, but we call it by its special name, since it has one.)

Example 3:

"Your children should have the best breakfast you can give them, so we know you'll want to buy URPO breakfast cereal for them."

(This is non sequitur reasoning.)

CLASS DISCUSSION PROBLEMS

1. A newspaper article said, "23-year-olds know more about arithmetic than 17-year-olds. This indicates that the 23-year-olds learned more about arithmetic since leaving school than they learned while they were in school."

Give two reasons why the conclusion is an example of non sequitur reasoning.

"Non sequitur" is a Latin term meaning "it does not follow."

2. A great many slave owners were interviewed, and 80% of these people said that they treated their slaves fairly. The people interviewed were representative of the various kinds of people who owned slaves. Suppose the above statements are true. Tell why each of the two conclusions below is an example of non sequitur reasoning. (Do not list the same fault for both conclusions.) a. Therefore, about 80% of the slave owners treated their slaves fairly. b. Therefore, about 80% of the slaves were treated fairly. Problems 3-12: Tell what reasoning error(s) is (are) used. Assume no one is lying. Answer "none" if we have not discussed such an error or if there is no error. 3. "You can't teach an old dog new tricks," may be true, but I'd rather believe, "You're never too old to learn." 4. I've never yet seen a green-haired person who wasn't lazy. They must all be lazy. 5. Every green-haired person I've seen has been lazy. They must all be lazy. 6. Radicals and conservatives both go to extremes. So they must be the same thing. 7. Every time I've had business dealings with you in the past, you've been dishonest with me. I have no reason to think you'd be honest with me this time. 8. Germany started two world wars. That explains why my neighbor Mueller is so aggressive. 9. Dogs make wonderful pets, so wolves would, too. 10. I've always been a great one to ask a lot of questions. So I know, with all the freedom kids today have in school, that I'd really enjoy attending school today. 11. My dog never barks at people passing by, but he always barks when people come to the door. He must not like the people who come to the door. 12. We have only two marking periods each semester. The first marking period just ended, and I got "B" in English. So I can goof off the rest of the semester and still pass the class.

3.10 MISCELLANEOUS REASONING ERRORS

Inconceivability (in kuhn see vuh <u>BILL</u> uht ee) is the reasoning error someone makes when he refuses to think about something because he cannot imagine that he might be wrong. That is, such a possibility is inconceivable to him.

Example 1:

You can't convince me that we have an energy crisis. Look at all the scientists who are working to develop new forms of energy. Look at all the money the oil and mining companies are making. They'll always find more oil and coal to dig up so they can keep on making money.

The **academic detachment**, or **fence-sitting**, error occurs when someone should make a decision one way or another but avoids doing so.

Example 2:

A husband says to his wife, "We both see good points and bad points about buying a different house. They pretty much cancel each other out. Tell you what we'll do. We'll call up so-and-so and let him decide for us."

A person is using a **faulty analogy**¹ (uh <u>na(uh)l</u> uh jee) when she uses an inappropriate analogy. No analogy is absolutely perfect because, by definition, an analogy compares similarities in two <u>different</u> things. But some analogies are appropriate and some are not. For example, the analogy in the footnote is appropriate. Following is an example of an analogy which is not appropriate.

Example 3:

Mosquitos and flies are both insects, both have wings, both fly around making pests of themselves, and both bite. So if mosquitos transmit malaria to humans, then flies must do this, too.

(The speaker has used a faulty analogy.)

A faulty analogy may use a sophistical formula to get a point across.

Example 4:

Today was my first day on the job. Everyone was really friendly. Even the boss was nice. I know I'm going to enjoy working there. After all, you don't have to eat a whole cake to know that it's good.

(A cake is the same throughout because of the way everything is blended together before it is baked. So one bite of a cake tells us what the whole cake tastes like. But a job is not the same throughout. There are good days and bad days on any job. So one day on a job is not enough to tell us what the whole job is like.)

A faulty analogy is something like faking a connection. The difference is this: Faking a connection says that things which have some similarities are related to each other. But faulty analogy says that things which have some similarities also have other similarities (which they don't necessarily have). Here are three examples to show you the difference between faking a connection and faulty analogy.

^{&#}x27;An analogy is a comparison of two different things which have some similarities. An analogy is often used to explain a new idea. For example, a teacher may say, "Today you're going to see a number ilne. Before I show you one, picture yourself standing still. Then picture yourself taking three giant steps forward. Now waik back to where you started and face the same direction as when you started. This time, picture yourself taking three giant steps backward. You took three giant steps two different times. But the first time you ended up at a different place than the second time. But you know which place i mean if I say 'forward' or 'backward.' With numbers, we don't use the words 'forward' and 'backward.' I'll draw a number line now and show you how we do it." The teacher is using an analogy between forward steps and positive numbers, and between backward steps and negative numbers.

Example 5:

Like a bicycle, a wheelchair has two wheels. So, Faking a connection: a wheelchair is a bicycle. Faulty analogy: like a bicycle, a wheelchair has pedals to make the wheels go.

Example 6:

Like a subcompact car, a truck needs a driver. And like a subcompact car, a truck can carry some passengers. And like a subcompact car, a truck has an engine. So,

Faking a connection: a truck is a subcompact car.

Faulty analogy: like a subcompact car, a truck is a relatively small motor vehicle.

Example 7: (This is Example 6 again, stated a different way this time.)

Trucks and subcompact cars both need drivers, can carry some passengers, and have engines. So,

Faking a connection: trucks are subcompact cars.

Faulty analogy: trucks and subcompact cars are both relatively small motor vehicles.

You see that in each of the above three examples, <u>faking</u> <u>a connection</u> said that the two things were related because they had certain things in common. But <u>faulty analogy</u> said that the two things were alike in a certain way because they were alike in other ways.

CLASS DISCUSSION PROBLEMS

Tell what reasoning error(s) is (are) used. Assume no one is lying. Answer "none" if we have not discussed such an error or if there is no error.

- 1. I don't care what kind of evidence you think you have. I know that Jackson didn't take that money! I've known her too long to believe she'd do that.
- 2. The Crafts and the Wallings have both invited me to parties for next Saturday. I'd have a good time at either party. But they don't like each other, so if I go to one of the parties, the other people will be offended. It would be even worse to go to one of the parties and then leave to go to the other one. I guess I'll just stay home.
- 3. "Big" and "small" are relative words. Just as a horse is small when compared to a barn, the same horse is big when compared to a kitten.
- 4. A baseball umpire saw where the ball went when it was pitched. He said he just couldn't decide whether it was a ball or a strike. He suggested that the pitcher throw another pitch.
- 5. I've had three other kids from this family in my classes in past years. All of them were very bright. So the one I'm getting this year will be very bright, too.
- 6. If you don't get a troublemaker out of the classroom, his or her actions and attitude will spread to the rest of the class. One bad apple spoils a barrelful, you know.

7. Rosita and Jefferson are both running for the presidency of the student council. I've known both of them a long time, and both would make good presidents. I guess I just won't vote at all this time.

3.11 CHAPTER REVIEW

You learned the names of eight kinds of faulty reasoning in CTB1. Besides reviewing those in this chapter, we went a little deeper into two of them—"proof" by selected instances, and circular reasoning. We also discussed twelve more kinds of faulty reasoning in this chapter and three other kinds in Chapter 1. All of these can be used in propaganda.

This does not take care of labelling¹ all the kinds of faulty reasoning, but it is enough for our purposes. Following is a summary of the kinds of faulty reasoning we have looked at so far.

Summary:

- 1. **The "slippery word" error:** The speaker uses two or more meanings of a word but thinks only one meaning was used.
- 2. Inconsistent statements: Two or more statements are made which cannot all be true.
- 3. Contradictory statements: Two statements are made, one of which must be true and the other of which must be false.
- 4. "Proof" by failure to find a counterexample: Something is thought to be true because a counterexample cannot be found.
- 5-6. Substitution of converse (or inverse) of a proposition for the proposition: A proposition is thought to imply its converse (or inverse).
 - 7. Circular reasoning (begging the question): The reasoning starts out and ends up at the same spot. (It's true because it's true.) In the meantime, new information may have been added, but it doesn't support the conclusion.
 - 8. "**Proof**" by selected instances: An unreasonable generalization is made about all (or most) things on the basis of one or more examples.
 - 9. Avoiding the question: A reply to a question does not answer the question.
- 10. **Special pleading:** General rules are applied inconsistently. Or reasons for thinking that some things are good and others are bad are applied inconsistently.
- 11. Faking a connection: Two things which are alike in some ways must be practically the same thing.

'Not all authors call a reasoning error by the same name. For instance, some authors take what we've called "proof" by selected instances (PSI) and call It <u>hasty generalization</u>. They then apply the PSI label to cases where the speaker is purposely ignoring examples which would contradict what he's saying. As another example, what we have called whole to part is called sweeping generalization by some others. If you would like to learn about other kinds of faulty reasoning, see the bibliography at the end of this book.

- 12. False cause: Something is thought to cause something else, when the first thing did not cause the second thing.
- 13. Assumption contrary to fact: The statement is made, "If P were not true, then such-and-such," when P really is true.
- 14. Rationalization: An excuse for someone or something which makes sense, but which is not the real reason, is given. There is no intent to mislead the listener.
- 15. Whole to part: The properties of a whole thing are thought to be properties of each separate part of the whole.
- 16. **Part to whole:** The properties of one or more parts of a whole thing are thought to be properties of the whole thing.
- 17. Either-or: Only two choices are given, even though there are other reasonable possibilities, too.
- 18. Not drawing the line: A line either is not drawn, or is drawn at an unreasonable place, in a situation which calls for a line to be drawn.
- 19. Sophistical formula: A well-known saying of some kind is quoted in order to prove a point.
- 20. Inconceivability: Something is thought to be false just because the thinker cannot imagine that it might be true. Or something is thought to be true just because the thinker cannot imagine that it might be false.
- 21. Academic detachment, or fence-sitting: A situation calls for a decision, but no decision is made. (The person who should decide sits on the fence, refusing to decide one way or the other.)
- 22. Faulty analogy: The fact that two things are so much alike in some ways is thought to <u>imply</u> that they are alike in other ways, too.
- 23. **Non sequitur:** The conclusion does not follow from the premises. Nearly all faulty reasoning is non sequitur reasoning. But we call a reasoning error non sequitur reasoning only when we don't have a different name for that kind of error.

CLASS DISCUSSION PROBLEMS

 A speaker said, "Of all Negroes who were once slaves and who wrote about their experiences, the great majority have written that their lives as slaves were happy. We may conclude, therefore, that the lives of the majority of Negro slaves were happy."

Suppose the speaker's first statement is true. Then why is the conclusion an example of non sequitur reasoning? **Problems 2-52:** Tell what reasoning error(s) is (are) used. Assume no one is lying. Answer "none" if we have not discussed such an error or if there is no error.

- 2. This approach has never worked yet, so what we need is a whole new approach.
- 3. U.S. Senator: "Feelings about this bill are running very high. There are good points and bad points about this bill. If I vote for it, half of my constituents will be angry. And if I vote against it, the other half will be angry. So I won't vote on it at all."
- 4. We have sent several scientific probes to the moon, and in no case have these probes landed in an area where there was life. If there was life on the moon, then at least one of these probes would have landed in an area where there was life. Therefore, there is no life on the moon.
- 5. Voter: "What can you do that other candidates can't do?"

Candidate: "I don't claim that I can do everything that should be done, but one thing I can do for you is to get you a fair shake for your tax dollar."

- 6. X was sentenced to be executed for cold-blooded murder. Review boards and higher courts found no fault with either his arrest or his trial. The execution date approached. Groups opposed to capital punishment talked with Governor Y (the governor of the state) and asked him to order a delay of the execution. After talking with them, Governor Y had his aides give him a thorough summary of the case. The governor considered everything carefully and then said he would not order a delay of the execution. He said his office was supposed to see that the laws were enforced, and the law said that X was to be executed for the murder. He said he would not be available for more interviews on the subject.
- 7. (Problem 6 continued.) The last two days before the execution date, X's mother tried to get in to see the governor, but he refused to see her. In a TV interview the last night before the execution, X's mother said, "Governor Y claims to be a Christian. But he won't even talk to me about a delay of execution for my son."
- 8. She said that if she wanted me to know about it, she'd tell me herself. Well, she finally told me about it, so I guess she wanted me to know about it.
- 9. My 16-year-old is a nice kid, so don't try to tell me that all teenagers are bad.
- 10. During a riot, Arty stole a TV set from a store which was being looted. When asked why he did it, he said, "Well, if I hadn't done it, somebody else would have, so I figured it might as well be me that got the set."

11. In Matthew 7.3-5, we find,

And why beholdest thou the mote' that is in thy brother's eye, but considerest not the beam' that is in thine own eye? Or how wilt thou say to thy brother, "Let me pull out the mote out of thine eye"; and behold, a beam is in thine own eye? Thou hypocrite, first cast out the beam out of thine own eye; and then shalt thou see clearly to cast out the mote out of thy brother's eye.

What reasoning error is the hypocrite using here?

- 12. During a coal strike, a reporter interviewed several people. The reporter asked each person, "If the coal strike isn't settled soon, homes may have to go without electricity from two to four hours a day. How would this affect you?" X answered, "I think the coal strike could have been avoided. It was contrived like other shortages have been. I don't think blackouts or the strike are situations the public can do a lot about." Y answered, "I'd rather be cold and have lots of covers on my bed."
- 13. We have all of these car safety devices forced on us and we have to pay for them even if we don't want them. But our homes are still not safe from robbers and murderers. Today it's safer in cars than in homes.
- 14. Wife: "You always fill the cat's food dish so full that food spills out on the floor and makes a mess." Husband: "If you don't like the way I do it, then you do it!" You make sure that the cat has enough to eat!"
- 15. I read a book on how to improve my personality, and it was very interesting. That author must really be an interesting person.
- 16. A newspaper columnist wrote, "Those who think that poverty causes crime can be proved wrong simply by observing that rich people continue to embezzle, swindle, accept bribes, and evade taxes."
- 17. A: "In many ways, three years' probation is a more severe sentence than 10 to 20 years in prison." B: "Why do you think that?"

A: "The person on parole knows that he has a very heavy sentence hanging over his head. He knows that if he breaks the rules of his probation, he can go to jail for a long, long time."

- 18. You should quit smoking. It's really bad for your health. What? Don't try to change the subject. I know I'm 100 pounds overweight, but I like myself this way.
- 19. You think Johnson is so great? Well, I happened to see him in a store once. He'd pick up something from the counter and then look around to see if anyone was watching him before he'd put it back down. That's just the way shoplifters act. I'll bet he's a shoplifter.
- 20. You can't convince me I'm wrong about that decision, because you just don't have enough powers of persuasion to make me change my mind about it.

'A mote is a tiny speck. A beam is a rafter.

21.	You asked what I think of a math exit test as a gradua- tion requirement. Well, I'll tell you. Kids today are graduating from high school without knowing the basics. It's a disgrace! At least when a kid graduated from high school 50 years ago, he knew how to read
22.	and write and do arithmetic. We sure need to do some- thing to make a high school diploma have some mean- ing today! Beef is selling at all-time high prices, so beef liver and
23.	kidneys must be quite expensive now. German Shepherds are vicious dogs. I've known a lot of people who've owned German Shepherds, and the dogs attacked anyone who came on the property unless the owners called them off
24.	Banks are responsible for a lot of crime. If we didn't have banks, we wouldn't have dishonest bank tellers and loan officers, and we wouldn't have bank robberies.
25.	I always wear my blue slacks when I go to the ball game. Every time I wear them, our team wins. I used to wear a different pair when I went to the games, and our team lost every time I wore a different pair.
26.	Russia has made many scientific discoveries in the past 20 years. So some of her teams of scientists must be among the world's best.
27.	Russia has made many scientific discoveries in the past 20 years. Goronov is a scientist in Russia, so he must be among the world's best.
28. 29.	Adults can't be trusted. I know, because I've never yet met one who could be trusted. He lied to me. He said if I'd go out with him, he'd stop
30.	bugging me. So I went out with him, and he's still bugging me. A: "Under normal conditions, a child raised by strict
	raised by lenient parents." B: "I disagree. Children whose parents are strict can't
	freedom by being rude and surly to other people." A: "But that doesn't mean that they're not good
	B: "But they break laws, too. They speed in their cars, and they throw litter around and they spit on the side- walks."
	A: "But those are rather minor violations. All of us at one time or another break minor laws, but we're still good citizens."
	B: "But some of them do shoplifting, too, and that isn't a minor violation." A: "But <u>normally</u> , they don't do that."
31.	No foreign language is hard to learn. I know, because

32.	Reporter to candidate for U.S. President: "The present
	administration has made real gains in foreign policy,
	but you object to their style. Would you not have done
	Inese Inings?" Condidate: "The present administration is a mether of
	form and style not substance. The American people pe
	longer have faith in them. We've been outtraded by
	Russia in nearly every case. Their own platform says
	the present administration is weak in foreign policy."
33.	A person weighs less in Miami, Florida than in New
	York City. And the person weighs even less at the
	equator. So if the person keeps traveling south—say to
	weigh even less than at the equator
34.	I'm supposed to write a book report on this book. I can't
	even understand the first page of it. I can't very well
	write a book report on a book I don't understand.
35.	If Columbus hadn't gone sailing west to try to find
26	India, people today would still think that Earth is flat.
50.	he goes out of his way to help me. The company he
	works for must really be a good one!
37.	I have some money to invest. I could put it into a sav-
	ings account. Or I could put it into stocks. Or I could in-
	vest it other ways. All of these ways have good points
	and bad points. I can't decide what to do. I guess I'll just keep it under the mattress for a while
38.	Humans will never live on the moon I don't care what
	kind of methods and inventions science comes up with.
	It just isn't possible to do all the things needed for
	humans to live there.
39.	You say I watch too much IV. But why cut me down to
40	A: "I wish you'd staple the papers together a different
40.	way."
	B: "OK, if you don't like the way I staple them together.
201	then I won't staple them together at all."
41.	A married couple decide that \$60,000 is the most they
	can possibly pay for a house. The real estate agent
42	If I were rich I wouldn't be any happier than I am now
-T 6 1	After all, money doesn't buy happiness
43.	It's the teacher's fault that I get bad grades. Every time
	I don't do the homework, my grade goes down. If he
	hadn't given us so much homework, my grade would be
4.4	better.
44.	they've all been good students. I'm getting enother of
	the Wilson kids next year 1 expect this next one to be a
	good student too

1.2.	
45.	Edwards was the victim of a severe heart attack two weeks ago. He has to stay in the hospital another four weeks. His friend, who is visiting him, says, "Jogging is
	known to build up the heart and lungs, you know. So as soon as you get out of the hospital, you should start
46.	I have a 720-page book to read. I read at the rate of a page a minute. So if I start now, I'll be finished in 720
47.	My wife and I agree that religious training is important for kids. But we don't agree what church our kids
	should go to. So we've decided just to wait until the kids grow up. Then they can choose their own churches.
48.	She can't be trusted. She said if I didn't start paying at- tention, she was going to call my parents. So I started
49.	paying attention, and she called them anyhow. A newspaper published the following question: "To
	make workers like their jobs better and do more work, some Chicago offices are trying out a new kind of work
	certain limits, choose what hours they work. Would you
	Here are some of the answers the newspaper received.
	 B: "Since when do workers tell the boss when they're going to work?"
	C: "It wouldn't work." D: "If someone wants to work, you don't have to try
	gimmicks to make her or him like the job better." E: "It would be hard to take care of the clients if they
50.	Stan has noticed that his parents get angry every time
	that his parents will always get angry when he gets into a fist fight with his brother.
51.	Vickers was chosen as a member of a jury. He paid close attention all through the trial. He understood
	everything which went on. When the time came to vote "guilty" or "not guilty," he refused to vote. He ex-
	could not make up his mind which was the better way
52.	An outstanding athlete who placed second three times in the Olympics said, "Winning wouldn't have made me
	different than I am. Losing made me a better person than I'd have been otherwise."
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CHAPTER 4

TECHNIQUES OF PROPAGANDA AND ARGUMENT

- 4.1 **REVIEW**
- 4.2 "RED HERRING"
- 4.3 AD HOMINEM
- 4.4 "OTHER THINGS ARE WORSE"
- 4.5 THE USE OF AUTHORITY
- 4.6 APPEAL TO EMOTIONS
- 4.7 APPEALS TO RADICALISM AND CONSERVATISM
- 4.8 CHAPTER REVIEW

4.1 REVIEW

From CTB1, here is the definition of **propaganda**. Broadly speaking, propaganda is any rumor or idea or fact which is spread in order to convince someone of something. Propaganda may be truthful or not, and it is often one-sided.

The purpose of propaganda is to convince. So **propaganda techniques** can also be called **techniques of argument.** A salesperson does not simply walk up to us and say, "This gismo costs \$ ______. Buy it." No, he or she uses powers of persuasion to convince us that we want the gismo, we'll be sorry if we don't buy it, we'll be happy that we bought it, buying it is a wise decision, and we want to spend our money to get the gismo.

In this chapter, we'll start with a review of the techniques discussed in CTB1. Then we'll discuss other techniques. This chapter will not tell you about all the techniques of propaganda or argument. But it will give you a very good background so that you will learn to look for what is said, rather than simply react to the way it is said. In turn, you can then be cool-headed when deciding whether or not to act on suggestions made.

Here is a brief review of the propaganda techniques discussed in CTB1:

- 1. **Bandwagon:** Other people do it, so join the group.
- 2. **Repetition:** If I repeat myself often enough, you'll accept the idea.
- 3. **Transfer:** I'll show you something you like. Then you'll transfer your good feelings about it to my product or idea. Or: I'll show you something you dislike. Then you'll transfer your negative feelings about it to my opponent's product or idea.
- 4. **Testimonial:** I'll get somebody famous to say that my idea is good, and then you'll be more likely to believe it.
- 5. **Exigency:** You're going to have to act fast if you want to get in on this, because I'm not going to hold this offer open long.
- 6. Free: I'll give you something for nothing. (At the most, it will cost a couple of postage stamps or phone calls.)
- 7. Bargain: I'll give you more than you're paying for.
- 8. Glittering generality: I'll use words which will sound good to you. But the words will be so general that you won't be able to pin down exactly what I'm promising.
- 9. **Innuendo:** I won't really <u>say</u> that the other product or idea is no good. But I'll do a good job of hinting around at it, and that'll help make you think it's true.
- 10. **Name-calling:** I'll use emotionally loaded words, and then you'll react emotionally instead of logically.
- 11. **Card-stacking:** I'll only tell you one side of the story. Then maybe you won't stop to think about arguments for the other side.

- 12. **Oversimplifying:** I'll give you a simple solution for a complex problem. I won't mention that my solution doesn't cover all the angles. Well, maybe I'll mention it, but I'll make it sound unimportant.
- 13. **Snob:** You're really a superior person if you go along with my idea.
- 14. Just plain folks: Hey, I'm just like you are, so I know you'll go along with my idea.
- 15. **Flag-waving:** You're patriotic if you go along with my idea. And you're unpatriotic if you don't.

Following are examples of these propaganda techniques.

- (Bandwagon): "Everybody in the know is going to Al's Swingin' Singles! Don't miss out on all the fun! Join us tomorrow night!"
- (Repetition): "The old things are the best. And that's what Mom's Lemon Pie Mix is. An old-fashioned recipe for old-times tastes. Nothing beats the taste of old-time down-home cooking. Get Mom's Lemon Pie Mix today."
- 3. (Transfer): A professional golfer is shown using GREENGRASS on her lawn.
- 4. (Testimonial): A professional golfer is shown holding a box of GREENGRASS and saying, "This makes my lawn look like a putting green."
- 5. (Exigency and bargain): "We'll give a free radio to the first 100 people who buy \$20 worth of merchandise tomorrow!"
- 6. (Free and exigency): "We'll give a free radio to the first 100 people who show up tomorrow morning!"
- (Bargain and exigency): "We'll give a free radio to the first 100 people who buy \$20 worth of merchandise tomorrow!"
- 8. (Glittering generality)1: "It's time to get our state government back on the right track! It's time to stop wasteful government spending! It's time to stop welfare cheaters! Vote for me!"
- 9. (Innuendo)²: "And just why did she dance all around my question without answering it? Could it be that she doesn't want to let us know where she really stands on this issue?"
- (Name-calling)³: "This good-for-nothing, lowdown, rotten so-called "better living" plan is nothing but a sneaky underhanded attempt to take away our rights!"
- 11. (Card-stacking): "You don't want to be a nurse. You have to go through all that training, and then what do you get? You work with sick, crabby people and take orders from doctors who don't know the patients as well as you do. You're underpaid and overworked and unappreciated. You have to work different shifts and can't have a normal home life."

¹Recall that this is an example of a vague statement (discussed in chapter 1).

²innuendo always involves an insinuation. Recall that loaded questions (discussed in chapter 1) often use insinuation, too.

³Notice the emotionally loaded words (discussed in chapter 1) in this example. Also notice that name-calling may be directed against an <u>idea</u> instead of a <u>person</u>.

- 12. (Oversimplifying): "You say we're being eaten up by inflation? I'll tell you how we could solve that. All we have to do is freeze wages and prices right where they are, and, presto!—inflation stops dead in its tracks."
- 13. (Snob): "You are one of the few people in your area to be selected to participate in this offer."
- 14. (Just plain folks): Nina Nobody tells how DIRTOFF keeps her kitchen floor clean.
- 15. (Flag-waving): "Now you know and I know that any selfrespecting American will see through this Communist plot to undermine our great country's ideals."

CLASS DISCUSSION PROBLEMS

Tell what techniques of propaganda or argument are being used. If faulty reasoning is also used, tell what kind it is.

- 1. You can't afford to miss this opportunity of a lifetime! Rugs, carpets, throw-rugs, all at 40% off!
- 2. You don't know me. I'm John Doe, and I never made anything in my life before. But I bought a Simple-to-Make Kit, and here you can see just a few of the beautiful items I made from it on my very first try. No ability, no talent, and yet I made these myself! If you'd like to be able to make these items, buy a Simple-to-Make Kit yourself!
- 3. Hit Records has, for the first time in history, collected 30 Golden Record hits of the '60's in one album! Elvis Presley, The Beatles, all of your old-time favorites singing all of your favorite songs! Only \$250 for this album of out-of-print blockbusters! There is no guarantee of how long our supply of these albums will last, but we know they'll go fast, fast, FAST! Act now! You may never see another offer like this as long as you live!
- 4. For whiter teeth, better breath, a cleaner mouth, and fewer cavities—try ULTRA-GLEAM!
- 5. Is this what the American dream was built on? More pay for less work? No sir! Every real American believes in an honest day's work for an honest day's pay! No red-blooded American will stand by and let these Commies try to undermine the ideals our country stands for, the ideals our forefathers fought for, the ideals in our great U.S. Constitution!
- 6. MASTER-MIND, the most popular game in the country! More than 26 million sold in just four years! Don't miss out on the fun! Get yours today!
- 7. Hit Records has, at last, put together in one album a collection of your old favorites, the oldies-but-goodies, the songs of your younger days. To bring back sweet memories, recall former good times, reminisce about yesteryear, buy this album now!

- 8. Kids are graduating from high school without knowing the basics. Teachers are passing them just to get rid of them. Well, I know how to solve the problem. Let's make the teachers accountable for what their students learn. We'll give each student a test before and after the material has been taught. If the student hasn't learned, the teacher won't be paid. If the student has learned, the teacher will be paid. You can bet that the teachers will get down to business and really start teaching our kids then! And there won't be kids graduating without knowing the basics!
- 9. These rotten Nazis want to open a book store in our neighborhood! That's all we need! Hitler's goosestepping fanatics right here among us, trying to brainwash our kids, trying to teach a new generation to turn against their parents, to be evil! Murderers! Torturers! We have to stop these vermin now, before their disease spreads among us!
- 10. High school graduates! See your local U.S. Army recruiter! Learn about the exciting career opportunities in the Army! Choose your own career field and get free training, free board and room, and monthly pay besides! Meet interesting people! Travel to interesting places! Earn while you learn! All this is yours when you join the U.S. Army!
- 11. From among the millions of people in your state, you have been selected to participate in this important survey. It is your attitudes, opinions, and ideas we want to know about. Won't you take a few minutes to fill in your answers on the enclosed sheet and return it to us in the enclosed postage-paid envelope?
- 12. Send today for our no-cost, no-obligation booklet telling about all of our services and products.
- 13. Harry Handsome, the movie actor, is shown slapping SMELLY after-shave lotion on. Four beautiful women come up and put their arms around him. "We just can't resist a man who uses SMELLY!" says one of the women.
- 14. Same as problem 13, except the woman doesn't talk. Instead, Harry Handsome says, "I use SMELLY because then they just can't resist me!"
- 15. He's always taking things home from the office. I asked him how come once, and he said he does a lot of office work at home. Nobody does that much office work at home. I wonder what he's up to?

4.2 "RED HERRING"

"Red herring"¹ is a form of avoiding the question. It is used to throw the listener off the track of the main point of an argument.

"Red herring" can take the form of a change of subject. **Example 1:**

Teacher: "Your test scores show there's been too much goofing off and not enough paying attention. From now on . . ."

Student (interrupting): "Aw, c'mon now. Didn't you ever goof off when you were our age?"

Teacher: "We-I-I, yes, sometimes. I remember once, I got together with another kid, and we planned this deal to pull in class . . ."

"Red herring" can also take the form of disproving a minor point.

Example 2:

"My opponent said that a study by Famous University of 2,357 students showed that smaller class sizes resulted in better learning. But the study wasn't sponsored by Famous University. It was sponsored by Wellknown University. Now if my opponent was wrong in this fundamental point, how can we go along with his other conclusions?"

(Notice that <u>saying</u> that a minor point is a fundamental one doesn't make it one.)

Another form of "red herring" is to insert an argument which has little or no bearing on the present one.

Example 3:

"My opponent said that a study by Famous University of 2,357 students showed that smaller class sizes resulted in better learning. We all remember that study Famous did last year where they came up with conclusions which were later found to be wrong. I say that we should turn down these findings, too."

(The fact that last year's conclusions were wrong has nothing to do with whether or not the conclusions being discussed are wrong.)

'It is said that bloodhounds can be thrown off the trail by drawing a red herring across the path they will follow. (The smell of the herring is so strong that it blocks the smell they were tracking, thus throwing them off the trail of the thing being tracked.)

CLASS DISCUSSION PROBLEMS

Problems 1-5: Tell what techniques of propaganda or argument are being used. If faulty reasoning is used, tell what kind it is.

- 1. He says this new idea of his is the answer to our prayers. Well, I'm a praying man myself, but I don't recall ever praying for a solution like this. So I guess his idea must not be any good, after all.
- 2. Now I want to tell you just why I'm against this idea of nuclear energy. We've still got all the energy sources we need right now. There's plenty of gas and oil and coal. Why, I read just the other day about this gigantic new oil field discovered in northern Canada. It's expected to supply enough oil to meet the whole world's needs for the next 50 years!
- 3. He says we should have the Christmas spirit all year long. Can you imagine what it would be like to be buying presents for everyone 365 days of the year, to have to keep buying Christmas trees, to have Christmas ads on TV all year long? It's a ridiculous idea!
- 4. You say you can't get a job and you don't know why. Yes, I remember when I was looking for work. It took me a long time to find a job.
- 5. Kelly's neighbor: "I wish you'd keep your dog from barking so much. It really is disturbing." Kelly: "Yeah, well yours barks a lot, too. Doesn't that bother you?"
- 6. Ms. X was being tried on a charge of possession of deadly weapons. She had been a fugitive for three years and was arrested at the same time as another woman who was convicted of armed robbery of a bank. (This other woman's trial was after the arrest but before Ms. X's trial.) The father of Ms. X testified at her trial, "She is a very kind and compassionate person. She was always bringing stray cats home. A very good, very kind person."

Give two reasons why the father's testimony is an example of "red herring."

4.3 AD HOMINEM

When a person ignores an argument and instead argues about the opponent, we call this **ad hominem**¹ instead of "red herring." An ad hominem argument may be about the opponent's character, health, mental condition, beliefs, circumstances, or whatever. In any case, it is directed against the <u>opponent</u> rather than against the opponent's <u>argu-</u> ment.

'Ad hominem is a Latin term which translates as "to the man."

Example 1:

"My opponent said that a study by Famous University of 2,357 students showed that smaller class sizes resulted in better learning. Now we all know that my opponent served time in prison for robbery. How can we take the word of such a person?"

(The insinuation is that the opponent is of poor character and that his or her arguments, therefore, are no good.) Example 2:

"My opponent said that a study by Famous University of 2,357 students showed that smaller class sizes resulted in better learning. But my opponent is a teacher and so is naturally in favor of smaller class sizes, since that would mean less work for a teacher."

(Notice that the second statement, an attack on the opponent's circumstances, has no connection with whether or not the Famous study was a valid one.)

Example 3:

"My opponent said that a study by Famous University of 2,357 students showed that smaller class sizes resulted in better learning. But she herself has successfully taught classes of 40 and 45 students, so she must believe that better learning is the result of better teaching, not smaller classes."

(Here, the speaker is saying that the opponent's conclusion is inconsistent with the opponent's own experience. Notice again that <u>saying</u> something is true does not make it true. The opponent might believe that she would have been even more successful in teaching if she had had smaller classes.)

CLASS DISCUSSION PROBLEMS

Problems 1-5: Tell what techniques of propaganda or argument are being used. If faulty reasoning is used, tell what kind it is.

- 1. The teacher says everyone should try to learn all they can. But she admits that she herself goofed off when she was in college.
- 2. So she's an attorney and says that's the law. She graduated from a third-rate law school, so she can't be much good. She probably doesn't know what she's talking about.
- 3. He quoted research to us to prove his point. But he's misquoted research before. And even if he didn't misquote it this time, research findings don't always work in the real world. They set up those controlled conditions that have nothing to do with real life.
- 4. He says this has worked hundreds of times in other companies. But what kinds of companies? Are they like ours? How sure is he of his report?

- 5. Either you're going to believe what I tell you, or you're going to believe what he tells you. And you know his reputation. He's been accused of bribing city officials and of swindling. 6. A singer said that critics of a rock band had been unfair to the band. She added, "I'd like to see them [the critics] get up on a stage and try to play in front of an audience." (1) What did the singer imply in her statement which was quoted? (2) Suppose your refrigerator isn't working right, so you call a refrigerator repair service. The repair service comes out and says they've repaired it after half an hour of working on it. But later that day you have the same trouble with the refrigerator as before. Is it OK to complain about the repair service? How come? (3) Suppose you told a friend about that repair service, and your friend answered, "You shouldn't complain
 - and your friend answered, "You shouldn't complain about them. You don't know how to repair your refrigerator, either." What's wrong with this argument?
 - (4) So what's the connection between questions (2) and(3) above, and the argument of the singer in the story above?
 - (5) Explain how the singer's comments are an example of ad hominem.
 - (6) Give other examples of being able to recognize poor performance of a job without being able to do a better job yourself.

4.4 "OTHER THINGS ARE WORSE"

People sometimes try to prove something is acceptable by saying, "This is OK, because something else is worse." We'll call this the "other things are worse" technique. Example 1:

Becker: "I'm got getting enough for the work I do. Everyone else who has the same kind of job gets at least \$2 more an hour than I get."

Lerner: "You're lucky to have a job at all. A lot of people are out of work now."

(Lerner's comment may be true, but it has no connection with whether or not Becker is, in fact, paid less than she should be for the work she does.)

Example 2:

Father: "What's this C doing on your report card?! With your brains, you should be getting all A's and B's!"

Daughter: "Here I made the honor roll, and you're yelling about my grades. I should just quit school and go get a job!"

(Notice that the daughter has avoided the question, has used "other things are worse," and has thrown in a touch of "either-or" reasoning.)

We notice that the "other things are worse" technique can be a combination of "red herring," avoiding the question, ad hominem, and non sequitur. We can also throw in some obvious "either-or" reasoning and some sophistical formulas.

Example 3:

Teacher: "There's no excuse for your being late to class almost every day. You come strolling in here well after the bell rings and then class has to be interrupted while I correct the attendance slip and wait for you to get to your seat."

Student: "You should be glad I show up at all. Would you rather I dropped the class? Besides, you were late yourself two weeks ago. That's like the pot calling the kettle black."

(The student's remarks had no bearing on the teacher's remarks. The student has used "other things are worse," "either-or," "red herring," ad hominem, avoiding the question, and sophistical formula.)

CLASS DISCUSSION PROBLEMS

Problems 1-6: Tell what techniques of propaganda or argument are being used. If faulty reasoning is used, tell what kind it is.

- Father: "What's this C doing on your report card?! With your brains, you should be getting all A's and B's!" Daughter: "Here I made the honor roll, and you're yelling about my grades. I should just quit school and go get a job!"
- 2. I don't know why you complain when the school bus doesn't show up and you have to walk to school. How would you like it if there were no buses and you had to walk every day?
- 3. I don't see why you're all uptight just because I brought home a little souvenir from the restaurant. Everybody does it. You should be glad I didn't try to leave without paying my bill!
- 4. If you don't like the carpeting they have here at this store, then we won't get any at all! I'm not going to go driving all over town for nothing!

- 5. You say I don't cook the meat long enough. I suppose you'd like it better if it was burned to a crisp!
- 6. Many people have said there is too much violence on TV. In defense of TV, someone said, "To have violence on TV is better than having the live violence which was indulged in in Europe and in America some centuries ago."
- 7. Following is part of an editorial which appeared in Big City's newspaper:

Mayor Oldham's State of the City message said Big City's future is rosy. He said our New Center is evidence of Big City's turnaround. He lists the beautiful new buildings in New Center and the business they generate as being good for our city. And they are.

But what about the main downtown area? It's still in poor condition. And what about blight and flight from residential neighborhoods? And what about the poor bus service to most of our neighborhoods? And what about the poor conditions in most of our schools?

We don't take a lot of comfort when Oldham tells us that Toledo schools were shut down, San Francisco is suffering "an epidemic of murder and crime," New York is "crippled by money problems," and "Atlanta's great leap forward has stumbled badly." Big City residents must cope with their own problems. Someone else's problems don't count.

- (1) Judging from the editorial, what (in effect) did the mayor say? (Choose all which apply.)
 - a. Big City has a rosy future.
 - b. Big City is on the way to recovery from the ills which affected her.
 - c. Good things are happening in Big City.
 - d. We still need to work at restoring the main downtown area.
 - e. We still need to work at cleaning up the neighborhoods.
 - f. We still need to work to improve bus service.
 - g. We still need to work toward better schools.
 - h. Big City is better off than Toledo, San Francisco, New York, and Atlanta.
- (2) Does the editorial writer agree with Mayor Oldham? Support your answer.
- (3) The purpose of the editorial was not simply to state, "We agree with Mayor Oldham." So what was the purpose of the editorial?
- (4) According to the editorial, the mayor used the "other things are worse" technique. Where was this used?
4.5 THE USE OF AUTHORITY

We are usually impressed by someone who seems to be some kind of authority on a subject. The "authority" a person actually has can take any of many different forms. **Examples:**

- a. The sound of authority: "A study by leading scientists has found . . ." "Never before has the human being ever had . . ."
- b. The authority of numbers: "Statistics have shown that this" "We find about 79 times out of 100, that this"
- c. The authority of personal experience: "I was eating my lunch yesterday when . . ."
- d. The authority of second-hand experience: "My friend said he saw . . ."
- e. The authority of nth-hand experience: "A fellow worker of mine has a friend whose neighbor's child's friend's cousin saw"
- f. The authority of a testimonial: A baseball star says that a certain breakfast food is a good way to start the day.
- g. The authority implied by "transfer": The picture of Betty Beautiful, the Hollywood star, is shown in a cosmetics ad.
- h. The authority of "just plain folks": Nina Nobody tells how GRASSGROW helped her lawn.
- i. The authority of degrees and memberships: The sign on the door says, "John Doe, Consulting Psychologist, USCGS, NDE, SNCP."¹
- j. The authority of titles: "I know about the problems in our city. I was the chairperson of the Committee for a Better City. I was the president of Citizens Concerned about Government. I was"
- k. The authority of quoting a respectable source:
 "Neither of these proposals is any good, and we should turn them both down. As Shakespeare said,
 "There's small choice in rotten apples."
- The authority of misquoting a respectable source: "Money is the cause of all of our problems today. Remember what the Bible says—'Money is the root of all evil."²
- m. The authority of technical jargon:³ "In order to maximize our profit potential, we issued long-term debentures . . ."
- n. The authority of position: "I'm the teacher here, and you will be expected to observe certain rules while you're in my room."

¹These are initials i made up to stand for "United States Citizen in Good Standing, No Degrees Earned, Seif-Named Consulting Psychologist." My apologies if any organization actually has these initials.

²The actual quotation is (from 1 Timothy 6:10), "The love of money is the root of all evil."

³Technical jargon is the name given to terms which are used widely in a particular trade or business but which are not commonly used by the general public.

As you can see from these examples, there are many ways people can use to make us think they know what they're talking about. When we find ourselves being impressed, it's a good idea to stop and wonder why. Take Example k, for instance. The fact that Shakespeare said, "There's small choice in rotten apples," does not support the speaker's statement.

CLASS DISCUSSION PROBLEMS

Tell what techniques of propaganda or argument are being used. If faulty reasoning is used, tell what kind it is.

- 1. Don't tell <u>me</u> that kind of thing doesn't happen! It happened to my neighbor just last week!
- 2. I don't care what the newspaper said. I don't believe it, because it just isn't possible. The laws of physics say it just can't be done.
- 3. Research has shown that this idea has worked in other companies. And if it worked for them, it'll work for us.
- 4. Research has shown that this idea has worked in other companies. So it's worth trying here.
- 5. My dad's a smart man, and he says it's true, so it's true!
- 6. Never before in our history have we had a problem like this. If we don't find a solution within a month, we're going to have to forget everything we know about comfortable living.

4.6 APPEAL TO EMOTIONS

In chapter 1, we discussed the use of emotionally loaded words. Such words are often used in arguments and propaganda. Their use is a signal that the speaker wants you to feel rather than to think. Appeals to emotions can take several forms, and they may or may not use emotionally loaded words.

Examples 1:

- a. The appeal to prejudice: "You know how people like this are. You let them move into your nice, well-kept neighborhood, and the first thing you know, ..."
- b. The appeal to pity or sympathy: "This badly abused child, forced at the age of five to stand on street corners day after day begging for money . . ."
- c. The appeal to anger: "No decent law-abiding citizen should have to put up with . . ."
- d. The appeal to fair play: "You may not like this man's past record. But that isn't the question. The question is whether you will give him justice today, whether you'll be fair with him today, whether you'll listen today with an open mind"

- e. Name-calling: "This rotten, low-down, good-fornothing..."
- f. Flag-waving: "I tell you, this proposal is unAmerican! It says that American ideals are no good, American principles are no good,"
- g. Ridicule: "Now we just know they can't be serious about this thing. You know, it reminds me of the story of . . ."

Emotional appeals can also be directed to our own feelings of self-worth.

Examples 2:

- a. Flattery: "It's obvious that you are intelligent people, so . . . "
- b. Prestige or status ("snob" appeal): "It takes a handpicked group of forward-thinking people like yourselves to see . . ."
- c. Moral principles: "If you don't go along with this, you're saying that you have no conscience, no morals, no sense of right or wrong,"
- d. Generosity: "We know that you are too generous, too concerned about your fellow human beings, to let this go on . . ."

An emotional appeal does not necessarily mean that the argument is a poor one. And an unemotional appeal does not necessarily mean that the argument is a good one. But an emotional appeal tends to go right past our brains and make us react with feeling rather than logic, if we let it. So when we find ourselves simply reacting to, rather than thinking about, what is being said, it's a good idea to stop and ask ourselves whether or not the basic argument is any good.

CLASS DISCUSSION PROBLEMS

Tell what techniques of propaganda or argument are being used. If faulty reasoning is used, tell what kind it is.

- 1. Of all the hare-brained schemes I ever heard of, this one takes the cake!
- 2. You know what's going to happen if we go along with this. First they'll say, "Well, you agreed to this, so here's what we'll have to change." Then they'll say, "Well, you agreed to those changes, so here's what else we'll have to do." First thing you know, they'll be walking all over us, and we won't have anything to say about anything."
- 3. Either we're going to turn them down cold, or we'll be sorry as long as we live. There's no use seeing what they have to say. We already know they want to take advantage of us, to get us under their thumbs.

- 4. This beautiful two-year-old collie sits by the front door waiting for an owner who will never return, for the owner was killed in an auto accident a week ago. If no one will give this loyal dog a home, he will be taken to the dog pound and will be killed.
- 5. It's a sorry state of affairs when you're "too busy" to do a little favor for me, after all I've done for you! You're selfish and ungrateful!
- 6. The Governor claims to be a religious woman, but what kind of religion is it that would allow her to do a rotten thing like this?

4.7 APPEALS TO RADICALISM AND CONSERVATISM

An **appeal to radicalism** (<u>RAD</u> ih kuh <u>lizz</u> uhm) tries to get us to accept an extreme change.

Example 1:

"It's obvious that these old worn-out ideas are no longer working. It's time to throw them all out and start from scratch. And that's exactly why you should accept this new idea I'm offering you."

An appeal to radicalism is sometimes based simply on the idea that "new" is always better than "old." Example 2:

"This is a brand new idea. Are you in favor of progress, or are you hopelessly stuck in the past? If you are in favor of progress, you'll favor this new idea. If you're hopelessly stuck in the past, then you won't even consider it." (Notice that this example uses "either-or" reasoning and emotional appeal, as well as an appeal to radicalism.)

An **appeal to conservatism** (kuhn <u>SUHR</u> vuh <u>tizz</u> uhm) tries to get us to stick with old ways. Example 3:

"It's obvious that these new proposals are just grasping at straws. We already know the old ways work. Why throw away a sure thing just on the slim chance that something else <u>might</u> be better? Remember, 'A bird in the hand is worth two in the bush.' "

(Notice that this appeal to conservatism is combined with an emotional appeal and a sophistical formula.)

An appeal to conservatism sometimes tries to get us to turn down a new idea just because it is new. Example 4:

"And here they are, proposing yet another new idea. Why can't they just leave well enough alone? Why can't they just be satisfied with the good old-fashioned ways of getting things done? I say, once we find something that works, stick with it and quit messing around with it!" (Notice that an emotional appeal is combined with this appeal to conservatism.)

CLASS DISCUSSION PROBLEMS

Tell what techniques of propaganda or argument are being used. If faulty reasoning is used, tell what kind it is.

- 1. This company hasn't made any progress in the last twenty years! It's time for a change! Get rid of the oldtimers and let's get some new blood in here!
- 2. This company hasn't made any progress in the last twenty years! It's time for a change! Let's have some new ideas!
- 3. Becker has a new idea. We've never tried something like this before, and I think we should. New ideas are always good-they keep us from getting stuck in a rut.
- 4. So Becker has a new idea. Big deal. We don't need new ideas. We've been getting along fine without them. Why take a chance on goofing things up by doing something different?
- 5. I'm tired of hearing, "Let's change this. And let's change that." They say we need change if we're going to have progress. Well, I don't agree. I don't see how we're going to have progress if we keep losing money from trying things that don't work. We know our present methods work, and I think we should stick with them.

4.8 CHAPTER REVIEW

There are many techniques of propaganda and argument. You have learned about some of them but not all of them. The fact that some technique is used in an argument does not mean that the argument is a poor one. (It makes good sense to argue in a way which is likely to convince the listener that you are right.)

On the other hand, we certainly don't want to think the speaker is right when all he or she is doing is evading the point ("red herring") or attacking the other speaker (ad hominem) or saying one side is a good one because another side is worse ("other things are worse"). Nor do we want to be blind about following our emotions (appeal to emotions). And we don't want to try something new just because it is new (appeal to radicalism) or stick with something old just because it is old (appeal to conservatism).

All good speakers will sound like they know what they're talking about (use of authority). What we want to know is, do they really know what they're talking about, or do they just sound that way to us? Many times a speaker will sound as though he or she is stating a fact when it's really just his or her own opinion. We'll have more to say about this in a later chapter.

CLASS DISCUSSION PROBLEMS

Problems 1-25: Tell what techniques of propaganda or argument are being used. If faulty reasoning is used, tell what kind it is.

- 1. You think you've got it tough in the Navy! Let me tell you how bad it is in the Marines!
- 2. We've known each other only a short time, and already I feel that we're just made for each other. If you hadn't come along, I'd still be lonely and miserable, but you've made my life worth living. You've got to agree at least to go steady with me, because if you don't, I'll kill myself, and you'll be responsible.
- 3. Student: "Oh, come on, Ms. Walters! Don't give us homework tonight! Tonight's the big game, and you know how excited we all are about it. We won't be able to concentrate on it and we'll all do a rotten job on it. Our other teachers aren't giving us homework for tonight."

Teacher: "I gave you an assignment, and it stands. If you can't do a good job on it, then don't bother. It's your decision. I was going to give you a bigger assignment, but I didn't because of the game. You don't appreciate that, so I might just as well give you the assignment I was going to give you in the first place."

- 4. I don't know why you pay any attention to what he says. He's always been a troublemaker and a gossip.
- 5. X corporation, a land development company, takes prospective buyers out in cars equipped with CB radios. While the buyers are looking at lots, announcements like "Lot No. 213 is just being sold" are made. The announcements are often fakes. They are made from the company's office so that the prospective buyers think the lots are going fast.

 items! Sale ends at midnight tomorrow! 11. UNBELIEVABLE VALUE! A complete 45-piece set of crystal. All the glassware you'll ever need. Sophisticated, luxurious service for eight. Fashioned in sparkling blown crystal glassware with flair and style for those who demand timeless elegance and imaginative design. Only \$29.95. You can try it in your own home FREE for 15 days! 12. Why should I work my fingers to the bone when all you do is sit around like a big shot and give orders? Come down off your high horse, mister! If you really think the house looks like a pig's pen, then you help clean it up!

- 13. You can vote for me and all-time prosperity, or you can vote for my opponent and an all-time depression. I have the answers to our country's political problems and financial problems. It's time to put America back on the right track. It's time to make America the great country she once was! It's time to put your hard-earned tax dollars to work for you instead of wasting them on needless programs! It's time to say, "Out with the old ways which got us into this mess, and let's have a change."
- 14. KINGSTON P. TOWERS is dedicated to making Midstate a better place to live. He has been for 20 years. Kingston Towers, age 48, married, father of 7, is qualified by experience and dedication. He graduated from our local high school, attended our local junior college and our local university. He is a former Deputy City Clerk, past Treasurer of the School Board, and currently Director of Purchasing at our local junior college, a position that requires the careful examination of monies spent well in excess of \$5 million yearly. Kingston Towers knows first hand about the problems of crime; for 8 years Kingston has served (without pay) as a Sergeant in the Police Reserves. Kingston Towers has an old-fashioned idea that people are more important than politics. That's why in times like these we need a man like this.
- 15. A Big City firm mailed letters to Midstate residents. Each letter promised a "luxurious family vacation for two," and said the cost would be paid by resort businesses. Each couple who answered the letter was then subjected to a high-pressure sales talk to convince them to subscribe to a prepaid vacation plan.
- 16. My opponent keeps shouting, "New is better! We want progress!" Well, naturally, he'd say "new is better." He has to, since he's never been elected before. I'll bet if he is elected, then next time he'll be shouting, "Old is better!" As for his so-called progress, you don't get progress by just trying new things all the time. You get progress by sticking to the old things. As long as they work, that's progress.
- 17. Tom: "Any culturally refined person likes sculpture." Steve: "Oh, what do you know about it? Culturally refined people like music. Anyhow, my aunt is culturally refined, and she doesn't like sculpture, so your statement isn't true."

Tom: "I know as much about it as you do. I didn't say they didn't like music. Anyhow, your aunt can't be culturally refined, because if she were, then she'd like sculpture."

18. Harriett: "In Russia, the people have more limits on their freedom than we have here in the United States." Andrea: "What gives you that idea?" Harriett: "They're not allowed to do as many things as we are."

19.	Everyone knows that the welfare rolls are loaded with
	freeloaders. So anyone on welfare is just too lazy to
20.	Work for an honest living.
20.	democratic government should allow all citizens full
	freedom of speech. Therefore, it is advantageous to a
	democratic government to allow its citizens unlimited
-	liberty in the oral expression of their beliefs.
21.	Our so-called mayor says our little town isn't good
	the muds and that what we need is for some city
	slickers to come in and tell us how to run our town!
	Well, I say that we don't need any foreigners to invade
	us and tell us how to run our own town! I say that
	what was good enough for our fathers is good enough
	like it movel?"
22.	My fellow senator has introduced a bill calling for a
	curfew for 14-year-olds. How did she arrive at the magic
	age of 14? Why not 10? Why not 18? What's to say that
	this curfew will be enforced even if we pass the bill? Is
	the senator such an expert on juveniles that she can
23.	Benorts from our agents in Xlandia show that Xlandia's
	planes and ships are far better than ours. If we don't
	begin immediately to build such planes and ships,
	we're going to find that the United States is going to be
	just another possession of Xlandia. Is this what you
	happen finally to American ideals. American ideas of
	liberty and freedom for all?
24.	Yes, my proposal to fight crime will cost a lot of money.
	But it's better than letting crime run wild in the streets
	the way it is now! We've tried the old ways and they
	naven t worked. We ve thed little changes in the old
	mit that the old ways will never work. It's time to throw
	them out and try a new way. Do you leave your doors
	unlocked? Do you feel safe alone on the street at
	night? Of course not! Either we try this new way, or we
	let the criminals run all over us! It didn't used to be that way. My grandmother used to tell me that they never
	locked their doors, that they always welcomed
	strangers, that they went for a walk at any time of the
	day or night. Say, I remember one time she told me
	about "

 Tyler: "Not necessarily. One of the best teachers I had was a shop teacher who taught nothing except how to use the machines properly. He walked in when the period started and out when it ended. None of the kids would ever have asked his advice or opinions about anything outside of the shop work." Horner: "Then you could have gotten the same thing from having a TV teacher, or from reading the machine handbooks, or from having one of the older kids show you how to run the machines. If that teacher had been a good teacher, he would've had influence on you in other areas." 26. Following is a letter to the editor of Big City's newspaper. 26. Following is a letter to the editor of Big City's newspaper. 26. Following is a letter to the editor of Big City's newspaper. 27. I will fight for my right to enjoy a cigaret if I choose. Some say they are offended by cigaret smoke. Well, I am equally offended by diners who shovel in their food and talk while it is going down. Diners who belch are offensive. Can I have them removed? 28. How about diners who drink more than they eat and are loud and overbearing? They really turn me off. 29. I, too, have my rights and I shall refuse to be pushed around because I enjoy my cigarets. 20. MRS. X (1) In her second paragraph, Mrs. X asks a question. Suppose we answer "yes." Do you think she would then be willing not to smoke in a restaurant? How come? (2) Do you agree that the things listed in Mrs. X's second and third paragraphs are offensive? (3) What reasoning errors and propaganda techniques are contained in Mrs. X's letter? 		forner: "A good teacher teaches much more than sub-	25.
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27. In a western state, Smith was found guilty of murder and was sentenced to be executed. Several organiza- tions objected and filed court appeals. During this time, Smith said, "I wish everyone would just keep their noses out of my business and let the prison carry out the order of the court." When the last appeal by the organizations was denied by the courts, Smith was ex- ecuted. Shortly after that, the following letter to the editor appeared in Big City's newspaper.		n a western state, Smith was found guilty of murder and was sentenced to be executed. Several organiza- ions objected and filed court appeals. During this ime, Smith said, "I wish everyone would just keep their loses out of my business and let the prison carry out he order of the court." When the last appeal by the organizations was denied by the courts, Smith was ex- ecuted. Shortly after that, the following letter to the editor appeared in Big City's newspaper.	27.
According to your recent article, "Big City Residents Say Execution Was Right," many people agree that justice was served by Smith's execution. By saying this, such people are saying it is right to bring back capital punishment in Midstate.		According to your recent article, "Big City Residents Say Execution Was Right," many people agree that justice was served by Smith's execution. By saying this, such people are saying it is right to bring back capital punishment in Midstate.	
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In using as a modern-day deterrent a moral code of 4,000 years ago, these people might wish also to bring back other parts of the code of Hammurabi which contain the notion of a life for a life.

For example, this code said that a builder's son would be executed if the builder was negligent and built a house which collapsed and resulted in the death of a client's son. It provided for the execution of the daughter of a person found guilty of the manslaughter of another person's daughter.

Next the people could adopt other laws cherished in the olden days, such as cutting off the hands of a clumsy surgeon as his penalty for a maiming operation, or putting out the eyes that pried into secrets.

You're right, you who support bringing back capital punishment to Midstate! Let Midstate not be the last along the way back to the minus 20th century!

MR. X

- (1) Do you think Mr. X is for, or against, bringing back capital punishment to Midstate? How come?
- (2) Does Mr. X appear to be for, or against, the kinds of laws he lists in his third and fourth paragraphs? What makes you think so?
- (3) Mr. X appears not to want to change the way certain things are now in Midstate. Despite this, the argument in his letter can be taken as an appeal to radicalism. How come?
- (4) Mr. X's argument uses "red herring." Tell how.
- (5) Mr. X's argument uses "faking a connection." Tell how.
- (6) Mr. X's argument uses "whole to part" reasoning. Tell how.

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CHAPTER 5

PROBABILITIES OF TRUTH AND FALSITY

5.1	INTRODUCTION AND REVIEW
5.2	ABSOLUTELY, PROBABLY, AND POSSIBLY
5.3	TRUE OR FALSE BEYOND A REASONABLE DOUBT

5.1 INTRODUCTION AND REVIEW

You now have a pretty good background in several areas of critical thinking. You know some basic logic, and you know about some of the uses and misuses of words. You know about some of the common reasoning errors, and you know about some of the techniques of propaganda and argument. The next step is to learn how to take what is said and figure out what is probably true or false as well as what is absolutely true or false.

In CTB1, you had experience in figuring out what was absolutely true or false from what was given. We'll start out with a review of that. Then we'll take what's given and try to figure out what is probably true or false. And finally, we'll take what is given and try to figure out what is true or false beyond a reasonable doubt.

For all problems in this chapter, you are to

- (1) accept what is given as true, and
- (2) assume that good English is used.

CLASS DISCUSSION PROBLEMS

Problems 1-2: You are given a short story. Tell whether each statement following the story has to be true or not. Your answer will be either yes (it absolutely has to be true) or no (it might be true but it doesn't absolutely have to be).

- 1. Jane saw Margaret coming toward her.
 - (1) Margaret saw Jane.
 - (2) Margaret was approaching Jane.
 - (3) Margaret was in front of Jane.
 - (4) Jane and Margaret were both walking.
 - (5) Jane was approaching Margaret.
- 2. A small car was going 60 kph down a street with a 40 kph speed limit. The driver yanked the wheel hard to the right to miss a child who had run out into the street in front of the car. The car hit a parked truck.
 - (1) The car was going over the speed limit.
 - (2) The car was not a large car.
 - (3) The car was not an average-size car.
 - (4) The car was a subcompact car.
 - (5) The car missed the child.
 - (6) The car was damaged when it hit the truck.
 - (7) The truck was damaged when the car hit it.
 - (8) The child came into the street from the left of the car.
 - (9) The child had run into the path of the car.
 - (10) The car's driver saw the child.

Problems 3-4: You are given a short story. Tell whether each statement following the story has to be false or not. Your answer will be either yes (it absolutely has to be false) or no (it might be false but it doesn't absolutely have to be).

- 3. Jane saw Margaret coming toward her.
 - (1) Jane did not see Margaret.
 - (2) Margaret did not see Jane.
 - (3) Jane was behind Margaret.
- 4. A small car was going 60 kph down a street with a 40 kph speed limit. The driver yanked the wheel hard to the right to miss a child who had run out into the street in front of the car. The car hit a parked truck.
 - (1) The car was not going over the speed limit.
 - (2) The car was a large car.
 - (3) The car was an average-size car.
 - (4) The car was not a subcompact car.
 - (5) The car hit the child.
 - (6) The car was not damaged when it hit the truck.
 - (7) The truck was not damaged when the car hit it.
 - (8) The child had not run into the path of the car.

Problems 5-8: You are given a short story. Tell whether each statement following the story has to be true (T), has to be false (F), or might be either true or false (?).

- 5. Mr. King fills the gas tank of his car four times a week.
 - (1) Mr. King drives a lot.
 - (2) Mr. King's car has a lot of miles on it.
 - (3) Mr. King spends a lot for gas.
 - (4) Mr. King's car uses a lot of gas.
 - (5) Mr. King's car gets poor gas mileage.
 - (6) Mr. King fills the gas tank of his car five times in some weeks.
 - (7) Maybe Mr. King fills the gas tank of his car five times in some weeks.
- 6. KINGSTON P. TOWERS believes the time has come to get Midstate moving again—but this time in the right direction. Kingston also believes the time has come for Midstate to re-establish its priorities. He believes we must end the political infighting that has caused our state government to lose sight of where we are going as a people. He believes the time has come to put politics aside and get on with the serious business of running the State of Midstate.
 - (1) Towers believes that Midstate has stopped moving.
 - (2) Towers believes that Midstate used to move.
 - (3) Towers believes that Midstate used to move in the wrong direction.
 - (4) Towers believes that Midstate has the wrong priorities.
 - (5) Towers believes that political infighting is going on.

- (6) Towers believes that our state government, at one time or another, lost sight of where we are going as a people.
- (7) Towers believes that our state government currently has lost sight of where we are going as a people.
- (8) Towers believes our state government would not have lost sight of where we are going as a people if there had been no political infighting.
- (9) Towers believes that nothing about running the State of Midstate is serious business.
- (10) Towers believes that some things about running the State of Midstate are serious business.
- (11) Towers believes that everything about running the State of Midstate is serious business.
- (12) Towers believes that some political infighting should be ended.
- (13) Towers believes that all political infighting is something which should be ended.
- (14) Towers believes that some political infighting is a good thing.
- 7. The intensity of sound is measured in <u>decibels</u>. A whisper is about 20 decibels. Ordinary talking is about 60 decibels.

A lot of exposure to sounds between 60 and 100 decibels usually makes people irritable. Examples of such sounds are a vacuum cleaner, freeway traffic, an office typing room, and a car horn.

Prolonged exposure to sounds 85 decibels or over can cause serious, even total, loss of hearing. Examples of such sounds are a diesel truck (90 decibels), a riveting machine 9 meters away or a subway (100 decibels), rock music at a loud rock concert (100-130 decibels), a jet airplane engine 30 meters away (140 decibels), the loudest thunder (120 decibels).

Sounds which are 120 decibels or more can be physically painful. Sometimes a single exposure to an extremely loud sound can cause permanent loss of hearing.

- (1) A decibel measures intensity of sound.
- (2) A sound below 20 decibels cannot be heard by a human.
- (3) The sound of a jet airplane engine 30 meters away is less intense than the sound of a vacuum cleaner.
- (4) Permanent loss of hearing may be caused if you blow a trumpet loudly in someone's ear.
- (5) Listening to rock music on a stereo with the volume turned up is not likely to damage hearing if you do it for only a couple of hours a day.
- (6) If someone works in a noisy place, he or she is likely to be crabby by the end of the day.

8. Doctors have said that watching TV for more than two hours a day for several weeks may cause the watcher to be tired and listless.

(Assume that the doctors are telling the truth. Also assume that you are one of the people who will be tired and listless if you regularly watch TV for more than two hours a day.)

- (1) Watching TV for more than two hours a day won't make you tired if you do it only once in a while.
- (2) Watching TV for 3 hours a day for 6 weeks will make you feel tired and listless.
- (3) Watching TV for 2 hours a day for 6 weeks will make you feel tired and listless.
- (4) Watching TV for 2 hours and 1 minute a day for 6 weeks will make you feel tired and listless.
- (5) Watching TV for 1 hour and 15 minutes a day for 12 weeks will make you feel tired and listless.
- (6) If you don't watch TV at all, you will not feel tired and listless.

5.2 ABSOLUTELY, PROBABLY, AND POSSIBLY

So far you've been asked only to decide among "true," "false," and "questionable." If something wasn't absolutely true or false, you said it was questionable, and you let it go at that.

Now you're going to have to go deeper than that. If something is not absolutely true or false, you'll no longer be able just to say it's questionable. You're going to have to decide whether it is <u>probably</u> true or false. You will have five possible answers—AT (absolutely true), PT (probably true), PF (probably false), AF (absolutely false), and ? (none of the other answers applies).

Example:

A small car was going 60 kph down a street with a 40 kph speed limit. The driver yanked the wheel hard to the right to miss a child who had run out into the street in front of the car. The car hit a parked truck.

- (1) The car was going over the speed limit. (AT)
- (2) The car was a large car. (AF)
- (3) The car was damaged when it hit the truck. (PT. It's <u>possible</u> that the car was <u>not</u> damaged. But under the conditions stated, it is more likely than not that the car was damaged.)
- (4) Maybe the car was not damaged when it hit the truck. (AT)

- (5) The child came into the street from the right side of the car. (PF. The driver <u>may</u> have turned the wheel toward the child. But reactions in such situations are usually automatic, so <u>it is more likely than not</u> that the wheel was turned away from the child.)
- (6) The car was only two weeks old. (?)

CLASS DISCUSSION PROBLEMS

A story is given. Decide whether each statement following the story is AT (absolutely true), PT (probably true), PF (probably false), AF (absolutely false), or ? (none of the other answers applies).

- Evariste Galois (gal wah) (1811-1832) was a French mathematician. When he was 17, he developed important original ideas in advanced algebra. (These parts of algebra are not taught until the graduate level in college mathematics today.) He also made important contributions to number theory, to the theory of equations, and to the theory of functions, all of which are subjects in college mathematics. He was jailed twice for his political beliefs. He was killed in a duel with a political opponent.
 - (1) Galois was a brilliant man.
 - (2) Galois is noted for his work in higher mathematics.
 - (3) Galois is not especially noted for any work in mathematics which is usually taught below the college level.
 - (4) Galois was middle-aged when he was killed in a duel.
 - (5) Galois ran for election to public office.
 - (6) Galois was quite active politically.
 - (7) Galois' political views disagreed with those of the government.
 - (8) Galois was married.
 - (9) Most people would find Galois' mathematical theories (mentioned in the story) hard to understand.
 - (10) Galois was killed in a duel at the age of 20 or 21.

- 2. Mrs. Hill is a teacher at Corbett High School. She is known for her patience and for her unusually good ability to get along well with students. Harry is a student in one of her classes. Today she took Harry to the assistant principal's office. She told the assistant principal that Harry was entirely unmanageable in her classroom. Harry is not a new student at the school.
 - (1) Mrs. Hill has taught at Corbett High for a long time.
 - (2) Mrs. Hill has been a teacher for a long time.
 - (3) Harry never gave Mrs. Hill any trouble before today.
 - (4) Mrs. Hill was in a crabby mood today.
 - (5) Harry has given his other teachers trouble, too.
 - (6) Mrs. Hill loses her temper with the kids about once every two months.
 - (7) Mrs. Hill lost her temper with Harry today.
 - (8) Harry did not behave properly in Mrs. Hill's class today.
- 3. The Internal Revenue Service (IRS) collects all federal taxes. At one time, the federal government had a 10% admissions tax on all "commercial amusements." The IRS said that college football games were subject to the tax. The colleges in one college football league disagreed. Sixteen of these colleges got together and chose one of the colleges to take the case to court.

In court, the chosen college claimed that college football was an educational activity, not a commercial amusement. But the U.S. Supreme Court ruled that the IRS had a right to collect the tax.

(Assume the Court's decision was based only on law and fact, not on personal preference.)

- (1) The Court decided that college football games were a commercial amusement within the meaning of the law.
- (2) The Court decided that college football games were not an educational activity.
- (3) The Court was smart enough to see that the college was making money on the games.
- (4) The Court decided that the IRS wouldn't try to collect the tax if the government wasn't entitled to it.
- (5) The college claimed that college football was not an amusement.
- (6) We cannot tell what the Court decided about the nature of the games until we have a clear definition of "commercial amusement."
- (7) The IRS would have tried to collect the tax even if they thought the games were not really subject to the tax.
- (8) There was no federal admissions tax on educational activities.
- (9) The Court was not sympathetic with the legal appeal made by the college.

- (10) After the Court ruled against the college, some of the other colleges in that football league also took the case to court.
- (11) There were more than sixteen colleges in the college football league which was mentioned.
- (12) We cannot tell what the Court decided about the nature of the games until we have a clear definition of "educational activity."
- 4. You have 30 socks in a drawer. 10 are white, 10 are black, and 10 are green. They are all mixed up, and you don't know where the colors are without looking. If you reach in without looking and pull out
 - (1) one sock, it will be white.
 - (2) one sock, it will be green.
 - (3) one sock, it will be black.
 - (4) two socks, they will not both be the same color.
 - (5) three socks, no two will be the same color.
 - (6) four socks, at least two will be the same color.
- 5. Mr. Tyler teaches a group of students from 9:00 a.m. -10:00 a.m. During that time the students are always quiet and well-behaved. Mr. Erwin teaches the same group from 10:00 a.m. - 11:00 a.m. During that time the students almost always seem to be arguing noisily with each other, and Mr. Erwin has to close his door so that the noise doesn't disturb other classes.
 - (1) During Mr. Tyler's class, the students are still half asleep.
 - (2) Mr. Erwin doesn't know how to maintain proper discipline in his classroom.
 - (3) Mr. Erwin doesn't maintain proper discipline in his classroom.
 - (4) Mr. Tyler is a better teacher than Mr. Erwin.
 - (5) Mr. Erwin and Mr. Tyler teach the students different subjects.
 - (6) In Mr. Tyler's class, some students misbehave once in a while.

5.3 TRUE OR FALSE BEYOND A REASONABLE DOUBT

In everyday life, we constantly make judgments about whether or not we are almost certain that some things are true. And we do this without having all the facts about the subject.

There is a step between "absolutely" and "probably" which we call "beyond a reasonable doubt." It is at this point that we decide we may be wrong but that our chances of being wrong are very small. We decide that any doubts we may have are too unlikely to be reasonable.

In this section, you will be given practice in deciding whether a conclusion is true or false beyond a reasonable doubt (TBRD or FBRD). If you answer TBRD or FBRD, you are saying that you are not absolutely certain but you are too certain to answer simply "probably."

Example:

Answer each statement after the story with AT (absolutely true), TBRD (true beyond a reasonable doubt), PT (probably true, but not true beyond a reasonable doubt), AF (absolutely false), FBRD (false beyond a reasonable doubt), PF (probably false, but not false beyond a reasonable doubt), or ? (none of the other answers applies).

On a street with a speed limit of 50 kph, a man was driving along looking to the right and left as though trying to find an address. Just as he looked back on the street, some children ran out in front of his car about 20 meters ahead. The man yelled, "Look out!" and slammed on his brakes.

- (1) The man was driving over the speed limit. (PF. It seemed as though he was trying to find an address, so he was probably driving under, not over, the speed limit. But some people have very good eyesight and can take in numbers at a glance, so it is not FBRD.)
- (2) The man saw the children in the street. (TBRD. It is possible that he yelled at something else, and it is possible that he slammed on his brakes for some other reason. But it is very unlikely that he did not see the children when they were so close to his car and he was looking at the street.)
- (3) The car hit the children. (?)
- (4) The man's car was about 20 meters ahead of the car he was driving. (FBRD. From the way the story is written, we may reasonably infer that the children ran out in front of the car he was driving, and they were about 20 meters ahead of this car when they did.)
- (5) The man had not been giving his full attention to his driving. (AT)

CLASS DISCUSSION PROBLEMS

1. Use the code shown in the Example in this section. List these truth values in order, starting with the one(s) which show you are the most certain of your answer: ?, AT, PT, FBRD, AF, TBRD, PF.

Problems 2-4: Answer T (true) or F (false).

- 2. If there is even a small possibility that a statement is true, you should say it is PT.
- 3. If there is a good-sized probability that a statement is false, you should say it is FBRD.

- 4. Suppose you have some doubts that a statement is true, but these doubts are not reasonable. Then you should say the statement is TBRD.
- 5. Mr. Johnson called the Midstate Secretary of State's local office to ask a question. He was told he'd have to come in to fill out forms to take care of the matter. He asked when he could come in and was told, "Any time."

Suppose Mr. Johnson works the midnight shift. Do you think he could stop in to take care of the matter on his way to work? How come?

Problems 6-14: A story is given. Decide whether each statement after the story is AT, TBRD, PT, AF, FBRD, PF, or ?. (See the Example in this section for the code.)

- 6. You and 75,000 other people enter a contest. There will be only one winner, and the winner will be chosen by a random drawing of one of the contestants' names.
 - (1) You will win the contest.
 - (2) One of the other contestants will win the contest.
- 7. In Big City, a 31-year-old woman in good health had seven children (ages 3 to 12) and was receiving monthly ADC (Aid to Dependent Children) checks. She had been ticketed early in March "for failure to equip her residence with proper garbage containers." Her ticket called for an April court date, and she failed to appear in court.

On July 24th, the police came with a warrant at 9:00 a.m. She left her oldest boy in charge of taking care of the other children. The police arrested her and took her to their police station. Then they drove her to court. The woman said, "The police were very nice. They said it would just be a technicality, it would take a few minutes to settle, and they would drive me back home. I stayed there from 10:00 a.m. until noon."

The judge fined her \$20. He sentenced her to two days in jail when she refused to pay the fine. Shortly after that, he talked with her social worker, who said that the woman had thought that ADC would provide the garbage containers. The judge immediately ordered the woman released from jail.

The judge said, "There was evidently some misunderstanding. But she was the person ticketed. Her court date was in April and she failed to appear. We had to arrest her on a warrant. She is the one with the prime responsibility."

The woman said, "I was so angry I thought I'd just spend two days in jail rather than pay an unjust fine. Besides, I didn't have the money to pay. People seem to think you enjoy being on ADC and that you're getting rich on it. They seem to want you to crawl and if you don't, they get angry."

The judge said, "This woman could have kept the place neat, even if she didn't have proper rubbish containers. These women who are on ADC and stay home all the time certainly have time to keep their places decent. We should not have to get out a warrant on something like this."

- (1) The woman was angry when the judge fined her.
- (2) Her oldest boy was 12.
- (3) The judge insinuated that the woman did not keep her place neat.
- (4) The judge was angry because the woman refused to crawl when she was brought into court.
- (5) The fine and/or jail sentence would have been avoided if the woman had appeared on her April court date as she was supposed to have done.
- (6) Between the time of her ticket and the time of her arrest, the woman had plenty of time to find out what to do about her ticket.
- (7) The woman still didn't have proper garbage containers at the time of her arrest.
- (8) The woman didn't like being on ADC.
- (9) The woman wasn't too concerned about her children, since she was willing to leave them in the care of her oldest boy for the two days she thought she'd be in jail.
- (10) The social worker told the judge that the woman thought ADC would supply the garbage containers.
- (11) The woman thought that being on ADC made her a special case so that she could ignore the ticket.
- (12) The judge knew the sentence was harsh, but he wanted to make an example of the woman.
- (13) After arresting the woman, the police took her to court.
- (14) The judge implied that the woman brought all the trouble on herself by failing to appear on her April court date.
- (15) After being released from jail, the woman still owed the \$20 fine.
- (16) The woman couldn't afford to pay the \$20 fine.
- (17) The woman implied that people who are not on ADC are sympathetic toward those who are on ADC.
- (18) The police treated the woman kindly.
- (19) The judge was angry about this case.
- (20) Even though the judge immediately ordered the woman released from jail after he talked with the social worker, the woman was still held in jail for nearly two hours after that.

8. Ms. White was correcting final exams for her class. She was glad to see that Bill's paper was excellent. But then she stopped to think for a minute.

Bill had been a very poor student all semester. He had ignored her suggestions that he come in for extra help. His past test scores had run from a low of 10% to a high of 79%, and now his final exam showed 99%. His last three test scores were 72%, 60%, and 55%. Yet he had scored 100% on the parts of the final exam which were on this same material.

Ms. White wondered if Bill had cheated on his final exam. She asked him to come in and talk to her. Bill said that his brother, a college student, had been helping him during the week before the exam. He said his brother had explained everything to him so that he really understood it. He said that was why he did so well on the final exam. Ms. White told Bill she wanted to give him a different final exam but that it would cover the same material.

Ms. White knew that Bill would be under more of a strain for the new final exam. So she tried to make it a little easier than the first one. It covered the same material as the first one and had the same kinds of questions on it. She let Bill choose his own day and time to take the new final exam. She gave Bill as much time as he wanted to finish it. She asked if he understood all the questions on it, and he said yes. But he scored only 54% on it.

- (1) During the semester, Bill had gotten an A on a test at least once.
- (2) On the first final exam, Ms. White gave Bill's paper a higher grade than it deserved.
- (3) Bill had never come to Ms. White for extra help during the semester.
- (4) Bill's brother explained everything to him so that Bill really understood it.
- (5) Bill wasn't feeling well on the day of the new final exam.
- (6) The new exam was easier than the first one.
- (7) Bill wasn't allowed enough time to finish the new exam.
- (8) Bill didn't understand some of the questions on the new exam.
- (9) Bill knew the material for the first exam but forgot it by the time he took the second exam.
- (10) Bill cheated on the first final exam.

it has more prote	a great many uses. As a food product,
milk It is rich in	vitamine and minerals lits food prod-
ucts include chee	se milk sauce cake meal and a cof-
fee substitute In	farming it is used as a fertilizer and
as food for livest	tock. In manufacturing, it is used for
soap, plastic, pai	int, rubber substitutes, linoleum, and
many other produ	ucts. Soybeans are a profitable crop
and are easily gr	rown. They grow best wherever corn
grows best.	
(1) Sovbeans do	not grow at their best in cold
climates.	
(2) When prepare	ed as a food, soybeans taste good.
(3) The soybean	is a nutritious food.
(4) The soybean	would grow well in lowa.
(5) The soybean	is used in the manufacture of plastic
parts for cars	
(b) where it grow	is best, the soybean is one of the best
(7) Pound for pou	g crops a farmer can raise.
(1) Found for pot	ind, soybeans have more protein than
(8) Pound for pou	ind, sovbeans cost the consumer less
than steak co	osts.
(9) As well as be	eing a money-making crop, the soy-
bean is an ea	isy crop to grow.
(10) Soybeans are	e used in the manufacture of laundry
soap.	
(11) When used as	s a coffee substitute, soybean coffee
(12) The server m	t like regular coffee.
(12) The sauce ma	lapapase cooking
(13) Sovheans car	anot be grown in the same field year
after year. Th	at is, they must be rotated with other
crops in order	r to allow the soil to recover properly.
(14) Suppose a fa	armer will plant soybeans next year
and corn the	year after that. After harvesting next
year's soybea	an crop, the farmer must make sure
most of the s	oybean roots are dug up so that they
do not damag	ge the corn crop.
(15) Besides the	specific products mentioned in the
paragraph at	bove, the soydean is also used for
many other p	rouucis.

10. Pot-smoking is really good for you. When you smoke pot, your mind is cleared from ordinary cares, such as whether or not you're making sense when you talk. It allows you to learn new things, since it erases so many old things from your memory—like what the teacher said in class yesterday, and how to subtract fractions. And it makes you feel so happy about everything—hey, you can even trust your pot-smoking friend who bor- rowed \$15 from you without telling you about it. You know he didn't intend to steal it, and you know he'll pay you back if you can get him to remember he took it. And you know you don't have to pay any attention to all of those people who say you shouldn't smoke pot. After all, you've smoked it for a while now, and it hasn't done you any harm has it?
 The writer of the paragraph believes that pot-smoking is good for you. pot-smoking won't really do you any harm. pot-smoking causes a loss of memory. pot smokers are not good judges of whether or not the pot-smoking is harming them. it is good to learn new things. it is bad to forget things like what the teacher said yesterday and how to subtract fractions. it is good to trust someone who steals money from you. it is good to make sense when you talk.
 The percentage of adults of age 25 or older living in the U.S. who have graduated from high school has risen sharply over the years. This is shown in the chart below.
Year 1910Approximate % of U.S. adults who graduated from high school193014%193019%195034%197055%
 (1) Suppose we had taken a representative sample of 100 U.S. adults in 1970. And suppose we had done the same thing for 1910. Then the number of high school graduates in the 1970 sample would have been nearly four times as many as the number of high school graduates in the 1910 sample. <i>(continued on next page)</i>

 (2) The 40 years from 1930 to 1970 showed that the percentage of U.S. adults who had graduated from high school had almost tripled. Since even more emphasis is placed on education today, it is reasonable to believe that the percentage of U.S. adults who have graduated from high school will again have about tripled by the year 2010. (3) There are more U.S. adults now who have graduated from high school than there were in 1910. (4) There were fewer U.S. adults in 1970 who had not graduated from high school than there were in 1910. (5) In 1970, U.S. adults were more intelligent than U.S. adults in 1910. (6) In 1970, more was spent on U.S. education than in 1910. (7) For this one, we will assume two things: (a) the 1910 dollar and today's dollar are the same in buying power; (b) we are talking only about grades K-12. Then the cost to educate <u>each</u> student in 1910 was more than it is today. 	
12. Some people talk about "the good old days" when "teachers were dedicated to teaching and knew how to control a classroom, and the classes were larger then, too." They say, "Back then, the teachers really cared about teaching the kids something." They say that to- day's teachers "don't know how to handle kids and don't even teach the kids the basics." They say that to- day's teachers "could use a few lessons from the teachers we had back in my time." Today's teachers point to the figures in problem 11. They say that for each 100 kids, over twice as many stay in school and graduate today (that's today, not 1970) as did in 1950. They say, "Back in the so-called 'good old days,' kids who didn't want to learn dropped out, but today we're expected to teach them something when they don't do anything to learn. Back in the so- called 'good old days,' kids who were troublemakers either dropped out or were kicked out of school, but to- day we're stuck with them and are expected to teach both them and the other kids when they create con- stant disruptions." They say that today's teachers are better trained and better educated for teaching and are every bit as dedicated as—maybe even more than—the teachers of former days.	
In the statements which follow, assume that the critics mentioned are the "some people" in the paragraphs above.	
 (1) Today's teachers feel that their critics are criticizing them unfairly. (2) The critics feel that today's teachers do a better job of teaching than the teachers of former days. <i>(continued on next page)</i> 	

(3) The critics feel that today's teachers do not do	
(4) The critics believe that if the teachers of former days could teach in today's classrooms, they	MEST
(5) Today's teachers feel that they could do a much better job if the troublemakers were eliminated	
from their classes. (6) Today's teachers feel that if they had the same	LE SAL
kinds of students as the teachers of former days, then they (today's teachers) could do a better job of	S DOULS
(7) Some of the critics are some of the same people	STILL ST
who insist that their own kids be promoted instead of held back when the kids haven't learned the material	
(8) The critics feel that nothing is really seriously wrong with today's schools.	
(9) Today's teachers would like to see the constant troublemakers either dropped out or kicked out of	
(10) The critics think it is the teacher's fault when the kids today don't learn	
(11) The critics feel that if today's teachers had larger classes, they'd do a better job of teaching	
(12) The critics feel that today's teachers are not dedi- cated to teaching.	
(13) The critics feel that today's teachers are in- competent.	
(14) Today's teachers feel that the criticisms made by the critics are justified.	
(15) Ioday's teachers believe that students who graduate from high school today have learned the basics.	
13. Ten college professors decided to study the effects of two different teaching methods. So they chose what	
they thought were typical classes of students over a 10-year period and experimented with them. Each pro-	
fessor taught only one subject. Some of the professors preferred Method A and the others preferred Method B.	
But all agreed to use both methods in order to see which method, if either, appeared to be the more effec-	
Each time a professor had two classes which he or	
she considered to be typical, Method A was used on one class and Method B on the other. These were the	ALC: NO
two classes were given tests thought to be about the	
results. Each class which was a part of this experiment lasted for one college term (one semester or one quarter)	
(continued on next page)	ALC: NO

At the end of the 10-year period, the professors compared their results. They found that they had each experimented with 10 classes, or a total of 100 classes. The classes were found to be varied: Some were in English and the rest were in mathematics. Some were made up almost entirely of males, some almost entirely of females, and some were about evenly divided between males and females. Methods A and B had been about evenly distributed among these various kinds of classes. It was also found that the classes had met at various times during the day and evening, and the two methods had been about evenly distributed among these times.

The professors translated their results into formulas and ran them through the computer. They found, as they had suspected for some time, that Method A produced results far better than Method B in all the classes tested. The computer showed that there was only 1 chance in 100 that the overall results were entirely by accident. (You may assume that all formulas and calculations were good ones.) The professors all agreed to recommend that all college professors use Method A.

- (1) A total of 10 college professors took part in this experiment.
- (2) About half of the professors taught English, and the other half taught mathematics.
- (3) None of these professors was a woman.
- (4) Each professor had a preference for Method A or Method B at the beginning of the experiment, but no professor tried to influence the results of the experiment by being more careful in using his or her preferred method than in using the other method.
- (5) It was found that there were more males than females in the experimental mathematics classes.
- (6) Each professor experimented with two classes at a time.
- (7) Each professor carried on this experiment with at least one class during each college term of the ten-year period.
- (8) Each professor carried on this experiment with at least one class during each year of the tenyear period.
- (9) Each professor carried on this experiment exactly five times during the ten-year period.
- (10) The results of the experiment were an accident.
- (11) It was found that Method A was used much more often during the morning than during the evening.
- (12) Given a typical English class the year following the end of the experiment, Method A would produce better results than Method B.
- (13) Method A was adaptable to any kind of subject taught in college.

- (14) Some of the professors taught both English and mathematics.
- (15) The professors in the experiment all taught at the same college.
- (16) The students found learning easier under Method A than under Method B.
- (17) On the whole, the results favored Method A, but some professors got better results with Method B.
- (18) When a professor was conducting the experiment, he or she gave tests comparable in difficulty to the two classes being experimented with.
- (19) For the experiment, Methods A and B were each used exactly 50 times.
- (20) Most of the experimental classes were about evenly divided between males and females.
- (21) The professors were surprised at the end of the experiment when the results showed Method A to be much better than Method B.
- (22) In the experimental English classes, Method A was used more often than Method B.

CHAPTER 6

LOGIC WITH QUANTIFIED STATEMENTS

6.1	"ALL" AND "NO" STATEMENTS
6.2	"SOME" STATEMENTS
6.3	EXISTENCE
6.4	QUANTIFIERS
6.5	NEGATION OF QUANTIFIED STATEMENTS
6.6	REVERSIBILITY
6.7	VALIDITY USING ONLY "ALL" AND "NO" STATEMENTS
6.8	VALIDITY USING ONLY "SOME" STATEMENTS
6.9	VALIDITY USING MIXED QUANTIFIERS
6.10	USING EULER CIRCLES FOR QUANTIFIED STATEMENTS
6.11	VALIDITY AND EULER CIRCLES
6.12	USING COMMON SENSE
6.13	COMPLEX STATEMENTS
6.14	CHAPTER REVIEW PROBLEMS FOR CLASS

6.1 "ALL" AND "NO" STATEMENTS

Statements like the following ones say there is no exception to the rule.

Examples 1:

a. All tigers are cats.

- b. No zebras have polka dots.
- c. Every U.S. Citizen has certain rights.
- d. Each right carries with it a duty.
- e. No person should eat five gallons of ice cream at one sitting.
- f. A unicorn has only one horn.
- g. Auto mechanics work with their hands.
- h. Eagles never make their nests in meadows.
- i. There are no invisible horses which are pink.
- j. People who are at least 13 years old but not yet 20 years old are teenagers.
- k. Lawyers are never stupid.

Statements like those in Examples 1 are called **universal** generalizations. A universal generalization is a statement about <u>everything</u> of a kind.

A universal generalization may be positive or negative. It is positive if it makes a statement like "All P are Q." It is negative if it makes a statement like "No P are Q" or "P is never Q." In Examples 1, positive statements are a, c, d, f, g, and j. Negative statements are b, e, h, i, and k.

A universal generalization which is positive can always be written in the form of "All P are Q." A universal generalization which is negative can always be written in the form of "No P is Q." Here are the Examples 1 statements again. This time they are all written so that they have one of the two standard forms.

Examples 2:

- a. All tigers are cats.
- b. No zebra is a thing which has polka dots.
- c. All U.S. citizens are things which have certain rights.
- d. All rights are things which carry duties with them.
- e. No person is a thing which should eat five gallons of ice cream at one sitting.
- f. All unicorns are things which have only one horn.
- g. All auto mechanics are things which work with their hands.
- h. No eagle is a thing which makes its nest in a meadow.
- i. No invisible horse is pink.
- j. All people who are at least 13 years old but not yet 20 years old are teenagers.
- k. No lawyer is stupid.

Compare Examples 1 and 2. Notice that "all" can be substituted for "every" (c), "each" (d), and "a" (f). In two cases (g and j), "all" was added to the sentence. We also see that the capital block letters P and Q do not have to stand for complete thoughts in these kinds of sentences. You have probably noticed that some of the sentences in Examples 2 sound rather odd. This is because they do not give any information which was not given in the Examples 1 sentences. Take Example 1b, for instance:

No zebras have polka dots.

Strictly speaking, this sentence does not tell us what a zebra is (an animal) or what is meant by "have" ("owns" or "are"?). So the sentence comes out sounding like Example 2b:

No zebra is a thing which has polka dots.

But if we are sure that the zebra in the sentence is an animal, we could write

No zebra is an animal which has polka dots.

If we are sure that "have" (or "has") is used in the sense of "is," rather than "owns," we could say

No zebra is an animal which is polka-dotted. Or, No zebra is polka-dotted.

In other words, if we are sure of what the speaker is really saying, we can be a little less careful when we put the statement into standard form.

Summary:

- 1. A **universal generalization** is a statement about everything of a certain kind.
- 2. A universal generalization can be written in one of two standard forms: "All P are Q" (positive), or "No P is Q" (negative). Here, the P and the Q describe something. They do not have to represent complete thoughts.

CLASS DISCUSSION PROBLEMS

Problems 1-10: Each statement is a universal generalization. Put it in one of the two standard forms—"All P are Q" or "No P is Q."

- 1. Every teenager likes pizza.
- 2. Everyone likes homework.
- 3. Nobody likes a smart aleck.
- 4. Carpenters work with wood.
- 5. No horse can fly.
- 6. All birds lay eggs.
- 7. People are unpredictable.
- 8. People never do what you expect them to do.
- 9. Everyone who is not an adult knows what the score is.
- 10. No one should go on a vacation alone.

Problems 11-20: Tell whether or not the statement is a universal generalization. If your answer is "yes," then tell whether the statement is positive or negative.

11. Teenagers who like cake like chocolate.

- 12. Some adults act like babies.
- 13. No one who is not a saint gets by without doing some wrong things.

- 14. Most critics have been unfair to me.
- 15. Most critics have been fair to me.
- 16. A monkey can never be housebroken.
- 17. Almost everyone makes fun of my name.
- 18. Everyone who knows me dislikes me.
- 19. Nobody pays attention to me.
- 20. I like my English teacher.

6.2 **"SOME" STATEMENTS**

The two standard forms for statements about some (but not necessarily all) things of a kind are "Some P are Q" (positive) and "Some P are not Q" (negative). Examples 1 show statements which can be put into these standard forms.

Examples 1:

- a. Some animals are cats.
- b. Some animals are not cats.
- c. There are 35 animals which are cats.
- d. There are 35 animals which are not cats.
- e. Leo the Lion is an animal which is a cat.
- f. Leo the Zebra is an animal which is not a cat.
- g. Leo the Lion and Sylvester the Cat are animals which are cats.
- h. Leo the Zebra and Sylvester the Gerbil are animals which are not cats.
- i. Many animals are cats.
- j. Many animals are not cats.
- k. At least one animal is a cat.
- I. At least one animal is not a cat.
- m. A few animals are cats.
- n. A few animals are not cats.

In Examples 1, each "odd"-lettered sentence (a, c, e, etc.) can be written as, "Some animals are cats" (positive). Each "even"-lettered sentence (b, d, f, etc.) can be written as, "Some animals are not cats" (negative). In logic, "some" means "at least one."

Notice that the even- and odd-lettered statements are not negations of each other, for both statements in a given pair can be true at the same time. We will talk more about the negation of a "some" statement in section 6.5.

Notice also that none of the Examples 1 statements hints at any knowledge of the group as a whole. For example, statement i tells us that many animals are cats, but it does <u>not</u> imply that there are any animals which are not cats. We are not claiming that the standard form tells us as much as the original statement. For example, "Some animals are cats," does not tell us as much as, "Many animals are cats."¹ However, arguments often state some idea of number (such as "many" or "quite a few") and yet use only the idea of "some." For these arguments, we can use the standard form without affecting the argument's validity.

Summary:

- 1. In logic, "some" means "at least one."
- 2. Statements which say "some," "many," "most," "a few," "at least (some number)," or "not all" are statements either of the standard form "Some P are Q" (positive) or of the standard form "Some P are not Q" (negative). Statements which name a certain number or which give specific examples are also "Some P are Q" or "Some P are not Q" statements.
- 3. Suppose a some-but-not-all statement says something more specific than "some" or "not all." If the argument (in which the statement appears) does not use anything more specific, then nothing is lost by using a standard form for the statement.
- 4. "Some P are Q" and "Some P are not Q" are NOT negations of each other.

CLASS DISCUSSION PROBLEMS

Problems 1-6: Tell whether or not the statements are negations of each other.

- 1. Talisa is one of Jack's sisters. One of Jack's sisters is not Talisa.
- 2. Some A are B. Some B are not A.
- 3. Some paper is white. Some paper is not white.
- 4. Some T is S. Some T is not S.
- 5. Some animals are elephants. Not all animals are elephants.
- 6. Some F is G. Not all F is G.

'Also, the negations of these two statements are not the same. It turns out that "many animals are cats" is a <u>stronger</u> statement than "some animals are cats," but the <u>negation</u> of "many animals are cats" is a <u>weaker</u> statement than the negation of "some animals are cats."

Problems 7-16: Tell whether each statement is positive or negative.

7. Some people are not kind.

8. Some people are nice.

9. Many sports are rough.

10. Not all sports are rough.

11. Most sports are not rough.

12. Not every judge is honest.

13. Four teachers in this school are smart.

14. At least 10 people went to the party.

15. Most people do not like to be told what to do.

16. A great many people seem to hurry around.

Problems 17-28: Put each sentence into one of these forms:

All P are Q. No P is Q. Some P are Q. Some P are not Q.

17. Everyone is a winner.

Not everyone is a winner.
 Nobody is a winner.

20. Most people are not winners.

21. Everybody understands me.

22. Most people understand me.

23. Nobody understands me.

24. My mother understands me.

25. Police officers are nice.

26. Not all police officers are nice.

27. Most police officers are nice.

28. Many police officers are not nice.

6.3 EXISTENCE

The sentences we have worked with in the last two sections can be written in one of four standard forms:1 (1) All P are Q.

(2) No P is Q.

(3) Some P are Q.

(4) Some P are not Q.

Sentences (1) and (2) can make sense even when we talk about imaginary things.

Logiclans assign a letter to each form:

A: AII P are Q.

E: No P is Q. I: Some P are Q.

O: Some P are not Q.

Then, Instead of saying "An 'all P are Q' statement," they say, "An 'A' statement."

Examples 1:

- a. All ten-legged horses are blue.
- b. No dinosaur can fly.
- c. All talking chairs have arms.
- d. No dragon is allowed to vote in the next election.

Such a statement does not promise us that the thing talked about really exists. Instead, the sentence says, "If the thing exists, then what I said about it is so." In other words, every "all" or "no" sentence can be written as an "if-then" sentence. Here are the Examples 1 sentences again: **Examples 2:**

- a. If anything is a ten-legged horse, then it is blue.
- b. If anything is a dinosaur, then it cannot fly.
- c. If anything is a talking chair, then it has arms.
- d. If anything is a dragon, then it is not allowed to vote in the next election.

We have found sentences which are <u>equivalent</u> to sentences (1) and (2):

(1) All P are $Q \equiv$ If anything is P, then it is Q.

(2) No P is $Q \equiv$ If anything is P, then it is not Q.

Now we'll look at sentences (3) and (4). We can understand what the sentences in Examples 3 below are saying, but somehow they just don't sound right.

Examples 3:

- a. Some ten-legged horses are blue.
- b. Some dinosaurs cannot fly.
- c. Some talking chairs have arms.
- d. Some dragons are not allowed to vote in the next election.

What's wrong with the Examples 3 sentences? Take Example 3a, for instance: "Some ten-legged horses are blue." As far as we know, there's no such thing as a ten-legged horse. Yet the sentence tells us that at least one ten-legged horse is blue. And that's exactly what's wrong with these sentences—they're claiming that certain things exist which do not really exist. In other words, these sentences promise that the things named exist and that what is said about them is true. Here are the Examples 3 sentences again, this time in "and" form:

Examples 4:

- a. There is a ten-legged horse, and it is blue.
- b. There is a dinosaur, and it can fly.
- c. There is a talking chair, and it has arms.
- d. There is a dragon, and it is not allowed to vote in the next election.

We have found sentences which are <u>equivalent</u> to sentences (3) and (4).

(3) Some P are $Q \equiv$ There is a P, and it is Q.

(4) Some P are not $Q \equiv$ There is a P, and it is not Q.
Summary:

- 1. An "all" sentence does not promise existence.
- 2. An "all" sentence can be written as an "if-then" sentence:
 - All P are $Q \equiv$ If something is P, then it is Q.
- 3. A "no" sentence does not promise existence.
- 4. A "no" sentence can be written as an "if-then" sentence:
 - No P is $Q \equiv$ If something is P, then it is not Q.
- 5. A "some" sentence promises existence.
- 6. A "some" sentence can be written as an "and" sentence:

Some P are $Q \equiv$ There is a P, and it is Q. Some P are not $Q \equiv$ There is a P, and it is not Q.

CLASS DISCUSSION PROBLEMS

Do four things for each problem:

- a. Put the statement into one of the four standard forms.
- b. Put the statement into either "if-then" or "and" form.
- c. Tell whether the statement is positive or negative.
- d. Tell whether or not the statement promises existence of the thing talked about.
- 1. Bats are mammals.
- 2. At least one movie star is famous.
- 3. Firefighters are never cowards.
- 4. At least a few birds make their nests in meadows.
- 5. Many birds do not sleep at night.
- 6. Nobody is perfect.
- 7. Tenants may use the front door.
- 8. Employees must use the back door.
- 9. Employees must not use the front door.
- 10. Trespassers will be arrested.
- 11. An animal is a leopard only if it is a cat.
- 12. Candy is bad for your teeth.
- 13. Smoking is bad for your health.
- 14. Smart people use GLEAMO cleanser.
- 15. Canaries never sing in the dark.
- 16. Sometimes I think you're horrid.
- 17. A lot of schools have dress codes.
- 18. A lot of schools don't have dress codes.
- 19. Quite a few people are not early risers.
- 20. Many doctors do not make house calls.

6.4 QUANTIFIERS

A quantifier is a word which indicates quantity, or number. Examples of quantifiers are "all," "no," "some," "at least one," "a few," and "many." The sentences we worked with in the last three sections all contained quantifiers. In Examples 1 below, the quantifiers are underlined. Examples 1:

- a. All grass is green.
- b. People are funny. (All people are funny.)
- c. Carlos and Norman like to play baseball. (Some people like to play baseball.)
- d. Many students read well.
- e. No driver should be careless.
- f. Some trees are not tall.

An "all" statement and a "no" statement say there are no exceptions to the rule. They say that every P in the universe has to follow the rule. Words which allow no exceptions are called **universal quantifiers.** In Examples 2 below, the universal quantifiers are underlined.

Examples 2:

- a. All schools are good places for learning.
- b. No prison is a good place to be.
- c. Trees have trunks. (All trees have trunks.)
- d. A thing of beauty is a joy forever.
- e. Every cloud has a silver lining.
- f. People <u>never</u> listen to me. (<u>No</u> person ever listens to me.)
- g. Each contestant must fill out an entry blank.

We said in section 6.3 that "all" statements and "no" statements can be written as "if-then" statements. Therefore, a statement which is universally quantified can be written as an "if-then" statement.

A "some" statement allows exceptions to the rule. It says, in effect, "I don't know whether or not this rule applies to every P in the universe, but I do know that there are some P's it applies to." That is, a "some" statement promises existence. Because the statement promises existence, any quantifier which can be changed to "some" is called an **existential** (egg zis <u>ten</u> shuhl) **quantifier**. In Examples 3 below, the existential quantifiers are underlined. **Examples 3**:

- a. Some schools are good places for learning.
- b. Many prisons are not good places to be.
- c. Most trees have trunks.
- d. At least 10 teachers have said Carla is a good student.
- e. A few birds cannot fly.

^{&#}x27;But can any "if-then" statement be written as a universaliy quantified statement? Yes, but there would sometimes seem to be no point in doing so. For example, a teacher says, "Marty, if you still want to tutor that third-grader, see me right after class." It would seem kind of stupid to make that sentence, "All people whose names are Marty and who are people i'm looking at now and who still want to tutor that third-grader should see me right after class."

Summary:

- 1. A **quantifier** is a word which indicates quantity. Examples of quantifiers are "all," "some," "no," "many," and "a few."
- 2. A **universal quantifier** is a word which does not allow exceptions to the rest of the statement. A statement is <u>universally quantified</u> if it can be written as an "all" statement or as a "no" statement.
- 3. A universal quantifier does not promise existence.
- 4. A universally quantified statement can be written as an "if-then" statement.
 All P are Q ≡ If something is P, then it is Q.
 - No P is $Q \equiv$ If something is P, then it is not Q.
- 5. An **existential quantifier** is a word which allows exceptions to the rest of the statement. A statement is <u>existentially quantified</u> if it can be written as a "some" statement.
- 6. An existential quantifier promises existence.
- 7. An existentially quantified statement can be written as an "and" statement.

Some P are $Q \equiv$ There is a P, and it is Q.

Some P are not $Q \equiv$ There is a P, and it is not Q.

CLASS DISCUSSION PROBLEMS

For each problem, do three things:

- a. Tell whether the quantifier is universal or existential.
- b. Tell whether the statement is positive or negative.
- c. Write the statement either in "if-then" or in "and" form.
- 1. Student Council members are elected by the student body.
- 2. No teacher may scream at students more than five times in one day.
- 3. No student may scream at any one teacher more than twice a day.
- 4. Some students are not hard workers.
- 5. Some TV programs are funny.
- 6. A few children under the age of 3 can read.
- 7. At least three zoos do not have tigers.
- 8. A funeral parlor is not a noisy place.
- 9. A drug store sells medicines.
- 10. A drug store near my house sells hats.

6.5 NEGATION OF QUANTIFIED STATEMENTS

In section 2.8 we talked about negations of statements. We said that the negation of a statement is another statement such that the two statements cannot be true at the same time and cannot be false at the same time. It follows that <u>if one statement is the negation of another, then the</u> second statement is also the negation of the first.

Now we'll figure out what are the negations of "all," "no," and "some" statements. Here are the four standard forms again:

(1) All P are Q.

(2) No P is Q.

(3) Some P are Q.

(4) Some P are not Q.

We'll start with statement (1). Suppose someone says, "All telephones are white." To prove the statement false, all we'll have to do is find a telephone which is not white. It looks as though the statement, "Some telephones are not white," may be the negation of, "All telephones are white." We'll list these statements below so that we can examine them more easily:

(a) All telephones are white.

(b) Some telephones are not white.

To see if statements (a) and (b) are negations of each other, we must answer two questions. First, can both statements be true at the same time? Second, can both statements be false at the same time?

To answer the first question, we'll suppose statement (a) is true. Then statement (b) has to be false. So the answer to the first question is "no." To answer the second question, we'll suppose statement (a) is false. Then statement (b) has to be true. So the answer to the second question is "no." Therefore, statements (a) and (b) are negations of each other.

By similar reasoning, it will follow that <u>statements (1)</u> and (4) are negations of each other.

Next, we'll look at statement (2). Suppose someone says, "No rose is red." To prove this false, all we'll have to do is find a red rose. That is, it looks like statements (c) and (d) below might be negations of each other.

(c) No rose is red.

(d) Some roses are red.

Again, we'll ask our two questions. Can statements (c) and (d) both be true at the same time? No, for if (c) is true, then (d) has to be false. Can statements (c) and (d) both be false at the same time? No, for if (c) is false, then (d) has to be true. So statements (c) and (d) are negations of each other.

We can use the same kind of reasoning to show that statements (2) and (3) are negations of each other.

Here's what we have so far:

Statements (1) and (4) are negations of each other. Statements (2) and (3) are negations of each other.

Examples:

- a. Statement: All men are brave. Negation: Some men are not brave.
- b. Statement: No woman is lacking in courage.
- Negation: Some women are lacking in courage. c. Statement: Nobody listens to me.
- Negation: Somebody listens to me.
- d. Statement: Engineers are good in math. Negation: Some engineers are not good in math.

Summary:

- 1. The four standard forms of quantified statements are:
 - (1) All P are Q.
 - (2) No P is Q.
 - (3) Some P are Q.
 - (4) Some P are not Q.
- 2. Statements (1) and (4) above are negations of each other.
- 3. Statements (2) and (3) above are negations of each other.

CLASS DISCUSSION PROBLEMS

Problems 1-10: Tell whether or not the two statements are negations of each other.

- 1. All girls are good at sports. Some girls are not good at sports.
- 2. All plants are trees. Some plants are trees.
- 3. Every criminal should be in prison. Some criminals should not be in prison.
- 4. Nobody should go swimming on Saturday. Some people should go swimming on Saturday.
- 5. Nobody should play golf on Wednesday. Doctors should play golf on Wednesday.
- 6. A carpenter is a person who works with wood. A carpenter is not a person who works with wood.
- 7. Invisible horses are blue. Invisible horses are not blue.
- 8. All giraffes are animals. Some horses are not animals.
- 9. All Communists are radicals.
- No radicals are Communists.
- 10. Surgeons are very skillful with their hands. Carpenters are very skillful with their hands, too, but they aren't surgeons.

Problems 11-20: Give the negation of each statement.

11. All babies are born with blue eyes.

- 12. No idealist is realistic.
- 13. Some plants are trees.
- 14. Some tires are not made of rubber.
- 15. Not every man is noble.
- 16. Children should not watch violent TV shows.
- 17. The Mortons always go for a walk on Sunday.
- 18. If something is a man, then it is an adult.
- 19. Paper is used for writing.
- 20. You can't judge a book by its cover.

Problems 21-25: Tell whether or not the two statements are equivalent statements.

- 21. It is false that all people are selfish. Some people are not selfish.
- 22. It is false that some trees are not plants. All trees are plants.
- 23. It is false that no jail is comfortable. All jails are comfortable.
- 24. Some candles are red. It is false that some candles are not red.
- 25. Some music is not restful. It is false that some music is restful.

6.6 **REVERSIBILITY**

Definitions:

Suppose we have two statements which relate "P" and "Q." Also suppose that the two statements are exactly the same except that the "P" and "Q" in the first are the "Q" and "P," respectively, in the second. Then 1. each statement is the **reverse** of the other.

2. the statements are reversible iff each implies the other.

We will look again at the four standard forms for "all," "no," and "some" statements:

- (1) All P are Q.
- (2) No P is Q.
- (3) Some P are Q.
- (4) Some P are not Q.

We'd like to know whether or not these statements are reversible. We can use ordinary sentences to show that statements (1) and (4) are not reversible:

- (1) All bracelets are jewelry items, but it is false that all jewelry items are bracelets.
- (4) Some human beings are not women, but it is false that some women are not human beings.

Therefore, statements (1) and (4) are not reversible.

We'll have to use a different method to find out about statements (2) and (3).1 In its "if-then" form, statement (2) is, "If something is P, then it is not Q." ($P \rightarrow \sim Q$) Switching the P and the Q, we get, "If something is Q, then it is not P." $(Q \rightarrow P)$ But these two statements are contrapositives of each other. We know that a statement and its contrapositive are equivalent statements. Therefore, each implies the other. So by definition, statement (2) is reversible.

In its "and" form, statement (3) is, "There is something which is both P and Q." (P and Q) Switching the P and the Q gives us, "There is something which is both Q and P." (Q and P) We know that the parts of an "and" sentence can be in any order without changing the statement's truth value. So these two statements are equivalent. Again, each implies the other. It follows that statement (3) is reversible.

We have decided that sentences (1) and (4) do not imply that their reverses are true. But it is important to understand also that they do not imply that their reverses are false. In fact, either kind of sentence might be true when it is reversed.

Examples:

- a. Statement: All people are human beings. Reverse: All human beings are people.
- b. Statement: Some women are not attorneys. Reverse: Some attorneys are not women.

Summary:

- 1. We talked about whether or not these four sentences are reversible:
 - (1) All P are Q.
 - (2) No P is Q.
 - (3) Some P are Q.
 - (4) Some P are not Q.
- 2. "The sentence is reversible" means that, for every sentence of that form, the P and the Q can be exchanged without affecting the truth value of the sentence.
- 3. "The sentence is reversible" means that, for every sentence of that form, the sentence implies its reverse.
- Sentences (2) and (3) are reversible.
 Sentences (1) and (4) are not reversible.

As you will see, statements (2) and (3) are reversible, so there are no counterexamples for them. We could give any number of examples which turn out to be reversible. But doing this would not prove that statements (2) and (3) are always reversible.

CLASS DISCUSSION PROBLEMS

- 1. We said that "All P are Q" is not reversible. Suppose we have a true sentence, "All P are Q." Does this mean that the sentence, "All Q are P," will be false?
- We said that "No P is Q" is reversible. Suppose we have a false sentence, "No P is Q." Does this mean that the sentence, "No Q is P," will be false?
 Gwen looked at the sentence, "Some carpenters use
- 3. Gwen looked at the sentence, "Some carpenters use horses." She switched "carpenters" and "horses" and got, "Some horses use carpenters." She reasoned like this: "The first sentence is true, and it can certainly be stated in the form of 'Some P are Q.' I switched the 'P' and the 'Q' and got a false sentence. Therefore, a sentence of the form 'Some P are Q' is not reversible." What's wrong with Gwen's reasoning?
- 4. Is the sentence, "Some P have Q" reversible? Support your answer.
- 5. Is the sentence "P is the sister of Q" reversible? Support your answer.
- 6. Is the sentence, "P is equivalent to Q" reversible? Support your answer.

Problems 7-12: Tell whether or not each sentence is reversible. Support your answer.

- 7. It is false that no P is Q.
- 8. It is false that some P are not Q.
- 9. Some boys are not tall people.
- 10. No ziggle is a whek.
- 11. All lawyers are attorneys.
- 12. P is never Q.

6.7 VALIDITY USING ONLY "ALL" AND "NO" STATEMENTS

One of the reasons we're spending so much time on "all," "no," and "some" statements is so that we may learn more about what the statements say. This will lead to clearer thinking and reasoning.

Another reason we're spending so much time on these statements is so that we can learn how to put them in argument form to see whether or not the arguments are valid. This, too, of course, helps us think and reason more clearly.

Here are the definitions about validity again:

- 1. An argument is invalid iff its form is invalid.
- 2. An argument's form is invalid iff it is possible for it to have true premises and a false conclusion.
- 3. An argument is valid iff it is not invalid.

We'll start proving such arguments valid or invalid by looking at two which have only "all" statements:

- (1) All tigers are cats. (2) All tigers are animals. All cats are animals. All cats are animals. So all tigers are animals. So all tigers are cats. We already know that an "all" statement can be put into "ifthen" form. We will use the following substitutions to do this: T =this is a tiger C =this is a cat A =this is an animal Then arguments (1) and (2) can be written as: (1) $T \rightarrow C$ (2) T → A C→A C-+A $\therefore T \rightarrow A$ $\therefore T \rightarrow C$ Write these arguments on separate paper. For each one, prove whether it is valid or invalid. Next, we'll look at two arguments which have only "no" statements: (3) No cats are dogs. No dogs are rabbits.
 (4) No cats are dogs. No rabbits are dogs. So no cats are rabbits. So no rabbits are cats. C =this is a cat D =this is a dog R =this is a rabbit Any "no" statement can be written in "if-then" form. We'll use the substitutions above to do this: (3) C --- ~ D (4) $C \rightarrow - D$ D → ~ R $R \rightarrow ~ D$ $\therefore C \rightarrow \sim R$ $\therefore R \rightarrow \sim C$ Again, write each argument on separate paper and prove whether it is valid or invalid. Finally, we'll look at two arguments which mix "all" and "no" statements. (5) All orchestras play (6) All orchestras play music. music. No rock group plays No rock group is an music. orchestra.
 - So no rock group is an orchestra.
- O =this is an orchestra
- M = this plays music
- R =this is a rock group

(continued on next page)

So no rock group

plays music.

Putting arguments (5) and (6) into symbols, we get this:

5) O → M	(6) O → M
$R \rightarrow M$	$\underline{R} \longrightarrow \sim O$
∴ R→~ 0	∴ R → ~ M

Use separate paper again. Write down each argument, and prove whether it is valid or invalid.

CLASS DISCUSSION PROBLEMS

Use the symbols shown after each argument. Symbolize the argument and prove whether it is valid or invalid.

- 1. All boys are handsome. No girls are boys. So no girls are handsome. (B, H, G)
- 2. All husbands have wives. No wives have wives. So no wives are husbands. (H, HSW, W)
- 3. All dictators are arbitrary people. All unreasonable people are arbitrary people. So all dictators are unreasonable people. (D, A, U)
- 4. All dictators are arbitrary people. All arbitrary people are unreasonable people. So all dictators are unreasonable people. (D, A, U)
- All porcupines have quills. All Christmas trees have needles. All things which have quills are things which have needles. So all porcupines are Christmas trees. (P, Q, C, N)
- 6. All unreasonable people are hot-tempered. All reasonable people are easy to get along with. A person is either reasonable or unreasonable. So everybody is either easy to get along with or hot-tempered. (R, HT, E)
- 7. Anyone who is not reasonable is hot-tempered. Anyone who is reasonable is easy to get along with. Therefore, everybody is either easy to get along with or hottempered. (R, HT, E)
- 8. All capitalists try to make money. No working man is a capitalist. So no working man tries to make money. (C, M, W)
- 9. All gold-plated cars are expensive. No subcompact car is expensive. So no subcompact car is a gold-plated car. (GP, E, S)
- 10. All gold-plated cars are expensive. No subcompact car is expensive. So no gold-plated car is a subcompact car. (GP, E, S)
- 11. Wealthy people can afford expensive vacations. People who borrow money are not wealthy. So people who borrow money cannot afford expensive vacations. (W, EV, BM)
- 12. Wealthy people can afford expensive vacations. People who borrow money cannot afford expensive vacations. So people who borrow money are not wealthy. (W, EV, BM)

6.8 VALIDITY USING ONLY "SOME" STATEMENTS

Trivial things can be proved by arguments using only "some" statements. But nothing very important can be proved by such arguments. Examples of trivial things which can be proved are these:

Examples:

- a. Some animals are tigers. Some animals are lions. So some animals are tigers, and some animals are lions.
- b. Some animals are tigers. Some animals are lions. So some animals are either tigers or lions.

You might wonder whether or not various combinations of "some" statements could be used to prove something more important.¹ We will list some possible combinations and see if they lead to anything more exciting than the Examples conclusions.²

(1)	Some P are Q.	(2)	Some P are	Q.	(3)	Some	P are	Q.	
	Some R are S.		Some R are	Q.		Some	Q are	R.	
(4)	Some P are Q.	(5)	Some P are	Q.	(6)	Some	not-P	are	Q.
	Some P are not Q.		Some R are	not Q.		Some	P are	Q.	

Now we will look at each of these combinations to see if we get any nontrivial conclusions. In each case, we will write ordinary sentences to use for the combinations.

- (1) Some women are golfers. Some men are carpenters. Big deal.
- (2) Some humans are fun to watch. Some kittens are fun to watch. Big deal.
- (3) This is the same as (2). (A "Some R are Q" sentence is reversible, so the premises in each argument are the same.)
- (4) Some lions are caged in zoos. Some lions are not caged in zoos. Big deal.
- (5) Some babies are cute. Some infants are not cute. Big deal.
- (6) Some things which are not flowers are pretty. Some flowers are pretty. Big deal.

Don't get the idea that "some" statements are useless in arguments. They can lead to nontrivial conclusions when we combine them with "all" or "no" statements.

"I aiready told you that they can't, but you probably don't trust me by now, since I've made so many mistakes in the answer book your teacher uses. "See footnote 1, but change "can't" to "don't."

CLASS DISCUSSION PROBLEMS

Tell whether or not the argument is valid. Support your answer.

- 1. Some toys are dolls. Some dolls are long-haired. So some toys are long-haired.
- 2. Some tiny puppies are dogs. Some dogs are not large. So some tiny puppies are not large.
- 3. Some balls are baseballs. Some balls are not baseballs. So some baseballs are not baseballs.
- 4. Some flowers are pretty. Some weeds are not pretty. So some weeds are not flowers.
- 5. Some things which aren't humans are funny. Some humans are funny. So some humans are not humans.
- 6. Some monsters are imaginary. Some giants are imaginary. So some giants are monsters.
- 7. Some teachers are nice people. Some nice people are parents. So some teachers are parents.
- 8. Some publicly owned companies are efficient. Some railroads are efficient. So some railroads are publicly owned companies.

6.9 VALIDITY USING MIXED QUANTIFIERS

When an argument uses quantified statements, we convert the statements to "if-then" or "and" statements. Then we prove whether or not the converted statements make a valid argument.¹

Here are some examples. Copy each symbolized argument on separate paper and prove whether or not it is valid. **Example 1:**

All men are humans.	M → H
Some men are kind.	M and K
So, some humans are kind.	∴ H and K
Example 2:	
All men are humans.	M H
Some humans are kind.	H and K
So, some men are kind.	M and K

'Proving validity or invalidity of arguments which use mixed quantifiers can get complicated. This is especially true in two cases: (1) when more than one premise has a "some" statement; (2) when the conclusion has an "all" or a "no" statement. For such proofs, rules are needed which are not given in this book. So be careful when you start using what you've learned here. Be sure the arguments have the same form as the ones in this book. Otherwise, you could be trying to apply simple rules in cases where they won't work.

Example 3:

All men are humans.	M → H
Some men are not kind.	M and ~ K
So, some humans are not kind.	∴ H and ~ K
Example 4:	
Not all humans are men.	H and ~ M
All men are kind.	M→K
So, not all humans are kind.	∴ H and ~ K

CLASS DISCUSSION PROBLEMS

Use the symbols shown. Symbolize the argument. Prove whether or not the argument is valid.

- 1. All mothers are women. Some women are strong. So some mothers are strong. (M, W, S)
- 2. All roses are flowers. Some roses are yellow. So some flowers are yellow. (R, F, Y)
- 3. No teacher is uneducated. Some lazy people are uneducated. So some lazy people are not teachers. (T, U, L)
- 4. All seniors are allowed to use the elevator. No one under 12 is a senior. So no one under 12 is allowed to use the elevator. (S, E, U)
- 5. Some students are slow learners. All slow learners are hard workers. So some students are hard workers. (S, SL, HW)
- 6. All fathers are men. Some men are not kind to children. So some fathers are not kind to children. (F, M, K)
- 7. Some days are rainy days. No rainy day is a dry day. So some days are not dry days. (D, RD, DD)
- 8. No one completely honest is a person who should enter politics. Some crooks are not completely honest people. So some crooks should enter politics. (CH, EP, C)
- 9. All surgeons are skillful people. Some skillful people are women. So some surgeons are women. (S, SP, W)
- 10. All cars use fuel. Some planes use fuel. So some planes are cars. (C, F, P)
- 11. College students are smart people. Not all college students study hard. So some smart people don't study hard. (CS, SP, SH)
- 12. Bigoted people are not logical. Some women are not logical. So some women are bigoted people. (B, L, W)
- 13. All children are playful. Some playful people are 4 years old. So some children are 4 years old. (C, P, Y)

- 14. All rioters are angry people. No sane person is a rioter. So no angry person is a sane person. (R, A, S)
- 15. No cheater is a person who can be trusted. Some cheaters are kind people. So some kind people cannot be trusted. (C, T, K)
- 16. All German Shepherds are intelligent beings. No intelligent being is stupid. Some people are stupid. So some people are not German Shepherds. (GS, I, S, P)
- 17. No gold-plated car is inexpensive. Everything is inexpensive if and only if it is not expensive. Some limousines are expensive. So some limousines are goldplated cars. (GP, I, E, L)
- All idealists are people who live in ivory towers. Nobody who lives in an ivory tower is a realist. Some dreamers are not realists. So some dreamers are idealists. (I, LIT, R, D)

6.10 USING EULER CIRCLES FOR QUANTIFIED STATEMENTS

We can use Euler (<u>oil</u> er) circles¹ to picture quantified statements. To do this, we imagine a circle to hold everything of one kind. Then something of another kind will be in another circle. The two circles may or may not overlap, depending on the statement.

Example 1:

Wrestlers are strong people. (The statement says that all wrestlers are strong people. We draw a circle to hold all strong people. We label this circle "SP." We need a circle to hold all wrestlers. We'll label it "W." But where do we put the W circle? Can it go



completely or partly outside the SP circle? No, the SP circle holds all the strong people. So the W circle has to go inside the SP circle.)

The statement says that all wrestlers are strong people. It does not say that all strong people are wrestlers. The Example 1 circles show this, and that's good. But we have a problem. The statement does not say that some strong people are <u>not</u> wrestlers. Yet this is what the Example 1 circles seem to show, and that's bad.

¹Euler circles are named after Leonhard Euler (1707-1783), the gifted Swiss mathematician who is said to be the most prolific mathematician who ever lived. Noted for his work with higher mathematics, his writings take up more than seventy volumes.



CLASS DISCUSSION PROBLEMS

Draw a pair of Euler circles which will picture each statement.

- 1. Some flowers are roses.
- 2. All baseball players are good athletes.
- 3. A quarterback is a football player.
- 4. Ice-skating is a cold weather sport.
- 5. All attorneys are college graduates.
- 6. No week has nine days.
- 7. Smoking is bad for your health.
- 8. Not all weeds are ugly.
- 9. No tree has purple leaves.
- 10. Some rocks are white.
- 11. Some rocks are not white.
- 12. Some rocks are white, and some rocks are not white.
- 13. No blue-eyed ogre has green hair.
- 14. Every radical is wild-eyed.
- 15. All puppies are cute.

6.11 VALIDITY AND EULER CIRCLES

You know how to use Euler circles to picture a quantified statement. Now we'll use them to prove whether or not certain arguments are valid. To do this, we make a pair of Euler circles for each premise (but <u>not</u> for the conclusion). For the first premise, we make the circles as usual, except that we don't shade them yet. For the second (and other) premises, we look at the circles we already have. We make the new circles so that they tell us as little as possible. When we have all the circles drawn, we go back and shade the parts which describe the premises. Then we look at the picture and see if it describes the conclusion. If it does, the argument is valid. If it doesn't, the argument is invalid.

We always try to make the circles so that the argument is invalid. If it is not possible to do this, then the argument is valid.

Example 1:

All roses are flowers. All flowers are plants. So all roses are plants.



(In this case, it is not possible to draw the circles without shading the R circle to be part of the P circle. The argument is valid.)





Example 7:

All football players are big people. Some big people are not strong. So some football players are not strong.



(It is possible for the FP circle to fall completely inside the S circle. So the argument is invalid.)

Summary:

We can use Euler circles to prove certain arguments valid or invalid. To do this, we do two things:

- (1) We draw the circles so that the premises have to be true.
- (2) At the same time, we try to draw the circles so that the conclusion is false.

If we do both of these things, then the argument is invalid. If it is not possible to do both of these things, then the argument is valid.

CLASS DISCUSSION PROBLEMS

Use Euler circles to show whether the argument is valid or invalid.

- 1. All men are mortal. Socrates is a man. So Socrates is mortal.
- 2. No zebras have polka dots. Some horses have polka dots. So no horse is a zebra.
- 3. No zebras have polka dots. Some horses have polka dots. So some zebras are not horses.
- 4. No zebras have polka dots. Some horses have polka dots. So some horses are not zebras.
- 5. Some people are kind. Some people are beautiful. So some people are both kind and beautiful.
- 6. All bigoted people are illogical. Some insane people are illogical. So some insane people are bigoted people.
- 7. All professional ball players are good athletes. No good athlete is unfair. So no professional ball player is unfair.
- 8. All elephants have trunks. All trees have trunks. Therefore, all elephants are trees.
- 9. All NEA members are concerned with education. Some teachers are NEA members. So some teachers are concerned with education.

- 10. All NEA members are concerned with education. Some teachers are concerned with education. So some teachers are NEA members.
- 11. No unhappy people are happy people. Some shoemakers are happy people. So some shoemakers are not unhappy people.
- 12. All paupers are poor. Some artists are poor. So some artists are paupers.
- 13. All senators are politicians. Some politicians are dishonest. So some senators are dishonest.
- 14. Some pretty things are shaped like flowers. Some clouds are shaped like flowers. So some clouds are pretty things.
- 15. Some dogs are well trained. All guards are well trained. So some guards are dogs.

6.12 USING COMMON SENSE

People don't always say exactly what they mean. And we (most of the time) automatically know what they mean, anyhow.

Example 1:

Shakespeare said, "All that glitters is not gold." If we take that statement exactly as it is written, we get, "If anything glitters, then it is not gold." But it's pretty obvious that what Shakespeare meant was, "Not all that glitters is gold." And this sentence means, "Some things which glitter are not gold," or, "There are some things which glitter and which are not gold."

Now how about this one?

Example 2:

"Glenda always speaks her mind." The statement says that at all times Glenda speaks her mind—whether she's eating, sleeping, studying, working, reading a book, or whatever. We know that this is not really what the speaker meant to say. What was really meant was, Whenever Glenda gives an opinion, she speaks her mind."

Now what does this have to do with logic? It means, of course, that you can't act like a robot when you're looking at an argument to see whether or not it's valid.

Example 3:

All that glitters is not gold. This gold glitters. So this gold is not gold.

GL = this thing glitters

GD = this thing is gold.

The robot says: $GL \rightarrow \sim GD$

GD and GL

GD and ~ GD. Of course, this argument is valid. (continued on next page) But the thinker says, "That first sentence means that some things glitter and they aren't gold. The second sentence means that some things are gold and they do glitter. Big deal. This is like saying that some animals aren't cows, and some animals are cows. It doesn't follow that some cows aren't cows. This argument is invalid."

You also have to use common sense when you decide whether or not to substitute some words for others. Example 4:

(1) When I get to Oregon, I'll call you.

(2) When I got to Oregon, I felt good.

In sentence (1), we can substitute "if" for "when." (The speaker clearly <u>intends</u> to get to Oregon, but maybe something will come up to cancel the trip. So the "when" is not really definite.) In sentence (2), however, the speaker is stating two things which already happened: "I got to Oregon," and "I felt good." We translate sentence (2) as an "and" sentence, not as an "if-then" sentence.

Example 5:

"Al can't be the thief, since we know he's completely honest." Although this is an "if-then" sentence, the speaker doesn't mean it to be taken that way. The sentence (as it is) says, "If we know he's completely honest, then Al can't be the thief." But what the speaker wants us to do is supply a missing premise and interpret his statement this way: "If anyone is completely honest, then he or she is not a thief. Al is completely honest. Therefore, he is not the thief." The speaker takes three things for granted: (1) We know about and agree with the missing premise. (2) We agree that Al is completely honest. (3) We agree that the conclusion must follow. In other words, the speaker meant to make an "and" statement, not an "if-then" statement: "Al is completely honest, and Al can't be the thief."

Example 6:

"Painters are coming to paint our house today."

This is in the form of an "all" statement. But we know the speaker is not telling us, "If anyone is a painter, then he or she is coming to paint our house today." We know that the speaker means, "Some painters are coming to paint our house today."

CLASS DISCUSSION PROBLEMS

If we make the usual word substitutions without thinking, then each sentence says something different than the speaker really meant. Tell what the speaker really meant to say.

- 1. All people are not tall.
- 2. The school band always plays too loudly.
- 3. All credit cards are not alike.
- 4. Russia always wins Olympic gold medals.
- 5. Brave people get killed in wars.
- 6. Everybody was at the party.
- 7. You're always unfair to me.
- 8. Porter always loses at cards.
- 9. Everything is not what it seems to be.
- 10. Everyone is always telling me what to do.
- 11. Thieves broke into our office building last night.
- 12. I'll do something nice for you, since you did something nice for me.
- 13. He hit me first, so I'm going to hit him.
- 14. I know you're not mad at me, for you smiled at me.
- 15. Sue thinks she's smart because she fooled me once, but she won't fool me again.
- 16. You can't make me believe that Tom said that, because I know him better than that.
- 17. My neighbors are always mowing their lawns.
- 18. You are what you eat.
- 19. Everybody picks on me.
- 20. Drugs are bad for your health.

6.13 COMPLEX STATEMENTS

So far, the statements we've looked at have been simply in terms of P and Q—that is, in terms of only two things. But there's nothing wrong with having statements about three or more things.

Examples 1:

- a. Some people are bold and courageous. P and B and C
- b. Some people are bold but are not courageous. P and B and $\sim C$
- c. Elm trees are tall and graceful. $E \rightarrow (T \text{ and } G)$
- d. Gazelles are fast and graceful. $G \rightarrow (F \text{ and } G)$
- f. Some women are both doctors and attorneys. W and D and A

The word "and" in a sentence sometimes converts to "or" when the sentence is symbolized. Suppose someone says, "Mothers and fathers are parents." A robot will symbolize this as "(M and F) \rightarrow P." But this says, "If something is both a mother and a father, then it is a parent." Of course the original sentence did not say that at all. What it said was, "If something is either a mother or a father, then it is a parent." So it should be symbolized as, "(M or F) \rightarrow P." Notice that "and" in the original sentence had to be changed to "or" in the "if-then" sentence in order to keep the true meaning of the original sentence. Following are other examples like that.

Examples 2:

- a. Gazelles and ostriches are fast runners. (G or O) \rightarrow FR
- b. Carpenters and plumbers have helpers. (C or P) \rightarrow H
- c. Candy, gum, and pop are bad for your teeth. (C or G or P) →BT
- d. College professors and lab technicians are poor but respected. (CP or LT) → (P and R)
- e. Accountants, bookkeepers, and auditors work with numbers. (A or B or AD) $\rightarrow N$

You have to use common sense to figure out how to symbolize some sentences. For example, take the sentence, "No picnic is complete without ants." First of all, we know it's an "if-then" sentence. Second, we know that "this thing is a picnic" is somewhere in the "if" part. There are two ways to do this one: (1) If it's a picnic, then if it's complete it has ants. $P \rightarrow (C \rightarrow A)$. (2) If it's a picnic and is complete, then it has ants. (P and C) $\rightarrow A$. It makes no difference which way we choose, because the two symbolized sentences are equivalent.¹ Here are some examples.

Examples 3:

- a. No picnic is complete without ants.
- $P \rightarrow (C \rightarrow A)$. Or: (P and C) $\rightarrow A$.
- b. All picnics need ants and poison ivy in order to be complete.
 - $P \rightarrow [C \rightarrow (A \text{ and } PI)]$. Or: (P and C) $\rightarrow (A \text{ and } PI)$
- c. No banker is successful if he or she doesn't understand economics.

 $B \rightarrow (\sim UE \rightarrow \sim S)$. Or: $B \rightarrow (S \rightarrow UE)$.

- Or: (B and S) \rightarrow UE. Or: (B and \sim UE) $\rightarrow \sim$ S.
- Or: ~ UE \rightarrow (B \rightarrow ~ S).
- d. All babies need love in order to be healthy. B \rightarrow (H \rightarrow L). Or: (B and H) \rightarrow L.
- e. Hard work and dependability are necessary for a promotion if you work at a job.

 $WJ \rightarrow [P \rightarrow (HW \text{ and } D)]$. Or: (WJ and P) $\rightarrow (HW \text{ and } D)$.

If you don't believe me, use the first one as a premise and the second one as a conclusion. The argument will be valid. Then switch them, using the second as the premise and the first as the conclusion. Again the argument will be valid. Or am I just saying this so that you won't bother to check up on me?

CLASS DISCUSSION PROBLEMS

Problems 1-15: Use the symbols shown. Symbolize each statement.

- 1. Teenagers are younger than adults but older than children. (T, A, C)
- Poor sports are sore losers and are unpopular. (PS, SL, U)
- 3. People who have a lot of money are either greedy or generous. (PLM, GR, GN)
- 4. People who have a lot of money are either greedy or generous. (P, LM, GR, GN)
- 5. Football players and baseball players have seasonal jobs. (F, B, S)
- 6. No course is a good one if the students don't learn. (C, GC, SL)
- 7. Drivers who are careless or inconsiderate should have their licenses taken away and should be forced to go to a driving school. (D, C, I, L, FDS)
- 8. Sales clerks and floor managers should be polite to shoppers. (SC, FM, PS)
- 9. Shoppers should be polite to sales clerks and floor managers. (S, PSC, PFM)
- 10. People who are kind, generous, and polite make good friends. (K, G, P, GF)
- 11. Kind and generous people make good friends. (KP, GP, GF)
- 12. Kind people and generous people make good friends. (KP, GP, GF)
- 13. Things which are bad for your teeth include cookies and cake. (BT, CO, CA)
- 14. Not all teachers are stupid and incompetent. (T, S, I)
- 15. Not all teachers are either stupid or incompetent. (T, S, I)

Problems 16-27: Use the symbols shown. Symbolize the argument and prove it valid or invalid.

- 16. Some people are wealthy but stingy. People who are wealthy but stingy do not enjoy their money. So some people do not enjoy their money. (P, W, S, EM)
- 17. Either a camera takes a good picture or a poor picture, or the camera doesn't work. Cameras which don't work are a waste of money, as are cameras which take poor pictures. So a camera which takes a good picture is not a waste of money. (C, GP, PP, W, WM)
- 18. Road surveyors and engineers use measuring instruments, and so do machinists. Some users of measuring instruments are good at math, but no one who is good at math is incompetent. So some road surveyors are not incompetent. (RS, E, MI, M, GM, I)

- 19. Road surveyors and engineers use measuring instruments, and so do machinists. Users of measuring instruments are good at math, but no one who is good at math is incompetent. So road surveyors are not incompetent, and neither are engineers or machinists. (RS, E, MI, M, GM, I)
- 20. Gazelles are fast runners, but children aren't. So children are not gazelles. (G, FR, C)
- 21. Gazelles are fast runners, but children aren't. So gazelles are not children. (G, FR, C)
- 22. If a picnic is missing ants or poison ivy, then it is not complete. On the other hand, if a picnic has both ants and poison ivy, then it is a disaster. Therefore, a picnic is either not complete, or it is a disaster. (P, A, Pl, C, D)
- 23. College professors and lab technicians are people who are poor but respected. People are poor but not respected if and only if they do not deserve a raise, and people are respected and not poor if and only if they do not need a raise. Therefore, a college professor and a lab technician need and deserve a raise. (CP, LT, P, R, DR, NR)
- 24. People who make mistakes at their jobs are either incompetent or stupid. But people who are incompetent are stupid. Everybody makes mistakes at their jobs. Therefore, everyone is stupid. (P, MJ, I, S)
- 25. People who are careless and daring have accidents, and people who have accidents are poor insurance risks. People are careless if and only if they are daring. Therefore, people who are careless but not daring never have accidents. (C, D, A, PIR)
- 26. All tigers are animals. All animals which are not tigers are lions. So some animals are lions. (T, A, L)
- 27. All tigers are animals. All animals which are not tigers are lions. Some animals are not tigers. So some animals are lions. (T, A, L)

6.14 CHAPTER REVIEW PROBLEMS FOR CLASS DISCUSSION

Problems 1-5: Tell whether or not the pair of statements negate each other. If you answer "no," tell what the second statement should be in order to negate the first.

- 1. All grass is green. No grass is green.
- 2. Some cats are dogs. Some dogs are not cats.
- 3. Everybody likes pizza. Nobody likes pizza.
- 4. All cartoons are funny. Some cartoons are not funny.

- 5. No prizes will be given to losers. All prizes will be given to losers.
- 6. State the negation of each statement.
 - a. Some books are hard to understand.
 - b. Some words are not hard to spell.
 - c. No pencil should be sold without an eraser.
 - d. All vacations are fun.
 - e. Not all movies are good ones.
 - f. It is false that no tiger is an animal.
- 7. What's the difference between a negation of a statement and an opposite of the statement?
- 8. What is a universal generalization?
- 9. a. What is a universal quantifier?
- b. Give some examples of universal quantifiers.
- 10. a. What is an existential quantifier?
 - b. Give some examples of existential quantifiers.
- 11. a. Does a universal quantifier promise existence?b. Does an existential quantifier promise existence?
- 12. What is a reversible statement?
- 13. If a statement and its converse are both true, is the statement reversible? How come?
- 14. Tell whether or not each statement is reversible.
 - a. Some P are Q.
 - b. Some P are not Q.
 - c. It is false that some P are not Q.
 - d. Not all P are Q.
 - e. No P is Q.
 - f. It is false that all P are Q.
 - g. It is false that no P is Q.
 - h. All P are Q.
- 15. Suppose a statement is reversible. And suppose the statement is used in an argument. And suppose you use the reversed statement (instead of the original statement) in the argument. Then is the validity of the argument affected? (That is, if the argument was valid, can the substitution make it invalid? If it was invalid, can the substitution make it valid?) How come?
- 16. Use the symbols shown. Symbolize each statement.
 - a. You can't be a member unless you are voted in. (M, V)
 - b. You may like her, but I don't. (YL, IL)
 - c. Although all tigers are animals, it is not the case that all animals are tigers. (T, A)
 - d. Loud music and pneumatic drills are both bad for your hearing. (LM, PD, BH)
 - e. Hospital volunteer workers are unselfish and kind. (HVW, U, K)
 - f. Unselfish people and kind people are hospital volunteer workers. (U, K, HVW)
 - g. Cheaters aren't trustworthy, and neither are liars. (C, T, L)
 - h. A job holder who has a good credit rating will be granted a loan. (JH, GCR, GL)

(continued on next page)

sonclusion is true, so the argument is in- the circles so that the premises are true onclusion is false, so the argument is in- rcles to prove each argument valid or in- s wear white uniforms. All cooks wear forms. So all cooks are nurses. wear white uniforms. Some nurses do not s. So some wearers of white uniforms do caps. penters work with wood. Some carpenters formica. So, some carpenters work with d and formica. esigners are drafters. All drafters make wings. So all die designers make scale all coaches want good teamwork. Nobody s good teamwork is a loner. All umpires . So, no baseball coach is an umpire. es are high-strung and temperamental. are high-strung but not temperamental,
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ogers are temperamental but not high- herefore, neither geegers nor googers are
gers are temperamental but not high- lerefore, neither geegers nor googers are



- 23. A job holder with a good credit rating will be granted a loan.
 - a. A job holder without a good credit rating will not be granted a loan.
 - b. Anyone not granted a loan is not a job holder with a good credit rating.
 - c. Anyone not granted a loan is not a job holder and does not have a good credit rating.
 - d. Anyone who is granted a loan is a job holder with a good credit rating.
 - e. A job holder who is granted a loan has a good credit rating.
 - (J, C, L)
- 24. A job holder will be granted a loan.

Anyone who isn't a job holder won't be granted a loan. No job holder needs a loan.

Anyone who doesn't need a loan will not apply for a loan.

No loan will be granted unless it is applied for.

- a. No loan will be granted.
- b. No job holder will be granted a loan.
- c. No job holder has a good credit rating.
- d. Anyone granted a loan does not have a good credit rating.
- (JH, GL, NL, AL, GCR)

CHAPTER 7

CHARACTERISTICS OF ARGUMENTS

7.1	DISTINGUISHING BETWEEN STRONG AND WEAK ARGUMENTS
7.2	WHICH SIDE OF THE FENCE?
7.3	RECOGNIZING ASSUMPTIONS
7.4	DISTINGUISHING BETWEEN FACT AND OPINION
7.5	CHAPTER REVIEW PROBLEMS FOR CLASS

7.1 DISTINGUISHING BETWEEN STRONG AND WEAK ARGUMENTS

We often hear people discussing different sides of an issue. It is important to be able to tell which arguments (statements they make) are strong and which arguments are weak. An argument may have a strong emotional appeal and yet be a weak argument. Or an argument may state a very important fact and yet be weak because the fact stated has little to do with the question being argued.

We want to be careful not to think an argument is strong just because we agree with the side it favors. And we want to be careful not to think an argument is weak just because we disagree with the side it favors. In other words, we want to train ourselves to put our personal feelings aside when we decide whether an argument is strong or weak.

- We will say an argument is strong if
- (1) it is true, and
- (2) it is directly related to the question, and
- (3) it is important, in view of the overall issue raised by the question.

We will say an argument is weak if

- (1) it is false, or
- (2) it ignores conditions stated by the question, or
- (3) it is not directly related to the question, or
- (4) it concentrates on only minor parts of the question, or
- (5) it is not important, in view of the overall issue raised by the question.

For this section, we will assume that all arguments given in the Examples and the problems are true. Then we won't have to worry about items (1) in the two lists above. Example 1:

Should schools have dress codes?

- (1) Yes. Students today have too much freedom. (Weak. The statement is too general to be directly related to the question.)
- (2) No. Not everyone can afford uniforms. (Weak. The question does not imply that uniforms would be required.)

An argument may be strong even though it has flaws. Remember, we said we would assume that each argument given is true.

Example 2:

Should schools have dress codes?

(1) Yes. Certain kinds of clothing (such as swim wear) are totally out of place in school and should not be allowed. (Strong. A dress code would eliminate "out of place" clothing. But who would decide what is out of place and what is not? One person might think that jeans are OK for school, and another might think they're not.)

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(2) No. Schools don't need dress codes. (Strong. But it will not convince most opponents to change their minds. For these opponents, the argument begs the question—uses circular reasoning. Even though we accept the statement as true, these opponents base their "yes" answers on, "A dress code is needed, because" To these opponents, the argument merely says, "A dress code is not needed because it is not needed." To convince these opponents, the argument would have to tell why a dress code is not needed.)

CLASS DISCUSSION PROBLEMS

Problems 1-4: A question is followed by several arguments. Assume that each statement in an argument is true. Tell whether each argument is strong or weak. Support your answers.

- 1. Should schools have dress codes?
 - (1) Yes. Research shows that students in schools with dress codes have better attitudes toward school than students in schools without dress codes.
 - (2) No. Students learn better in a relaxed atmosphere. A school without a dress code has a more relaxed atmosphere than a school with a dress code.
 - (3) No. Students learn better in a relaxed atmosphere. A school without a dress code has a relaxed atmosphere. But a school with a dress code does not have a relaxed atmosphere.
 - (4) Yes. "Far-out" clothing in a classroom causes too much notice and keeps students from learning what they're supposed to learn.
 - (5) Yes. "Far-out" clothing in a classroom causes too much notice and keeps students from learning as much as they would learn if such clothing were not allowed.
 - (6) No. Parents should have the right to send their kids to school dressed in any reasonable way.
 - (7) Yes. School is an important place. One way to teach students this is to have a dress code so that they dress appropriately.
 - (8) Yes. School is an important place, and students should be expected to dress accordingly.
 - (9) No. Students will want to learn, be indifferent about it, or fight it regardless of the way they dress. So having a dress code will not change attitudes toward learning.

2. Should everyone who has natural teeth brush them	
 every day? (1) Yes. It helps avoid tooth decay. (2) No. It makes the enamel wear out faster. (3) Yes. It helps sell toothbrushes. (4) No. They only get dirty again as soon as you eat something. (5) Yes. It helps get rid of bad breath. 	
 (6) No. Eating certain foods like apples and celery will clean teeth as well as brushing them. (7) Yes. It helps make jobs for toothpaste makers. (8) No. Dentists have to make a living, too. 	
 3. Should everyone learn how to type? (1) Yes. Knowing how to type opens up more job opportunities. 	
 (2) No. Not everyone would like typing. (3) Yes. It would help the economy by selling more type- writers. 	
(4) No. Most people don't know how to type, and they get along well without it.	
(5) Yes. It is a handy skill for everyday letter writing in adult life—writing to friends, TV stations, news- papers, senators, businesses, government organi- zations.	
(6) No. Anyone who doesn't know how to type but needs to have something typed can hire a typist to do it.	
 (7) Yes. It makes more jobs for typing teachers. (8) No. Some people are just so clumsy that they'd never use it after they learned it because it would take longer to type something than to write it by hand. 	
 4. Should teenagers who need glasses wear them? (1) Yes. It will make other people think they're intelligent. 	
(2) No. It will make other teenagers think they're brains, and they'll be unpopular.	
(3) Yes. It will allow them to see things they couldn't see without the glasses.	
(4) No. Teenagers who wear glasses feel self- conscious.	
(5) Yes. It will help them avoid eye strain and the head- aches which go with eye strain.	
(6) No. As long as they get along OK without the glasses, there's no good reason to wear them.(7) Yes. Many people look better with glasses than with better them.	
 (8) No. Teenagers goof around a lot and may get permanent eye damage if the glasses break while they're goofing around. 	
(9) Yes. They get to pick out frames which go well with their faces.	
(continued on next page)	

- (10) No. Teenagers are always losing things, and eyeglasses are too expensive to have to keep replacing.
- (11) Yes. It may save them from serious injury.
- (12) No. Some eye doctors own the business which sells the glasses, and they tell their patients that they (the patients) need glasses when they really don't, just so these doctors can make more money.
- 5. Big City's newspaper carried the following article:

Last year, a survey of over 300,000 freshmen entering 600 colleges was completed. This survey shows that grading standards in high schools have been steadily declining in the last ten years.

Freshmen are entering college with higher grades than ever, according to the survey. It found that there are now equal numbers of freshmen entering with A averages and with C averages. Ten years ago, there were twice as many C-average students as A-average students entering college. Ten years ago, 33% of entering freshmen had C averages. Last year, only 20% had C averages. In the same period, the number of A-average students entering college increased by 6%.

"When you consider these grade increases in the light of declining college admission scores, it is hard to escape the conclusion that grading standards in high schools have been declining steadily in the past ten years," said the director of the survey. He also said that 58% of those in the survey agree with the statement, "Grading in the high schools has become too easy."

- (1) What did the survey director conclude from the survey?
- (2) Discuss whether or not the article's last statement is a strong support of the survey director's conclusion.
- (3) Discuss possible weaknesses in the survey.
- (4) Discuss whether or not you think the survey director's conclusion was probably accurate.

7.2 WHICH SIDE OF THE FENCE?

When a question is being discussed, the people discussing it may do one of four things. (1) They may make statements on the "yes" side. (2) They may make statements on the "no" side. (3) They may make "yes and no" statements. (4) They may avoid the question by throwing in "red herring" statements.

In section 7.1, the arguments given always started out with "yes" or "no" so that you would know which side was being argued. But in real life, people usually just give their arguments without saying "yes" or "no" because they expect you to know which side the argument favors. In this section, a question will be asked. It will be followed by arguments. You have to decide which side of the question each argument favors. Sometime after you do that, you will be asked to go back and decide whether the argument was strong or weak.

Example 1:

Tell whether each argument following the question favors the "yes" side or the "no" side.

Should music from students' radios be allowed in high school classrooms?

- Not everyone likes the same kind of music. Music which would help one student study might be disturbing to another student. (No.)
- (2) High school students usually concentrate better with music going. (Yes.)
- (3) It depends on the class. (Yes and no.)
- (4) Students should be able to play their radios in the cafeteria during lunch time. ("Red herring.")

Example 2:

Go back to Example 1 and tell whether each argument is strong or weak. Make your own judgment about whether or not the argument is true.

- (1) Strong.
- (2) Weak. (The statement is not true for all high school students. Even if it were, it says they "usually" concentrate better. So if the music is going at one of the times when it disturbs some of them, it is not a good idea to have it playing.)
- (3) and (4) No answer needed.

CLASS DISCUSSION PROBLEMS

Problems 1-3: Tell whether each argument favors the "yes" side or the "no" side of the question.

- 1. Is it all right for everyone to live their lives according to the way they feel is OK?
 - (1) Some people feel it's OK to steal from other people, but it isn't.
 - (2) Each person should be able to live by her or his own values.
 - (3) Nobody should have other people telling her or him what to do.
 - (4) What may be "right" to one person may be "wrong" to another.
 - (5) If everybody did this, then everybody would be doing her or his own thing, and this would be good.
 - (6) We wouldn't have a decent moral code left.

- 2. Should the amount of effort a student makes be figured in the course grade?
 - (1) Suppose two students get the same test grades, but one worked hard at it, and the other just loafed along. It wouldn't be fair to give them both the same grade when one had to work so much harder than the other.
 - (2) Suppose one student really worked at learning and had a "C" average on tests. And suppose another student loafed along and had a "B" average on tests. It wouldn't be fair to mark them both the same when one obviously learned more than the other.
 - (3) It would make students work harder, because everyone likes to get good grades.
 - (4) A grade is supposed to show how much you learned, not how much you worked at it.
 - (5) It's too easy for a student to fool a teacher into thinking that the student is working hard when she or he really isn't.
 - (6) It would give the student the false idea that decent grades are given for poor work in college, too, if she or he just keeps trying.
 - (7) It makes the parents think the student is doing better than the student is really doing.
 - (8) That's why we have high school graduates who can't read, write, and do arithmetic.
 - (9) It would give the students more reason to try to learn.
- 3. Should people who have lawns have to mow their lawns at least once every three weeks?
 - (1) The grass doesn't always grow fast enough to justify this.
 - (2) Lawns mowed less often look scraggly and make the neighborhood look bad.
 - (3) They can't get at it in the winter when the snow covers it.
 - (4) People who work six days a week have a right to relax and enjoy their days off without worrying about working in the yard.
 - (5) Lawns are supposed to look nice, and they don't look nice if they're mowed less often than this.

Problems 4-6: Go back to problems 1-3. For each argument which favors the "yes" side or the "no" side of the question, tell whether the argument is strong or weak. Make your own judgment about whether or not the argument is true.

- 4. Follow the above instructions for problem 1.
- 5. Follow the above instructions for problem 2.

6. Follow the above instructions for problem 3.
7.3 RECOGNIZING ASSUMPTIONS

So far, you can do several things with statements given. You can tell when something is implied and when it is not. You can tell when something is probably true or false and when it is not. You can tell when something is true or false beyond a reasonable doubt and when it is not. You can tell whether an argument is strong or weak. You can tell which side of a question an argument favors. You recognize many reasoning errors and techniques of argument. And you know quite a bit about logic.

The next step in learning to think critically is to learn to "read between the lines"—that is, to figure out what a speaker probably assumes to be true even though he or she doesn't come right out and say it is true.

Example:

"Anyone who is healthy but who doesn't work for a living is just plain lazy!"

The speaker seems to be assuming all of these things, even though he or she didn't say any of them:

(1) It is good to work for a living.

(2) It is bad to be lazy.

- (3) Anyone who is healthy can find a job if he or she wants one.
- (4) It is bad not to be working if you're healthy.
- (5) Everyone who is healthy should work for a living.

CLASS DISCUSSION PROBLEMS

Problems 1-4: One or more people are quoted. Tell whether or not the person (or people) quoted <u>probably</u> assumed the numbered statements to be true. Answer "yes" if the statement was <u>probably</u> assumed to be true. Otherwise, answer "no."

 Elaine and Laura have been in the same English Composition class for three months now. The teacher has just finished assigning a paper due tomorrow. As the students are leaving the room, Elaine says to Laura, "I didn't understand exactly what we're supposed to write that paper about for tomorrow." Laura replies, "I didn't either, but it doesn't matter too much. Just give it the title she said to give it, and bluff your way through. I do that all the time, and I get good grades on them, too." (1) (Elaine) It is important to understand exactly what an assignment is about.

- (2) (Elaine) A student shouldn't try to bluff through an assignment unless there is no other reasonable choice.
- (3) (Elaine, <u>before</u> Laura answers) Laura understands what the theme for tomorrow is supposed to be about.
- (4) (Laura) It is not important to understand exactly what an assignment is about.
- (5) (Laura) It is all right to bluff your way if you can get away with it.
- (6) (Laura) The teacher makes a habit of giving assignments which are not entirely clear.
- (7) (Laura) The teacher is unable to tell when a student is bluffing his or her way through an assignment.
- (8) (Laura) The teacher is in the habit of accepting work which does not really satisfy the assignment made.
- (9) (Laura) The teacher is easy to fool (about homework assignments).
- (10) (Laura) It is not important to understand the teacher's reason for making an assignment.
- (11) (Laura) If I get good grades on my work, then I shouldn't worry about whether or not I could do any better.

2. "Never esteem anything as of advantage to thee that shall make thee break thy word or lose thy self-respect." (Marcus Aurelius)

- (1) If you make a promise, then you should keep it.
- (2) Nothing should be considered as being to your advantage if it makes you lose your self-respect.
- (3) It's all right to try to get ahead in the world, but not if it makes you break a promise.
- (4) If something is to your advantage, then it will not cause you to lose your self-respect.
- (5) If something doesn't cause you to lose your selfrespect, then it is to your advantage.
- (6) Even if you are starving to death, it should not be considered advantageous to accept food if you have to break a promise in order to get the food.

3. "If thou shalt confess with thy mouth the Lord Jesus, and shalt believe in thine heart that God hath raised him from the dead, thou shalt be saved." (Romans 10.9)

- (1) It is possible to say one thing but believe the opposite.
- (2) Jesus is the Lord.
- (3) Jesus was dead.
- (4) God exists.
- (5) Everyone will be saved.
- (6) Doing good works is enough to save you.
- (7) Being very religious is enough to save you.

4. Preamble to the U.S. Constitution:

We, the people of the United States, in order to form a more perfect Union, establish justice, insure domestic tranquility, provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this Constitution for the United States of America.

- (1) Justice is a good thing.
- (2) Justice had not been established in this country before the Constitution was drawn up.
- (3) The common defense should be provided for.
- (4) It is important to provide for one's descendants.
- (5) With liberty comes blessings.
- (6) Forming a more perfect union is desirable.
- (7) Ordaining and establishing the Constitution will guarantee such things as the establishment of justice, providing for the common defense, and securing the blessings of liberty.
- (8) Once the Constitution is ordained and established, there will be no trouble in doing such things as promoting the general welfare and establishing justice.

Problems 5-6: These problems are different from the other problems you have had so far. Now you will be given letters which were written to newspapers and you will be asked questions about them. But each letter will be given to you only a part at a time to see if you can tell certain things from what the letter writer says so far. Back up any "yes" or "no" answer you give.

5.

My wife and I are getting sick and tired of all the profanity on television! We don't use profanity, and we don't want it in our home.

- (1) What can you infer about the writer's mood at the time the letter was written (happy, sad, or what?)?
- (2) Is the writer a male, or a female?
- (3) What can you infer about the writer's physical health at the time the letter was written?
- (4) What appears to be the purpose of the letter, from what you have seen so far?

We like to watch comedies, mysteries, adventures, talk shows, and movies just like anyone else. Yes, we know we can turn off any program which has profanity in it.

- (5) What is probably the purpose of the first sentence here?
- (6) What is probably the purpose of the second sentence here?

But there are two things wrong with that kind of answer to the problem. First, we don't know the program has profanity in it until after we've heard it, and we don't want to hear it. Second, we think we should be able to watch TV without being offended by it.

- (7) In the first sentence here, what is meant by "that kind of answer"?
- (8) In the first sentence here, what is meant by "the problem"?
- (9) The last sentence of the previous (second) part of the letter mentions that turning off any program with profanity in it is one answer to the problem. Does the writer believe that this is a good answer to the problem? How do you know?
- (10) Does the writer probably assume that everyone should be able to watch TV without being offended by it?
- (11) If the writer knew before he turned on a program that it contained profanity, would he probably still object just as strongly?

It isn't as though profanity is needed for a program to be good, because it isn't needed. Surprise, dismay, fright, or whatever, can be equally well expressed by other words.

(12) What seems to be the purpose of including these two sentences in the letter?

We would like to see TV cleansed entirely of profanity. But if that isn't done, at least the broadcasters should include a notice at the beginning of such a program telling us that the program contains profanity so that we could turn off the program before hearing the profanity.

- (13) Who is "we" in the first sentence here?
- (14) Who is "us" in the second sentence here?
- (15) Does the writer seem to feel that profanity "dirties" TV?
- (16) Does the writer insist that profanity be banned from TV?
- (17) Do you think the writer's complaint is unreasonable? How come?
- (18) What solutions does the writer offer to resolve his complaint?
- (19) Do these solutions sound reasonable to you? How come?
- (20) Do you have other solutions to the problem?

6.

My observation of radical protesters on college campuses and elsewhere has led me to conclude that they are the most hypocritical people on earth!

- (1) What is a "radical protestor"?
- (2) What appears to be the writer's attitude toward radical protestors? (Does the writer appear to be sympathetic, angry, or what?)
- (3) Why does the writer seem to feel that radical protestors are hypocrites?

They demand free speech for everyone but shout down speakers they don't like. They preach love and peace but throw rocks at police and bomb buildings. They demand cleaner environments but leave papers and garbage wherever they protest. Worst of all, they demand freedom and democracy but are doing everything possible to destroy democracy and bring about a dictatorship.

- (4) Who is "they" in this paragraph?
- (5) What is the purpose of this paragraph?
- (6) Does the first sentence here give an example of a hypocritical action? How come?
- (7) Does the second sentence here give an example of a hypocritical action? How come?
- (8) Does the third sentence here give an example of a hypocritical action? How come?
- (9) Does the fourth sentence here give an example of a hypocritical action? How come?
- (10) In the first three sentences here, we can judge for ourselves as to whether or not we agree that the radical protestors are being hypocritical. What's different about the fourth sentence?

Either the government will protect itself by becoming dictatorial or the radicals will establish their own dictatorship—the peace symbol will replace the swastika.

- (11) Why does the writer seem to feel that the government should have to "protect itself"?
- (12) What does the writer mean by "the peace symbol will replace the swastika"?
- (13) Where does this letter use "either-or" reasoning?
- (14) Go back to the beginning of the letter. How does the writer back up the first statement?
- (15) The writer does not back up any of the next four statements. Do you think the writer should have backed these up?
- (16) Where does the writer back up the last sentence in the letter?
- (17) Do you agree with the last sentence in the letter?
- (18) Does the writer appear to be against all kinds of protests against our government?

7.4 DISTINGUISHING BETWEEN FACT AND OPINION

Sometimes people use certain words which let us know that they are stating an opinion, not a fact. In Examples 1 below, the "tipoff" words are underlined. Examples 1:

- a. In my opinion, the mayor doesn't know what she's doing.
- b. <u>To me</u>, TV is a waste of time.

- c. I think he is a good lawyer.
- d. Insurance rates are too high, as far as I'm concerned.
- e. She seems to be a good teacher.

The use of an emotional appeal can also be a tipoff that a statement is an opinion rather than a fact.

Examples 2:

- a. Today's teachers are all more interested in the almighty dollar than they are in teaching our kids.
- b. The American Medical Association has known for years about cures for some diseases, but they won't announce them because that would mean less money for all the doctors.
- c. A little guy with a good idea can't hope to be a success, because big business will step in and squeeze him right out of the market.

Sometimes people don't use such tipoffs, but the statements themselves are obviously matters of opinion rather than fact.

Examples 3:

- a. This is the best book ever written.
- b. He has good taste in clothing.
- c. The U.S. needs socialized medicine.
- d. He'll never be a success in life.

The biggest problem in trying to distinguish between fact and opinion comes up when tipoff words are not used, and we don't know enough about the subject to know whether the statement is fact or opinion. For instance, are the statements in Examples 4 fact, are they opinion, or are they a combination of fact and opinion?

Examples 4:

- a. U.S. farmers are making more profit today than at any previous time in our history.
- b. At least 65% of U.S. wives hold outside jobs.
- c. Instead of getting experienced people, the President has given the jobs to personal friends who don't know what they're doing.

When you hear statements such as those in Examples 4 above, it is important not to take for granted that they are facts. Ask questions. Take Example 4a, for instance. The conversation might go like this:

Speaker: "U.S. farmers are making more profit today than at any previous time in our history."

You: "Really? I heard they're having a pretty hard time of it."

Speaker: "The government pays them not to grow crops—pays them for letting their fields stay unplanted."

You: "But they would've made money if they'd planted the fields, so that doesn't mean they're making more money this way."

Speaker: "It's a fact that they're making more now than ever before. Look up the figures for yourself."

At this point, the speaker has not shown that her or his statement is a fact. You can begin to suspect strongly that it is an opinion the speaker has formed as a result of putting together (perhaps correctly, perhaps incorrectly) certain facts.

In order to have a definite guideline for the difference between a fact and an opinion, let us agree that a <u>fact</u> is something which has been proved true, while an <u>opinion</u> is something which is thought (but has not been proved) to be true. Using this definition, today's opinion may turn out to be tomorrow's fact. But while it is still unproved, we will say it is an opinion.

CLASS DISCUSSION PROBLEMS

- 1. Why is it important to try to distinguish between fact and opinion in an argument?
- 2. Tell whether the statement expresses a fact, an opinion, or a statement contrary to fact. If you can't tell which it is, then answer "can't tell."
 - a. It seems to me that city air is a lot cleaner than it used to be.
 - b. U.S. oil companies know about a lot of oil deposits that they haven't tapped in the U.S., and they're keeping this information from the public.
 - c. I work in an auto assembly plant. I can see that cars we make on Mondays and Fridays are not as well built as cars made on other days.
 - d. It used to be that people took pride in their work, but nowadays people just put in their time on the job and they don't care whether or not they do good work.
 - e. On the average, high school dropouts have much lower lifetime earnings than high school graduates.
 - f. In the U.S., tornadoes occur only in the midwest and south.
 - g. Insurance companies charge too much money to insure teenaged drivers.
 - h. Doing crossword puzzles is fun.

3. The following letter to the editor appeared in Big City's newspaper.

Everybody's always talking about juvenile delinquency. I can understand it. I looked for a job all summer. But nobody wants teenagers. If teenagers can't find work even when they try, it's no wonder they steal. I may be young, but I need to spend money just like everybody else. And I don't like to borrow it from my parents.

There are lots of jobs teenagers can do well, such as baby-sitting and light housework. But as far as employers are concerned, teens are all bad. As long as they think so maybe we might as well live up to it. Wouldn't want to disappoint them, right?

15 and DISGUSTED.

(1) What point is 15 and Disgusted trying to make?

- (2) Is 15's first sentence fact, or opinion?
- (3) What do you think 15 meant by the second sentence? That is, do you think it means 15 understands why everybody is always talking about juvenile deliquency, do you think it means 15 understands juvenile delinquency, or do you think it means 15 understands why there is juvenile delinquency?
- (4) Is the fourth sentence fact, or opinion?
- (5) Notice the use of the word "even" in 15's fifth sentence. What does this suggest about 15's attitude toward jobs for teenagers?
- (6) a. What is implied by 15's fifth sentence?b. Do you agree with this implication?
- (7) Is the sixth statement fact, or opinion?
- (8) Does 15's letter imply that his or her parents will provide the necessities of life—food, clothing, shelter, medical care? Explain.
- (9) So why does 15 "need to spend money just like everybody else"?
- (10) Does 15's letter seem to indicate that he or she <u>must</u> steal to have spending money if he or she can't find a job? How come?
- (11) Is 15's eighth sentence fact, or opinion?
- (12) Is 15's ninth sentence fact, or opinion?
- (13) a. What does 15 imply in the next to last sentence?
 - b. Is this attitude likely to make employers think better, or worse, of teenagers? How come?
- (14) 15's last sentence implies that people will be disappointed if they discover that someone is not as bad as they thought. Do you agree with this implication? How come?
- (15) How does 15 back up the fourth sentence?
- (16) How does 15 back up the sixth sentence?
- (17) How does 15 back up the ninth sentence?
- (18) Where is an example of "proof" by selected instances in 15's letter?

- (19) Where is an example of "either-or" reasoning in 15's letter?
- (20) Where are examples of non sequitur reasoning in 15's letter?
- (21) Where is an example of rationalization in 15's letter?
- (22) What overall impression do you get of 15, judging from the letter?
- (23) What do you think of the thinking and reasoning shown in 15's letter (good, so-so, poor)? Explain.

7.5 CHAPTER REVIEW PROBLEMS FOR CLASS DISCUSSION

1. Read the information given. Assume that each argument following the question is true. Decide whether each argument is strong or weak.

It has been suggested that schools set aside special rooms for troublemakers. Here's the way the system would work:

Suppose a student in a regular classroom causes a disturbance which keeps the teacher from teaching and the other students from learning. The teacher gives the student a warning. If the student doesn't shape up, the teacher sends the student to the assistant principal, along with a request to assign the student to the special room. The teacher takes time later that day to list the work the student is to finish (the regular classroom work) in the next three days. And for those three days, the student is to report to the special room instead of to the regular classroom. The special room has a teacher assigned to supervise it. The students are not allowed to talk there except to ask the teacher for help with work they have to do. The student is not allowed back in the regular classroom until he or she has spent three days in the special room and has completed the work assigned by the regular classroom teacher.

What do you think? Is this a good idea, or not?

- (1) Yes. It would help keep the regular teacher in a better mood.
- (2) No. No teacher would want to be assigned to the special room.
- (3) Yes. It would allow the teacher to get on with the business of teaching instead of having to stop to discipline a troublemaker several times each class.
- (4) No. Troublemakers are often the students who don't understand the material. Putting them aside to study mainly on their own will do less to help them learn the material than leaving them in the regular classrooms.

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- (2) Homework strengthens the lesson of what the student was taught in class.
- (3) Homework allows the students to find out if they understand the work as well on their own as they did in class.
- (4) Class time should be allowed for assignments so that the students can use the time out of school as they please.
- (5) Homework is just a gimmick used by teachers to make the parents think the teachers are doing a good job.
- (6) It depends on the class.
- (7) If homework is assigned, then the teacher should take the time to correct it.
- (8) Homework gives the students a chance to think over the classwork and see if they have questions.(9) Homework is a waste of time.
- (10) Students who have jobs after school don't have time for a lot of homework.
- 3. Go back to problem 2 above. For each argument which favors the "yes" side or the "no" side of the question, tell whether the argument is strong or weak. Make your own judgment about whether or not the argument is true.
- 4. Part of the second paragraph of the Declaration of Independence, drafted by Thomas Jefferson, is quoted below. For each statement following the quotation, tell whether or not the people who signed the Declaration of Independence probably assumed the statement to be true.

We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty, and the pursuit of Happiness. That to secure these Rights, Governments are instituted among Men, deriving their just powers from the consent of the governed. That whenever any Form of Government becomes destructive to these ends, it is the Right of the People to alter or abolish it, and to institute new Government, laying its foundation on such principles and organizing its powers in such forms, as to them shall seem most likely to effect their Safety and Happiness.

- (1) God exists.
- (2) The Creator gave each man the right to be free.
- (3) All men have the right to be free.
- (4) It is wrong to own slaves.
- (5) Every man has the right to pursue happiness as he sees fit.
- (6) Men institute governments in order to secure certain rights.
- (7) Governments derive their just powers from the consent of the governed.

(8) Women should have the right to vote. (9) Children should have the right to vote. (10) If a man living under a certain government does not give his consent for that government to have a certain power, then the government cannot justly have that power. (11) Whenever a government threatens the pursuit of happiness, the people have the right to alter or abolish it. (12) All men are created with equal intelligence and abilities. 5. Following is a letter to the editor of Big City's newspaper. It is interrupted several times with questions for you to answer. Explain any "yes" or "no" answer. Contrary to X's letter, I have to think that raising the drinking age to 21 is not the answer but rather stiffer penalties for driving while intoxicated. (1) What does the writer mean by "X's letter"? (2) Does the writer agree with X's letter or not? (3) What is meant by "the drinking age"? (4) According to this letter, what is the present drinking age? (5) Does the writer favor raising the drinking age to 21? (6) Judging from what the writer says so far, what did X's letter probably say? (7) Does the writer seem to agree that there is a problem to be solved? Should this bill pass it would not only increase the drug and pot market, it would chase young adults back onto the streets and into their cars, where they would be harmful to the community. (8) What is "this bill"? (9) Why does the writer think that passing this bill would "increase the drug and pot market"? (10) What does the writer mean by "pot"? (11) Does the writer consider pot to be a drug? (12) What is implied when the writer says passing the bill "would chase young adults back onto the streets and into their cars"? (13) Why does the writer think passing the bill "would chase young adults back onto the streets and into their cars"? (14) Compare what is said here with what is said in the first paragraph quoted. Where does the writer appear to be inconsistent? (15) Why does the writer think that young adults on the streets and in their cars "would be harmful to the community"? (16) Does the writer seem to think that these young adults are not now harmful to the community? (continued on next page)

If the bill passes, it would not erase a minor problem. It would create many major problems. Punish the guilty but preserve the rights of young adults who deserve to be treated as such.

- (17) What is meant here by "a minor problem"?
- (18) What is meant by "many major problems"?
- (19) Who does the writer mean by "the guilty"?
- (20) According to the writer, what will the "young adults who deserve to be treated as such" do if the bill passes?
- (21) Why does the writer believe that such people "deserve to be treated as" young adults?

Items (22)-(30): Go back to the beginning of the letter and read the whole letter through again.

- (22) Tell how the writer uses the "other things are worse" technique of argument.
- (23) Where does the writer back up the statement that raising the drinking age to 21 will not solve the problem of having young adults who drive after drinking?
- (24) Where does the writer back up the statement that having stiffer penalties for driving after drinking will solve the problem of having young adults who drive after drinking?
- (25) Where does the writer back up the statement that passing this bill would "increase the drug and pot market"?
- (26) Where does the writer back up the statement that passing this bill would "chase young adults back onto the streets and into their cars"?
- (27) Where does the writer back up the implication that passing this bill would have an indirect result of making these young adults "harmful to the community"?
- (28) Where does the writer back up the implication that young adults who drive after drinking are only "a minor problem"?
- (29) Where does the writer back up the statement that passing this bill "would create many major problems"?
- (30) What do you think of the writer's argument against raising the drinking age to 21? (Is the argument good, so-so, or poor?) How come?
- 6. Tell whether the statement appears to be fact, opinion, or statement contrary to fact. If you can't tell, then answer "can't tell."
 - a. Gobbledegook wastes words.
 - b. Most books are easy to read.
 - c. Everybody of normal intelligence can learn to think critically.
 - d. Car insurance costs too much.
 - e. Birds are mammals.

- f. The percentage of U.S. adults who have completed high school is larger now than it was in 1910.
- g. The number of U.S. adults who have not completed high school is smaller now than it was in 1910.
- h. Everyone who really wants to work can find a job.
- 7. Following is a letter written to the advice column of Big City's newspaper. The writer below is referring to a letter written by a woman who signed herself "Wondering." Wondering had written to say that one of her neighbors had criticized her for allowing her children to play outside without enough—according to the neighbor's definition—supervision. The neighbor had also told Wondering that Wondering's children wouldn't be hurt so often if Wondering would give them more supervision. Here is the letter, interrupted several times by questions for you to answer.

Dear Advice Giver: I must say I think you were unfair in your reply to Wondering, the mother who was criticized by her neighbor as being a negligent mother.

- (1) Judging from this paragraph, what is probably the purpose of this letter?
- (2) Is the first paragraph an expression of fact, or opinion?
- (3) Does it appear that the writer agrees, or disagrees, with Advice Giver's reply to Wondering?

There is not one child in this world who won't get bumped and bruised a few times a day regardless of how well they are watched. Accidents happen in seconds, not minutes. My three sons have gotten scraped and cut with both my husband and myself not less than three feet away.

- (4) What appears to be the purpose of this paragraph?
- (5) Is the first sentence here fact, or opinion?
- (6) In general, do you agree with the first sentence? How come?
- (7) Read the last sentence in the paragraph carefully. Is this probably what the writer meant to say? How come?
- (8) Take what you were told about Wondering's letter and put it together with this letter so far. Why does the first sentence of this paragraph seem to be a rationalization?
- (9) Why does this paragraph seem to be an example of "not drawing the line"?
- (10) Is the paragraph a strong, or weak, argument in defense of Wondering? How come?

As far as her critical neighbor goes, there has to be at least one woman in every neighborhood who considers herself an expert on passing judgment on others, especially when it comes to child-rearing methods. Usually they are the ones who should take a good long look at their own methods.

- (11) Is the first statement here fact, or opinion?
- (12) Who is "they" in the second statement here?
- (13) Is the second statement here fact, or opinion?
- (14) What does the writer mean by "their own methods" in the last sentence here?
- (15) What does the writer insinuate by "should take a good long look at"?
- (16) Does the writer agree that the "one woman in every neighborhood" is an expert on child-rearing methods? What makes you think so?
- (17) Tell how the writer insinuates here that some people are hypocrites.
- (18) Why does this paragraph appear to be an example of the ad hominem technique of argument?
- (19) Why does this paragraph appear to be an example of "whole to part" reasoning?
- (20) Is this paragraph a strong, or a weak, defense of Wondering? How come?

Wondering is wrong in letting this woman cause her unhappiness. If she and her husband feel they are doing their best in rearing their family, it's no one's business but their own.

- (21) Why did the writer probably include the first sentence here?
- (22) Is the first statement here fact, or opinion?
- (23) From what you know so far, do you agree with this first sentence, or not? How come?
- (24) Is the second statement here fact, or opinion?
- (25) Do you agree with this second sentence, or not? How come?
- (26) Is this paragraph a strong, or a weak, defense of Wondering? How come?

Wondering, enjoy your children and if they get invitations for parties let them go. Why punish them for adults' misbehavior? It's unlikely you could ever please your neighbor anyway. So why try?

- (27) What did Wondering probably say to cause the writer to include the first two sentences here?
- (28) Is the third statement here fact, or opinion?
- (29) Compare the last two sentences here with the nextto-last sentence of 15 and Disgusted's letter in section 7.4. How are they alike? How are they different?

People should take tales from others with a grain of salt. Usually if they have something constructive to say you accept it with grace and correct the situation.

- (30) What is meant by "take ... with a grain of salt"?
- (31) Judging from this letter, what do you think the writer's reaction would be if someone were to suggest ways in which she might improve in raising her children?
- (32) Why does the last sentence appear to be inconsistent with the rest of the letter?

Items (33)-(40): Now go back and read the whole letter through again.

- (33) What did Advice Giver probably tell Wondering?
- (34) Where did the writer back up the first statement of the second paragraph?
- (35) Where did the writer back up the first statement of the third paragraph?
- (36) Where did the writer back up the second statement of the third paragraph?
- (37) Where did the writer back up the second statement of the fourth paragraph?
- (38) Where did the writer back up the third statement of the fifth paragraph?
- (39) Where does the writer employ "the use of authority" technique of argument?
- (40) Do you think the writer's defense of Wondering is good, so-so, or poor? How come?



CHAPTER 8

ARGUMENTS ABOUT EVERYDAY MATTERS

8.1	RECOGNIZING SUPPORTING ARGUMENTS
8.2	ASKING QUESTIONS ABOUT ARGUMENTS
8.3	FINDING AND REFUTING ARGUMENTS
8.4	CHAPTER REVIEW PROBLEMS FOR CLASS DISCUSSION

8.1 RECOGNIZING SUPPORTING ARGUMENTS

In Section 7.2 (Which Side of the Fence?), we tried to decide whether a statement favored the "yes" side or the "no" side of a question. Some statements may sound as though they support others when, in fact, they do not. We want to be able to tell the difference between a statement which supports a viewpoint and a statement which does not support it.

Example 1:

"I'm against letting kids quit school at the age of 12. We already have enough kids roaming the street and causing trouble, and letting them quit school at a younger age would add to this problem."

We see that the second sentence supports the first sentence.

Example 2:

"I'm against letting kids quit school at the age of 12. A 12-year-old is too young to be able to support himself or herself."

Here, the second sentence does not back up the first sentence. (There is nothing in the first sentence to suggest that anyone not in school must be self-supporting.) **Example 3:**

"I'm against letting kids quit school at the age of 12. 12 is too young to be allowed to quit school."

Strictly speaking, the second sentence supports the first one. The second sentence tells us why 12-year-olds should not be allowed to quit school. But for practical purposes, the second sentence does not support the first one. When we hear the first statement, we take for granted that the speaker thinks 12 is too young for quitting school, and we'd like to know why the speaker thinks this. Instead of telling us why, the speaker merely tells us what we already knew. In other words, for practical purposes, the speaker has simply made two statements of opinion which are related, but neither of which supports the other.

At this point in our study of critical thinking, we will assume that we want practical knowledge. We will say that when a statement lets us take something for granted, then a second statement must do more than tell us the thing we already take for granted, if we are to count the second statement as supporting the first.

Example 4:

"I'm against letting kids quit school at the age of 12. 16 is plenty young enough to be allowed to quit school."

Again we will say that the second sentence does not support the first. We already took for granted that (the speaker thinks) 12 is too young an age for quitting school. The second sentence repeats this and adds that the ages of 13, 14, and 15 are also too young. We are not given any reason for this opinion.

Example 5:

"I'm against letting kids quit school at the age of 12. All 12-year-olds should stay in school."

This is circular reasoning. The second statement simply repeats the first statement instead of supporting it. **Example 6:**

"I need more information before I can decide whether or not to hire Johnson as a typist. I need to know whether or not Johnson's eyes are brown."

The color of someone's eyes has nothing to do with hiring that person as a typist. So we cannot say that the second sentence supports the first.

CLASS DISCUSSION PROBLEMS

1. Garry Boldwater, a U.S. citizen, has been a lifelong resident of Hawaii. He is trying to run for the office of President of the United States. He was born in Hawaii in 1944, and Hawaii was admitted as a state in 1959. The U.S. Constitution says,

> No person except a natural-born citizen, or a citizen of the United States at the time of the adoption of this Constitution, shall be eligible to that office who shall not have attained to the age of thirty-five years, and been fourteen years a resident within the United States.

Read each numbered statement below. Decide which of the following conclusions it supports best.

- A. Mr. Boldwater is eligible to hold the office of President of the U.S.
- B. Mr. Boldwater is not eligible to hold the office of President of the U.S.
- C. I need more information in order to decide whether or not Mr. Boldwater is eligible to hold the office of President of the U.S.
- D. The statement does not support any of the above.
 - (1) Hawaii was not a state in 1944, so Mr. Boldwater was not born a citizen of the U.S.
 - (2) Mr. Boldwater would not be trying to run for the office if he weren't eligible for it.
 - (3) The language of the Constitution makes it clear that Mr. Boldwater is not eligible.
 - (4) We need a clear definition of "citizen of the United States."
 - (5) Mr. Boldwater might make an excellent President even if he is not eligible.
 - (6) There are enough brilliant and able people in the U.S. who are obviously eligible to fill the office of President, so we shouldn't concern ourselves about somebody whose eligibility is in question. (continued on next page)

- (7) Hawaii is a state now, and Mr. Boldwater was born in Hawaii. So he is a natural-born citizen of the U.S.
- (8) We need more information on the political background of Mr. Boldwater before deciding whether or not he is eligible.
- (9) Mr. Boldwater might not make a good President anyway.
- (10) Hawaii was a territory of the U.S. in 1944 and, as such, anyone born there in 1944 was a naturalborn citizen of the U.S.
- (11) Since Mr. Boldwater is now a citizen of the U.S., it follows automatically that he is eligible.
- (12) The Constitution does not name the country of which the President must be a citizen. It simply says, "No person except a natural-born citizen" Since Mr. Boldwater obviously is a natural-born citizen of <u>some</u> country, he is eligible.
- (13) We need a clear definition of "natural-born citizen."
- (14) If the writers of the Constitution had meant to include people born in U.S. territories rather than in the U.S. itself, they'd have said so in the Constitution.
- (15) We'd have to know how old Mr. Boldwater is before we could decide whether or not he is eligible to hold the office of President of the U.S.
- 2. In a farming section of Midstate, some barns of a wellto-do farmer were burned. The prosecuting attorney used a chain of circumstantial evidence to convince the jury that the farmer had set the fires himself. The farmer was convicted of arson and was sentenced to 4 years in prison.

Because of the legal fees and the imprisonment, the farmer lost his property and has been unable to find work since his release from prison. In the meantime, an attorney who heard about the case looked into it and became convinced that the farmer was innocent. He took the case without charge to the Appeals Court. The Appeals Court ruled that the jury had "improperly based inference upon inference in reaching the verdict of guilty" and that the farmer should have been judged "not guilty."

Accept the story as true. Read each numbered statement below. Decide which of the following conclusions it supports best.

1.

- A. Midstate should pay the farmer for the losses he suffered as a result of his trial, conviction, and imprisonment.
- B. Midstate should not pay the farmer for any of his losses.



- 3. Two men were arguing angrily about politics. One said, "I'm tired arguing with you about it! Let's step outside and settle this!" The two men went outside and had a fist fight.
 - (1) Did the fight prove that the
 - a. winner of the fight was right about his political opinion?
 - b. loser of the fight was wrong about his political opinion?
 - c. winner of the fight was more informed (about politics) than his opponent?
 - d. loser of the fight was less informed (about politics) than his opponent?
 - (2) a. What was the supposed purpose of the fight?
 - b. Did the fight serve its intended purpose?
- 4. An ad for a headache tablet stated, "The medicine in BRAND X is recommended by doctors 4 to 1 over the pain reliever contained in aspirin."
 - (1) What obvious question would you want answered before concluding that BRAND X does a better job of relieving headaches than aspirin does?
 - (2) What does this have to do with the section we're studying ("Recognizing Supporting Arguments")?
- 5. A TV ad stated, "Some other shampoos contain greasyfeeling additives. But BRAND X shampoo contains no greasy additives."

Suppose that both of the ad's statements are true. Does this mean that

- (1) these other shampoos contain greasy additives?
- (2) BRAND X shampoo does not contain greasy-feeling additives?
- 6. A TV ad for Big City National Bank stated, "These days, it's smart to put your savings in an account at Big City National Bank. No bank gives you more interest on your savings account than we do."
 - (1) Suppose the second sentence of the ad is true. Does this mean that Big City National Bank pays a higher rate of interest on savings accounts than other banks pay? How come?
 - (2) Does the second sentence of the ad support the first sentence of the ad? Explain.

8.2 ASKING QUESTIONS ABOUT ARGUMENTS

In everyday life, people often state opinions. They then make other statements to back up their opinions. In other words, they are arguing in favor of their opinions. Such arguments are found in newspapers, magazines, and everyday conversations.

Opinions can be backed up in many ways. One way is to use the authority of personal experience. (This, of course, is a "proof" by selected instances, as well as a use of authority.)

Example 1:

Americans don't take pride in their work any more. I worked on an assembly line for five months, and all anyone cared about was putting in their time and getting their pay.

Another way to back up an opinion is to ask a question which appears to have no good answer.

Example 2:

Americans don't take pride in their work any more. But what can you expect, when a worker gets paid for putting in time whether or not she or he does a good job?

(Notice the insinuation here that the worker will keep the job whether or not the work is any good.)

Some opinions are not backed up at all. They are simply stated and then the speaker goes on to make one or more other upsupported statements.

Example 3:

Americans don't take pride in their work any more. It used to be that an American-made product was always of good quality. But that's not true today. It's time we started taking pride in our work again!

(We see here that all of the speaker's statements are unsupported.)

Opinions are sometimes surrounded by statements which use propaganda techniques. One effect of such an argument is to make anyone who disagrees (or who questions what was said) seem to be unreasonable. Another effect is to make the average person think the argument is a good one just because she or he agrees with most of what was said.

Example 4:

Americans don't take pride in their work any more. And why should they, when the money-grubbing corporations they work for don't care about them? Big business makes all kinds of money and then gets tax breaks. But the little guy, the worker, has to pay taxes on all the money he makes. If he does try to do a good job, does he hear, "Well done!"? Not a chance! Instead, he hears, "Hey! You're slowing down the assembly line!' Work faster, or we'll get someone who will! Many people agree with every statement made in Example 4. Because of this, they are likely to think that the argument is a good one. If we look closely at the argument, however, we see these things: (1) the third and fourth sentences have nothing to do with the rest of the paragraph. (2) The other sentences are simply statements of opinion which do not support each other.¹ (3) The statements made are apparently meant to apply to all, or at least to the great majority of, American workers, but it is doubtful that such statements are true in the majority of cases.

CLASS DISCUSSION PROBLEMS

1. A pilot had been ticketed by a police officer for taxiing his plane on the expressway. The ticket listed the offense as, "Violation of law allowing only automobiles to travel on the expressway." The pilot pleaded "not guilty" in court and used this argument.

"Auto" means "self," and "mobile" means "movable," so "automobile" means "self-movable." The dictionary does not limit the meaning of "automobile" to cars and trucks. Therefore, since my plane is self-movable it is an automobile, and I was not in violation of the law.

What is wrong with the pilot's argument?

2. A citizens' rights bill was passed by the U.S. Senate. Among other things, the bill said: (1) victims of crime will be reimbursed by the government; (2) juveniles convicted of "adult" crimes (such as murder, robbery at gunpoint, and assault with a deadly weapon) will be tried as adults; (3) people convicted of crimes will be sent to prison and not be given suspended sentences; (4) victims of gross child abuse will be taken from their parents and placed for adoption; (5) healthy people on welfare will be required to work at government-provided jobs to repay the government for the welfare payments they are receiving.

Shortly after the bill was passed, the following letter to the editor appeared in Big City's newpaper.

We still celebrate Independence Day. Yet I wonder how long we shall be able to celebrate our independence with the terrible and frightening decisions that have been handed down by the Supreme Courts, both state and United States, in the past few years.

Another thing, I wonder why we pay money each Sunday for a paper such as yours with its vicious attacks on Senator Silverlake and others who voted against this so-called citizens' rights bill. It certainly is not fair and if it continues, we can get along very well without your paper.

(continued on next page)

¹The "work faster" statement does not support the "well done" statement, since doing a good job does not imply that the job must be done more slowly.

I am thankful we have a few congressmen who have the courage to vote for what they think is best for the country and not be led around by someone like that Robert Camford* and his kind.

I am a Republican and I am disgusted with Senator Lightwood for making a deal to get that bill through the Senate, and I have told him so. I certainly hope we can send such fine men as Grover Hempten and others like him back to Congress and I shall do my best to see that they are reelected.

MRS. X

[*Robert Camford was a well-known U.S. Senator and was very important obtaining support for the passage of the citizens' rights bill.]

- (1) a. Exactly what is the writer, Mrs. X, protesting in her letter?
 - b. Without stopping to think about it, do you think her arguments about this are good, so-so, or poor?
- (2) Mrs. X says in the first paragraph that "terrible and frightening decisions ... have been handed down by the Supreme Courts."
 - a. Does she back up this statement?
 - b. Judging from her letter, what do you think she means?
- (3) The first paragraph insinuates that Mrs. X thinks the Supreme Courts are taking away our independence. How does she back this up?
- (4) What is Mrs. X saying in her second paragraph?
- (5) The second paragraph says the newspaper has contained "vicious attacks on Senator Silverlake." Where is this backed up?
- (6) In the last sentence of the second paragraph,
 - a. what is meant by "it"?
 - b. why does Mrs. X think "it certainly is not fair"?
 - c. what is implied by "we can get along very well without your paper"?
- (7) Mrs. X refers to the "so-called citizens' rights bill." Why does she use the words "so-called"?
- (8) Judging from the letter,
 - a. do you think Mrs. X is in favor of the citizens' rights bill?
 - b. which way do you think these congressmen voted on the citizens' rights bill-Silverlake? Camford? Lightwood? Hempten?
- (9) The third paragraph insinuates a serious charge against our people in congress.
 - a. What is this charge?
 - b. How does Mrs. X back it up?
 - c. Do you agree with this charge? How come?
- (10) Judging from the letter, what do you think Mrs. X means by "someone like that Robert Camford and his kind''? (continued on next page)

- (11) In the last paragraph, Mrs. X says Senator Lightwood made "a deal to get that bill through the Senate."
 - a. What bill is she talking about?
 - b. What deal did the senator make to get the bill through the Senate?
 - c. Do you think Mrs. X would be disgusted with the senator if he had made a deal to defeat the bill in the Senate? How come?
- (12) Why does Mrs. X think that Grover Hempten is a fine man?
- (13) List the emotional words and phrases used in the letter. (Consider the context in doing so.)
- (14) Do you think this letter is an example of a good argument, a so-so argument, or a poor argument? How come?
- 3. The following letter was written to the editor of Big City's newspaper.

This being the time of year when people like to get out and look at model homes and used homes, I would especially like them to consider Johnson Township. This applies to those people who want to live unrestricted by ordinances or laws of any kind.

Out here you can leave your garbage cans on the street from one week to the next, park your car facing in the wrong direction, park across sidewalks or between curb and sidewalk if you prefer.

If you like to play "chicken," we have Robert Wilson Road, south of Apple Hill Road, where you can force cars to jump the curb while you travel south, or if you prefer something more exciting, try making left turns two abreast both lanes of Midstate Avenue right in full view of the Warren County sheriff's road patrol office. Don't worry about stop signs out here, either. "Rolling stops" are enough.

Considering everything, this is a wonderful place for those who would like to get away from restrictive ordinances and laws. Come out and look it over, but be sure you have your seat belt fastened and one foot on your brake all the time.

JOHNSON TOWNSHIP RESIDENT

- (1) Of what is the writer <u>supposedly</u> trying to convince us?
- (2) Of what is the writer really trying to convince us?
- (3) Discuss whether or not the following are in Johnson Township:
 - a. Robert Wilson Road
 - b. Apple Hill Road
 - c. Midstate Avenue
 - d. Warren County sheriff's road patrol office

- (4) Do you think the writer is showing pleasure, or displeasure, about the conditions described in the letter? How come?
- (5) Suppose this letter is a good indication of the general attitude of the writer. Do you think you would like to live next door to the writer? How come?
- (6) Refer to your answer to item (2). Do you think this letter is an example of a good argument, a so-so argument, or a poor argument? How come?
- 4. Following is a letter to the editor published in the Midvale newspaper.

I could smell it as I read the first line. As I came to the first catch-phrase, "burning books," the door opened. There was no mistaking it now. The recognition engulfed me, and I was in tears.

Yes, I was upset when I recognized the letter signed by Mr. A. It was the same letter I've read many times before, signed by different people of course, and very witty twists here and there, but the same. Always built around certain phrases. "Book burners," "infringing rights," "erosion of liberty," "self-appointed censors" (this one is very popular and well worn), "freedom of press," and a few others. I don't believe Mr. A missed any of them.

I appreciate his concession that those of us (over 200 in the chambers) who supported the ordinance were wellintentioned. However, his inference that we are all poor, ignorant, misguided souls is hardly accurate. If Mr. A was actually in attendance in the Council chambers, why did he not air his views at that time? Could it possibly have been that those who spoke in favor of the ordinance had sound, logical arguments, and he realized his catch phrases would not be nearly as effective then as in a cleverly worded letter?

I am in complete agreement with Mr. A in his statement regarding abdication of parental duty. I, too, will not abdicate my duty to protect my children from obscene literature. However, I cannot keep my children in an ivory tower. When publishers are allowed to display printed filth openly where my child is constantly subjected to it, my rights are being violated. My wishes as a parent regarding my children's upbringing are being violated. When my child is at the mercy of any young impressionable adolescent who has been fed a diet of sadistic, sex-saturated magazines, my rights to protection from the community are being violated.

Of course, the final argument is always "freedom of the press." Under this ordinance nothing is mentioned about what can be printed, or what can be purchased by adults. It deals only with protecting children, and protecting my rights as a parent. I feel this right has been protected in Midvale.

MS. T

- (1) a. What apparently was the immediate cause of Ms. T's letter?
 - b. Briefly, what probably were the series of events which led up to Ms. T's letter?
- (2) What is the basic question Ms. T argues in her letter? (Choose one.)
 - a. Should obscene literature be sold in Midvale?
 - b. Was Mr. A in the Council chambers?
 - c. Was Mr. A's letter copied by him from someone else's letter?
 - d. Was the ordinance passed by the Midvale Council a good one?
 - e. Should children be fed a diet of sadistic, sexsaturated magazines?
- (3) Consider your answer to (2) above.
 - a. Is Ms. T's answer to this question "yes," or "no"?
 - b. Is Mr. A's answer to this question "yes," or "no"?
- (4) Without stopping to think about it, what is your first reaction to Ms. T's argument? That is, do you think her argument is good, so-so, or poor?
- (5) In Ms. T's letter, read the first sentence again.a. What does she mean by "the first line"?b. What does she mean by "I could smell it"?
- (6) Ms. T says she recognized Mr. A's letter and had read it many times before. Does she mean this literally? Explain.
- (7) Why are some phrases in Ms. T's first and second paragraphs enclosed in quotation marks?
- (8) What emotionally loaded words and phrases did Mr. A's letter include?
- (9) What emotionally loaded words and phrases does Ms. T's letter include (besides her quotations from Mr. A's letter)?
- (10) In Ms. T's second paragraph, what does she mean by "always built around certain phrases"?
- (11) In the last sentence of Ms. T's second paragraph, what does "them" refer to?
- (12) In general, what is Ms. T saying in her first two paragraphs?
- (13) What do you think are "the chambers" referred to in the first sentence of the third paragraph?
- (14) How does Ms. T back up her statement that Mr. A's "inference that we are all poor, ignorant, misguided souls is hardly accurate"?
- (15) In her third paragraph, Ms. T asks two questions. Do you think these questions add to the overall effectiveness of her letter, or not? How come?
- (16) Near the end of the third paragraph, Ms. T refers to "his catch phrases." What did she mean by this?

(17)	 Refer to Ms. I's fourth paragraph. How do you think Ms. T and Mr. A feel about abdication of parental duty? (Choose one.) a. Ms. T thinks parental duty should not be abdicated, and Mr. A thinks it should be. b. Ms. T thinks parental duty should be abdicated, 	
	 and Mr. A thinks it should not be. c. Ms. T and Mr. A both think that parental duty should be abdicated. d. Ms. T and Mr. A both think that parental duty should not be abdicated. 	
(18)	Refer again to Ms. T's fourth paragraph. She says here that she agrees with Mr. A. Yet the rest of her letter makes it clear that she disagrees with Mr. A.	
	 a. Is Ms. I being inconsistent? Explain. b. Does it appear that Mr. A is in favor of open display of obscene literature? c. Does it appear that Ms. T is in favor of open display of obscene literature? d. How do Ms. T's and Mr. A's viewpoints about 	
	 "parental duty" (with respect to obscene literature) agree? e. How do Ms. T's and Mr. A's viewpoints about "parental duty" (with respect to obscene literature) differ? 	
(19)	 f. How does Ms. T refute Mr. A's viewpoint about "parental duty" (with respect to obscene literature)? In her second paragraph, Ms. T lists certain charges 	
(20)	made by Mr. A against Midvale citizens who sup- ported the ordinance. How does Ms. T refute these charges?	
(20) . A	poor? How come? supermarket chain hired twelve women to do com-	
paris Cons chai and sum of th	son shopping. They called the group of women "The sumer Food Council." The women shopped at this n and at other supermarkets, and the chain ran TV newspaper advertisements stating that The Con- er Food Council had found lower prices at the stores his chain.	
Th Lobb beca clair	ne Better Business Bureau and the Midstate Citizens by complained. They said the ads were misleading ause of the name of the group and because the ms made in the ads were not backed up.	
(1) C (2) C	Do you agree that the ads were misleading because of the name of the group? How come? Do you agree that the ads were misleading because	

6. Some groups in Midstate were trying to ban throwaway bottles. They said that having such a ban would be a real step toward cleaning up Midstate's roadsides.

An opponent of the ban said, "That argument is no good. Throwaway bottles account for only 6% of roadside litter. We need to attack the whole problem, not just the bottling industry. Vote against the proposal to ban disposable bottles."

What's wrong with this opponent's argument?

7. The following letter to the editor appeared in Big City's newspaper.

It seems that lately you're giving too much space to suburban contributors who attack inner-city inhabitants. The letter that really got my dander up, is the one saying irresponsible city dwellers reproduce offspring before they acquire skills to support them—and thus they are solely responsible for the huge welfare rolls.

Let me say not all people living in the city with large families are on welfare. I bet that contributor's eyes would pop clean out of her head if she knew my husband and I have 11 children and are not on welfare! Furthermore, they are all above average students in school or are working.

The same writer goes on to say welfare escalation is impoverishing all branches of our government. Well, as a rebuttal I'd like to ask, what about foreign aid spending? What about the huge amount that we've spent on various wars? What about the fat expense accounts all our politicians enjoy?

I wish such writers would lighten up a bit. A lot of us here in the city are really trying. Honest.

MRS. X

- (1) In her first sentence, what did Mrs. X mean by "giving too much space to"?
- (2) In her first sentence, what did Mrs. X mean by "suburban contributors"?
- (3) What did Mrs. X mean by "really got my dander up"?
- (4) Considering the context, what's wrong with Mrs. X's second paragraph?

(5) In her third paragraph, Mrs. X says she is making a rebuttal to the other writer's statement. What's wrong with this rebuttal?

8.3 FINDING AND REFUTING ARGUMENTS

It is not enough just to agree or to disagree with a viewpoint. We should be able to tell why we think as we do. If we agree with something, we should be able to find arguments to back up what we think. And if we disagree with something, we should be able to tell what's wrong with it.

Example 1:

You: "I think the U.S. is the best country in the world." Opponent: "How come?"

You: "I can't put it into words. I just like living here." Notice that your last two statements do not support your first statement. The fact that you like living in the U.S. does not support the opinion that it is the best country in the world. For all we know, you might like living in any country you happened to be in.

Example 2:

You: "I think the U.S. is the best country in the world." Opponent: "How come?"

You: "In the U.S., there is more individual freedom and more opportunity to be successful. And there are more natural resources and more opportunity for expansion" than in other countries."

Assuming that your opponent agrees that the things you have listed are desirable, you have supported your first statement. Even if your opponent agrees that these things are desirable, however, he or she may disagree with the statements themselves. For example, your opponent may feel that Canada has even more of these things than the U.S. has.

The weaknesses in some arguments are easy to find.

Example 3:

Opponent: "Americans don't take pride in their work any more. Where I work, all anyone cares about is putting in time and getting paid."

You: "Even if that's true where you work, that doesn't mean it's true about all Americans."

Opponent: "You're right. It may not be true about all Americans, but it's true about most."

You: "Now you've simply made an unsupported statement. Back it up."

Opponent: "All of my friends say the same things about the places they work."

You: "Taking the country as a whole, that's a small number of people you're talking about. Maybe if you had different friends, you'd come to a different conclusion."

Sometimes both sides of an argument will have good points. In this case, we have to decide which side has the stronger points.

Example 4:

Question: Should there be a 10:00 p.m. curfew for anyone under 16 on school nights (Sunday through Thursday)?

"Yes" side: Yes. Kids under 16 need their sleep so they can do well in school.

"No" side: No. Some kids under 16 work to help support their families. They don't get off in time to be home by 10:00 p.m.

The problems for this section ask you to refute both of these arguments. They also ask you to find other arguments (and refute them) for both sides.

CLASS DISCUSSION PROBLEMS

- 1. a. See Example 4 in this section. Refute the argument for the "yes" side.
 - b. Find a refutation for your refutation.
- 2. a. See Example 4 in this section. Refute the argument for the "no" side.
 - b. Find a refutation for your refutation.
- 3. a. See Example 4 in this section. Find other arguments for the "yes" side.
 - b. Refute each of these arguments.
- 4. a. See Example 4 in this section. Find other arguments for the "no" side.

b. Refute each of these arguments.

- 5. Go back to problem 2 in section 8.1. Which conclusion would you reach (A, B, or C)? How come?
- 6. The constitution of the Student Council of Corbett High School includes the following:

Reasons deemed sufficient for removal from the Council shall include, but shall not be limited to, the following: . . . Conduct outside of school detrimental to the welfare of the Council or the School.

Joe Blake, a member of the Council, had been ticketed for the second time in six months for reckless driving, and some of the Council members tried to have him removed from the Council because of this. They used this argument in their petition:

As a member of the Council, Joe is considered both by students and by outsiders to be representative of the students of Corbett and to be held in generally high esteem by the Corbett students. When he willfully violates the law, as he has now done twice, he is creating a poor image of both the Council and the School. As a Council member, this poor image is then reflected upon all of the Corbett students and, as such, is detrimental to the welfare of both the Council and the School.

Joe's reply was this:

As a Council member, I am considered to be a spokesman for the opinions of the Corbett students about school affairs, not to be representative of their attitudes toward life in general. The Council will continue to operate, and the School will continue to operate, regardless of whether or not I get tickets for reckless driving. And, since both will continue to operate regardless of any tickets I get, my getting the tickets cannot be detrimental to either the Council or the School.

- (1) In your own words, what arguments did the students use in their petition to have Joe removed from the Council?
- (2) In your own words, what arguments did Joe use in his reply to the petition?
- (3) Refute as many of the students' arguments (in the petition) as you can.
- (4) Refute as many of Joe's arguments as you can.
- (5) What do you think? Should Joe have been dropped from the Council, or not? How come?
- 7. Under the same section as the one quoted above, the Corbett Student Council Constitution also lists as a reason sufficient for removal from the Council: "Attitude detrimental to the welfare of the Council or the School."

Rocky Gordon, who had had a reputation as a tough guy, had managed to get elected to the Council. His remarks made it obvious that he didn't like the way the Council was run, he didn't like the way the classes were scheduled, he didn't like some of Corbett's requirements for graduation, he didn't like the way athletic events were held, he didn't like the content of some of the courses, he didn't like the rules the administrators made about student dress and appearance, and he didn't like the way some of the teachers taught.

Some of the Council members thought that Rocky's attitude was detrimental to the welfare of the School, and they petitioned to have him removed from the Council under the section quoted above.

Find arguments to support each of the three positions below. (Do not argue that the Council Constitution should be amended to drop this section.)

- A. Rocky should have been dropped from the Council.
- B. Rocky should not have been dropped from the Council.
- C. We need more information in order to decide whether or not Rocky should have been dropped from the Council.

Problems 8-12: For each question, find and refute at least two arguments for **each** side.

- 8. Should healthy people on welfare be required to work for the government for no wages in order to repay what they are being given in welfare payments?
- 9. It has been proposed that any student who cannot afford to go to college be given a college education at public expense. The student would then repay the government for this expense by working for some minimum amount of money for the government for half as long as the amount of time covered by the government-paid college expenses. For example, if the government paid college expenses for six months, the person would have to work for the government for three months after leaving college. Do you support this idea?
- 10. Should U.S. minimum wage laws apply to persons under 18 years of age?
- 11. Should the sale of ordinary cigarets be outlawed?
- 12. Should medical doctors trained in other countries be allowed to practice medicine in the U.S. without having further training?

8.4 CHAPTER REVIEW PROBLEMS FOR CLASS DISCUSSION

1. Prince, a 4-year-old collie dog, was taken to the dog pound upon the complaint of Mr. Greene, a neighbor who raised geese. The geese had been in Mr. Greene's yard when Prince had killed one of them three weeks before. Mr. Greene told Prince's owner, Mr. Peters, that Prince should be kept in his own yard. But Prince had killed another goose two days later-again, in Mr. Greene's yard. Mr. Greene said that Prince was a savage, murderous beast. The law says that the dog pound must kill any dog which is a "threat to society." Mr. Peters had paid Mr. Greene for both geese, and had had Prince since Prince was 6 weeks old. He produced evidence showing that Prince had always been a gentle dog before these offenses and that there had been no apparent change in his temperament around people or other animals since these offenses.

Accept the story as true. Read each numbered statement below. Decide which of the following conclusions it supports best.

- A. Under the law, Prince should be killed.
- B. Prince should be returned to Mr. Peters, since the law about killing a dog does not apply in this case. *(continued on next page)*


A TV ad shows a woman applying two kinds of face soap to glass surfaces and then holding the glasses under running water. Film is left on the glass from soap #1 but not from soap #2.

Does this imply that

- (1) the glass surfaces were the same before the two soaps were applied to them?
- (2) the same amount of soap was put on each glass surface?
- (3) an equal amount of running water was applied to each glass surface?
- (4) the temperature of the water run on surface #1 was the same as the temperature of the water run on surface #2?
- (5) the two soaps would rinse off in the same way from human skin as they did from the glass surfaces?
- (6) soap #2 would be better than soap #1 to use as a face soap?
- 3. A TV advertisement said, "In a national test, 3 out of 4 dermatologists judged the medicated ingredient in BRAND X shampoo to be effective in fighting dandruff."

Suppose the statement is true. Does this mean that BRAND X shampoo is effective in fighting dandruff? How come?

4. Here is a letter to the editor of Big City's newspaper.

The millions the do-gooders are spending to stamp out cigaret smoking make me sick. They think cancer germs lurk in tobacco—and saccharin and other foods. Don't they realize they are trying to bankrupt an entire industry?

Don't they realize the air around us is full of germs? That the air we breathe is the source of germs and viruses that cause cancer, tuberculosis, emphysema, and many kinds of other diseases?

Nobody contracts these diseases unless they are fated to do so. How else can anybody explain how doctors and nurses working in the presence of all kinds of germs and viruses never seem to contract these diseases?

MR. X

- (1) The first paragraph contains five examples of emotional words or phrases. List them.
- (2) a. In the first paragraph, what does Mr. X imply by his question?

b. Do you agree with this implication?

- (3) Read Mr. X's second paragraph again. How is this inconsistent with his first paragraph?
- (4) a. Considering the letter as a whole, what does Mr. X seem to be saying in his second paragraph?
 - b. Do you agree with this line of thought? How come?

- (5) Read the first sentence of Mr. X's third paragraph again. Explain why this is an example of the kind of circular reasoning which is sometimes called "victory by definition."
- (6) What is your answer to Mr. X's last question?
- 5. Some years ago, the U.S. Government sponsored a nationwide program in which all U.S. citizens were urged to get shots to immunize them from swine flu. Elderly people were thought especially likely to catch and to have very serious effects from swine flu. So they were especially urged to get the shots.

Many millions of people all over the U.S. got the shots. Several elderly people who had apparently been in good health died within a few days after getting the shots. Many people said that the shots caused these deaths. After denying that the shots caused these deaths, the U.S. Public Health Director said, "Older people are bound to leave the face of the earth at some time or another."

- (1) Did the Director's statement explain the cause of the deaths of the elderly people?
- (2) Did the Director's statement support the idea that the shots did not cause the deaths of the elderly people?
- (3) What was the purpose of the Director's statement?
- (4) Do you think the Director's statement served its purpose?
- 6. On a TV drama, a mother was talking to a coroner: Mother (angry): "That doctor's treatment caused my daughter's death! I'm going to sue him for malpractice!"

Coroner (calmly): "There is no evidence that her death was caused by malpractice. I'm very sorry your daughter is dead. But her doctor was <u>not</u> at fault. Go home and try to get some rest."

Mother (very angry now): "What are you saying?! My daughter's dead, and you're telling me to go home and forget it??!!"

What's wrong with the mother's response to the coroner's statement?

7. Mr. X wrote a letter to the editor of a newspaper. He said he liked the idea of making it simpler for voters to register. But he said he was worried about people who would register several times in different locations, thus giving them more than the one vote each which they should have. His letter continued,	
If such a voter were convicted for this serious federal offense, a fine would be a slap on the wrist to the wealthy and unjust to the poor because they would be jailed if unable to pay.	
ment of individual voters for 10 years and of vote buyers or organizers of voting fraud for 25 years.	
MR. A	
 (1) Which do you think is a worse penalty for being found guilty of a crime—a fine, or a jail sentence? (2) What reason does Mr. X give for saying that a fine would be unjust to the people 	
(2) Does Mr. X believe that are a line (
(3) Does Mr. X believe that people who are guilty of voting fraud should not go to jail? Support your answer.	
 (4) Mr. X's letter seems to contain an inconsistency. Where? (5) Cive other exceeded of all others. 	
people who have, in fact, been treated fairly say they have been treated unfairly.	501
(6) Consider your answers to (5) above. Why do you suppose that people in such cases still feel they	No.
 (7) Suppose that everyone knows about a law which has been on the books for five years now. But suppose the law has never been enforced yet. Do you think it's OK to start enforcing it without telling the public that it's gains to be enforced? 	1.000
public that it's going to be enforced? How come?	
8. A U.S. President held a nationally televised "phone-in" for two hours. During this time, citizens called him to ask questions about, to voice opinions on, and to sug-	
gest solutions to, national issues. The next day, a newspaper columnist wrote,	
The phone-in held last night may have made the average American think the President was willing to listen. But it is a mistake for the President to go to the people for solutions to national issues.	
The average American does some things very well, but it is impossible to know everything about everything. The Presi- dent should not think for a minute that the average person	
to our Congress to find solutions to our problems, and it is to these people that the President should listen	

What we, the rest of the people should do, is to keep the President and our people in Congress informed of our concerns and then trust them to think of the best possible solutions.

Consider the context in your answers to the questions below.

- (1) The first sentence of the columnist's second paragraph makes an unjustified insinuation. What is this insinuation, and why it is unjustified?
- (2) Read the second sentence of the columnist's second paragraph again. Why can't the average American be well-informed about national issues?
- (3) Why does the columnist believe that the President should listen to the people in Congress but not to the ordinary American citizen?
- (4) Read the second sentence of the columnist's first paragraph again. Why does the columnist think it is a mistake for the President to go to the people for solutions to national issues?
- (5) Consider how the U.S. Government is supposed to work. What's wrong with the columnist's last sentence?
- 9. A state senator said, "Five years ago, we in Midstate lowered the legal drinking age from 21 to 18. Since then, traffic accidents involving 18- to 21-year-olds have increased 167%. That's 267 accidents now for every 100 accidents five years ago for this age group. So we should raise the drinking age back to 21."
 - (1) Why does the senator seem to think that the drinking age should be raised back to 21?
 - (2) What obvious question would you want answered before you would agree with the senator?
- 10. On labels of canned goods, the canning industry had been showing weights which included liquid added. Consumer groups and the government brought pressure on them to show the average weight of the goods before the liquid was added.

For example, a 454-gram can of apricots would show a weight of 298 grams for the fruit, and the rest for liquid. The same total weight for a can of beets would show 276 grams for the beets, and the rest for the liquid.

The national organization of canners said such labelling would cost \$10 million a year. They said that would mean an increase in cost of about one-tenth of a cent per can to the consumer.

Consider that all canned goods already carried labels. And consider that labels must be printed every so often anyhow. Why should this change in labelling mean an increase in cost to the consumer?

11. The following article appeared in Big City's newspaper:

Yesterday, the Midstate Court of Appeals ruled that religious belief cannot be considered in deciding whether or not a witness is telling the truth.

The Court said, "A witness cannot be thought to be more likely to be telling the truth just because the witness has very strong religious beliefs, even though those beliefs condemn lying."

The Court's decision came about when a judge said he was swayed to accept a complainant's version of a story because of the complainant's very strong religious background. The appeals court reversed the judge's decision in the case and ordered a new trial.

What do you think of the decision of the Midstate Court of Appeals? That is, do you think more weight should be given to the testimony of a strongly religious person, or not? How come?

12. Pi, the number we usually write as $3\frac{1}{7}$ or 3.14 or 3.1416, was the subject of a heated debate in the legislature of one state. Some of the legislators introduced a bill to define pi as having a value of exactly 3 so that it would be easier to work with, but the bill was not passed.

If the bill had passed, would pi have had a value of exactly 3 in that state? How come?

13. Jones Trucking Co. paid \$300 to have a truck repaired after one of the drivers had been in an accident while driving the truck on company business. The total repair bill was \$750. But the accident insurance provided that Jones Trucking Co. would pay the first \$300 of any accident repair bill, and the insurance company would pay the rest. The driver involved in the accident had been at fault. So Jones Trucking Co. was not reimbursed in any way for the \$300 paid. When filing the income tax return for Jones Trucking Co., their tax accountant deducted the \$300 under the section of the tax law which allows a deduction of "ordinary and necessary expenses incurred in a trade or business."

Upon reviewing the Jones income tax return, the Internal Revenue agent announced he was going to disallow the \$300 as an expense for two reasons:

(1) Past records of Jones Trucking Co. showed there had been no accidents, so this expense certainly wasn't ordinary.

(2) The driver was at fault, and a company is responsible for the acts of its employees while they are on company business. Therefore, the expense certainly wasn't necessary.

The tax accountant disagreed, and he said the deduction should be allowed:

(1) Although trucking companies have relatively few accidents per mile driven, it is not at all unusual for a truck to be involved in an accident. Therefore, the expense of repairing a truck after an accident is an ordinary expense in the trucking business.

(2) The company records showed that they were very careful in choosing drivers, and the driver in question had a good driving record. It was necessary for Jones Trucking Co. to hire drivers. Therefore, it was necessary to pay any expenses incurred as a result of hiring these drivers. Furthermore, although the accident may not have been necessary, the payment of \$300 was necessary to restore the truck to good operating condition.

Who was right? Give your answer and back it up with details. If you think the Internal Revenue agent was right, tell why you think so, and tell what's wrong with the arguments of the tax accountant. If you think the tax accountant was right, tell why think so, and tell what's wrong with the arguments of the Internal Revenue agent. If you need more information, tell what information you need, and tell how this information would affect your decision. In arriving at your decision, consider the probable intent of the law.

Problems 14-16: In each case, you are sitting on a jury. You are to vote either "guilty" or "not guilty." A vote of "guilty" means you believe the accused is guilty beyond a reasonable doubt. A vote of "not guilty" does not mean you are convinced the accused is innocent. It means that you have a reasonable doubt (not simply a remote possibility) that the accused is guilty. Whichever way you vote, you must be able to explain away the evidence for the other side. That is, if you vote "guilty," you must be able to explain how the evidence in favor of the accused does not leave you with a reasonable doubt. If you vote "not guilty," you must be able to explain why the evidence against the accused does not convince you beyond a reasonable doubt. If it is a court case, assume that the defense attorney is a competent attorney.

14. Victim is stabbed with a knife. He dies as a result of the wound. Accused is brought to trial for murder.

The prosecuting attorney offers the following evidence, all of which is admitted by Mr. Accused and his attorney:

(1) Accused is 6'2" tall, weighs 190 pounds, and is 30 years old, whereas Victim was 5'7" tall, weighed 140, and was 70 years old.

(2) Accused owned a knife exactly like the one which killed Victim. Accused has not been able to produce his knife since the stabbing.

(3) Accused hated Victim and had threatened to kill him on several occasions.

(4) Accused was the only person with Victim at the time of the stabbing.

(5) Accused's fingerprints were the only identifiable ones on the knife.

(6) Victim was stabbed in the back, and the knife blade,

6" in length, went in all the way up to the handle.

Accused's defense is the following:

(1) Accused was known for being kind to children and animals, and he had only been kidding Victim the times he (Accused) had threatened to kill Victim.

(2) Victim hated Accused, too. Victim hated Accused so much that he (Victim) intended to commit suicide under such circumstances as to make Accused be convicted of murder.

(3) Victim arranged for no one else to be there at the time of the stabbing.

(4) Accused's knife disappeared just a day or two before the meeting took place.

(5) When Victim stabbed himself, Accused realized what he was trying to do. Accused started to pull the knife out, but then he panicked and ran, and that's how his fingerprints got on the knife.

(6) The knife was a well-known make and could be easily purchased at any department store. There was no evidence to prove that this knife was Accused's knife.

If you were on the jury, how would you vote?

15. Miss Jones went into the fitting room of Elite Dress Shop, carrying several dresses which she said she wished to try on. She tried them on, but she didn't buy anything. She explained to the saleslady that she didn't like any of them.

As Miss Jones was leaving, the saleslady went to the fitting room to bring the dresses back to the rack. She saw that there were only four dresses there, but she had counted five dresses that Miss Jones took into the fitting room. The saleslady told the store's woman detective, who caught up to Miss Jones about a block away and brought Miss Jones back to the store.

With the detective and the saleslady watching, Miss Jones took off her dress and was found to be wearing another dress underneath. This second dress was identified by the saleslady as being an Elite Dress Shop dress, and Miss Jones was charged with shoplifting.

At Miss Jones's trial, the above facts were stated, and the following evidence was also supplied by Elite Dress Shop:

(1) The dress in question was a new item, having been in stock for only three days.

(2) This dress had been on the same rack as the other dresses Miss Jones took to the fitting room.

(3) Miss Jones could produce no bill of sale for the dress.

Miss Jones's attorney presented the following evidence:

(1) Miss Jones purchased nearly all of her dresses at Elite Dress Shop stores, including the one which she had been wearing over the dress in question.

(2) Miss Jones was a model, and she often had to supply a change of clothing for an assignment. Miss Jones had been on her way to an assignment, but, having time to spare, had stopped in at Elite Dress Shop for a few minutes. Neither of the two dresses she was wearing at the time of her arrest was wrinkle-resistant, so she had decided to wear both dresses in order to preserve their freshness, rather than pack one of them in a suitcase and carry it with her.

(3) Elite Dress Shop often has more than one dress of the same style, size, and color on a rack. They had not offered evidence that the dress in question had been the only one of its kind on the rack and that there had been no dresses of its kind on the rack when Miss Jones left.

If you were on the jury, how would you vote?

16. Each year Midvale High plays football against Smallville High. The winner gets to keep the Little Brown Jug until the next year. The Little Brown Jug is a trophy not worth much money but it is a source of much pride to the winners. The Little Brown Jug game is always a source of high emotion and excitement.

Bill was a high school senior, and he was the star quarterback on the Midvale High football team. He had been offered a college football scholarship upon his graduation. With one minute to go in the last quarter of the Little Brown Jug game, the score was tied, when Bill got the ball and ran the wrong way with it. He fell as he carried it over Smallville's end zone, thus scoring two points for Smallville. Smallville won the game 22 to 20.

John, another quarterback on Midvale's team, was known to dislike Bill. After the game, John reported to the coach that he had heard Bill having a conversation with two men who had offered Bill \$3,000 to make sure Midvale didn't win the Little Brown Jug game. Upon checking with the local banks, it was found that a savings account had been opened in Bill's name with a deposit of \$3,000 the day after the Little Brown Jug game. Charges were brought against Bill for throwing the game.

If you were on the school jury, how would you vote?

17. A 21-year-old hunter told the judge, "It was all a mistake. I didn't violate Midstate's hunting laws on purpose. I was strolling through the woods with a couple of friends. I just happened to be carrying a gun. It jams when it's pointed downwards. To clear it, I shot up into the branches of a tree. A squirrel dropped down dead. I didn't even know the squirrel was there."

If you were the judge, would you find the hunter guilty, or not guilty? How come?

18. A newspaper said the U.S. Census Bureau provided this information about U.S. males:

LIFETIME EDUCATION AND	D INCOME
Less than 8 years	1.0
8th grade completed	1.2
1 to 3 years of high school	1.4
12th grade completed	1.7
1 to 3 years of college	2.0
College completed	2.5
5 years or more of college	3.0

- (1) Suppose that the 1.0 income listed stands for \$10,000 a year. How much would each of the other incomes listed stand for?
- (2) For the purpose of this question, assume that anyone who wants to finish high school has the mental ability to do it. Why do you suppose that the average U.S. male who completes high school earns 1.7 times as much in his lifetime as the average U.S. male who doesn't finish the 8th grade?
- (3) Discuss whether or not you think it is reasonable that the average male college graduate will have lifetime earnings of 2.5 times as much as the average male who drops out of school before the 8th grade.

19. The following article appeared in Big City's newspaper:

Any mistakes by the Internal Revenue Service (IRS) cannot be used as an excuse by the taxpayer for paying a lower amount of tax than should be paid.

The law says that taxpayers may be liable for any interest and penalties which result from errors in payment of a lower tax. And tax preparers also can be fined \$100 for advice if the advice results in errors in payment of a lower tax.

The IRS takes no responsibility for errors found in its publications or for advice given by its employees. Courts have ruled that it is the taxpayer's responsibility to pay the right amount of taxes.

Do you think this ruling of the courts is fair, or not? How come?



CHAPTER 9

SOLVING EVERYDAY PROBLEMS

9.1 BRAINSTORMING

9.2 MANY-SIDED EVERYDAY PROBLEMS

9.1 BRAINSTORMING

A **brainstorming** session takes place when people get together to solve a problem and keep calling out any ideas which hit them for solving the problem.

Example 1:

Leader: "The school board has decided to close down the swimming pool because they have to find ways to cut the budget. They figure they'll save \$50,000 a year by closing it down. What can we do to keep it operating?" A: "Organize a protest."

- B: "Ask the board to find someplace else to cut the budget."
- C: "Get student volunteers to look after the pool so the school board can save the cost of the custodians."
- D: "Put on a fund-raising drive."

Leader: "Collect money in shopping malls."

B: "Ask the board to ask the voters for more money."

A: "Collect money door-to-door."

C: "Have a parade."

There are many more possible solutions, but you get the idea.

Some of the suggestions may not be practical at all, and some may not be practical unless they are combined with others. Take A's first suggestion, for instance. What do we do after we protest to the board, and the board replies, "We agree with you. But we believe regular classes are more important than the swimming pool. Unless you can find some way to come up with the money, the swimming pool will be closed."

Or take C's first suggestion. There are four problems here. (1) Who will teach the volunteers how to take care of the pool? (2) Students often volunteer for something, then find the job is time-consuming and boring, and then they don't bother showing up any more. (3) Aside from the cost of the custodians, what about the other major costs of maintaining the pool?—supplies and filters to make the water pure, the water itself, and the cost of heating the water? (4) What happens when the custodian's union calls a strike of all custodians in the district because the volunteer students have eliminated at least one custodian's job?

But brainstorming does **not** care about what may be wrong with suggestions. It cares only about getting suggestions. After the brainstorming session is over, then each suggestion is looked at closely to see what problems it might raise.

No negative judgments are allowed in a brainstorming session. No matter what someone suggests, no one is allowed to say (for instance), "No, that wouldn't work," or, "Get serious, will you?" The reason for this is that we want to have as many solutions as possible to look at. If we allow negative comments, then the brainstormers will think twice before saying anything. And we want to know everything that pops into someone's head, even if it sounds crazy at the moment. This is because sometimes a "crazy" idea will turn out to be the best solution when it is changed a little.

A brainstormer is allowed to "hitchhike" on someone else's idea.

Example 2:

Leader: "It's the same problem as before. What can we do to save the pool?"

A: "Organize a fund-raising drive."

C: "We could have a paper drive."

B: "And collect money door-to-door."

Leader: "And at shopping malls."

D: "And hold a school carnival."

Here are the rules which must be followed in a brainstorming session.

- 1. Choose a secretary. The secretary writes down all suggestions.¹
- 2. Set a definite time limit for the session to end. The time allowed should be rather short so that the brainstormers feel pressed to think fast.²
- 3. Call out whatever occurs to you as a possible solution to the problem, even if your solution sounds stupid, crazy, or impractical.
- 4. No negative comments are allowed.
- 5. When the time limit is reached, end the session. Each suggestion is then read (by the secretary) and discussed (by the group) to see whether or not it might be a good idea.

CLASS DISCUSSION PROBLEMS

The problems for this section are included only in the Teacher's Guide. This is so you won't have a chance to read them ahead of time and be thinking of solutions. Follow the rules of brainstorming when you are doing the problems.

9.2 MANY-SIDED EVERYDAY PROBLEMS

Most problems in everyday life have several possible answers. We cannot neatly sum up these problems into a question to be answered "yes" or "no." **Examples 1:**

a. A neighbor has a dog which barks continually. What should be done to restore peace and quiet to the neighborhood?

(continued on next page)

¹There usually isn't enough time to write down the suggestions word for word, so the secretary may have to make brief notes of the suggestions.

- b. You have a summer cottage. Friends drop in uninvited and unannounced, expecting you to welcome them and to furnish them towels, food, and drink. What can you do to stop this without losing them as friends?
- c. You are interested in several lines of work. Which career should you pursue?

Some solutions to a problem are more desirable than others. Some solutions to a problem may create even worse problems.

Examples 2:

Consider the problem in Example Ia above. Here are some possible solutions. You can see that some solutions could create worse problems than the problem of the barking dog.

- a. Buy a diesel horn. Sound it toward the neighbor's house as often and as long as the dog barks. (You'll be disturbing the neighborhood as much as the dog does, and the other neighbors will be even more unhappy.)
- b. Call the police and complain about the noise. (If, except for the dog, you like the neighbor, this could be the end of your friendship.)
- c. Tell the neighbor that the dog's barking is nervewracking. (Maybe the neighbor just doesn't realize what a nuisance the barking is.)
- d. Buy a bigger dog and hope that your dog will scare the neighbor's dog enough to quit barking all the time. (Then you'll have your own dog to take care of, and you'll have to make sure your dog isn't as much of a problem as the neighbor's dog was.)

CLASS DISCUSSION PROBLEMS

For each problem, do two things:

- a. Answer the questions asked.
- b. Discuss any problems which may be created by any solutions you suggest.
 - 1. The school board of the Corbett School District heard that some of its teachers were in the habit of allowing some of the seniors to teach ninth grade classes with and without the supervision of the teacher. The school board decided that seniors could offer valuable advice to ninth graders, but they didn't like the idea of allowing a student to teach a class, especially without supervision, so the school board drew up the following resolution, and they promptly sent copies to all schools in the district:

After this date, no student shall be allowed to teach subject matter to any regularly scheduled class in any school in this district. A "regularly scheduled class" is understood to be a class for which any student enrolled therein receives credit and/or a grade.

A month later, the tenth grade English class at the Corbett High School was told by their teacher, "This is Miss Brown. She will be your teacher for the rest of this semester. She is completely familiar with the work we have been doing. I'll be in to visit you two or three times a week." The English students didn't like Miss Brown, and they found out that she was a student teacher from State University. The school board's resolution was remembered, and the English students protested to the school board that a student was teaching their class.

What choices of action did the school board have?

- 2. A newspaper reported, "Some states are trying to pass laws designed to protect elderly people from crime. One form such laws take is to provide a mandatory prison sentence for anyone convicted of a violent crime against an elderly person."
 - (1) Do you think that a violent crime against an elderly person is worse than a violent crime against someone who isn't elderly? How come?
 - (2) Do you think that a nonviolent crime against an elderly person is worse than a nonviolent crime against someone who isn't elderly? (For instance, picking a pocket or purse; tricking someone into turning over his or her life's savings; stealing from his or her apartment or house?) How come?
 - (3) What do you think could or should be done to protect elderly people from criminals?
- 3. A company has been found guilty of using false advertising on TV. The advertising was for a kitchen tool which cost \$2 to make and which sold for \$12.95. The advertising said that the tool could do certain things it couldn't do. The TV pictures showing the tool doing these things were faked.

What do you think the penalty to the company should be?

- 4. In Midstate, the mother and father of a Big City student are suing their son's high school for giving their son a diploma even though the son could not read above the second grade level.
 - (1) Do you think the parents should win the case, or not?
 - (2) Suppose the parents do win the case. What do you think the judgment should be?



c. If your answer to "a" is "yes," what do you think a school should do to insure that exit tests are fair and that every student who should get a diploma passes the exit tests?

6. The following article appeared in Big City's newspaper:

A seven-year study shows that mothers who smoke heavily will give birth to smaller children who are more likely to have birth defects, to be abnormal, or to die at birth, according to a University of Michigan professor.

The professor said yesterday that the findings were based on studies of 20,000 children born in 12 hospitals across the country. Of these children, about half had mothers who smoked at least one-half pack of cigarettes a day.

The researchers screened out factors other than smoking. "We very much controlled for the level of education, income, and race," one of the researchers said. "We made sure that smoking was the only thing here."

The professor said, "Smoking by the mother affects growth, size, and maturity of offspring, as well as the probability of death or deformity. At birth, the child of a heavy smoker will weigh 150-200 grams less than we would expect if the mother didn't smoke. On the average, the child will be born more prematurely, be shorter in length, and have a smaller head circumference. The percentage of lowbirthweight infants was nearly four times higher among smoking mothers than among nonsmoking mothers."

At the end of the study (when some of the children were seven years old), it was found that the children of smoking mothers were still shorter and had smaller heads than the children of nonsmokers.

Discuss whether or not you believe the facts given in this article present a problem to be solved, giving your reasons for believing as you do. If you believe there is a problem, what could be done to solve it?

7. There has been a good deal of talk lately about "teacher accountability." Teachers get paid whether or not their students learn. Some people believe that this fact makes many teachers simply "put in their time" and not try to teach the students. They say that teachers should be held accountable for whether or not their students learn. They say that teachers whose students don't learn should not be paid—or, at best, should not be paid as much as teachers whose students do learn.

Suppose that teachers should be held accountable for whether or not their students learn. Think of a system which will be fair to teachers, to students, to school boards, and to the public.

8. The following letter appeared in the advice column of Big City's newspaper.

Dear Advice Giver: As one who has recently graduated from high school, I would like to comment on the letter from Discouraged, the junior high teacher who says today's young students lack dedication, interest and discipline. He couldn't have been more correct in his statement.

As a student, I lacked dedication. I went to school just to see my friends and make plans for the weekend. I whizzed through my homework and never thought twice about it being right.

With my friends, I thought of ways to skip school and not get caught, how to deceive the teachers and principal and cheat on homework.

I didn't care if I got C's when I knew I could do better. So what? At least I was passing.

I want to tell all students who are doing what I did to listen to this:

When you get out of school you don't see your old school chums very often. Everyone goes his separate way.

When you try to get a job, you find high school grades and attendance count. Some of you will be lucky, as I was. You'll get a job on trial, and like me, maybe you'll make good.

You won't get into college because only good students get in. You may laugh at this now, but just wait until you are on your own.

Unless your parents will support you, you'll realize, as I did, when it is too late.

Maybe this letter will help someone wake up in time. I hope so.

GRADUATE TWO YEARS AGO

[Advice Giver's reply] I hope so, too. A future dotted with unemployment and low paying jobs is a high price to pay for wasting one's high school years.

- (1) a. What point is Graduate trying to make?b. Do you think Graduate does a good job, a so-so
 - job, or a poor job, of making this point?
- (2) Graduate says he lacked dedication as a student. How does he back this up?
- (3) To whom does Graduate direct this letter (other than to Advice Giver)?
- (4) Refer again to your answer to question (1)a above. How does Graduate back up this point?
- (5) Do you think students who "lack dedication" would be likely to change after reading this letter? How come?
- (6) Do you think this letter is an example of a good argument, a so-so argument, or a poor argument? How come?
- (7) Do you agree that most of today's junior and senior high school students lack dedication?
- (8) What do you think should be done so that today's students are more dedicated?

	Another child killed in our state capital. I am absolutely		
in I t s	ncensed at all these killers roaming our streets everywhere. t very likely is someone out on parole again. It's about ime we get this type of person locked up for good in self- upporting prisons where they really have to work.		t
	MRS. A		
(1)	Mrs. A says that killers are "roaming our streets everywhere." a. Judging from the context, what does she mean		
(2)	b. Where does she back up this statement?c. Do you agree with this statement? How come?In her third sentence, what does Mrs. A mean by	÷	
(-)	"it"?		
(3)	In her third sentence, what does Mrs. A mean by "again"? (Choose one.)		
	a. The same person has killed before.		
	 c. Children have been killed in our state capital before 		
	 d. Other children have been killed by someone out on parole. 		
	e. People out on parole have committed other violent crimes		
(4)	a. Where does Mrs. A back up her third sentence?b. Do you agree with Mrs. A's third sentence? How come?		
(5)	a. Who pays for the cost of maintaining prisons?b. In her fourth sentence, what does Mrs. A mean		
	 c. Do you favor the idea of self-supporting prisons? How come? 		
	d. Discuss the idea of self-supporting prisons. In- clude how such prisons would work. Also in- clude some of the problems which would arise, and suggest solutions to these problems.		
(6)	We see that Mrs. A's fourth sentence proposes an idea which sounds good at first but which is accompanied by many serious problems. What kind of propaganda technique has Mrs. A used here?		
(7)	What do you think should be done to reduce the number of "killers roaming our streets"?		

10. Following is a letter written to Advice Giver in Big City's newspaper.

Dear Advice Giver: We are writing to Heartsick Mom. ("My daughter became vulgar and crude. . . . I am so worried about her future," she says.)

We are three of the many "uncouth teens," as she puts it. Sure we smoke cigarets and pot, and we swear, but half of you adults swear and smoke cigarets also.

More than 70 percent of the students in our high school are burnouts. (A burnout is someone who smokes cigarets and pot, drinks and does other stuff.) We aren't all delinquents; we just found a way to escape our problems and have a good time, too.

Adults don't really understand our problems or our world.

As for not having good manners or respect, why should we—when we are considered second-class citizens?

We have good qualitites that people don't see. We stick together, understand each other, and share feelings and problems which some of you wouldn't understand.

Heartsick Mom, your daughter has problems and confusions you don't know about. Just let her be, and she'll work them out the best way she knows how. If she feels she needs your help, she'll ask.

BURNOUTS OF C'VILLE

- (1) Judging from the letter, what did Heartsick Mom's letter say?
- (2) Read the second paragraph again.
 - a. Do the writers think it's OK to swear and to smoke cigarets and pot? What makes you think so?
 - b. Suppose the writers are right when they say, "Half of you adults swear and smoke cigarets also." Does this make it OK for the writers to do it? How come?
 - c. What is the point of saying, "Half of you adults swear and smoke cigarets also"?
- (3) Read the third paragraph again.
 - a. Do you agree with the writers' definition of "a burnout"? If not, what is your definition?
 - b. Do the writers imply that some burnouts are delinquents? Explain.
 - c. Is it always good to find a way to escape our problems? How come?
 - d. Is finding a way to have a good time always good? How come?
- (4) Do you agree that adults "don't really understand" the problems or the world of teenagers? How come?

 (5) Read the fifth paragraph again. a. Do the writers believe that they have good manners and respect? Explain. b. What do the writers mean by "second-class citizens"? c. Where do the writers back up the insinuation that they are considered to be second-class citizens? d. Who is it that (in the writers' opinions) considers the writers to be second-class citizens? e. When you meet someone over 10 years old who shows a lack of good manners and respect, do you think less of him or her than you would have if he or she had not acted this way? How come? (6) Read the sixth paragraph again. a. Who do the writers mean by "we"? b. Who do the writers mean by "you"? c. What are some of the "good qualities" the writers have which "people don't see"? d. Give an example of a time when "sticking together" is not a good quality. e. There appears to be some inconsistency between the fourth and sixth paragraphs. What is this inconsistency? f. There appears to be some inconsistency between the third and sixth paragraphs. What is this inconsistency? f. Read the seventh paragraph again. a. How do the writers know their first sentence is true? b. In the second sentence, what does "them" mean? c. Do you think teenagers should always be left to work out their problems and confusions the best way they know how? Explain. d. Do you agree with the advice given Heartsick Mom in the second sentence? How come? e. How do the writers know their last sentence is true? f. Do you think that "burnouts" who feel they need help with problems and confusions ask adults for help? Explain. (8) Do you think that "burnouts" who feel they need help with problems and confusions ask adults for help? Explain. (9) Do you think that "burnouts" who feel they need help with problems and confusions ask adults for help? Explain. 	
troubled about her daughter?) How come? (9) Do you think parents should not worry when their children change from being well-mannered, respectful, and open, to being vulgar, crude, and secretive? How come? (continued on next page)	

- (10) Suppose you are a parent whose son or daughter has turned from being someone you are proud of to someone you are ashamed of, and suppose he or she will not sit down and talk with you or listen to you, as in Heartsick Mom's case.
 - a. What do you think you would do?
 - b. What do you think parents should do in such a case?
- 11. This letter to the editor appeared in Big City's Newspaper:

Much discussion has taken place recently concerning teachers' salaries. Why does the school board pay a teacher extra for having a master's degree? In most cases, a master's degree does not make the teacher more proficient on the job. If a master's degree is required, then it should be a job requirement and be additionally compensated for. MR. M

- (1) What point is Mr. M trying to make? (Choose one.)
 - a. There has been a lot of talk lately about teachers' salaries.
 - b. School boards pay teachers too much.
 - c. A teacher should not get extra pay for a master's degree unless the job requires the degree.
 - d. Teachers should not get masters' degrees.
- (2) a. How does Mr. M back up his first statement?
 - b. Do you think he should have backed up his first statement? How come?
- (3) Read Mr. M's question (second sentence) and his third sentence again.
 - a. What does this tell us about what Mr. M thinks?
 - b. Let us agree that a master's degree by itself means nothing. But what does the degree mean in terms of knowledge?
 - c. Do you agree that a teacher who has the knowledge required for a master's degree is no better at teaching than he or she was before getting the master's degree? How come?
 - d. Where does Mr. M back up his third sentence?
 - e. Do you think Mr. M's third sentence should have been backed up? How come?
- (4) Does Mr. M. appear to be against paying extra for a master's degree in all cases? Support your answer.
- (5) Refer to your answer to question (1) again. How good a job did Mr. M do of arguing his point—good, so-so, or poor? Why do you think so?
- (6) Do you think a teacher with a master's degree should be paid more than if he or she did not have the degree? How come?
- (7) Suppose you were in charge of setting up a pay scale for teachers. Describe how it would work.

12. Jack is in the eleventh grade, has above average intelligence, and is doing school work well below his abilities.

He disturbs the class almost daily in one way or another. Sometimes he will talk to the students around him. Sometimes he will shift noisily in his seat or move his desk. Sometimes he will make irrelevant comments during a lesson. Sometimes he will complain about the "unfairness" of a test, even though his low grade was simply because he made no attempt to study. Sometimes he will protest loudly, "I don't see how you expect us to understand this stuff," when the class is using material learned on a day he was absent, even though he made no attempt to find out what the class had learned that day. Sometimes he will mutter to himself to show disapproval of something the class or teacher has done.

The teacher usually does not allow such continual disruptive behavior, but she is aware that Jack feels unwanted at home and that he thinks he can never do anything to please his father. The teacher thinks most or all of these actions in class are simply Jack's way of saying he wants some attention from someone.

She has tried talking with Jack after school, but this has always resulted in changing him only for a day or two. So she usually acknowledges his actions in class with an answer or request in a courteous way, or she just smiles at him or she says something humorous—each of which gives him attention and seems to satisfy him for the time being. On the rare occasions when his actions seem to leave her no other choice, she sends him out of the room. Sending him to talk with his counselor gives only temporary results. Calling his home would, of course, make his home situation even worse for him.

The teacher is very much aware that the other students obviously think she is playing favorites (even though they never mention it) because of her continual non-severe treatment of Jack.

What do you think the teacher should do?

13. Here is a letter written to the editor of Big City's newspaper.

It is about time we get the humanists¹ out of our schools and put God, the Ten Commandments and personal responsibility back in. Call it religion if you like, but when humanism was out and religion was in, our kids could play in safety anywhere and we didn't even need to lock our doors at night. Now we are all prisoners in our own homes for fear of criminals. You cannot improve on God's ways. MRS. T

(continued on next page)

'As used here, a "humanist" is one who believes human interests or values should be uppermost. A humanist believes that the highest good for a human iles in living so that one's own character or personality is developed as well as it can be through one's own reasoning powers. Humanists reject the idea of God. (As stated, this is the definition of "humanist" implied in this letter. See a dictionary for other definitions.)

- (1) a. Mrs. T's first sentence contains an inconsistency. What is it?
- (2) a. Where does Mrs. T back up her second statement?
 - b. Do you agree with Mrs. T's second statement? How come?
- (3) What does Mrs. T imply in her letter? (Choose one.)
 - a. Crime would decrease if we got the humanists out of our schools.
 - b. Crime would decrease if we got God and the Ten Commandments back in our schools.
 - c. Crime would decrease if we got the humanists out, and got God and the Ten Commandments back in, our schools.
 - d. Crime would decrease if we got the criminals out of our schools.
- (4) What does Mrs. T mean by putting "God, the Ten Commandments and personal responsibility back in" our schools?
- (5) See question (3) again. Suppose Mrs. T is right. What are some of the problems which might arise, and what solutions do you have for these?
- (6) How do you think our schools should be changed so that crimes by juveniles would decrease?
- (7) How do you think our schools should be changed so that crimes by adults would decrease in a few years?
- 14. Midstate passed a law banning throwaway bottles. Big City passed a law providing for a \$50 fine for any car not carrying a litter bag. One of Big City's newspaper columnists wrote an article saying that these were good laws. She also said that the next step was to get Big City's neighborhoods cleaned up. She said that some neighborhoods are clean and are kept clean, while others are dirty and are allowed to remain dirty. She then said,

What we need is a federal program to hire young people to pick up litter in our cities. One way to stabilize neighborhoods is to clean up the worst ones and keep them clean. This is where the federal program comes in, because only a federally-funded program can hire enough people to do the cleaning.

What is your reaction to this proposal? (Do you think it's a good idea, a so-so idea, or a poor idea? How come?) Do you have a better idea for cleaning up the cities and keeping them clean? 15. Corbett High School's attendance policy allows each student to be absent without excuse for six times each card-marking period. If a student is absent from a class seven times without excuse in a marking period, the student automatically fails the class for that marking period.

Each tardiness without excuse of under 15 minutes is counted as 1/3 of an absence. If the tardiness is more than 15 minutes, it is counted as an absence.

An absence or tardiness is counted as being "with excuse" only if it is for one of these reasons:

- (1) The student was elsewhere on school-related business (field trip, in the counseling office, with another teacher, etc.).
- (2) There was a death in the immediate family.
- (3) The student was out of school because of a medical or dental matter. (The student must have a signed note from the physician or dentist to verify this.)
- (4) The student was absent because of observance of a religious Holy Day.

Many students feel the attendance policy is unfair. They say that if they can get passing grades on the tests and assignments without being in class, they shouldn't have to go to class. They say that if a student who is absent for three weeks because of illness does not automatically flunk, then a student who simply skips for three weeks should not automatically flunk, either.

Some of Corbett High's teachers agree with these students, but most do not. What are some things these students could do to change the attendance policy?

16. A U.S. Representative from Big City was found guilty in court of deliberately misusing government funds. He was ordered to repay the money with interest. His case was widely publicized in the Big City newspapers, so most of the voters in his district knew about it. But he was still reelected to the House of Representatives.

He has now returned to the House for his new term. The other Representatives held their own hearing and agreed that he was, indeed, guilty of deliberately misusing government funds. What do you think they should do about it? (Their actions can range anywhere from doing nothing, to expelling him from the House of Representatives.)



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GLOSSARY

This glossary will give you a quick idea of the meanings of words as they are used in this book. Many of the words have other meanings, too, and you can find these other meanings by looking up the words in a dictionary.

Words which were explained in CTB1 or in this book are not included in this glossary. Examples of such words are "innuendo" and "rationalization." You can locate the definitions of such CTB2 words by looking in the index to see where the words appear in the text.

- adult bookstore—a bookstore which sells books and magazines which most adults feel should not be read by children.
- adventurism (uhd VEN chuh rizz uhm)—hasty actions which are not carefully thought out, especially in politics or foreign affairs.
- amend (uh <u>mend</u>)—to correct or to improve. (If a law leaves out something important, then it should be amended.)
- amoral (ay more uhl)—(a) in an area to which moral judgments do not apply. (A maple tree loses its leaves in the winter. This is amoral.) (b) having no sense of what is moral and what is not moral; unable to tell right from wrong. (A baby is amoral.)
- arson (arss (uh)n)—the malicious burning of a building or other property.
- audit (awd uht) a class—to attend a class without expecting to get a grade or a credit for it.
- calcium (cal see uhm)—a mineral necessary for strong bones and teeth.
- capital punishment—death as punishment for certain crimes.
- coroner (core uh ner)—a public official whose job includes finding out what caused someone's death.
- cosmetic (cahz met ik)—makeup, such as lipstick, rouge, or eye shadow.
- custodian (kuh stohd ee uhn)—one whose job includes taking care of property and keeping it in good condition.
- deduction (dih <u>duck</u> shuhn)—something which is allowed to be, or which is, subtracted. (Tax laws allow a business to subtract certain expenses from total income and then pay tax on the difference. These expenses are <u>deduc-</u> tions from total income.)

duel (d(y)oo uhl)—formal combat by two people with weapons, in front of witnesses.

former days—the "old days"; days gone by; days of former times.

goose-step—a stiff-kneed marching step used by some armies when on parade. (Hitler's troops used the goosestep.)

headings of a table or chart—the items written at the top of the table or chart.

infringe (ihn <u>frihnj</u>)—to trespass on; to violate. (Examples: (1) Jones used some of Smith's ideas which were patented. So Jones <u>infringed</u> on Smith's patents. (2) The X Group were holding a meeting within the rules of a permit given them by the city, when the police arrested them. So the police <u>infringed</u> on the right given the X Group by the permit.)

insinuation (ihn sihn yuh WAY shuhn)—an innuendo; a veiled suggestion. (Example: Suppose I say to you, "Hey, you look nice today, for a change." Then I am insinuating, or making the insinuation, that you don't usually look nice.)

irrelevant (ihr (r)ell uh vuhnt)—not pertinent, or not applying to, or not related to, or not about, the subject being discussed.

irresistable (ihr uh ZISS tuh buhl)—impossible to resist or withstand or defeat.

kph—abbreviation for "kilometers per hour."

line segment (segg muhnt)—part of a straight line between and including two points of the line. (Each side of a square is a line segment.)

listless—not wanting or feeling any need to exert oneself; lacking any desire or tendency to be active.

malpractice (mal <u>prack</u> tuss)—a practice which injures, neglects, or is improper.

maltreatment (mal treet muhnt)—cruel or rough treatment; abuse.

mediator (MEED ee ayt uhr)—one who tries to get people who disagree to settle their differences.

negotiations (nih go shee AY shuhns)—give-and-take conferences between people who disagree but who want to reach agreement.

overall-throughout; taken as a whole; generally.

overlap—to have parts in common, or to extend over and cover parts of.

parole (puh role)—a release from prison of someone who has not served the full sentence, on condition that certain rules be followed.

pay scale—something which determines how much an employee is paid.

probation (pro <u>bay</u> shuhn)—a trial period of time to see if someone can behave properly; the time during which someone who has been paroled must follow the rules agreed to.

profanity (pro FAN uht ee)—language which treats something sacred with contempt, or which is crude, coarse, or gross.

rave (rayv) notices—published reviews of a work (such as a play, movie, or book) which says the work is especially good.

relatively (rell uht ihv lee)—as compared to or in relation to; comparatively. (An adult looks relatively big next to a baby but looks relatively small next to a house.) representative sample—a sample (or part) of something which is representative of (or basically like) the whole thing.

- resort—a place which offers recreation and entertainment to people on vacation.
- saccharin (sack (uh)ruhn)—a sweetener often used instead of sugar.

sadistic (suh diss tick)—cruel on purpose; getting a lot of pleasure from being cruel.

senior (see nyur)—(a) higher in rank or standing. (A twelfthgrader in high school is a high school senior. A general is a senior officer to a captain.) (b) older. (A senior citizen is someone who is older than most other people, usually at least 65 years old.)

shoplift—to steal merchandise from a store while the store is open for business, but in a way which the stealer hopes won't be noticed.

- social worker—someone who investigates cases in which people are said to be without enough money, food, or clothing, to get by without help from the government; also, someone who offers advice and help to people who have not adjusted normally to society.
- subscribe (suhb <u>skrib</u>)—(a) to endorse or agree with or approve or support. (b) to sign up for, such as to sign an agreement to buy a magazine for a certain number of issues.
- subscription (suhb <u>skrihp</u> shuhn)—what you have when you subscribe to something. (If you subscribe to a magazine, then you have a <u>subscription</u> to that magazine.)

suicide (SOO uh side)—death by one's own hand on purpose and without being physically forced by someone.

testify (tess tuh fy)—to say, after promising to tell the truth; to state while under oath.

trial (try (uh)l)—a formal hearing in a court of law at which a judge, and often a jury, is present.

undermine—to make weak or less effective, or to corrupt or ruin, by attacking the foundation or base.

warrant (wawr uhnt)—a legal paper signed by a judge which gives the police authority to do something, such as arrest a particular person, or search the person's property, or seize some piece of property.

INDEX

Academic detachment 84, 87 Ad hominem 99, 101, 102, 108, 190 Alice in Wonderland 7, 77-79 "All" statement 134-135, 138-149 conversion to "if-then" 139-142, 146, 148, 151, 159-160 existence not implied by 139-140, 142, 157 negation of 143-145, 165 (See also Arguments, proof of invalidity or validity; Euler circles; Quantifier; Reversibility) Ambiguous words and sentences 6, 8, 24 Analogy (see Faulty analogy) "And" statement 58, 59, 64, 139-140, 142, 146, 151, 159-160, 162 conversion to "some" 139-140, 142, 146, 151 negation of 58, 59 truth value of 40, 54, 146 Animal Farm 15, 33 Appeal to conservatism 107-108 Appeal to emotions 105-108 (See also Emotional words, phrases, and arguments; Emotionally loaded words) Appeal to radicalism 107, 108, 114 Arguments 57, 99-100, 106, 108, 165, 199-210 conclusion of 41, 43, 49-52, 54, 56, 63, 65, 81, 100, 155-158, 160, 162, 166-167, 210 invalid (see valid below) premises of 41, 43, 49-52, 54, 56, 63, 65, 155, 157-158, 162, 166-167 missing 41, 43, 160 self-contradictory 50 proof of invalidity or validity 50-57, 59-60, 148-153, 167-168 using Euler circles 155-159, 166 strong and weak 170-176, 184-186, 189-190, 197, 207 techniques of (see Propaganda) valid 48-52, 57, 63, 65, 82, 137, 147-159, 162-168 (See also Supporting statements) Assumption contrary to fact 72-74, 87 Assumptions, recognizing 176-180, 186-187 Authority, use of *(see* Use of authority) Averages 7

Avoiding the question 68, 86, 98, 102

Bandwagon 94, 95 Bargain 94, 95 Begging the question (see Circular reasonina) Beyond a reasonable doubt 116, 122-124, 217-220 **Bloodhounds 98** Boldwater, Gary 195-196 Bookstore(s) 13-14, 27, 203-205 Brainstorming 224-225 Capital block letters 40, 48, 134 Capital punishment 88, 113-114 Card-stacking 94, 95 Carroll, Lewis (see Alice in Wonderland and Through the Looking-Glass) Circular reasoning 68, 76-77, 86, 195, 213 (See also Victory by definition) Citizens' rights bill 200-202 Common sense 41, 159-162 **Complex question 21** Complex statement 161-164 Conclusion (see Arguments) Conflicting statements and rights 11, 14 Conservatism, appeal to (see Appeal to conservatism) Contradictory statements 10-15, 28, 86 Contrapositive of proposition 40, 44, 146 Converse of proposition 40, 44, 165 substitution for proposition 68, 74, 86 (See also Reversibility) Court cases 22, 30, 88, 99, 113, 121-122. 124-125, 196-197, 200, 210-211, 216-221, 237 (See also Crime; Laws; Politics and politicians) Crime 21-22, 28-30, 35, 38, 88-90, 99, 103, 112, 113, 183, 196-197, 200, 202, 214, 217-220, 227, 231, 235-237 jails and prisons 13, 88, 113, 124-125, 196-197, 214, 231 (See also Court cases; Laws; Politics and politicians) **Declaration of Indpendence 186** Doublethink 15-16, 31 Drivers 34, 187, 200, 202, 208-209, 215-217 Eichmann, Adolph 13 Either-or reasoning 79, 87, 102, 107, 180,

184 Elite Dress Shop 218-219

Emotional words, phrases, and arguments 3-6, 170, 181, 202, 212 Emotionally loaded words 3-5, 95, 105, 204 Emotions, appeal to (see Appeal to emotions) Energy 30, 31 Equivalent statements 40, 46-48, 58, 59, 63, 139, 145, 146, 162 (See also "If and only if" statement) Euler circles 153-159, 166 Euphemism 15-16, 31, 36 Exchanges (see Substitution) Exigency 94, 95, 225 Existence 165 "all" statement 139-140, 142, 157 "no" statement 139-140, 142 "some" statement 139-142, 157 (See also Quantifier) Existential quantifier (see Quantifier) Fact and opinion 4-5, 109, 180-184, 188-190, 199-200 Faking a connection 68, 69, 84-86, 114 False cause 71-74, 87 Farmers and farming 127, 196-197 Faulty analogy 84-85, 87 Fence-sitting (see Academic detachment) Flag-wavng 95, 96, 106 Food and Drug Administration 17, 27 Football 219-220 Foreign countries 13, 14, 16-17, 25, 26, 31-33, 36, 91, 112 (See also Politics and politicians) Frank, Phil 32 Free 94, 95 Galois, Évariste 120 Garbage cans 124-125 **Generalization 69-71** (See also Universal generalization) Glittering generality 8, 94, 95 Gobbledegook 19 God 15, 177, 186, 235-236 Government documents, regulations, reports 20, 22, 30, 36-38, 96, 121-122, 124, 178, 186-187, 195-196 (See also Court cases; Laws; Politics and politicians) Hasty generalization 86 Hypocrite 11, 89, 179, 190

Hypocritical statements and actions 11, 13, 14, 27, 180 "If and only if" statement 47, 62, 64

(See also Equivalent statements) Iff (see Symbols) "If-then" statement 40-44, 47, 58, 59, 64, 65, 139-142, 146, 148, 151, 159-160 conversion to "all" or "no" statement 139-142, 146, 148, 151, 159-160 truth value of 12, 40, 51, 52, 54, 56, 65 Implies 40 Inconceivability 83, 87 Inconsistent statements and reasoning 10-13, 15, 26-31, 68, 86, 100, 187, 191, 205, 212, 214, 233, 236 Innuendo 94, 95 (See also Insinuation) Insinuation 20-21, 95, 100, 125, 190, 199, 201, 215, 233 (See also Innuendo) Internal Revenue Service 121, 216, 221 Invalid argument (see Arguments) Inverse of proposition 40, 44 substitution for proposition 68, 74, 86 Jargon (see Technical jargon) Jefferson, Thomas 186 Jesus 177 Jews 13-14 Johnson Township 202-203

Jones Trucking Co. 216-217 Just plain folks 95, 96, 104

Kingston P. Towers (see Politics and politicians)

Laws 200, 202-206, 210, 214, 215, 221, 227, 236 (See also Court cases; Crime; Politics and politicians) Lie 15, 73-74 Little Brown Jug 219-220 Loaded question 2, 20-22, 37, 95

Mean (see Averages) Meaningless words 18-19, 36 Median (see Averages) Medical 17, 210, 212-213, 229 Misleading statements 15-16, 30-32, 205 Miss Jones 218-219 Mode (see Averages)

Name-calling 94, 95, 106 Necessary condition 40, 42, 47, 48

Negation of a statement 40, 60-63, 143-145, 164-165 "all" statement 143-145 "and" statement 58, 59 "no" statement 143-145 "or" statement 58, 59 "some" statement 136-137, 143-145 Negative statement 134-138, 140 Newspaper columns Advice-Giver 189-191, 230, 232-234 Last Resort 24 questions asked 89, 92 Non sequitur reasoning 82-83, 87, 102, 184 "No" statement 134-135, 138-149 conversion to "if-then" statement 139-142, 146, 148, 151 existence not implied by 139-140, 142 negation of 143-145, 165 (See also Arguments, proof of invalidity or validity; Euler circles; Quantifier; Reversibility) Not drawing the line 79, 87, 189 Obscene literature 203-205 "Only if" statement 40, 47 Opinion and fact (see Fact and opinion) Opposite of a statement 60-62, 165 "Or" statement 59, 162 negation of 58, 59 truth value of 40, 54, 56 Orwell, George (see Animal Farm) "Other things are worse" 101-103, 108, 188 Oversimplifying 94, 96 Part to whole 75-76, 82, 87 Politics and politicians 15, 120, 180, 206, 213 Boldwater, Gary 195-196 campaign statements 8, 9, 25, 88, 91, 95, 110, 111, 117 governor 88 legislators and legislatures 12, 32, 88, 110, 112, 200, 203-204, 214-216, 237 mayor 29-30, 35, 103, 112 Midstate's Secretary of State 34, 124 Towers, Kingston P. 9, 111, 117-118 U.S. President 25, 30, 31, 33, 195-196, 214-215 U.S. Secretary of State 25 (See also Court cases; Crime; Foreign countries: Laws) Positive statement 134-138, 140

Possible 2, 12, 119, 123 Premises (see Arguments) Prince 210-211 Probable 2, 116, 119-120, 122-124 "Proof" by failure to find a counterexample 68, 86 "Proof" by selected instances 68, 70, 71, 75-76, 86, 183, 199 Propaganda 7, 93-114 techniques (see particular kind from those listed here: Ad hominem: Appeal to conservatism; Appeal to emotions; Appeal to radicalism; Bandwagon; Bargain; Cardstacking; Exigency; Flag-waving; Free; Glittering generality; Innuendo; Just plain folks; Name-calling; "Other things are worse"; Oversimplifying; "Red herring"; Repetition: Snob: Testimonial: Transfer; Use of authority) Proposition 40, 44 Quantified statement 141-145, 151, 153, 155 Quantifier 141-144 existential 141-142, 165 universal 141-142, 165 Quotation from Aurelius, Marcus 177 from Bible 89, 104, 177 from Lincoln, Abraham 24 from Shakespeare, William 104, 105, 159 Radicalism, appeal to (see Appeal to radicalism) Rationalization 73-74, 87, 184, 189 "Red herring" 98, 99, 102, 108, 114, 173-174 Repetition 94, 95 Reversibility 145-147, 150, 165 Reversible statement (see Reversibility) Schools 77, 82, 84, 103, 109, 113, 122, 129-130, 170-171, 174, 176-177, 185-186, 219-220, 224-227, 229-230, 232, 234-237 cheating on tests 14, 126 colleges and universities 23, 130-132, 173, 179, 210, 220, 230

Corbett schools 208-209, 226-227, 237 discipline 121, 122, 129-130, 184-185, 235

dropouts 128-130 grading 7, 12, 173, 175, 237 graduation 90, 97, 128-129, 220, 227-228, 230 notes sent home to parents 18, 20, 32 "old days" 128-130 student council 208-209 tests 7, 8, 228 Self-contradictory premises (see Arguments, premises of) "Slippery word" error 6-7, 86 Smoking cigarettes 27, 113, 210, 212, 229, 232 pot 128, 187, 232 Snob 95, 96, 106 "Some" statement 136-147, 150-161, 163-165, 167 conversion to "and" statement 139-140, 142, 146, 151 existence implied by 139-142, 157 negation of 136-137, 143-145, 165 (See also Arguments, proof of invalidity or validity; Euler circles; Quantifier; Reversibility) Sophistical formula 80-81, 84, 87, 102, 107 Sound, intensity of 118 Soybean 127 Special pleading 5, 11, 68, 86 Standard forms of statements (see "All statement; "No" statement; "Some" statement) Statement (see the particular kind wanted: "All" statement; "And" statement; Common sense; Complex statement; Contrapositive of proposition; Converse of proposition; Equivalent statements; Generalization; "If and only if" statement; "If-then" statement; Inverse of proposition; Negation of a statement; Negative statement; "No" statement; "Only if" statement; Opposite of a statement; "Or" statement; Positive statement; Proposition; Quantified statement; Reversi-"Some" statement: bility; Tautology; Truth value; Universal generalization) Substitution of converse or inverse of proposition for proposition 68, 74, 86

of one word for another 40, 41, 47, 58-59, 64, 134, 136-137, 160-161

(See also Common sense) Sufficient conditon 40, 42, 43, 47, 48 Supporting statements 173, 180, 183, 188, 191, 194-201, 204, 207, 209, 210, 213, 217, 230-231, 234, 236 (See also Arguments) Sweeping generalization 86 Symbols capital block letters 40, 48, 134 \leftrightarrow (iff; is equivalent to) 47 \rightarrow (implies) 40 \equiv (is equivalent to; iff) 47 \sim (not; it is false that) 40 .:. (therefore) 51 Tautology 56-57, 63 Technical jargon 104 Television (see TV) Testimonial 94, 95, 104 Through the Looking-Glass 23, 78-79 Towers, Kingston P. (see Politics and politicians) Transfer 94, 95, 104 "Travels with Farley" 32 True or false beyond a reasonable doubt 116, 122-124, 217-220 Truth table 40, 46 Truth value "and" statement 40, 54, 146 equivalent statements 40, 57 "if and only if" statement (see equivalent statements above) "if-then" statement 12, 40, 51, 52, 54, 56, 65 "or" statement 40, 54, 56 TV 22, 34, 119, 178, 214 violent programs 21-22, 28, 103 U.S. Constitution 22, 30, 96, 178, 195-196 Universal generalization 134-135, 165 (See also Generalization; Quantifier) Universal quantifier (see Quantifier) Use of authority 104-105, 109, 191, 199

Vague sentences 8, 10, 95 Valid argument (see Arguments, valid) Victim 217-218 Victory by definition 77, 213 (See also Circular reasoning)

War 13, 16-17, 23, 25, 31, 33, 36 Welfare 124-125, 200, 206, 210 Whole to part 75, 86, 87, 114, 190
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