**Chapter III: Informal Fallacies**

**3.1 Fallacies in General**

**A fallacy** is a defect in an argument that consists in something other than false premises alone. A good argument must fit the following four criteria’s;

* **The relevance criterion**- the premise of a good argument must be relevant to the truth of the conclusion.
* **The acceptability Criterion**- the premise of a good argument must also be acceptable.
* **The Sufficient Ground Criterion**- the premise of a good argument must also provide sufficient grounds for the truth of the conclusion. Accordingly, the premise of a good argument must be sufficient in number, kind and weight.
* **The rebuttal Criterion**- a good argument should also provide an effective rebuttal to the strongest arguments against one’s conclusion and perhaps to the strongest arguments in support of the alternative position.

Consequently, we can say that if a given argument violates one or more than one of the four criteria’s mentioned above, then that argument become fallacious argument.

The fallacies introduced in this chapter involve defective patterns of arguing that occur so often they have been given specific names. Such defects comprise either mistakes in reasoning or the creation of an illusion that makes a bad argument appear good. The term *non sequitur* ("it does not follow") is another name for fallacy. Both *deductive and inductive* arguments may contain fallacies; if they do, they are either *unsound or uncogent*, depending on the kind of argument. Conversely, if an argument is unsound or uncogent, it has one or more false premises or it contains a fallacy (or both). Fallacies are usually divided into two groups: formal and informal. **A formal fallacy** is one that may be identified by merely examining the form or structure of an argument. It involves explicit use of **Invalid** form. Fallacies of this kind are found only in deductive arguments that have identifiable forms. Some of these forms: categorical syllogisms, disjunctive syllogisms, and hypothetical syllogisms. The following hypothetical syllogism contains a formal fallacy:

If apes are intelligent, then apes can solve puzzles.

Apes can solve puzzles.

Therefore, apes are intelligent.

This argument has the following form: If *A* then *B,*

*B.*

Therefore,  *A.*

In this case, if *A* and *B* are interchanged in the first premise, the form becomes valid, and the original argument, with the same change, also becomes valid. In distinguishing formal from informal fallacies, remember that formal fallacies occur only in deductive arguments. Thus, if a given argument is inductive, it cannot contain a formal fallacy. Also, keep an eye out for standard deductive argument forms such as categorical syllogisms and hypothetical syllogisms. If such an argument is invalid because of an improper arrangement of terms or statements, it commits a formal fallacy.

**Informal fallacies** are those that can be detected only by examining the content of the argument. Consider the following example: *The Renaissance Bridge is made of atoms.*

*Atoms are invisible.*

*Therefore, the Renaissance Bridge is invisible*.

To detect this fallacy one must know something about bridges—namely, that they are large visible objects, and even though their atomic components are invisible, this does not mean that the bridges themselves are invisible. Or consider this example: A football player is a person.

Therefore, a bad football player is a bad person.

To detect this fallacy one must know that the meaning of the word "bad" depends on what it modifies, and that being a bad chess player is quite different from being a bad person.

The presentation that follows divides twenty-two informal fallacies into five groups: fallacies of relevance, fallacies of weak induction, fallacies of presumption, fallacies of ambiguity, and fallacies of grammatical analogy. The final section of the chapter considers the related topics of detecting and avoiding fallacies in the context of ordinary language.

**3.2 Fallacies of Relevance**

The fallacies of relevance share the common characteristic that, the arguments in which they occur have premises that are *logically* irrelevant to the conclusion. Yet the premises may appear to be *psychologically* relevant, so the conclusion may *seem* to follow from the premises, even though it does not follow logically. In a good argument the premises provide genuine evidence in support of the conclusion. In an argument that commits a fallacy of relevance, on the other hand, the connection between premises and conclusion is emotional. To identify a fallacy of relevance, therefore, one must be able to distinguish genuine evidence from various forms of emotional appeal.

**1. Appeal to Force *(Argumentum ad Baculum:* Appeal to the "Stick")**

The fallacy of appeal to force occurs whenever an arguer poses a conclusion to another person and tells that person either implicitly or explicitly that some harm will come to him or her if he or she does not accept the conclusion. The fallacy always involves a physical or psychological threat by the arguer to the well-being of the listener or reader, who may be either an individual or a group of people. Obviously, such a threat is logically irrelevant to the subject matter of the conclusion, so such argument is fallacious. The *ad baculum* fallacy often occurs when children argue with one another. For example:

*Child to playmate:* Betoch is the best show on TV; and if you don't believe it, I'm going to call my big brother over here and he's going to beat you up.

But it occurs among adults as well:

*Secretary to boss:* I deserve a raise in salary for the coming year. After all, you know how friendly I am with your wife, and I'm sure you wouldn't want her to find out what's been going on between you and that sexpot client of yours.

The first example involves a **physical threat**, the second a **psychological one**. While neither threat provides any genuine evidence that the conclusion is true, both provide evidence that someone might be injured. If the two types of evidence are confused with each other, both arguer and listener may be deluded into thinking that the conclusion is supported by evidence, when in fact it is not.

**Appeal to force** Threatens A=Arguer

R/L=Reader/Listener

Poses

Conclusion

The appeal to force fallacy usually accomplishes its purpose by psychologically impeding the reader or listener from acknowledging a missing premise that, if acknowledged, would be seen to be false or at least questionable. The two examples just given can be interpreted as concealing the following premises, both of which are most likely false:

If my brother forces you to admit that *Betoch* is the best show on TV, then *Betoch* is in fact the best show.

If I succeed in threatening you, then I deserve a raise in salary.

The conclusion of the first argument is that *Betoch* is the best show on TV. But just because someone is forced into saying that it is does not mean that such is the case. Similarly, the conclusion of the second argument is that the secretary deserves a raise in salary. But if the boss is threatened into raising the secretary's salary, this does not mean that the secretary deserves a raise. Another example:

**Example One**: Lately there has been a lot of negative criticism of our policy of education. Let me tell you something, teachers. If you want to keep working in this university, you need to understand that our policy is fair and reasonable. I will not have any body working here who thinks our policy is unfair and unreasonable.

**Example Two**: Sir, you gave me F for your course, but I deserve A. If you want to live in this city and walk safe around the street you should do it the way I suggest. Don’t let your kid killed. Ok!

**2. Appeal to Pity *(Argumentum ad Misericordiam)***

The appeal to pity fallacy occurs when an arguer attempts to support a conclusion by merely evoking pity from the reader or listener. This pity may be directed toward the arguer or toward some third party. Example:

***Taxpayer to judge****: Your Honor, I admit that I declared thirteen children as dependents on my tax return, even though I have only two. But if you find me guilty of tax evasion, my reputation will be ruined. I'll probably lose my job, my poor wife will not be able to have the operation that she desperately needs, and my kids will starve. Surely I am not guilty.*

The conclusion of this argument is "Surely I am not guilty" Obviously, the conclusion is not *logically* relevant to the arguer's set of pathetic circumstances, although it is *psychologically* relevant. If the arguer succeeds in evoking pity from the listener or reader, the latter is likely to exercise his or her desire to help the arguer by accepting the argument. In this way the reader or listener may be fooled into accepting a conclusion that is not supported by any evidence. The appeal to pity is quite common and is often used by students on their instructors at exam time and by lawyers on behalf of their clients before judges and juries.

**Appeal to pity** Evokes pity A=Arguer

R/L=Reader/Listener

Poses

Conclusion

Of course, some arguments that attempt to evoke sympathetic feelings from the reader or listener are not fallacious. We might call them ***arguments from compassion****.* Such arguments differ from the fallacious appeal to pity in that, in addition to evoking compassion on behalf of some person, they supply information about why that person is genuinely deserving of help or special consideration.

The following example is not a fallacy:

*As a result of war and famine, thousands of children in South Sudan are malnourished. You can help by sending money to UNICEF. So, please send whatever you can spare to UNICEF.*

Whenever possible these non-fallacious arguments should show that the person in question is a victim of circumstances and not responsible for the dire straits he finds himself in, that the recommended help or special consideration is not illegal or inappropriate, and that it will genuinely help the person in question. In contrast to such arguments, the appeal to pity proceeds by ignoring all of these considerations and attempts to support a conclusion by merely evoking pity from the reader or listener. Another example of fallacy of appeal to pity:

* Professor John, this exam paper merits at least a “B.” I stayed up all night working on it. And if I don’t get a “B,” I will be put on academic prohibition. I also have nowhere to go; and if you don’t change my grade, I will commit suicide.
* The position open in the accounting department should be given to Frank Thompson. Frank has six hungry children to feed, and his wife desperately needs an operation to save her eyesight

**3. Appeal to the People *(Argumentum ad Populum)***

Nearly everyone wants to be loved, esteemed, admired, valued, recognized, and accepted by others. The appeal to the people uses these desires to get the reader or listener to accept a conclusion. That is, appeal to the People is an attempt to persuade a person or group by appealing to the desire to be accepted or valued by others. Two approaches are involved: one of them direct, the other indirect.

1. **The *direct approach***occurs when an arguer, addressing a large group of people, excites the emotions and enthusiasm of the crowd to win acceptance for his or her conclusion. The objective is to arouse a kind of mob mentality. This is the strategy used by nearly every propagandist and demagogue. Adolf Hitler was a master of the technique, but speech makers at Democratic and Republican national conventions also use it with some measure of success. Waving flags and blaring music add to the overall effect. Because the individuals in the audience want to share in the camaraderie, the euphoria, and the excitement, they find themselves accepting a variety of conclusions with ever-increasing fervor.

An appeal to negative emotions, such as suspicion and fear, can also generate a mob mentality. These emotions have produced many lynchings, and they led to the internment of Japanese Americans during World War II. Also, the direct approach is not limited to oral discourse. The same effect can be accomplished in writing. By using such emotionally charged phrasing as "fighter of communism," "champion of the free enterprise system," and "defender of the working man," polemicists can awaken the same kind of mob mentality as they would if they were speaking.

See the following political speech:

I look out at you all, and I tell you, I am proud to be here. Proud to belong to a party that stands for what is good for Ethiopia; Proud to cast my lot with the kind of people who makes this nation great by defeating external aggressors and internal adversaries; Proud to stand with people who can get our nation back on its feet. Yes, there are those who criticize us, who label our investment policy as “colonialism.” But when I look at you hard-working people, I know we’re right, and the critics are wrong.

Here, premises to the effect that “I am proud to be associated with you” and “you are hard-working people” are irrelevant to the conclusion that “our investment policy is right”

1. In the ***indirect approach***the arguer aims his or her appeal not at the crowd as a whole but at one or more individuals separately, focusing on some aspect of their relationship to the crowd. The indirect approach includes such specific forms as the bandwagon argument, the appeal to vanity, and the appeal to snobbery. All are standard techniques of the advertising industry.

**Appeal to people** Plays upon need for security, etc A=Arguer

Conclusion R/L=Reader/Listener

Poses

1. Here is an example of the **bandwagon** argument:

* Of course you want to buy Zing toothpaste. Why, 90 percent of America brushes with Zing.

The idea is that you will be left behind or left out of the group if you do not use the product.

1. The **appeal to vanity** often associates the product with someone who is admired, pursued, or imitated, the idea being that you, too, will be admired and pursued if you use it. The recent television and billboard ads for the U.S. Marine Corps provide an example. The ads show a strong, handsome man in uniform holding a gleaming sword, and the caption reads: The Few, the Proud, the Marines.

The message is that if you join the Marines, then you, too, will be admired and respected, just like the handsome man in the uniform.

Another example:

1. The **appeal to snobbery** depends on a similar kind of association.

*A Rolls-Royce is not for everyone. If you qualify as one of the select few, this distinguished classic may be seen and driven at British Motor Cars, Ltd. (By appointment only, please.)*

Needless to say, the indirect approach is used not only by advertisers:

*Mother to child: You* want to grow up and be just like Wonder Woman, don't you? Then eat your bread and drink your milks.

These examples illustrate how the indirect version of the appeal to the people can overlap the false cause fallacy, which is presented in the next Section. Thus, the previous example might be interpreted to suggest that eating liver and carrots will *cause* one to become just like Wonder Woman. If so, the fallacy could be identified as false cause.

Both the direct and indirect approaches of the *ad populum* fallacy have the same basic structure:

**You want to be accepted/included in the group/loved/esteemed....Therefore, you should accept XYZ as true.**

In the direct approach the arousal of a mob mentality produces an immediate feeling of belonging. Each person feels united with the crowd, and this feeling evokes a sense of strength and security. When the crowd roars its approval of the conclusions that are then offered, anyone who does not accept them automatically cuts himself or herself off from the crowd and risks the loss of his or her security, strength, and acceptance. The same thing happens in the indirect approach, but the context and technique are somewhat subtler. More examples of indirect approach:

* Of course you want to buy a pair of Slinky fashion jeans. Slinky jeans really show off your figure, and all the Hollywood starlets down on the Strip can be seen wearing them these days.
* Nowadays, everyone that’s everybody believes in the existence of God. So, you should too.
* Intelligent, refined people insist on the best wine. And Guder is our best red wine available. Obviously, Guder is for you.
* 90% of our people believe that the earth is the center of the universe. If you don’t accept you will be left alone. so you are smart and accept what the majority accepted

**4. Argument against the Person *(Argumentum ad Hominem)***

It involves attacking the person who advances an argument as opposed to providing a rational critique of the argument. It always involves two arguers. One of them advances (either directly or implicitly) a certain argument and the other then responds by directing his or her attention not to the first person's argument but to the first person *himself.* When this occurs, the second person is said to commit an argument against the person.

**Argument against the person**

Attacks A1=Arguer 1

A2=Arguer 2

Presents Rejects (A2 commits the fallacy)

Argument

The argument against the person occurs in **three forms:** the *ad hominem* abusive, the *ad hominem* circumstantial, and the “*to quoque”.*

1. **I**n the ***ad hominem* abusive**, the second person responds to the first person's argument by verbally abusing the first person. Example:

* *Before he died, poet Allen Ginsberg argued in favor of legalizing pornography. But Ginsberg's arguments are nothing but trash. Ginsberg was a marijuana-smoking homosexual and a thoroughgoing advocate of the drug culture.*
* *I find it mildly amusing that Miss Monica is advocating reform in Ethiopian universities. But I certainly do not see any reason to take her proposal seriously. She was poor student in the university and she is the ugliest women in the country.*

In the first example, because Ginsberg's being a marijuana-smoking homosexual and advocate of the drug culture is irrelevant to whether the premises of this argument support the conclusion, the argument is fallacious.

Not all cases of the *ad hominem* abusive are so blunt, but they are just as fallacious. Example:

William Buckley has argued in favor of legalizing drugs such as cocaine and heroin. But Buckley is just another one of those upper-crust intellectuals who is out of touch with real America. No sensible person should listen to his pseudo solutions.

Again, whether Buckley is an upper-crust intellectual has nothing to do with whether his premises support his conclusion.

1. **The *ad hominem* circumstantial** begins the same way as the *ad hominem* abusive, but instead of heaping verbal abuse on his or her opponent, the respondent attempts to discredit the opponent's argument by alluding to certain circumstances that affect the opponent. By doing so the respondent hopes to show that the opponent is predisposed to argue the way he or she does and should therefore not be taken seriously. Here is an example:

* The Dalai Lama argues that China has no business in Tibet and that the West should do something about it. But the Dalai Lama just wants the Chinese to leave so he can return as leader. Naturally he argues this way. Therefore, we should reject his arguments.
* Athlete Gete Wami argued in favor of equal pay for equal work. But since she is a woman, it is for her personal advantage to favor of equal pay for equal work. After all she would get an immediate raise if her boss accepted her argument. So, her argument is thrash.

The author of the first argument ignores the substance of the Dalai Lama's argument and attempts to discredit it by calling attention to certain circumstances that affect the Dalai Lama—namely, that he wants to return to Tibet as its leader. But the fact that the Dalai Lama happens to be affected by these circumstances is irrelevant to whether his premises support a conclusion. The *ad hominem* circumstantial is easy to recognize because it always takes this form: "**Of course Mr. X argues this way; just look at the circumstances that affect him.**"

1. **The *to quoque* ("you too")** fallacy begins the same way as the other two varieties of the *ad hominem* argument, except that the second arguer attempts to make the first appear to be hypocritical, that is his views or arguments conflict with his practice or with what he has said previously. In effect, the second arguer says**, "How dare you argue that I should stop doing X; why, you do (or have done) *X* yourself."** Example:

* ***Child to parent****: Your argument that I should stop stealing chocolate from the supermarket is no good. You told me yourself just a week ago that you, too, stole chocolate when you were a kid.*
* *Actor Tom Cruise asked in his speech that everyone in California State should take part in bringing an end to environmental pollution. But, his argument is unacceptable. He is the one who burned 20 cars and hundreds of gallons of gas in his last movie. Therefore, nothing is wrong with polluting the environment*.

In the first example, whether the parent stole candy is irrelevant to whether the parent's premises support the conclusion that the child should not steal candy.

Keep in mind that the purpose of an *ad hominem* argument is to discredit another person's argument by placing its author in a bad light. Thus, for the fallacy to be committed there must always be two arguers (at least implicitly). If it should turn out that the person being attacked is not an arguer, then the personal comments made by the attacker may well be relevant to the conclusion that is drawn. In general, personal observations are relevant to conclusions about what kind of person someone is (good, bad, stingy, trustworthy, and so forth) and whether a person has done something.

**Example**:

*International terrorist Osama bin Laden planned the destruction of the World Trade Center, killing thousands of innocent people, and he supports terrorist causes all over the world. Bin Laden is therefore a wicked and irresponsible person.*

The conclusion is not that Bin Laden's argument is bad but that Bin Laden himself is bad. Because the premises give relevant support to this conclusion, the argument commits no fallacy.

Another example:

Shakespeare cannot possibly have written the thirty-six plays attributed to him, because the real Shakespeare was a two-bit country businessman who barely finished the fourth grade in school and who never left the confines of his native England.

The conclusion is not that some argument of Shakespeare's is bad but that Shakespeare did not write certain plays. Again, since the premises are relevant to this conclusion, the argument commits no *ad hominem* fallacy.

Determining what kind of person someone is includes determining whether that person is trustworthy. Thus, personal comments are often relevant in evaluating whether a person's proclamations or statements, unsupported by evidence, warrant our belief. Examples of such statements include promises to do something, testimony given by a witness, and testimonials in support of a product or service.

Here is ***an example of an argument that discredits a witness***:

*Mickey has testified that he saw Freddy set fire to the building. But Mickey was recently convicted on ten counts of perjury, and he hates Freddy with a passion and would love to see him sent to jail. Therefore, you should not believe Mickey's testimony*.

This argument commits no fallacy. The conclusion is not that you should reject Mickey's argument but rather that you should reject his testimony. Testimony is not argument, and the fact that the witness is a known liar and has a motive to lie now is relevant to whether we should believe him. Furthermore, note that the conclusion is not that Mickey's statement is literally false but rather that we should not *believe* the statement. It is quite possible that Mickey really did see Freddy set fire to the building and that Mickey's statement to that effect is true. But if our only reason for believing this statement is the mere fact that Mickey has made it, then given the circumstances, we are not justified in that belief. Personal factors are never relevant to truth and falsity as such, but they are relevant to believability.

Yet there is often a close connection between truth and believability, and this provides one of the reasons why *ad hominem* arguments are often effective. In evaluating any argument there are always two issues to be considered**: the quality of the reasoning and the truth of the premises.** As noted, both are irrelevant to the personal characteristics of the arguer. But whether we *accept* the premises as true may depend on the credibility of the arguer. Knowing that the arguer is biased or has a motive to lie may provide good grounds for distrusting the premises. Another reason why *ad hominem* arguments are effective is that they engage the emotions of readers and listeners and thereby motivate them to transfer their negative feelings about the arguer onto the argument.

**5. Accident**

The fallacy of accident is committed when a general rule is applied to a specific case it was not intended to cover. Typically, the general rule is cited (either directly or implicitly) in the premises and then wrongly applied to the specific case mentioned in the conclusion. Two examples:

* *Freedom of speech is a constitutionally guaranteed right. Therefore, John Q. Radical should not be arrested for his speech that incited the riot last week.*
* *Property should be returned to its rightful owner. That drunken sailor who is starting a fight with his opponents at the pool table lent you his .45-caliber pistol, and now he wants it back. Therefore, you should return it to him now.*

In the first example, the general rule is that freedom of speech is normally guaranteed, and the specific case is the speech made by John Q. Radical. Because the speech incited a riot, the rule does not apply. In the second example, the general rule is that property should be returned to its rightful owner, and the specific case is the sailor who wants his gun returned. The rule does not apply, because the return of the property might result in serious injury or death.

**Accident**

General rule

Misapplied

Specific case

The fallacy of accident gets its name from the fact that one or more accidental features of the specific case make it an exception to the rule. In the first example the accidental feature is that the speech incited a riot; in the second example the accidental features are that the sailor is drunk, that he is starting a fight, and that the property in question is dangerous. ***More examples***:

* *The First Amendment to the Constitution prevents the government from interfering with the free exercise of religion. The liturgical practice of the Religion of Internal Enlightenment involves human sacrifice. Therefore, it would be wrong for the government to interfere with this religious practice*.
* Whoever thrusts a knife into another person should be arrested. But surgeons do precisely this when operating. Therefore, surgeons should be arrested.

**6. Straw Man**

The straw man fallacy is committed when an arguer distorts or misrepresents an opponent's argument for the purpose of more easily attacking it, demolishes the distorted argument, and then concludes that the opponent's real argument has been demolished. By so doing, the arguer is said to have set up a straw man and knocked it down, only to conclude that the real man (opposing argument) has been knocked down as well.

**Example**:

Mr. Goldberg has argued against prayer in the public schools. Obviously Mr. Goldberg advocates atheism. But his assumptions include (a) there is no God, (b) only matter exists, and (c) life is essentially meaningless. That is why we must fight against those people who seek to remove prayer from our public schools.

**Straw man** Distorts A=Arguer

OP=Opponent’s position

Poses

Conclusion

Like the argument against the person fallacy, the straw man fallacy involves two arguers. Mr. Goldberg, who is the first arguer, has presented an argument against prayer in the public schools. The second arguer then attacks Goldberg's argument by equating it with an argument for atheism/materialism. He then concludes that Gold-berg's argument is nonsense. Since Goldberg's argument had nothing to do with atheism, the second argument commits the straw man fallacy.

As this example illustrates, the kind of distortion the second arguer resorts to is often an attempt to exaggerate the first person's argument or make it look more extreme than it really is. Here are two more examples:

* The President is arguing that all citizens are responsible to defend their mother land in times of war. But this is totally wrong, we should not allow him to turn schools and hospital into military camps, and divert their budgets to smuggle killing machines.
* Gender Office of ASTU argued for the total equality of sexes, i.e. equal pay for equal work. To accept this is to insist that 50% of our national football players should be women. Most striking is that it insists half of religious leaders in our Mosques and churches should be women. Believe me this is great mistake

In the first argument, the petition is merely for better ventilation in the factory—maybe a fan in the window during the summer. The arguer exaggerates this request to mean an elaborate air-conditioning system installed throughout the building. He then points out that this is too expensive and concludes by rejecting the petition. A similar strategy is used in the second argument. The arguer distorts the request for equal pay for equal work to anarchy. Such an idea is so patently outlandish that no further argument is necessary.

**7. Missing the Point *(Ignoratio Elenchi)***

All the fallacies we have discussed thus far have been instances of cases where the premises of an argument are irrelevant to the conclusion. Missing the point illustrates a special form of irrelevance. This fallacy occurs when the premises of an argument support one particular conclusion, but then a different conclusion, often vaguely related to the correct conclusion, is drawn. Whenever one suspects that such a fallacy is being committed, he or she should be able to identify the *correct* conclusion, the conclusion that the premises *logically* imply. This conclusion must be significantly different from the conclusion that is actually drawn. Examples:

* Crimes of theft and robbery have been increasing at an alarming rate lately. The conclusion is obvious: We must reinstate the death penalty immediately.
* Abuse of the welfare system is rampant nowadays. Our only alternative is to abolish the system altogether.

**Missing the point** Actually entails conclusion “A”

Premises

Conclusion “B”

At least two correct conclusions are implied by the premise of the first argument: either "We should provide increased police protection in vulnerable neighborhoods" or "We should initiate programs to eliminate the causes of the crimes." Reinstating the death penalty is not a logical conclusion at all. Among other things, theft and robbery are not capital crimes. In the second argument the premises logically suggest some systematic effort to eliminate the cheaters rather than eliminating the system altogether.

***Ignoratio elenchi***means "ignorance of the proof." The arguer is ignorant of the logical implications of his or her own premises and, as a result, draws a conclusion that misses the point entirely. The fallacy has a distinct structure all its own, but in some ways it serves as a catchall for arguments that are not clear instances of one or more of the other fallacies. An argument should not be identified as a case of missing the point, however, if one of the other fallacies fits. Last example:

* Something is seriously wrong with high school education these days. After ten years of decline, SAT scores are still extremely low, and high school graduates are practically incapable of reading and writing. The obvious conclusion is that we should close the schools.
* The Ethiopian National football team has never qualified for world cup finals. Therefore, we have to abolish the team altogether.

**8. Red Herring**

This fallacy is closely associated with missing the point *(ignoratio elenchi).* The red herring fallacy is committed when the arguer diverts the attention of the reader or listener by changing the subject to a different but sometimes subtly related one. He or she then finishes by either drawing a conclusion about this different issue or by merely presuming that some conclusion has been established. By so doing, the arguer purports to have won the argument. The fallacy gets its name from a procedure used to train hunting dogs to follow a scent. A red herring (or bag of them) is dragged across the trail with the aim of leading the dogs astray. Since red herrings have an especially potent scent (caused in part by the smoking process used to preserve them), only the best dogs will follow the original scent.

**Red herring** Draws off track

A=Arguer

Poses R/L=Reader/Listener

Conclusion

To use the red herring fallacy effectively, the arguer must *change the original subject of the argument without the reader or listener noticing it*. **One way** of doing this is to change the subject to one that is subtly related to the original subject. Here are two examples of this technique:

* Environmentalists are continually harping about the dangers of nuclear power. Unfortunately, electricity is dangerous no matter where it comes from. Every year hundreds of people are electrocuted by accident. Since most of these accidents are caused by carelessness, they could be avoided if people would just exercise greater caution.
* There is a good deal of talk these days about the need to eliminate pesticides from our fruits and vegetables. But many of these foods are essential to our health. Carrots are an excellent source of vitamin A, broccoli is rich in iron, and oranges and grapefruit have lots of vitamin C.

Both arguments commit the red herring fallacy. In the first, the original issue is whether nuclear power is dangerous. The arguer changes this subject to the danger of electrocution and proceeds to draw a conclusion about that. The new subject is clearly different from the possibility of nuclear explosion or meltdown, but the fact that both are related to electricity facilitates the arguer's goal of leading someone off the track. In the second argument, the original issue is pesticides, and the arguer changes it to the value of fruits and vegetables in one's diet. Again, the fact that the second topic is related to the first assists the arguer in committing the fallacy. In neither case does the arguer draw a conclusion about the original topic, but by merely diverting the attention of the reader or listener, the arguer creates the presumption of having won the argument.

A second way of using the red herring effectively is *to change the subject to some flashy, eye-catching topic that is virtually guaranteed to distract the listener's attention*. Topics of this sort include sex, crime, scandal, immorality, death, and any other topic that might serve as the subject of gossip. Here is an example of this technique:

Professor Conway complains of inadequate parking on our campus. But did you know that last year Conway carried on a torrid love affair with a member of the English Department? The two used to meet every day for clandestine sex in the copier room. Apparently they didn't realize how much you can see through that fogged glass window. Even the students got an eyeful. Enough said about Conway.

The red herring fallacy can be confused with the straw man fallacy because both have the effect of drawing the reader/listener off the track. This confusion can usually be avoided by remembering the unique ways in which they accomplish this purpose. In the straw man, the arguer begins by distorting an opponent's argument and concludes by knocking down the distorted argument. In the red herring, the arguer ignores the opponent's argument (if there is one) and subtly changes the subject. Thus, to distinguish the two fallacies, one should attempt to determine whether the arguer has knocked down a distorted argument or simply changed the subject. Also keep in mind that straw man al-ways involves two arguers, at least implicitly, whereas a red herring often does not.

Both the red herring and straw man fallacies are susceptible of being confused with missing the point, because all three involve a similar kind of irrelevancy. To avoid this confusion, one should note that both red herring and straw man proceed by generating a new set of premises, whereas missing the point does not. Straw man draws a conclusion from new premises that are obtained by distorting an earlier argument, and red herring, if it draws any conclusion at all, draws one from new premises obtained by changing the subject. Missing the point, however, draws a conclusion from the original premises. Also, in the red herring and straw man, the conclusion, if there is one, is *relevant* to the premises from which it is drawn; but in missing the point, the conclusion is *irrelevant* to the premises from which it is drawn. Finally, remember that missing the point serves in part as a kind of catchall fallacy, and a fallacious argument should not be identified as a case of missing the point if one of the other fallacies clearly fits. Last example:

* The school board argues that our schools are in desperate need of repair. But the real reason our students are falling behind is that they spend too much time with their computers. Becoming educated means a lot more than learning how to point and click. The school board should send a letter to the parents urging them to monitor their kids' computer time.
* The Economist argued that we need to pay our taxes for better education and health care services. In fact education is a long term investment for the health of the mind, while health care services are for our body. Thus we need to keep them up to the beast standards possible.

**3.3 Fallacies of Weak Induction**

The fallacies of weak induction occur not because the premises are logically irrelevant to the conclusion, as is the case with the eight fallacies of relevance, but because the connection between premises and conclusion is not strong enough to support the conclusion. In each of the following fallacies, the premises provide at least a shred of evidence in support of the conclusion, but the evidence is insufficient to cause a reasonable person to believe the conclusion. Like the fallacies of relevance, however, the fallacies of weak induction often involve emotional grounds for believing the conclusion.

**9. Appeal to Unqualified Authority *(Argumentum ad Verecundiam)***

We saw in Chapter 1 that an argument from authority is an inductive argument in which an arguer cites the authority or testimony of another person in support of some conclusion. The appeal to unqualified authority fallacy occurs when the cited authority lacks credibility or when the reliability of the authority may reasonability be doubted.

**Appeal to unqualified authority** Cites A=Arguer

Poses Au=Unqualified authority

Conclusion

There are several reasons why an authority or witness might lack credibility. The fallacy occurs when the person might lack the requisite expertise. The following examples illustrate these reasons:

* Mr.Obang, who is an Accounting instructor, states that since our universities are creating many physicists, Ethiopia will build a nuclear arsenal in 2020. On Mr. Obang's expertise as an accountant, we must conclude that this is indeed true.
* Cristiano Ronaldo said that Physics has no value at all. Thus, physics is worthless.

These fallacies occurred for we cited expert of one in one field is cited as an authority in another field for the first, and celebrity lacking expert for the second arguments. Because it is unlikely that an accountant/football player would be an expert in nuclear physics/physics, the argument commits an appeal to unqualified authority.

The fallacy also occurs when the authority might be biased or prejudiced.

David Duke, former Grand Wizard of the Ku Klux Klan, has stated, "Jews are not good Americans. They have no understanding of what America is." On the basis of Duke's authority, we must therefore conclude that the Jews in this country are un-American.

As an authority, David Duke is clearly biased, so his statements cannot be trusted.

Further, the fallacy also occurs when the authority might have a motive to lie or disseminate "misinformation," or might lack the requisite ability to perceive or recall.

* James W. Johnston, Chairman of R. J. Reynolds Tobacco Company, testified before Congress that tobacco is not an addictive substance and that smoking cigarettes does not produce any addiction. Therefore, we should believe him and conclude that smoking does not in fact lead to any addiction.
* Old Mrs. Ferguson (who is practically **blind**) has testified that she saw the defendant stab the victim with a bayonet while she was standing in the twilight shadows 100 yards from the incident. Therefore, members of the jury, you must find the defendant guilty.

If Mr. Johnston had admitted that tobacco is addictive, it would have opened the door to government regulation, which could put his company out of business. Thus, because Johnston had a clear motive to lie, we should not believe his statements.

Again, Mrs. Ferguson lacks the ability to perceive what she has testified to, so her testimony is untrustworthy.

Of course if an authority is credible, the resulting argument will contain no fallacy. Example:

The county tax collector issued a press release stating that property tax revenues are higher this year than last year. Therefore, we conclude that these revenues are indeed higher this year

Normally a county tax collector would be considered a qualified expert in the area of tax revenues, so assuming the tax collector has no reason to lie, this argument is inductively strong.

In deciding whether a person is a qualified authority, one should keep two important points in mind. First**, the person** might be an **authority in more than one field**. For example, a chemist might also be an authority in biology, or an economist might also be an authority in law. The second point is that there are **some areas** in which practically **no one can be considered an authority.** Such areas include politics, morals, and religion. For example, if someone were to argue that abortion is immoral because a certain philosopher or religious leader has said so, the argument would be weak regardless of the authority's qualifications. Many questions in these areas are so hotly contested that there is no conventional wisdom an authority can depend on.

**Tips**

In conversation and in popular writing, one often encounters argument of the form “Studies have shown X. So, X.” In many cases such arguments are fallacies. Consider such questions: What studies? When were they conducted? By whom? Were it conducted in a scientific fashion? Are there equally scientific studies that contradict the ones cited?

**10. Appeal to Ignorance *(Argumentum ad Ignorantiam)***

It ocures when the premises of an argument state that nothing has been proved one way or the other about something, and the conclusion then makes a definite assertion about that thing. The issue usually involves something that is incapable of being proved or something that has not yet been proved. Example:

* People have been trying for centuries to provide conclusive evidence for the claims of astrology, and no one has ever succeeded. Therefore, we must conclude that astrology is a lot of nonsense.
* It has not been proven that the proposed reform program in ASTU will be beneficial. Therefore, they will not be beneficial.

Conversely, the following argument commits the same fallacy.

* People have been trying for centuries to disprove the claims of astrology, and no one has ever succeeded. Therefore, we must conclude that the claims of astrology are true.

The premises of an argument are supposed to provide positive evidence for the conclusion. The premises of these arguments, however, tell us nothing about astrology; rather, they tell us about what certain unnamed and unidentified people have tried unsuccessfully to do. This evidence may provide some slight reason for believing the conclusion, but certainly not sufficient reason.

In other words, the fallacy involves one of the following:

1. the claim that a statement is true (may be reasonably believed true) b/s simply it hasn’t been proven false, or
2. the claim that a statement is false (may be reasonably believed false) b/s simply it hasn’t been proven true.

* There is no solid evidence showing that the proposed reform program in ASTU will not be beneficial. Therefore, it will be beneficial.
* I don’t know that nuclear arsenal exists. Thus, nuclear arsenal is just a myth.
* I don’t have very much information about Mr. Gemechis, but there is nothing in his file to disprove that he is a communist. So, he probably is one.

**Appeal to ignorance**

Premises: Nobody has proved that X is true

Conclusion: X is false

These examples do, however, lead us to the first of two important exceptions to the appeal to ignorance.

The first stems from the fact that if qualified researchers investigate a certain phenomenon within their range of expertise and fail to turn up any evidence that the phenomenon exists, this fruitless search by itself constitutes positive evidence about the question. Consider, for example, the following argument:

Teams of scientists attempted over several decades to detect the existence of the luminiferous ether, and all failed to do so. Therefore, the luminiferous ether does not exist.

The premises of this argument are true. Given the circumstances, it is likely that the scientists in question would have detected the ether if in fact it did exist. Since they did not detect it, it probably does not exist. Thus, we can say that the given argument is inductively strong (but not deductively valid).

As for the two arguments about astrology, if the attempts to prove or disprove the astrological claims had been done in a systematic way by qualified experts, the arguments would more likely be good. Exactly what is required to qualify someone to investigate astrological claims is, of course, difficult to say. But as these arguments stand, the premises state nothing about the qualifications of the investigators, and so the arguments remain fallacious.

It is **not always** necessary, however, that the investigators have **special qualifications**. The kinds of qualifications needed depend on the situation. Sometimes the mere ability to see and report what one sees is sufficient. Example:

No one has ever seen Mr. Andrews drink a glass of wine, beer, or any other alcoholic beverage. Probably Mr. Andrews is a nondrinker.

Because it is highly probable that if Mr. Andrews were a drinker, somebody would have seen him drinking, this argument is inductively strong. No special qualifications are needed to be able to see someone take a drink.

The second exception to the appeal to ignorance relates to courtroom procedure. In the United States and a few other countries, a person is presumed innocent until proven guilty. If the prosecutor in a criminal trial fails to prove the guilt of the defendant beyond reasonable doubt, counsel for the defense may justifiably argue that his or her client is not guilty. Example:

Members of the jury, you have heard the prosecution present its case against the defendant. Nothing, however, has been proved beyond a reasonable doubt. Therefore, under the law, the defendant is not guilty.

This argument commits no fallacy because "not guilty" means, in the legal sense, that guilt beyond a reasonable doubt has not been proved. The defendant may indeed have committed the crime of which he or she is accused, but if the prosecutor fails to prove guilt beyond a reasonable doubt, the defendant is considered "not guilty."

**11. Hasty Generalization (Converse Accident)**

Hasty generalization is a fallacy that affects inductive generalizations. In Chapter 1 we saw that an inductive generalization is an argument that draws a conclusion about all members of a group from evidence that pertains to a selected sample. The fallacy occurs when there is a reasonable likelihood that the *sample is not representative of the group*. Such likelihood may arise if the sample is either too small or not randomly selected.

**Hasty generalization**

Specific case(s) (not representative)

Generalization

General rule

**Here are two examples**:

* After only one year the alternator went out in Mr.Sagny's new Executive. Mrs. Dame's V8 developed a transmission problem after six months. The obvious conclusion is that cars made by Toyota are just a pile of junk these days.
* Ten Arab fundamentalists hijacked planes and crashed them into the World Trade Center in New York City. The message is clear: Arabs are nothing but a pack of religious fanatics prone to violence.

In these arguments a conclusion about a whole group is drawn from premises that mention only a few instances. Because such small, atypical samples are not sufficient to support a general conclusion, each argument commits a hasty generalization. The second example indicates how hasty generalization plays a role in *racial and religious prejudice.*

The mere fact that a sample is small, however, does not necessarily mean that it is a fallacy. In the case of small samples, various factors may intervene that render such a sample typical of the larger group. Examples:

Ten milligrams of substance Z was fed to four mice and within two minutes all four went into shock and died. Probably substance Z, in this amount, is fatal to mice in general.

Ten milligrams of substance Z was fed to four mice and within two minutes all four went into shock and died. Probably substance Z, in this amount, is fatal to mice in general. (Not fallacy

On three separate occasions I drank a bottle of Bedele special beer and found it flat and bitter. Probably I would find every bottle of Bedele special beer flat and bitter. (Not fallacy)

Neither of these arguments commits the fallacy of hasty generalization, because in neither case is there any likelihood that the sample is atypical of the group. In the first argument the fact that the mice died in only two minutes suggests the existence of a causal connection between eating substance Z and death. If there is such a connection, it would hold for other mice as well. In the second example the fact that the taste of beer typically remains constant from bottle to bottle causes the argument to be strong, even though only three bottles were sampled.

In the case of large samples, the mere fact that a sample is large does not guarantee that it is fallacy free. Here, if the sample isnot random, it may not be representative of the larger group. Example:

One hundred thousand voters from Orange County, California, were surveyed on their choice for governor, and 68 percent said they intend to vote for the Republican candidate. Clearly the Republican candidate will be elected.

Even though the sample cited in this argument is large, the argument *commits* a *hasty generalization*. The problem is that Orange County is overwhelmingly Republican, so the mere fact that 68 percent intend to vote for the Republican candidate is no indication of how others in the state intend to vote. In other words, the survey was not conducted randomly, and for this reason the argument is fatally flawed.

Hasty generalization is otherwise called "*converse accident*" because it proceeds in a direction opposite to that of accident. Whereas accident proceeds from the general to the particular, converse accident moves from the particular to the general. The premises cite some characteristic affecting one or more atypical instances of a certain class, and the conclusion then applies that characteristic to all members of the class. More Examples:

* Last year four ASTU students were dismissed because of the use of drugs (hashish). The same measure is taken against three students this year as well. We can conclude that ASTU students are nothing but drug addicts.
* Look at African leaders such as Charles Taylor of Liberia, Al Bashir of the Sudan, and Lauren Gbagbo of Cote d’Ivoire. They are all prosecuted by International Court of Justice for crime against humanity. From this we can conclude that all African leaders are ruthless murderers.

**12. False Cause**

The fallacy of false cause occurs whenever the link between premises and conclusion depends on some imagined causal connection that probably does not exist. To put it differently, it occurs when one possible cause of a phenomenon is assumed to be a (or the) cause although reasons are lacking for excluding other possible causes. Whenever an argument is suspected of committing the false cause fallacy, the reader or listener should be able to say that the conclusion depends on the supposition that X causes Y, whereas *X* probably does not cause Y at all.

**False cause**

Premises

Depends on nonexistent or minor causal connection

Conclusion

Examples:

1. During the past two months, every time that the cheerleaders have worn blue ribbons in their hair, the basketball team has been defeated. Therefore, to prevent defeats in the future, the cheerleaders should get rid of those blue ribbons. (Post hoc ergo propter hoc)
2. Successful business executives are paid salaries in excess of $100,000. Therefore, the best way to ensure that Ferguson will become a successful executive is to raise his salary to at least $100,000. (Non causa pro causa)
3. There are more laws on the books today than ever before, and more crimes are being committed than ever before. Therefore, to reduce crime we must eliminate the laws. (Non causa pro causa)

The first argument depends on the supposition that the blue ribbons caused the defeats, the second on the supposition that a high salary causes success and the third on the supposition that laws cause crime. In no case is it likely that any causal connection exists.

The first argument illustrates a variety of the false cause fallacy called ***post hoc ergo propter hoc***("after this, therefore because of this"). **Form: X precedes Y, therefore X caused Y.** This variety of the fallacy presupposes that just because one event precedes another event, the first event causes the second. Obviously, mere temporal succession is not sufficient to establish a causal connection. Nevertheless, this kind of reasoning is quite common and lies behind most forms of superstition. Here are some examples ofpost hoc ergo propter hoc:

* Day always follows night. The two are perfectly correlated. Therefore, night causes day.
* A black cat crossed my path and later I tripped and sprained my ankle. It must be that black cats really are bad luck.
* Since Mr. Kemal came into justice office two years ago, the rate of violent crime has decreased significantly. So, it is clear that the longer prison sentences we recommended are working.

The second and third arguments illustrate a variety of the false cause fallacy called ***non causa pro causa***("not the cause for the cause"). This variety is committed when what is taken to be the cause of something is not really the cause at all and the mistake is based on something other than mere temporal succession. In reference to the second argument, success as an executive causes increases in salary—not the other way around—so the argument *mistakes the cause for the effect*.

In reference to the third argument, the increase in crime is, for the most part, only coincidental with the increase in the number of laws. Obviously, the mere fact that one event is coincidental with another is not sufficient reason to think that one caused the other. Here are some examples ofnon causa pro causa:

Violent crime has been on the increase for the past two decades. The quantity of violent movies has also increased during this time. Therefore, in all likelihood, the cause of the increase in violent crime is the increase in the quantity of violent movies.

A third variety of the false cause fallacy, and one that is probably committed more often than either of the others in their pure form, is ***oversimplified cause****.* This variety occurs when a multitude of causes is responsible for a certain effect but one of them is illegitimately claimed to be the sole cause. Here are some examples ofoversimplified cause:

* The quality of education in our grade schools and high schools has been declining for years. Clearly, our teachers just aren't doing their job these days.
* Today, all of us can look forward to a longer life span than our parents and grandparents. Obviously we owe our thanks to the millions of dedicated doctors who expend every effort to ensure our health.

In reference to the first argument, the decline in the quality of education is caused by many factors, including lack of discipline in the home, lack of parental involvement, too much television, and drug use by students. Poor teacher performance is only one of these factors and probably a minor one at that. In the second argument, the efforts of doctors are only one among many factors responsible for our longer life span. Other, more important factors include a better diet, more exercise, reduced smoking, safer highways, and more stringent occupational safety standards.

The oversimplified cause fallacy is usually motivated by self-serving interests. Sometimes the arguer wants to take undeserved credit for himself or herself or give undeserved credit to some movement with which he or she is affiliated. At other times, the arguer wants to heap blame on an opponent or shift blame from himself or herself onto some convenient occurrence. Instances of the fallacy can resemble either the *post hoc* or the *non causa pro causa* varieties in that the alleged cause can occur either prior to or concurrently with the effect. It differs from the other varieties of false cause fallacy in that the single factor selected for credit or blame is often partly responsible for the effect, but responsible to only a minor degree.

The last variety of false cause we will consider is called the ***gambler's fallacy****.* This fallacy is committed whenever the conclusion of an argument depends on the supposition that independent events in a game of chance are causally related*.* Here is an example:

A fair coin was flipped five times in a row, and each time it came up heads. Therefore, it is extremely likely that it will come up tails on the next flip.

In fact, it is no more likely that the coin will come up tails on the next flip than it was on the first flip. Each flip is an independent event, so earlier flips have no causal influence on later ones. Thus, the fact that the earlier flips came up heads does not increase the likelihood that the next flip will come up tails.

For the gambler's fallacy to be committed, the events must be independent or nearly independent. Such events include rolls of a pair of fair (unloaded) dice, spins of a fair roulette wheel, and selections of lottery winning numbers. Events are not completely independent whenever the skill of the gambler affects the outcome. Thus, poker, blackjack, and horse-race betting provide less-than-perfect candidates for the gambler's fallacy.

The false cause fallacy is often convincing because it is often difficult to determine whether two phenomena are causally related*.* A lengthy time lapse between the operation of the cause and the occurrence of the effect can exacerbate the problem. For example, the thirty-year interval between exposure to asbestos and the onset of asbestosis impeded the recognition of a causal connection. Also, when two events are causally related, deter-mining the degree of relatedness may be hard. Thus, there may be some connection between the electromagnetic field produced by high voltage transmission lines and leukemia, but the connection may be extremely slight. Finally, when a causal connection is recognized, it may be difficult to determine which the cause is and which the effect is.

For example, an allergic reaction may be connected with an episode of anxiety, but it may be hard to tell if the reaction causes the anxiety or if the anxiety causes the reaction.

The realm of human action constitutes another area in which causal connections are notoriously difficult to establish. For example, the attorneys for accused murderer Dan White argued that Twinkies, Coke, and potato chips caused him to kill San Francisco mayor George Moscone. Other attorneys have blamed their clients' crimes on PMS, rap music, childhood abuse, mental retardation, and hallucinations. The complex nature of human motivation renders all such causal claims difficult to evaluate. The situation may become even worse when a whole nation of people is involved. Thus, the recent drop in crime rates has been attributed to "three strikes" laws, but it is difficult to say whether this or some other factor is really responsible.

One point that should be kept in mind when establishing causal connections is that statistical correlations by themselves often reveal little about what is actually going on. For example, if all that we knew about smoking and lung cancer was that the two frequently occur together, we might conclude any number of things. We might conclude that both have a common cause, such as a genetic predisposition, or we might conclude that lung cancer is a disease contracted early in life and that it manifests itself in its early stages by a strong desire for tobacco. Fortunately, in this case we have more evidence than a mere statistical correlation. This additional evidence inclines us to believe that the smoking is a cause of the cancer.

**13. Slippery Slope**

The fallacy of slippery slope is a **variety of the false cause fallacy**. It occurs when the conclusion of an argument rests on an alleged chain reaction and there is not sufficient reason to think that the chain reaction will actually take place. Here is an example:

Immediate steps should be taken to outlaw pornography once and for all. The continued manufacture and sale of pornographic material will almost certainly lead to an increase in sex-related crimes such as rape and incest. This in turn will gradually erode the moral fabric of society and result in an increase in crimes of all sorts. Eventually a complete disintegration of law and order will occur, leading in the end to the total collapse of civilization.

Because there is no good reason to think that the mere failure to outlaw pornography will result in all these dire consequences, this argument is fallacious. An equally fallacious counterargument is as follows:

Attempts to outlaw pornography threaten basic civil rights and should be summarily abandoned. If pornography is outlawed, censorship of newspapers and news magazines is only a short step away. After that there will be censorship of textbooks, political speeches, and the content of lectures delivered by university professors. Complete mind control by the central government will be the inevitable result.

Both arguments attempt to persuade the reader or listener that the welfare of society rests on a "slippery slope" and that a single step in the wrong direction will result in an inevitable slide all the way to the bottom.

**Slippery slope**

The slippery slope fallacy can involve various kinds of causality. For example, someone might argue that removing a single brick from a building would set off a chain reaction leading to the destruction of the building, or that chopping down a tall tree would set off a cascade of falling trees leading to the destruction of the forest. These arguments depend on pure physical causality. On the other hand, someone might argue that starting a rumor about the health of the economy would set off a chain re-action leading to the collapse of the stock market. Such an argument would depend on the kind of causality found in interpersonal communications. Or someone might argue that planting a seed of doubt in a person's mind about the faithfulness of his or her spouse would gnaw away at that person, leading to the breakup of the marriage. Such an argument would depend on the kind of causality that links mental states. Here are some examples:

* The secretaries have asked us to provide lounge areas where they can spend their coffee breaks. This request will have to be refused. If we give them lounge areas, next they'll be asking for spas and swimming pools. Then it will be racquetball courts, tennis courts, and fitness centers. Expenditures for these facilities will drive us into bankruptcy.
* Never buy a lottery ticket. People who buy lottery ticket soon find that they want to gamble on houses. Next, they develop a strong urge to go to Las Vegas and bet their life savings in the casinos. The addiction to gambling gradually ruins their family life. Eventually, they die, homeless and lonely.

**14. Weak Analogy**

This fallacy affects inductive arguments from analogy. As we saw in Chapter 1, an argument from analogy is an argument in which the conclusion depends on the existence of an analogy, or similarity, between two things or situations. The fallacy of weak analogy is committed when the analogy is not strong enough to support the conclusion that is drawn**.** Example:

Harper's new car is bright blue, has leather upholstery, and gets excellent gas mileage. Crowley's new car is also bright blue and has leather upholstery. Therefore, it probably gets excellent gas mileage, too.

Because the color of a car and the choice of upholstery have nothing to do with gasoline consumption, this argument is fallacious.

The basic structure of an argument from analogy is as follows:

Entity A has attributes *a, b, c,* and *z.*

Entity B has attributes *a, b, c.*

Therefore, entity B probably has attribute *z also.*

Evaluating an argument having this form requires a two-step procedure: *(1) Identify the attributes a, b, c . . . that the two entities A and B share, and (2) determine how the attribute z, mentioned in the conclusion, relates to the attributes a, b, c, . . .* If some causal or systematic relation exists between z and *a, b,* or *c,* the argument is strong; other-wise, it is weak. In the example argument, the two entities share the attributes of being cars; the attributes entailed by being a car, such as having four wheels; and the attributes of color and upholstery material. Because none of these attributes is systematically or causally related to good gas mileage, the argument is fallacious.

**False cause**

Premises

Depends on inadequate analogy

Conclusion

As an illustration of when the requisite systematic or causal relation does and does not exist, consider the following arguments:

* The flow of electricity through a wire is similar to the flow of water through a pipe. Obviously a large-diameter pipe will carry a greater flow of water than a pipe of small diameter. Therefore, a large-diameter wire should carry a greater flow of electricity than a small-diameter wire.
* The flow of electricity through a wire is similar to the flow of water through a pipe. When water runs downhill through a pipe, the pressure at the bottom of the hill is greater than it is at the top. Thus, when electricity flows downhill through a wire, the voltage should be greater at the bottom of the hill than at the top.

The first argument is good and the second is fallacious. Both arguments depend on the similarity between water molecules flowing through a pipe and electrons flowing through a wire. In both cases there is a systematic relation between the diameter of the pipe/wire and the amount of flow. In the first argument this systematic relation pro-vides a strong link between premises and conclusion, and so the argument is a good one. But in the second argument a causal connection exists between difference in elevation and increase in pressure that holds for water but not for electricity. Water molecules flowing through a pipe are significantly affected by gravity, but electrons flowing through a wire are not. Thus, the second argument is fallacious.

The theory and evaluation of arguments from analogy is one of the most complex and elusive subjects in all of logic. Here are some examples:

* No one would buy a pair of shoes without trying them on. Why should any-one be expected to get married without premarital sex?
* Humans have the capacity to sensation, reproduction and think. Animals also have the capacity to sensation and reproduction. Given their similarity, we can conclude that animals can also think.

**3.4 Fallacies of Presumption, Ambiguity, and Grammatical Analogy**

The fallacies of presumption include begging the question, complex question, false dichotomy, and suppressed evidence. These fallacies arise not because the premises are irrelevant to the conclusion or provide insufficient reason for believing the conclusion but because the premises presume or assume what they purport to prove or it uses unwarranted or unjustified premises. *Begging the question* presumes that the premises provide adequate support for the conclusion when in fact they do not, and *complex question* presumes that a question can be answered by a simple "yes," "no," or other brief answer when a more sophisticated answer is needed. *False dichotomy* presumes that an "either ... or ..." statement presents jointly exhaustive alternatives when in fact it does not, and *suppressed evidence* presumes that no important evidence has been overlooked by the premises when in fact it has.

The fallacies of ambiguity include *equivocation* and *amphiboly.* These fallacies arise from the occurrence of some form of ambiguity in either the premises or the conclusion (or both). As we saw in Section 2.1, an expression is ambiguous if it is susceptible to different interpretations in a given context. The words "light" and "bank" are ambiguous, as is the statement "Tuna are biting off the Washington coast." When the conclusion of an argument depends on a shift in meaning of an ambiguous word or phrase or on the wrong interpretation of an ambiguous statement, the argument commits a fallacy of ambiguity.

The fallacies of grammatical analogy include *composition* and *division.* Arguments that commit these fallacies are grammatically analogous to other arguments that are good in every respect. Because of this similarity in linguistic structure, such fallacious arguments may appear good yet be bad.

**15. Begging the Question *(Petitio Principii)***

The fallacy of begging the question is committed whenever the arguer creates the illusion that inadequate premises provide adequate support for the conclusion (a) by leaving out a possibly false (shaky) key premise, (b) by restating a possibly false premise as the conclusion, or (c) by reasoning in a circle. The Latin name for this fallacy, *petitio principii,* means "request for the source." The actual source of support for the conclusion is not apparent, and so the argument is said to beg the question. After reading or hearing the argument, the observer is inclined to ask, "*But how do you know X?" where X is the needed support.*

**The first,** and most common, way of committing this fallacy is *by leaving a possibly false key premise out of the argument while creating the illusion that nothing more is needed to establish the conclusion.*

**Begging the question 1. 2. 3.**

Shaky premise

Shaky premise

Premise

Shaky key premise (missing)

Conclusion

Conclusion

Conclusion (restates premise)

Conclusion

Conclusion

Examples:

* Murder is morally wrong. This being the case, it follows that abortion is morally wrong.
* Of course humans and apes evolved from common ancestors. Just look how similar they are.
* It is obvious that the poor in this country should be given handouts from the government. After all, these people earn less than the average citizen.
* Clearly, terminally ill patients have a right to doctor-assisted suicide. After all, many of these people are unable to commit suicide by themselves.

The first of these arguments begs the question "How do you know that abortion is a form of murder?" The second begs the question "Does the mere fact that humans and apes look similar imply that they evolved from common ancestors?" And the third and fourth beg the questions "Just because the poor earn less than the average citizen, does this imply that the government should give them handouts?" and "Just because terminally ill patients cannot commit suicide by themselves, does it follow that they have a right to a doctor's assistance?"

These questions indicate that something has been left out of the original arguments. Thus, the first argument is missing the premise "Abortion is a form of murder"; the second is missing the premise "If humans and apes look similar, then they have common ancestors"; and so on. These premises are crucial for the soundness of the arguments. If the arguer is unable to establish the truth of these premises, then the arguments prove nothing. However, in most cases of begging the question, this is precisely the reason why such premises are left unstated. The arguer is *not* able to establish their truth, and by employing rhetorical phraseology such as "of course," "clearly," "this being the case;' and "after all," the arguer hopes to create the illusion that the stated premise, by itself, provides adequate support for the conclusion when in fact it does not.

The same form of begging the question often appears in *arguments concerning religious topics* to justify conclusions about the existence of God, the immortality of the soul, and so on. Example:

The world in which we live displays an amazing degree of organization. Obviously this world was created by an intelligent God.

This argument begs the question "How do you know that the organization in the world could only have come from an intelligent creator?" Of course the claim that it did come from an intelligent creator may well be true, but the burden is on the arguer to prove it. Without supporting reasons or evidence, the argument proves nothing. Yet most people who are predisposed to believe the conclusion are likely to accept the argument as a good one. The same can be said of most arguments that beg the question, and this fact suggests another reason why arguers resort to this fallacy: Such arguments tend to reinforce preexisting inclinations and beliefs.

**The second form** of *petitio principii* occurs when the conclusion of an argument merely restates a possibly false premise in slightly different language. In such an argument, the premise supports the conclusion, and the conclusion tends to reinforce the premise. Examples:

* Capital punishment is justified for the crimes of murder and kidnapping because it is quite legitimate and appropriate that someone be put to death for having committed such hateful and inhuman acts.
* Anyone who preaches revolution has a vision of the future for the simple reason that if a person has no vision of the future he could not possibly preach revolution.

In the first argument, saying that capital punishment is "justified" means the same thing as saying that it is "legitimate and appropriate," and in the second argument the premise and the conclusion say exactly the same thing. However, by repeating the same thing in slightly different language, the arguer creates the illusion that independent evidence is being presented in support of the conclusion, when in fact it is not. Both arguments contain rhetorical phraseology ("hateful and inhuman," *"simple* reason," and "could not possibly") that help effect the illusion. The first argument begs the question "How do you know that capital punishment really is legitimate and appropriate?" and the second begs the question "How do you know that people who preach revolution really do have a vision of the future?"

**The third form** involves circular reasoning in a chain of inferences having a first premise that is possibly false. Example: Ford Motor Company clearly produces the finest cars in the United States. We know they produce the finest cars because they have the best design engineers. This is true because they can afford to pay them more than other manufacturers. Obviously they can afford to pay them more because they produce the finest cars in the United States.

On encountering this argument, the attentive reader is inclined to ask, "Where does this reasoning begin? What is its source?" Since the argument goes in a circle, it has no beginning or source, and as a result it proves nothing. Of course, in this example the circularity is rather apparent, so the argument is not likely to convince anyone. Cases in which circular reasoning may convince involve long and complex arguments having premises that depend on one another in subtle ways and a possibly false key premise that depends on the conclusion.

**In all cases of begging the question**, the arguer uses some linguistic device to create the illusion that inadequate premises provide adequate support for a conclusion. Without such an illusion, the fallacy is not committed. Thus, the following arguments commit no fallacy:

* No dogs are cats. Therefore, no cats are dogs.
* London is in England and Paris is in France. Therefore, Paris is in France and London is in England.

In both of these examples, the premise amounts to little more than a restatement of the conclusion. Yet both arguments are sound because they are valid and have true premises. No fallacy is committed, because no illusion is created to make inadequate premises appear as adequate. Here is another example:

Rome is in Germany or Rome is in Germany. Therefore, Rome is in Germany.

This argument is valid, but it is unsound because it has a false premise. However, it commits no fallacy because, again, no illusion is created to cover anything up.

As with these examples, arguments that beg the question are normally valid. This is easy to see. Any argument that includes the conclusion as one of the premises is clearly valid; and those forms of the fallacy that leave a key premise out of the argument become valid when that key premise is introduced. The problem with arguments that beg the question is that they are usually unsound, or at least not clearly sound, because the premise needed to provide adequate support for the conclusion is, at best, of uncertain truth value. Because such arguments presume the truth of this premise, begging the question is called a fallacy of presumption. More examples:

* God exists because the Bible says so. But how do I know that the Bible says is true? Because it is God’s word.
* Of course abortion is permissible. After all, a woman has a right to do as she pleases with her own body.
* Obviously, humans have free will, since they have the power to make choices.

**16. Complex Question**

The fallacy of complex question is committed when two (or more) questions are asked in the guise of a single question and a single answer is then given to both of them. Every complex question presumes the existence of a certain condition. When the respondent's answer is added to the complex question, an argument emerges that establishes the presumed condition. Thus, although not an argument as such, a complex question involves an implicit argument. This argument is usually intended to trap the respondent into acknowledging something that he or she might otherwise not want to acknowledge.

**Complex question** Attempts to trap by asking question A= Arguer

R/L=Reader/Listener

Responds

Completed argument

Examples:

* Have you stopped cheating on exams?
* Where did you hide the marijuana you were smoking?

Let us suppose the respondent answers "yes" to the first question and "under the bed" to the second. The following arguments emerge:

You were asked whether you have stopped cheating on exams. You answered, "Yes." Therefore, it follows that you have cheated in the past.

You were asked where you hide the marijuana you were smoking. You replied, "Under the bed." It follows that you were in fact smoking marijuana.

On the other hand, let us suppose that the respondent answers "no" to the first question and "nowhere" to the second. We then have the following arguments:

You were asked whether you have stopped cheating on exams. You answered, "No." Therefore, you continue to cheat.

You were asked where you hid the marijuana you were smoking. You answered, "Nowhere." It follows that you must have smoked all of it.

Obviously, each of the questions is really two questions:

Did you cheat on exams in the past? If you did cheat in the past, have you stopped now?

Were you smoking marijuana? If you were smoking it, where did you hide it?

If respondents are not sophisticated enough to identify a complex question when one is put to them, they may answer quite innocently and be trapped by a conclusion that is supported by no evidence at all; or, they may be tricked into providing the evidence themselves. The correct response lies in resolving the complex question into its component questions and answering each separately.

The fallacy of complex question should be distinguished from another kind of question known in law as a leading question. **A *leading question***is one in which the answer is in some way suggested in the question. Whether or not a question is a leading one is important in the direct examination of a witness by counsel. Example:

Tell us, on April 9, did you see the defendant shoot the deceased? (Leading question)

Tell us, what did you see on April 9? (**Straight question**)

Leading questions differ from complex questions in that they involve no logical fallacies—that is, they do not attempt to trick the respondent into admitting something he or she does not want to admit. To distinguish the two, however, one sometimes needs to know whether prior questions have been asked. Here are some additional examples of complex questions:

* Sylvia, I saw you shopping for wine the other day. Incidentally, are you still drinking excessively?
* Are you going to be a good little boy and eat your hamburger? Is George Hendrix still telling lies?
* How long must I put up with your snotty behavior?
* When are you going to stop talking nonsense?

**17. False Dichotomy**

The fallacy of false dichotomy is committed when a disjunctive ("either . . . or . .") premise presents two unlikely alternatives as if they were the only ones available, and the arguer then eliminates the undesirable alternative, leaving the desirable one as the conclusion*.* Such an argument is clearly valid, but since the disjunctive premise is false, or at least probably false, the argument is typically unsound. The fallacy is often committed by children when arguing with their parents, by advertisers, and by adults generally. Here are three examples:

* The color of every marker is either blue or black. My marker is not blue. Therefore, my marker is black.
* People are either good or bad. And Williams is not good. Therefore, he is evil.
* Either you buy only American-made products or you don't deserve to be called a loyal American. Yesterday you bought a new Toyota. It's therefore clear that you don't deserve to be called a loyal American.

In none of these arguments does the disjunctive premise present the only alternatives available, but in each case the arguer tries to convey that impression. For example, in the first argument, the arguer tries to convey the impression that all colors are either blue or black, and that no other alternatives are possible. Clearly, however, there are more colors such as red, green and so on.

The fallacious nature of false dichotomy lies in the illusion created by the arguer that the disjunctive premise presents jointly exhaustive alternatives. If it did, the premise would be true of necessity. For example, the statement "*Either Adma is in Oromia, or it is not in Oromia" presents jointly exhaustive alternatives and is true of necessity*.

Either Adma is in Oromia, or it is not in Oromia

It is not the case that Adama is not in Oromia. Therefore, Adama is in Oromia.

This argument does not commit the fallacy of false dichotomy.

But in the fallacy of false dichotomy, not only do the two alternatives fail to be jointly exhaustive, but they are not even likely. As a result, the disjunctive premise is false, or at least probably false. Thus, the fallacy amounts to making a false or probably false premise appear true.

If one of the alternatives in the disjunctive premise is true, then the fallacy is not committed. For example, the following argument is valid and sound:

Either Seattle is in Washington, or it is in Oregon.

Seattle is not in Oregon. Therefore, Seattle is in Washington

False dichotomy is otherwise called "false bifurcation" and the "either-or fallacy." Also, in most cases the arguer expresses only the disjunctive premise and leaves it to the reader or listener to supply the missing statements:

Either you buy me a new mink coat, or I'll freeze to death when winter comes.

Either I continue smoking, or I'll get fat and you'll hate to be seen with me.

The missing premise and conclusion are easily introduced.

**18. Suppressed Evidence**

Chapter 1 explained that a **cogent** argument is an inductive argument with good reasoning and true premises. The requirement of true premises includes the proviso that the premises not ignore some important piece of evidence that outweighs the presented evidence and entails a very different conclusion. If an inductive argument does indeed ignore such evidence, then the argument commits the fallacy of suppressed evidence. Consider, for example, the following argument:

Most dogs are friendly and pose no threat to people who pet them. Therefore, it would be safe to pet the little dog that is approaching us now.

If the arguer ignores the fact that the little dog is *excited (*make a person or animal feel nervous apprehension or an unpleasant state of heightened emotion*) and foaming (*saliva produced as a result of exertion or disease*)* at the mouth (which suggests rabies), then the argument commits a suppressed evidence fallacy. This fallacy is classified as a fallacy of presumption because it works by creating the presumption that the premises are both true and complete when in fact they are not.

**Suppressed evidence** Ignores stronger evidence that supports a different conclusion

Premises

Conclusion

Perhaps the **most common occurrence** of the suppressed evidence fallacy appears in inferences based on advertisements. Nearly every ad neglects to mention certain negative features of the product advertised. As a result, an observer who sees or hears an advertisement and then draws a conclusion from it may commit the fallacy of suppressed evidence. Example:

The ad for Kentucky Fried Chicken says, "Buy a bucket of chicken and have a barrel of fun!" Therefore, if we buy a bucket of that chicken, we will be guaranteed to have lots of fun.

The ad fails to state that the fun does not come packaged with the chicken but must be supplied by the buyer. Also, of course, the ad fails to state that the chicken is loaded with fat and that the buyer's resultant weight gain may not amount to a barrel of fun. By ignoring these facts, the argument based on the ad is fallacious.

**Another way** that an arguer can commit the suppressed evidence fallacy is by ignoring important events that have occurred with the passage of time that render an inductive conclusion improbable. Here is an example:

During the past sixty years, Poland has enjoyed a rather low standard of living. Therefore, Poland will probably have a low standard of living for the next sixty years.

This argument ignores the fact that Poland was part of the Soviet bloc during most of the past sixty years, and this fact accounts for its rather low standard of living. However, following the collapse of the Soviet Union, Poland became an independent nation, and its economy is expected to improve steadily during the next sixty years.

**Yet another form** of suppressed evidence is committed by arguers who quote pas-sages out of context from sources such as the Bible, the Constitution, and the Bill of Rights to support a conclusion that the passage was not intended to support.Consider, for example, the following argument against gun control:

The Second Amendment to the Constitution states that the right of the people to keep and bear arms shall not be infringed. But a law controlling handguns would infringe the right to keep and bear arms. Therefore, a law controlling handguns would be unconstitutional.

In fact, the Second Amendment reads, "A well regulated militia being necessary to the security of a free state, the right of the people to keep and bear arms shall not be infringed?' In other words, the amendment states that the right to bear arms shall not be infringed when the arms are necessary for the preservation of a well-regulated militia. Because a law controlling handguns (pistols) would have little effect on the preservation of a well-regulated militia, it is unlikely that such a law would be unconstitutional.

The suppressed evidence fallacy is similar to the form of begging the question in which the arguer leaves a key premise out of the argument. The difference is that suppressed evidence leaves out a premise that requires a different conclusion, while that form of begging the question leaves out a premise that is needed to support the stated conclusion. However, because both fallacies proceed by leaving a premise out of the argument, there are cases where the two fallacies overlap.

**19. Equivocation**

The fallacy of equivocation occurs when the conclusion of an argument depends on the fact that a word or phrase is used, either explicitly or implicitly, in two different senses in the argument. Such arguments are either invalid or have a false premise, and in either case they are unsound. Examples:

* Some triangles are obtuse. Whatever is obtuse is ignorant. Therefore, some triangles are ignorant.
* Anylaw can be repealed by the legislative authority. But the law of gravity is a law. Therefore, the law of gravity can be repealed by the legislative authority.
* We have a duty to do what is right. We have *a* right to speak out in defense of the innocent. Therefore, we have a duty to speak out in defense of the innocent.
* A mouse is an animal. Therefore, *a* large mouse is a large animal.

In the first argument "obtuse" is used in two different senses. In the first premise it de-scribes a certain kind of angle, while in the second it means dull or stupid. The second argument equivocates on the word "law." In the first premise it means statutory law, and in the second it means law of nature. The third argument uses "right" in two senses. In the first premise "right" means morally correct, but in the second it means a just claim or power. The fourth argument illustrates the ambiguous use of a relative word. The word "large" means different things depending on the context. Other relative words that are susceptible to this same kind of ambiguity include "small," "good," "bad," "light," "heavy," "difficult," "easy," "tall," and "short."

**Equivocation**

Premises

Words or phrases used in two senses

Conclusion

To be convincing, an argument that commits an equivocation must use the equivocal word in ways that are subtly related. Of the examples just given, only the third might fulfill this requirement. Since both uses of the word "right" are related to ethics, the unalert observer may not notice the shift in meaning. Another technique is to spread the shift in meaning out over the course of a lengthy argument. Political speech makers often use phrases such as "equal opportunity," "gun control," "national security," and "environmental protection" in one way at the beginning of a speech and in quite another way at the end. A third technique consists in using such phrases one way in a speech to one group and in a different way in a speech to an opposing group. If the same people are not present at both speeches, the equivocation is not detected. One more example:

I agree with Christians in their claim that God is love. But unlike Christians, I’m not afraid to draw the obvious logical consequence: Love is God.

The gist of the argument is this: “God is love; therefore, love is God.” But in the premise the word “is” means “has the attribute of,” while in the conclusion, “is” means “identical with.” and the two meaning differs, and the difference renders invalid.

**20. Amphiboly**

The fallacy of amphiboly occurs when the arguer misinterprets an ambiguous statement and then draws a conclusion based on this faulty interpretation.The original statement is usually asserted by someone other than the arguer, and the ambiguity usually arises from a mistake in grammar or punctuation—a missing comma, a dangling modifier, an ambiguous antecedent of a pronoun, or some other careless arrangement of words.Because of this ambiguity, the statement may be understood in two clearly distinguishable ways. The arguer typically selects the unintended interpretation and proceeds to draw a conclusion based on it. Here are some examples:

* The tour guide said that standing in Greenwich Village, the Empire State Building could easily be seen. It follows that the Empire State Building is in Greenwich Village.
* John told Henry that he had made a mistake. It follows that John has at least the courage to admit his own mistakes.
* Professor Johnson said that he will give a lecture about heart failure in the biology lecture hall. It must be the case that a number of heart failures have occurred there recently.

The premise of the first argument contains a dangling modifier. Is it the observer or the Empire State Building that is supposed to be standing in Greenwich Village? The factually correct interpretation is the former. In the second argument the pronoun "he" has an ambiguous antecedent; it can refer either to John or to Henry. Perhaps John told Henry that *Henry* had made a mistake. In the third argument the ambiguity concerns what takes place in the biology lecture hall; is it the lecture or the heart failures? The correct interpretation is probably the former. The ambiguity can be eliminated by inserting commas ("Professor Johnson said that he will give a lecture, about heart failure, in the biology lecture hall") or by moving the ambiguous modifier ("Professor Johnson said that he will give a lecture in the biology lecture hall about heart failure"). Ambiguities of this sort are called *syntactical ambiguities.*

**Amphiboly** Mentions ambiguous statement

Premises

Conclusion

Misinterprets that statement

Two areas where cases of amphiboly cause serious problems involve **contracts and wills**. The drafters of these documents often express their intentions in terms of ambiguous statements, and alternate interpretations of these statements then lead to different conclusions. Examples:

* Mrs. Hart stated in her will, "I leave my 500-carat diamond necklace and my pet chinchilla to Alice and Theresa." Therefore, we conclude that Alice gets the necklace and Theresa gets the chinchilla.
* Mr. James signed a contract that reads, "In exchange for painting my house, I promise to pay David $5,000 and give him my new Cadillac only if he finishes the job by May 1." Therefore, since David did not finish until May 10, it follows that he gets neither the $5,000 nor the Cadillac
* In the last week English premier league, leaders Chelsea and Arsenal defeated Liverpool and Manchester City. Therefore, Chelsea wins Liverpool, while Arsenal wins Manchester City.

In the first example the conclusion obviously favors Alice. Theresa is almost certain to argue that the gift of the necklace and chinchilla should be shared equally by her and Alice. Mrs. Hart could have avoided the dispute by adding either "respectively" or "collectively" to the end of the sentence. In the second example, the conclusion favors Mr. James. David will argue that the condition that he finishes by May 1 affected only the Cadillac and that he therefore is entitled to the $5,000. The dispute could have been avoided by properly inserting a comma in the language of the promise.

Amphiboly differs from equivocation in two important ways*. First*, equivocation is always traced to an ambiguity in the meaning of a *word* or *phrase,* whereas amphiboly involves a *syntactical ambiguity* in a *statement. The second* difference is that amphiboly usually involves a mistake made by the arguer in interpreting an ambiguous statement made by someone else, whereas the ambiguity in equivocation is typically the arguer's own creation. If these distinctions are kept in mind, it is usually easy to distinguish amphiboly from equivocation. Occasionally, however, the two fallacies occur together, as the following example illustrates:

The *Great Western Cookbook* recommends that we serve the oysters when thoroughly stewed. Apparently the delicate flavor is enhanced by the intoxicated condition of the diners.

First, it is unclear whether "stewed" refers to the oysters or to the diners, and so the argument commits an amphiboly. But if "stewed" refers to the oysters it means "cooked," and if it refers to the diners it means "intoxicated." Thus, the argument also involves an equivocation.

**21. Composition**

The fallacy of composition is committed when the conclusion of an argument depends on the erroneous transference of an attribute from the parts of something onto the whole. In other words, the fallacy occurs when it is argued that because the parts have a certain attribute, it follows that the whole has that attribute*,* too, and the situation is such that the attribute in question cannot be legitimately transferred from parts to whole. Examples:

* Maria likes anchovies. She also likes chocolate ice cream. Therefore, it is certain that she would like a chocolate sundae topped with anchovies.
* Each player on this basketball team is an excellent athlete. Therefore, the team as a whole is excellent.
* Each atom in this teacup is invisible. Therefore, this teacup is invisible.
* Sodium and chlorine, the atomic components of salt, are both deadly poisons. Therefore, salt is a deadly poison.

In these arguments the attributes that are transferred from the parts onto the whole are designated by the words "Maria likes," "excellent," "invisible," and "deadly poison," respectively. In each case the transference is illegitimate, and so the argument is fallacious. Not every such transference is illegitimate, however. Consider the following arguments:

* Every atom in this teacup has mass. Therefore, this teacup has mass.
* Every component in this picket fence is white. Therefore, the whole fence is white.

In each case an attribute (having mass, being white) is transferred from the parts onto the whole, but these transferences are quite legitimate. Indeed, the fact that the atoms have mass is the very reason *why* the teacup has mass. The same reasoning extends to the fence. Thus, the acceptability of these arguments is attributable, at least in part, to the *legitimate* transference of an attribute from parts onto the whole.

**Composition**

Further caution is required by the fact that **composition is sometimes confused with hasty generalization.** The only time this confusion is possible is when the "whole" is a class (such as the class of people in a city or the class of trees in a forest), and the "parts" are the members of the class. In such a case, composition proceeds from the members of the class to the class itself. Hasty generalization, on the other hand, proceeds from the specific to the general. Because it is sometimes easy to mistake a statement about a class for a general statement, composition can be mistaken for hasty generalization. Such a mistake can be avoided if one is careful to keep in mind the distinction between these two kinds of statements. This distinction falls back on the difference between the collective and the distributive predication of an attribute. Consider the following statements:

Fleas are small.

Fleas are numerous.

The first statement is a general statement. The attribute of being small is predicated distributive; that is, it is assigned (or distributed) to each and every flea in the class. Each and every flea in the class is said to be small. The second statement, on the other hand, is a statement about a class as a whole, or what we will call a "class statement." The attribute of being numerous is predicated collectively; in other words, it is as-signed not to the individual fleas but to the *class* of fleas. The meaning of the statement is not that each and every flea is numerous but that the class of fleas is large.

To distinguish composition from hasty generalization, therefore, the following procedure should be followed. Examine the conclusion of the argument. If the conclusion is a general statement—that is, a statement in which an attribute is predicated distributive to each and every member of a class—the fallacy committed is hasty generalization. But if the conclusion is a class statement—that is, a statement in which an attribute is predicated collectively to a class as a whole—the fallacy is composition. Example:

Less gasoline is consumed by a car than by a truck. Therefore, less gasoline is consumed in the United States by cars than by trucks.

At first sight this argument might appear to proceed from the specific to the general and, consequently, to commit a hasty generalization. But in fact the conclusion is not a general statement at all but a class statement. The conclusion states that the whole class of cars uses less gas than does the whole class of trucks (which is false, because there are many more cars than trucks). Since the attribute of using less gasoline is predicated collectively, the fallacy committed is composition.

**22. Division**

The fallacy of division is the exact **reverse of composition**. As composition goes from parts to whole, division goes from whole to parts. The fallacy is committed when the conclusion of an argument depends on the erroneous transference of an attribute from a whole (or a class) onto its parts (or members). Examples:

* Salt is a nonpoisonous compound. Therefore, its component elements-sodium and chlorine, are nonpoisonous.
* This jigsaw puzzle, when assembled, is circular in shape. Therefore, each piece is circular in shape.
* The Royal Society is over 300 years old. Professor Thompson is a member of the Royal Society. Therefore, Professor Thompson is over 300 years old.
* Water will quench one's thirst. Water is composed of hydrogen and oxygen. Therefore, hydrogen and oxygen will quench one's thirst.

In each case the attribute, designated respectively by the terms "nonpoisonous," "circular in shape," and "over 300 years old," is illegitimately transferred from the whole or class onto the parts or members. As with the fallacy of composition, however, this kind of transference is not always illegitimate. The following arguments contain no fallacy:

* This teacup has mass. Therefore, the atoms that compose this teacup have mass.
* This field of poppies is uniformly orange. Therefore, the individual poppies are orange.

Obviously, one must be acquainted with the situation and the nature of the attribute being transferred to decide whether the fallacy of division is actually committed.

Just as composition can sometimes be confused with hasty generalization, **division can sometimes be confused with accident.** As with composition, this confusion can occur only when the "whole" is a class. In such a case, division proceeds from the class to the members, whereas accident proceeds from the general to the specific. Thus, if a class statement is mistaken for a general statement, division may be mistaken for accident. To avoid such a mistake, one should analyze the premises of the argument. If the premises contain a general statement, the fallacy committed is accident; but if they contain a class statement, the fallacy is division. Example:

Stanley Steamers have almost disappeared. This car is a Stanley Steamer. Therefore, this car has almost disappeared.

The first premise is not a general statement but a class statement. The attribute of having almost disappeared is predicated collectively. Accordingly, the fallacy committed is division, not accident.

This example also illustrates how cases of division that involve class statements can include a subtle form of equivocation. In the conclusion, the word "disappeared" means fading from vision, as when the lights are turned down; but in the first premise it means rarely seen. The equivocation is a kind of secondary fallacy that results from the primary fallacy, which is division.

**Division**

The next example shows how division turns up in arguments dealing with averages.

The average American family has 2.5 children. The Jones family is an average American family. Therefore, the Jones family has 2.5 children.

The statement "The average American family has 2.5 children" is not a general statement, but rather a class statement. The sense of the statement is not that each and every family has 2.5 children, but that the class of families is reducible to about 55 percent children and 45 percent adults. Thus, once again, the fallacy is division, and not accident. Composition and division are classified as fallacies of grammatical analogy.

**The end of Chapter 3**

**SUMMARY OF INFORMAL FALLACIES**

**Fallacies of Relevance**

Appeal to force: Arguer threatens reader/listener.

Appeal to pity: Arguer elicits pity from reader/listener.

Appeal to the people (direct): Arguer arouses mob mentality.

Appeal to the people (indirect): Arguer appeals to reader/ listener's desire for security, love, respect, etc.

Argument against the person (abusive): Arguer verbally abuses other arguer.

Argument against the person (circumstantial): Arguer presents other arguer as predisposed to argue this way.

Argument against the person *(tu quoque):* Arguer presents other arguer as hypocrite.

Accident: General rule is applied to a specific case it was not intended to cover.

Straw man: Arguer distorts opponent's argument and then attacks the distorted argument.

Missing the point: Arguer draws conclusion different from that supported by premises

Red herring: Arguer leads reader/listener off track.

**Fallacies of Weak Induction**

Appeal to unqualified authority: Arguer cites untrustworthy authority.

Appeal to ignorance: Premises report that nothing is known or proved, and then a conclusion is drawn.

Hasty generalization: Conclusion is drawn from an atypical sample.

False cause: Conclusion depends on nonexistent or minor causal connection.

Slippery slope: Conclusion depends on unlikely chain reaction. Weak analogy: Conclusion depends on defective analogy.

**Fallacies of Presumption**

Begging the question: Arguer creates the illusion that inadequate premises are adequate by leaving out a key premise, by restating the conclusion as a premise, or by reasoning in a circle

Complex question: Multiple questions are concealed in a single question.

False dichotomy: Tither ...or statement hides additional alternatives.

Suppressed evidence: Arguer ignores important evidence that requires a different conclusion.

**Fallacies of Ambiguity**

Equivocation: Conclusion depends on a shift in meaning of a word or phrase.

Amphiboly: Conclusion depends on the wrong interpretation of a syntactically ambiguous statement.

**Fallacies of Grammatical Analogy**

Composition: Attribute is wrongly transferred from parts to whole.

Division: Attribute is wrongly transferred from whole to parts.