

1.2.7 The Forces of Persuasion

- In the real world, people often encounter incorrect, or fallacious, reasoning, especially in advertising and political campaigns. The objective is to deceive and lead people to form an opinion or draw a conclusion based on mistaken logic or false notions.
- At other times, mistakes in reasoning are the result of hidden biases.

Here comes the orator! With his flood of words and his drop of reason.

- Benjamin Franklin

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...practically no one knows what they're talking about when it comes to numbers in the newspapers. And that's because we're always quoting other people who don't know what they're talking about, like politicians and stock market analysts.

- Molly Ivins, syndicated columnist

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Our Goal:

- to be able to recognize and discard common types of errors in reasoning;
- to be able to evaluate critically the flood of information being generated; and
- to be able to exercise care in our own reasoning.

In the late 1980's, the R.J. Reynolds Tobacco Company began advertising campaign for Camel cigarettes that featured a cartoon character named Joe Camel. A 1991 study of 229 preschool children by researchers at the Medical College of Georgia concluded that, by age 6, children recognized Joe Camel as readily as Mickey Mouse. According to studies published in the *Journal of the American Medical Association*, illegal sales of Camels to minors skyrocketed from \$6 million to \$74 million a year between 1988 and 1991. Further, a study of 131 teenaged smokers found that the popularity of Camel cigarettes have increased in parallel with the buildup of the Joe Camel advertising campaign.

1.2.8 Fallacies of Relevance

We shall describe some of the fundamental concepts behind the forces of persuasion that are used to influence us.

Fallacy - Latin "*fallacia*"
- Deceit or trick

Previously we considered **formal fallacies** in which logical errors occur through a flaw in the form or structure of the argument. Here, we consider **informal fallacies**, in which an argument is deficient because of its content.

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Fallacies of Relevance

A fallacy of relevance is committed when the premise is irrelevant to the conclusion of an argument.

Studying fallacies of relevance is important for at least four reasons:

- They are particularly common in arguments over important political, economic, legal, scientific, and technological issues as well as in political and commercial advertisements.
- They tend to be psychologically persuasive despite their incorrect reasoning and therefore may be difficult to recognize as fallacious.
- Because many people can be fooled by fallacies of relevance, they often are deliberately invoked to sway individual or public opinion.
- Understanding fallacies can help you understand and evaluate your beliefs and opinions.

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Subjectivism

“I don’t care what the Supreme court says. I was brought up to believe that prayer is an important part of every day, I am sure that our Constitution cannot prohibit prayer in the public schools.”

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Subjectivism

I believe/want p to be true.

p is true.

The fallacy of subjectivism has the form “I believe/want p to be true, therefore p is true.”

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Appeal to Ignorance and Limited Choice

“There is no evidence that any of the predicted consequences of global warming are occurring. The dire warning of environmentalists about the consequences of global warming, clearly are bunk.”

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Appeal to Ignorance

p has not been proven false.

p is true.

The fallacy of appeal to ignorance has the form “p has not been proven false, therefore p is true.” Its other form is “p has not been proven true, therefore p is false.”

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Limited Choice (or False Choice)

p is false.

q is true.

The limited choice fallacy has the form “p is false, therefore q is true.”

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Appeal to Emotion

“I deserve a 1.0 in this class, Professor Santos! I’ve been sick for a week, my roommate keeps me up late at night, football practice takes three hours a day, I’m always tired, and I try really hard.”

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Appeal to Emotion

p evokes a strong emotional response.

↓
p is true.

The appeal to emotion fallacy has the form “p evokes a strong emotional response, therefore p is true.”

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Appeal to Force

I say p is true
+
If you don’t agree with me, you
will be hurt or ridiculed

↓
p is true.

Appeal to force has the form “I say p is true and if you don’t agree with me, you will be hurt or ridiculed; therefore p is true.”

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Inappropriate Appeal to Authority

The fallacy of inappropriate appeal to authority is committed when the support for a proposition relies on the testimony of an inappropriate or unqualified authority.

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Inappropriate Appeal to Authority

An authority says p is true

↓
p is true.

The appeal to emotion fallacy has the form “An authority says p is true, therefore p is true.”

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Personal Attack (Ad Hominem)

•Ad Hominem - (Latin) “to the person”

This fallacy involves attacking the character, circumstances, or motives of a person making an argument.

“We cannot trust Mr. Puno’s view on health care, for he is an unhappy, bitter, neurotic man.”

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Personal Attack (Ad Hominem)

Person X says that p is true.

+
Person X is a bad person.

↓
p is NOT true.

The ad hominem fallacy has the form "Person X says that p is true and person X is a bad person; therefore p is NOT true."

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Begging the Question (Circular reasoning)

"Society has an obligation to shelter the homeless because the needy have a right to the resources of the community."

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Begging the Question (Circular Reasoning)

p is true

↓
p is true (often expressed using different words).

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Non Sequitur

• Non Sequitur - (Latin) "does not follow"

"Talking on a car phone increases the risk of accident. There should be a law against it."

Two types of non sequitur:

1. Diversion or Red Herring
2. Straw Man

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Non Sequitur - Diversion or Red Herring

- attention is diverted from the real issue to another issue

"We should not continue to fund genetic research because there are so many ethical issues involved. Ethics is at the heart of our society, and we cannot afford to have many ethical loose ends."

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Non Sequitur - Straw Man

- an argument is made against a distortion of someone's idea or position

"You cannot tell me that I am wrong, because Einstein's theory of relativity proved that everything is relative."

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1.2.9 Fallacies of Numbers and Statistics

We now turn to a few common fallacies that involve numbers or the collection and analysis of statistical data. These fallacies are particularly important to our work in this course, and you will see them arise again and again.

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Appeal to Popularity

- the fact that large numbers of people believe a proposition is used as evidence of its truth

“Honda makes the best automobile; after all, more people drive Hondas than any other car.”

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Appeal to Popularity

Many people believe p is true.

p is true.

The fallacy of appeal to popularity has the form “many people believe p is true, therefore p is true.”

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Appeal to Numbers

- a conclusion is drawn solely on the basis of quantity

“There is no question that the Earth has been visited by flying saucers. There have been too many eyewitness reports to believe otherwise.”

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Appeal to Numbers

p has been observed many times.

p is true.

The appeal to numbers fallacy has the form “ p has been observed many times, therefore p is true.”

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Hasty Generalization

- supports a proposition with an inadequate number of instances or instances that are atypical

“I am sure that the chemical company is contaminating our soil. Two local children have already died of leukemia since its factory opened.”

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Hasty Generalization

p is true one or a few times.

p is always true.

The fallacy of hasty generalization has the form "p is true one or a few times, therefore p is always true."

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Bias and the Availability Error

- Availability error - the human tendency to make judgments based on what is available in the mind.

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Bias and the Availability Error

The first thing that comes to mind is p

p is true.

The availability error takes the form "the first thing that comes to mind is p, therefore p is true."

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False Cause

"I placed the quartz crystal on my forehead and in five minutes my headache is gone. The crystal, alleviated my pain."

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False Cause

A came before B

A caused B.

The false cause fallacy has the form "A came before B, therefore A caused B."

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Correlation Versus Cause

Correlation - exists between two different events when the incidence of one event is related in some way to the incidence of another.

Positive Correlation

When the incidence of both events rises and falls together.

Example: "People eat more ice cream during hot weather, and eat less during cold weather."

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Negative Correlation

When the incidence of one event increases while the other decreases.

Example: "The more a person smokes, the shorter is that person's life expectancy."

Three possible explanations for a correlation:

1. The correlation may be merely a coincidence.
2. The correlated effects may have a common underlying cause.
3. One of the correlated effects may be the cause of the other.

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How do we know if one event is a causal condition for another?

An event is a:

- Necessary condition - if the effect cannot happen in its absence.
- Sufficient condition - if the effect always happens when the event occurs.

Starvation is sufficient to cause death. But it is not necessary, there are other many other ways to die.

Receiving AIDS-infected blood in a transfusion is sufficient to infect the recipient, but it is not necessary. The AIDS virus may be contracted in other ways.

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Confidence in Causality

Possible Cause: An apparent linkage exists between two events, such as a correlation, but no other evidence suggest causality.

•**Probable Cause:** A good reason to suspect causality exists

•**Cause Beyond Reasonable Doubt:** A model is so successful in explaining the linkage between events that it seems unreasonable to doubt the causal connection.

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1.2.10 Fallacies Involving Percentages

These are fallacies that involve a misunderstanding of how to work with percentages.

A politician promises, "If elected, I will cut your taxes by 20% for each of the first three years of my term. None of my opponents is willing to promise a 60% tax cut in three years!" Evaluate the politician's statement.

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Suppose you invest some money, say, P10,000, through a stockbroker who charges a fixed fee of P100 to manage your investments. The broker boasts that his fee amounts to only 1% of your investment. At the end of the year, your broker tells you that the value of your investment has decreased slightly and that the fixed fee of P100 is now 2% of your investment's new value. How has your investment performed?

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Absolute and Relative Change

Suppose that you invest P800,000 in the stock market. At the end of one year you sell the stock receiving, after commissions, P875,000. What was the absolute gain from your investment? What was your relative gain as a percentage?

Absolute change = new value - previous value

Relative change = absolute change/previous value

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Absolute and Relative Change

In July 1990, shortly before the Iraqi invasion of Kuwait, the Dow Jones Industrial Average (DJIA) reached a record value for a day end closing of 2999.75. By August 22, 1990, the DJIA had fallen to 2603.96. What was the relative change in the DJIA during the month. Do you think the invasion of Kuwait caused the decline in DJIA?