Evaluating Arguments—Distinguishing between reasonable and fallacious tactics

Being able to distinguish between good and bad arguments is vital to being able to successfully incorporate research into your own work.

Most good (or reasonable) arguments use strategies such as using inductive and deductive reasoning, drawing analogies, tracing causes and effects, weighing options, and making assumptions.

Sometimes bad (or fallacious) arguments are difficult to recognize because they are incorrect applications of these reasonable strategies. This section will provide examples of each type of reasonable argument and an example of how each strategy can be twisted into a fallacious one.

Inductive Reasoning

Inductive reasoning involves using a small sample to draw conclusions about a larger concept. Inductive reasoning can be thought of more simply as generalizing. People make generalizations all the time, but inductive reasoning deals in probability—not certainty. Because of the lack of certainty in inductive arguments, they must be based on adequate and relevant evidence.

An experiment that determines the effects of a new drug by testing it on 100 people and applying those results to the larger population incorporates inductive reasoning. Similarly, if you stay at a hotel three times and each stay is a pleasurable one, you will likely use that hotel in the future because you believe it will continue to be satisfactory.

- An argument that misuses inductive reasoning is called a **hasty generalization**. Hasty generalizations are conclusions based on insufficient or misleading evidence:

  People who have had their appendixes removed commit suicide less often than those who haven't. Therefore, appendixes cause depression and, subsequently, suicide.

- **Stereotypes** are an example of overgeneralizations. Stereotypes are hasty generalizations about a specific group of people:

Asian students are good at math.

Deductive Reasoning

Deductive reasoning is the opposite of inductive reasoning. Whereas inductive reasoning using specific examples to make generalizations, deductive reasoning uses general principles to determine the circumstances of a specific instance. Deductive reasoning, however, is slightly more complicated that inductive reasoning and requires several steps, known as 1) the major premise, 2) the minor premise, and 3) the conclusion.

Children of parents who both have type O blood must have type O blood themselves (major premise). David's parents have type O blood (minor premise). Therefore, David has type O blood (conclusion).

- Fallacious deductive reasoning occurs when one of the **premises is untrue** or if the **conclusion does not logically follow from the premises:**

The color red incites anger in people (faulty premise). Elijah is in a room with red walls. Therefore, Elijah is angry.

All of Robert's children have brown hair and green eyes. Abigail has brown hair and green eyes. Therefore, Abigail is Robert's child (conclusion does not follow premises).

Drawing analogies

Analogies are comparisons that are drawn between things that are otherwise different**.**

When China was recovering from an earthquake, the US provided the nation with food and supplies. Now that Italy is in need, the US should provide aid to Italian citizens as well.

- **False analogies** when the writer attempts to draw similarities that do not exist:

Emergency vehicles are allowed to park in fire lanes to save time, so I should be able to park in fire lanes if I am in a hurry.

Tracing Causes and Effects

Identifying the cause of a particular effect (or the effect of a particular cause) is tricky business because any number of variables can affect the relationship between an event and its consequences. An example of a success trace of cause and effect would be:

Callie has taken the SAT three times. She got eight hours of sleep the night before the first time she took it and made a 1200. The next time, she got eight hours of sleep and made a 1275. The third time, however, she only got four hours of sleep and made a 1050. Therefore, insufficient sleep causes Callie's SAT scores to suffer.

- Because of the complexities of cause-and-effect reasoning, many writers oversimplify their arguments. This type of fallacy is known as ***post hoc:***

  Suzanne has taken the SAT twice. She got six hours of sleep the night before the first time she took it and made a 1000. The second time, she got seven hours of sleep and made an 1150. Therefore, the more sleep Suzanne gets before taking the SAT, the better she scores on it.

  This argument is fallacious for two reasons. First, it fails to consider the fact that *most* students' grades on the SAT improve each time they take it—regardless of how much sleep they got the night before. Secondly, it is dangerous to assume "the more sleep, the better." What if Suzanne slept for fifteen hours the night before? Would that benefit her more than eight or ten hours would? There is almost certainly a point in which sleep stops being beneficial for SAT scores.

Weighing Options

Many writers present the reader with alternative options in order to prove that their solution is the best one:

Barack Obama is a better candidate for the Democratic presidential candidate than Hillary Clinton because he has better solutions to our nation's problems, and he has the ability to inspire and unite the American public.

- In the previous example, Obama and Clinton are the two Democratic candidates for whom the American public can vote. In some cases, however, there are more options than the writer presents. Such arguments are called

either…or fallacies. In the following example, there are clearly more sides to the immigration debate than are provided:

The US should either open its borders to everyone or deport all illegal immigrants.

Making Assumptions

Assumptions are claims that are believed to be true—without proof. Assumptions occur in writing all the time because writers do not always have the time or space to prove every individual claim they make. *For example, an argument about how to best preserve the world's natural resources is based on the assumption that preserving resources is something worth doing. For most audiences, a defense of this assumption is unnecessary.*

- Fallacious arguments involving assumptions fall into one of two categories: arguments with a missing claim or non-sequiturs. **Arguments with a missing claim** assume a connection between their claim and conclusion that many audiences may not.

  There are more fatal accidents on roadways now than there were four years ago. Therefore, the speed limit should be lowered in an effort to prevent more accidents from happening.

  The above argument assumes that speeding is the cause of most of those fatal accidents, when most people would probably agree than driving under the influence caused most of them.

- **Non-sequiturs** occur when a missing claim results in a conclusion that "does not follow" from the claim:

  Max is tall. Therefore, he will be an excellent basketball player.