

Logically...



The Ultimate Collection
of over **300** Logical
Fallacies

by Bo Bennett

Logically Fallacious

The Ultimate Collection of Over 300 Logical Fallacies

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Preface

Several years back, while entering some kind of early-stage, intellectual, mid-life crisis, I became passionate about science, philosophy, and religion, which eventually led to my starting a debate website called *DebateGod* (<http://www.debategod.org>), as a way to help me understand how other people think, and come to the conclusions they do. What I never imagined, is that this little “side project” of mine would result in hours a day of evaluating arguments, reasoning, and logic, opening my eyes to a world of truth, hidden by a world of *fallacious reasoning*.

But this discovery did not happen overnight.

After years of what I considered eloquent defense of my positions, I found that I was getting nowhere (in part, because those with whom I was debating did not value logic and reason, but more on that later); despite my facts being correct. My positions, those which I could confidently defend, were being over shadowed by what appeared to be well-crafted, air tight, arguments from the opposition, supporting the literal and historical existence of a talking snake, a 6000 year-old universe, and even a flat earth. At one point I actually thought I was in the *Twilight Zone*¹. But something had to be wrong; and something was.

As you might have already guessed, snakes really don't talk, the universe might be a bit older than 6000 years (give or take 13.7 billion years), our earth is about as flat as Dolly Parton's chest, and every such similar argument is as flawed as the late Michael Jackson's late nose – I just couldn't see *why*.

Then one day, I picked up a textbook on argumentation. This opened my eyes to a whole new area of study which led me to the study of *logic* (both *formal* and *informal*), *reasoning*, *persuasion*, *critical thinking*, *rationality*, *rhetoric*, *the existence of cognitive biases*, and *fallacious reasoning*. I felt like Neo learning Kung-Fu – I devoured as much information as I could in these areas and could not stop. I can honestly say that I now see clearly what I missed the first 38 years of my life – deception, erroneous thinking, and faulty reasoning, coming from others as well as coming from myself.

With my new superpower, I deconstructed many of my long-held beliefs and my reasons for having them. Let me tell you, this is a very humbling experience. My attitude changed towards those with bad reasons for holding different beliefs, because I now realize that our emotional, and often irrational, unreasonable, and illogical brains get in the way. It is this “secret” that every human being should know. Once we know *that* our brains deceive us, we can learn *how* they deceive us, how to recognize such deception, than allow our logic and reason to triumph.

For so long I have been trying to debunk one superstitious and/or irrational belief after another, which is like giving people intellectual fish, rather than teaching them how to intellectually fish for themselves. And then it hit me...

Expose an irrational belief, keep a man rational for a day. Expose irrational thinking, and keep a man rational for a lifetime.

This book is a crash course, meant to catapult you into a world where you start to see things how they really are, *not how you think they are*. The focus of this book is on *logical fallacies*, which loosely defined, are simply errors in reasoning. With the reading of each page, you can make significant improvements in the way you reason and make

decisions. And I'll bet you \$1 that once you start reading this book you will find it difficult to stop. If I win, save your money and relish in your newly found enlightenment. If you find this book doesn't interest you, then you can just send me the \$1 by mail.² Otherwise, enjoy the book!

Introduction

While this book is written for the layperson, we do need to at least introduce some concepts which may be new to you, but play an important role in reasoning, as well as issue a few warnings, and explain how this book is organized. But first, let's answer the question, "what's up with the title?"

In debating claims against the supernatural, I have found that in virtually all situations, what is trying to be passed off as a *magically delicious* argument, it is actually just *logically fallacious* - no magic involved. Using bad logic and fallacious reasoning, one can easily create an argument making some use of "magic" look like the only reasonable conclusion, when in fact, the reasonable conclusion is that the argument is fallacious. Although this book and the examples within extend in all areas where reason is required, the name still works. Besides, the domain name was available.

Reasoning

Humans have the capacity to establish and verify facts, to change and justify beliefs, and in general, to make sense of things. We do this by *reason*, and the process of doing so is called *reasoning*. While virtually all healthy humans are capable of reasoning, an alarmingly small percentage of us are actually any good at it. This is due to many reasons which we will be exploring throughout this book.

Arguments

When we hear the word "argument", we tend to think of a confrontational argument between two or more people, with bickering, defensiveness, and increased negative emotions.

This is only one kind of argument – not the kind we will be focusing on in this book. In the more general sense, an argument is *an attempt to persuade someone of something by giving reasons to accept a given conclusion*. We make and hear arguments every day and often do not recognize them. We are constantly being bombarded with persuasion and led to conclusions, without being consciously aware. Sometimes the persuasion is very subtle, sometimes the reasons are implied, and sometimes the conclusion is assumed. For the purpose of this book, we just need to be able to recognize arguments when we hear them or make them.

An argument is made up of *premises* and a *conclusion*. The premises can also be referred to as *reasons*, *supporting evidence*, or *claims*. At times, our examples are just *propositions* or *assertions* – a statement to be accepted.

I use the terms *arguer* and *opponent or audience* to represent the one making the argument and the person or persons considering the argument, respectively. Keep in mind that the arguer can be a political candidate, Jehovah's Witness, a spouse, the 17-year-old kid at the returns desk in Walmart, or anyone capable of rational communication, and the opponent/audience can be a police officer, your best friend, your spouse, or anyone capable of rational communication.

Deduction is a form of reasoning and argument in which the conclusion follows *necessarily* from the premises. Sticking with the classic example:

Premise 1: All humans are mortal.

Premise 2: Socrates is a human.

Conclusion: Socrates is mortal.

If the premises are true, then the conclusion *must* be true. That is what makes an argument deductive. This is also

referred to as a *formal argument*.

Arguments where the conclusion is merely based on probability, not necessity, are considered *inductive arguments*. These are usually constructed through *inductive reasoning*, which is the process of making general conclusions from specific instances. For example:

Premise 1: The sun has risen every day so far.

Conclusion: Therefore, the sun will rise tomorrow.

Because the sun could possibly explode tonight, the conclusion is just very probable, therefore, this is an inductive, or *informal argument*.

I will be using these terms throughout the book. If you don't understand them now, you will very soon.

Sometimes even statements of facts can be considered arguments – or more precisely, made into arguments. For example:

People need food to live.

Generally this is not an argument because there is no *persuasion intended* – it is assumed that they accept the proposition and its implied conclusion. But what if someone says, “That’s poppycock!” First, you should make sure that you didn’t travel back to a time when “poppycock” was actually used, then you might want to rephrase your statement of fact into more of a recognizable argument form, perhaps a bit more personal, with nothing implied. This may be as simple as stating, “If you stop eating, then you will die as a result.” Or you may have to break the argument into many sub-arguments, for example, what “food” exactly is, what it means to “live”, etc.

Arguments are everywhere. You make them everyday, and you hear them everyday. Where you find arguments, you

find fallacious arguments. Where you find fallacious arguments, you find fallacious reasoning.

Beliefs

A *belief* is defined as the psychological state in which an individual holds a proposition or premise to be true. Beliefs are formed in many different ways, which is way outside the scope of this book, but it will suffice to say that many beliefs are not formed by reason and critical thinking. For our purposes, we are focusing on two aspects of beliefs: 1) the reasoning we use to form new beliefs and 2) the reasoning we need to evaluate our existing beliefs.

Beliefs can often be stated explicitly as beliefs, stated as opinions, implied, or arrogantly stated as fact. Some examples:

I believe that unicorns exist.

In my opinion (or I think), everyone should remain celibate for life.

Hot dogs are delicious when ground up into powder and snorted.

If you are not baptized as an adult, you are going to Hell!

Beliefs can be wonderful, as in believing that humanity is overall good. Beliefs can be benign, as in believing the Red Sox are better than the Yankees³. And beliefs can be devastating, as in believing your god wants you to fly planes into buildings. But no matter how good a belief makes us feel or how good the potential outcome of a belief can be, *it does not effect the truth of the belief*. And this book will help you find the truth of beliefs, by examining fallacious reasoning.

Fallacies

Although the term “fallacy” can be used in many ways, I will be using the term in the following three ways, all of which support the main purpose of this book – *to promote better reasoning*.

1. Fallacious Arguments. Arguments that are fallacious contain one or more non-factual errors in their form.

Just like a woman has the right to get a tattoo, she has the right to get an abortion. ([weak analogy](#))

2. Fallacious Reasoning. When an individual is using erroneous thinking (including bypassing reason) in evaluating or creating an argument, claim, proposition, or belief.

I was pro-abortion before, but now that this speaker made me cry by showing me a photo of an aborted fetus, I am against abortion. ([appeal to emotion](#))

3. Fallacious Tactics. Deliberately trying to get your opponent or audience to use fallacious reasoning in accepting the truth claims of your argument.

All I need to do is show the audience this photo of an aborted fetus, and they will be like putty in my hands. I will get them to bypass their reason and critical thought, while listening only to their emotions. ([appeal to emotion](#))

And perhaps a fourth use of the term: a specific classification of an erroneous argument as in, “Appeal to Authority fallacy.”

Fallacies are dangerous because they are not always easy to spot, especially to the untrained mind, yet they often elude our critical faculties, making them persuasive for all the wrong reasons – sort of like optical illusions for the mind.

Some, however, are as clearly wrong as a pig roast at a bar mitzvah. For example,

“Don’t grow a mustache, because Hitler had a mustache, therefore, you will be like Hitler!”

After reading this book, you can probably match about a dozen fallacies with the above argument, the error in reasoning should be apparent – sharing a physical characteristic with a fascist dictator will not make you a fascist dictator.

Now if I told you that the sun was about 30 miles from earth and the size of a football stadium, I would not be committing a fallacy – but I would be a moron. *Factual errors are not fallacies.*

In many cases, fallacies can be committed by either the author of the argument, the audience interpreting the argument – *or both the author and the audience.* For example, in the [argument by fast talking fallacy](#), the author (the one doing the fast talking) could simply be a natural fast talker, but you (the audience) can *fallaciously reason* that to mean he is very smart, confident, and therefore, conclude that his claims are true. The arguer might be talking fast purposely, knowing that you will not have enough time to process his claims and construct a counter-argument, and could be accused of *fallacious tactics*, but not necessarily guilty of *fallacious reasoning*. And in this case, the argument itself would not even be fallacious.

On Reason and Rationality

If you are a parent, you know exactly what it is like to argue with someone who is *unreasonable* and *irrational*. Most attempts at logic and reason end with the parent coming down to the level of the child – basing arguments on emotion usually in the form of a tasty bribe or smacked

bottom, depending on what the circumstances call for. Unfortunately, many people carry these success-repelling traits with them into adulthood. This makes communication, cooperation, and prosperity a real challenge.

As you might have guessed, those who are unreasonable and irrational are either incapable or unwilling to accept that their arguments are fallacious, if in fact they are. In these cases, you can come down to their level, appeal to their emotions, and exploit their cognitive biases – but this takes some manipulative talent and I would argue that it is not very ethical. You can simply give up and refuse to argue any further, which I have done at times. Or, if possible, you can show how their arguments and beliefs *are inconsistent with other beliefs they hold*. This is my preferred strategy, because it is not patronizing, nor does it reflect my frustration. One possibility: start by telling them why their argument is fallacious, then, by analogy, give them an example of that fallacy on a different topic. For example:

Simon: Noah's ark is a real historical event!

Anna: Then how did Noah manage to collect all those animals from all over the world, and get them to cooperate?

Simon: Well, I guess God used his omnipotence to make it happen ([ad hoc fallacy](#))

Anna: (instead of attempting to explain how rationally that makes no sense) Then why didn't God just use his omnipotence to save all the animals – not just two of each kind?

Simon: I really don't know.

Collecting Fallacies

When I was a kid I collected baseball cards, now as an adult I collect logical fallacies (what a geek). Fallacies range from

the well-known to the obscure, ancient to the modern, clear to the complex. Like astronomical objects, new ones are being “discovered” all the time, and if you discover one, you get to name it. In addition to the over 300 I have collected over the years, I have a few of my own that I am proud to share for the first time. Mine are indicated by a “*” after the name, and are just as valid as is Aristotle’s.

I know of no other collection as complete, so I hope you appreciate all my hard work that went into this book, and you decide that you should have paid much more for this book, and send me a check for the difference.

Being a Smart-Ass

There are two general schools of thought on how to point out a fallacy to your opponent. On the one hand, you can tactfully explain why your opponents reasoning is erroneous (1 smart-ass point), without mentioning the name of the fallacy. On the other hand, you can tell your opponent that his reasoning is fallacious (1 smart-ass point), tell him the name of the fallacy he committed (another smart-ass point), tell him why it is a fallacy (another smart-ass point), then extend his underwear over his head, and conclude with, “by the way, in Latin that fallacy is known as [*insert Latin name here*].” (10 smart-ass points)! Of course, you could take a path somewhere in between. But what you certainly should be prepared for, is your opponents pointing out your fallacies, and if you know about fallacies, you will be prepared to defend yourself.

I do caution you against correcting fallacies that your opponent might raise. As you will see in this book, fallacies go by many different names, and there are varying definitions for the fallacies. With the exception of a handful of fallacies that have been around since the time of Aristotle, most fallacies are under a continual redefining

process that might change the name of the fallacy or the meaning of the fallacy. The bottom line, focus on exactly what error in reasoning you are being accused of, and defend your reasoning – not a definition or name.

Format and Style of this Book

If you haven't noticed by now, I like to have fun with both writing and learning. I understand that by using humor that I will inevitably offend someone, which is unfortunate, but a fact of life.

While this book can function as a reference book, I hope you will read this like a novel – from cover to cover. I define what I feel may be unfamiliar terms to the reader as I progress through the fallacies, in order. Therefore, if you do read the fallacies in order, unfamiliar terms and concepts will be revealed to you as needed – I do this to keep the book interesting.

While it may seem like a crazy number of fallacies to read through, I have done my best to make it enjoyable and educational. The fallacies that are seldom ever seen or not quite fallacies, and not worthy of a complete entry in this book, are just listed in the back section of this book with brief descriptions.

There have been many attempts to categorize fallacies, some of which may make fallacies easier to understand. But I have chosen to organize all fallacies, alphabetically, by the name for which they are best known. I chose this method because:

- There is no official taxonomy, nor is there even a taxonomy accepted by the majority of those whom classify fallacies.
- The ambiguous nature of most of the fallacies means that many of the fallacies can fit in a variety of

categories.

- Focusing on faux-categorical structures distracts from the fallacies themselves.

Fallacy Name(s). Each fallacy begins with the most commonly used name for the fallacy, followed by the latin name (if there is one). I then list all other known names for the fallacy. At times there might be slight differences in the fallacies that go by other names, but unless I feel the differences are worthy of their own entry, I will just list it as another name for the fallacy. Keep in mind that fallacies are named and referred to mostly by *common usage*. The point of listing every known alias is not so you can memorize them; it's just so you might recognize them when referred to by these other names.

Description. My descriptions are all short and to the point, giving you the information you need to understand the fallacy, while sometimes adding in some extra commentary.

Logical Form. Some fallacies, especially formal ones, have what are called *logical forms*, which means that the general fallacy can be represented in symbolic language. I list the logical forms where they apply to help you better understand the fallacy. With informal fallacies, I use a little artistic license to create a logical form – but only when I feel it will help you better understand the fallacy.

Example(s). I try to include realistic examples, and in fact, many examples are from actual debates of mine (real names protected). I feel that using realistic examples will help you to identify the fallacies when used in real situations – people aren't as stupid as they are portrayed in many examples. If the fallacy requires it, I will use an extreme example to make the fallacy clear, then include a second or even third example that is more realistic.

You will find that many of my examples include common creationist arguments. A *creationist* is someone who believes in the literal interpretation of the creation story in the Bible, Adam and Eve, the talking serpent – the whole shebang. A *young earth creationist* is one who believes the timeline suggested in the Bible for the age of the universe is about 6000 years. I use these examples quite often because they are like crack-cocaine for the reasonable thinker looking for fallacies. Let me be clear, maybe the universe is just 6000 years old and I, along with 97% of scientists⁴ on the planet are dead wrong. For our purposes it doesn't matter. Fallacies are not necessarily about the *truth* of the argument; they are about the *form* of the argument.

Exception(s). Fallacious arguments and fallacious reasoning are more often probability-based than based on an objective fact. Take the following *informal* or *inductive* argument, that virtually everyone would consider fallacious:

“Don't grow a mustache, because Hitler had a mustache, therefore, you will be like Hitler!”

Perhaps some psychologist has some data supporting the idea that a mustache, especially a Hitleresque one, can make that individual more susceptible to genocide (I would really like to see the details of that study!) Therefore, one can argue that this argument is not fallacious – the argument itself is strong and the reasoning that was used to construct this argument was sound. Showing this argument is fallacious *can be an argument in itself*, where it is all about providing stronger evidence and more sound reasoning to support your claim.

There are some arguments that use a *formal* or *deductive* structure and contain fallacies of form that are objective fallacies, that is, they are *always fallacious in all situations*. For example:

All humans are mortal.

Phil is mortal.

Therefore, Phil is a human.

Actually, Phil is a groundhog. This is an example of a *sylogistic fallacy*, and it always will be, in all situations. Even if Phil were human, the form of the argument would still commit the fallacy. In formal logic, the truth of the premises guarantee the truth of the conclusion.

The bottom line: never insist that an informal argument is *definitely* fallacious, and be prepared to defend your arguments against claims of fallacy.

Tip: In 2004, I wrote the book, *Year To Success*, a book Donald Trump called, “an inspiration to anyone who reads it.” (Yes, I’ll drop the names when I can!) In that book, I explain how success is like a game of chance where you control the odds by continually replacing behaviors that pull you away from success with behaviors that bring you closer to success. When appropriate, I include a tip that is relevant to the fallacy, that will bring you closer to success – most of which are serious, but some... not so much (you will know the difference).

Variation(s). There are some variations or forms of the fallacies that are listed in the aliases for the fallacy name, but I feel deserve a bit of explanation when it comes to the differences.

Let’s get started!

Logically Fallacious

*The Ultimate Collection of Over 300
Logical Fallacies*

Accident Fallacy

a dicto simpliciter ad dictum secundum quid

(also known as: destroying the exception, dicto secundum quid ad dictum simpliciter, dicto simpliciter, converse accident, reverse accident, fallacy of the general rule, sweeping generalization)

Description: When an attempt is made to apply a general rule to all situations, when clearly there are exceptions to the rule. Simplistic rules or laws rarely take into consideration legitimate exceptions, and to ignore these exceptions is to bypass reason to preserve the illusion of a perfect law. People like simplicity and would often rather keep simplicity at the cost of rationality.

Logical Form:

X is a common and accepted rule.

Therefore, there are no exceptions to X.

Example #1:

I believe one should never deliberately hurt another person, that's why I can never be a surgeon.

Explanation: Classifying surgery under “hurting” someone, is to ignore the obvious benefits that go with surgery. These kind of extreme views are rarely built on reason.

Example #2:

The Bible clearly says, “thou shall not bear false witness”, therefore, as a Christian, you better answer the door and tell our drunk neighbor with the shotgun, that his wife, who he is looking to kill, is hiding in our basement, otherwise you are defying God himself!

Explanation: To assume any law, even divine, applies to every person, in every time, in every situation, even though

not explicitly stated, is an assumption not grounded in evidence, and fallacious reasoning.

Exception: Stating the general rule when a good argument can be made that the action in question is a violation of the rule, would not be considered fallacious.

The Bible says, "thou shall not murder", therefore, as a Christian, you better put that chainsaw down and untie that little kid.

Tip: It is your right to question laws you don't understand or laws with which you don't agree.

Ad Fidentia

argumentum ad fidentia

(also known as: against self-confidence)

Description: Attacking the person's self-confidence in place of the argument or the evidence.

Logical Form:

Person 1 claims that Y is true, but is person 1 really sure about that?

Therefore, Y is false.

Example #1:

Rick: I had a dream last night that I won the lottery! I have \$1000 saved up, so I am buying 1000 tickets!

Vic: You know, dreams are not accurate ways to predict the future; they are simply the result of random neurons firing.

Rick: The last time I checked, you are no neurologist or psychologist, so how sure are you that I am not seeing the future?

Vic: It's possible you can be seeing the future, I guess.

Explanation: Although Vic is trying to reason with his friend, Rick attempts to weaken Vic's argument by making Vic more unsure of his position. This is a fallacious tactic by Rick and if Vic falls for it, fallacious reasoning on his part.

Example #2:

Chris: You claim that you don't believe in the spirit world that is all around us, with spirits coming in and out of us all the time. But, how can you be sure this is not the case? Are you 100% certain?

Joe: Of course not, how can I be?

Chris: Exactly! One point for me! Biotch!

Joe: What?

Explanation: This is a common fallacy among those who argue for the supernatural or anything else not [*falsifiable*](#). If Joe were not that reasonable of a thinker, he may start to question the validity of his position, not based on any new counter evidence presented, but a direct attack on his self-confidence. Fortunately for Joe, he holds no dogmatic beliefs and is perfectly aware of the difference between possibilities and probabilities (see also [*appeal to possibility*](#)).

Exception: When one claims certainty for something where certainty is unknowable, it is your duty to point it out.

Tip: Have confidence that you are probably or even very probably right, but avoid dogmatic certainty at all costs in areas where certainty is unknowable.

Ad Hoc Rescue

ad hoc

(also known as: making shit up, MSU fallacy*)*

Description: Very often we desperately want to be right and hold on to certain beliefs, despite any evidence presented to the contrary. As a result we begin to make up excuses as to why our belief could still be true, and is still true, despite the fact that we have no real evidence for what we are making up.

Logical Form:

Claim X is true because of evidence Y.

Evidence Y is demonstrated to not be acceptable evidence.

Therefore, it must be guess Z then, even though there is no evidence for guess Z.

Example #1:

Frieda: I just know that Raymond is just waiting to ask me out.

Edna: He has been seeing Rose for 3 months now.

Frieda: He is just seeing her to make me jealous.

Edna: They're engaged.

Frieda: Well, that's just his way of making sure I know about it.

Explanation: Besides being a bit deluded, poor Frieda refuses to accept the evidence that leads to a truth she is not ready to accept. As a result, she creates an *ad hoc* reason in an attempt to rescue her initial claim.

Example #2:

Mark: God loves us so much, that he sacrificed his only son, Jesus, so we could be free from Sin! Praise Jesus!

Sam: Why was God sacrificing Jesus to himself? Couldn't he just have forgiven us?

Mark: Perhaps this was the most effective way.

Explanation: In absence of an official and sensible answer, in this case, an answer in the book that tells the story (the Bible), one was made up. It could be true, but there is absolutely no reason to accept it as true.

Exception: Proposing possible solutions is perfectly acceptable when an argument is suggesting only a possible solution – especially in a hypothetical situation. For example, “If there is no God, then life is meaningless.” No, if there is no God who dictates meaning to our lives, perhaps we are truly free to find our own meaning.

Tip: When you suspect people are just making stuff up, rather than providing evidence to support their claim, simply ask them, “What evidence do you have to support that?”

Ad Hominem (Abusive)

argumentum ad hominem

(also known as: personal abuse, personal attacks, abusive fallacy, damning the source, name calling, needling [form of], refutation by character)

Description: Attacking the person making the argument, rather than the argument itself, when the attack on the person is completely irrelevant to the argument the person is making.

Logical Form:

Person 1 is claiming Y.

Person 1 is a moron.

Therefore, Y is not true.

Example #1:

My opponent suggests that lowering taxes will be a good idea – this is coming from a woman who eats a pint of Ben and Jerry's each night!

Explanation: The fact that the woman loves her ice cream, has nothing to do with the lowering of taxes, and therefore, is irrelevant to the argument. *Ad hominem* attacks are usually made out of desperation when one cannot find a decent counter argument.

Example #2:

Tony wants us to believe that the origin of life was an "accident". Tony is a godless SOB who has spent more time in jail than in church, so the only information we should consider from him is the best way to make license plates.

Explanation: Tony may be a godless SOB. Perhaps he did spend more time in the joint than in church. But all this is irrelevant to his argument or truth of his claim as to the origin of life.

Exception: When the attack on the person is relevant to the argument, it is not a fallacy. In our first example, if the issue being debated was the elimination of taxes only on Ben and Jerry's ice cream, then pointing out her eating habits would be strong evidence of a conflict of interest.

Tip: When others verbally attack you, take it as a compliment to the quality of your argument. It is usually a sign of desperation on their part.

Variation: *Needling* is attempting to make the other person angry, taking attention off of the argument and perhaps even making the other person look foolish.

Ad Hominem (Circumstantial)

argumentum ad hominem

(also known as: appeal to motive, conflict of interest, appeal to personal interest, argument from motives, questioning motives, vested interest)

Description: Suggesting that the person who is making the argument is biased, or predisposed to take a particular stance, and therefore, the argument is *necessarily* invalid.

Logical Form:

Person 1 is claiming Y.

Person 1 has a vested interest in Y being true.

Therefore, Y is false.

Example #1:

Salesman: This car gets better than average gas mileage, and is one of the most reliable cars according to Consumer Reports.

Will: I doubt it – you obviously just want to sell me that car.

Explanation: The fact that the salesman has a vested interest and selling the car, does not mean that he is lying. He may be, but this is not something you can conclude solely on his interests. It is reasonable to assume that salespeople sell the products and services they do because they believe in them.

Example #2:

Of course your minister says he believes in God. He would be unemployed otherwise.

Explanation: The fact atheist ministers are about as in demand as hookers who, “just want to be friends”, does not

mean that ministers believe in God just because they need a job.

Exception: As the bias or conflict of interest becomes more relevant to the argument, usually signified by a lack of other evidence, the argument is seen as less of a fallacy and more as a legitimate motive. For example, courtesy of Meat Loaf...

Girl: Will you love me forever?

Boy: Let me sleep on it!!!

Girl: Will you love me forever!!!

Boy: I couldn't take it any longer

Lord I was crazed

And when the feeling came upon me

Like a tidal wave

I started swearing to my god and on my mother's grave

That I would love you to the end of time

I swore that I would love you to the end of time!

Tip: When you know you have something to gain from a position you hold (assuming, of course, you are not guilty of this fallacy for holding the position), be upfront about it and bring it up before someone else does.

Supporting this cause is the right thing to do. Yes, as the baseball coach, I will benefit from the new field, but my benefit is negligible compared to the benefit the kids of this town will receive. And after all, they are the ones that really matter here.

Ad Hominem (Guilt by Association)

argumentum ad hominem

(also known as: association fallacy, bad company fallacy, company that you keep fallacy, they're not like us fallacy, transfer fallacy)

Description: When the source is viewed negatively because of its association with another person or group who is already viewed negatively.

Logical Form:

Person 1 states that Y is true.

Person 2 also states that Y is true, and person 2 is a moron.

Therefore, person 1 must be a moron too.

Example #1:

Delores is a big supporter for equal pay for equal work. This is the same policy that all those extreme feminist groups support. Extremists like Delores should not be taken seriously – at least politically.

Explanation: Making the assumption that Delores is an extreme feminist simply because she supports a policy that virtually every man and woman also support, is fallacious.

Example #2:

Pol Pot, the Cambodian Maoist revolutionary, was against religion, and he was a very bad man. Frankie is against religion, therefore, Frankie, too, must be a very bad man.

Explanation: The fact that Pol Pot and Frankie share one particular view does not mean they are identical in other ways unrelated, specifically, being a very bad man. Pol Pot

was not a bad man *because* he was against religion, he was a bad man for his genocidal actions.

Exception: If one can demonstrate that the connection between the two characteristics that was inherited by association is causally linked, or the probability of taking on a characteristic would be high, then it would be valid.

Pol Pot, the Cambodian Maoist revolutionary, was genocidal, therefore, he was a very bad man. Frankie is genocidal, therefore, Frankie too, must be a very bad man.

Ad Hominem (Tu quoque)

argumentum ad hominem tu quoque

(also known as: “you too” fallacy, hypocrisy, personal inconsistency)

Description: Claiming the argument is flawed by pointing out that the one making the argument is not acting consistently with the claims of the argument.

Logical Form:

Person 1 is claiming that Y is true, but person 1 is acting as if Y is not true.

Therefore, Y must not be true.

Example #1:

Helga: You should not be eating that... it has been scientifically proven that eating fat burgers are no good for your health.

Hugh: You eat fat burgers all the time, so that can't be true.

Explanation: It doesn't matter, to the truth claim of the argument at least, if Helga follows her own advice or not. While it might appear that the reason she does not follow her own advice is because she doesn't believe it's true, it could also be that those fat burgers are just too damn irresistible.

Example #2:

Jimmy Swaggart argued strongly against sexual immorality, yet he has had several affairs with prostitutes, therefore, sexual immorality is acceptable.

Explanation: The fact Jimmy Swaggart likes to play a round of bedroom golf with some local entrepreneurial ladies, is

not evidence for sexual immorality *in general*, only that *he is* sexually immoral.

Exception: If Jimbo insisted that his actions were in line with sexual morality, then it would be a very germane part of the argument.

Tip: Again, admit when your lack of self-control or will-power has nothing to do with the truth claim of the proposition. The following is what I remember my dad telling me about smoking (he smoked about 4 packs a day since he was 14).

*Bo, never be a stupid a-hole like me and start smoking.
It is a disgusting habit that I know will eventually kill me.
If you never start, you will never miss it.*

My dad died at age 69 – of lung cancer. I never touched a cigarette in my life and never plan to.

Affirmative Conclusion from a Negative Premise

(also known as: illicit negative, drawing a negative conclusion from affirmative premises, fallacy of negative premises)

This is our first fallacy in *formal logic* out of about a dozen presented in this book. Formal fallacies can be confusing and complex, and are not as common in everyday situations, so please don't feel "lost" when reading through the formal fallacies – do your best to understand them, as I do my best to make them understandable.

New Terminology:

Syllogism: an argument typically consisting of three parts: a major premise, a minor premise, and a conclusion.

Categorical Term: usually expressed grammatically as a noun or noun phrase, each categorical term designates a class of things.

Categorical Proposition: joins together exactly two categorical terms and asserts that some relationship holds between the classes they designate.

Categorical Syllogism: an argument consisting of exactly three categorical propositions: a major premise, a minor premise, and a conclusion, in which there appear a total of exactly three categorical terms, each of which is used exactly twice.

Description: The conclusion of a standard form categorical syllogism is affirmative, but at least one of the premises is negative. Any valid forms of categorical syllogisms that assert a negative premise must have a negative conclusion.

Logical Form:

Any form of categorical syllogism with an affirmative conclusion and at least one negative premise.

Example #1:

No people under the age of 66 are senior citizens.

No senior citizens are children.

Therefore, all people under the age of 66 are children.

Explanation: In this case, the conclusion is obviously counterfactual although both premises are true. Why? Because this is a categorical syllogism where we have one or more negative premises (i.e. “no people...” and “no senior citizens...”) and we are attempting to draw a positive (affirmative) conclusion (i.e. “all people...”).

Example #2:

No donkeys are fish.

Some asses are donkeys.

Therefore, some asses are fish.

Explanation: This is a categorical syllogism where we have a single negative premise (i.e. “no donkeys”) and we are attempting to draw a positive (affirmative) conclusion (i.e. “some asses”).

Exception: None.

Affirming a Disjunct

(also known as: the fallacy of the alternative disjunct, false exclusionary disjunct, affirming one disjunct, the fallacy of the alternative syllogism, asserting an alternative, improper disjunctive syllogism, fallacy of the disjunctive syllogism)

New Terminology:

Disjunction: A proposition of the "either/or" form, which is true if one or both of its propositional components is true; otherwise, it is false.

Disjunct: One of the propositional components of a disjunction.

Description: Making the false assumption that when presented with an either/or possibility, that if one of the options is true that the other one must be false. This is when the "or" is not specifically defined as being *exclusive*.

This fallacy is similar to the [unwarranted contrast](#) fallacy.

Logical Form:

P or Q.

P.

Therefore, not Q.

P or Q.

Q.

Therefore, not P.

Example #1:

I can't stop eating these chocolates. Either I really love chocolate, or I seriously lack will power. I know I really love chocolate, therefore, I cannot lack will power.

Explanation: Ignoring the possible [false dilemma](#), the fact that one really loves chocolate does not automatically

exclude the other possibility of lacking will power.

Example #2:

I am either going to bed or watching TV. I am exhausted so I will go to bed, therefore, I cannot watch TV.

Explanation: It is logically and physically possible to go to bed and watch TV at the same time, I know that for a fact as I do it just about every night. The “or” does not logically exclude the option that is not chosen.

Exception: If the choices *are* mutually exclusive, then it can be deduced that the other choice must be false. Again, we are working under the assumption that one of the choices we are given represents the truth.

Today is either Monday or Sunday. It is Monday. Therefore, it is not Sunday.

In formal logic, the above is referred to as a *valid disjunctive syllogism*.

Affirming the Consequent

(also known as: converse error, fallacy of the consequent, asserting the consequent, affirmation of the consequent)

New Terminology:

Consequent: *the propositional component of a conditional proposition whose truth is conditional, or simply put, what comes after the “then” in an “if/then” statement.*

Antecedent: *the propositional component of a conditional proposition whose truth is the condition for the truth of the consequent, or simply put, what comes after the “if” in an “if/then” statement.*

Description: An error in formal logic where if the consequent is said to be true, the antecedent is said to be true as a result.

Logical Form:

If P then Q.

Q.

Therefore, P.

Example #1:

If taxes are lowered, I will have more money to spend.

I have more money to spend.

Therefore, taxes must have been lowered.

Explanation: I could have had more money to spend simply because I gave up crack-cocaine, prostitute solicitation, and baby-seal-clubbing expeditions.

Example #2:

If it's brown, flush it down.

I flushed it down.

Therefore, it was brown.

Explanation: No! I did not have to follow the, “if it’s yellow, let it mellow” rule – in fact, if I did follow that rule I would probably still be single. The stated rule is simply, “if it’s brown” (the *antecedent*), then (implied), “flush it down” (the *consequent*). From this, we cannot imply that we can ONLY flush it down if it is brown. That is a mistake – a logical fallacy.

Exception: None.

Tip: If it’s yellow, flush it down too.

Alleged Certainty

(also known as: assuming the conclusion, appeal to common sense [form of])

Description: Asserting a conclusion without evidence or premises, through a statement that makes the conclusion appear certain, when in fact, it is not.

Logical Form:

*Everybody knows that X is true.
Therefore, X is true.*

Example #1:

People everywhere recognize the need to help the starving children of the world.

Explanation: Actually, people everywhere don't recognize this. This may seem like common sense to those who make the claim, and to many who hear the claim, but there are many people on this earth who do not share that view, and need to be convinced first.

Example #2:

Everyone knows that without religion, we all would be like lost sheep.

Explanation: Everyone does not know that. Sometimes, without stepping outside your own social sphere, it might seem like what you might accept as universal truths are simply truths within your own social sphere. Don't assume universal truths.

Exception: Facts that would seem foolish not to assume, can be assumed – but one should be prepared to support the assumption, no matter how certain one may be.

We all know that without water we cannot survive.

Tip: Replace the word “certain” in your life with “extremely probable”.

Variation: The *appeal to common sense* is asserting that your conclusion or facts are just “common sense”, yet sense is anything but common. We have a tendency to think that many of our beliefs and opinions are “common sense” when in fact they are not. We must argue as to *why we believe something is common sense*, rather than just asserting that it is.

Alternative Advance

(also known as: lose-lose situation)

Description: When one is presented with just two choices, both of which are essentially the same, just worded differently. This technique is often used in sales. Fallacious reasoning would be committed by the person accepting the options as the only options, which would most likely be on a subconscious level, since virtually anyone, if they thought about it, would recognize other options exist.

Example #1:

Max: If you're not a witch, you have nothing to worry about. If you're not a witch, you are not made of wood, therefore, you will sink and drown after we tie you up and throw you in the well. If you do float, then you are made of wood, you are a witch, and we will hang you.
Gilda: Wait, how is it I have nothing to worry about if I am not a witch?

Explanation: The argument is created so that any woman accused of being a witch will die, certainly a lose-lose situation.

Example #2:

Guy on street: Tell me young man, have you accepted Je-sus in your heart? If not, let's talk about it. If you have, let's talk about how you can help others accept Je-sus!

Explanation: Of course, another option is to just ignore the guy and keep walking, tell the guy, "no thank you", and keep walking, or grab the guy's Bible, whack him over the head with it, and then keep walking.

Exception: If you engage your critical thinking and realize other options exist, and still choose one of the given options, you would not be guilty of fallacious reasoning.

Tip: Whenever you are presented with options, carefully consider the possibility of other options not mentioned, and propose them.

Appeal to Accomplishment

(also known as: appeal to success)

Description: When the argument being made is sheltered from criticism based on the level of accomplishment of the one making the argument. A form of this fallacy also occurs when arguments are evaluated on the accomplishments, or success, of the person making the argument, rather than on the merits of the argument itself.

Logical Form:

Person 1 claims that Y is true.

Person 1 is very accomplished.

Therefore, Y is true.

Person 1 presents evidence against claim Y.

Person 1 is told to shut up until person 1 becomes as accomplished as person 2.

Example #1:

I have been around the block many times, and I have had my share of success. So believe me when I tell you that there is no better hobby than cat-juggling.

Explanation: We can all admire accomplishment and success, but this is irrelevant to cat-juggling. There are many accomplished and successful people who are immoral, mean, insensitive, hateful, liars, miserable, and just plain wrong about a great many things.

Example #2:

I hold a doctorate in theology, have written 12 books, and personally met the Pope. Therefore, when I say that Jesus' favorite snack was raisins dipped in wine, you should believe me.

Explanation: While the credentials of the one making the statement are certainly impressive, in no way do these credentials lend credibility to the belief that Jesus' favorite snack was wine-dipped raisins.

Exception: When one's accomplishments are directly related to the argument, it is more meaningful.

I have been around the block many times, and I have had my share of success in real estate. So believe me when I tell you that, if you know what you are doing, real estate can be a great way to make a great living.

Tip: Many successful people attempt to use their success as a wildcard to be an authority on everything. Don't allow one's own success to cloud your judgement of the claims they are making. Evaluate the evidence above all else.

Appeal to Anger

(also known as: appeal to spite / argumentum ad odium [form of], appeal to hatred, loathing, appeal to outrage, etc.)

Description: When the emotions of anger, hatred, or rage are substituted for evidence in an argument.

Logical Form:

Person 1 claims that X is true.

Person 1 is outraged.

Therefore, X is true.

Claim A is made.

You are outraged by claim A.

Therefore, claim A is true/false.

Example #1:

Are you tired of being ignored by your government? Is it right that the top 1% have so much when the rest of us have so little? I urge you to vote for me today!

Explanation: This is a common tactic to play on the emotions of others to get them to do what you want them to do. The fact is, no evidence was given or claim was made linking your vote with the problems going away. The politician will hope you will make the connection, while she can claim innocence down the road when the people attempt to hold the politician to a promise she really never made.

Example #2:

How can you possibly think that humans evolved from monkeys! This is insulting to the God who created you... from dirt.

Explanation: Ignoring the fact that we didn't evolve from monkeys (we share a common ancestor with modern African apes), the fact that the arguer thinks it is "insulting" is irrelevant to the facts.

Exception: Like all appeals to emotion, they work very well when used in addition to a supported conclusion, not in place of one.

Are you tired of being ignored by your government? Is it right that the top 1% have so much when the rest of us have so little? I urge you to vote for me today, and I will spend my career making America a place where the wealth is more evenly distributed!

Tip: The great Yoda once said, "Fear leads to anger, anger leads to hate, hate leads to suffering." With all due respect to the cute, little, green guy, anger can be very powerful and effective, as well as lead to great things. Think Martin Luther King Jr.

By the way, Yoda's statement actually commits the [slippery slope fallacy](#).

Appeal to Authority

argumentum ad verecundiam

(also known as: argument from authority, appeal to false authority, argument from false authority, ipse dixit, testimonials [form of])

Definition: Using an authority as evidence in your argument when the authority is not really an authority on the facts relevant to the argument. As the audience, allowing an irrelevant authority to add credibility to the claim being made.

Logical Form:

According to person 1, Y is true.

Therefore, Y is true.

Example #1:

My 5th grade teacher once told me that girls will go crazy for boys if they learn how to dance. Therefore, if you want to make the ladies go crazy for you, learn to dance.

Explanation: Even if the 5th grade teacher were an expert on relationships, her belief about what makes girls “go crazy” for boys is speculative, or perhaps circumstantial, at best.

Example #2:

The Pope told me that priests can turn bread and wine into Jesus’ body and blood. The Pope is not a liar. Therefore, priests really can do this.

Explanation: The Pope may believe what he says, and perhaps the Pope is not a liar, but the Pope is not an authority on the *fact* that the bread and wine is actually

transformed into Jesus' body and blood. After all, how much flesh and blood does this guy Jesus actually have to give?

Exception: Appealing to authority is valid when the authority is actually a legitimate (debatable) authority on the facts of the argument. In the above example, if Jesus testified that this was actually happening, I guess we'd have to believe him. The above example demonstrates the kind of subtle difference in being an authority on the *idea* of transubstantiation vs. the actual *effectiveness* of transubstantiation.

Tip: Question authority - or become the authority that people look to for answers.

Variation: *Testimonials* are statements from, "authorities", in the sense that they are said to know about what they are testifying to. In business, vendor-provided testimonials should not be taken too seriously as they can easily be exceptions to the norm or just made up - as in, "John G. from Ohio says..."

Appeal to Celebrity

Description: Accepting a claim of a celebrity based on his or her celebrity status, not on the strength of the argument.

Logical Form:

Celebrity 1 says to use product Y.

Therefore, we should use product Y.

Example #1:

Tom Cruise says on TV that Billy Boy Butter is the best tasting butter there is. Tom Cruise is awesome – especially in MI4 when he scaled that building with only one suction glove, therefore, Billy Boy Butter is the best tasting butter there is!

Explanation: Tom Cruise *is* awesome (his acting, not his religion), and perhaps he really does think *Billy Boy Butter* is the best tasting butter there is. But Tom is no more an authority on the taste of butter than anyone else, therefore, to accept the claim without any other evidence or reason, is fallacious.

Example #2:

Mike Seaver from that 80's sitcom, "Growing Pains", is really cool. He is now a born-again Christian and apologist for the faith. Therefore, you should really listen to what he has to say!

Explanation: Mike Seaver is awesome, but Kirk Cameron, the actor that plays that character? Even if Kirk were super duper (which he might be, I don't know him), his views on the truth of religion are equally as valid as yours, or anyone else's who determines the truth through "faith".

Exception: Some celebrity endorsements are authentic, where the celebrities are motivated by the love of the

product itself, not the huge check they are getting for pretending to like the product. When these products are directly related to their celebrity status, then this could be seen as a valid (but not sufficient) reason for wanting the product.

Honestly, I really can't think of any examples, but there must be some out there.

Tip: If you are in business and looking for a celebrity to endorse your product, try not to pick one that is likely to be accused of killing his wife and his wife's lover, then taking off in a white Bronco.

Appeal to Common Belief

argumentum ad populum

(also known as: appeal to accepted belief, groupthink, appeal to widespread belief, appeal to the masses, appeal to belief, appeal to the majority, argument by consensus, consensus fallacy, authority of the many, bandwagon fallacy, argumentum ad numerum, appeal to the number, argumentum consensus gentium, appeal to the mob, appeal to the gallery, mob appeal, social conformance, value of community)

Description: When the claim that most or many people in general or of a particular group accept a belief as true is presented as evidence for the claim. Accepting another person's belief, or many people's beliefs, without demanding evidence as to why that person accepts the belief, is lazy thinking and a dangerous way to accept information.

Logical Form:

A lot of people believe X.

Therefore, X must be true.

Example #1: Up until the late 16th century, most people believed that the earth was the center of the universe. This, of course, is not true.

Explanation: The *geocentric model* was observation (limited) and faith based, but most who accepted the model did so based on the common and accepted belief of the time, not on their own observations, calculations, and or reasoning. It was people like Copernicus, Galileo and Kepler, who refused to appeal to common belief and uncovered a truth not obvious to the rest of humanity.

Example #2:

How could you not believe in virgin births? Roughly two billion people believe in them, don't you think you should reconsider your position?

Explanation: Anyone who believes in virgin births does not have empirical evidence for his or her belief. This is a claim accepted on faith, which is an individual and subjective form of accepting information, that should not have any effect on your beliefs. Don't forget that there was a time that the common beliefs included a flat earth, earth-centered universe, and demon-possession as the root cause of most illness.

Exception: Sometimes there is good reason to think that the common belief is held by people who do have good evidence for believing. For example, if 99.7% of all earth scientists believe that the universe is approximately 13.7 billion years old, it is wise to believe them, because they will be able to present objective and empirical evidence as to why they believe.

Tip: History has shown that those who break away from the common beliefs are the ones who change the course of history. Be a leader, not a follower.

Appeal to Common Folk

(also known as: appeal to the common man)

Description: In place of evidence, attempting to establish a connection to the audience based on being a “regular person” just like each of them. Then suggesting that your proposition is something that all common folk believe or should accept.

Logical Form:

X is just common folk wisdom.

Therefore, you should accept X.

Person 1 is a common man who proposes Y.

You are also a common man.

Therefore, you should accept Y.

Example #1:

My fellow Americans, I am just like you. Sure, I have a few private jets and a home in 12 countries, but I put on my pants one leg at a time, just like you common people. So believe me when I say, this increase in taxes for the common folk is just what we all need.

Explanation: There is no valid reason given for the increase in taxes.

Example #2: The world religions that focus on giving the power to the “common folk” – the oppressed, the weak, and the poor, are those that have survived and have the most adherents.

Explanation: By appealing to the common man, religions have managed to get followers in large numbers. These appeals, commonly found in religious texts, are not

evidence for the truth claims of the religion, yet they are effective in convincing people to believe the truth claims.

Exception: If the “common folk” appeal is made in addition to valid reasons, then it is not a fallacy, although I would argue it is cheap pandering that people are starting to see right through.

Appeal to Coincidence

(also known as: appeal to luck, appeal to bad luck)

Description: Concluding that a result is due to chance when the evidence strongly suggests otherwise. The appeal to luck variation uses luck in place of coincidence or chance.

Logical Form:

Evidence suggests that X is the result of Y.

Yet one insists that X is the result of chance.

Example #1:

Bill: Steve, I am sorry to say, but you are a horrible driver!

Steve: Why do you say that?

Bill: This is your fourteenth accident this year.

Steve: It's just been an unlucky year for me.

Explanation: Based on statistical norms, it is very clear that anyone getting into fourteen accidents in a single year has a safety issue as a driver. Ignoring this obvious fact and writing it off as “bad luck”, is seen as the *appeal to coincidence*.

Example #2:

Mom: This is the eighth time you have been sent to the principle's office this year. The principle tells me she has seen you more times in her office than any other student. Why is this?

Dwight: A teacher just happens to sneak up on me whenever I am doing something against the rules, which is no more often than any other student.

Explanation: Dwight is a trouble-maker – that is quite clear. Rather than face the facts, he is *appealing to coincidence* by

suggesting he just gets caught more often due to bad timing.

Exception: Coincidences do happen. When the evidence points in the direction of coincidence, the coincidence might be the best option.

Appeal to Consequences

argumentum ad consequentiam

(also known as: appeal to consequences of a belief, argument to the consequences, argument from [the] consequences)

Description: Concluding that an idea or proposition is true or false because the consequences of it being true or false are desirable or undesirable. The fallacy lies in the fact that the desirability is not related to the truth value of the idea or proposition. This comes in two forms: the positive and negative.

Logical Form:

X is true because if people did not accept X as being true then there would be negative consequences.

X is false because if people did not accept X as being false, then there would be negative consequences.

X is true because accepting that X is true has positive consequences.

X is false because accepting that X is false has positive consequences.

Example (positive):

If there is objective morality, then good moral behavior will be rewarded after death. I want to be rewarded, therefore, morality must be objective.

Example (negative):

If there is no objective morality, then all the bad people will not be punished for their bad behavior after death. I don't like that, therefore, morality must be objective.

Explanation: The fact that one wants to be rewarded, or wants other people to suffer, says nothing to the truth claim

of objective morality. These examples are also [begging the question](#) that there is life after death.

Exception: If it is understood by both parties that an argument is not being made, rather it is a warning based on possibilities, and the person issuing the warning acknowledges it is not evidence for the claim, then there is no fallacy. The problem is, virtually every such warning has an implied argument, so it is very debatable what is fallacious or not. For example:

Peter: I know it's not evidence for Jesus' existence, but I believe in Jesus because I am not risking an eternity of suffering. That's why I think you should too!

Carl: What if Allah exists, and as it says in the Koran, if you believe Jesus was divine you will spend eternity in Hell?

Peter: Oh shit.

Tip: Realize that you can deal with reality, no matter what that reality turns out to be. You don't need to hide from it – face it head on.

Appeal to Definition*

(also known as: appeal to the dictionary)

Definition: Using a dictionary's limited definition of a term as evidence that term cannot have another meaning, expanded meaning, or even conflicting meaning. This is a fallacy because dictionaries don't reason; they simply are a reflection of an abbreviated version of the current accepted usage of a term, as determined through argumentation and eventual acceptance. In short, dictionaries tell you what a word meant, according to the authors, at the time of its writing, not what it meant before that time, after, or what it should mean.

Dictionary meanings are usually concise and lack the depth found in an encyclopedia, therefore, terms found in dictionaries are often incomplete when it comes to helping people to gain a full understanding of the term.

Logical Form:

The dictionary definition of X does not mention Y.

Therefore, Y must not be part of X.

Example #1:

Ken: Do you think gay marriage should be legalized?

Paul: Absolutely not! Marriage is defined as the union between a man and a woman – not between two men or two women!

Ken: Did you know that in 1828, the dictionary definition of marriage included, "for securing the maintenance and education of children"? Does that mean that all married couples who can't or choose not to have children aren't really married?

Paul: No, it just means they need to buy an updated dictionary.

Ken: As do you. The current Merriam-Webster dictionary includes as a secondary definition, "the state of being united to a person of the same sex in a relationship like that of a traditional marriage."

Explanation: The dictionary does not settle controversial issues such as gay marriage – it simply reports the most current accepted definition of the term itself while usually attempting to remain neutral on such controversial issues.

Example #2:

Armondo: Mrs. Patterson was wrong to knock off 10 points off my oral presentation because I kept using the word, "erection" instead of building.

Felix: That was hilarious, but did you honestly think you would not get in trouble?

Armondo: No, my dictionary says that an erection is a building.

Explanation: Armondo may be right, but the dictionary is not the final authority on all issues, especially social behavior. More modern usage, especially in a high school setting, takes precedence in this case.

Exception: The dictionary works well when the term in question is a result of a misunderstanding or ignorance. For example:

Ken: Do you accept biological evolution?

Paul: No. Because I know for a fact that my grandmother was not a monkey.

Ken: Good Lord.

Tip: Don't be afraid to argue with authority if you believe you are right – even when that authority is the dictionary.

Appeal to Desperation

Description: Arguing that your conclusion, solution, or proposition is right based on the fact that something must be done, and your solution is something.

Logical Form:

Something must be done.
X is something,
Therefore, X must be done.

Example #1:

These are desperate times, and desperate times call for desperate measures. Therefore, I propose we exterminate all baby seals. It is obvious that something must be done, and this is something.

Explanation: No reason is given for why we should exterminate all baby seals. Perhaps the reason is that they all have a virus that will spread to the human race and kill us all, perhaps exterminating all baby seals will leave more fish for the humans, or perhaps exterminating all baby seals will be a way to finally put an end to the clubbing of baby seals – but without these or any other reasons given, we have nothing to go on except the desperation that something must be done.

Example #2:

Chairman: We are out of money come Monday. Any suggestions?

Felix: I suggest we take what money we do have, and go to Disney World.

Chairman: Any other suggestions?

(silence)

Chairman: Since there are no other suggestions, Disney World it is.

Explanation: Desperate times don't necessarily call for any measure over no measure. Many times, no action is better than a bad action. Blowing what money is left on over-priced soft drinks and what appears to be rotisserie ostrich legs, may not be a wise choice - especially when investors are involved.

Exception: At times, especially in situations where time is limited, taking some action will be better than taking no action, and in absence of better reasoning, the best available reason might have to do. However, a reason, no matter how poor, should still be given - not simply a conclusion.

Tip: Do your best to avoid situations of desperation where emotion very often takes the lead over reason. Although not all desperate situations can be avoided, many can, by proper planning and foresight.

Appeal to Emotion

(also known as: playing on emotions, emotional appeal, for the children)

Description: This is the general category of many fallacies that use emotion in place of reason in order to attempt to win the argument. It is a type of manipulation used in place of valid logic.

There are several specifically emotional fallacies that I list separately in this book, because of their widespread use. But keep in mind that you can take any emotion, precede it with, “appeal to”, and you have created a new fallacy. But by definition, the emotion must be used in place of a valid reason in supporting the conclusion.

Logical Form:

X must be true.

Imagine how sad it would be if it weren't true.

Example #1:

Power lines cause cancer. I met a little boy with cancer who lived just 20 miles from a power line who looked into my eyes and said, in his weak voice, “Please do whatever you can so that other kids won't have to go through what I am going through.” I urge you to vote for this bill to tear down all power lines and replace them with monkeys on treadmills.

Explanation: Notice the form of the example: assertion, emotional appeal, request for action (conclusion) – nowhere is there any evidence presented. We can all tear up over the image of a little boy with cancer who is expressing concern for others, rather than taking pity on himself, but that has nothing to do with the assertion or the conclusion.

Example #2:

There must be objective rights and wrongs in the universe. If not, how can you possibly say that torturing babies for fun could ever be right?

Explanation: The thought of people torturing babies for fun immediately brings up unpleasant images (in sane people). The actual argument (implied) is that there are objective (universal) rights and wrongs (morality). The argument is worded in such a way to connect the argument's conclusions (that there is objective morality) with the idea that torturing babies for fun is wrong (this is also a [non sequitur fallacy](#)). No matter how we personally feel about a horrible act, our feelings are not a valid substitution for an objective reason behind *why* the act is horrible.

Exception: Appealing to emotions is a very powerful and necessary technique in persuasion. We are emotional creatures, and, therefore, we often make decisions and form beliefs erroneously based on emotions, when reason and logic tell us otherwise. However, using appeals to emotion as a backup to rational and logical arguments is not only valid, but a skill possessed by virtually every great communicator.

Tip: By appealing to both the brain and the heart, you will persuade the greatest number of people.

Appeal to Extremes

(also known as: reductio ad absurdum [misuse of], slippery slope fallacy [form of])

Description: Erroneously attempting to make a reasonable argument into an absurd one, by taking the argument to the extremes.

Logical Form:

If X is true, then Y must also be true (where Y is the extreme of X)

Example #1:

There is no way those Girl Scouts could have sold all those cases of cookies in one hour. If they did, they would have to make \$500 in one hour, which, based on an 8 hour day is over a million dollars a year. That is more than most lawyers, doctors, and successful business people make!

Explanation: The Girl Scouts worked just for one hour – not 40 per week for a year. Suggesting the extreme leads to an absurd conclusion; that Girl Scouts are among the highest paid people in the world. Not to mention, there is a whole troop of them doing the work, not just one girl.

Example #2:

Don't forget God's commandment, "thou shall not kill". By using mouthwash, you are killing 99.9% of the germs that cause bad breath. Prepare for Hell.

Explanation: It is unlikely that God had mouthwash on his mind when issuing that command. But if he did, we're all screwed.

Exception: This fallacy is a misuse of one of the greatest techniques in argumentation, reductio ad absurdum, or reducing the argument to the absurd. The difference is where the absurdity actually is – in the argument or in reasoning of the one trying to show the argument is absurd.

Here is an example of an argument that is proven false by reducing to the absurd, legitimately.

Big Tony: The more you exercise, the stronger you will get!

Nerdy Ned: Actually, if you just kept exercising and never stopped, you would eventually drop dead. There is a limit to how much exercise you should get.

Tip: People very often say stupid things. Sometimes it is easy to reduce their argument to absurdity, but remember, in most cases, your goal should be diplomacy, not making the other person look foolish. Especially when dealing with your wife – unless you really like sleeping on the couch.

Appeal to Faith

Description: This is an abandonment of reason in an argument and a call to faith, usually when reason clearly leads to disproving the conclusion of an argument. It is the assertion that one must have (the right kind of) faith in order to understand the argument.

Even arguments which heavily rely on reason that ultimately require faith, abandon reason.

Logical Form:

X is true.

If you have faith, you will see that.

Example #1:

Jimmie: How can you possibly associate gentle Jesus with the same God who says, "I will make my arrows drunk with blood, while my sword devours flesh: the blood of the slain and the captives, the heads of the enemy leaders."? (Deuteronomy 32:42)

Hollie: You are trying to interpret those words through your carnal mind. You need to read those words through the eyes of faith.

Jimmie: What does that even mean?

Hollie: If you had faith, you would understand.

Explanation: There are some things, some believe, that are beyond reason and logic. Fair enough, but the moment we accept this, absent of any objective method of telling what is beyond reason and why, *anything goes*. Anything can be explained away without having to explain anything.

Example #2:

Tina: So please explain how Jesus can also be God, yet two separate persons who talk to each other.

St. Bingo: My child, you will only see that answer clearly through the eyes of faith.

Explanation: It should be obvious that reason and logic are not being used, but rather “faith”. While St. Bingo may be right, there is still no valid reason offered. The problem also arises in the vagueness of the *appeal to faith*. St. Bingo’s answer can be used to answer virtually any question imaginable, yet the answer is really a deflection.

St. Bingo: You need to massage my feet.

Tina: Why?

St. Bingo: My child, you will only see that answer clearly through the eyes of faith.

Exception: No exceptions – the *appeal to faith* is always a fallacy when used to justify a conclusion in absence of reason.

Appeal to Fear

argumentum in terrorem

(also known as: argumentum ad metum, argument from adverse consequences, scare tactics)

Description: When fear, not based on evidence or reason, is being used as the primary motivator to get others to accept an idea, proposition, or conclusion.

Logical Form:

If you don't accept X as true, something terrible will happen to you.

Therefore, X must be true.

Example #1:

If we don't bail out the big automakers, the US economy will collapse. Therefore, we need to bail out the automakers.

Explanation: There might be plenty of legitimate reasons to bail out the automakers – reasons based on evidence and probability, a “collapsed economy” is not one of them.

Example #2:

Timmy: Mom, what if I don't believe in God?

Mom: Then you burn in Hell forever. Why do you ask?

Timmy: No reason.

Explanation: Timmy's faith is waning, but mom, like most moms, is very good at scaring the Hell, in this case, into, Timmy. This is a fallacy because mom provided no evidence that disbelief in God will lead to an eternity of suffering in Hell. But because the possibility is terrifying to Timmy, he “accepts” the proposition (to believe in God), despite the lack of actual evidence.

Exception: When fear is not the primary motivator, but a supporting one, and the probabilities of the fearful event happening are honestly disclosed, it would not be fallacious.

Timmy: Mom, what if I don't believe in God?

Mom: Then I would hope that you don't believe in God for the right reasons, and not because your father and I didn't do a good enough job telling you why you should believe in him, including the possibility of what some believe is eternal suffering in Hell.

Timmy: That's a great answer mom. I love you. You are so much better than my mom in the other example.

Tip: Think in terms of probabilities, not possibilities. Anything is possible, including a lion busting into your home at night and mauling you to death – but it is very, very improbable. People who use fear to manipulate you, count on you to be irrational and emotional rather than reasonable and calculating. Prove them wrong.

Appeal to Flattery

(also known as: apple polishing, wheel greasing, brown nosing, appeal to pride / argumentum ad superbiam, appeal to snobbery [form of], appeal to vanity, proof surrogate [form of])

Description: When an attempt is made to win support for an argument not by the strength of the argument, but by using flattery on those whom you want to accept your argument. This fallacy is often the cause of people getting tricked into doing something they don't really want to do.

Logical Form:

X is true.

(flattery goes here)

Therefore, X is true.

Example #1:

You should certainly be the one who washes the dishes – you are just so good at it!

Explanation: You may be great at washing dishes, but that fact in itself is not a sufficient reason for you being the one to actually wash the dishes. Is it necessary for someone as skilled at dish-washing as you to do the job? Or is it a mindless job that anyone can do just fine?

Example #2:

Salesguy: You should definitely buy this car. You look so good in it – you look at least ten years younger behind that wheel.

Tamera: I'll take it!

Explanation: The comment about looking ten years younger – just because of the car, is obvious flattery and not

a fact. This would not qualify as a valid reason for making such a purchase.

Exception: Sincere praise is not flattery, and is universally appreciated⁵. But even praise in itself, without reason, is a fallacy, unless the argument is directly related to the sincere praise.

You are a stunningly beautiful girl – you should be a model.

Tip: Flattery might get you somewhere, but it's usually a place you don't want to be.

Variation: The *appeal to snobbery* is an attempt to make one feel part of the elite if they accept the claim. The *proof surrogate* is a more general fallacy that substitutes any distracting claim for one of proof – usually flattery is used.

Appeal to Force

argumentum ad baculum

(also known as: argument to the cudgel, appeal to the stick, argument by vehemence [form of])

Description: When force, coercion, or even a threat of force is used in place of a reason in attempt to justify a conclusion.

Logical Form:

If you don't accept X as true, I will hurt you.

Example #1:

Melvin: Boss, why do I have to work weekends when nobody else in the company does?

Boss: Am I sensing insubordination? I can find another employee very quickly, thanks to Craigslist, you know.

Explanation: Melvin has asked a legitimate question to which he did not get a legitimate answer, rather his question was deflected by a threat of force (as being forced out of his job).

Example #2:

Jordan: Dad, why do I have to spend my summer at Jesus camp?

Dad: Because if you don't, you will spend your entire summer in your room with nothing but your Bible!

Explanation: Instead of a reason, dad gave Jordan a description of a punishment that would happen.

Exception: If the force, coercion, or threat of force is not being used as reason but as a fact or consequence, then it would not be fallacious, especially when a legitimate reason is given with the “threat”, direct or implied.

Melvin: Boss, why do I have to wear this goofy-looking hardhat?

Boss: It is state law, therefore, company policy. No hat, no job.

Tip: Unless you are an indentured servant (slave) or still living with your parents (slave), do not allow others to force you into accepting something as true.

Variation: *Argument by vehemence* is being very loud in place of being right. This is a form of force, or basically frightening your opponent into submission.

Appeal to Heaven

deus vult

(also known as: gott mit uns, manifest destiny, special covenant)

Description: Asserting the conclusion must be accepted because it is the “will of God” or “the will of the gods”. In the mind of those committing the fallacy, and those allowing to pass as a valid reason, the will of God is not only knowable, but the person making the argument knows it, and no other reason is necessary.

Logical Form:

God wants us to X.

Therefore, we should X.

Example #1:

Judge: So why did you chop those people into little pieces and put the pieces in a blender?

Crazy Larry: Because God told me to do it.

Judge: Good enough for me. Next case!

Explanation: We should all be thankful that our legal system does not work this way, but human thinking does. Every day, people do things or don't do things according to what they believe is the will of their God. Fortunately, most of the time, this does not include a blender.

Example #2:

Ian: Why is the story of Abraham and Isaac regarded as such a “beautiful” Christian story? The guy was about to burn his son alive as a human sacrifice!

Wallace: Because it was the will of God that Abraham was following, no matter how difficult it was for him.

Isn't that beautiful?

Ian: I guess as long as it was the will of God, being asked to burn children alive is a beautiful thing.

Explanation: One needs to ask, how do you know it is the will of God? Satan is said to be the great deceiver – he would only be great if those being deceived couldn't tell the difference between God and Satan. In reality, appealing to Heaven, or God, is an abandonment of logic and reason, and as we have seen, potentially extremely dangerous.

Exception: When the supposed, “will of God”, is in line with what someone would already do or believe based on reason, no fallacy is committed.

I choose not to kill other people because I would not want them choosing to kill me, plus, I don't believe that God wouldn't like it if I did.

Tip: Sometimes the only difference between faithfulness and insanity, is adherence to the law.

Appeal to the Moon

(also known as: bad analogy [form of])

Description: Using the argument, “If we can put a man on the moon, we could...” as evidence for the argument.

Logical Form:

If we can put a man on the moon, we can X.

Example #1:

If we can put a man on the moon, we can cure all forms of cancer.

Explanation: This is a form of a weak analogy. Putting a man on the moon is seen to be a virtually impossible task, but since we did it, the (faulty) reasoning is we can then do any virtually impossible task. Remember that mere possibility is not the same as probability. These kind of arguments are not suggesting mere possibility, but probability, based on the fact that we succeeded getting a man on the moon.

Example #2:

If NASA can put a man on the moon, you can certainly sleep with me tonight.

Explanation: This is an even worse analogy, taking the “we” out that the analogy had in common and replacing it with “NASA” and “you”. Now, it really makes no sense in the least bit, but I bet that someone, somewhere, will be convinced by it.

Exception: If the argument is for getting a man on the moon again, then this would work.

If we can put a man on the moon in 1969, we can do it today.

Tip: Believe in the possible – just don't count on it unless it is probable.

Appeal to Nature

Argumentum ad Naturam

Description: When used as a fallacy, the belief or suggestion that “natural” is always better than “unnatural”. Many people adopt this as a default belief.

The *appeal to nature fallacy* should not be confused with the [naturalistic fallacy](#). Through confused online sources, the two have become synonymous. But if you want to impress your friends, insist that the two are very different and tell them why.

Logical Form:

X is natural.

Y is not natural.

Therefore, X is better than Y.

Example #1:

I shop at Natural Happy Sunshine Store (NHSS), which is much better than your grocery store, because at NHSS, everything is natural, including the 38 year old store manager's long grey hair and saggy breasts.

Explanation: I can appreciate natural food and products as much as the next granola-eating guy, but to make any claim of “betterness”, one needs to establish criteria by which to judge. Perhaps not paying almost twice as much for the same general foods is “better” for me. Perhaps I prefer a little insecticide on my apple to insects inside my apple. And maybe I like faux brunettes with perky breasts due to “unnatural” bra support.

Natural is not always “better”.

Example #2:

Cocaine is all natural, therefore, it is good for you.

Explanation: There are a very many things in this world that are “all natural” and very bad for you besides cocaine, including, earthquakes, monsoons and viruses, just to name a few. Whereas “unnatural” things such as aspirin, pacemakers, and surgery can be very good things.

Exception: There are many natural things that are better than unnatural, but they must be evaluated based on other criteria besides the “naturalness”.

Tip: Keep in mind that Mother Nature is the kind of mother who wouldn't hesitate to throw you in a dumpster and leave you there to die.

Appeal to Novelty

argumentum ad novitatem

(also known as: appeal to the new, ad novitam [sometimes spelled as])

Description: Claiming that something that is new or modern is superior to the status quo, based exclusively on its newness.

Logical Form:

X has been around for years now.

Y is new.

Therefore, Y is better than X.

Example #1:

Two words: New Coke.

Explanation: Those who lived through the Coca-Cola identity crises of the mid eighties, know what a mess it was for the company. In fact, the “New Coke Disaster”, as it is commonly referred to, is literally a textbook example of attempting to fix what isn’t broken. Coke’s main marketing ploy was appealing to the novelty, and it failed miserably – even though more people (55%) actually preferred the taste of the New Coke, the old was “better”.

Example #2:

Bill: Hey, did you hear we have a new operating system out now? It is better than anything else out there, because we just released it!

Steve: What’s it called?

Bill: Windows Vista!

Steve: Sounds wonderful! I can’t wait until all of your users install it on all their computers!

Explanation: For anyone who went through the experience of Vista, this fallacy should hit very close to home. You were most likely assuming that you were getting a superior product to your old operating system – you were thinking “upgrade”, when in fact, those who stuck with the status quo (Windows XP) were much better off.

Exception: There are obvious exceptions, like in claiming that your fresh milk is better than your month old milk, that is now growing legs in your refrigerator.

Tip: Diets and exercise programs/gadgets are notorious for preying on our desire for novelty. Don't be swayed by the “latest research” or latest fads. Just remember this: burn more calories than you take in, *and you will lose weight.*

Appeal to Pity

argumentum ad miserecordiam

(also known as: appeal to sympathy, the Galileo argument [form of])

Description: The attempt to distract from the truth of the conclusion by the use of pity.

Logical Form:

Person 1 is accused of Y, but person 1 is pathetic.

Therefore, person 1 is innocent.

X is true because person 1 worked really hard at making X true.

Example #1:

I really deserve an "A" on this paper, professor. Not only did I study during my grandmother's funeral, I also passed up the heart transplant surgery, even though that was the first matching donor in 3 years.

Explanation: The student deserves an "A" for effort and dedication, but unfortunately papers are not graded that way. The fact that we should pity her has nothing to do with the quality of the paper written, and if we were to adjust the grade because of the sob stories, we would have fallen victim to the *appeal to pity*.

Example #2:

Jesus must be God - look at how much he suffered!

Explanation: Jesus may be God, but not because he suffered. There are millions of people in this world that suffer much worse and for much longer, than Jesus did, but that doesn't make them all God.

Exception: Like any argument, if it is agreed that logic and reason should take a backseat to emotion, and there is no objective truth claim being made, but rather an opinion of something that should or should not be done, then it could escape the fallacy.

Jesus suffered horribly on the cross. Therefore, we should feel empathy towards him.

Tip: Avoid pity in argumentation. It is a clear indicator that you have weak evidence for your argument.

Variation: The *Galileo argument* requests pity for unusual claims, like that of Galileo's sun-centered solar system, without providing sufficient evidence for the claims.

Appeal to Popularity

argumentum ad numeram

(also known as: bandwagon argument, peer pressure)

Description: Using the popularity of a premise or proposition as evidence for its truthfulness. This is a fallacy which is very difficult to spot because our “common sense” tells us that if something is popular, it must be good/true/valid. But this is not so, especially in a society where clever marketing, social and political weight, and money can buy popularity.

Logical Form:

Everybody is doing X.

Therefore, X must be the right thing to do.

Example #1:

Mormonism is one of the fastest growing sects of Christianity today, so that whole story about Joseph Smith getting the gold plates, that unfortunately disappeared back into heaven, must be true!

Explanation: Mormonism is indeed rapidly growing, but that fact does not prove the truth claims made by Mormonism in any way.

Example #2:

Out of all the religions, Christianity is most likely the one true religion because it is by far the most popular worldwide. It has been growing strong since the time of Constantine.

Explanation: Indeed Christianity is popular, and has seen a strong and steady growth in the last 1700+ years. But this is not evidence that it is true – it is just evidence that it is popular. There are many factors that lead to the growth of

Christianity including breeding and children being raised Christian, promises of Heaven and the threat of Hell, the strong emphasis on the importance of being evangelical, and more.

Exception: When the claim being made is about the popularity or some related attribute that is a direct result of its popularity.

People seem to love the movie, The Shawshank Redemption. In fact, it is currently ranked #1 at IMDB.com, based on viewer ratings.

Tip: Avoid this fallacy like you avoid a kiss from your great aunt with the big cold sore on her lip.

Variation: The *bandwagon effect* is a related cognitive bias that demonstrates people tend to believe and do things because many other people do as well. This is also referred to as “herd behavior” and “groupthink”.

Appeal to Possibility

(also known as: appeal to probability)

Description: When a conclusion is assumed not because it is probably true, but because it is *possible* that it is true, no matter how improbable.

Logical Form:

X is possible.

Therefore, X is true.

Example #1:

Brittany: I haven't applied to any other schools besides Harvard.

Casey: You think that is a good idea? After all, you only have a 2.0 GPA, your SAT scores were pretty bad, and frankly, most people think you are not playing with a full deck.

Brittany: Are you telling me that it is impossible for me to get in?

*Casey: Not *impossible*, but...*

Brittany: Then shut your trap.

Explanation: Yes, it is possible that Harvard will accept Brittany to fill some sympathy quota, or perhaps someone at admissions will mix Brittany up with "Britney", the 16-year-old Asian with the 4.0 average who also discovered a vaccine for a rare flu in her spare time. But because Brittany is *appealing to possibility*, she is committing this fallacy.

Example #2:

Dave: Did you know that Jesus was gay?

Tim: And why do you say that?

Dave: You have to admit, it is possible!

Tim: So is the fact that you are a moron.

Explanation: We cannot assume Jesus was gay based on the possibility alone. This also includes the [argument from ignorance](#) fallacy - concluding a possibility based on missing information (an outright statement that Jesus was a heterosexual).

Exception: When something is argued to be *impossible*, arguing that it is possible, no matter how *improbable*, is perfectly acceptable.

Tip: Catch yourself every time you are about to use the word “impossible”. Yes, there are many things that are logically and physically impossible, and it is a valid concept and word, but so often we use that word when we really mean “improbable”. Confusing the impossible with the improbable or unlikely, could, in many cases, destroy the possibility of great success.

Appeal to Ridicule

reductio ad ridiculum

(also known as: appeal to mockery, the horse laugh)

Description: Presenting the argument in such a way that makes the argument look ridiculous, usually by misrepresenting the argument or the use of exaggeration.

Logical Form:

Person 1 claims that X is true.

Person 2 makes X look ridiculous, by misrepresenting X.

Therefore, X is false.

Example #1:

It takes faith to believe in God just like it takes faith to believe in the Easter bunny – but at least the Easter bunny is based on a creature that actually exists!

Explanation: Comparing the belief in God to belief in the Easter bunny is an attempt at ridicule, and not a good argument. In fact, this type of fallacy usually shows desperation in the one committing the fallacy.

Example #2:

Evolution is the idea that humans come from pond scum.

Explanation: It is ridiculous to think that we come from pond scum, and it is not true. It is more accurate to say that we come from exploding stars, as every atom in our bodies were once in stars. By creating a ridiculous and misleading image, the truth claim of the argument is overlooked.

Exception: It is perfectly legitimate to use ridicule when a position is worthy of ridicule. This is a risky proposition, however, because of the subjectiveness of what kind of

argument is actually ridicule worthy. As we have seen, misplaced ridicule can appear as a sign of desperation, but carefully placed ridicule can be a witty move that can work logically and win over an audience emotionally as well.

Matt: You close-minded fool! Seeing isn't believing, believing is seeing!

Cindy: Does that go for the Easter Bunny as well, or just the imaginary beings of your choice?

Tip: Do your best to maintain your composure when someone commits this fallacy at your expense. Remember, they are the ones who have committed the error in reasoning. Tactfully point it out to them.

Appeal to Tradition

argumentum ad antiquitatem

(also known as: appeal to common practice, appeal to antiquity, proof from tradition, appeal to past practice, gadarene swine fallacy [form of], traditional wisdom)

Description: Using historical preferences of the people (tradition), either in general or as specific as the historical preferences of a single individual, as evidence that the historical preference is correct. Traditions are often passed from generation to generation with no other explanation besides, “this is the way it has always been done” – which is not a reason, *it is an absence of a reason*.

Logical Form:

We have been doing X for generations.

Therefore, we should keep doing X.

Our ancestors thought X was right.

Therefore, X is right.

Example #1:

Dave: For five generations, the men in our family when to Stamford and became doctors, while the women got married and raised children. Therefore, it is my duty to become a doctor.

Kaitlin: Do you want to become a doctor?

Dave: It doesn't matter – it is our family tradition. Who am I to break it?

Explanation: Just as it takes people to start traditions, it takes people to end them. A tradition is not reason for action – it is like watching the same movie over and over again but never asking why you should keep watching it.

Example #2:

Marriage has traditionally been between a man and a woman, therefore, gay marriage should not be allowed.

Explanation: Very often traditions stem from religious and/or archaic beliefs, and until people question the logic and reasoning behind such traditions, people who are negatively affected by such traditions will continue to suffer. Just because it was acceptable in past cultures and times, does not mean it is acceptable today. Think racism, slavery, and corporal punishment.

Exception: Victimless traditions that are persevered for the sake of preserving the traditions themselves, do not require any other reason.

Tip: If it weren't for the creativity of our ancestors, we would have no traditions. Be creative and start your own traditions that somehow make the world a better place.

Variation: The *gadarene swine fallacy* refers to the metaphor of planes flying in formation. If one plane appears out of formation, we assume the one plane is wrong, rather than the other planes actually being on the wrong course. But history tells us at times, the "single planes", like Martin Luther King Jr., show us how the rest of us were really just horribly off course.

Ambiguity Fallacy

(also known as: amphiboly, semantical ambiguity, type-token ambiguity [form of], vagueness)

Description: When an unclear phrase with multiple definitions are used within the argument, therefore, don't support the conclusion. Some will say single words count for the ambiguity fallacy, which is really a specific form of a fallacy known as [equivocation](#).

Logical Form:

Claim X is made.

Y is concluded based on an ambiguous understanding of X.

Example #1:

It is said that we have a good understanding of our universe. Therefore, we know exactly how it began and exactly when.

Explanation: The ambiguity here is what exactly "good understanding" means. The conclusion assumes a much better understanding than is suggested in the premise, therefore, we have the *ambiguity fallacy*.

Example #2:

*All living beings come from other living beings.
Therefore, the first forms of life must have come from a living being. That living being is God.*

Explanation: This argument is guilty of two cases of ambiguity. First, the first use of the phrase, "come from", refers to *reproduction*, whereas the second use refers to *origin*. The fact that we know quite a bit about reproduction is irrelevant when considering origin. Second, the first use of, "living being", refers to an empirically verifiable,

biological, living organism. The second use of, “living being”, refers to a belief of an immaterial god. As you can see, when a term such as, “living being”, describes a do-do bird as well as the all-powerful master of the universe, it has very little meaning and certainly is not specific enough to draw logical or reasonable conclusions.

Exception: Ambiguous phrases are extremely common in the English language and a necessary part of informal logic and reasoning. As long as these ambiguous phrases mean exactly the same thing in all uses of phrase in the argument, this fallacy is not committed.

Variation: The *type-token fallacy* is committed when a word can refer to either a type (cars) or token (*Prius*, *RAV4*, *Camry*) is used in a way that makes it unclear which it refers to, the statement is ambiguous.

Toyota manufactures dozens of cars.

This obviously refers to the different types of cars, not how many instances (or tokens) of each car was manufactured.

Anonymous Authority

(also known as: appeal to anonymous authority)

Description: When an unspecified source is used as evidence for the claim. This is commonly indicated by phrases such as “They say that...”, “It has been said...”, “I heard that...”, “Studies show...”, or generalized groups such as, “scientists say...” When we fail to specify a source of the authority, we can’t verify the source, thus the credibility of the argument. Appeals to anonymous sources are more often than not, either a way to fabricate, exaggerate, or misrepresent “facts” in order to deceive others into accepting your claim. At times, this deception is done subconsciously – it might not always be deliberate.

Logical Form:

Person 1 once heard that X was true.

Therefore, X is true.

Example #1:

You know, they say that if you swallow gum it takes 7 years to digest. So whatever you do, don’t swallow the gum!

Explanation: “They” are wrong as “they” usually are. Gum passes through the system relatively unchanged, but does not hang around for 7 years like a college student terrified to get a job. “They” is a common form of appeal to *anonymous authority*.

Example #2:

The 13.7 billion year-old universe is a big conspiracy. I read this article once where these notable scientists found strong evidence that the universe was created

6000 years ago, but because of losing their jobs, they were forced to keep quiet!

Explanation: Without knowing who these scientists are, or the credibility of the source of the article, we cannot verify the evidence therefore, we should not accept the evidence.

Exception: At times an accepted fact uses the same indicating phrases as the ones used for the fallacy, therefore, if the anonymous authority is actually just a statement of an accepted fact, it should be accepted as evidence.

Climate change is happening – and always has been. Scientists say the earth is certainly in a warming phase, but there is some debate on the exact causes and certainly more debate on what should be done about it politically.

Tip: Be very weary of “they”.

Argument by Emotive Language

(also known as: loaded words, loaded language, euphemisms)

Description: Substituting facts and evidence with words that stir up emotion, with the attempt to manipulate others into accepting the truth of the argument.

Logical Form:

Person A claims that X is true.

Person A uses very powerful and emotive language in the claim.

Therefore, X is true.

Example #1:

By rejecting God, you are rejecting goodness, kindness, and love itself.

Explanation: Instead of just “not believing” in God, we are “rejecting” God, which is a much stronger term – especially when God is associated with “goodness”.

Example #2:

I don't see what's wrong with engaging the services of a professional escort.

Explanation: That's just a nice way of saying, “soliciting a hooker”. No matter what you call it, unless you live in certain parts of Nevada (or other parts of the world), it is still illegal.

Exception: Language is powerful and should be used to draw in emotions, but never at the expense of valid reasoning and evidence.

Argument by Fast Talking

Description: When fast talking is seen as intelligence and/or confidence in the truth of one's argument, therefore, seen as evidence of the truth of the argument itself. The fallacy is also committed by the person doing the talking when they are deliberately attempting to not allow the audience enough time to process the argument, therefore, either accepting it or at least not rejecting it.

Logical Form:

According to person 1, Y is true.

Person 1 speaks very fast.

Therefore, Y is true.

Example #1: (to be read extremely fast)

I hereby submit that it is crystal clear that there is only one true God, without question, without reserve, without hesitation I can say this because I know the truth and I am here to share it with you. Praise Allah!

Explanation: There is absolutely no evidence in the above claim, and if you read it quickly and clearly, you would persuade more people than if you read it like one of the Beverly Hillbillies. If your intent was to persuade others by not giving them time to process what you have said, you would be guilty of this fallacious tactic.

Example #2: (same example - to be read extremely fast)

I hereby submit that it is crystal clear that there is only one true God, without question, without reserve, without hesitation I can say this because I know the truth and I am here to share it with you. Praise Allah!

Explanation: This time, as the one evaluating the argument, if you allow the rapid pace of the delivery of the

argument to serve as evidence for the claim, you are committing the fallacy. Perhaps the arguer does sound confident, perhaps you are embarrassed to ask him to repeat the argument or slow down, therefore, you just accept it. Either way, that is fallacious reasoning.

Exception: Natural fast talkers most likely have no intent to deceive, and if you consciously give no undue weight to the claims of a natural fast talker, then no fallacy has been committed.

Tip: Work on your pace as a part of your speaking. It should be just slow enough where you do not lose your audience, and no slower, unless going for a dramatic effect.

Argument by Gibberish

(also known as: bafflement, argument by (prestigious) jargon)

Description: When incomprehensible jargon or plain incoherent gibberish is used to give the appearance of a strong argument, in place of evidence or valid reasons to accept the argument.

The more common form of this argument is when the person making the argument defaults to highly technical jargon or details not directly related to the argument, then restates the conclusion.

Logical Form:

Person 1 claims that X is true.

Person 1 backs up this claim by gibberish.

Therefore, X is true.

Example #1:

Fortifying the dextrose coherence leads to applicable inherence of explicable tolerance, therefore, we should not accept this proposal.

Explanation: I have no idea what I just wrote, and the audience will have no idea either – but the audience (depending on who the audience is) will most likely make the assumption that I do know what I am talking about, believe that they are incapable of understanding the argument, and therefore, agree with my conclusion since they think I do understand it. This is fallacious reasoning.

Example #2:

The Holy Trinity is the union of three separate persons, yet coexist in unity – they are consubstantial although

just one being, sharing a nature yet distinct, a form of triunity unique to the being of God.

Explanation: This is a classic *argument from gibberish*. Although the wording may be different, the argument explains nothing in any meaningful way. Rather than exclaiming, “I am sorry, I understand the words, but this makes no sense”, people react in different ways. Maybe it’s because of not wanting to look ignorant. Maybe it’s because they are told they will only understand if their [faith is strong enough](#), and they don’t want to admit to not having enough faith. Or perhaps they feel not understanding this argument could lead to becoming a non-believer ([slippery slope fallacy](#)) so they deceived themselves into thinking they understand.

Exception: Some arguments require some jargon or technical explanations.

Tip: Remember that good communication is not about confusing people; it’s about mutual understanding. Don’t try to impress people with fancy words and jargon, when simpler words will do just fine.

Argument by Personal Charm

(also known as: sex appeal [form of], flamboyance, eloquence)

Description: When an argument is made stronger by the personal characteristics of the person making the argument, often referred to as “charm”.

Logical Form:

Person 1 says that Y is true.

Person 1 is very charming.

Therefore, Y is true.

Example #1:

Hi there, ladies (wink - teeth sparkle). I just want to say that all of you have the right to do what you will with your bodies, including the right to abortion.

Explanation: The charm of the arguer is irrelevant to the issue of abortion.

Example #2:

Let me start by thanking the wonderful people of this town to host this great event. I would be honored to call you all my friends. As friends, I want to tell you that streaking should be legalized.

Explanation: Buttering up the audience is actually a technique that is suggested – because it is effective. If you know your argument is weak, and compensate by laying on the charm, you are committing the fallacy. If you are letting the charm effect your decision, you are also committing the fallacy.

Exception: If the argument being made is directly related to the charm of the arguer, as in arguing that he or she

would be the better host for a new show where charm does matter, then no fallacy has been committed.

Tip: If you are a natural charmer, don't be afraid to use it – just not at the expense of valid claims and strong evidence.

Argument by Repetition

argumentum ad nauseam

(also known as: argument from nagging, proof by assertion)

Description: Repeating an argument or a premise over and over again in place of more supporting evidence.

Logical Form:

X is true. X is true. X is true. X is true. X is true. X is true... etc.

Example #1:

That movie, "Kill, Blood, Gore" deserves the Oscar for best picture. There are other good movies, but not like that one. Others may deserve an honorable mention, but not the Oscar, because "Kill, Blood, Gore" deserves the Oscar.

Explanation: There are no reasons given for why, "Kill, Blood, Gore" deserves the Oscar, not even any opinion shared. All we have is a repeated claim stated slightly differently each time.

Example #2:

Saul: At one time, all humans spoke the same language. Then because of the Tower of Babel, God got angry and created all the different languages we have today - or at least some form of them.

Kevin: I studied linguistics in college, and I can pretty much guarantee you that's not what happened. Besides the short story in the Bible, what other evidence do you have to support this theory?

Saul: We know, because of the Word of God, that God got angry and created all the different languages we have today - or at least some form of them.

Kevin: You said that already. What other evidence do you have to support this theory?

Saul: In the Bible it says that all humans once spoke the same language. Then because of the Tower of Babel, God got angry and created all the different languages we have today - or at least some form of them.

Kevin: (nauseated from the repetition, hurls all over Saul's slacks)

Explanation: Restating the same claims, even rearranging the words or substituting words, is not the same as making new claims, and certainly does not make the claims any more true.

Exception: When an opponent is attempting to misdirect the argument, repeating the argument to get back on track is a wise play.

Argument from Age

(also known as: wisdom of the ancients)

Description: The misconception that previous generations had superior wisdom to modern man, thus conclusions that rely on this wisdom are seen accepted as true or more true than they actually are.

Logical Form:

Person 1 says that Y is true.

Person 1 was an ancient mystic.

Therefore, Y is true.

Example #1:

Swami Patooty wrote, back in the 6th century, "To know oneself, is to one day self know." You don't find pearls like that today!

Explanation: There are many sayings today that are just as ambiguous, obscure, and non-sensical as the ones carved in stone 1500 years ago - the difference is perception. Especially with "aged wisdom", we tend to read in meaning to ambiguity where none exists or where the author's intended meaning is impossible to know.

Example #2:

The Bible contains great wisdom that has lasted the test of time. It is clear that the wisdom contained in this book must be divinely inspired.

Explanation: While it might be true that the Bible contains much great wisdom, if one were to examine all the "wisdom" contained in the book, and not selectively choose from passages, then objectively compare this wisdom to any

modern collection of wisdom, one would judge the wisdom on its own merits, without the source bias.

"I do not permit a woman to teach or to have authority over a man, she must be silent." 1 Timothy 2:12

Exception: When the age is directly related to the truth of the claim, as in, "Wine tastes better with age".

Tip: Remember that even ancient Greeks said stupid things.

Argument from Fallacy

argumentum ad logicam

(also known as: disproof by fallacy, argument to logic, fallacy fallacy, or fallacist's fallacy, bad reasons fallacy [form of], psychogenetic fallacy [form of])

Description: Concluding that the truth value of an argument is false based on the fact that the argument contains a fallacy.

Logical Form:

Argument X is fallacious.

Therefore, the conclusion or truth claim or argument X is false.

Example #1:

Ivan: You cannot borrow my car because it turns back into a pumpkin at midnight.

Sidney: If you really think that, you're an idiot.

Ivan: That is an ad hominem, therefore, I can't be an idiot.

Sidney: I beg to differ.

Explanation: While it is true that Sidney has committed the [ad hominem fallacy](#) by calling Ivan an idiot rather than providing reasons why Ivan's car won't turn into a pumpkin at midnight, that fallacy is not evidence against the claim (that Ivan actually is an idiot).

Example #2:

Karen: I am sorry, but if you think man used to ride dinosaurs, then you are obviously not very well educated.

Ken: First of all, I hold a PhD in creation science so I am well-educated. Second of all, your ad hominem attack shows that you are wrong, and man did used to ride dinosaurs.

Karen: Getting your PhD online in two weeks, from a “college” in a trailer park, is not being “well-educated”, my fallacy in no way is evidence for man riding on dinosaurs, and despite what you may think, the Flintstone’s was not a documentary!

Explanation: Karen’s [ad hominem fallacy](#) in her initial statement has nothing to do with the truth value of the argument that man used to ride dinosaurs.

Exception: At times, fallacies are used by those who can’t find a better way to support the truth claims of their argument – it could be a sign of desperation. This can be evidence for *them not being able to defend their claim*, but not against the claim itself.

Variation: The *bad reasons fallacy* is similar, but the argument does not have to contain a fallacy – it could just be a bad argument with bad evidence or reasons. Bad arguments do not automatically mean that the conclusion is false; there can be much better arguments and reasons that support the truth of the conclusion.

I have never seen God, therefore, he does not exist.

This is a terrible reason to support a very strong conclusion. But this doesn’t mean that God does exist; it simply means the argument is weak.

The *psychogenetic fallacy* is inferring why an argument is being used, connecting it to some psychological reason, then assuming it is invalid as a result.

Argument from Hearsay

(also known as: the telephone game, Chinese whispers, anecdotal evidence, anecdotal fallacy/volvo fallacy [form of])

Definition: Presenting the testimony of a source that is not an eye-witness to the event in question. It has been conclusively demonstrated that with each passing of information, via analog transmission, the message content changes. Each small change can and often does lead to much more significant changes, as in the *butterfly effect* in *chaos theory*.

Hearsay is generally considered very weak evidence, if considered evidence at all. Especially when such evidence is [unfalsifiable](#) (not able to be proven false).

Logical Form:

Person 1 told me that he saw Y.

Therefore, you must accept that Y is true.

Example #1:

Lolita: Bill stole the money from the company petty cash fund.

Byron: How do you know?

Lolita: Because Diane told me.

Byron: How does she know?

Lolita: Julian told her.

Byron: Did anyone actually see Bill steal the money?

Lolita: I don't know, we could ask Morris.

Byron: Who's he?

Lolita: The guy who told Julian.

Explanation: Lolita is making a bold claim about Bill, based on hearsay. Not only did Lolita not see Bill steal the money, but neither did Diane, Julian, and who knows about Morris.

Example #2:

There is life after death! I once heard this story from my friend's sister, that her maid-of-honor's niece knew this guy who had a friend who heard from his camp counselor a story where some guy was in a coma, and saw his grandparents in a tunnel of light, and they told him the winning lottery numbers! I swear to God it's true!

Explanation: The validity of the testimony of a coma patient aside, in all likelihood, stories like these are either pure fabrications or exaggerations of some much less interesting story. Due to something called the *confirmation bias* and the [wishful thinking fallacy](#), those who already believe in such phenomenon are likely to accept such stories as evidence for their truthfulness, when in fact such stories are not evidence. To remove the bias and the [wishful thinking fallacy](#), simply switch out the life after death element with one that seems absurd, and your reason will prevail.

Exception: When you trust the source, and trust that the source is accurately representing the facts, you can at least partially accept the claim, depending on the consequences of accepting or rejecting the claim. For example, if your best friend told you that her best friend told her about an amazing one day sale at the mall, risking a 10 minute drive to the mall might be justified based on the sources.

Tip: Realize that people are often egregiously wrong in their interpretation of events. As time passes, imagination is confused with actual events. You might be able to trust that

your best friend is telling you the truth, but only the truth so far as she recalls from her initial interpretation.

Variation: The *anecdotal fallacy*, or *volvo fallacy*, is allowing a specific instance of anecdotal evidence to lend much more weight to an argument than it should.

Argument from Ignorance

Ad Ignorantium

(also known as: appeal to ignorance, absence of evidence, argument from personal astonishment, argument from Incredulity)

Description: The assumption of a conclusion or fact based primarily on lack of evidence to the contrary. Usually best described by, “absence of evidence is not evidence of absence.”

Logical Form:

X is true, because you cannot prove that X is false.

X is false, because you cannot prove that X is true.

Example #1:

Although we have proven that the moon is not made of spare ribs, we have not proven that its core cannot be filled with them. Therefore, the moon's core is filled with spare ribs.

Explanation: There is an infinity of things we cannot prove – the moon being filled with spare ribs is one of them. Now you might expect that any “reasonable” person would know that the moon can’t be filled with spare ribs, but you would be expecting too much. People make wild claims, and get away with them, simply on the fact that the converse cannot otherwise be proven.

Example #2:

To this very day (at the time of this writing), science has been unable to create life from all inorganic substances, therefore, life must be a result of divine intervention.

Explanation: Ignoring the [false dilemma](#), the fact that we have not found a way to create life from all inorganic

substances is not evidence that there is no way to create life from all inorganic substances.

Exception: The assumption of a conclusion or fact deduced from evidence of absence, is not considered a fallacy, but valid reasoning.

Jimbo: Dude, did you spit your gum out in my drink?

Dick: No comment.

Jimbo: (after carefully pouring his drink down the sink looking for gum but finding none...) Jackass!

Tip: Look at all your existing major beliefs and see if they are based more on the lack of evidence than evidence. You might be surprised as to how many actually are.

Argument from Silence

argumentum e silentio

Description: Drawing a conclusion based on the silence of the opponent, when the opponent is refusing to give evidence for any reason.

Logical Form:

Person 1 claims X is true, then remains silent.

Person 2 then concludes that X must be true.

Example #1:

Jay: Dude, where are my car keys?

Bob: (says nothing)

Jay: I KNEW you took them!

Explanation: Refusal to share evidence is not necessarily evidence for or against the argument. Bob's silence does not mean he took the keys. Perhaps he did, or perhaps he knows who did, or perhaps he saw a tyrannosaurus eat them, or perhaps he just felt like not answering.

Example #1:

Morris: Oh youthful spirit, you have so much to learn. I know for a fact that once we die, we go to a much better place.

*Clifton: How can you possibly *know* that for a fact?*

Morris: (raises one eyebrow, stares deeply into the eyes of Clifton, and says nothing)

Clifton: Wow. You convinced me!

Explanation: The reason this technique works so well, is because *imagined reasons are often more persuasive than real reasons*. If someone wants to be convinced, this technique works like a charm. However, to the critical

thinker, this will not fly. Silence is not a valid substitute for reason or evidence.

Exception: Generally speaking, absence of evidence is not evidence, however, there are many cases where the *reason* evidence is being held back can be seen as evidence. In the above example, prompting Bob to share a reason for his silence could result in a statement from Bob that can be used as evidence.

Argument of the Beard

(also known as: fallacy of the beard, heap fallacy, heap paradox fallacy, bald man fallacy, continuum fallacy, line drawing fallacy, sorites fallacy)

Description: When one argues that no useful distinction can be made between two extremes, just because there is no definable moment or point on the spectrum where the two extremes meet. The name comes from the heap paradox in philosophy, using a man's beard as an example. At what point does a man go from clean-shaven to having a beard?

Logical Form:

X is one extreme and Y is another extreme.

There is no definable point where X becomes Y.

Therefore, there is no difference between X and Y.

Example #1:

Why does the law state that you have to be 21 years old to drink? Does it really make any difference if you are 20 years and 364 days old? That is absurd. Therefore, if a single day makes no difference, then a collection of 1095 single days won't make any difference, therefore, changing the drinking age to 18 will not make any difference.

Explanation: Although this does appear to be typical 18-year-old thinking (sorry 18 year-olds), it is quite a common fallacy. Just because any single step makes no *apparent* difference, there is a difference that becomes more noticeable as the number of those steps increase.

Example #2:

Willard: I just realized that I will probably never go bald!

Fanny: Why is that?

Willard: Well, if I lose just one hair, I will not be bald, correct?

Fanny: Of course.

Willard: If I lose two hairs?

Fanny: No.

Willard: Every time I lose a hair, the loss of that one hair will not make me bald, therefore, I will never go bald.

Fanny: Congratulations, you found the cure to baldness – stupidity!

Explanation: What Willard did not take into consideration is that “baldness” is a term used to define a state along a continuum, and although there is no clear point between bald and not bald, the extremes are both clearly recognizable and achievable.

Exception: The larger the spread, the more fallacious the argument, the smaller the spread, the less fallacious.

Tip: Realize that there are very few clear lines we can draw between categories in any area of life. Categories are human constructs that we create to help us make sense of things, yet they often end up creating more confusion by tricking us into thinking abstract concepts actually exist.

Argument to Moderation

argumentum ad temperantiam

(also known as: middle ground, false compromise, gray fallacy, golden mean fallacy, fallacy of the mean, splitting the difference)

Description: Asserting that given any two positions, there exists a compromise between them that must be correct.

Logical Form:

Person 1 says A.

Person 2 says Z.

Therefore, somewhere around M must be correct.

Example #1:

So you are saying your car is worth \$20k. I think it is worth \$1, so let's just compromise and say it is worth \$10k. (Assuming the car is worth \$20k)

Explanation: The price of \$20k was a reasonable book value for the car, where the price of \$1 was an unreasonable extreme. The fact is the car is worth about \$20k – thinking the car is worth \$1 or \$1,000,000, won't change that fact⁶.

Example #2:

Ok, I am willing to grant that there might not be angels and demons really floating around Heaven or hanging out in Hell, but you must grant that there has to be at least one God. Is that a fair compromise?

Explanation: There is no compromise when it comes to truth. Truth is truth. If there are angels, demons, and God, there are angels, demons, and God. If there aren't, there

aren't. Compromise and splitting the difference works fine in some cases, but not in determining truth.

Exception: When the two extremes are equally distanced from the "correct" value – and there actually *is* a correct, or fair, value between the two proposed values.

So you are saying your car is worth \$40k. I think it is worth \$1, so let's just compromise and say it is worth \$20k. (Assuming the car is worth \$20k)

Tip: If you know you are entering in a negotiation, be prepared to be low-balled, and don't let those figures change your target figure going into the negotiation.

Avoiding the Issue

(also known as: avoiding the question [form of], missing the point, straying off the subject, digressing, distraction [form of])

Description: When an arguer responds to an argument by not addressing the points of the argument. Unlike the [strawman fallacy](#), avoiding the issue does not create an unrelated argument to divert attention, it simply avoids the argument.

Logical Form:

X is Y. Did you see that new show on TV last night?

Example #1:

Daryl: Answer honestly, do you think if we were born and raised in Iran, by Iranian parents, we would still be Christian, or would we be Muslim?

Ross: I think those of us raised in a place where Christianity is taught, are fortunate.

Daryl: I agree, but do you think if we were born and raised in Iran, by Iranian parents, we would still be Christian, or would we be Muslim?

Ross: Your faith is weak – you need to pray to God to make it stronger.

Daryl: I guess you're right. What was I thinking?

Explanation: Some questions are not easy to answer, and some answers are not easy to accept. While it may seem, at the time, like avoiding the question is the best action, it is actually an abandonment of reason and honest inquiry, therefore, fallacious.

Example #2:

Carl: I always wondered, why doesn't God just destroy Satan? He destroyed every living being on the earth (besides those on the ark) for much less of a crime.

Rick: Jesus loves you.

Explanation: Jesus may love Carl, but that has nothing to do with the argument Carl made.

Exception: At times, a digression is a good way to take the pressure off of a highly emotional argument. A funny story, a joke, or anything used as a “break” could be a very good thing at times. As long as the issue is dealt with again.

Tip: Don't avoid questions where you are afraid you won't like the answers. Face them head on, and deal with the truth.

Variation: *Distraction* can be a form of *avoiding the issue*, but does not have to be just verbal. For example, being asked a question you can't answer and pretending your phone rings, saying you need to use the restroom, faking a heart attack, etc.

Argument to the Purse

argumentum ad crumenam

(also known as: appeal to poverty or argumentum ad lazarum [form of - when poor=right])

Description: Concluding that the truth value of the argument is true or false based on the financial status of the author of the argument.

Logical Form:

Person 1 says Y is true.

Person 1 is very rich.

Therefore, Y must be true.

Person 1 says Y is true.

Person 1 is very poor.

Therefore, Y must be false.

Example #1:

Mike: Did you know that the author of the book, "Logically Fallacious", made a fortune on the Internet?

Jon: So?

Mike: That means that this book must be awesome!

Explanation: While my financial status might impress the participants at an Amway conference, it has little to do with my knowledge of fallacies. But, remember the [argument from fallacy](#); just because the argument is fallacious, does not mean the conclusion is not true, dammit.

Example #2:

Simon is very poor. Simon says that the secret to life is giving up all your material possessions, and living off the government's material possessions. Simon must be very enlightened.

Explanation: Just like people tend to associate wealth with wisdom, they also associate extreme poverty with wisdom. Rich people are rich and poor people are poor – which members of those groups have wisdom does not depend on their financial status.

Exception: If one's wealth, or lack thereof, is directly related to the truth value of an argument, then it is not a fallacy.

Mike: Did you know that the author of this book, who does extremely well financially in business, also wrote the book, "Year To Success" – that was endorsed by Donald Trump?

Jon: I did not know that.

Mike: That means that his book on success is probably worth looking into!

Jon: I agree. And I am sure Bo will thank you for the cheap plug.

Tip: There is nothing wrong with a little self-promotion.

Base Rate Fallacy

(also known as: neglecting base rates, base rate neglect, base rate bias [form of], prosecutor's fallacy [form of])

Description: Ignoring statistical information in favor of using irrelevant information, that one incorrectly believes to be relevant, to make a judgement. This usually stems from the irrational belief that statistics don't apply in a situation, for one reason or another, when in fact they do.

Example #1:

Only 6% of applicants make it into this school. But my son is brilliant! They are certainly going to accept him!

Explanation: Statistically speaking, there is a 6% chance they will accept him. The school is for brilliant kids, so the fact that her son is brilliant is a necessary condition to be part of the 6% who do make it.

Example #2:

Faith healing works, but not all the time, especially when one's faith is not strong enough (as generally indicated by the size of one's financial offering). Unbiased, empirical tests, demonstrate that a small but noticeable percentage of people are cured of "incurable" diseases such as cancer.

Explanation: This is true. But what is not mentioned in the above is the number of cases of cancer that just go away without any kind of faith healing, in other words, the *base rate* of cancer remission. It is a statistical necessity that among those with cancer, there will be a percentage with spontaneous remission. If that percentage is the same as the faith-healing group, then that is what is to be expected and no magic or divine healing is taking place. The following is from the American Cancer Society:

Available scientific evidence does not support claims that faith healing can cure cancer or any other disease. Some scientists suggest that the number of people who attribute their cure to faith healing is lower than the number predicted by calculations based on the historical percentage of spontaneous remissions seen among people with cancer. However, faith healing may promote peace of mind, reduce stress, relieve pain and anxiety, and strengthen the will to live.²

Exception: If there are factors that increase one's odds and alter the known statistical probabilities, it would be a reasonable assumption, as long as the variations from the statistical norm are inline with the factors that cause the variation. In other words, perhaps the mother in our first example knows that her son is gifted musically, that counts for something, then it is not unreasonable to expect a better than 6% probability – but assuming a 50%, 80%, or 100% probability, is still committing the fallacy.

Tip: Take some time in your life to read a book or take a course on probability. Probability effects our lives in so many ways that having a good understanding of it will continually pay off.

Begging the Question

petitio principii

(also known as: assuming the initial point, assuming the answer, chicken and the egg argument, circulus in probando, circular reasoning [form of], vicious circle)

Description: Any form of argument where the conclusion is assumed in one of the premises. Many people use the phrase “begging the question” incorrectly when they use it to mean, “prompts one to ask the question”. That is NOT the correct usage. *Begging the question* is a form of [circular reasoning](#).

Logical Form:

Claim X assumes X is true.

Claim X is therefore, true.

Example #1:

Paranormal activity is real because I have experienced what can only be described as paranormal activity.

Explanation: The claim, “paranormal activity is real” is supported by the premise, “I have experienced what can only be described as paranormal activity.” The premise presupposes, or assumes, that the claim, “paranormal activity is real” is already true.

Example #2:

God exists because we exist. The only way we could exist is if God created us.

Explanation: The claim, “God exists” has two supporting premises: 1) “we exist”, which everyone should agree to, and 2) “the only way we could exist is if God created us”, which assumes the conclusion, “God exists”, therefore, begs the question.

Exception: Some assumptions that are universally accepted could pass as not being fallacious.

People like to eat because we are biologically influenced to eat.

Biased Sample Fallacy

(also known as: biased statistics, loaded sample, prejudiced statistics, prejudiced sample, loaded statistics, biased induction, biased generalization, unrepresentative sample, unrepresentative generalization)

Description: Drawing a conclusion about a population based on a sample that is biased, or chosen in order to make it appear the population on average is different than it actually is.

This differs from the [*hasty generalization fallacy*](#), where the biased sample is specifically chosen from a select group, and the small sample is just a random sample, but too small to get any accurate information.

Logical Form:

*Sample S, which is biased, is taken from population P.
Conclusion C is drawn about population P based on S.*

Example #1:

Based on a survey of 1000 American homeowners, 99% of those surveyed have two or more automobiles worth on average \$100,000 each. Therefore, Americans are very wealthy.

Explanation: Where did these homeowners live? Beverly Hills, CA. If the same exact survey was taken in Detroit, the results would be quite different. It is fallacious to accept the conclusion about the American population in general based on not just the geographical sample, but also the fact that homeowners were only surveyed.

Example #2:

Pastor Pete: People are turning to God everywhere! 9 out of 10 people I interviewed said that they had a

personal relationship with Jesus Christ.

Fred: Where did you find these people you interviewed?

Pastor Pete: In my church.

Explanation: Pastor Pete has drawn a conclusion about religious beliefs from people “everywhere” based on people he has interviewed in his church. That’s like concluding that the world likes to dance naked in front of strangers after interviewing a group of strippers.

Exception: What exactly is “biased” is subjective, but some biases are very clear.

Tip: Be very weary of statistics. Look at the source and details of the studies which produced the statistics. Very often you will find some kind of bias.

Blind Authority Fallacy

(also known as: blind obedience, the "team player" appeal, Nuremberg defense, divine authority [form of], appeal to/argument from blind authority)

Description: Asserting that a proposition is true solely on the authority making the claim, while extreme cases also ignore any counter evidence no matter how strong. The authority could be parents, a coach, a boss, a military leader, or a divine authority.

Logical Form:

Person 1 says Y is true.

Person 1 is seen as the ultimate authority.

Therefore, Y is true.

Example #1:

During the Nazi war crimes trials at Nuremberg after World War II, Nazi war criminals were charged with genocide, mass murder, torture and other atrocities. Their defense: "I was only following orders".

Explanation: Most of us begin our lives seeing our parents as the ultimate authority, and we experience their wrath when we question that authority. Unfortunately, this bad habit is carried over into adulthood where we replace our parents with a coach, a boss, a teacher, a commander, or a god. Rather than question, we blindly follow. This fallacy has probably resulted in more deaths, pain, suffering, and misery than all others combined.

Example #2:

Your honor, the Bible clearly says that psychics, wizards, and mediums are to be stoned to death, and that it is our responsibility to do so. (Leviticus 20:27) Therefore, I

had every right to try to stone Dianne Warwick, and her psychic friends, to death.

Explanation: Most Americans do see the Bible as the ultimate authority, but that darn, pesky legal system gets in the way.

Exception: To quote Col. Jessep from *A Few Good Men*, “We follow orders, son. We follow orders or people die. It's that simple. Are we clear?” I have never served in the military, so I cannot say how far I would go when just, “following orders”. I wouldn't want anyone to die because I questioned orders, yet I wouldn't want anyone to die because I followed orders blindly. I guess this is why I am not in the military.

Broken Window Fallacy

(also known as: glazier's fallacy)

Description: The illusion that destruction, and money spent in recovery from destruction, is a net-benefit to society. A broader application of this fallacy is the general tendency to overlook opportunity costs, or that which is unseen, either in a financial sense or other.

This fallacy goes far beyond just looking for the silver lining, thinking positive, or making the best of a bad situation. It is the incorrect assumption that the net benefit is positive.

Logical Form:

Disaster X occurred, but this is a good thing because Y will come as a result.

Example #1:

Dad, I actually did America a favor by crashing your car. Now, some auto shop will have more work, their employees will make more money, those employees will spend their money, and who knows, they might just come to your store and buy some of your products!

Explanation: I actually tried a variation of this argument when I was a kid – it didn't work. But not only did it not work, it is fallacious reasoning, and here is why: by crashing the car, a produced good is destroyed and resources have to go into replacing that good as opposed to creating new goods.

Example #2:

The holocaust was a good thing overall. It educated future generations about the evils of genocide.

Explanation: This is a real argument, I kid you not. People tend to overvalue their own gain (the education) and devalue the losses that are unseen (the unimaginable suffering of the victims and their families). Similar cases can be found when people justify the genocides in the Bible, the global flood story, and the “future rapture”.

Exception: It might be the case when some kind of destruction actually can benefit society - like in lightning striking the local crack house, and a soup kitchen being reconstructed in its place.

Causal Reductionism

(also known as: complex cause, fallacy of the single cause, causal oversimplification, reduction fallacy)

Description: Assuming a single cause or reason when there were actually multiple causes or reasons.

Logical Form:

X occurred after Y.

Therefore, Y caused X (although X was also a result of A,B,C... etc.)

Example #1:

Hank: I ran my car off the side of the road because that damn squirrel ran in front of my car.

Officer Sam: You don't think it had anything to do with the fact that you were trying to text your girlfriend, and driving drunk?

Explanation: While if it were not for the squirrel, perhaps Hank wouldn't have totaled his car. But if it weren't for him texting while driving drunk, he could have almost certainly prevented taking his unauthorized shortcut through the woods and into a tree.

Example #2:

The reason more and more people are leaving religion is because of Bo's damn books.

Explanation: Thank you, but that would be fallacious reasoning. While my books *may have played a role* in *some* people leaving religion, I doubt it was the only cause, and am pretty darn sure that overall, my books have very little effect on the population at large.

Exception: Causes and reasons can be debatable, so if you can adequately defend the fact that you believe there was only a single reason, it won't be fallacious.

Cherry Picking

(also known as: suppressed evidence, fallacy of incomplete evidence, argument by selective observation, argument by half-truth, card stacking, fallacy of exclusion, ignoring the counter evidence, one-sided assessment, slanting, one-sidedness)

Description: When only select evidence is presented in order to persuade the audience to accept a position, and evidence that would go against the position is withheld. The stronger the withheld evidence, the more fallacious the argument.

Logical Form:

Evidence A and evidence B is available.

Evidence A supports the claim of person 1.

Evidence B supports the counter claim of person 2.

Therefore, person 1 presents only evidence A.

Example #1:

Employer: It says here on your resume that you are a hard worker, you pay attention to detail, and you don't mind working long hours.

Andy: Yes sir.

Employer: I spoke to your previous employer. He says that you constantly change things that should not be changed, you could care less about other people's privacy, and you had the lowest score in customer relations.

Andy: Yes, that is all true as well.

Employer: Great then. Welcome to the Facebook team!

Explanation: Resumes are a classic example of *cherry picking* information. A resume can be seen as an

argument to why you are qualified for the job. Most employers are wise enough to know that resumes are one-sided, and look for more evidence in the form of interviews and recommendations to make a decision.

Example #2:

You should be a Christian, because God is all about love and forgiveness, and those are great things.

Explanation: But the God of the Bible is also said to be many more things. He is said to be a jealous God full of wrath, who hates all who do wrong (Psalm 5:5). He is a god who will allow 80% of humanity to suffer eternally in Hell. According to the Bible, this is just God's character – he is who he is. Selling a half-truth as a way to make God more “presentable” is fallacious.

Exception: If the parts of the truth being suppressed do not effect the truth of the conclusion, or can reasonably be assumed, they could be left out of the argument. For example, political candidates are not committing this fallacy when they leave out the fact that they will need about 8 hours of sleep each day.

Tip: If you suspect people are only telling you a half-truth, don't be afraid to ask, “is there anything you are not telling me?”

Circular Reasoning

circulus in demonstrando

(also known as: paradoxical thinking, circular argument, circular cause and consequence, circular definition [form of])

Description: A type of reasoning in which the proposition is supported by the premises, which is supported by the proposition, creating a circle in reasoning where no useful information is being shared. This fallacy is often quite humorous.

Logical Form:

X is true because of Y.

Y is true because of X.

Example #1:

*Pvt. Joe Bowers: What **are** these electrolytes? Do you even know?*

Secretary of State: They're... what they use to make Brawndo!

*Pvt. Joe Bowers: But **why** do they use them to make Brawndo?*

*Secretary of Defense: [raises hand after a pause]
Because Brawndo's got electrolytes.*

Explanation: This example is from a favorite movie of mine, *Idiocracy*, where Pvt. Joe Bowers (played by Luke Wilson) is dealing with a bunch of not-very-smart guys from the future. Joe is not getting any useful information about electrolytes, no matter how hard he tries.

Example #2:

*The Bible is the Word of God because God tells us it is...
in the Bible.*

Explanation: This is a very serious circular argument on which many people based their entire lives. This is like getting an e-mail from a Nigerian prince, offering to give you his billion dollar fortune – but only after you wire him a “good will” offering of \$50,000. Of course you are skeptical, until you read the final line in the e-mail that reads, “*I, prince Nubadola, assure you that this is my message and it is legitimate. You can trust this e-mail and any others that come from me.*” Now you know it is legitimate, because it says so in the e-mail.

Exception: Some philosophies state that we can never escape circular reasoning, because the arguments always come back to axioms or first principles. But in those cases, the circles are very large and do manage to share useful information in determining the truth of the proposition.

Tip: Do your best to avoid circular arguments, as it will help you reason better, because better reasoning is often a result of avoiding circular arguments.

Variation: A *circular definition* is a defining a term by using the term in the definition. Ironically, that definition is partly guilty, by my use of the term “definition” in the definition. Ok, I am using definition way too much. Damn! I just did it again.

Moral Behavior: Behaving morally.

Commutation of Conditionals

(also known as: the fallacy of the consequent, converting a conditional)

Description: Switching the antecedent and the consequent in a logical argument.

Logical Form:

If P then Q.

Therefore, if Q then P.

Example #1:

If I have a PhD, then I am smart.

Therefore, if I am smart, then I have a PhD.

Explanation: There are many who could, rightly so, disagree with the first premise. But assuming that premise is true, does not guarantee that the conclusion, is true. There are many smart people without PhDs.

Example #2:

If I have herpes, then I have a strange rash.

Therefore, if I have a strange rash, then I have herpes.

Explanation: I am glad this is not true. One can have non-herpes rashes.

Exception: If $p=q$, then it is necessarily true that $q=p$.

Complex Question Fallacy

plurium interrogationum

(also known as: many questions fallacy, fallacy of presupposition, loaded question, trick question, false question)

Description: A question that has a presupposition built in, which implies something but protects the one asking the question from accusations of false claims. It is a form of misleading discourse, and it is a fallacy when the audience does not detect the assumed information implicit in the question, and accepts it as a fact.

Example #1:

How many times per day do you beat your wife?

Explanation: Even if the response is an emphatic, “none!”, the damage has been done. If you are hearing this question, you are more likely to accept the possibility that the person who was asked this question is a wife-beater, which is fallacious reasoning on your part.

Example #2:

If God did not create the universe, who did?

Explanation: The presupposition is that the universe was “created”. Some nervous debate neophyte might blurt out, “I don’t know who did, but it wasn’t God!”, falling right into the trap.

Exception: It is not a fallacy if the implied information in the question is known to be an accepted fact.

How long can one survive without water?

Here it is presumed that we need water to survive, which very few would deny that fact.

Conflicting Conditions

contradictio in adjecto

(also known as: a self-contradiction)

Description: When the argument is self-contradictory and cannot possibly be true.

Example #1:

The only thing that is certain is uncertainty.

Explanation: Uncertainty itself cannot be certain by definition. It is a self-contradiction.

Example #2:

I don't care what you believe, as long as your beliefs don't harm others.

Explanation: This is a contradiction. At first glance, "as long as" appears to be a condition for the assertion, "I don't care what you believe", but it's not; the assertion *has to be* false in all cases. *The arguer must always care if the person believes something that will harm others or not.*

Exception: When the self-contradictory statement is not put forth as an argument, but rather as an ironic statement, perhaps with the intent to convey some kind of deeper truth or meaning, but not to necessarily be taken literally, then this fallacy is not committed.

Confusing an Explanation with an Excuse

Description: Treating an explanation of a fact as if it were a justification of the fact, a valid reason for the fact, or evidence for the fact.

Logical Form:

X is asked to be justified.

X is explained in detail.

Therefore, X is justified.

Example #1:

Mrs. Crabtree: Your child, Mrs. Martin, is rude to me and shows me no respect.

Mrs. Martin: That's because he thinks you are a "poo-poo faced bag lady who hates little kids".

Mrs. Crabtree: That is no excuse for his behavior!

Mrs. Martin: No, it's just a fact.

Explanation: In this case, Mrs. Crabtree committed the fallacy by incorrectly thinking Mrs. Martin's fact was meant to be a justification, when it was not.

Example #2:

Virgil: How could God sacrifice himself to himself?

Marshall: God came to earth in the flesh and died on the cross for our sins, therefore, being the perfect sacrifice.

Explanation: Marshall simply explained the fact of what God did, he did not give a valid reason for the fact.

Exception: If it is clear to both parties that no justification attempt is being made, but rather just stating a fact, then this fallacy is not being committed.

Tip: If you are unsure if someone is trying to make an excuse or simply stating a fact, ask them. Don't assume.

Conjunction Fallacy

(also known as: conjunction effect)

Description: The assumption that more specific conditions are more probable than general ones. This fallacy usually stems from thinking the choices are alternatives, rather than members of the same set. The fallacy is further exacerbated by priming the audience with information leading them to choose the subset as the more probable option.

Logical Form:

X is a subset of Y.

Therefore, Y is more probable than X.

Example #1:

While jogging around the neighborhood, you are more likely to get bitten by someone's pet dog, than by any member of the canine species.

Explanation: Actually, that is not the case. "Someone's pet dog", assuming a real dog and not some robot dog, would also be a member of the canine species. Therefore, the canine species includes wolves, coyotes, as well as your neighbor's shih tzu, who is likely to bite you just because he's pissed for being so small.

Example #2:

Christianity is far more probable than just "some intelligent force in the universe".

Explanation: Actually, that is not the case. "Some intelligent force in the universe", leaves it open for any God or no god, one god or multiple gods, gods that are beings, gods that are nature, with any name, and any property - or just the property of intelligence and capability of acting

(force). Christianity makes a very specific claim about the one and only God, with many properties and characteristics, whose name is YAWEH, and does not want us to eat shellfish. Regardless of how much evidence there is for Christianity, it is far less probable than the probability that there is some intelligent force in the universe, since the Christian God is, “some intelligent force in the universe” plus many more properties. With each property identified, the probability is reduced.

Exception: When contradicting conditions are implied, but incorrectly stated.

Mr. Pipp, is a sharp dresser, walks like a woman, talks in a very high voice, says “fabulous” way too much, and loves everything Barbara Streisand. Is Mr. Pipp more likely to be a man or a gay man?

The way the question reads, there is a 100% chance Mr. Pipp is a man, and smaller chance that his is a gay man, because the group “man” includes all the members of the group “gay man”. However, if the questioner meant to imply, “straight man” or “gay man” as the choices, then it could be more of a poorly phrased question than a fallacy.

Conspiracy Theory

(also known as: canceling hypothesis, cover-ups)

Description: Explaining that your claim cannot be proven or verified because the truth is being hidden, and evidence destroyed. When that reason is challenged as not being true or accurate, the challenge is often presented as just another attempt to cover up the truth, and presented as further evidence that the original claim is true.

Logical Form:

A is true.

B is why the truth cannot be proven.

Therefore, A is true.

Example #1:

Noah's ark has been found by the Russian government a long time ago. But because of their hate for religion, they have been covering it up ever since.

Example #2:

Geologists and scientists all over the world are discovering strong evidence for a 6000 year-old earth, yet because of the threat of ruining their reputation, they are suppressing the evidence and keeping quiet.

Explanation: The psychology behind conspiracy theories is quite complex and involves many different cognitive biases and fallacies discussed in this book. In general, people tend to overlook the incredible improbabilities involved in a large-scale conspiracy, as well as the potential risks for all involved in the alleged cover up. In the above examples, those who stick with a literal interpretation of the Bible often experience cognitive dissidence, or the mental struggle involved when one's beliefs contradict factual claims. This

cognitive dissidence causes people to create conspiracy theories, like the ones above, to change facts to match their beliefs, rather than changing their beliefs to match facts.

Exception: Sometimes, there really are conspiracies and cover ups. The more evidence one can present for a cover-up, the better. But we must remember that possibility does not equal probability.

Tip: Take time to question any conspiracy theories in which you believe are true. Do the research with an open mind.

Definist Fallacy

(also known as: persuasive definition fallacy)

Description: Defining a term in such a way that makes one's position much easier to defend.

Logical Form:

A has definition X.

X is harmful to my argument.

Therefore, A has definition Y.

Example #1:

Before we argue about the truth of creationism, let's define creationism as, "The acceptance of a set of beliefs even more ridiculous than flat-earthers."

Example #2:

Before we argue about the truth of creationism, let's define evolution as, "Faith in a crackpot theory that is impossible to prove with certainty."

Explanation: It should be clear by the two examples who is defending what position. Both arguers are taking the opportunity to define a term as a way to take a cheap shot at the opponent. In some cases, they might actually hope their definition is accepted, which would make it very easy to defend, compared to the actual definition.

Exception: When a definition used is really an accurate definition from credible sources, regardless of the damage it might do to a position.

Tip: Do not accept definitions put fourth by the opponent unless you researched your definition on your own, and agree.

Denying the Antecedent

(also known as: inverse error, inverse fallacy)

Description: It is a fallacy in formal logic where in a standard if/then premise, the antecedent (what comes after the “if”) is made not true, then it is concluded that the consequent (what comes after the “then”) is not true.

Logical Form:

If P, then Q.

Not P.

Therefore, not Q.

Example #1:

If it barks, it is a dog.

It doesn't bark.

Therefore, it's not a dog.

Explanation: It is not that clear that a fallacy is being committed, but because this is a formal argument following a strict form, even if the conclusion seems to be true, the argument is still invalid. This is why fallacies can be very tricky and deceptive. Since it doesn't bark, we cannot conclude with certainty that it isn't a dog – it could be a dog who just can't bark.

The arguer has committed a formal fallacy and the argument is invalid, because the truth of the premises do not guarantee the truth of the conclusion.

Example #2:

If I have cable, then I have seen a naked lady.

I don't have cable.

Therefore, I have never seen a naked lady.

Explanation: The fallacy is more obvious here than in the first example. Denying the antecedent (saying that I don't have cable) does not mean we must deny the consequent (that I have seen a naked lady).

The arguer has committed a formal fallacy and the argument is invalid, because the truth of the premises do not guarantee the truth of the conclusion.

Exception: None.

Tip: If you ever get confused with formal logic, replace the words with letters, like we do in the logical form, then replace the letters with different phrases and see if it makes sense or not.

Denying a Conjunct

Description: A formal fallacy in which the first premise states that at least one of the two *conjuncts* (antecedent and consequent) is false, and concludes that the other conjunct must be true.

Logical Form:

Not both P and Q.

Not P.

Therefore, Q.

Not both P and Q.

Not Q.

Therefore, P.

Example #1:

I am not both a moron and an idiot.

I am not a moron.

Therefore, I am an idiot.

Explanation: I might be an idiot, but the truth of both premises do not guarantee that I am, therefore, this argument is invalid – the form of this formal argument is invalid. Being “not both” a moron and an idiot, only means that if I am not one of the two, I am simply not one of the two – we cannot logically conclude that I am the other.

Example #2:

I am not both a Christian and a Satanist.

I am not a Satanist.

Therefore, I am a Christian.

Explanation: The truth of both premises do not guarantee that I am a Christian, therefore, this argument is invalid –

the form of this formal argument is invalid. Being “not both” a Satanist and a Christian, only means that if I am not one of the two, I am simply not one of the two – we cannot logically conclude that I am the other.

Exception: None.

Denying the Correlative

(also known as: denying the correlative conjunction)

Description: Introducing alternatives when in fact there are none. This could happen when you have two mutually exclusive statements (*correlative conjunction*) presented as choices, and instead of picking one or the other, introduce a third – usually as a distraction from having to choose between the two alternatives presented.

Logical Form:

Either X or not X.

Therefore, Y.

Example #1:

Rocco: Do ya have the five grand you owe me or not?

Paulie: I can get it.

Rocco: That means you don't have it?

Paulie: I know someone who does.

Rocco: Read my lips: do you have my money or not?

Paulie: No.

(sound of a baseball bat breaking kneecaps)

Explanation: Rocco was asking a simple question, and out of personal safety, Paulie was committing the fallacy of *denying the correlative* by offering up another option to a choice that only had two. If Paulie were smarter, he could have not committed the fallacy and saved his kneecaps, by honesty and a little negotiation:

Rocco: Do ya have the five grand you owe me or not?

Paulie: No. I realize I did not hold up my end of the deal, so I will compensate you for that.

Rocco: What are you sayin'?

Paulie: I can have your \$5000 by this time tomorrow, plus an extra \$500 for making you have to wait an extra day.

Rocco: Deal. I'll be back this time tomorrow.

(sound of heart dropping from throat)

Example #2:

Judge: So did you kill your landlord or not?

Kirk: I fought with him.

Explanation: Here is a classic case where a “yes” or “no” answer is expected, and the only acceptable answer to such a question, yet Kirk is deflecting the question by providing a third answer option, that leaves the original question unanswered.

Exception: When non mutually exclusive choices are presented as mutually exclusive choices, the fallacy lies with the one presenting the choices ([*false dilemma*](#)).

Tip: Don't borrow money from anyone named Rocco.

Disjunction Fallacy

Description: Reasoning that it is more likely that a member is part of a subset rather than a member of the set which contains the subset. This fallacy usually stems from thinking the choices are alternatives, rather than members of the same set. The fallacy is further exacerbated by priming the audience with information leading them to choose the subset as the more probable.

Logical Form:

Event X is more likely than event X or Y.

Event Y is more likely than event X or Y.

Example #1:

Mr. Pius goes to church every Sunday. He gets most of his information about religion from church, and does not really read the Bible too much. Mr. Pius has a figurine of St. Mary at home. Last year, when he went to Rome, he toured the Vatican. From this information, Mr. Pius is more likely to be Catholic than a Catholic or a Muslim.

Explanation: This is incorrect. While it is very likely that Mr. Pius is Catholic based on the information, it is more likely that he is Catholic or Muslim.

Example #2:

Bill is 6'11" tall, thin, but muscular. We know he either is a pro basketball player or a jockey. We conclude that it is more probable that he is a pro basketball player than a pro basketball player or a jockey.

Explanation: This is incorrect. While it is very likely that Bill plays the B-ball, given that he would probably crush a horse, it is statistically more likely that he is either a pro basketball player or a jockey, since that option includes the option of

him being just a pro basketball player. Don't let what seems like common sense fool you.

Exception: None.

Distinction Without a Difference

Description: The assertion that a position is different from another position based on the language, when in fact, both positions are exactly the same – at least in practice or practical terms.

Logical Form:

A is not the same as the first letter in the alphabet.

Example #1:

Sergio: There is no way I would ever even consider taking dancing lessons.

Kitty: How about I ask my friend from work to teach you?

Sergio: If you know someone that is willing to teach me how to dance, then I am willing to learn, sure.

Explanation: Perhaps it is the stigma of “dancing lessons” that is causing Sergio to hold this view, but the fact is, someone teaching him how to dance is the same thing. Sergio has been duped by language.

Example #2:

We must judge this issue by what the Bible says, not by what we think it says or by what some scholar or theologian thinks it says.

Explanation: Before you say, “Amen!”, realize that this is a clear case of *distinction without a difference*. There is absolutely no difference here because the only possible way to read the Bible is through interpretation, in other words, what we think it says. What is being implied here is that one's own interpretation (what he or she thinks the Bible says) is what it really says, and everyone else who has a

different interpretation is not really reading the Bible for what it says.

Exception: It is possible that some difference can be very minute, exist in principle only, or made for emphasis, in which case the fallacy could be debatable.

Coach: I don't want you to try to get the ball; I want you to GET the ball!

In practical usage, this means the same thing, but the effect could be motivating, especially in a non-argumentative context.

Tip: Replace the phrase, "I'll try" in your vocabulary with, "I'll do my best". While the same idea in practice, perceptually it means so much more.

Equivocation

(also known as: doublespeak)

Description: Using an ambiguous term in more than one sense, thus making an argument misleading.

Example #1:

I wanted to have myself a merry little Christmas, so I did as the song suggested and made the yuletide gay by watching the movie, "Funnygirl", in Provincetown, RI.

Explanation: The word, "gay" is meant to be in light spirits, joyful, and merry, not in the homosexual sense. Besides, watching a Barbara Streisand movie in city with gay people like to congregate, will not make you gay.

Example #2:

*The priest told me I should have faith.
I have faith that my son will do good in school this year.
Therefore, the priest should be happy with me.*

Explanation: The term "faith" used by the priest, was in the religious sense of believing in God without evidence, which is different from having "faith" in your son in which years of good past performance leads to the "faith" you might have in your son.

Exception: Equivocation works great when deliberate attempts at humor are being made.

Tip: When you suspect equivocation, substitute the word with the exact same definition for all uses and see if it makes sense.

Etymological Fallacy

(also known as: appeal to definition [form of])

Description: The assumption that the present day meaning of a word should be/is similar to the historical meaning. This fallacy ignores the evolution of language and heart of linguistics. This fallacy is usually committed when one finds the historical meaning of a word more palatable or conducive to his or her argument.

Logical Form:

X is defined as Y.

X used to be defined as Z.

Therefore, X means Z.

Example #1:

Elba: I can't believe the art critic said my artwork is awful!

Rowena: He must have meant it in the old sense of the word – that your artwork inspired awe!

Elba: Yes! That makes sense now!

Explanation: “Awful” did once mean “to inspire awe”, but there are very few, if any, people who continue to use the term in this way. Just because it makes her feel better, it cannot be assumed.

Example #2:

God is not genocidal. If you look up the root meaning of genocide, it comes from the Greek word, “genos” meaning, “race, kind”, not religious preferences.

Explanation: Virtually every source that defines the term genocide, including the definition by the man who coined the term in 1943, Raphael Lemkin, includes the

extermination of groups based on religion, in the definition. Even if the etymology of the word does not include religion, it does not mean the word has nothing to do with religion, based on the usage since it was first coined.

Exception: If a bogus, “modern”, definition is made up by a questionable source, that won’t make all other sources “historical”.

Exclusive Premises

(also known as: fallacy of exclusive premises)

Description: A standard form categorical syllogism that has two negative premises either in the form of “no X are Y” or “some X are not Y”.

Logical Form:

*No X are Y.
Some Y are not Z.
Therefore, some Z are not X.*

*No X are Y.
No Y are Z.
Therefore, no Z are X.*

Example #1:

*No kangaroos are MMA fighters.
Some MMA fighters are not Mormons.
Therefore, some Mormons are not kangaroos.*

Example #2:

*No animals are insects.
Some insects are not dogs.
Therefore, some dogs are not animals.*

Example #3:

*No animals are insects.
No insects are dogs.
Therefore, no dogs are animals.*

Explanation: Remember why fallacies are so dangerous: because they appear to be good reasoning. The conclusion in example #1 makes sense, but it does not follow logically

- it is an invalid argument. Based on the first two premises, there is no way to logically deduce that conclusion. Now look at examples #2 and #3. We use the same logical form of the argument, committing the same fallacy, but by changing the terms it is much more clear that something went wrong somewhere, and it did. This kind of argument, the *categorical syllogism*, cannot have two negative premises and still be valid.

Just because the conclusion appears true, it does not mean the argument is valid (or strong, in the case of an informal argument).

Exception: None.

Tip: Learn to recognize the forms of formal fallacies, and you will easily spot invalid formal arguments.

Existential Fallacy

(also known as: existential instantiation)

Description: A formal logical fallacy which is committed when a categorical syllogism employs two universal premises (“all”) to arrive at a particular (“some”) conclusion.

In a valid categorical syllogism, if the two premises are universal, then the conclusion *must* be universal as well.

The reasoning behind this fallacy becomes clear when you use classes without any members, and the conclusion states that there are members to this class – which is wrong.

Logical Form:

All X are Y.

All Z are X.

Therefore, some Z are Y.

Example #1:

All babysitters have pimples.

All babysitter club members are babysitters.

Therefore, some babysitter club members have pimples.

Example #2:

All forest creatures live in the woods.

All leprechauns are forest creatures.

Therefore, some leprechauns live in the woods.

Explanation: In both examples, the fallacy is committed because we have two universal premises and a particular conclusion. But our example #1 conclusion makes sense, no? **Just because the conclusion *might* be true, does not mean the logic used to produce it, was valid.** This

is how tests like SAT's and GRE's screw us over. And technically, in the above example, *all* babysitter club members have pimples, not just *some*.

Now look at the second example. Same form, but when we use classes that obviously (to most people) have no members (leprechauns), we can see that it results in a conclusion that is false.

Exception: There actually *is* an exception to this formal fallacy – if we are strictly using Aristotelian logic, then it is permissible, because apparently Aristotle did not see a problem with presupposing that classes have members even when we are not explicitly told that they do.

Extended Analogy

Description: Suggesting that two things, both analogous to a third thing, are therefore, analogous to each other.

In essence, the [ad Hitlerum fallacy](#) is an extended analogy, because it is the attempt to associate someone to Hitler's psychotic behavior by way of a usually much more benign connection.

Logical Form:

A is like B in some way.

C is like B in a different way.

Therefore, A is like C.

Example #1:

Jennie: Anyone who doesn't have a problem with slaughtering animals for food, should not, in principle, have a problem with an advanced alien race slaughtering us for food.

Carl: Fruitarians, the crazy people who won't eat anything except for fruit that fell off the tree, are also against slaughtering animals for food. Are you crazy like them?

Explanation: Although I don't think I can ever give up delicious chicken, Jennie does make a good point via a valid analogy. Ignoring Carl's attempt to [poison the well](#) by using [loaded language](#), he is, by *extended analogy*, claiming the "craziness" of the fruitarians must be shared by her as well, since they both are alike because they share a view on using animals for food.

Example #2:

Science often gets things wrong. It wasn't until the early 20th century, when particle physics came along, that

scientists realized that the atom wasn't the smallest particle in existence. So perhaps science will soon realize that it is wrong about the age of the universe, the non-existence of a global flood, evolution, and every other science that contradicts the Bible when read literally.

Explanation: To see this fallacy, let's put it in the logical form, using just the evolution claim:

P1. Thinking the atom was the smallest particle was a mistake of science.

P2. Evolution is also a mistake in science.

P3. Therefore, science thinking the atom was the smallest particle is like science thinking evolution is true.

Premise two (P2) should jump out as a bold assumption, although not fallacious. Remember, the premises don't have to be true for the argument to be valid. But if both premises were true, does the conclusion (p3) follow? No, because of the *extended fallacy*. The reason is, if evolution were false, it would not be for the same reason that science thought the atom was the smallest particle. Science "was wrong" in that case because it did not have the whole truth due to discoveries yet to be made at the time. If evolution were wrong, then all the discoveries that have been made, the facts that have been established, the foundation of many sciences that have led to countless advances in medicine, would all be dead wrong. This would be a mistake of unimaginable proportions and consequences that would unravel the very core of scientific understanding and inquiry.

Exception: If one can show evidence that the connection between all the subjects are the same, it is not fallacious.

It is crazy to think that carrots have feelings.

It is crazy to think that cows have feelings.

*Therefore, vegetarians are just as crazy as fruitarians.*⁸

Tip: Don't call people crazy - leave that kind of psychological assessment for the licensed professionals. You can call them, "nutjobs".

Failure to Elucidate

Obscurum per Obscurius

Description: When the definition is made more difficult to understand than the word or concept being defined.

Logical Form:

Person 1 makes a claim.

Person 2 asks for clarification of the claim, or a term being used.

Person 1 restates the claim or term in a more confusing way.

Example #1:

Tracy: I don't like him because of his aura.

TJ: What do you mean by that?

Tracy: I mean that he is projecting a field of subtle, luminous radiation that is negative.

Explanation: This is such a common fallacy, yet rarely detected as one. Usually, out of fear of embarrassment, we accept confusing definitions as legitimate elucidations, that is, we pretend the term that was defined is now clear to us. What exactly is the field? How is it detected? Are there negative and positive ones? How do we know?

Example #2:

Linda: We live in a spirit filled world; I am certain of that.

Rob: What is a "spirit"?

Linda: A non-corporeal substance.

Explanation: Many times, we fool ourselves into thinking that because we know other words for the term, we better understand what the term *actually represents*. The above example is an illustration of this. We can redefine, "spirit" as

many times as we like, but our understanding of what a spirit actually is will still be lacking.

Assuming we did not really understand what was meant by “spirit”, the definition, “non-corporeal substance” might or might not shed any light on what is meant by the term. In this case, it might be more clear now that Linda is not referring to alcoholic beverages, but conceptually, what is a non-physical substance? Especially when “substance” is defined as being physical matter or material.

We fallaciously reason that we now understand what the term represents when in fact we don't.

Exception: Some may actually just lack the vocabulary needed – this is not your fault, but you should do your best to attempt to elucidate using words understandable to your audience.

Tip: Are there any concepts that you feel you understand, when really you can just define the concept with words?

Fake Precision

(also known as: over-precision, false precision, misplaced precision, spurious accuracy)

Description: Using implausibly precise statistics to give the appearance of truth and certainty, or using negligible difference in data to draw incorrect inferences.

Example #1:

Tour Guide: This fossil right here is 120,000,003 years old.

Guest: How do you know that?

Tour Guide: Because when I started working here three years ago, the experts did some radiometric dating and told me that it was 120,000,000 years old.

Explanation: Although more of a comedy skit than anything else, this demonstrates the fallacious reasoning by the tour guide in her assumption that the dates given to her were precise to the year.

Example #2: The difference between first and second in many cases is negligible, statistically, yet we give those differences artificial meaning. Who was the *second* person to walk on the moon... just minutes after Neil Armstrong? Does anyone remember who the *second* fastest man in the world is, even though he might come in .01 seconds after the first place winner?

Explanation: We often artificially assign significant meaning to tiny statistical differences. It is a fallacy when we infer that the first place runner is “much faster” than the second place runner, even though the difference is .01 seconds.

Exception: In reality, tiny statistical differences can have significant impact, regardless of our interpretation. For example, jumping out of the way of a car .01 seconds too late can mean the difference between a close call, and death.

Tip: Don't confuse fake precision with real performance.

Fallacy of Composition

(also known as: composition fallacy, exception fallacy)

Description: Inferring that something is true of the whole from the fact that it is true of some part of the whole. This is the opposite of the [fallacy of division](#).

Logical Form:

A is part of B

A has property X

Therefore, B has property X.

Example #1:

*Each brick in that building weighs less than a pound.
Therefore, the building weighs less than a pound.*

Example #2:

*Hydrogen is not wet. Oxygen is not wet. Therefore,
water (H₂O) is not wet.*

Example #3:

*Your brain is made of molecules. Molecules do not have
consciousness. Therefore, your brain cannot be the
source of consciousness.*

Explanation: I included three examples that demonstrate this fallacy from the very obvious to the less obvious, but equally as flawed. In the first example, it is obvious because weight is cumulative. In the second example, we know that water is wet, but we only experience the property of wetness when the molecules are combined, and in large scale. This introduces the concept of *emergent properties*, which when ignored, tend to promote [magical thinking](#). The final example is a common argument made for a supernatural explanation for consciousness. On the surface,

it is difficult to imagine a collection of molecules resulting in something like consciousness, because we are focusing on the properties of the parts (molecules) and not the whole system, which incorporates emergence, motion, the use of energy, temperature (vibration), order, and other *relational properties*.

Exception: If the whole is very close to the similarity of the parts, then more assumptions can be made from the parts to the whole. For example, if we open a small bag of potato chips and discover that the first one is delicious, it is not fallacious to conclude that whole snack (all the chips, minus the bag) will be equally as delicious. But, we cannot say the same for one of those Costco family size bags, because most of us would be hurling after about 10 minutes of our chip-eating frenzy.

Fallacy of Division

(also known as: false division, division fallacy, ecological fallacy [form of], ecological inference fallacy [form of])

Description: Inferring that something is true of one or more of the parts from the fact that it is true of the whole. This is the opposite of the [fallacy of composition](#).

Logical Form:

A is part of B

B has property X

Therefore, A has property X.

Example #1:

His house is about half the size of most houses in the neighborhood, therefore, his doors must all be about 3 1/2 feet high.

Explanation: The size of one's house almost certainly does not mean that the doors will be smaller, especially by the same proportions. The size of the whole (the house) is not directly related to the size of every part of the house.

Example #2:

I heard that bishop in the Catholic Church was involved in a sex scandal cover-up. The entire Catholic Church is corrupt!

Explanation: Just because a member of the Church is corrupt, does not mean that the whole Church is corrupt.

Exception: When a part of the whole has a property that, by definition, causes the whole to take on that property.

I heard that bishop in the Catholic Church was involved in a sex scandal cover-up. He is not perfect. He is part of the Church, therefore, the Church is not perfect.

Variation: The *ecological fallacy* or *ecological inference fallacy* focuses on statistical data. For example, if the Giants are doing poorly this year, it would be fallacious to conclude that every member on the team is doing poorly.

Fallacy of Four Terms

quaternio terminorum

(also known as: ambiguous middle term)

Description: This fallacy occurs in a categorical syllogism when the syllogism has four terms rather than the requisite three (in a sense, it cannot be a categorical syllogism to begin with!) If it takes on this form, it is invalid. The [equivocation fallacy](#) can also fit this fallacy, because the same term is used in two different ways, making four distinct terms, although only appearing to be three.

Logical Form: There are many possible forms, this is one example:

All X are Y.

All A are B.

Therefore, all X are B.

Example #1:

All cats are felines.

All dogs are canines.

Therefore, all cats are canines.

Explanation: When you add in a fourth term to a categorical syllogism that can only have three terms to be logically valid, we get nonsense - or at least an invalid argument.

Example #2:

All Greek gods are mythical.

All modern day gods are real.

Therefore, all Greek gods are real.

Explanation: Again, nonsense. If we take away one of the terms, we end up with a valid syllogism:

All Greek gods are mythical.

All mythical gods don't really exist.

Therefore, all Greek gods don't really exist.

Exception: None.

Fallacy of Necessity

fallacia necessitas

Description: A logical fallacy in a syllogism where necessity is stated in the conclusion and necessity is not stated in both the premises.

Logical Form:

A is necessarily B.

C is A.

Therefore, C is necessarily B.

Example #1:

Mothers necessarily have children.

Fran is a mother.

Therefore, Fran necessarily has children.

Explanation: It is clear that to be a mother, you must have children (at least one – biological or adopted, doesn't matter for this example). Fran is a mother – so far so good. But the conclusion is not true – Fran does not *have to* have children simply because she does not *have to* be a mother. To escape this fallacy, we could change our second premise to, "Fran is necessarily a mother" (whatever that may mean).

Example #2:

Synchronized swimming fans necessarily love synchronized swimming.

Momo is a synchronized swimming fan.

Therefore, Momo necessarily loves synchronized swimming.

Explanation: We have the same exact form as example #1, but with different content. Momo would only *have to* (necessarily) love synchronized swimming, if and only if, he

was *necessarily* a synchronized swimming fan, which we cannot assume he is because it was not stated. This argument is invalid and fallacious.

Exception: None.

Fallacy of (the) Undistributed Middle

(also known as: undistributed middle term)

Description: A formal fallacy in a categorical syllogism where the *middle term*, or the term that does not appear in the conclusion, is not distributed to the other two terms.

Logical Form:

All A's are C's.

All B's are C's.

Therefore, all A's are B's.

Example #1:

All lions are animals.

All cats are animals.

Therefore, all lions are cats.

Explanation: We are tricked because the conclusion makes sense, so out of laziness we accept the argument. But, the argument is invalid, and by plugging in new terms, like in the next example, we can see why.

Example #2:

All ghosts are imaginary.

All unicorns are imaginary.

Therefore, all ghosts are unicorns.

Explanation: While there may be ghosts that are unicorns, it does not follow from the premises: the only thing the premises tell us about ghosts and unicorns is that they are both imaginary – we have no information how they are related to each other.

Exception: None.

False Attribution

(also known as: argument from false authority [form of])

Description: Appealing to an irrelevant, unqualified, unidentified, biased or fabricated source in support of an argument.

Logical Form:

Claim X is made.

Source Y, a fake or unverifiable source, is used to verify claim X.

Therefore, claim X is true.

Example #1:

But professor, I got all these facts from a program I saw on TV once... I don't remember the name of it though.

Explanation: Without a credible, verifiable source, the argument or claim being made is very weak.

Example #2:

I had this book that proved that Jesus was resurrected. But I lost it. I forgot the name of it as well – and who the author was.

Explanation: A story of “this book” hardly can serve as proof of an event as potentially significant as the resurrection of Jesus. While it might be the case that the person telling this story really does remember reading a convincing argument, it very well could be the case that this person is fabricating this book – it sure sounds like it. In either case, it is fallacious to accept the claim that Jesus was resurrected based on this argument.

Exception: I have a problem with calling an outright lie a “fallacy”, or having someone believe in a lie being guilty of

fallacious reasoning. So by my authority, any outright lies are lies, not fallacies. Other authorities may disagree.

Tip: Never falsify facts. If you get caught lying, you will almost certainly lose the argument, even if you are right.

Variation: The *argument from false authority* is very much the same, but the authority is usually a person or organization rather than an inanimate source of information.

False Conversion

(also known as: illicit conversion)

New Terminology:

Type “A” Logical Forms: *A proposition or premise that uses the word, “all” or “every” (ex. All P are Q)*

Type “E” Logical Forms: *A proposition or premise that uses the word, “none” or “no” (ex. No P are Q)*

Type “I” Logical Forms: *A proposition or premise that uses the word, “some” (ex. Some P are Q)*

Type “O” Logical Forms: *A proposition or premise that uses the terms, “some/not” (ex. Some P are not Q)*

Description: The formal fallacy where the subject and the predicate terms of the proposition are switched (*conversion*) in the conclusion, in a proposition that uses “all” in its premise (type “A” forms), or “some/not” (type “O” forms).

Logical Form:

All P are Q.

Therefore, all Q are P.

Some P are not Q.

Therefore, some Q are not P.

Example #1:

All Hollywood Squares contestants are bad actors.

Therefore, all bad actors are Hollywood Squares contestants.

Example #2:

Some people in the film industry do not win Oscars.

Therefore, some Oscar winners are not people in the film industry.

Explanation: It does not follow logically that just because all Hollywood Squares contestants are bad actors, that all bad actors actually make it on Hollywood Squares. Same form problem with the second example – but we used “some” and “are not”.

Exception: None. But remember that type “E” and type “I” forms can use conversion and remain valid.

No teachers are psychos.

Therefore, no psychos are teachers.

False Dilemma

(also known as: false dichotomy, the either-or fallacy, either-or reasoning, fallacy of false choice, fallacy of false alternatives, black-and-white thinking, the fallacy of exhaustive hypotheses, bifurcation, excluded middle, no middle ground, polarization)

Description: When only two choices are presented yet more exist, or a spectrum of possible choices exist between two extremes. False dilemmas are usually characterized by “either this or that” language, but can also be characterized by omissions of choices. Another variety is the false trilemma, which is when three choices are presented when more exist.

Logical Form:

Either X or Y is true.

Either X, Y or Z is true.

Example (two choices):

You are either with God, or against him.

Explanation: As Obi Wan Kenobi so eloquently puts it in Star Wars episode III, “Only a Sith deals in absolutes!” There are also those who simply don’t believe there is a God to either be for or against.

Example (omission):

I thought you were a good person, but you weren’t at church today.

Explanation: The assumption here is that bad people don’t go to church. Of course, good people exist who don’t go to church, and good church-going people could have had a really good reason not to be in church – like a hangover from the swingers gathering the night before.

Example (trilemma):

Don't give me that, "Jesus was just a good teacher" crap. As C.S. Lewis says, Jesus was either Lord, lunatic, or liar.

Explanation: C.S. Lewis left off a very crucial option: *legend*.

Exception: It is not a fallacy if other options exist but you are not offering other options as a possibility. For example:

Mom: Billy, it's time for bed.

Billy: Can I stay up and watch a movie?

Mom: You can either go to bed or stay up for another 30 minutes and read.

Billy: That is a false dilemma!

Mom: No, it's not. Here, read Bo's book and you will see why.

Billy: This is freaky, our exact conversation is used as an example in this book!

Tip: Be conscious of how many times you are presented with false dilemmas, and how many times you present yourself with false dilemmas.

False Effect

Non Causa Pro Causa

Description: Unlike the false cause, the *false effect* incorrectly assumes an effect from a cause.

Logical Form:

X apparently causes Y.

Y is wrong.

Therefore, X is wrong.

X apparently causes Y.

Y is right.

Therefore, X is right.

Example #1:

Watching TV that close will make you go blind, so move back!

Explanation: The *false effect* from watching TV too closely is going blind. For the most part, the threat that you will “ruin” your eyesight is an old wives tail, but it does have some credibility based on modern studies. But almost certainly, nobody is going blind from sitting too close unless they ram their eyes into the protruding knobs. Anyway, the conclusion, “so move back!” is not warranted by the *false effect*.

Example #2:

Giving 10% of your income to the Church will free a child's soul from Limbo into Heaven, so give your money!

Explanation: Centuries ago, the Church stopped accepting bribes to get loved ones out of Limbo, and very recently, in 2007, the Church made it more clear that Limbo was a

theory and not an official doctrine of the Church, separating the Church from that belief. As for the argument, the false effect of “freeing a child’s soul from Limbo” does not warrant the conclusion of giving your money.

Exception: A belief of an effect, could be argued to be an actual effect. Effects often can be supported empirically (scientifically), but they can also be claimed by “faith”, making them impossible to prove or disprove.

Far-Fetched Hypothesis

Description: Offering a bizarre (far-fetched) hypothesis as the correct explanation without first ruling out more mundane explanations.

Example #1:

Seth: How did my keys get in your coat pocket?

Terrence: Honestly, I don't know, but I have a theory. Last night, a unicorn was walking through the neighborhood. The local leprechauns did not like this intrusion, so they dispatched the fairies to make the unicorn go away. The fairies took your keys and dropped them on the unicorn, scaring the unicorn back from where he came. The fairies then returned your keys, but accidentally put them in my coat pocket.

Explanation: When creating a hypothesis, there are infinite possibilities, but far fewer probabilities. Skipping over the probabilities is fallacious reasoning. We should start with the fact that Terrence is lying, then go from there. There are many theories between lying and the mythical creature caper theory.

Example #2:

*The rainbow represents a special covenant or promise of protection from another worldwide flood. The rainbow's appearance to Noah may have been its first occurrence in the sky (Gen. 9:8-17). Typical raindrops of sufficient size to cause a rainbow require atmosphere instability. Prior to the Flood, weather conditions were probably very stable. (Donald B. DeYoung, *Weather and The Bible, Grand Rapids, Eerdmans, 1992, pp. 112,113*).*

Explanation: This is part of an attempt by a young-earth creationist to make Genesis a literal, historical fact. Of

course, the mundane explanation is that Genesis is not meant to be taken as a literal, historical fact – it is not meant to be read as a science book.

Exception: If mundane explanations can be ruled out first, usually through falsification, then we can move on to more bizarre hypotheses.

Faulty Comparison

(also known as: bad comparison, false comparison, incomplete comparison, inconsistent comparison)

Description: Comparing one thing to another that is really not related, in order to make the one thing look more or less desirable than it really is.

Example #1:

Broccoli has significantly less fat than the leading candy bar!

Explanation: While both broccoli and candy bars can be considered snacks, comparing the two in terms of fat content and ignoring the significant difference in taste, leads to the false comparison.

Example #2:

Religion may have been wrong about a few things, but science has been wrong about many more things!

Explanation: We are comparing science to a system of knowledge, “faith”, that is not known for revising itself based on new evidence. Even when it does, the “wrongs” are blamed on human interpretation. Science is all about improving ideas to get closer to the truth, and, in some cases, completely throwing out theories that have been proven wrong. Furthermore, the claims of religion are virtually all [unfalsifiable](#), thus cannot be proven wrong. Therefore, comparing religion and science on the basis of falsifiability, is a faulty comparison.

Exception: One can argue what exactly is “really not related”.

Tip: Comparisons of any kind almost always are flawed. Think carefully before you accept any kind of comparison as

evidence.

Gambler's Fallacy

(also known as: the Monte Carlo fallacy, the doctrine of the maturity of chances, hot hand fallacy [form of])

Description: Reasoning that, in a situation that is pure random chance, the outcome can be affected by previous outcomes.

Example #1:

I have flipped heads five times in a row. As a result, the next flip will probably be tails.

Explanation: The odds for each and every flip are calculated independently from other flips. The chance for each flip is 50/50, no matter how many times heads came up before.

Example #2:

Eric: For my lottery numbers, I chose 6, 14, 22, 35, 38, 40. What did you choose?

Steve: I chose 1, 2, 3, 4, 5, 6.

Eric: You idiot! Those numbers will never come up!

Explanation: "Common sense" is contrary to logic and probability, when people think that any possible lottery number is more probable than any other. This is because we see meaning in patterns – but probability doesn't. Because of what is called the *clustering illusion*, we give the numbers 1, 2, 3, 4, 5, and 6 special meaning when arranged in that order, random chance is just as likely to produce a 1 as the first number, as it is a 6. Now the second number produced is only affected by the first selection in that the first number is no longer a possible choice, but still, the number 2 has the exact same odds as being selected as 14, and so on.

Example #3:

Maury: Please put all my chips on red 21.

Dealer: Are you sure you want to do that? Red 21 just came up in the last spin.

Maury: I didn't know that! Thank you! Put it on black 15 instead. I can't believe I almost made that mistake!

Explanation: The dealer (or whatever you call the person spinning the roulette wheel) really should know better – the fact that red 21 just came up is completely irrelevant to the chances that it will come up again for the next spin. If it did, to us, that would seem “weird” but it is simply the inevitable result of probability.

Exception: If you think something is random, but it really isn't – like a loaded die, then previous outcomes can be used as an indicator of future outcomes.

Tip: Gamble for the fun, not for the money, and don't wager more than you wouldn't mind losing. Remember, at least as far as casinos go, the odds are against you.

Variation: The *hot hand fallacy* is the irrational belief that if you win or lose several chance games in a row you are either “hot” or “cold”, respectively. It is the belief that your “streak” has to do with something other than pure probability. Because we are generally stupid when it comes to realizing this, and pigheaded when it comes to accepting this fact, casinos around the world make a lot of money.

Genetic Fallacy

Description: Basing the truth claim of an argument on the origin of its claims or premises.

Logical Form:

The origin of the claim is presented.

Therefore, the claim is true/false.

Example #1:

Lisa was brainwashed as a child into thinking that people are generally good. Therefore, people are not generally good.

Explanation: That fact that Lisa may have been brainwashed as a child, is irrelevant to the claim that people are generally good.

Example #2:

He was born to Catholic parents and raised as a Catholic until his confirmation in 8th grade. Therefore, he is bound to want to defend some Catholic traditions, and therefore, cannot be taken seriously.

Explanation: I am referring to myself here. While my upbringing was Catholic, and I have long since considered myself a Catholic, that is irrelevant to any defenses I make of Catholicism – like the fact that many local churches do focus on helping the community through charity work. If I make an argument defending anything Catholic, the argument should be evaluated on the argument itself, not on the history of the one making the argument or how I came to hold the claims as true or false.

Exception: At times, the origin of the claim is relevant to the truth of the claim.

I believe in closet monsters because my big sister told me unless I do whatever she tells me, the closet monsters will eat me.

God Wildcard Fallacy*

(also known as: divine mystery fallacy)

Description: Excuses a contradiction in logic or reason by, “divine mystery.” This is a form of the [missing data fallacy](#), but where the missing information is always a divine mystery of some form. The *God wildcard* comes in many forms, and is played when honest questioning leads to absurd or illogical conclusions. Rather than revise sacred theological ideas, those who play the *God wildcard*, believe they are acting in humility and simply claiming honest ignorance – but they are not. Honest ignorance and a display of humility would be admitting that you might be wrong *in your hypothesis and/or conclusion*, not just missing a supporting fact.

Logical Form:

Claim X is being made.

Claim X is shown to be contradictory, absurd, or unsupported.

Claim X is a divine mystery.

Therefore, claim X is true.

Example #1:

Rene: If God is eternal, why did God all of a sudden decide to create the universe? Was he bored?

Luke: That is a divine mystery, but it happened.

Explanation: Questions about faith often require faith-based answers, *not reason-based ones*. But unlike reason-based answers, faith-based answers can be given for any question – and can never be proven wrong. It has been said, *that which answers everything, answers nothing*.

Example #2:

Jill: Why did God put the forbidden fruit tree right smack in the middle of the Garden of Eden if he did not want Adam or Eve to eat from it?

Luke: I am sure God had his reasons. Who are you to question God?

Explanation: Instead of insisting that "God had his reasons", perhaps Luke and Jill should revisit the validity of the question itself, starting with the literal truth of Genesis and eventually getting to the literal existence of God.

Exception: Very often we all pull out the *God wildcard* as a figure of speech, rather than an explanation or a conclusion to an argument. In these cases, it is not a fallacy.

God only knows why the people voted for that guy!

Hasty Generalization

(also known as: argument from small numbers, statistics of small numbers, insufficient statistics, unrepresentative sample [form of], argument by generalization, faulty generalization, hasty conclusion [form of], inductive generalization, insufficient sample, lonely fact fallacy, over generality, over generalization)

Description: Drawing a conclusion based on a small sample size, rather than looking at statistics that are much more in line with the typical or average situation.

Logical Form:

Sample S is taken from population P.

Sample S is a very small part of population P.

Conclusion C is drawn from sample S.

Example #1:

My father smoked four packs of cigarettes a day since age fourteen, and lived until age sixty-nine. Therefore, smoking really can't be that bad for you.

Explanation: It is extremely unreasonable (and dangerous) to draw a universal conclusion about the health risks of smoking by the case study of one man.

Example #2:

Four out of five dentists recommend Happy Glossy Smiley toothpaste brand. Therefore, it must be great.

Explanation: It turns out, that only five dentists were actually asked. When a random sampling of 1000 dentists were polled, only 20% actually recommended the brand. The four out of five result was not necessarily a biased

sample or a dishonest survey, it just happened to be a statistical anomaly common among small samples.

Exception: A statistics of a larger population are not available, and decision must be made or opinion formed, if the small sample size is all you have to work with, then it is better than nothing. For example, if you are strolling in the desert with a friend, and he goes to pet a cute snake, gets bitten, then dies instantly, it would not be fallacious to assume the snake is poisonous.

Tip: Don't base decisions on small sample sizes when much more reliable data exists.

Variation: The *hasty conclusion* is leaping to a conclusion without carefully considering the alternatives - a tad different than drawing a conclusion from too small of a sample.

Having Your Cake

(also known as: failure to assert, diminished claim, failure to choose sides)

Description: Making an argument, or responding to one, in such a way that it does not make it at all clear what your position is. This puts you in a position to back out of your claim at any time and go in a new direction without penalty, claiming that you were “right” all along.

Logical Form:

I believe X is a strong argument.

Y is also a very strong argument.

Example #1:

Reporter: Mr. Congressman, where do you stand on the clean water vs. new factory issue?

Congressman: Of course, I want our state to have the cleanest water possible. I can appreciate the petition against the new factory as I can also appreciate the new jobs introduced in our community as a result of the new factory.

Explanation: This type of “non decision” or refusal to choose a side often eludes those looking for an answer, but getting more of a non answer in return. In our example, the congressman can later choose a side based on the outcome, looking like the guy who knew the right answer all along.

Example #2:

Scott: So do you think the earth has only been here for 6-10 thousand years?

Sam: The evidence for an old earth is very strong, but we cannot discount some of the claims made by the creationists.

Scott: So what are you saying?

Sam: I am saying that a 4.7 billion year old earth makes a lot of sense, but the 6000 year-old theory does as well.

Explanation: We all know and want to shoot people like Sam. Sam is failing to assert his position. If Sam's opinion is respected in this area, no doubt people on both sides will use his statement to their advantage. This ambiguity is not helpful and is misleading.

Exception: Wishy-washy statements are sometimes acceptable to demonstrate your uncertainty on a given issue, and if these kind of statements are followed with admission of uncertainty or ignorance, then they are not fallacious; they are honest.

Tip: If you don't have an opinion, say that you don't have an opinion. If you don't know, say that you don't know. It's that simple.

Hedging

Description: Refining your claim simply to avoid counter evidence and then act as if your revised claim is the same as the original.

Logical Form:

Claim X is made.

Claim X is refuted.

Claim Y is then made, and is made to be the same as claim X when it is not.

Example #1:

Freddie: All women are evil, manipulative, man-haters.

Wade: Including your mother and best friend?

Freddie: Not them, but all the others.

Wade: How can you say that, when you only know maybe a hundred or so women?

Freddie: Obviously, I am talking about the ones I know.

Explanation: The claim changed quite drastically from about 3.5 billion women to about 100, yet there was no admission by Freddie of this drastic change in his argument. Freddie is guilty of committing this fallacy, and those who see Freddie's initial argument as still valid, are guilty as well.

Example #2:

Adam: The story of Noah's ark is very probable, and almost certainly a historical and scientific fact.

Greg: So you think it is very probable that two of each animal came from around the globe, including the animals that cannot survive for very long outside their natural environments?

Adam: Well, that part did require God's help.

Greg: You think it is very probable even though virtually every geologist and natural scientist today reject the idea of a global flood?

Adam: Probability exists on many levels.

Greg: Do you really still think this story is, "very probable"?

Adam: Yes.

Explanation: Besides the multiple [ad hoc](#) explanations used by Adam to answer the counter claims, each counter claim was evidence against the initial claim, specifically the "very probable" nature of the story. Rather than concede the argument or revise the claim, Adam let his insistence to be right come before logical thought, and refused to change his original claim.

Exception: If the point of argumentation is really to arrive closer to the truth, then there is no shame in revising claims. If this is done, there is no fallacy.

Tip: Every time you acknowledge that you are wrong, you are one step closer to actually being right.

Historian's Fallacy

(also known as: retrospective determinism, hindsight)

Description: Judging a person's decision in the light of new information not available at the time.

Logical Form:

Claim X was made in the past.

Those who made the claim, did not take into consideration Y (which was not available to them at the time)

Therefore, this was a foolish claim.

Example #1:

You should have never taken the back roads to the concert. If you had taken the main roads, you would not have been stuck in all that traffic due to the accident.

Explanation: “Thanks for that!” is the usual sarcastic response to this fallacy. Of course, had we known about the accident, the main road would have been the better choice. But nobody could have reasonably predicted that accident. It is fallacious, and somewhat pointless, to suggest that we “should have” taken the other way.

Example #2:

*Judas was an idiot to turn Jesus in to the authorities.
After all, he ended up committing suicide out of guilt.*

Explanation: It is easy for us to blame Judas as people who know the whole story and how it played out. We have information Judas did not have at the time. But think about it, if Judas never turned in Jesus, and Jesus was never killed, but died while walking on water as an old man after tripping over a wave, would Christianity exist?

Exception: Sometimes, it's funny to purposely commit this fallacy at the expense of your friends' dignity.

Hey, nice going on that decision to buy stock in the company that was shut down a week later by the FBI for the prostitution ring. Do you have any stock tips for me?

Homunculus Fallacy

(also known as: homunculus argument, infinite regress)

Description: An argument that accounts for a phenomenon in terms of the very phenomenon that it is supposed to explain, which results in an infinite regress.

Logical Form:

Phenomenon X needs to be explained.

Reason Y is given.

Reason Y depends on phenomenon X.

Example #1:

Bert: How do eyes project an image to your brain?

Ernie: Think of it as a little guy in your brain watching the movie projected by your eyes.

Bert: Ok, but what is happening in the little guy in your head's brain?

Ernie: Well, think of it as a little guy in his brain watching a movie...

Explanation: This fallacy creates an endless loop that actually explains nothing. It is fallacious reasoning to accept any explanation that creates this kind of endless loop.

Example #2:

Dicky: How do you know God exists?

Ralphie: I have faith that he does.

Dicky: Why do you trust your faith?

Ralphie: Because... I have faith that I can.

Explanation: Many people consider “faith” the most reliable form of epistemology, that is, logic, reason and science are a distant second when conflicts arise. But why

rely on faith? In the example above, Ralphie explains how it is through, “faith in faith” that he trusts his faith in God. From this, we can extrapolate that he has faith in the faith that is used for the faith in God, and so on to an infinite regress.

To escape this regress, some have suggested that through the reasoning faculties, they trust faith – but then the foundation of faith is reason, and of course, the foundation of reason is God (faith).

Exception: None

Hypnotic Bait and Switch

Description: Stating several uncontroversially true statements in succession, followed by a claim that the arguer wants the audience to accept as true. This is a propaganda technique, but also a fallacy when the audience lends more credibility to the last claim, because it was preceded by true statements. The negative can also be used in the same way.

This is a classic sales technique known often referred to as, “getting the customer used to saying ‘yes’!”

Logical Form:

A succession of uncontroversial true claims are made.

Therefore, claim X (which is controversial), is true.

A succession of uncontroversial false claims are made.

Therefore, claim X (which is controversial), is false.

Example #1:

Do you love your country?

Do you love your family?

Do you care about their wellbeing?

Then you would love Eatme ice-cream!

Example #2:

Is it right that such a small percentage of Americans control the vast majority of wealth?

Is it right that you have to work overtime just to make ends meet?

Is it right that you can't afford to even leave the state for vacation?

Do you really want to vote for Reggie Lipshitz?

Explanation: As you read through the examples, you can see where the word “hypnotic” comes from. Your subconscious mind starts to take over and it seems almost reactionary that you start chanting “yes” or “no” (as in the second example) while not really considering to what you are agreeing or disagreeing. These kind of techniques work best in rallies where those doing the rallying count on you to act with emotion at the expense of your reason.

Exception: It’s an effective persuasion technique, so if trying to convince your kids to stay off drugs, then manipulate away. But if you are trying to get someone to buy a vacuum cleaner, then take your *hypnotic bait and switch* and shove it up your reusable, hypoallergenic, dust bag.

Tip: Become a human fallacy detector. Look for these kind of techniques everywhere you go. As a result, your reasonable self will become conditioned to resist taking a back seat to emotional propaganda.

Hypothesis Contrary to Fact

(also known as: counterfactual fallacy, speculative fallacy, "what if" fallacy, wouldchuck)

Description: Offering a poorly supported claim about what might have happened in the past or future, if (the hypothetical part) circumstances or conditions were different. The fallacy also entails treating future hypothetical situations as if they are fact.

Logical Form:

If event X did happen, then event Y would have happened. (based only on speculation)

Example #1:

If you accepted Jesus, you would have never watched that R-rated movie!

Explanation: This is speculation at best, not founded on evidence, and is unfalsifiable. Maybe, if I accepted Jesus, I would have watched an X-rated movie instead, and used the excuse that I had to “get the demons out”. Who knows.

Example #2:

If you accept Jesus, you will never be lonely again. Jesus will always be right by your side (spiritually speaking).

Explanation: Future hypotheticals that are stated as fact are most often nothing more than false promises. Maybe I will never be lonely with Jesus, or maybe I am the type who likes to keep company with other human beings. Regardless, if the theists are correct, then God is everywhere (omnipresent) whether we believe in him or not.

Exception: In either/or situations, general predictions can obviously be made without fallacy:

If you didn't flip a heads on the coin, it would have been tails.

If-By-Whiskey

Description: A response to a question that is contingent on the questioner's opinions and makes use of words with strong connotations. This fallacy appears to support both sides of an issue – a tactic common in politics.

Example #1: This example is actually the origin of the fallacy, which refers to a 1952 speech by Noah S. “Soggy” Sweat, Jr., a young lawmaker from the U.S. state of Mississippi, on the subject of whether Mississippi should continue to prohibit (which it did until 1966) or finally legalize alcoholic beverages. I think it is hilarious, so I am including it here in its entirety.

My friends, I had not intended to discuss this controversial subject at this particular time. However, I want you to know that I do not shun controversy. On the contrary, I will take a stand on any issue at any time, regardless of how fraught with controversy it might be. You have asked me how I feel about whiskey. All right, here is how I feel about whiskey:

If when you say whiskey you mean the devil's brew, the poison scourge, the bloody monster, that defiles innocence, dethrones reason, destroys the home, creates misery and poverty, yea, literally takes the bread from the mouths of little children; if you mean the evil drink that topples the Christian man and woman from the pinnacle of righteous, gracious living into the bottomless pit of degradation, and despair, and shame and helplessness, and hopelessness, then certainly I am against it.

But, if when you say whiskey you mean the oil of conversation, the philosophic wine, the ale that is consumed when good fellows get together, that puts a song in their hearts and laughter on their lips, and the

warm glow of contentment in their eyes; if you mean Christmas cheer; if you mean the stimulating drink that puts the spring in the old gentleman's step on a frosty, crispy morning; if you mean the drink which enables a man to magnify his joy, and his happiness, and to forget, if only for a little while, life's great tragedies, and heartaches, and sorrows; if you mean that drink, the sale of which pours into our treasuries untold millions of dollars, which are used to provide tender care for our little crippled children, our blind, our deaf, our dumb, our pitiful aged and infirm; to build highways and hospitals and schools, then certainly I am for it.

This is my stand. I will not retreat from it. I will not compromise.

Explanation: This is an amazing insight to the human mind and the area of rhetoric. We can see how when both sides of the issue are presented through the same use of emotionally charged words and phrases, the argument is really vacuous and presents very little factual information, nor does it even take a stance on the issue.

Example #2: Having evaluated literally thousands of positions on God by people all over the belief spectrum, I thought I would create my own, "If-by-God" version of the argument, showing how carefully placed rhetoric can blur the line between the most perfect being imaginable and the most horrible being imaginable.

The question is, if God does exist, should we love him and worship him? My position is clear, and I am not embarrassed to let the world know exactly how I feel. So here it goes.

If by God you mean the defender, the protector, creator of heaven and earth, the father of us all, the being of pure love, kindness, and everything good in the world, the God who led the Israelites from slavery to freedom,

the one who looks after us all, the God who heals the sick in his son's name, the God who gave us his perfect laws for our benefit, the God who loved us so much, that he sacrificed his only son so that we can be saved, then certainly he is deserving of our love and worship.

But, if when you say God, you mean the great dictator in the sky, the almighty smiter, the God who created us with imperfections then holds us responsible for the imperfections, the God who took away paradise and eternal life from us because the first man and woman committed a "wrong" against God before they were capable of knowing right from wrong, the God who commanded his chosen people to utterly destroy every man, woman, and child in dozens of cities, the God who hardened hearts, killed first borns, demanded blood sacrifices, commanded man to brutally kill other humans for "crimes" such as "not honoring your parents", the God who destroyed virtually all living creatures on the planet, the God who would demand that his own son be brutally murdered to pay a debt to him, the God who allows children to be born with birth defects, die young, and get cancer, the God who continues to destroy using floods, hurricanes, and other natural disasters, the God who ignores the prayers of billions of his faithful followers, the God who allows over 80% of all humanity to suffer through unimaginable torture for all eternity, then he is certainly not deserving of our love and worship.

This is my stand. I will not retreat from it. I will not compromise.

Exception: If you are serving as a moderator and need to remain neutral, plus want to add a little "spice" in the debate, this might be a good technique.

Illicit Contraposition

New Terminology:

Illicit: Forbidden by the rules, or in our cases, by the laws of logic.

Contraposition: Switching the subject and predicate terms of a categorical proposition, and negating each.

Description: A formal fallacy where switching the subject and predicate terms of a categorical proposition, then negating each, results in an invalid argument form. The examples below make this more clear. This is a fallacy only for type “E” and type “I” forms, or forms using the words “no” and “some”, respectively.

Logical Form:

No S are P.

Therefore, no non-P are non-S.

Some S are P.

Therefore, some non-P are non-S.

Example #1:

No Catholics are Jews.

Therefore, no non-Jews are non-Catholics.

(contraposition)

Explanation: By definition, no Catholics are Jews (using type “E” form here) – clear enough. Now let’s take the contraposition of that proposition by switching the placement of “Catholics” and “Jews”, and negating each, and we can see we have a false proposition. “No non-Jews are non-Catholics” clearly does not mean the same thing as “No Catholics are Jews”. In this example, the premise is true but the conclusion is false (I am a non-Jew and a non-

Catholic, and statistically speaking, you probably are too.)

Example #2:

Some dogs bark.

Therefore, some non-barking things are non-dogs.
(contraposition)

Explanation: We now see the type “I” form in action, stating, “Some” dogs bark. This is true, but that really does not matter in determining what form of an argument is valid or not. The conclusion, “some non-barking things are non-dogs” is also a true statement (my toothbrush, which is a non-dog, does not bark), but this does not matter either. What does matter, is that it does not logically follow. Don’t be misled by truth! Focus on the form of the argument. If we substitute other terms we can see the fallacy more clearly:

Some humans are mortal.

Therefore, some immortals are non-human.
(contraposition)

By using the word, “some”, we are not asserting that there are definitely some *that are not*. Above, just by saying that some humans are mortal, we automatically are saying that there are others who are not mortal. Therefore, our conclusion is supposing a group that does not exist, thus fallacious.

Exception: None, but remember that the following type “A” and type “O” forms are valid:

All P are Q.

Therefore, all non-Q are non-P.

Some P are not Q.

Therefore, some non-Q are not non-P.

Quick explanation, using the type “A” form, let’s say that all humans are mortals. The contraposition: all immortals are

non-human. Not only does this make sense in terms of truth, but it follows necessarily from the premise, therefore, it is valid (and not a fallacy).

Tip: Don't give up on formal fallacies! Once you get it, it actually will help you in everyday reasoning.

Illicit Major

(also known as: illicit process of the major term)

Description: Any form of a *categorical syllogism* in which the major term is distributed in the conclusion, but not in the major premise.

Logical Form:

All A are B

No C are A

Therefore, no C are B

Example #1:

All hotdogs are fast food.

No hamburgers are hotdogs.

Therefore, no hamburgers are fast food.

Explanation: In our example, the major term is “fast food”, because it is the term that appears in the major premise (first premise) as the predicate, and in the conclusion. As such, in this position, it is “undistributed”.

Example #2:

All Jim Carry movies are hilarious.

No horror movies are Jim Carry movies.

Therefore, no horror movies are hilarious.

Explanation: In our example, the major term is “hilarious”, because it is the term that appears in the major premise (first premise) as the predicate, and in the conclusion. As such, in this position, it is “undistributed”.

Exception: None.

Illicit Minor

(also known as: illicit process of the minor term)

Description: Any form of a *categorical syllogism* in which the minor term is distributed in the conclusion, but not in the minor premise.

Logical Form:

All A are B

All B are C

Therefore, all C are A

Example #1:

All Catholics are Christian.

All Christians are Jesus lovers.

Therefore, all Jesus lovers are Catholic.

Explanation: In our example, the minor term is “Jesus lovers”, because it is the term that appears in the minor premise (second premise) as the predicate, and in the conclusion. As such, in this position, it is “undistributed”.

Example #2:

All Paul Newman movies are great.

All great movies are Oscar winners.

Therefore, all Oscar winners are Paul Newman movies.

Explanation: In our example, the minor term is “Oscar winners”, because it is the term that appears in the minor premise (second premise) as the predicate, and in the conclusion. As such, in this position, it is “undistributed”.

Exception: None.

Illicit Substitution of Identicals

(also known as: hooded man fallacy, masked man fallacy, intensional fallacy)

Description: A formal fallacy due to confusing the knowing of a thing (*extension*) with the knowing of it under all its various names or descriptions (*intension*).

We need to define two terms here to fully understand this fallacy: *intensional* and *extensional*. In logic and mathematics, an *intensional* definition gives the meaning of a term by specifying all the properties required to come to that definition, that is, the necessary and sufficient conditions for belonging to the set being defined. In contrast, an *extensional* definition, is defined by its listing everything that falls under that definition. Confused? You should be, but relax because I am not done.

Imagine Superman, who is also Clark Kent, flew to Italy for a slice of pizza. If we said, "Clark Kent flew to Italy for pizza" we would be right, because of the *extensional context* of that statement. Conversely, if we said, "Lois Lane thinks Superman flew to Italy for pizza", we would still be making a true claim, although the context is now *intensional*, as indicated by the term, "thinks". Now if we said, "Lois Lane thinks Clark Kent flew to Italy for pizza", we would be wrong and would have committed this fallacy, because Lois *does not believe that*, even though *extensionally* it is the case (this is after the kiss that wiped her memory of Clark being Superman).

Example #1:

The lady in the pink dress is Julia Roberts.

The reporter thinks the lady in the pink dress drives a Prius.

Therefore, the reporter thinks Julia Roberts drives a Prius.

Example #2:

The reporter thinks the lady in the pink dress drives a Prius.

The reporter doesn't think Julia Roberts drives a Prius.

Therefore, Julia Roberts does not drive a Prius.

Explanation: The examples used are just two different logical forms of the same fallacy. Because the reporter, "thinks" the statement is made in an intensional context, we cannot switch the terms. However, if we were to keep the premises in an extensional context, we could get away with switching the terms. This would be a valid logical argument form known as *Leibniz' Law*.

Exception: Technically, none, but here is the above example #1 using *Leibniz' Law*, with no fallacy:

The lady in the pink dress is Julia Roberts.

The lady in the pink dress drives a Prius.

Therefore, Julia Roberts drives a Prius.

Inconsistency

(also known as: kettle logic [form of], internal contradiction [form of], logical inconsistency [form of])

Description: In terms of a fallacious argument, one or more propositions are asserted that cannot both possibly be true. In a more general sense, holding one or more views/beliefs that cannot be all be true together.

Example #1:

Everything in the Bible is literally true and science is one big lie propagated by Satan. In fact, creation scientists can prove that Noah's flood really happened.

Explanation: The creationist dismisses the foundation of science, then in the next breath, support "creation science" based on "scientific evidence". Denying science and accepting it by choosing certain theories in which to believe, is inconsistent. And I am quite sure the creationist who denies science will write about how they reject science on their computer, that is the result of science.

Example #2:

God is pure love as well as the creator of everything.

Explanation: There are two assertions: 1) God is pure love and 2) he is the creator of everything. As the creator of everything, he must have created hate, or at least the mechanism which results in hate. Believing that hate can possibly come from pure love, is inconsistent.

The arrogant cannot stand in your presence; you hate all who do wrong. (Psalm 5:5)

Exception: One needs to be able to explain how the beliefs are not inconsistent.

Tip: Think about your beliefs. Are there any inconsistent with each other? With how you act and what you do?

Variation: The *internal contradiction* is a blatant contradiction in the same argument (thus “internal”).

I never had sexual relations with that woman – but it sure was nice!

Kettle logic is usually multiple, contradicting arguments, supporting a single point. In an example used by Sigmund Freud in *The Interpretation of Dreams*, a man accused by his neighbor of having returned a kettle in a damaged condition offered three arguments:

That he had returned the kettle undamaged;

That it was already damaged when he borrowed it;

That he had never borrowed it in the first place.

A *logical inconsistency* usually refers specifically to inconsistencies in formal, or deductive, logic.

Ted is older than Sam. Bill is older than Ted. Sam is older than Bill.

Inflation of Conflict

Description: Reasoning that because authorities cannot agree precisely on an issue, no conclusions can be reached at all, and minimizing the credibility of the authorities as a result. This is a form of black and white thinking – either we know the exact truth, or we know nothing at all.

Logical Form:

*Authority A disagrees with Authority B on issue X.
Therefore, we can say nothing meaningful about issue X.*

Example #1:

My mom says that I should study for at least 2 hours each night, and my dad says just a half hour should be fine. Neither one of them know what they are talking about, so I should just skip studying all together.

Explanation: A disagreement among experts does not mean that both are wrong, the answer is a compromise, or that there is no answer to be known; it simply means that there is disagreement – that is all we can infer.

Example #2:

Scientists cannot agree on the age of the universe. Some say it is 13.7 billion years old, some say it is only about 13 billion years old. That's a difference of almost a billion years! It should be clear that because there is so much disagreement, then the 6000 year old universe should be carefully considered as well.

Explanation: Scientists who “disagree” with the estimated age of the universe, do so primarily on slightly different interpretations of the same objectively valid dating methods. The difference is fairly minute in terms of

percentage. Suggesting 6000 years is valid is one thing, but doing so based on the difference in interpretation from mainstream science, is completely fallacious. The differences have no bearing on the truth claim of the argument (the actual age).

Exception: When the difference in professional disagreement is critical, it should be carefully examined. For example, if two doctors were debating on what medicine to give a patient, and both were claiming that the other medicine would kill the patient.

Jumping to Conclusions

(also known as: hasty decision, leaping to conclusions, specificity)

Description: Drawing a conclusion without taking the needed time to reason through the argument.

Example #1:

That new home looks great! Let's buy it!

Explanation: The assumption in this example is that this was a snap decision based on emotion, and the many factors one should consider when making a decision this grand were ignored. In short, reasoning was abandoned.

Example #2:

It's getting late and we still have to decide on the school budget. What do you say we just leave it as is and we can call it a night.

Explanation: It is not reasonable to assume the conclusion that the budget should be left where it is based on the desire to go home.

Exception: There are many times when quick decisions are required, and evidence cannot be fully examined, and in such circumstances we need to come to the best conclusion we can with the resources we have.

Tip: If anyone gives you an unreasonable time frame for making a decision, it is almost always an attempt to discourage you from critical thought. If you cannot have what you feel is a reasonable amount of time to come to a well-reasoned conclusion – walk away.

Just Because Fallacy*

(also known as: trust me, mother knows best fallacy, because I said so, you'll see)

Description: Refusing to respond to give reasons or evidence for a claim by stating yourself as the ultimate authority in the matter. This is usually indicated by the phrases, “just trust me”, “because I said so”, “you’ll see”, or “just because”. The *just because fallacy* is not conducive to the goal of argumentation – that is coming to a mutually agreeable solution. Nor is it helpful in helping the other person understand why you are firm on your position. “Just because” is not a reason that speaks to the question itself; it is simply a deflection to authority (legitimate or not).

Logical Form:

X is true because I said so.

Example #1:

Trebor: Mom, can David sleepover tonight?

Mom: No.

Trebor: Why not?

Mom: Because.

Trebor: Because why?

Mom: Because I said so! End of discussion!

Explanation: “Because I said so”, is not a valid reason for why a friend can’t sleep over. Maybe the real reason is that sleepovers give mom a headache. Maybe mom wants Trebor to go to bed early because he is cranky the next day if he doesn’t. Or perhaps David is just a little brat that drives mom crazy.

Example #2:

Slick Rick: The best I can do for ya is \$25,000.

Prospect: Why can't you do any better?

Slick Rick: Just because that is the lowest I can go.

Prospect: But why.

Slick Rick: Because.

Explanation: In this case, it is clear that there is some underlying reason that Slick Rick does not want the prospect to know about. This reason, almost certainly, has something to do with the fact that Slick Rick can go lower if needed.

Exception: There is really no exception to this rule in argumentation or serious discussion. Perhaps this is acceptable in situations where you have the authority to choose not to make an argument out of a command, like in a parent-child relationship. Or perhaps your significant other has planned a surprise for you, and the “you’ll see” is meant to deflect your inquiry for your own benefit.

Tip: Don’t let yourself off the hook with “just because” excuses. Keep asking yourself, “what is the real reason?” The answer could uncover an issue that needs your attention.

Just In Case Fallacy

(also known as: worst case scenario fallacy)

Description: Making an argument based on the worst-case scenario rather than the most probable scenario, allowing fear to prevail over reason.

Logical Form:

It would be a good idea to accept claim X, since it is possible for event Y.

Example #1:

Maury, you should really wear a helmet when playing chess. You can easily get excited, fall off your chair, and crack your head open.

Explanation: Every decision you make has both costs and benefits. Fallacious arguments, like the one above, will attempt to get you to make a decision out of fear rather than reason, thus increasing the *perceived* cost of choosing not to wear a helmet. Of course, the cost of wearing a helmet while playing chess is peer ridicule of historic proportions.

Example #2:

If Hell is real, then you would be wise to spend your life worshipping Jesus.

Explanation: The attempt is to get you to make a decision out of fear rather than reason, thus increasing the *perceived* cost of choosing not to worship Jesus for your whole life. There are many Christians who reject the idea of Hell and eternal torment by a perfectly loving God. And of course, there are over a billion people who subscribe to the religion that believes accepting anyone besides Allah will buy you a one way ticket into the fiery pits of Hell. Through reason,

you can evaluate these choices and make a decision on reason, not on fear.

Exception: When you can come to a reasonable conclusion that preparing for the worst-case scenario is the most economically sound course of action (as in cost/benefit - not necessarily financial), then the fallacy is not committed.

Tip: The example above is a version of Pascal's Wager. I thoroughly examine (i.e. rip apart) this argument at <http://www.relationshipwithreason.com/articles/philosophy/14-pascal-s-wager-the-epitome-of-irrational-rationalism>

Least Plausible Hypothesis

Description: Choosing more unreasonable explanations for phenomena over more defensible ones. In judging the validity of hypotheses or conclusions from an observation, the scientific method relies upon the *Principle of Parsimony*, also known as *Occam's Razor*, which states, *all things being equal, the simplest explanation of a phenomenon that requires the fewest assumptions is the preferred explanation until it can be disproved.*

This is very similar to the [far-fetched hypothesis](#), but the hypotheses are generally more within reason (i.e. no leprechauns involved).

Logical Form:

Hypothesis X is used to explain Y, but hypothesis X is the least plausible.

Example #1:

Here is why I think my date never showed up: her father had a heart-attack and she had to rush him to the hospital. In her state of panic, she forgot her cell phone, and while at the hospital, she was too concerned about her dad to worry about standing me up.

Explanation: While possible, it is not probable. It is much more probable that his date just forgot or has purposely stood him up. People tend to believe in least probable hypotheses out of desire, emotion, or faith - not out of reason.

Example #2: Creationists have written volumes of books explaining how, given some divine intervention, a few broken natural laws, and accepting the *inconsistency* of nature, it could be possible that the universe is only 6000 years old. Accepting these theories would require the

abandonment or radical reformation of virtually every science we have, as well as a new understanding of the term, “fact”. So either all of that is true, or, the Biblical creation story, like hundreds of others in cultures all around the world, are simply mythology.

Explanation: Given the incomprehensible number and severity of the assumptions that would need to be made for creationism to be true, the explanation that the creation story is mythology, by far, is the most economical explanation.

Exception: Anything is possible, *Occam's Razor* is all about probabilities.

Limited Depth

Description: Failing to appeal to an underlying cause, and instead simply appeal to membership in a category. In other words, simply asserting what you are trying to explain without actually explaining anything.

Example #1:

My dog goes through our garbage because he is a dog.

Explanation: We know your dog is a dog, but what about him being a dog makes him go through the garbage? By referring to your dog as a member of the category “dog”, this fails to explain anything.

Example #2:

Christians are kind people because they go to church.

Explanation: [Question begging](#) aside, simply stating that they are a member of the group, “church goers” does not explain why they are kind. A reasonable explanation would need to include a valid causal relationship between kindness and church-going.

Exception: At times, limited depth can be used as a shorthand when assumptions are made that no deeper explanation is needed.

I need oxygen, because I am human!

Limited Scope

Description: The theory doesn't explain anything other than the phenomenon it explains, and at best, is likely to be incomplete. This is often done by just redefining a term or phrase rather than explaining it.

Example #1:

My car broke down because it is no longer working.

Explanation: “It isn’t working” is just another way of saying “broke down”, and fails to explain *why* it broke down.

Example #2:

People often make hasty decisions because they don’t take enough time to consider their choices.

Explanation: Not taking enough time to consider choices is precisely what a hasty decision is. Again, no explanation is offered, just a definition in place of an explanation.

Exception: If “because” is replaced with a phrase like, “in other words”, then it is a deliberate clarification, and not a fallacy.

Logic Chopping

(also known as: smokescreen [form of], quibbling/splitting-hairs/nit-picking/trivial objections [forms of])

Description: Using the technical tools of logic in an unhelpful and pedantic manner by focusing on trivial details instead of directly addressing the main issue in a dispute. Irrelevant over-precision.

Pay close attention to this fallacy, because after reading this book, you may find yourself committing this fallacy more than any others, and certainly more often than you did before reading this book.

Example #1:

John: Can you please help me push my car to the side of the road, until the tow truck comes?

Paul: Why push it to the side of the road? Why not just leave it?

John: It is slowing down traffic unnecessarily where it is.

Paul: Many things slow down traffic, do you feel you need to do something about all them?

John: No, but this was my fault.

Paul: Was it really? Were you the direct cause of your car breaking down?

John: Are you going to help me move this damn car or not?!

Explanation: You can see here the Paul is avoiding the request for assistance by attempting to make a deep philosophical issue out of a simple request. While Paul may have some good points, not every situation in life calls for deep critical thought. This situation being one of them.

Example #2:

Service Tech: Your car could use some new tires.

Bart: You have a financial interest in selling me tires, why should I trust you?

Service Tech: You brought your car to me to have it checked, sir.

Bart: I brought my car to the shop you work for.

Service Tech: So should we forget about the new tires for now?

Bart: I never suggested that. Are you trying to use reverse psychology on me so I will buy the tires?

Explanation: This kind of fallacy could easily be a result of someone with paranoid behavioral tendencies – thinking the world is out to get him or her.

Exception: Of course, there is no clear line between situations that call for critical thought and those that call for reactionary obedience. But if you cross the line, hopefully you are with people who care about you enough to tell you.

Tip: People don't like to be made to feel inferior. You need to know when showing tack and restraint is more important than being right.

Ludic Fallacy

ludus

Description: Assuming flawless statistical models apply to situations where they actually don't. This can result in the over-confidence in probability theory or simply not knowing exactly where it applies, as opposed to chaotic situations or situations with external influences too subtle or numerous to predict.

Example #1: The best example of this fallacy is presented by the person who coined this term, Nassim Nicholas Taleb in his 2007 book, *The Black Swan*. There are two people:

Dr. John, who is regarded as a man of science and logical thinking.

Fat Tony, who is regarded as a man who lives by his wits.

A third party asks them, "assume a fair coin is flipped 99 times, and each time it comes up heads. What are the odds that the 100th flip would also come up heads?" Dr. John says that the odds are not affected by the previous outcomes so the odds must still be 50:50. Fat Tony says that the odds of the coin coming up heads 99 times in a row are so low (less than 1 in 6.33×10^{29}) that the initial assumption that the coin had a 50:50 chance of coming up heads is most likely incorrect.

Explanation: You can imagine yourself watching a coin flip. Knowing all about the [*gambler's fallacy*](#), you would hold out much longer than someone like Fat Tony when you get to the point where you say, "All right, something's going on here with the coin". At what point does it become fallacious reasoning to still insist that you are just witnessing the "inevitable result of probability"? There is no definite answer

– your decision will need to be argued and supported by solid reasons.

Example #2:

Lolita: Since about half the people in the world are female, the chances of the next person to walk out that door being female is about 50/50.

Celina: Do you realize that is the door to Dr. Vulvastein, the gynecologist?

Explanation: Lolita is focusing on pure statistics while ignoring actual reason.

Exception: See the explanation for example #1.

Note: Chaos theory plays a huge role in our universe, and it is way beyond the scope of this book. But as for this fallacy, many things that appear to be random are actually chaotic systems, or unpredictable, deterministic systems. Attempting to apply the rules of random probability in those cases will result in all kinds of errors.

Lying with Statistics

(also known as: statistical fallacy/fallacies, misunderstanding the nature of statistics [form of])

Description: This can be seen as an entire class of fallacies that result in presenting statistical data in a very biased way, and of course, interpreting statistics without questioning the methods behind collecting and presenting the data.

The many methods are outside the scope of this book, but if you really want to jump in here, and see how deceptive statistics can be, get the book, *How to Lie with Statistics* by Darrell Huff, a 1954 classic that is just as relevant today as it was in his time.

Logical Form:

Claim A is made.

Statistic S is manipulated to support claim A.

Example #1:

Did you see that bar graph in USA Today? It showed a HUGE spike in the moral decline of our country!

Explanation: The first question that should immediately come to mind is, how on earth can one measure morality? With such a loose definition, it is not hard to imagine one collecting and measuring the data that only supports her desired outcome for the “numbers”. Furthermore, what is a “huge spike”? Visually, you can play with graphs to make numbers seem much more dramatic by not starting at zero, or by doing that little “chopped section” thing. For example, let’s accept that last year 20% of all people were immoral. This year it is 22%. Not a big deal, and if shown on a graph with a vertical axis of 0% to 100%, the line connecting the 20% to the 22% would be barely inclined. However, if shown

on a graph with a vertical axis of 20% to 25%, the line connecting the 20% to the 22% would appear to be a huge spike. The same exact data, a very different presentation.

Example #2:

Looking at that pie chart, there is a very small percentage of people who declare themselves atheist. Therefore, atheism is not that popular of a belief.

Explanation: First, atheism is not a belief – it is a lack of one. Second, many non-believers are not even familiar with the term, “atheist”, and often consider themselves Christian, Jewish, or some other religion, based on their culture and family tradition, not necessarily their beliefs. Statistics don’t account for this.

Exception: At times, careful and honest explanations of the data and the presentation can void statistical fallacies, but like virtually all exceptions, this can be debatable.

Variation: *Misunderstanding the nature of statistics* is related to this fallacy, but the fallacy rests on the person interpreting the statistics. For example, you might be very troubled to find out that your doctor graduated in the bottom half of her class. But that is half of all the doctors in the world, and to be expected.

Magical Thinking

(also known as: post hoc fallacy [form of], superstitious thinking)

Description: Making causal connections or correlations between two events not based on logic or evidence, but primarily based on superstition. Magical thinking often causes one to experience [irrational](#) fear of performing certain acts or having certain thoughts because they assume a correlation with their acts and threatening calamities.

Example #1:

*Mr. Governor issues a proclamation for the people of his state to pray for rain. Several months later, it rains.
Praise God!*

Explanation: Suggesting that appealing to the gods for rain via prayer or dance is just the kind of thing crazy enough to get you elected President of the United States, but there is absolutely no logical reason or evidence to support the claim that appealing to the gods will make it rain.

Example #2:

I refuse to stay on the 13th floor of any hotel because it is bad luck. However, I don't mind staying on the same floor as long as we call it the 14th floor.

Explanation: This demonstrates the kind of *magical thinking* that so many people in this country engage in, that, according to Dilip Rangnekar of Otis Elevators, an estimated 85% of buildings with elevators did not have a floor numbered "13". There is zero evidence that the number 13 has any property that causes bad luck – of course, it is the superstitious mind that connects that number with bad luck.

Example #3:

I knew I should have helped that old lady across the road. Because I didn't, I have been having bad Karma all day.

Explanation: This describes how one who believes that they deserve bad fortune, will most likely experience it due to the *confirmation bias* and other self-fulfilling prophecy-like behavior. Yet there is no logical or rational basis behind the concept of Karma.

Exception: If you can empirically prove your magic, then you can use your magic to reason.

Tip: *Magical thinking* may be comforting at times, but reality is always what's true.

Meaningless Question

Description: Asking a question that cannot be answered with any sort of rational meaning.

Examples:

What's north of the North Pole?

What happened before time?

How many angels can you fit on a head of a pin?

Explanation: There is no north of the North Pole, you can't use a temporal term such as "before" when referring to outside of time, and angels, whether you think they are real beings or imaginary ones, do not take up space.

Exception: If the angels ate too many doughnuts...

Misleading Vividness

Description: A small number of dramatic and vivid events are taken to outweigh a significant amount of statistical evidence.

Logical Form:

Dramatic or vivid event X occurs (does not jive with the majority of the statistical evidence) .

Therefore, events of type X are likely to occur.

Example #1:

In Detroit, there is a 10 year-old living on the street selling drugs to stay alive. In Los Angeles, a 19 year-old prostitute works the streets. America's youth is certainly in serious trouble.

Explanation: While the story of the 10 year-old illegal pharmacist and the 19 year-old village bicycle is certainly disturbing, it is just two specific cases out of tens of millions – a vast majority of whom live pretty regular lives, far from being considered in any “serious trouble”. This is a form of [appeal to emotion](#) that causes us to hold irrational beliefs about a population due to a few select cases. The example could have featured two other youths:

In Detroit, there is a 10 year-old who plays the piano as beautifully as Beethoven. In Los Angeles, a 19 year-old genius is getting her PhD in nuclear physics. America's youth is certainly something we can be proud of.

Example #2:

It was freezing today, as it was yesterday. My plants are now dead, and my birdbath turned to solid ice! And it is only October! This global warming thing is a load of crap.

Explanation: Whether global warming is a “load of crap” or not, concluding that, by a couple of unusually cold days, is fallacious reasoning at its finest.

Exception: If the cases featured are typical of the population in general, then no fallacy is committed.

Tip: Don’t let your pessimism or optimism cloud your judgements on reality.

Missing Data Fallacy*

(also known as: missing information fallacy)

Description: Refusing to admit ignorance to the hypothesis and/or the conclusion, but insisting that your ignorance has to do with missing data that validates both the hypothesis and conclusion.

Logical Form:

Hypothesis H is put forward.

Fatal Flaw F is pointed out.

Rather than change the hypothesis to match the data, it is simply assumed that there must be data missing that will eliminate flaw F.

Example #1:

Jeremy: Drinking Diet Cosie Cola will result in the reversal of male-pattern baldness.

Rick: This has never been established scientifically.

Jeremy: That is because it must be mixed with another ingredient.

Rick: Which is...?

Jeremy: They haven't found it yet.

Explanation: Assuming the theory is correct based on some unknown missing data (the secret ingredient), rather than admitting that the whole theory is invalid, is fallacious.

Example #2:

Gil: Why does the all-loving Jesus allow over 80% of the human population to burn in Hell for eternity?

John: We are unable to comprehend such things as humans. So stop asking so many damn questions.

Explanation: In order to protect the hypothesis from error, it is assumed, without evidence, that the answer does exist, but is beyond human comprehension. Perhaps Jesus is more about jealousy than love? Perhaps there is no Hell? Perhaps there is no Jesus?

Exception: When the data does exist, especially when it is empirically verified, but you just know what it is, it is acceptable to stick with your hypothesis and admit you don't know the missing data off hand, but you can get it. For example:

John: The shroud of Turin was found many years back. This is physical proof that Jesus existed.

Gil: You know, John, there is loads of controversy surrounding the authenticity of this.

John: Yea? What specifically?

Gil: I honestly don't know the details off the top of my head, but I can e-mail you when we get back.

Modal (Scope) Fallacy

(also known as: fallacy of modal logic, misconditionalization)

Description: *Modal logic* studies ways in which propositions can be true or false, the most common being *necessity* and *possibility*. Some propositions are necessarily true/false, and others are possibly true/false. In short, a modal fallacy involves making a formal argument invalid by confusing the *scope* of what is actually necessary or possible.

Example #1:

If Debbie and TJ have two sons and two daughters, then they must have at least one son.

Debbie and TJ have two sons and two daughters.

Therefore, Debbie and TJ must have at least one son.

Explanation: We are told that Debbie and TJ have two sons and two daughters, so logically, by necessity, they must *have at least one son*. But to say that Debbie and TJ *must* have at least one son, is to *confuse the scope of the modal*, or in this case, to take the *contingent fact* that applies to the specific case that is conditional upon Debbie and TJ having the two sons and two daughters, to the general hypothetical case where they don't have to have any children. Therefore, if they don't *have to* have any children, then they certainly don't *have to* (*necessary fact*) have at least one son.

Example #2:

If Barak is President, then he must be 35 years-old or older.

Explanation: Technically this is fallacious. There is no condition in which someone *necessarily* is a certain age. More accurately, we would say:

It must be the case that if Barak is President, then he is 35 or older.

The “must” in this second statement covers the whole condition, not just the age of the President.

Exception: None

Moralistic Fallacy

(also known as: moral fallacy)

Description: The assumption that what *ought to be* is what *is* – that the undesirable opposes nature.

This is the opposite of the [naturalistic fallacy](#).

Logical Form:

X ought to be wrong.

Therefore, X is wrong.

Example #1:

Adultery, as well as philandering, is wrong.

Therefore, we have no biological tendency for multiple sex partners.

Explanation: While, morally speaking, adultery and philandering might be wrong, this has no bearing on the biological aspect of the desire or need. In other words, what we *shouldn't do* (according to moral norms), is not necessarily the same as what we are *biologically influenced* to do.

Example #2:

Being mean to others is wrong.

Therefore, it cannot possibly be part of our nature.

Explanation: While, morally speaking, being mean to others might be wrong, this has no bearing on the biological aspect of the desire or need. Again, what we *shouldn't do* (according to moral norms), is not necessarily the same as what we are *biologically influenced* to do.

Exception: An argument can certainly be made that an ought is the same as an is, but it just cannot be assumed.

Moving the Goal Posts

(also known as: gravity game, raising the bar, argument by demanding impossible perfection [form of])

Description: Demanding from an opponent that he or she address more and more points, after the initial counter-argument has been satisfied, refusing to concede or accept the opponent's argument.

Logical Form:

Issue A has been raised, and adequately answered.

Issue B is then raised, and adequately answered.

.....

Issue Z is then raised, and adequately answered.

(despite all issues adequately answered, the opponent refuses to concede or accept the argument.

Example #1:

Ken: There has to be an objective morality, because otherwise terms like "right" and "wrong" would be meaningless, since they have no foundation for comparison.

Rob: The terms "right" and "wrong" are based on cultural norms, which do have a subjective foundation – one that changes as the moral sphere of the culture changes. The term "heavy" does not have an objective standard, yet we have no problem using that term in a meaningful way. In fact, very few relational terms have any kind of objective foundation.

Ken: But without an objective morality, we would all be lost morally as a race.

Rob: Many would say that we are.

Ken: But how can you say that torturing children for fun is morally acceptable in any situation?

Rob: Personally, I wouldn't. But you are implying that anything that is not objective must necessarily be seen in all possible ways. A feather may not be seen as "heavy" to anyone, but that doesn't mean its "lightness" is still not relative to other objects.

Ken: But God is the standard of objective morality. Prove that wrong!

Explanation: Ken starts with a statement explaining why he thinks there *has to be* an objective morality – a statement based on a reasonable argument that can be pursued with reason and logic. Rob adequately answers that objection, as indicated by Ken's move away from that objection to a new objection. This pattern continues until we arrive at an impossible request: to essentially prove that God does not exist. Despite all the objections being adequately answered, at no time does Ken concede any points or abandon the argument.

Example #2: Perhaps the most classic example of this fallacy is the argument for the existence of God. Due to understanding of nature through science, many of the arguments that used to be used for God (or gods) were abandoned, only to be replaced with new ones, usually involving questions to which science has not definitively answered yet. The move from creationism to *intelligent design*, is a prime example. Currently the origin of life is a popular argument for God (although a classic [argument from ignorance](#)), and an area where we very well may have a scientific answer for in the next decade, at which time, that "origin of life" argument will fade away and be replaced by another, thus moving the figurative goal posts farther back.

Exception: This fallacy should not be confused with an argument or set of arguments, with multiple propositions inherent in the argument. The reason for the difference between this kind of argument and the *moving the goal posts fallacy*, is a subtle one, but indicated by a strong initial claim (“has to be”, “must”, “required for”, etc.) that gets answered and/or what appears to be ad hoc objections that follow eventually leading to an impossible request for proof.

Multiple Comparisons Fallacy

Description: In inductive arguments, there is always a chance that the conclusion might be false, despite the truth of the premises. This is often referred to as “confidence level”. In any given study or poll, there is a confidence level of less than 100%. If a confidence level is 95%, then one out of 20 similar studies will have a false conclusion. If you make multiple comparisons, say 20 or more where there is a 95% confidence level, you are likely to get a false comparison. This becomes a fallacy when that false comparison is seen as significant rather than a statistical probability.

This fallacy can be overcome by proper testing techniques and procedures that are outside the scope of this book.

Logical Form:

Out of N studies, A produced result X and B produced result Y.

Tomorrow’s headlines read, “Studies show Y”.

Example #1:

100 independent studies were conducted comparing brain tumor rates of those who use cell phones to those who don’t.

90 of the tests showed no significant difference in the rates.

5 of the tests showed that cell phone users were more than twice as likely to develop tumors than those who don’t use cell phones.

5 of the tests showed that cell phone users were half as likely to develop tumors than those who don’t use cell phones.

FunTel Mobile's new ad, "Studies show: Cell phone users are half as likely to develop brain tumors!"

Explanation: Because we did multiple tests, i.e. compared multiple groups, statistically we are likely to get results that fall within the acceptable margin of error. These must be disregarded as anomalies or tested further, but not taken to be meaningful while ignoring the other results.

Example #2:

In our study, we looked at 100 individuals who prayed right before going to bed, and 100 individuals who did not pray. Here is what we found: Over 90% of the individuals who prayed slept on their backs, and just 10% slept on their stomachs or sides. This is compared to 50% of those who don't pray, sleeping on their backs and 50% sleeping on their stomachs or sides. Therefore, praying has something to do with sleeping position.

Explanation: What this study did not report, is that over 500 comparisons were done between the two groups, on everything from quality of sleep to what they ate for breakfast the next day. Out of all the comparisons, most, were meaningless, thus were discarded. But as expected via the law statistics and probability, there were some anomalies, the sleeping position being the most dramatic.

Exception: Only proper testing and accurate representation of the results is non-fallacious.

Naturalistic Fallacy

(also known as: is-ought fallacy, arguing from is to ought, is-should fallacy)

Description: When the conclusion expresses what ought to be, based only on actually what is more natural. This is very common and most people never see the problem with these kind of assertions due to accepted social and moral norms. This bypasses reason and we fail to ask why something that *is*, *ought* to be that way.

This is the opposite of the [moralistic fallacy](#).

Logical Form:

X is true according to nature.

Therefore, X is morally right.

Example #1:

Homosexuality is morally wrong because in nature, sex is used for reproduction.

Explanation: We cannot make moral judgements based on nature – unless that is your moral philosophy to do so. But then you really need to reevaluate what “moral” means if living by instinct and desire leads to moral behavior. As for our example, the assumption is also made that sex is for reproduction only. Maybe for the Amish.

Example #2:

Nature gives people diseases and sickness, therefore, it is morally wrong to interfere with nature and treat sick people with medicine.

Explanation: We go against nature all the time. We cannot sometimes use nature as a moral baseline and at other

times condemn her for her careless attitude and indifference toward the human race.

Exception: At times, our morality will be in line with nature – but if we are justifying a moral action, we need to use something besides nature.

Tip: Never be afraid to ask, “why”.

Negative Conclusion from Affirmative Premises

(also known as: illicit affirmative)

Description: The conclusion of a standard form categorical syllogism is negative, but both of the premises are positive. Any valid forms of categorical syllogisms that assert a negative conclusion must have at least one negative premise.

Logical Form:

if A is a subset of B, and B is a subset of C, then A is not a subset of C.

Example #1:

All cats are animals.

Some pets are cats.

Therefore, some pets are not animals.

Explanation: The conclusion might be true – I had a pet rock growing up, but the argument still does not logically support that. Think of sets and subsets. All cats are animals: we have a set of animals and a subset of cats. “Some” pets are cats: so all we know is that there is a part of our set, “pets” that intersects with the subset, “cats”, but we don’t have the information we need to logically conclude that some pets are not animals. This argument is invalid, thus as a formal argument, it is fallacious.

Example #2:

All boys are sports fans.

Some bakers are boys.

Therefore, some bakers are not sports fans.

Explanation: The conclusion might be true – but the argument still does not logically support that for the same reasons in the first example. This argument is invalid, thus as a formal argument, it is fallacious.

Exception: None.

Negating Antecedent and Consequent

(also known as: improper transposition)

New Terminology:

Transposition (contraposition): *In a syllogism, taking the antecedent and consequent in the first premise, then “transposing” them in the second premise, and negating each term.*

Description: A formal fallacy where in the valid transpositional form of an argument, we fail to switch the antecedent and consequent. The valid form of this argument is as follows:

If P then Q.

Therefore, if not-Q then not-P.

Notice we switch (transpose) the p and the q, then negate them both. We commit the fallacy when we fail to transpose (switch) them.

Logical Form:

If P then Q.

Therefore, if not-P then not-Q.

If not-P then not-Q.

Therefore, if P then Q.

Example #1:

If Barry Manilow sings love songs, then he is gay.

Therefore, if Barry Manilow does not sing love songs, then he is not gay.

Explanation: Besides the wildly incorrect premise that if Barry sings love songs he is gay, the conclusion fails to switch the antecedent (Barry Manilow sings love songs) with

the consequent (he is gay), therefore, it is fallacious. However, if we did transpose the antecedent and the consequent in the conclusion, it would be a perfectly valid formal argument, even though the premise might not be a reasonable assumption. Remember, a valid, non fallacious formal argument does not have to have a true conclusion, it just needs to be truth-preserving – in the case that the premises are all true.

If Barry Manilow sings love songs, then he is gay.

Therefore, if Barry Manilow is not gay, then he does not sing love songs.

Example #2:

If Tom thinks that all people who sing love songs are gay, then he is an idiot.

Therefore, if Tom doesn't think that all people who sing love songs are gay, then he is not an idiot.

Explanation: We have the same problem with the failure to transpose the antecedent (Tom thinks that all people who sing love songs are gay) with the consequent (he is an idiot) in the conclusion, although we did negate them both. Hopefully you can see that just because Tom does not think all people who sing love songs are gay, does not mean that Tom is not an idiot for some other reason. This argument is invalid, thus fallacious.

Exception: None.

Nirvana Fallacy

(also known as: perfect solution fallacy, perfectionist fallacy)

Description: Comparing a realistic solution with an idealized one, and dismissing or even discounting the realistic solution as a result of comparing to a “perfect world” or impossible standard. Ignoring the fact that improvements are often good enough reason.

Logical Form:

X is what we have.

Y is the perfect situation.

Therefore, X is not good enough.

Example #1:

What’s the point of making drinking illegal under the age of 21? Kids still manage to get alcohol.

Explanation: The goal in setting a minimum age for drinking is to deter under age drinking, not abolish it completely. Suggesting the law is fruitless based on its failure to completely abolish under age drinking, is fallacious.

Example #2:

What’s the point of living? We’re all going to die anyway.

Explanation: There is an implication that the goal to life is not dying. While that is certainly a worthwhile goal, many would argue that it is a bit empty on its own, creating this fallacy where one does not really exist.

Exception: Striving for perfection is not the same as the *nirvana fallacy*. Having a goal of perfection or near perfection, and working towards that goal, is admirable. However, giving up on the goal because perfection is not

attained, despite major improvements being attained, is fallacious.

Tip: Sometimes good enough is really good enough.

No True Scotsman

(also known as: no true Christian)*

Description: When a universal (“all”, “every”, etc.) claim is refuted, rather than conceding the point or meaningfully revising the claim, the claim is altered by going from universal to specific, and failing to give any objective criteria for the specificity.

Logical Form:

All X are Y.

(it is clearly refuted that all X are not Y)

Then all true X are Y.

Example #1: In 2011, Christian broadcaster, Harold Camping, (once again) predicted the end of the world via Jesus, and managed to get many Christians to join his alarmist campaign. During this time, and especially after the Armageddon date had passed, many Christian groups publicly declared that Camping is not a “true Christian”. On a personal note, I think Camping was, and is, as much of a Christian than any other self-proclaimed Christian, and, religious/political/ethical beliefs aside, I admire him for having the cahunas to make a falsifiable claim about his religious beliefs.

Example #2:

John: Once you accept Jesus as your savior, you will never stray from the LORD, hallelujah!

Marvin: Then why are there so many X-Christians?

John: They were never true Christians.

Marvin: What’s a true Christian?

John: Those who have the Holy Spirit.

Explanation: This is a very common form of this fallacy that has many variations. Every time one Christian denounces another Christian for doing or saying something that they don't approve of, usually by the phrase, "he is not really a *true* Christian", this fallacy is committed.

The universal claim here is that no Christian (as defined as one who accepts Jesus as his or her savior) will ever (universal) stray from the LORD. Marvin points out how clearly this is counterfactual, as there are millions of former Christians. Instead of conceding or meaningfully revising the claim, the implication that no Christian will stray is changed to "no true Christian", which is not meaningful because John's definition of a "true Christian" apparently can only be demonstrated in the negative if a Christian leaves the faith. This results in the [questionable cause fallacy](#) as it is also an [unfalsifiable](#) claim. And of course, it commits the *no true scotsman* fallacy.

Exception: A revised claim going from universal to specific that does give an objective standard, would not be fallacious. If this were the case, a false claim would still have been made, but no fallacy would follow.

Non Sequitur

(also known as: derailment, “that does not follow”, irrelevant reason, invalid inference, non-support, argument by scenario [form of], false premise [form of], questionable premise [form of])

Description: When the conclusion does not follow from the premises. In more informal reasoning, it can be when what is presented as evidence or reason is irrelevant or adds very little support to the conclusion.

Logical Form:

Claim A is made.

Evidence is presented for Claim A.

Therefore, claim C is true.

Example #1:

People generally like to walk on the beach. Beaches have sand. Therefore, having sand floors in homes would be a great idea!

Explanation: As cool as the idea of sand floors might sound, the conclusion does not follow from the premises. The fact that people generally like to walk on sand does not mean that they want sand in their homes, just like because people generally like to swim, they shouldn't flood their houses.

Example #2:

Buddy Burger has the greatest food in town. Buddy Burger was voted #1 by the local paper. Therefore, Phil, the owner of Buddy Burger, should run for President of the United States.

Explanation: I bet Phil makes one heck of a burger, but it does not follow that he should be President.

Exception: There really is no exceptions to this rule. Any good argument must have a conclusion that follows from the premises.

Tip: One of the best ways to expose non sequiturs is by constructing a valid analogy that exposes the absurdity in the argument.

Variations: There are many forms of non sequiturs including *argument by scenario*, where an irrelevant scenario is given in attempt to support the conclusion. Other forms use different rhetorical devices that are irrelevant to the conclusion.

False or questionable premises could be seen as errors in facts, but they can also lead to the conclusion not following, so just keep that in mind as well.

Notable Effort

(also known as: “E” is for effort)

Description: Accepting good effort as a valid reason to accept the truth of the conclusion, even though effort is unrelated to the truth.

Logical Form:

*Person 1 made a notable effort to prove Y.
Therefore, Y is true.*

Example #1:

Judge: In all my years as a federal judge I have never seen a defendant make such a good effort to prove his innocence. As a result, I rule for the defendant.

Explanation: The fact that the defendant made a good effort to prove his innocence means nothing to the fact that he is actually innocent or not, unless he *succeeded* in his efforts. The judges ruling would be based on emotion and not reason.

Example #2:

How can you possibly deny his claim? William wrote an entire book trying to explain why he thinks his claim is true. Therefore, it must be true.

Explanation: The fact that William made a *notable effort* to prove his claim, does not mean that he did.

Exception: As long as the effort is unrelated to the truth of the claim, there are no exceptions.

Tip: Enough with the “everyone’s a winner” mentality. As long as we keep rewarding *all* effort, we devalue the effort that leads to *successful results*. The world needs losers as well – just don’t be one of them.

Overwhelming Exception

Description: A generalization that is technically accurate, but has one or more qualifications which eliminates so many cases that the resulting argument is significantly weaker than the arguer implies. In many cases, the listed exceptions are given in place of evidence or support for the claim, not in addition to.

Logical Form:

Claim A is made.

Numerous exceptions to claim A are made.

Therefore, claim A is true.

Example #1:

Besides charities, comfort, community cohesion, rehabilitation, and helping children learn values, religion poisons everything.

Explanation: Besides being a *self-refuting statement*, the listing of the ways religion does not poison everything, is a clear indicator that the claim is false, or at best, very weak.

Example #2:

Our country is certainly in terrible shape. Sure, we still have all kinds of freedoms, cultural diversity, emergency rooms and trauma care, agencies like the FDA out to protect us, the entertainment industry, a free market, national parks, we are considered the most powerful nation in the world, have amazing opportunities, and free public education, but still...

Explanation: We have many reasons supporting the opposite claim – that this country is in great shape still, or at least that it is not in *terrible* shape. By the time all the

reasons are listed, the original claim of our country being in terrible shape is a lot less agreeable.

Exception: The fewer exceptions, the less overwhelming, the less likely the fallacy.

Package-Deal Fallacy

(also known as: false conjunction)

Description: Assuming things that are often grouped together must always be grouped together, or the assumption that the ungrouping will have significantly more severe effects than anticipated.

Logical Form:

X and Y usually go together.

Therefore, X or Y cannot be separated.

Example #1:

Michael is part of the Jackson Five. Without Tito and company, he will never make it.

Explanation: Michael Jackson was sure great in the *Jackson Five*, but as history proves, he was legendary on his own. Assuming he would not make it on his own is a judgement call not founded on evidence or reason.

Example #2:

If indoor smoking laws are passed for bars, the bars will go out of business, since people who drink, smoke while they drink.

Explanation: This was a common argument against the banning of indoor smoking for bars and other drinking establishments. The fear of separating smoking and drinking arose from the fear of going out of business, not from statistical data or any other evidence that would normally be deemed reasonable. Many years later, it appears that the smoking ban had no significant impact on these kinds of establishments.⁹

Exception: An exception can be made for personal tastes.

I can't even imagine eating just a peanut-butter sandwich without jelly (or Fluff).

Tip: Never underestimate the human ability to adapt and prosper.

Poisoning the Well

(also known as: discrediting, smear tactics)

Description: To commit a pre-emptive [ad hominem](#) attack against an opponent. That is, to prime the audience with adverse information about the opponent from the start, in an attempt to make your claim more acceptable, or discount the credibility of your opponent's claim.

Logical Form:

Adverse information (be it true or false) about person 1 is presented.

Therefore, the claim(s) of person 1 will be false.

Example #1:

Tim: Boss, you heard my side of the story why I think Bill should be fired and not me. Now, I am sure Bill is going to come to you with some pathetic attempt to weasel out of this lie that he has created.

Explanation: Tim is *poisoning the well* by priming his boss by attacking Bill's character, and setting up any defense Bill might present as "pathetic". Tim is committing the fallacy here, but if the boss were to accept Tim's advice about Bill, she, too, would be committing the fallacy.

Example #2:

I hope I presented my argument clearly. Now, my opponent will attempt to refute my argument by his own fallacious, incoherent, illogical version of history.

Explanation: Not a very nice setup for the opponent. As an audience member, if you allow any of this "poison" to affect how you evaluate the opponent's argument, you are guilty of fallacious reasoning.

Exception: Remember that if a person states facts relevant to the argument, it is not an ad hominem attack. In the first example, if the other “poison” were left out, no fallacy would be committed.

Tim: Boss, you heard my side of the story why I think Bill should be fired and not me. Now, I am sure Bill is going to come to you with his side of the story, but please keep in mind that we have two witnesses to the event who both agree that Bill was the one who told the client that she had ugly children.

Political Correctness Fallacy

(also known as: PC fallacy)

Description: This is a common one in recent history. It is the assumption, or admission, that two or more groups, individuals, or ideas of groups or individuals, are equal, of equal value, or both true, based on the recent phenomenon of political correctness, which is defined as, *a term which denotes language, ideas, policies, and behavior seen as seeking to minimize social and institutional offense in occupational, gender, racial, cultural, sexual orientation, certain other religions, beliefs or ideologies, disability, and age-related contexts, and, as purported by the term, doing so to an excessive extent.*

This is the opposite of [stereotyping](#).

Logical Form:

Claim A is politically incorrect.

Therefore, claim A is false.

Example #1:

Racial/cultural profiling at airports is wrong. An adult, middle-eastern male is just as likely to be a terrorist as a four-year old American girl.

Explanation: While anything is possible, including a four year-old American girl being a terrorist, profiling works on probabilities. Inserting political correctness here goes against reason in asserting that every person is just as likely to be a terrorist.

Example #2:

The masked individual who committed the crime was about 6'2", and took down four male security guards by hand. It is just as likely that the criminal was a woman.

Explanation: While it is certainly possible that a 6'2" female martial-arts master is the criminal, it is highly unlikely, and it would be a waste of resources to question an even number of men and women based on the desire not to discriminate.

Example #3:

Everyone is entitled to his or her own religious beliefs. So if dancing in the streets naked is part of their ritual, we must extend them that right.

Explanation: Are any and all religiously-based behaviors acceptable? Must we allow all expression of religion? Where do we draw the line and why?

Example #4:

Sacrificing virgins is part of that tribes culture and heritage. Therefore, it is just as acceptable as our culture's tradition of eating a hot dog at a baseball game.

Explanation: Here we enter the realm of morality and choose to protect a "cultural belief" over saving the life of a young girl.

These examples, and this fallacy, are very controversial. Like all fallacies, arguments need to be made. I am making an argument that PC can be a fallacy in many cases. You might agree, you might disagree. In either case, be prepared to argue for your position with valid reasons.

Exception: See above.

Tip: It is better to be politically incorrect than morally bankrupt.

Post-Designation

(also known as: fishing for data)

Description: Drawing a conclusion from correlations observed in a given sample, but only after the sample has already been drawn, and without declaring in advance what correlations the experimenter was expecting to find. This is related to the [multiple comparisons fallacy](#).

Example #1:

In looking at the records of my students, I have found that 9 out of 10 are an only child. Therefore, society is moving towards one-child families.

Explanation: When you start looking at data with no expectations, anything goes, and any data due to random, statistical anomalies will stand out as “odd”. In this case, the fact that 9 out of 10 kids don’t have siblings is outside of the norm, but that is the nature of probability. If you were hypothesizing that most kids don’t have siblings, and you found this data, then it would provide more of a reason to due further research in making a more justified conclusion.

Example #2:

In looking at the difference between 100 Christians and 100 atheists, we found that Christians were more likely to eat tuna fish.

Explanation: When you fish for data, you are bound to catch something – in this case tuna. Notice that because we were looking for anything, we are bound to find it.

Exception: At times, truth is revealed in data whether we look for it or not. But we need to realize that meaningless statistical anomalies are to be expected when looking at data.

Prejudicial Language

(also known as: variant imagization)

Description: Loaded or emotive terms used to attach value or moral goodness to believing the proposition.

Logical Form:

Claim A is made using loaded or emotive terms.

Therefore, claim A is true.

Example #1:

All good Catholics know that impure thoughts are the work of the devil, and should be resisted at all costs.

Explanation: The phrase “all good Catholics” is the loaded or prejudicial language being used. The implication is that Catholics who *don’t* resist impure thoughts are “bad Catholics”, which is not fair – they may just not be as strong willed, or perhaps they don’t buy into the mind-control portion of the religion.

Example #2:

Students who want to succeed in life will do their homework each and every night.

Explanation: The assertion is that students who *don’t* do their homework every night *don’t* want to succeed in life, which is bad reasoning. Perhaps the student is sick one night, tired, doesn’t understand the work, or was busy making out with his father’s secretary in the office supply closet, next to the memo pads. The point is, dad, you cannot assume that just because I skipped homework a few nights that it means I didn’t want to succeed in life!

Exception: This is often used for motivation, even if the intent is honorable, it is still fallacious.

Proof by Intimidation

argumentum verbosium

(also known as: argument from intimidation [form of], proof by verbosity)

Description: Making an argument purposely difficult to understand in an attempt to intimidate your audience in accepting it, or accepting an argument without evidence, or being intimidated to question the authority or *a priori* assumptions of the one making the argument.

Logical Form:

Claim A is made by person 1.

Person 1 is very intimidating.

Therefore, claim A is true.

Example #1:

Professor Xavier says that the egg certainly came before the chicken. He won the Nobel prize last year for his work in genetics, and the MMA world championship – so I don't dare question his claim.

Explanation: Professor X sure sounds like a brilliant and tough guy, but that is not evidence for his claim.

Example #2:

Dr. Professor Pete said, with the utmost eloquence, masterful stage presence, and unshakable confidence, that $1+1=3$. Therefore, $1+1=3$.

Explanation: Despite the intellectually intimidating presence of Dr. Professor Pete, $1+1$ still equals 2.

Exception: If you live in a state where you can be killed for asking questions, then this is not a fallacy, but a survival technique.

Tip: If you live in a state where you can be killed for asking questions, move.

Variation: The *argument from intimidation* is more directed at questioning one's sense of morality if they don't agree with you.

Surely you don't like to kill babies, do you? Then surely you will join my pro-life campaign.

Proving Non-Existence

Description: Demanding that one proves the non-existence of something in place for providing adequate evidence for the existence of that something. Although it may be possible to prove non-existence in special situations, such as showing that a container does not contain certain items, one cannot prove universal or absolute non-existence. The proof of existence must come from those who make the claims.

Logical Form:

I cannot prove that X exists, so you prove that it doesn't.

If you can't, X exists.

Example #1:

God exists. Until you can prove otherwise, I will continue to believe that he does.

Explanation: Theists may have some decent reasons to believe in the existence of God, but, “because the existence of God cannot be disproven”, is not one of them.

Example #2:

Sheila: I know Elvis' ghost is visiting me in my dreams.

Ron: Yea, I don't think that really is his ghost.

Sheila: Prove that it's not!

Explanation: Once again we are dealing with a confusion of probability and possibility. The inability to, “prove”, in any sense of the word, that the ghost of Elvis is not visiting Sheila in her dreams is an impossible request, because there is no test that proves the existence and presence of a ghost, so no way to prove the negative or the non-existence. It is up to Sheila to provide proof of this claim, or

at least acknowledge that actually being visited by Elvis' ghost is just a *possibility*, no matter how slim that possibility is.

Exception: If Ron were to say, "That is impossible", "there is no way you are being visited", or make some other claim that rules out any possibility, no matter how remote (or crazy), then Sheila would be in the right to ask him for proof – as long as she is making a point that he cannot know that for certain, and not actually expecting him to produce proof.

Tip: If you think you are being visited by aliens, gods, spirits, ghosts, or any other magical beings, just ask them for information that you can verify, specifically with a neutral third-party, that would prove their existence. This would be simple for any advanced alien race, any god or heavenly being. Some ideas of things to ask for:

future lottery numbers (of course you will give all your winnings to charity)

answers to scientific problems that do have scientific answers, but aren't yet known

exact details of major future events

But if these beings just tell you things like:

passages / ideas from the Bible

whether you should take that new job or not

where you left your car keys

that they really exist and others will continue to doubt you

that you should never question their existence

...or anything else which is just as likely to come from your imagination that is untestable and [unfalsifiable](#), then you might want to reconsider the fact that your being of choice is really paying you visits.

Quantifier-Shift Fallacy

(also known as: illicit quantifier shift)

Description: A fallacy of reversing the order of two quantifiers.

Logical Form:

Every X has a related Y.

Therefore, there is some Y related to every X.

Example #1:

Everybody has a mother.

Therefore, there is some woman out there who is the mother of us all.

Explanation: While it is true that everyone has (or had) a mother, the term “mother” is not a singular term that is shared – it is implied that it is a category in which many mothers reside. The conclusion is asserting the opposite of the meaning – that there is actually just one mother shared by everyone. This form of reasoning is invalid, therefore, fallacious.

Example #2:

Everybody has a brain.

Therefore, there is a single brain we all share.

Explanation: Everybody has *their own* brain, not one we all share. Although I have met many people who seem not to have their own brain. This form of reasoning is invalid, therefore, fallacious.

Exception: None.

Quantum Physics Fallacy*

Description: Using quantum physics in an attempt to support your claim, when in no way is your claim related to quantum physics.

Perhaps the greatest mind in quantum physics, Richard Feynman, once said, “I think I can safely say that nobody understands quantum mechanics.” And he may be right. People recognize that this is perhaps the most bizarre, paradoxical, and incomprehensible area of study, that is also a respectable science. So, if you can manage to connect the truth of your argument to quantum physics, it would be unlikely that there would be many people who know enough about quantum physics to assert that your connection is invalid, thus your argument gains credibility out of ignorance.

The mysterious nature of quantum physics is a breeding ground for superstition, religious claims, “proof” of God, universal consciousness, and many other [unfalsifiable](#) claims.

Logical Form:

Quantum physics supports the idea that X is Y.

Therefore, X is Y.

(although quantum physics supports no such thing)

Example #1:

Depak: Quantum physics provides evidence that a cosmic consciousness exists.

Sam: ???

Explanation: Sam knows nothing about quantum physics, so really cannot respond, yet Depak did not establish an

argument as to how it provides evidence, he just made the assertion.

Example #2:

Depak: Quantum physics is the language of God. It has been shown that quantum particles contain information that can instantly communicate information over any distance, anywhere in or outside the universe.

Sam: ???

Explanation: Sam knows nothing about quantum physics, so really cannot respond. Depak did expand on his assertion here, relied on the [argument by gibberish](#) in order to make what sounded like scientific claims, which in fact, were not. According to everything we know about quantum physics, information cannot travel faster than light – otherwise it could create a *time travel paradox*.

Exception: Making a scientific claim about quantum physics, using the scientific method, is not fallacious.

Tip: Pick up an introductory book to quantum physics, it is not only a fascinating subject, but you will be well prepared to ask the right questions and expose this fallacy when used.

Questionable Cause

cum hoc ergo propter hoc

(also known as: ignoring a common cause, neglecting a common cause, confusing correlation and causation, confusing cause and effect, false cause, third cause, juxtaposition [form of], reversing causality/wrong direction [form of])

Description: Concluding that one thing caused another, simply because they are regularly associated.

Logical Form:

A is regularly associated with B, therefore, A causes B.

Example #1:

Every time I go to sleep, the sun goes down. Therefore, my going to sleep causes the sun to set.

Explanation: I hope the fallacious reasoning here is very clear and needs no explanation.

Example #2:

Many homosexuals have AIDS, therefore, homosexuality causes AIDS.

Explanation: While AIDS is found in a much larger percentage of the homosexual population than in the heterosexual population, we cannot conclude that homosexuality is the cause of AIDS, any more than we can conclude that heterosexuality is the cause of pregnancy.

Exception: When strong evidence is provided for causation, it is not a fallacy.

Variation: The *juxtaposition fallacy* is putting two items/ideas together, implying a causal connection, but never actually stating that one exists.

It's funny how whenever you are around, the room smells bad.

Reversing causality or *wrong direction* is just what it sounds like – it is still a false cause, but the specific case where one claims something like the sun sets because night time is coming.

Rationalization

(also known as: making excuses)

Description: Offering false or inauthentic excuses for our claim because we know the real reasons are much less persuasive or more embarrassing to share, or more harsh than the manufactured ones given.

Logical Form:

Reason A is given for claim B, although reason A is not the real reason.

Example #1:

I can't go with you to that opera because I have a deadline at work coming up, plus I need to wash my hair that night.

Explanation: The real reason is, "I don't want to go", but that might hurt some feelings, so manufactured reasons (excuses) are given in place of the authentic and honest reason.

Example #2:

I believe in the resurrection of Jesus Christ because the Bible is historically accurate and would never get such an important fact wrong.

Explanation: The person actually believes in the resurrection out of faith, because faith is a requirement of Christianity, but recognizes that is not a persuasive argument – especially to the non-believer. Out of the desire to hold on to his faith, he adopts a common defense (historical accuracy) and gives that as the reason.

Exception: Is it acceptable to rationalize to protect someone's feelings? I will leave that to you to answer,

realizing that all situations are unique.

Tip: Whenever possible, give honest reasons stated in diplomatic ways.

Red Herring

Ignoratio elenchi

(also known as: beside the point, misdirection [form of], changing the subject, false emphasis, the Chewbacca defense, irrelevant conclusion, irrelevant thesis, smokescreen, clouding the issue, ignorance of refutation, judgmental language [form of])

Description: Attempting to redirect the argument to another issue that to which the person doing the redirecting can better respond. While it is similar to the [avoiding the issue fallacy](#), the *red herring* is a deliberate diversion of attention with the intention of trying to abandon the original argument.

Logical Form:

*Argument A is presented by person 1.
Person 2 introduces argument B.
Argument A is abandoned.*

Example #1:

Mike: It is morally wrong to cheat on your spouse, why on earth would you have done that?

Ken: But what is morality exactly?

Mike: It's a code of conduct shared by cultures.

Ken: But who creates this code?...

Explanation: Ken has successfully derailed this conversation off of his sexual digressions to the deep, existential, discussion on morality.

Example #2:

Billy: How could the universe be 6000 years old when we know the speed of light, the distance of astronomical

objects (13+ billion light years away), and the fact that the light has reached us¹⁰?

Marty: 6000 years is not a firm number. The universe can be as old as about 10,000 years.

Billy: How do you figure that?...

Explanation: Marty has succeeded in avoiding the devastating question by introducing a new topic for debate... shifting the young-earth creation timeline where it does not necessarily coincide with the Bible.

Exception: Using a *red herring* to divert attention away from your opponent's *red herring*, might work. But do two wrongs make a right?

Tip: Impress your friends by telling them that there is no such fish species as a "red herring"; rather it refers to a particularly pungent fish—typically a herring but not always—that has been strongly cured in brine and/or heavily smoked.

Variation: Using *judgmental language* is using insulting, compromising or pejorative language to influence the recipient's judgment, and take the attention off the real argument.

Reductio ad Absurdum

reductio ad absurdum

(also known as: reduce to absurdity)

Description: A mode of argumentation or a form of argument in which a proposition is disproven by following its implications logically to an absurd conclusion. Arguments which use universals such as, “always”, “never”, “everyone”, “nobody”, etc., are prone to being reduced to absurd conclusions. The fallacy is in the argument that could be reduced to absurdity – so in essence, *reductio ad absurdum* is a technique to expose the fallacy.

Logical Form:

Assume P is true.

From this assumption, deduce that Q is true.

Also deduce that Q is false.

Thus, P implies both Q and not Q (a contradiction, which is necessarily false).

Therefore, P itself must be false.

Example #1:

I am going into surgery tomorrow. Please everyone, pray for me, so I will have a successful surgery and a speedy recovery.

Explanation: We first assume the premise is true: if “enough” people prayed to God for her successful surgery and speedy recovery, then God would make it so. From this, we can deduce that God responds to popular opinion. But if God simply granted prayers based on popularity contests, that would be both unjust and absurd. Since God cannot be unjust, then he cannot both respond to popularity and not respond to popularity, the claim is absurd, and thus false.

Example #2:

If everyone lived his or her life like Jesus lived his, the world would be a beautiful place!

Explanation: We first assume the premise is true: if everyone lived his or her life like Jesus lived his, the world would be a beautiful place. If this were true, we would have 7 billion people on this earth roaming from town to town, living off the charity of others, preaching about God (with nobody listening). But without anyone creating wealth, there would be nobody to get charity from – there would just be 7 billion people all trying to tell each other about God. After a few weeks, everyone would eventually starve and die. This world might be a beautiful place for the vultures and maggots feeding on all the Jesus wannabes, but far from a beautiful world from a human perspective. Since the world cannot be both a beautiful place and a horrible place, the proposition is false.

Exception: Be sure to see the [appeal to extremes](#) fallacy.

Reductio ad Hitlerum

reductio ad hitlerum

(also known as: argumentum ad Hitlerum, playing the Nazi card, Hitler Card)

Description: The attempt to make an argument analogous with Hitler or the Nazi party. Hitler is probably the most universally despised figure in history, so any connection to Hitler, or his beliefs, can (erroneously) cause others to view the argument in a similar light. However, this fallacy is becoming more well known, as is the fact that it is most often a desperate attempt to render the truth claim of the argument invalid out of lack of a good counter argument.

Logical Form:

Person 1 suggests that Y is true.

Hitler liked Y.

Therefore, Y is false.

Person 1 suggests that Y is true.

Person 1's rhetoric sounds a bit like Hitler's.

Therefore, Y is false.

Example #1:

Peter Gibbons: It's NOT wrong. INITECH is wrong.

INITECH is an evil corporation, all right? Chochkies is wrong. Doesn't it bother you that you have to get up in the morning and you have to put on a bunch of pieces of flair?

Joanna: Yeah, but I'm not about to go in and start taking money from the register.

Peter Gibbons: Well, maybe you should. You know, the Nazis had pieces of flair that they made the Jews wear.

Joanna: What?

Explanation: The above was from the classic masterpiece film, “Office Space”. Out of desperation, Peter plays the *Nazi card* in order to make the idea of being made to wear flair more appalling. This somewhat jarring statement misdirects the argument and the focus is taken off Joanna’s last response, which was quite good.

Example #2:

The God of the Old Testament was big into religious cleansing. Hitler was big into ethnic cleansing. Therefore, God is like Hitler.

Explanation: There are far too many good arguments against the God of the Old Testament character to have to resort to playing the *Hitler card*.

Exception: When the Hitler reference cannot reasonably be avoided.

Mr. President, I can appreciate your desire to make some changes in the White House, but that new hand gesture you are proposing we use to show our allegiance to you, is way too much like the one Hitler used. On a similar note, that Charlie Chaplin mustache doesn’t work on you.

Regression Fallacy

(also known as: post hoc [form of], regressive fallacy)

Description: Ascribing a cause where none exists in situations where natural fluctuations exist, while failing to account for these natural fluctuations.

Logical Form:

*A occurred after B (although B naturally fluctuates).
Therefore, A caused B.*

Example #1:

I had a real bad headache, then saw my doctor. Just by talking with him, my headache started to subside and I was all better the next day. It was well worth the \$200 visit fee.

Explanation: Headaches are a part of life, and naturally come and go on their own with varying degrees of pain. They *regress to the mean*, the “mean” being a normal state of no pain, on their own, with or without medical or chemical intervention. Had the person seen a gynecologist instead, the headache would have still subsided, and it would have been a much more interesting visit – especially if he were a man.

Example #2:

After surgery, my wife was not doing too well – she was in a lot of pain. I prayed to God for her to get better, and sure enough several weeks later she is doing much better. Praise Jesus!

Explanation: It is normal to be in pain after any significant surgery. It is also normal for the pain to subside as the body heals – this is the body *regressing to the mean*. Assuming

the praying resulted in regressing back to the mean, is fallacious.

Exception: Of course, if the “cause” is explained as the natural regression to the mean, then in a way it is not fallacious.

My headache went away because that's what headaches eventually do - they are a temporary disruption in the normal function of a brain.

Reification

(also known as: abstraction, concretism, fallacy of misplaced concreteness, hypostatization, pathetic fallacy [form of])

Definition: When an abstraction (abstract belief or hypothetical construct) is treated as if it were a concrete, real event or physical entity – when an idea is treated as if had a real existence.

Example #1:

How can you not want to go jogging? Look at that street – it's calling your name. It wants your feet pounding on it. "Jog on me!"

Explanation: By reifying the street, we are attempting to establish a greater emotional connection, thus attempting to get the person to act more on emotion than reason.

Example #2:

The Bible says that we parents should kill our disobedient children by stoning them to death.

Explanation: The Bible is a book, it doesn't "say" anything. By allowing this type of language to go unchallenged, the "the Bible says...", people don't really think about what has transpired since the words were first written. In reality, some anonymous author from a very barbaric culture, thousands of years ago, wrote what appears to be a command coming from the creator of the universe, that suggests, based on interpretation, given hundreds of years of copying texts by hand, and thousands of years of translations, the law of their culture was to kill disobedient children by stoning them to death.

Exception: If used as a rhetorical device, when the reification is deliberate and harmless, and not used as

evidence to support a claim or conclusion, then it should be acceptable.

My stomach is telling me it is time to eat!

Variation: The *pathetic fallacy* is the treatment of inanimate objects as if they had human feelings, thought, or sensations. Think of cursing at your computer when it does not give you the results you expect.

Relative Privation

(also known as: it could be worse, it could be better)

Description: Trying to make a scenario appear better or worse by comparing it to the best or worst case scenario.

Logical Form:

Scenario S is presented.

Scenario B is presented as a best-case.

Therefore, Scenario S is not that good.

Scenario S is presented.

Scenario B is presented as a worst-case.

Therefore, Scenario S is very good.

Example #1:

Be happy with the 1972 Chevy Nova you drive. There are many people in this country that don't have any car.

Explanation: This person does have a very crappy car by any reasonable standard. Only comparing his situation with people that have no cars, does his Chevy Nova look like a Rolls Royce. It is fallacious to make a reasonable judgement based on these extreme cases.

Example #2:

Son: I am so excited! I got an "A" on my physics exam!

Dad: Why not an "A+"? This means that you answered something incorrectly. That is not acceptable!

Explanation: The poor kid is viewing his success from a very reasonable perspective based on norms. However, the father is using a best case scenario as a comparison, or a very unreasonable perspective. The conclusion that, "it is not acceptable" is unreasonable and therefore, fallacious.

Exception: When used intentionally to manipulate emotions (especially with good intentions), not to make an argument on reason, then this might be acceptable.

I know that you just lost your job, but at least you still have a great education and plenty of experience, which will help you get another job.

Retrogressive Causation

Description: Invoking the cause to eliminate the effect, or calling on the source to relieve the effect of the source.

Logical Form:

X causes/is the source of Y.

In order to eliminate or relive Y, do more of X.

Example #1:

Jen: Don't you realize that all this drinking you are doing is making your family miserable?

Bridget: Yes, I do.

Jen: Then what are you doing about it?

Bridget: Drinking to forget.

Explanation: Bridget has a drinking problem that she is dealing with by drinking some more – because the effects of drinking make her (temporarily) forget/not worry about the greater scale effects of her drinking. Her reasoning that this is a good idea, is fallacious.

Example #2:

David: Why do you always feel so guilty all the time – about pretty much everything?

Pete: Because I am Catholic. But no worries, I will just go to confession on Sunday.

Explanation: The Catholic guilt is a result of holding Catholic beliefs. Confession is a process which, while “clearing your conscience”, reinforces your Catholic beliefs, justifying the guilt you felt in the first place.

Exception: In some cases, like example #2, one may not be trying to break the cycle, but rather continue the cycle for some higher purpose. In example #2, one might take

pleasure in the constant “spiritual cleansing” ritual, thus either consciously or subconsciously looking for more to be guilty of, so the cleansing can be more meaningful. While this might seem like irrational thinking to some, it would not fit under this fallacy.

Retrospective Determinism

(also known as: fate)

Description: Assuming that because something happened, it necessarily had to happen, i.e. that it was the only possible outcome.

Logical Form:

Because X happened, it had to happen.

Example #1:

I had to meet my wife at Archie Moore's that night - it couldn't have possibly happened any other way. It was meant to be.

Explanation: There is absolutely no logical grounds in assuming that it had to be that way. Any such assumptions are based on superstition. I could have just as easily decided to go to one of the other many hangouts in town that night, and my life would have been drastically different than it is now. This concept of tiny insignificant changes leading to huge differences is known as *chaos theory*, a valid scientific field of study.

Example #2:

The Bible had to contain the books it does - it couldn't have been any other way.

Explanation: The creation of the Bible is a long and complex story that involves hundreds of distinct *Christianities*. Over the course of 300 or so years, those in power were able to deem the versions they did not like as heretical, and ultimately vote on the books that would become the current Christian Bible. Of course, the Catholics also have their own version of the Bible.

Exception: If you are writing a love poem to your significant other, then you might want to stick with the “fate” theory – or sleep on the couch.

Tip: Reason isn’t always romantic.

Scapegoating

Description: Unfairly blaming an unpopular person or group of people for a problem, or a person or group that is an easy target for such blame.

Logical Form:

Nobody likes or cares about X.

Therefore, X is to blame for Y.

Example #1:

I know I got drunk, slapped the waitress on the behind, then urinated in the parking lot... from inside the restaurant. But that was Satan who had a hold of me.

Explanation: The person is avoiding personal responsibility and blaming “Satan” for his actions. Satan is an easy target – he does not exist to defend himself.

Example #2:

The Bible is never wrong – it is the perfect word of the one and only perfect God. It’s just the human interpretation by fallible, sinful, beings that is wrong.

Explanation: Here we see a very common argument. Fowl walking on all four’s, hares chewing the cud, whales being said to be fish, the mustard seed said to be the smallest seed, etc., are never just errors in knowledge from the cultures who wrote the Bible, but they are true, we just are the fools unable to understand them correctly. Compared to God, humans are the very unpopular, easy target that takes the blame for everything from factual errors in the Bible to the genocide of every living being on earth, besides those that made it on Noah’s ark.

Exception: I am sure there are many Biblical literalists that will strongly disagree with my claim to scapegoating in the

above examples, but realize that shifting blame above is not based on reason or evidence, but “faith” – which is outside the realm of reason, and actually the fallacy of [appealing to faith](#).

Selective Attention

Description: Focusing your attention on certain aspects of the argument while completely ignoring or missing other parts. This usually results in irrelevant rebuttals, [strawman fallacies](#), and unnecessarily draw out arguments.

Example #1:

News Anchor on TV: The Dow Jones was up 200 points today, NASDAQ closed up 120 points, unemployment is and has been declining steadily, but foreclosures have not budged.

Jimbo: Did you hear that? Our economy is in the crapper!

Explanation: While there are many problems with the reasoning of Jimbo, due to his *selective attention*, and possible pessimism when it comes to the economy, he did not let the good news register and/or did not take that information into consideration before concluding that our economy is still in the “crapper”, based on that one piece of news on foreclosures.

Example #2: Reading the Bible is an example of *selective attention*. The Christians who actually do read the Bible, usually stick to the warm and fuzzy readings in the New Testament. The more daring Christians who read the Old Testament, gloss over the God that appears to be the polar opposite of the Jesus God. Their attention is only on the *good* that God does – not *everything* he does.

Exception: Ignoring irrelevant information is a good thing when evaluating arguments. The key is to know what is irrelevant.

Self-Sealing Argument

(also known as: vacuous argument [form of])

Description: An argument or position is self-sealing if and only if no evidence can possibly be brought against it no matter what.

Example #1:

Wherever you go, there you are.

Explanation: You can't argue against that position, and as a result, it is *vacuous*, or meaningless.

Example #2:

Tina: Does God really answer prayers?

Mary: Of course he does.

Tina: All the time? For everyone?

Mary: Of course not. Only when the prayers are in accordance with his will.

Explanation: We have the same vacuity problem, accept this one is less obvious and protected by "faith". There is no possible way we can know "the will of God", thus no way to argue against it. As a result, it is meaningless – it is the equivalent of saying everything happens because it happens.

Exception: No exceptions when being used as an argument.

Tip: Realize that most superstitious beliefs are centered around self-sealing or vacuous arguments, that is why so many people refuse to let go of superstitious beliefs – because they cannot be proven false.

Shoehorning

Description: The process of force-fitting some current affair into one's personal, political, or religious agenda. Many people aren't aware of how easy it is to make something look like confirmation of a claim after the fact, especially if the source of the confirmation is something in which they already believe, like Biblical prophecies, psychic predictions, astrological horoscopes, fortune cookies, and more.

Example #1: This example is taken from the Skeptic's Dictionary (<http://www.skepdic.com/shoehorning.html>).

After the terrorist attacks on the World Trade Center and the Pentagon on September 11, 2001, fundamentalist Christian evangelists Jerry Falwell and Pat Robertson shoehorned the events to their agenda. They claimed that "liberal civil liberties groups, feminists, homosexuals and abortion rights supporters bear partial responsibility...because their actions have turned God's anger against America." According to Falwell, God allowed "the enemies of America...to give us probably what we deserve." Robertson agreed. The American Civil Liberties Union has "got to take a lot of blame for this," said Falwell and Robertson agreed. Federal courts bear part of the blame, too, said Falwell, because they've been "throwing God out of the public square." Also "abortionists have got to bear some burden for this because God will not be mocked," said Falwell and Robertson agreed.

Explanation: It should be very clear how these religious leaders attempted to profit from the September 11 attacks by *shoehorning*.

Example #2: For thousands of years people have been rushing to scripture to try to make sense out of a current

situation. Without a doubt, the same verses have been used over and over again for centuries as a prophecy of a current event. This is *shoehorning*. A great example of this is the BP oil spill in April of 2010. It has been suggested that the verses from Revelation 8:8-11 predicted this environmental disaster:

“The second angel blew his trumpet, and something like a great mountain, burning with fire, was thrown into the sea. A third of the sea became blood, a third of the living creatures in the sea died, and a third of the ships were destroyed ... A third of the waters became wormwood, and many died from the water, because it was made bitter.”

With over 31,000 verses, the probability of NOT finding a verse in the Bible that can be made to fit virtually any modern-day situation is next to zero. But what if you had 2,000 years of history to play with? It's not difficult to see how quickly these “fulfilled prophecies” can add up.

Exception: Explaining events is perfectly legitimate, when reason is being used – and sometimes it may actually fit into your political or religious agenda.

Slippery Slope

(also known as absurd extrapolation, thin edge of the wedge, camel's nose, domino fallacy)

Definition: When a relatively insignificant first event is suggested to lead to a more significant event, which in turn leads to a more significant event, and so on, until some ultimate, significant event is reached, where the connection of each event is not only unwarranted, but with each step it becomes more and more improbable. Many events are usually present in this fallacy, but only two are actually required – usually connected by “the next thing you know...”

Logical Form:

If A, then B, then C, ... then ultimately Z!

Example #1:

We cannot unlock our child from the closet because if we do, she will want to then roam the house. If we let her roam the house, she will want to roam the neighborhood. If she roams the neighborhood, she will get picked up by a stranger in a van, who will sell her in a sex slavery ring in some other country. Therefore, we should keep her locked up in the closet.

Explanation: In this example, it starts out with reasonable effects to the causes. For example, yes, if the child is allowed to go free in her room, she would most likely want to roam the house – 95% probability estimate¹¹. Sure, if she roams the house, she will probably want the freedom of going outside, but not necessarily “roaming the neighborhood”, but let’s give that a probability of say 10%. Now we start to get very improbable. The chances of her getting picked up by a stranger (.05%) in a van (35%) to sell her into sex slavery (.07%) in another country (40%) is next

to nothing when you do all the math: $.95 \times .10 \times .0005 \times .35 \times .0007 \times .4 =$ about 1 in 25,000,000.

Morality and legality aside, is it really worth it to keep a child locked in a closet based on those odds?

Example #2:

If you accept that the story of Adam and Eve was figurative, then you will do the same for most of the Old Testament stories of similar literary styles. Once you are there, the New Testament and the story of Jesus does not make sense, which will lead you to believe that the resurrection of Jesus was a “spiritual” one. Once you accept that, you won’t be a Christian anymore, you will be a dirty atheist, then you will have no morals and start having sex with animals of a barnyard nature. So you better take the story of Adam and Eve literally, before the phrase, “that chicken looks delicious”, takes on a whole new meaning.

Explanation: Accepting the story of Adam and Eve as figurative rarely (it is sad that I cannot confidently say “never”) leads to bestiality.

Exception: When a chain of events has an inevitable cause and effect relationship, as in a mathematical, logical, or physical certainty, it is not a fallacy.

Tip: The concept of a “bad day” is part of this fallacy. You wake up in the morning and you discover that you are out of coffee. From there, you fallaciously reason that this means you will be grumpy, late for work, therefore, behind all day in work, therefore, have to stay late, therefore, miss dinner with the family, therefore, cause more friction at home, etc. This is only true if you act it out as if it is true. And of course, with an already bad attitude, you look back on the day, block out the good and wallow in the bad, just so you

can tell yourself, that you were right all along about having a “bad day”.

Don't let that happen.

Special Pleading

Description: Applying standards, principles, and/or rules to other people or circumstances, while making oneself or certain circumstances exempt from the same critical criteria, without providing adequate justification. Special pleading is often a result of strong emotional beliefs that interfere with reason.

Example #1:

Yes, I do think that all drunk drivers should go to prison, but your honor, he is my son! He is a good boy who just made a mistake!

Explanation: The mother in this example has applied the rule that all drunk drivers should go to prison. However, due to her emotional attachment to her son, she is fallaciously reasoning that he should be exempt from this rule, because, “he is a good boy who just made a mistake”, which would hardly be considered adequate justification for exclusion from the rule.

Example #2:

Superstition is a belief or practice resulting from ignorance, fear of the unknown, trust in magic or chance, or a false conception of causation – unless it is written in the Bible, then it is reasonable faith.

Explanation: It has been said that one’s superstition is another’s faith. The standard of superstition has been defined by the person, and violated by the Bible (attributing God and demons as the cause of natural phenomenon). But while the person in the example rejects all other holy books and sources of superstition using certain criteria, the book of their choice, the Bible, is exempt from these criteria.

Many non-Catholic Christians take offense in the superstitions of the Catholics, like priests thinking they can turn wine into the literal blood of Jesus Christ, yet have no problem with believing that pouring water over the head, while making a few cantations, “washes away” original sin. This is special pleading.

Exception: “Adequate justification” is subjective, and can be argued.

Tip: If you are accused of special pleading, take time to honestly consider if the accusation is warranted. This is a fallacy that is easy to spot when others make it, yet difficult to spot when we make it.

Spiritual Fallacy*

(also known as: spiritual excuse)

Description: Insisting that something meant to be literal is actually “spiritual” in as an explanation or justification for something that otherwise would not fit in an explanation.

Logical Form:

X makes no sense, therefore, X was meant in a “spiritual” sense.

Example #1:

Of course the Bible is not a history or science book, but each and every story in it, does contain a spiritual truth.

Explanation: Because we cannot define or prove a “spiritual truth”, anything can be a spiritual truth.

Example #2:

When Jesus said “I tell you the truth, some who are standing here will not taste death before they see the Son of Man coming in his kingdom.” (Matt 16:28) Jesus meant their spirits will not taste death.

Or...

When Jesus said “I tell you the truth, some who are standing here will not taste death before they see the Son of Man coming in his kingdom.” (Matt 16:28) Jesus meant coming into a spiritual kingdom.

Explanation: We can’t use “spiritual” as a get-out-of-jail-free card to cover up an apparent contradiction.

Exception: It is not a fallacy when it is specifically referred to as “spiritual”.

“and drank the same spiritual drink; for they drank from the spiritual rock that accompanied them, and that rock was Christ.” (1 Cor 10:4)

Spotlight Fallacy

Description: Assuming that the media's coverage of a certain class or category is representative of the class or category in whole.

Logical Form:

The media has been covering X quite a bit by describing it as Y.

Therefore, X can be described as Y.

Example #1:

It seems like we are constantly hearing about crimes committed on our streets. America is a very dangerous place.

Explanation: The media reports on stories of interest, which include crimes. It does not report on all the non-crimes. Assuming from this, "American is a very dangerous place" is fallacious reasoning.

Example #2:

*I am seeing more and more miracles being reported on respectable news programs. The other day there was a story about a guy who had trouble walking, prayed to the recently deceased Pope, now walks just fine!
Miracles are all around us!*

Explanation: People love stories of hope and miracles. You won't find stories about how someone prayed to be healed then died. These are not the kind of stories that attract viewers and sell papers. As a result, the spotlight fallacy makes us think the rare cases, almost certainly due to normal and necessary statistical fluctuations, seem like the norm. Believing that they are, is fallacious reasoning.

Exception: Complete coverage of a small, manageable class, by an unbiased media outlet, may accurately be representative of the entire class.

Tip: Be very selective of the types of “news” programs you watch.

Statement of Conversion

Description: Taking a statement of conversion as valid without actually hearing a reason for the conversion.

Logical Form:

I used to believe in X.

Therefore, X is wrong.

Example #1:

I used to be a Christian, now I know better.

Explanation: All this tells us is that the arguer changed his mind. We don't know why. Accepting this as evidence against Christianity would be fallacious reasoning.

Example #2:

There used to be a time when I didn't believe, now I see the light and have accepted Jesus as my savior!

Explanation: All this tells us is that the arguer changed his mind. We don't know why. Accepting this as evidence for Christianity would be fallacious reasoning.

Exception: This could be connected to the argument from authority, where the person making the claim does make a difference based on their background.

Stereotyping

Description: The general beliefs that we use to categorize people, objects, and events, while assuming those beliefs are accurate generalizations of the whole group.

Logical Form:

All X's have the property Y (this being a characterization, not a fact).

Z is an X.

Therefore, Z has the property Y.

Example #1:

French people are great at kissing. Julie is French. Get me a date!

Explanation: “French people are great at kissing” is a stereotype, and believing this to be so is a fallacy. While it may be the case that *some* or even *most* are great at kissing, we cannot assume this without valid reasons.

Example #2:

Atheists are morally bankrupt.

Explanation: This isn't an argument, but just an assertion, one not even based on any kind of facts. Stereotypes such as these usually arise from prejudice, ignorance, jealousy or even hatred.

Exception: Statistical data can reveal properties of a group that are more common than in other groups, which can effect probability of any individual member of the group having that property. But we can never assume that all members of the group have that property.

Tip: Remember that people are individuals above being members of groups or categories.

Stolen Concept Fallacy

Description: Requiring the truth of the something that you are simultaneously trying to disprove.

Example #1:

Reason and logic are not always reliable, so we should not count on it to help us find truth.

Explanation: Here we are using reason to disprove the validity of reason, which is unreasonable – reasonably speaking.

Example #2:

Science cannot be trusted. It is a big conspiracy to cover up the truth of the Bible and the creation story. Besides, I saw fossils in the creation museum with humans and dinosaurs together, which proves science is wrong!

Explanation: Geology is a branch of science. Using science (examining fossils through the science of geology) to disprove science is absurd, a contradiction, and therefore, a fallacy in reasoning.

Exception: Intentional irony.

Strawman Fallacy

Description: Substituting a person's actual position or argument with a distorted, exaggerated, or misrepresented version of the position of the argument.

Logical Form:

Person 1 makes claim Y.

Person 2 restates person 1's claim (in a distorted way).

Person 2 attacks the distorted version of the claim.

Therefore, claim Y is false.

Example #1:

Ted: Biological evolution is both a theory and a fact.

Edwin: That is ridiculous! How can you possibly be absolutely certain that we evolved from pond scum!

Ted: Actually that is a gross misrepresentation of my assertion. I never claimed we evolved from pond scum. And, unlike math and logic, science is based on empirical evidence and therefore, a scientific fact is something that is confirmed to such a degree that it would be perverse to withhold provisional consent. The empirical evidence for the fact that biological evolution does occur, falls into this category.

Explanation: Edwin has ignorantly mischaracterized the argument by a) assuming we evolved from pond scum (whatever that is exactly), and b) assuming "fact" means "certainty".

Example #2:

Zebedee: What is your view on the Christian God?

Mike: I don't believe in any gods, including the Christian one.

Zebedee: So you think that we are here by accident, and all this design in nature is pure chance, and the universe just created itself?

Mike: You got all that from me stating that I just don't believe in any gods?

Explanation: Mike made one claim: that he does not believe in any gods. From that, we can deduce a few things, like he is not a theist, he is not a practicing Christian, Catholic, Jew, or a member of any other religion that requires the belief in a god. But we cannot deduce that he believes we are all here by accident, nature is chance, and the universe created itself. Mike might have no beliefs about these things whatsoever. Perhaps he distinguishes between "accident" and natural selection, perhaps he thinks the concept of design is something we model after the universe, and perhaps he has some detailed explanation based on known physics as to how the universe might have first appeared. Regardless, this was a gross mischaracterization of Mike's argument.

Exception: At times, an opponent might not want to expand on the implications of his or her position, so making assumptions might be the only way to get the opponent to point out that your interpretation is not accurate, then they will be forced to clarify.

Style Over Substance

(also known as: argument by slogan [form of], cliché thinking - or thought-terminating cliché, argument by rhyme [form of], argument by poetic language [form of])

Description: When the arguer embellishes the argument with compelling language or rhetoric, and/or visual aesthetics.

“If it sounds or looks good, it must be right!”

Logical Form:

Person 1 makes claim Y.

Claim Y sounds catchy.

Therefore, claim Y is true.

Example #1:

A chain is only as strong as its weakest link.

Explanation: Most applications of language, like the example above, is not taken literally, but figuratively. But even figurative language is a way to make an argument. In this case, it might be used to imply that a team is no better than the least productive member of that team, which is just not true. Very often the “weakest links” fade away into the background and the strong players lead the team.

Example #2:

It's not a religion; it is a relationship.

Explanation: “Yea... wow, I can see that!”, is the common response to a cliché that diverts critical thought by substitution of poetry, rhyme, or other rhetoric. In fact, these are not arguments, but assertions absent of any evidence or reasons, that rely on ones confusion of their emotional connection to language with the truth of the

assertion. Tell me *why* it's not a religion. Tell me what a relationship is exactly.

Do not accept information as truth because it sounds nice.

Exception: Compelling language or rhetoric can be useful when used in addition to evidence or strong claims.

Tip: Keep in mind that for every poetic saying, there is another one with an opposite meaning. They rarely ever make good arguments.

Variations: The *argument by slogan* fallacy is when a slogan (catchy phrase) is taken as truth because it sounds good and we might be used to hearing it, i.e. "Coke is the real thing!" Bumper stickers are great examples of *argument by slogan*: "Born Again? Excuse me for getting it right the first time."

Cliché thinking is the fallacy when sayings like, "leave no stone unturned", are accepted as truth, regardless of the situation – especially if taken literally.

When poetic language is used in an argument as reason or evidence for the truth of the conclusion, the *argument by poetic language fallacy* is committed.

The *argument by rhyme* uses words that rhyme to make the proposition more attractive. It works... don't ask me how, but it does ("if it doesn't fit, you must acquit"). Rhymes tend to have quite a bit of persuasive power, no matter how false they might be. The best defense against this kind of fallacious rhetoric, is a good counter attack using the same fallacy.

Whoever smelled it, dealt it!

Whoever denied it, supplied it!^{[12](#)}

Subjectivist Fallacy

(also known as: relativist fallacy)

Description: Claiming something is true for one person, but not for someone else, when in fact it is true for everyone (objective), as demonstrated by empirical evidence.

Logical Form:

Person 1 claims that Y is true.

Person 2 claims that Y is true for some people, but not for everyone (even though empirical evidence states otherwise)

Example #1:

Jane: You know, smoking might not be the most healthy habit to start.

Terry: Smoking is unhealthy for most people, but not for me.

Explanation: Sorry Terry, smoking is unhealthy for everyone – you are no different.

Example #2:

Jack: Sorry, your argument is full of contradictions.

Ted: Contradictions only apply to the carnal mind, not the spiritual one.

Explanation: Besides being a case of the *subjectivist fallacy*, Ted is also moving outside the realm of reason and logic.

Exception: Many things are actually true or false, depending on the person to which the rule may or may not apply.

While Twinkies may be horrible to you, I find them delicious – baked, spongy sunshine with a white, creamy, cloud-like center, with the power to make any problem go away - even if just for a brief, magical moment.

Tip: Stay away from Twinkies.

Subverted Support

Description: The attempt to explain some phenomenon that does not actually occur or there is no evidence that it does. It is a form of [begging the question](#).

Logical Form:

X happens because of Y (when X doesn't really even happen)

Example #1:

The reason billions of children starve to death each year is because we live in a world that does not care.

Explanation: Billions of children don't starve to death each year – not even close. If it were close, it might be better categorized as an exaggeration, but this would be more of an attempt to get the audience to accept the assertion as a fact while focusing more on the reason rather than the assertion itself.

Example #2:

The reason the firmament, a tent-like structure that kept the "waters above" from flooding the earth as described in the Bible, is no longer there today, is because it was destroyed during Noah's flood.

Explanation: The reason the firmament isn't there today is because it never existed. To attempt to explain it, is to get the audience to assume it existed.

Exception: If the argument is preceded with a declaration that the phenomenon does occur, then what would be the *subverted support* is simply a reason given.

The firmament, a tent-like structure that kept the "waters above" from flooding the earth as described in

the Bible, once covered the earth. It is no longer there today because it was destroyed during Noah's flood.

Sunk-Cost Fallacy

(also known as: concorde fallacy)

Description: Reasoning that further investment is warranted on the fact that the resources already invested will be lost otherwise, not taking into consideration the overall losses involved in the further investment.

Logical Form:

X has already been invested in project Y.

Z more investment would be needed to complete project Y, otherwise X will be lost.

Therefore, Z is justified.

Example #1:

I have already paid a consultant \$1000 to look into the pros and cons of starting that new business division. He advised that I shouldn't move forward with it, because it is a declining market. However, if I don't move forward, that \$1000 would have been wasted, so I better move forward anyway.

Explanation: What this person does not realize is that moving forward will most likely result in the loss of much more time and money. This person is thinking short-term, not long-term, and is simply trying to avoid the loss of the \$1000, which is fallacious thinking.

Example #2: There are ministers, priests, pastors, and other clergy all around the world who have invested a significant portion of their lives in theology, who can no longer manage to hold supernatural beliefs – who have moved beyond faith. Hundreds of them recognize those sunk-costs and are searching for the best way to move on (see <http://www.clergyproject.org>) whereas many others

cannot yet see the benefits of ending the bad investment, and accepting the loss.

Explanation: Of course, those clergy who have not moved beyond faith and are living consistent with their beliefs have not committed this fallacy.

Exception: If careful evaluation of the hypothetical outcomes of continued investment versus accepting current losses and ceasing all further investment have been made, then choosing the former would not be fallacious.

Tip: Is there any part of your life where you continue to make bad investments because you fear losing what was already invested?

Suppressed Correlative

(also known as: fallacy of lost contrast, fallacy of the suppressed relative)

Description: The attempt to redefine a *correlative* (one of two mutually exclusive options) so that one alternative encompasses the other, i.e. making one alternative impossible. The redefinition, therefore, makes the word it is redefining essentially meaningless.

Logical Form:

Person 1 claims that all things are either X or not X. (The correlatives: X-not X).

Person 2 defines X such that all things that you claim are not X are included in X. (The suppressed correlative: not X).

Example #1:

Rick: I need to know if we should stop for lunch or not. You are either hungry or not hungry, which is it?

Tina: If being hungry is being able to eat, I am always hungry.

Explanation: If we redefine hungry as, “being able to eat” then for the few occasions where people are medically incapable, everyone is always hungry, and it has lost all meaning.

Example #2:

Kent: My new car is really fast.

Cal: I doubt that it is as fast as a jet fighter, so therefore, it is not fast.

Explanation: In Kent’s statement, there is an implied correlative, that is, his car is either fast or not fast. Now if

what Cal says is true, then no cars would ever be considered “fast” and speed would lose all meaning for cars.

Exception: Refusing to give into a false dichotomy is not the same as committing the *suppressed correlative* fallacy. In example #1, while one cannot be both hungry and not hungry, one can be a little bit hungry.

*Rick: I need to know if we should stop for lunch or not.
You are either hungry or not hungry, which is it?*

Tina: I am a little bit hungry, so go ahead and stop if you are hungry, otherwise I can wait.

Note that this fallacy is not committed because Tina did not attempt to redefine hungry, so that “not hungry” is essentially impossible.

Texas Sharpshooter Fallacy

(also known as: clustering illusion)

Description: Ignoring the difference while focusing on the similarities, thus coming to an inaccurate conclusion. Similar to the [*gambler's fallacy*](#), this is an example of inserting meaning into randomness. Also similar to the [*post-designation fallacy*](#).

Example #1: The “prophet” Nostradamus wrote about 500 years ago:

*Beasts wild with hunger will cross the rivers,
The greater part of the battle will be against Hister.
He will cause great men to be dragged in a cage of iron,
When the son of Germany obeys no law.*

Surely he must have had some vision of Hitler!

Explanation: When you focus on just that prediction, then it might seem that way. But don't forget, Nostradamus made over 1000 “predictions”, most (all?) of which are vague nonsense. But given that many predictions, it is statistically impossible NOT to match at least one with an actual event. Again, if you ignore the noise (the predictions that do not make any sense), it looks amazing. By the way, “Hister” is the Latin name for the Danube River.

Example #2:

SuperCyberDate.con determined that Sally and Billy are a great match, because they both like pizza, movies, junkfood, Janet Jackson, and vote republican.

Explanation: What SuperCyberDate.con did not take into consideration was the 245 other likes and dislikes that were very different for both Sally and Billy – like that fact that Billy is gay.

Exception: It's never a good idea to ignore the differences in the data, while only focusing on the similarities.

Tokenism

Description: Interpreting a token gesture as an adequate substitute for the real thing.

Example #1:

The presidential nominee has been accused of being racist. But he recently stated that he really liked the movie, "Roots", so I guess he isn't racist.

Explanation: Liking one movie that exposes racism and encourages equality, is far from the same as not being a racist.

Example #2:

Sure, God drowned billions of people and other forms of life, but he spared Noah and his family, so it is clear that God loves us.

Explanation: Sparing the lives of a fraction of a percent of the groups you destroy hardly justifies the claim that God "loves" those groups.

Exception: If a token gesture is seen as a token, and not as an adequate substitute, it is not a fallacy.

I know I have a weight problem, and I am trying. So far, I have replaced my usual breakfast of doughnuts with a single grapefruit.

Two Wrongs Make a Right

Description: When a person attempts to justify an action against another person because the other person did take or would take the same action against him or her.

Logical Form:

Person 1 did X to person 2.

Therefore, Person 2 is justified to do X to person 1.

Person 1 believes that person 2 would do X to person 1.

Therefore, Person 1 is justified to do X to person 2.

Example #1:

Jimmy stole Tommy's lunch in the past.

Therefore, it is acceptable for Tommy to steal Jimmy's lunch today.

Explanation: It was wrong for Jimmy to steal Tommy's lunch, but it is not good reasoning to claim that Tommy stealing Jimmy's lunch would make the situation right. What we are left with, are two kids who steal, with no better understanding of why they shouldn't steal.

Example #2:

It looks like the waiter forgot to charge us for the expensive bottle of champagne. Let's just leave – after all, if he overcharged us, I doubt he would chase us down to give us our money back that we overpaid.

Explanation: Here the reasoning is a bit more fallacious, because we are making an assumption of what the waiter might do. Even if that were true, two rip offs don't make the situation right.

Exception: There can be much debate on what exactly is “justified retribution” or “justified preventative measures”.

Unfalsifiability

(also known as: untestability)

Description: Confidently asserting that a theory or hypothesis is true or false even though the theory or hypothesis cannot possibly be contradicted by an observation or the outcome of any physical experiment, usually without strong evidence or good reasons.

Making unfalsifiable claims are a way to leave the realm of rational discourse, since unfalsifiable claims are usually faith-based, and not founded on evidence and reason.

Example #1:

*I have tiny, invisible unicorns living in my anus.
Unfortunately, these cannot be detected by any kind of scientific equipment.*

Explanation: While it may actually be a fact that tiny, invisible, mythological creatures are occupying this person's opening at the lower end of the alimentary canal, it is a theory that is constructed so it cannot be falsified in any way, therefore, should not be seriously considered without significant evidence.

Example #2:

Priests can literally turn wine into the blood of Jesus.

Explanation: Surely we can examine the liquid and see if it at least change chemically, can we not? No. Because transubstantiation is not about a physical or chemical change, but a change in "substance" – which, of course, is not a material change and therefore, impossible to falsify. Furthermore, the claim is not that it "might be" happening, but it certainly is happening, adding to the fallaciousness of the claim. And of course, the only evidence for this is some

ambiguous verses in a 2000 year old book – so ambiguous that over a billion Christians don't subscribe to the belief that transubstantiation occurs. So we have unfalsifiability, belief of certainty, and very weak evidence.

Exception: All unfalsifiable claims are not fallacious; they are just unfalsifiable. As long as proper skepticism is retained and proper evidence is given, it could be a legitimate form of reasoning.

Tip: Never assume you must be right simply because you can't be proven wrong.

Unwarranted Contrast

(also known as: some are/some are not)

Description: Assuming that *implicature* means *implication*, when it logically does not. Implicature is a relation between the fact that someone makes a statement and a proposition. Implication is a relation between propositions, that is, the meanings of statements.

Logical Form:

Some S are P.

Therefore, some S are not P.

Some S are not P.

Therefore, some S are P.

Example #1:

Some atheists are human.

Therefore, some atheists are not human.

Explanation: This might be the case, but we cannot logically *imply* that this is the case, because the use of “some” does not logically imply that it does not mean “all”. In everyday use, “some” does *implicate* “not all”, that is why this is fallacious and could be used to deceive without technically lying.

Example #2:

Some Christians are not Jews.

Therefore, some Christians are Jews.

Explanation: Just because we stated that some Christians are not Jews, does not mean we can logically conclude that some Christians are Jews. While we may *implicate* it, the statement does not *imply* it.

Exception: None.

Use-Mention Error

(also known as: UME)

Description: Confusing the word used to describe a thing, with the thing itself. To avoid this error, it is customary to put the word used to describe the thing in quotes.

This fallacy is most common when used as an [equivocation](#).

Logical Form:

"X" is the same as X.

Example #1:

My son is made up of five letters.

Explanation: The words (mention), "my son", are made up of five letters. My son (use) is made up of molecules.

Example #2: Anselm's Ontological Argument

p1. God is that than which nothing greater can be conceived.

p2. God may exist in the understanding.

p3. To exist in reality and in the understanding is greater than to exist in the understanding alone.

p4. Therefore, God exists in reality.

Explanation: In premise #1, "God" (use) refers to the being – this is the whole point of Anselm's argument. But in premise #2, he equivocates to the concept of God (mention).

Exception: None.

Tip: To see how fallacious Anselm's argument really is, check out my deconstruction of it in detail at <http://www.relationshipwithreason.com/articles/religion/15->

[ontologically-incorrect-how-anselm-s-ontological-argument-fails](#) .

Weak Analogy

(also known as: bad analogy, false analogy, faulty analogy, questionable analogy, argument from spurious similarity, false metaphor)

Description: When an analogy is used to prove or disprove an argument, but the analogy is too dissimilar to be effective, that is, it is unlike the argument more than it is like the argument.

Logical Form:

X is like Y.

Y has property P.

Therefore, X has property P.

(but X really is not too much like Y)

Example #1:

Not believing in the literal resurrection of Jesus because the Bible has errors and contradictions, is like denying that the Titanic sunk because eye-witnesses did not agree if the ship broke in half before or after it sunk.

Explanation: This is an actual analogy used by, I am sorry to say, one of my favorite Christian debaters (one who usually seems to value reason and logic). There are several problems with this analogy, including:

- The Titanic sunk in recent history
- We know for a fact that the testimonies we have are of eye-witnesses
- We have physical evidence of the sunken Titanic

Example #2:

How can you possibly look at something so elegant as a rose, and not see that it must have been designed by an intelligent designer? That is like walking on the beach, finding a watch, and not recognizing that it had an intelligent designer!

Explanation: A rose is like a watch as in they both look as if they were designed. A rose is unlike a watch in thousands of ways including:

- a rose is living, a watch is not
- a rose is guided by evolution, a watch is not
- a rose makes copies of itself with variations in the DNA, a watch does not, etc.

Exception: It is important to note that analogies cannot be “faulty” or “correct”, and even calling them “good” or “bad” is not as accurate as referring to them as either “weak” or “strong”. The use of an analogy is an argument in itself, the strength of which is very subjective. What is weak to one person, is strong to another.

Tip: Analogies are very useful, powerful, and persuasive ways to communicate ideas. Use them – just make them strong.

Willed Ignorance

Description: Refusing to change one's mind or consider conflicting information.

Logical Form:

I believe X.

You have evidence for Y.

I don't want to see it.

Example #1:

I don't want anything coming in the way of me and my faith, therefore, I will only socialize with people who share my beliefs.

Explanation: This is a common form of the fallacy - excluding oneself from society as a whole to smaller subgroups where the same general opinions are shared.

Example #2:

I know what I know, and I refuse to debate!

Explanation: Refusing to "debate", or consider other information is a refusal to reason.

Exception: Refusing to reason with a non-reasonable person would be an exception, but it is also a contradiction.

Wishful Thinking

(also known as: appeal to consequences [form of])

Description: When the desire for something to be true is used in place of/or as evidence for the truthfulness of the claim. Wishful thinking, more as a cognitive bias than a logical fallacy, can also cause one to evaluate evidence very differently based on the desired outcome.

Logical Form:

I wish X were true.

Therefore, it is true.

Example #1:

I know in my heart of hearts that our home team will win the World Series.

Explanation: No, you don't know that. And what the heck is, "heart of hearts" anyway? This is classic wishful thinking – wanting the home team to win so pretending that it is/has to be true.

Example #2:

I believe that when we die, we are all given new, young, perfect bodies, and we spend eternity with those whom we love. I can't imagine the point of life if it all just ends when we die!

Explanation: The fact that one doesn't like the idea of simply not existing is not evidence for the belief. Besides, nobody seemed to mind the eternity they didn't exist before they were born.

Exception: When wishful thinking is expressed as a hope, wish, or prayer, and no belief is formed as a result, then it is

not a fallacy because no direct or indirect argument is being made.

I really hope that I don't have to spend my eternity with my aunt Edna, who really loved me, but she drove me nuts with her constant jabbering.

Tip: Wishing for something to be true is a powerful technique when and only when, a) you have influence on what it is you want to be true and b) you take action to make it come true – not just wish for it to be true.

B-List Fallacies

There are many fallacies that are rarely seen, not really fallacies, or otherwise just unworthy of my time to fully explain and your time to read and understand. If these fallacies were celebrities, some of them might be invited to the Oscars, but most of them would be found on *Hollywood Squares*. But, in order for this book to be the greatest collection of fallacies, I do feel the need to at least list them. Having said that, this list is worth a quick read through – just like *Hollywood Squares* can sometimes be entertaining to watch.

- **Abductive Fallacy:** The fallacy of applying an inadequate simulation methodology to a given simulation task.
- **Accent Fallacy (fallacy of prosody):** Like [equivocation](#), changing the meaning of the same word, but by where you put the accent.
- **Amazing Familiarity:** The argument contains information that seems impossible to have obtained – like an omniscient author.
- **Ambiguity Effect:** The tendency to avoid unknown options over ones that are explained, no matter how improbable.
- **Ambiguous Assertion:** An unclear statement is made that could have multiple meanings, but is not used multiple times like amphiboly.
- **Appeal to Closure (a more specific form of [argument from ignorance](#)):** Accepting evidence on the basis of wanting closure – or to be done with the issue.

- **Appeal to Coincidence:** Failure to acknowledge clear reasons behind an effect.
- **Appeal to Complexity:** Concluding that just because you don't understand the argument, nobody can.
- **Appeal to Convenience:** Accepting an argument because its conclusion is convenient, not necessarily true.
- **Appeal to Luck (good or back luck):** Failure to acknowledge clear reasons behind an effect.
- **Appeal to Envy (Argumentum ad invidiam):** Attempting to persuade by making one envious, rather than by evidence.
- **Appeal to Equality:** An assertion is deemed true or false based on an assumed pretense of equality.
- **Appeal to Intuition:** Concluding that because a proposition does not match one's experience of how things work in general, or one believes they should work, then that proposition is false.
- **Appeal to Privacy:** Refusing to open a topic for discussion because it is deemed "private", thus by default acceptable. Sometimes referred to as the *Mind Your Own Business Fallacy*.
- **Appeal to Stupidity:** Attempting to get the audience to devalue reason and intellectual discourse.
- **Appeal to Utility:** (*see Appeal to Convenience*)
- **Argument by Dismissal:** An argument is rejected without saying why.
- **Argument by Laziness:** Making an argument without bothering collecting support for the claims being made.

• **Argument by Pigheadedness:** While not really an argument, or much of a fallacy, it is a refusal to accept a well-proven argument for one of many reasons related to stubbornness.

• **Argument by Rhetorical Question:** Setting up questions in such a way to get the answers you are looking for. This is more of a form of rhetoric than a fallacy.

• **Argument by Selective Reading:** When an series of arguments or claims are made, and the opponent acts as if the weakest argument was the best one made.

• **Argument by Uniformed Opinion:** (*see Argument by Laziness*)

• **Argument from Design:** Assuming because something looks designed, it must be designed. This fallacy originates from a belief that intelligent design is the only possible source of apparent design, ignoring evolution by random mutation and natural selection.

• **Argument from Inertia:** More of a bias than a fallacy. The tendency to stick with an incorrect argument or belief system despite realizing he or she is most likely wrong, just because admitting he or she were wrong would be too painful.

• **Argument from Omniscience:** (*see Amazing Familiarity*)

• **Argument To The Future:** Arguing that someday, evidence will be discovered to justify your conclusion.

• **Argumentum ad Captandum:** Any specious or unsound argument that is likely to win popular acceptance.

• **Argumentum ad Exemplum (Argument to the Example):** Arguing against a particular example cited

rather than the question itself.

- **Barking Cat:** Demanding that a problem should not be solved before other, more important problems are solved.
- **Big Lie Technique:** Repeating a lie, slogan or deceptive half-truth over and over until people believe it without further proof or evidence.
- **Blood is Thicker than Water (Favoritism):** Assuming truth because of a close connection with the one making the statement.
- **Bribery (Material Persuasion, Material Incentive, Financial Incentive):** Paying someone to agree with your position, or accepting payment to agree.
- **Burden of Proof Fallacy (onus probandi, shifting the):** Placing the burden of proof on the wrong side of the argument.
- **Chronological Snobbery:** Thinking, art, or science of an earlier time is inherently inferior when compared to that of the present.
- **Confesses Under Torture:** Assuming what one confesses under torture must be true.
- **Contextomy:** A quote or other text taken out of context and used to mean something it wasn't mean to mean.
- **Damning with Faint Praise:** To attack a person by formally praising him, but for an achievement that shouldn't be praised.
- **Double Bind:** Setting up a situation in which no matter what the person does or answers, he or she is wrong.

- **Double Standard:** Judging two situations by different standards when in fact you should be using the same standard – often done for selfish purposes.
- **Emphasis Fallacy:** (*see Accent Fallacy*)
- **Essentializing Fallacy:** It is what it is and it will always be that way.
- **Exaggeration:** Not accurately representing the truth – not quite a fallacy, but worth a listing on the B-list.
- **Exception That Proves The Rule:** Exceptions to rules are evidence against rule, never for the rules.
- **Failure to State:** Never actually stating a position on the topic, rather constantly being on the attack or asking questions. This protects the person from attack.
- **Fallacy of Multiplication:** Including more causes that are ultimately irrelevant.
- **Fallacy of Opposition:** Asserting that those who disagree with you must be wrong and not thinking straight, primarily based on the fact that they are opposition.
- **Fallacy of Quoting Out of Context:** (*see Contextomy*)
- **Fallacy of the Crucial Experiment:** Claiming some idea has been proved by a pivotal discovery.
- **Fantasy Projection:** Confusing subjective experiences, usually very emotionally charged, with objective realities, then suggesting or demanding that others accept the fantasy as truth.
- **Faulty Sign:** Incorrectly assumes that one event or phenomenon is a reliable indicator or predictor of another event or phenomenon.

- **Finish the Job Fallacy:** Ignoring reason and insisting that one must, “finish the job” or “finish what we started”, thinking the “job” is more important than the reason for completing or stopping the job.
- **Galileo Wannabe:** Comparing oneself to Galileo, in that they are right despite scientific majority. This is a specific form of appeal to pity.
- **Golden Hammer Fallacy:** Proposing the same type of solution to different types of problems.
- **Hifalutin' Denunciations:** Denouncing an argument or opponent with vague, pretentious, and grand-sounding generalized accusations.
- **I Wish I Had a Magic Wand:** Erroneously proclaiming oneself powerless to change a bad or objectionable situation, thinking there is no alternative.
- **In a Certain Respect and Simply:** Take an attribute that is bound to a certain area and assume that it can be applied to a wider domain than was originally intended.
- **Intentional Fallacy:** The problem inherent in trying to judge a work of art by assuming the intent or purpose of the artist who created it.
- **Invincible Ignorance Fallacy:** Basically, just a refusal to argue. Not accepting any evidence.
- **Knights and Knaves:** Treating information coming from other persons as if it were always right or always wrong, based on the person.
- **Lack of Proportion:** Exaggerating or downplaying evidence important in the argument. Extreme cases could actually be a form of suppressed evidence.

- **Latino Fallacy***: The misconception that an argument, fallacy, or claim that has a Latin translation is more likely to apply than if it didn't.
- **Lies (Misrepresentation)**: Not a fallacy, but important in reasoning not to overlook the fact that many arguments may contain outright lies. Keep this in mind.
- **Lip Service**: Pretending to agree when it's clear that you don't really agree.
- **Lump of Labor Fallacy (Lump of Jobs Fallacy)**: The contention that the amount of work available to laborers is fixed. This can be debatable, depending on the economist asked.
- **Mind Projection Fallacy**: Coined by physicist and bayesian philosopher E.T. Jaynes, the mind projection fallacy occurs when one believes with certainty that the way he sees the world reflects the way the world really is.
- **Monopolizing the Question**: Asking a question and then immediately giving the answer, in a way "forcing" your answer on the audience.
- **Norm of Reciprocity**: A technique used to exploit people's natural tendency to want to repay debts. In an argument, one may give into a point causing an unwarranted concession from the other side, out of the desire to repay the favor.
- **Not Invented Here**: Ideas and arguments are not evaluated equally if they come from outside a social sphere.
- **Outdated Information**: If outdated information is used in an argument, it would technically be more of an

error in the truth of the premises than in reason, but be aware of this when doing your fact checking.

- **Packing the House:** Filling the audience with friends, shills, or others who will cheer incessantly after you speak or make an argument, badger your opponent, and otherwise make for an unfair environment that will make your arguments appear much stronger and your opponent's much weaker. Related to *Pomp and Circumstance*.

- **Paralogism:** Can generally refer to any fallacious or illogical argument.

- **Paralysis of Analysis (Procrastination):** Reasoning that since all data is never in, no legitimate decision can ever be made and any action should always be delayed until forced by circumstances.

- **Pigeonholing:** A term used to describe processes that attempt to classify disparate entities into a small number of categories. This usually covers a wide variety of more specific fallacies.

- **Pious Fraud:** A fraud done for a good end, on the theory that the end justifies the means.

- **Pragmatic Fallacy:** (*see Appeal to Convenience*)

- **Preacher's We:** To veil accusations of others by saying, "We" or, "Us" when you really mean "You".

- **Probabilistic Fallacy:** When inferences from the premises to the conclusion violate the laws of probability.

- **Psychologist's Fallacy:** A fallacy that occurs when an observer presupposes the universality of their own perspective when analyzing a behavioral event.

- **Redefinition:** Redefining a term, usually to make it fit your argument better. For example, “Nothingness: That which only God can create something from.”

- **Reductionism:** This is more of a philosophy than a fallacy, although those who don’t subscribe to the philosophy will often refer to it as a fallacy. It is reducing things to the interaction of their parts. For example, if one claims we are just biochemistry, then those who believe we are also a “soul” will consider this claim a fallacy.

- **Sanctioning the Devil:** Avoiding debate with someone because debating him would give him undue credit. Really not a fallacy, but can be considered one by the flat-earther you are refusing to debate.

- **Scope Fallacy:** There are many specific fallacies detailed in this book that fit the under the category of “scope fallacy”. These have to do mostly with ambiguity.

- **Self-Deception:** The process or fact of misleading ourselves to accept as true or valid what is false or invalid.

- **Self-Fulfilling Prophecy:** The process of prophesying will itself produce the effect that is prophesied, but the reasoner doesn't recognize this and believes the prophecy is a significant insight.

- **Self-Righteousness:** Assuming that just because your intentions are good, you have the truth or facts on your side.

- **Sherlock Holmes Fallacy:** Remember that Sherlock Homes was a fictional character, even if based on a real one. His method of deduction was often stated as, “when you have eliminated the impossible, whatever

remains, however improbable, must be the truth". There are many flaws with this method in real life.

- **Sly Suggestions:** Suggesting that your ideas may be true without making solid statements that can be proven wrong. "You may be our next millionaire! Just subscribe to this service and you will find out if you are or not."
- **Snow Job:** "Proving" a claim by overwhelming an audience with mountains of irrelevant facts, numbers, documents, graphs and statistics that they cannot be expected to understand.
- **Sour Grapes:** Denigrating something just because you can't have it.
- **Spin Doctoring:** Presenting information in a usually deceptive way to get people to interpret the information how you want them to.
- **Taboo:** Refusing to critically examine a belief or argument because it's not acceptable to do so, for whatever reason. This is the refusal to reason.
- **Tautology:** Using different words to say the same thing, even if the repetition does not provide clarity. Tautology can also refer to a series of self-reinforcing statements that cannot be disproved because the statements depend on the assumption that they are already correct (a form of [begging the question](#)).
- **There Is No Alternative:** Discouraging critical thought by announcing that there is no realistic alternative to a given standpoint, status or action, ruling any and all other options irrelevant, or announcing that a decision has been made and any further discussion is simply a waste of time (or even insubordination or disloyalty).

- Too Broad:** The definition includes items which should not be included.

- Too Narrow:** The definition does not include all the items which should be included.

- Undoability:** Claiming something is not possible rather than you (or someone else) cannot do it.

- Weasel Wording:** Using ambiguous words in order to mislead or conceal a truth: "Save up to 50% or more!"

- Word Magic:** Assuming just because there is a word for it, it must exist.

Top 25 Most Common Fallacies

I hesitated including this section, because I don't want my readers to focus on the top 25 and ignore the rest. But I would be doing you, the reader, an injustice if I didn't tell you that, in my estimation, these top 25 fallacies, or some variation of them, account for *close to half* of all fallacious reasoning. Therefore, if you just learn these very well, your ability to reason will be significantly improved. So here they are, in alphabetical order.

- [Ad Hominem](#)
- [Appeal to Common Belief](#)
- [Appeal to Faith](#)
- [Ambiguity Fallacy](#)
- [Anonymous Authority](#)
- [Argument by Emotive Language](#)
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- Questionable Cause
- Red Herring
- Reductio ad Hitlerum
- Slippery Slope
- Special Pleading
- Strawman Fallacy
- Weak Analogy
- Wishful Thinking

Bo's Original Fallacies

As mentioned in the introduction, there are some fallacies that I have named based on my debating experience.

These are:

- [Appeal to Definition](#)
- [God Wildcard Fallacy](#)
- [Just Because Fallacy](#)
- [Missing Data Fallacy](#)
- [Quantum Physics Fallacy](#)
- [Spiritual Fallacy](#)
- [Latino Fallacy](#)

About the Author



Bo's spiritual/intellectual journey began as a result of a lifetime of unanswered questions. Bo devoted countless hours to studying religion — Christianity in particular, which included reading the entire Bible cover to cover (New International Version). He has listened to over 1000 hours of religious debate, read many books written by both atheists and Christians, and completed dozens of courses from world's leading universities on Christianity, Catholicism, Theology, Biblical Studies, Argumentation, Historical Jesus, Cosmology, Biology, Evolution, Quantum and Particle Physics, Philosophy, Philosophy of Religion, and even Apologetics.

Today, from a nontheist perspective, Bo is very active at promoting reason, rationality, and critical thinking to people of all religions and philosophies. He is the administrator of the DebateGod.org website, with thousands of hours of debate experience.

Bo is the author of *The Concept*, a book that cleverly examines religion and the nature of God.

Learn more about Bo at BoBennett.com.

¹ No, kids. This has nothing to do with freakishly good-looking vampires who, like Catholics, like to partake in blood-drinking ceremonies. Twilight Zone was a mind-blowing, sci-fi show back in the 60's where the main characters found them selves in really weird, and sometimes horrifying, situations.

² If you fell for that, you might need more help with your reasoning than this book can offer.

³ Unless of course you have a bumper sticker, t-shirt, or hat that states that belief, and you visit New York.

⁴ Pew Research Center: "Public Praises Science; Scientists Fault Public, Media" July 9, 2009.

⁵ There are exceptions: Women you don't know very well don't usually appreciate praise about their breasts or buttocks – especially in a professional situation.

⁶ Worth, in this sense, does have much to do with what someone is willing to pay, but for this example, let's just ignore that detail – otherwise I will need to come up with another example and I really don't want to.

⁷ The American Cancer Society,
<http://www.cancer.org/Treatment/TreatmentsandSideEffects/ComplementaryandAlternativeMedicine/MindBodyandSpirit/faith-healing>

⁸ For the record, I certainly do not think vegetarians are crazy, and I don't even think fruitarians are crazy. I certainly believe animals have feelings. Carrots? Not so much.

⁹ Mark Engelen, Matthew Farrelly & Andrew Hyland: *The Health and Economic Impact of New York's Clean Indoor Air Act*. July 2006, p. 21

¹⁰ The most distant object yet confirmed in the universe is a self-destructing star that exploded 13.1 billion light years from Earth. The object is a gamma-ray burst (GRB) – the brightest type of stellar explosion. The burst is dubbed GRB 090423 for the date of its discovery.

¹¹ I am basing these estimates on my best guess... this is not meant to be an accurate study on child abduction, just an illustration of how odds work in the fallacy.

¹² Kids aren't usually grammatically correct and just use, "whoever", but my 5th grade English teacher would kill me if I wrote that – assuming she is still alive. She was 80 – thirty years ago.

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