**Drake's List of The Most Common Logical Fallacies**

**Ad Hominem**This translates as “to the man” and refers to any attacks on the person advancing the argument, rather than on the validity of the evidence or logic.  It’s is one thing to say that I don’t agree with you, but it’s another thing to say that I don’t like you, and you are wrong because I don't like you;  evil people often make valid claims, and good people often make invalid claims, so separate the claim from the person.  Like the emotional appeal, the validity of an argument has utterly nothing to do with the character of those presenting it.   *Ad hominem*attacks are the meat and potatoes of political campaigns, but this is because we are, in fact, debating over *who* to vote for. Once the votes have been cast, however, we do well to focus on the logic and evidence, not those speaking the argument.

"Saddam can't have WMD's because George Bush said he does, and he's a liar."
"Saddam must have WMD's because the UN can't find them."
"Who cares if the French oppose invading Iraq; they haven't won a war in centuries!"

[Affirming the Consequent](http://en.wikipedia.org/wiki/Affirming_the_consequent)This is a fairly difficult fallacy to understand or spot. It is categorical in nature and, essentially, means reversing an argument, or putting the cart before the horse, meaning reversing or confusing the general category with the specific/sub-category.  Note that in this fallacy *the premises/reasons are actually correct* *or valid*; the error is found *between* the premises and conclusion.  Usually, the error occurs because we incorrectly assume that the Premise was a [sufficient condition](http://en.wikipedia.org/wiki/Necessary_and_sufficient_condition), when in fact it was only a [necessary condition](http://en.wikipedia.org/wiki/Necessary_and_sufficient_condition) (one of *many* conditions) necessary to prove the conclusion.

Fallacy Ex:
Premise: Ducks are birds.
Premise: Ducks swim in the water.
Premise: Chickens are birds.
False Conclusion: ***Chickens swim in the water***.
(Affirming The Consequent Fallacy:  not *all* birds swim in water; swimming is neither a necessary or sufficient condition to be the thing "bird")

Fallacy Ex:
Premise: You loved *The Matrix.*Premise: Keanu Reaves is in *The Matrix*Premise: Keanu Reaves is in *Speed.*Conclusion: ***You must love Speed.***(Affirming The Consequent Fallacy: you may have like *The Matrix*even if you don't like Keanu Reaves, or in spite of the fact that he was in it, or maybe you liked him in it but hate him in everything else etc.)

Fallacy Ex:
Premise: Obama wants nationalized health care.
Premise: The Nazis had nationalized health care.
Conclusion: ***Nationalized health care will make us all Nazis!***
(Affirming The Consequent Fallacy: "nationalized health care" is not a sufficient reason to define the category of Nazism, any more than does "swims in water" defines the category "birds".  In fact, with the exception of the USA, every country that fought *against* the Nazis now has nationalized health care.)
Editor's note: Obama does not, in fact, want to "nationalize healthcare".

**Argument From Authority**This is the flip side of the *ad hominem;*in this case, the argument is advanced *because of* those advancing it. But arguments from authority carry little weight: the history of human kind is consistent in one fact: the frequency of human error.

Sometimes fallacious arguments from authority are obvious because they are arguments from *false*authorities. Supermodels who push cosmetics or pro athletes pushing home loans or even sports equipment are likely false authorities: first, we don’t know the supermodel or athlete uses the product at all (odds are not), and second we *can assume*that the supermodel is beautiful without the product and the pro athlete was successful *without the equipment…*and that millionaire athletes probably don’t need the kind of home loan you would.

The creationism vs. evolution debate is especially flush with false authorities like [Kent Hovind and others](http://www.talkorigins.org/faqs/credentials.html) who freely lecture publicly on false diplomas and credentials.  This is also true with most conspiracy theory debates, such as those surrounding the Kennedy assassination, Big Foot, the Apollo Moon Landing Hoax etc.

To a degree, we also do well to differentiate between the different definitions of “authority”.  Authority can mean either power or knowledge.  In the case of knowledge, we often find we must trust *people*to help us make sense of the vast and complex array of knowledge surrounding an issue – we do well, for example, in courtroom trials to consult psychologists and forensic authorities etc., or to consult with trained meteorologists, geologists, physicists, chemists etc. when debating global warming etc. – but we should view these people as *resources for understanding the logic and evidence,* rather than as those given the final say concerning the issue.

Fallacy Ex: *“The administration must know where the WMDs are or they wouldn’t have sent American troops into look for them.*” (note, this is also a *non sequitur*)

Fallacy Ex: *"Saddam must have WMD's; the president wouldn't lie to us."*(note, this is also an *either/or* fallacy; not all incorrect assertions are lies)

Fallacy Ex: *“It happens not to be the area where weapons of mass destruction were dispersed. We know where they are.**They're in the area around Tikrit and Baghdad and east, west, south and north somewhat.”*—Rumsfeld, May 30, 03

**Argument From Ignorance or Non-Testable Hypothesis**This is the fallacy that that which has not been proven false must or is likely to be true; however, the fallacy usually applies to concepts that haven’t yet been adequately tested or are *beyond the realm of proof.*  Our legal system protects us from this fallacy under the presumption of innocence guideline – “innocent until proven guilty”.  Religious beliefs are founded on this "fallacy", but remember that a religious belief is, by definition, based on *faith*, rather than empirical proof or mathematical logic; that's what the phrase "leap of faith" refers to.

**Band Wagon**The basic fallacy of democracy: that popular ideas are necessarily right.

Of course in democracies like America popularity *does* play a certain degree in determining “right”, so it’s worth keeping in mind that America and most Western democracies are*constitutional democracies*, which means the political system *deliberately checks and balances mob rule* with codified principles like individual liberty and equality.  Obvious examples of once popular moral and legal positions include race based slavery, legal cocaine, American women not being allowed to vote until 1920, prohibition (1920-1933) etc.

Fallacy Ex: *"C'mon, dude, everybody's doin' it."*

**Begging the Question or Circular Argument**This is basically repeating the claim and never providing support for the premises, or, in other words, repeating the same argument over and over again.  Often, dogmatic thinkers don’t even realize this is a fallacy.

Fallacy Ex: *“Gay marriage is just plain wrong.”*
Fallacy Ex: *“Drugs are just plain bad.”*
Fallacy Ex: *“I can’t believe people eat dog. That’s just plain gross. Why? Because it’s a dog, of course. How could someone eat a dog?”*Fallacy Ex:*“Obviously logging causes severe environmental damage. You don’t have to be a scientist to see that; just go out and look at a clear cut and there it is: no trees.”*

**Dogmatism**The unwillingness to even consider the opponent’s argument. The assumption that even when many, perhaps millions, of other people believe otherwise, only you can be correct.  This is closely related to the Either/Or fallacy as it’s based on the usually false assumption that competing theories or perspectives cannot co-exist within single systems.  The assumption that those who disagree with you are “biased”, while you are “objective”.

More broadly, the over application of a theory at the expense of discussing the actual issue, specific incidence or evidence at hand; the assertion that one’s position is so correct that one should not even examine the evidence to the contrary. For example, the assumption that the economic theory of capitalism explains moral choices; or the assumption that socialism is morally wrong, even though you attend a public university; the assumption that welfare is wrong and all those who partake in it are lazy (even though you accept federal financial aid or would accept state aid in the case of a catastrophic accident or injury); the argument that drugs are morally wrong and drug addicts should all be locked up or even executed (although you drink alcohol and coffee and take Ritalin and your grandmother uses anti-depressants and you are grateful your alcoholic uncle was cured via AA); the assumption that all animals should be treated humanely (although you respect indigenous cultures that subsist on seal meat); the assumption that because nature is holy, all logging is morally wrong; the assumption that democratic republics are the best form of government for all people; and on and on and on….

**Either/Or or Black/White, False Dilemma, or Excluded Middle Fallacy**This fallacy simply paints an issue as one between two extremes with no possible room for middle ground or nuance or compromise.  It is closely related to the *straw man* fallacy, which essentially paints one side, instead of both, as so extreme no can agree with it.

Fallacy Ex: *“You either support George Bush or you support the terrorists.”*

Fallacy Ex: *“You either for me or your against me.”*

Fallacy Ex: *“She loves me; she loves me not.”*

Fallacy Ex: *“You’re a German Christian? So was Hitler. You must hate Jews.”*

Fallacy Ex: *“You don’t support the Israeli occupation of Palestine? You must be an anti-Semite.”*

Fallacy Ex: *“You support the existence of an Israeli state? You must support the occupation of Palestine.”*

**Emotional Appeals**When it comes to determining the validity or factuality of a claim, *any* attempt to sway an argument via emotion, rather than the quality of the logic or evidence, can be considered a fallacy.  This includes in *some but not all cases* the fallacy *argument from adverse consequences,* or “scare tactic”; bad things will happen to us if you do not agree with my argument. However, if one is arguing over *whether or not bad things will occur,* this is no longer a fallacy.

**Fallacy of Exclusion**This is related to the Hasty Generalization, and refers to focusing attention on one group’s behavior and assuming that behavior is unique to that group; yet, in fact, the behavior is common to many groups.  [Contrast with Hasty Generalization linked here.](http://www.webpages.uidaho.edu/eng207-td/Logic%20and%20Analysis/exclusion_vs_hasty_gen.htm)

The best example I’ve ever seen was in a letter to the Argonaut editor a few years back, the week after Halloween. The letter’s author complained that fraternities deserved their bad reputations because while wandering around Greek row Halloween night he saw three different “frat boys” puking.  However, one might argue that had he wandered around just about any other place kids of this age gathered on Halloween, he’d have seen the same amount of puke.

Ex: An actual friend of mine wrote this a few years ago in response to a drunk driving fatality newspaper story, in Nashville.  In this case, the drunk driver was an illegal alien and the victim was a US Citizen.  "Oh my god, this has got to stop!  How much is too much?  Why are these people [illegal aliens] allowed to live in our country?"   At first I agreed: yes, drunk drivers who kill people should themselves be put to death!  Then I realized he was referring to illegal aliens, as if that was the cause of most, or even many, drunk driving fatalities.

Fallacy Ex: *I'd never live in NYC; it's way too dangerous!* (Indeed many people are murdered in cities, so cities appear to have a high murder *rate* (number of murders per capita)  Yet, there are many people in NYC, so in fact the murder *rate* is lower in NYC than in many small towns.)

Fallacy Ex: *Women can't drive!* (If you examine the driving habits of women, you will observe that women are poor drivers.  Yet if you were to examine the driving habits of both women *and men*, you’d learn that men are far more likely to get into accidents.

**Faulty Analogy**Our language functions through comparisons, and it is common and useful to argue the validity of one point by comparing it to another, but often the comparison suggests that two thing are more alike than they really are.

Fallacy Ex: *"If we legalize gay marriage, next we'll legalize marriage between men and their pets."*

Fallacy Ex: *"Iraq is another quagmire, just like Vietnam."*

Fallacy Ex: *"Feminazi."*

Fallacy Ex: *“Meat is murder.”*

**Hasty Generalization, Misunderstanding Statistics or Non-Representative Sample**This normally involves mistaking a small incidence for a larger trend.

Racism is the most obvious example, especially when exposure to other races or groups is filtered thru the media, and so you have only seen a very small percentage of the actual group and what you’ve seen has been careful chosen rather than due to random chance.

Ex: If you grow up in the very white state of Idaho and only see Blacks on TV, you are likely to think that most Black men are athletes, gangster rappers or comedians.

Ex: Fishing and hunting also frequently trick us into this fallacy; you get a hit on your first cast and assume you’ve found the perfect spot and the ideal lure, only to sit there getting skunked for the next hour.

Ex: Most complain about how badly women drive, and if one examines the driving habits of women one finds that indeed they do get in many accidents. However, they get in *fewer*accidents than men.

Ex: Assuming you are likely to be shot if you visit NYC, when, in fact, fewer people are murdered, per capita, in NYC than in most rural American small towns.

Ex: You are thinking of your old high school friend, Biff, and the phone rings and it’s him. You conclude the two of you are magically connected.
Occam’s Razor: Random Coincidence. You’ve eliminated the literally thousands of hours that you’ve thought of your hundreds of friends when not a single one of them called you.

**Moral Equivalency**The implication that two moral issues carry the same weight or are essentially similar.

Ex: Equating the treatment of animals with the treatment of human beings.
Ex: Equating acts of war with murder.
Ex: Equating gay marriage with legalizing pedophilia.
Ex: Equating being a wage slave with actual slavery.
Ex: Equating all acts of war with terrorism.

**Non Sequitur***Non sequitur* translates as “it does not follow,” meaning that the conclusion does not follow the premises (usually because of a faulty Implicit Reason/Assumption/Warrant).  In other words the *non sequitur*means there is *a logical gap*between the premises or evidence and the conclusion. The *non sequitur* is a broad, categorical term, and so there are many different types of *non sequitur*fallacies, including *post hoc, hasty generalization, slippery slope, affirming the consequent* and simply *faulty assumption*or*warrant.*

Fallacy Ex: *“If you loved me you’d buy me this car.”*

Fallacy Ex: *“If you loved me, you’d sleep with me.”*

Fallacy Ex: *“I can’t believe you don’t like Speed; you loved Matrix and Keanu Reaves is in Speed.”*
Fallacy: *it does not follow* that all *Matrix*lovers love *Speed*; the error is that one may love *Matrix in spite of the fact*that Keanu was in it (this is an *Affirming The Consequent*fallacy).

A *slippery slope*argument, for example, is *non sequitur*because *it does not follow*that legalizing one thing (gay marriage, medicinal marijuana) would *inevitably, necessarily or likely lead to*legalizing other things (polygamy, or recreational marijuana use).

**Post Hoc or Faulty Causality, or Correlation vs. Causation**
Post hoc is the shortened version of “post hoc ergo propter hoc”, which translates as “after this, therefore because of this”.  In other words, the fallacy confuses correlation for causation, or mistakenly claiming that one thing caused another to happen since they happen in sequence.

Correlation simply refers to two things happening at the same time, or one thing commonly happening before another thing happens; in other words, the frequency with which one thing occurs corresponds with the frequency with which another occurs. Causation of course means that the one thing occurring *causes*the other to occur.  *Post hoc refers*mistaking correlation for causation. The flaw in the argument is that often a third cause exists, which is causing both to occur frequently, or perhaps the flaw is simply that both things commonly occur *regardless of each other.*

There are a couple key points to understand about this fallacy:

First, the fallacy only occurs when *both things (reasons, premises) have actually occurred*; therefore, the fallacy doesn’t apply to the future or to debates over whether or not one thing actually occurred.  For example, in order to claim that the green-house gasses-global-warming argument is *post*hoc, you must first agree that a) there is a spike in greenhouse gasses, and b) global warming is actually occurring.

Second, most often the fallacy occurs because of a third element that is responsible for causing both of the other elements. So, look for a “third cause”.

Third, reasonable skepticism reveals this to be an incredibly common fallacy in both everyday arguments and in very formal, influential, widely believed, often “scientific arguments”. For instance, most people recover from their colds a couple days after they take cold medication. But, of course, most people recover from their colds if they take no cold medication whatsoever.  Many people get rich when they pray for wealth, but many people who never pray also get rich, and many people who pray to get rich stay poor; also, what about people who pray to other gods and get rich?

The danger rests in the degree of skepticism; extreme skepticism will reveal *all arguments* *post hoc*, and, in fact, this is the standard argument of most defense lawyers and traditionally all industries when it comes to questions such as cigarettes and lung cancer, safety glass in automobiles, seat belts in automobiles, air bags in automobiles, causes of air pollution, effects of pollution on health and so on; normally scientists prove *within a reasonable doubt* causation decades before the public and those responsible for the cause stop crying *post hoc.*  Current, continuing debates over *post hoc* include pretty much every scientific argument that intersects with either faith (evolution, AIDS), industry (global warming) or economic interests.
[(NPR *On The Media*  5 minute discussion of this fallacy and flu vaccinations)](http://www.onthemedia.org/transcripts/2009/10/09/01)

Fallacy Ex: *Drinkers are more likely than non-drinkers to get lung cancer, suggesting drinking causes lung cancer.* (It turns out there is a strong correlation between consuming alcohol and developing lung cancer. The *post hoc* fallacy would be asserting that alcohol consumption *causes* lung cancer; the actual reason is that people who drink more also tend to smoke, or smoke more, than non drinkers.)

Ex: Many claim that marijuana is a “gateway drug” because those who have smoked marijuana are more likely than those who haven’t to go on to try other drugs. The *post hoc* fallacy would be asserting that marijuana use *leads to* increased use of other drugs; the more logical explanation is that those who are willing to try one drug are obviously also willing to try other drugs: the cause – willingness to try or use drugs – must necessarily exist *before* one tries pot; otherwise, you wouldn’t try it in the first place.

**Red Herring**
This generally refers to changing the subject mid-debate, so that we start arguing about a tangential topic rather than the real or original issue.

Ex: We start debating the evidence supporting evolutionary theory, but you bring up the fact that believing this theory is depressing.

Ex: We start debating the evidence supporting global warming, but you bring up the fact that believing this theory is depressing...or that Al Gore has a big house and flies on jets a lot.

**Semantics or Equivocation (also, Splitting Hairs, Playing With Words, or Using Legalisms)**Using the inherent ambiguity of language to distract from the actual ideas or issues, or deliberately rephrasing the opposing argument incorrectly, and then addressing that rephrasing.

Fallacy Ex: *"No man of woman born" can kill Macbeth* (Macduff, who does kill Macbeth, was caesarian)

Bill Clinton attempted to use this fallacy (with disastrous results!) when he denied having "sex" with Monica Lewinski.  His defense was based on the "fact" that both the law and Webster's dictionary have a very limited definition of "sex".

Jim Leher: You had no sexual relationship with this young woman?
President Clinton: *There is not a sexual relationship. That is accurate.”* [January 21, 1998](http://www.pbs.org/newshour/bb/white_house/jan-june98/clinton_1-21.html)

*“But I want to say one thing to the American people. I want you to listen to me. I'm going to say this again. I did not have sexual relations with that woman, Miss Lewinsky. I never told anybody to lie, not a single time; never.”* – Bill Clinton, January 26, 1998

*"I have never had sexual relations with Monica Lewinsky."*– Bill Clinton, Federal Deposition

Q "Did you have sex with Ms. Lewinski."
A *"I never had sex with that woman [Ms. Lewinski]."* – Bill Clinton

**Slippery Slope**Arguing from the perspective that one change inevitably will lead to another.

Ex: *"If we legalize gay marriage, next people will want to legalize polygamy."*(also false analogy)
Ex: *“Why stop at $7.25 an hour? Why not raise the minimum wage to $15 or $20 an hour? For that matter, why not mandate the price of housing? ... If we believe Congress has the power to raise minimum wages, where do we go next?”* -- Bill Sali, *Argonaut*, 2/13/07
Ex: *“The inevitable result of handgun control is the government seizure of all guns.”*
Ex: *"What we see in El Salvador is an attempt to destabilize the entire region and eventually move chaos and anarchy toward the American border."* Ronald Reagan, May 9, 1984

Ex: "Death Panels"  In response to the House bill to reform healthcare, Rep. John Boehner said: "With three states having legalized physician-assisted suicide, this provision could create a slippery slope for a more permissive environment for euthanasia, mercy-killing and physician-assisted suicide because it does not clearly exclude counseling about the supposed benefits of killing oneself." <http://republicanleader.house.gov/news/DocumentSingle.aspx?DocumentID=139131>

Ex: "Death Panels":

*The Democrats promise that a government health care system will reduce the cost of health care, but as the economist Thomas Sowell has pointed out, government health care will not reduce the cost; it will simply refuse to pay the cost. And who will suffer the most when they ration care? The sick, the elderly, and the disabled, of course. The America I know and love is not one in which my parents or my baby with Down Syndrome will have to stand in front of Obama's "death panel" so his bureaucrats can decide, based on a subjective judgment of their "level of productivity in society," whether they are worthy of health care. Such a system is downright evil.*

*Health care by definition involves life and death decisions. Human rights and human dignity must be at the center of any health care discussion. [Sarah Palin Facebook post,*[*8/7/09*](http://mediamatters.org/rd?to=http%3A%2F%2Fwww.facebook.com%2Fnote.php%3Fnote_id%3D113851103434)*]*

([The actual Bill his here](http://docs.house.gov/edlabor/AAHCA-BillText-071409.pdf).  Skip to page 428 or "find: 1233")

**Straw Man**One side of the argument is presented as so extreme that no one will agree with it. Often this is done by referring to the exception, rather than the rule, and inferring that the exception is the rule.

Fallacy Ex:  *“We either leave right now or we’re never going to get there.” “All PETA supporters support the bombing or destruction of laboratories.” “If you surrender your freedoms, the terrorists have already won. You don’t want that, do you?” “Hitler supported gun control, you know.”*

**Weasel Words or Glittering Generality**
This is the use of words so broadly defined – such as “love” or “freedom” or “rights” or “patriotism” etc. etc.  – as to become essentially meaningless; no one, and I do mean no one, on this planet, does not value love, freedom, or rights, and most everyone is a patriot of one kind or another. It’s the “one kind or another” nature of these words that makes them essentially pointless: they mean something different to everyone, and so their use in an argument frequently means nothing.  “Love”, for example, refers to both sexual passion and the nature of God or divine virtue.

Technically, their use is probably not a fallacy, but their use tends to move an argument *no where* while inciting deep emotional responses. Thus, they are rhetorically useful and logically distracting.

The current glittering generality is “terrorism” or “terrorist” as it first clearly refers to something most people abhor and second is used so broadly it actually applies to any act of war. This renders those involved in the “war on terror” (itself a misnomer) as themselves “terrorists”.  In the case of this word, however, the fallacy is likely equivocation; the word has been rendered semantically useless by having been so often *misused.*

Other current glittering generalities include “protecting marriage”, and “pro choice” or “pro life”.

**Failing Occam's Razor**Occam’s Razor is the scientific principle that the simplest of any given hypotheses is likely to be the right one.

Fallacy Ex: *You don’t keep up on your homework and start a paper the night before it’s due. When it’s returned to you it has a C- grade. You conclude the grade reflects the teacher’s ignorance or personal dislike for you.*
Occam’s Razor: The paper was poorly written.

Fallacy Ex: *Every guy you meet at the bar and take home turns out to use you for a night and then dump you. You conclude all men are losers.*
Occam’s Razor: Men assume, and thus dump, any woman skanky enough to take them home from a bar.

Fallacy Ex: *You drink five beers and climb behind the wheel of your father’s Ford Explorer. When you slide off the road and roll it you blame him for not telling you the tires where worn and letting you drive a tippy SUV, because everyone knows you can hold your beer.*
Occam’s Razor: You were drunk, idiot.

Fallacy Ex:*You are thinking of your best friend, Rufus, when the phone rings and it’s Rufus! You conclude the two of you are magically connected.*
Occam’s Razor: Random Coincidence. You think of your best friend dozens if not hundreds of times a day; he calls you a couple times a day. The odds of him calling you once or twice a day *at least once in awhile* are pretty good.

Fallacy Ex: *You are thinking of your old high school friend, Biff, and the phone rings and it’s Biff! You conclude the two of you are magically connected.*
Occam’s Razor: Random Coincidence. You’ve eliminated the literally thousands of hours that you’ve thought of your hundreds of friends when not a single one of them called you.

Fallacy Ex: *You drive downtown breakfast. You start thinking of your best friend, Skipper. You park the car and walk over to the Breakfast Club. There’s Skipper! You conclude that the two of you are magically connected!*
Occam’s Razor: The act of driving requires us to process infinite amounts of (mostly visual) information while attending to other elements of the act, so we unconsciously see much more than we are aware of. You probably saw Skipper out of the corner of your eye, also, friends tend to go to the same place. Also, where else would you go for breakfast in Moscow?