

STUDENT MANUAL TO ACCOMPANY

Critical Thinking

An Appeal to Reason

Peg Tittle

critical thinking

answers, explanations and analyses

Answers, Explanations, and Analyses are for odd numbered questions in the book.

Note that all terms in the end-of-chapter “Review of terms” can be found in the Glossary.

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Chapter 1

Critical Thinking

Thinking critically about what you see



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1. You might start by articulating the implications of the photograph: given its clear and simple focus on the smiling little girls, it seems to be endorsing (female) child beauty pageants. Do you agree with that endorsement? Is it okay to encourage little girls to—what? To pay excessive attention to their appearance? To look like adults?

Thinking critically about what you read

There's nothing wrong with downloading music from the internet. First, everyone does it, and second, it's not like you're taking something—after you download, the song's still there, it's not like taking someone's car. Some people say downloading music from the internet isn't fair because the musicians don't get paid when you download, but you're paying for the internet connection—why should you have to pay twice? *That's* not fair! And people say that if everyone does it, sales of CDs will decrease, and then since there'll be no money in making CDs, the recording companies will stop making them. But everyone's not doing it, so CD sales won't decrease. And actually, a friend of mine told me that after their band put one of their songs on their website, sales of their CD increased! Lastly, downloading is legal; anything that's morally acceptable is legal; so downloading must be morally acceptable. People should stop worrying about this stuff and go after the *real* criminals!

You might consider the consequences a little more thoroughly (though this speaker does a pretty good job of it!) . . . not just to the musicians, but also to big business and to society-in-general (if we don't download, will our lives, our society, become music-poor?) . . . Intent could also be considered (this passage doesn't seem to get into intent) . . . when you download, are you trying to get something for nothing?

The issues of justice and fairness could be thought about a bit more: what exactly is fair in this context? Who deserves what? On what basis? (Who owns what? And so what—what rights does ownership entail? Is ownership the best way of approaching the issue?)

The relationship between legality and morality could also use a bit more scrutiny . . . just because it's legal, does that mean it's moral? It's legal to break a promise, but is it morally right?

Who are “the *real* criminals” referred to at the end?

You might notice the appeal to the majority (jump ahead to Section 4.3.5).

Lastly, you might consider alternative arrangements or “solutions”—minimal payment, consent, barter . . . —that might affect whether or not it's right to download music . . .

Reasoning test questions

1. Computers perform actions that are closer to thinking than anything nonhuman animals do. But computers do not have volitional powers, although some nonhuman animals do.

Which one of the following is most strongly supported by the information above?

*(A) Having volitional powers need not involve thinking.

This is the correct answer. Computers are more capable of thinking than nonhuman animals, but nonhuman animals are capable of volition whereas computers are not, so there doesn't seem to be a relation between thinking and volition.

(B) Things that are not animals do not have volitional powers.

The only things-that-are-not-animals mentioned in the passage are computers, and the passage does say that computers do not have volitional powers, but we can't generalize from that one case to *all* things-that-are-not-animals.

(C) Computers possess none of the attributes of living things.

The passage states only that computers do not possess volition; it doesn't follow that they possess *no* attributes of living things. In fact, that computers "perform actions that are closer to thinking than anything nonhuman animals do" suggests that they may possess some level of cognition (an attribute of living things).

(D) It is necessary to have volitional powers in order to think.

The passage suggests that computers almost think and yet do not have volition, so if anything, the passage suggests that it is *not* necessary to have volitional powers in order to think.

(E) Computers will never be able to think as human beings do.

There is nothing in the passage to suggest this.

(The Official LSAT Prep Test XXIII, Section 2, #7)

Chapter 2

The Nature of Argument

2.2a Recognizing premises and conclusions

1. It's puzzling that Taffi (the canine I live with) doesn't play with toys more often, given that she has her own toybox. And it's overflowing. But then, she has me!

Note this argument has *two* premises leading to the conclusion: the first premise is "She has her own toybox" and the second is "It's overflowing"; together, they provide support for the conclusion, "It's puzzling that Taffi doesn't play with toys more often."

The last sentence is not part of the argument; rather, it suggests a second argument (Taffi doesn't play with toys *because* she has me to play with).

3. "We know he's a real man because he threw a refrigerator across the room during a fight."

(Jason Cohen and Michael Krugman, writing tongue-in-cheek about a popular television show, *Generation Ecch!*)

There is one premise, "He threw a refrigerator across the room during a fight," leading to one conclusion, "He's a real man."

5. "The Soviet pledge not to be the first to use nuclear weapons goes to confirm that the USSR is against any nuclear aggression and that its military doctrine is, indeed, a defensive one in nature."

(Information Centre of the World Peace Council,
"Nuclear Weapons: No First Strike, No First Use," no date)

Note that there are *two* conclusions here that are thought to follow from the premise (see Section 3.5): the premise, the Soviet pledges not to be the first to use nuclear weapons, is taken to support two conclusions: they are against nuclear aggression and that their military doctrine is defensive in nature.

However, the second conclusion is, it seems to me, too broad, given the premise it rests on: what about other kinds of weapons (chemical, biological, and so on)? Unless the Soviet has pledged not to be the first to use those as well, it does *not* follow that its military doctrine is defensive in nature.

7. Burglars generally avoid the houses known to have guns in them. And people have a right to defend what's theirs. Consequently, we should legalize guns; that way, people can defend themselves against burglars.

You'll see these are getting a little more difficult. The difficulty in this one is mostly due to the poor writing/thinking. The argument seems to be that we should legalize guns (conclusion) because that would enable people to defend themselves against burglars (premise) and, an implied premise (we'll get to implied premises in the next section), people have a right to defend themselves against burglars (premise).

The first sentence, however, seems to confuse the issue: if burglars avoid houses known to have guns in them, the people will have no need to defend themselves. Unless "defend" is intended to mean "deter" . . .

Also, you might point out the assumption that people are able to defend themselves with guns. Merely having a gun does not ensure this.

Lastly, you might counter with the observation that burglars tend to avoid occupied houses, with guns or not—in which case, guns for defense against burglars would be largely unnecessary.

9. Tuition fees should be lowered, due to the scarcity of jobs. Most students don't want to work while they're going to school anyway. And parents don't always give their kids enough money for tuition *and* all the other stuff they want. I mean, you can't expect students to study all the time, they want to have fun, they want to party, see movies, listen to music. And all of that costs money.

Notice how unfocused this is. At first reading, the second sentence seems irrelevant to the argument, which seems to be that tuition fees should be lowered (conclusion) because there aren't enough jobs for students (premise) and parents don't give their kids enough money (premise). However, perhaps the first premise is intended to be "students don't have jobs" rather than "there aren't enough jobs for students"—in which case, there are two premises supporting *that* premise (students don't have jobs because one, there aren't enough jobs and two, they don't want them anyway).

2.2b Practice using standard form

1. It's puzzling that Taffi (the canine I live with) doesn't play with toys more often, given that she has her own toybox. And it's overflowing. But then, she has me!

1. Taffi has her own toybox.

2. Taffi's toybox is overflowing.

Therefore, it's puzzling that Taffi doesn't play with toys more often.

And the implied second argument would be:

1. Taffi has me to play with.

Therefore, she doesn't play with toys.

3. "We know he's a real man because he threw a refrigerator across the room during a fight."

(Jason Cohen and Michael Krugman, writing tongue-in-cheek about a popular television show, *Generation Ecch!*)

1. He threw a refrigerator across the room during a fight.

Therefore, he's a real man.

5. "The Soviet pledge not to be the first to use nuclear weapons goes to confirm that the USSR is against any nuclear aggression and that its military doctrine is, indeed, a defensive one in nature."

(Information Centre of the World Peace Council,

"Nuclear Weapons: No First Strike, No First Use," no date)

1. The Soviet has pledged not to be the first to use nuclear weapons.

Therefore, the USSR is against any nuclear aggression.

and

Therefore, the USSR's military doctrine is a defensive one in nature.

7. Burglars generally avoid the houses known to have guns in them. And people have a right to defend what's theirs. Consequently, we should legalize guns; that way, people can defend themselves against burglars.

1. Guns enable people to defend themselves against burglars.

2. People have a right to defend themselves against burglars.

Therefore, we should legalize guns.

9. Tuition fees should be lowered, due to the scarcity of jobs. Most students don't want to work while they're going to school anyway. And parents don't

always give their kids enough money for tuition *and* all the other stuff they want. I mean, you can't expect students to study all the time; they want to party, have fun, see movies, listen to music. And all of that costs money.

1. Students should have money for both tuition and fun. (implied premise)
 2. There aren't enough jobs for students.
 3. Parents don't give their kids enough money for both tuition and fun.
- Therefore, tuition fees should be lowered.

Or are the following two arguments intended?

1. There aren't enough jobs for students.
 2. Students don't want jobs.
- Therefore, students don't have jobs.

1. Students don't have jobs.
 2. Parents don't give their kids enough money.
 3. Students should have money for both tuition and fun.
- Therefore, tuition fees should be lowered.

Note the clarification of the premise "There aren't enough jobs"—I specified "jobs *for students*," since that's presumably what was meant (and, actually, the argument isn't as strong otherwise).

2.2c Practice distinguishing arguments from non-arguments

1. "Men expect to tell women things, not to be told things by them, or even to explore a subject together."
(March Fasteau, *The Male Machine*, 1975)

This is not an argument. It is merely a claim about men's expectations; no evidence or reasons are given to support the claim. *Providing* such evidence or reasons would make it an argument.

3. People who are wealthy are so because of ability, so we should respect them.

Yes, this is an argument:

1. People who are wealthy are wealthy because of ability.
- Therefore, we should respect wealthy people.

Note that there is an unstated premise that we could insert (especially once we cover Section 2.3) that completes the argument:

1. People who are wealthy are wealthy because of ability.
 2. We should respect ability.
- Therefore, we should respect wealthy people.

And, of course, you're probably questioning the generalization—perhaps *some* people who are wealthy are wealthy because of ability . . .

You might also have asked why we should respect ability. That premise may need some support of its own.

5. “We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness.”
(Thomas Jefferson)

This is not an argument. Jefferson gives no reason for believing that all men are created equal or that their Creator has assigned those particular rights to them. He refers to evidence when he says the “truths” are “self-evident” but what exactly is that evidence? He doesn’t say. All he has presented are unsubstantiated claims.

7. Dave Mundy from Caistor Centre, Ontario, went over the falls in a barrel in 1985 and lived. Several summers ago Dave attempted to shoot Niagara Falls again, but his barrel got grounded at the brink of the falls and he had to be rescued with a crane. Dave is determined to try again and has stated that if he succeeds, for his next trick he’d really like to fly an airplane into a bus.
(William Thomas, *Guys: Not Real Bright—And Damn Proud of It!*)

This is not an argument. It’s just a funny bit of narrative description. (Thought you might be ready for some humor!)

9. Here are some stats on Beverly Blossom: founding member of Alwin Nikolais’ company, choreographer, esteemed teacher; 79 years old, cushiony body, lived-in face. These facts do not explain why, when she draws herself up, she seems to fill the stage, or how, as she ripples her arms grandly or scatters rose petals to Beethoven’s somber chords, she evokes Isadora Duncan. Make that an Isadora who’s a wily, eccentric comedian and relishes shtick.
(Deborah Jowitt, “Swimming in It,” a dance review from *The Village Voice*, September 19, 2005)

This is not an argument. There is a lengthy claim made in the passage—that Beverly Blossom is founding member of Alwin Nikolais’ company, choreographer, esteemed teacher, and 79 years old with a cushiony body and a lived-in face does not explain why, when she draws herself up, she seems to fill the stage, or how,

as she ripples her arms grandly or scatters rose petals to Beethoven's somber chords, she evokes a wily, eccentric, Isadora Duncan—but there is no reasoning to support that claim, to support *why* those facts do not explain those features.

2.2d *More practice distinguishing arguments from non-arguments*

1. Thou shalt not kill.

This is not an argument. It is, instead, a command, an order. If a reason was given for why one should not kill, *then* it would be an argument.

3. Inheritance should be illegal. After all, that's why there's so much inequality. So many kids get such a headstart, they have money, they didn't even earn, and money makes money, it's all unfair. You should have to earn what you get, no matter who your parents are.

This is an argument:

1. Inheritances cause inequality among people.

2. Inheritances are unearned.

Therefore, inheritance should be illegal.

You might pursue the definition of “fair” that's being used and insert it into the argument, making it more complex. For example, is the speaker arguing, further, that inequality and/or inheritances are unfair? If so, by what definition of “fair” . . .

5. I just know this is wrong. Can't you feel it?

This is an appeal to intuition, not an appeal to reason. What grounds has the speaker given anyone else to agree with him/her that it's wrong?

7. I argue that a nation has a right to control the number of people who immigrate to it. If a nation faces massive overpopulation, or if certain regions of that nation face massive overpopulation, national sovereignty allows a government to restrict the number of people who can cross the border. One nation is not required to pay for another's lack of family planning, corruption, or failure to achieve an equitable distribution of wealth by absorbing millions of citizens from that other country.

(Edward Tabash, “What Population Stabilization Requires,” *Free Inquiry*, August/September 2004)

This is an argument:

1. One nation is not required to pay for another's lack of family planning.
2. One nation is not required to pay for another's corruption.
3. One nation is not required to pay for another's failure to achieve an equitable distribution of wealth.

Therefore, a nation has a right to control the number of people who immigrate to it.

Of course, one might question each of the premises, especially if one takes the “is nots” to be “should nots” . . .

9. Some people are allergic to cats because cat saliva contains a protein that is foreign to the human immune system; it therefore stimulates the human immune system, which, in some people, results in sneezing, runny eyes, and so on.

(Thanks to Dr. Ron Smith)

This is an explanation, not an argument. The issue of why some people are allergic to cats is not in contention. If there were some uncertainty about it, then this would be an argument—an argument for one of several possibilities. As such, it would then be subject to examination and evaluation, as would be the other arguments for the other possibilities, and one could then determine which was the best explanation.

2.3a Practice articulating implied conclusions

1. Women provide two-thirds of the world's work hours. Women produce 44 percent of the world's food supply. Women receive 10 percent of the world's income. Women own 1 percent of the world's property.

(Marilyn French, *Beyond Power*, 1985)

Assuming a relationship between work and perhaps especially the production of food, on the one hand, and income and property ownership, on the other, the conclusion would be something like “The current distribution of income and property is unfair.”

3. Most chickens are not stunned before their throats are slit, in the United States. Their heads are passed through an electrically charged water bath that immobilizes them but doesn't render them unconscious. Then they have their throats cut and are dumped into a scalding tank of boiling water (to remove feathers), often while they are still conscious.

(“Murder King: The Fast-Food Giant's Shameful Record,” *Animal Times*, 2000)

The conclusion could be “Stop it!” (“it” being current chicken slaughterhouse practices).

However, *given the source*, the conclusion could be more specific: “Don’t buy food from Burger King, not even their chicken products.” Note how important context is: it was the title of the piece and the magazine in which it was published (notably that the magazine is published by an organization that is against cruelty to animals) that enabled the conclusion to be understood.

5. In 48 states, daycare for a four-year-old costs more than tuition at a four-year public college.

(*Mother Jones*, November/December 2004)

This is a difficult one to consider—it’s really not an argument. But, assuming that it was intended to make a point, perhaps the best we can suggest is “That’s crazy!” But no reasons are given for this claim. It’s possible that the speaker intends to imply that a university education should cost more than daycare, but . . . *See how important it is to clearly articulate your conclusion and your reasons for that conclusion!*

7. Pigs can fly. John is a pig.

Therefore, John can fly. *But*, the first premise was “Pigs can fly”—not “*All* pigs can fly.” Perhaps what was meant was that *some* pigs can fly and maybe John is one of the ones that can’t. Also, this may be a case of equivocation (sneak a peek at Section 5.3.4): “pig” in the first premise may refer to those four-legged animals that go oink-oink, whereas “pig” in the second premise may mean that John is sloppy or eats a lot. (Why do we identify those behaviors as piggish? Are oink-oink pigs sloppy? Do they eat a lot? Compared to who or what?) If that’s the case, the two statements are talking about different things, so they aren’t related; so together, they lead to no conclusion, let alone the conclusion that John can fly.

9. By staying in this country, you’re saying you agree with its laws. So if you don’t like them, well . . .

You should leave. This argument is, by the way, referred to as “the social contract” argument: one makes a contract with one’s society, a contract whereby one agrees to abide by the rules in return for certain protections. Note that it assumes you *can* leave.

Another problem with the argument is this: what if you agree with some laws and disagree with others?

Lastly, it’s a good example of a “modus tollens”—if you’ll be working your way through the logic chapters.

2.3b Practice articulating unstated premises

1. Abuse and neglect in various forms will continue until we as a society value parenthood; until we regard parenting as a privilege, rather than as a by-product of sexual intercourse, a route to adult identity, or a route to social assistance.

(Katherine Covell and R. Brian Howe, “A Policy of Parent Licencing,” *Policy Options*, September 1998)

The speaker is assuming that abuse and neglect occurs when parenting is a by-product of sexual intercourse, a route to adult identity, or a route to social assistance.

3. “Standard of living” is measured by the amount of annual consumption—the country that consumes the most has the highest standard of living. What an assumption is in there!

(E.F. Schumacher, *Small is Beautiful: Economics as if People Mattered*, 1999 [1973])

The speaker is referring to the assumption that the person who consumes more is better off than the one who consumes less.

5. No, we absolutely cannot raise wages! If we do that, we’ll go out of business!

The assumption in this argument is that going out of business is unacceptable. (Maybe going out of business would be a good thing—do you make nuclear or biological weapons?)

In standard form, the implied argument would be this:

1. If we raise wages, we’ll go out of business.
2. We don’t want to go out of business.

Therefore, we shouldn’t raise wages.

7. Prohibiting drugs will lead to an increase in crime, not a decrease, because first, when the price of illegal drugs is very high, poor addicts rob and burglarize. And second, the police will be so occupied with drug arrests, more crime will occur.

There are at least two assumptions in this argument. The first is that when drugs are legal, they will not cost as much as when they are illegal. (If this were not the case, then the argument would fall apart, because poor addicts would rob and burglarize even if drugs were not prohibited—they’d still need more money than they have in order to purchase drugs.)

The second assumption is that police attention somehow *prevents* crime—otherwise why would their (pre)occupation with drug arrests result in more crime?

9. Obviously, however, the client cannot be expected to reveal to the lawyer all information that is potentially relevant, including that which may well be incriminating, unless the client can be assured that the lawyer will maintain all such information in the strictest confidence.

(Monroe Freedman, “Where the Bodies are Buried,”
in *Lawyer’s Ethics in an Adversary System*, 1977)

The assumption in this one is a little tricky. Why wouldn’t the client be expected to reveal incriminating evidence? Because if he/she reveals incriminating evidence, then he/she would be more likely to be penalized. So the assumption is that the client doesn’t want to be penalized. The assumption is that the client is more interested in not being penalized for his/her actions than in justice.

11. When the time comes, of course I’m going to have to pay for my parents’ long-term care. They paid for my food and shelter for, what, eighteen years?

The assumption here seems to be that childcare expenses paid for by parents incurs some sort of obligation, perhaps especially a financial obligation, that should be repaid when the time comes. (What do you think? What obligations, if any, do children have to their parents? On what grounds?)

13. “It’s a cultural taboo in this country,” said Jeffery M. Leving, a lawyer and fathers’ rights advocate in Chicago. “It’s very unmanly to request a DNA test to determine that your child is your biological child. It’s emasculating and many men would not do it.”

(Mireya Navarro, “Painless Paternity Test, but the Truth May Hurt,” *New York Times*, October 2, 2005)

Why is it unmanly? What are the premises that lead to this conclusion? I confess I have trouble with this one. (See how important it is that you spell out your argument—your *whole* argument?) Does requesting a DNA test mean you aren’t sure you’re the father, which means that you think some other man may have had sex with the women in question—and that’s the emasculating part? Or does requesting a DNA test mean that you care, and “real” men don’t care? At least not about children? Does requesting a DNA test mean that you intend to be responsible for the child, the consequences of your sexual actions—and manly men don’t? (See how important it is to articulate your complete argument? The possibilities for misunderstanding are . . . great.)

15. Refusing blood transfusions protects us from AIDS; that shows that we are right.

The speaker is assuming that the only way one can get AIDS is through blood transfusions; this is an incorrect assumption, so refusing blood transfusions does *not* protect people from AIDS.

The speaker has also assumed that just because an action protects you from disease it's right. If what is meant is that it's *morally* right, there are obvious counterexamples: refusing to work in a hospital would also be morally right (assuming that working in a hospital increases your chance of becoming ill), as would be keeping your distance from your kids when they're sick.

17. If the marriage is going to work out, the woman shouldn't be older than her husband, or more educated, or more highly paid.

Assuming that age, education, and salary are related to some sort of superiority, this argument assumes that men must be able to maintain a position of superiority if the marriage is going to work out.

In standard form:

1. Greater age, education, or salary confers superiority.
 2. If a marriage is to work out, the husband must be superior.
- Therefore, if a marriage is to work out, the husband must be older, more educated, or more highly paid (than his wife).

19. After September 11, 2001, some Americans began asking: "Why would anyone in the Middle East hate America?" The fact that such a question had to be asked reflects a profound ignorance of the U.S. government's role in that region.

(Richard Sanders)

The implied premise required to make this argument work is that the U.S. is doing hateful things in the Middle East.

2.3c Practice identifying missing connections

1. Preserve our right to bear arms! Guns don't kill people—people do.

A "because" is missing. The argument is likely "Preserve our right to bear arms *because* guns don't kill people—people do."

1. Guns don't kill people.
- Therefore guns should not be banned.

Do you see the hidden assumption? That something should be banned only if it kills?

3. The feminist classroom does little to prepare students to cope in the world of work and culture. It is an embarrassing scandal that, in the name of feminism, young women in our colleges and universities are taking courses in feminist classrooms that subject them to a lot of bad prose, psychobabble, and “new age” nonsense. What has real feminism to do with sitting around in circles and talking about our feelings on menstruation? To use a phrase much used by resenter feminists, the feminist classroom *shortchanges* women students. It wastes their time and gives them bad intellectual habits. It isolates them, socially and academically. While male students are off studying such “vertical” subjects as engineering and biology, women in feminist classrooms are sitting around being “safe” and “honoring” feelings. *In this way*, gender feminist pedagogy plays into old sexist stereotypes that extol women’s capacity for intuition, emotion, and empathy while denigrating their capacity to think objectively and systematically in the way men can.

(Christina Hoff Sommers, *Who Stole Feminism?*, 1994)

The connection is made in this case: see the italicized phrase, “in this way.”

Here’s the argument in standard form:

1. In the gender feminist classroom, women talk about their feelings.

Therefore, gender feminist pedagogy reinforces sexist stereotypes that extol women’s capacity for intuition, emotion, and empathy.

The conclusion could include, in addition to “reinforces sexist stereotypes,” “does little to prepare students to cope in the world of work and culture,” “shortchanges women students,” “wastes their time,” “gives them bad intellectual habits,” and “isolates them, socially and academically.”

Note the potential flaw in the argument: the potentially mistaken implication that the women in gender feminist classrooms aren’t *also* taking biology and engineering.

5. It is natural that the husband is head of the family. Man is superior to woman. Adam was made first, and then Eve.

This could be a chain argument, with two missing “because’s”: “It is natural that the husband is head of the family *because* man is superior to woman, and we know this *because* Adam was made first, and then Eve.”

Then again, the argument could be this: “It is natural that the husband is head of the family *because* man is superior to woman and *that’s why* Adam was made first, and then Eve.”

Do you see the difference? The first argument provides a reason for man’s superiority: he was created first. (But according to that reasoning, fish are superior to humans [thanks to Lillie Deverexu Blake, 1883]). The second argument

presents the order of creation not as *evidence* for man's superiority but as a *consequence* of it (in which case we're left with no support for the claim of man's superiority).

2.3d More practice identifying implied arguments

1. In response to someone raising a question about morality, "This is a marketing meeting, not a philosophy seminar."

The implied argument is that morality has no place in marketing (it's proper place is in philosophy). But it's hardly an argument—"implied claim" is more accurate, since no reasoning is given to support that claim.

(And note that such a comment is likely just a cover-up for an inability or an unwillingness to deal with moral questions!)

3. The purpose of an army is to win wars, not promote equality. History shows that human factors like group cohesion, far more than weapons, determine victory. Women [in combat] would erode group cohesion because they distract men, who by instinct or culture would seek to protect them, and because they cannot enter into the male bonding process by which the esprit of combat units is built up.

(*New York Times*, January 6, 1990)

The implied conclusion is that women shouldn't be in combat units.

Note the assumption that there can be no women-only combat units.

Note also the implied premise that it's better to restrict women's opportunities than to expect men to change. It brings to mind the argument that women should stay inside at night because otherwise they'll be attacked by men—instead of saying the men should stay inside at night (if they're so prone to attack women).

Note also the flaw in the reasoning that arises if one claims that men in combat units are trained to work as a unit—you cover each other's back, you don't leave your buddies behind . . . If they're expected to protect fellow soldiers who are male, what's wrong with their inclination to protect fellow soldiers who are female?

5. Species X became extinct through exposure to plant Y. But plant Y flourished for millions of years before X became extinct.

1. Species X became extinct through exposure to plant Y.
2. But plant Y flourished for millions of years before species X became extinct.

Therefore, there had to have been another contributing cause.

Note the implied conclusion.

7. Setting up shop in developing countries and providing jobs will help those countries.

This is really just a claim, but assuming the speaker intends to be making an argument, it seems that there's both a premise and a conclusion missing:

1. Setting up shop in developing countries and providing jobs will help those countries.

2. We should help developing countries.

Therefore, we should set up shop in developing countries and provide jobs.

9. "Stay here!" (said while brandishing a missile launcher).

Again, so much is left unsaid, this isn't really an argument—it's nothing short of an implied threat. But if an argument has to be understood from this utterance, it'd be something like this:

1. If you don't stay here, I will launch this missile launcher in your general direction.

2. You probably don't want that to happen.

Therefore, you should stay here.

2.4a Practice identifying circular arguments

1. *Section 31 guy*: Bashir is a spy for the Dominion!!

Cisco: You have no evidence of that!

Section 31 guy: That's because they cover their tracks so well!

Cisco: That's a circular argument and you know it!

(Inexact quote of exchange between Section 31 guy and Cisco from an episode of *Star Trek: The Next Generation*)

Yes, Cisco's right—the Section 31 guy has made a circular argument: he has assumed Bashir is a spy (that's why he has covered his tracks), but that's what he was supposed to be proving.

If the Section 31 guy had provided evidence (perhaps Bashir had been witnessed telling a Dominion person important information about the Federation), he would have had a better (non-circular) argument.

3. Evil exists. So either God knows about it and can't do anything about it, in which case he's not all-powerful, or he knows about it and doesn't want to

do anything about it, in which case he's not all-good, or he doesn't know about it, in which case he's not omniscient.

No, this is not a circular argument. The premise is that evil exists, each of the three conclusions is something else. The argument does not assume what it's trying to prove.

5. Profit is good because it enables you to expand—to hire more people, open branches in new locations, and increase production and expansion. And those things are good because they increase profit.

Yes, this is a circular argument:

1. Profit enables expansion.
 2. Expansion is good because it creates profit.
- Therefore, profit is good.

But note that the second premise *assumes* profit is good (otherwise why would the creation of profit make expansion good?). And that—profit is good—is what the argument was to have *proved*. If the speaker had provided another second premise—perhaps expansion provides jobs to those who need them—then the argument would have been much better (and non-circular).

7. There is such a thing as moral knowledge because moral knowledge is something that a good upbringing provides.

Yes, this is a case of circular reasoning:

1. Moral knowledge is something that a good upbringing provides.
- Therefore, there is such a thing as moral knowledge.

Note that the premise assumes there *is* such a thing as moral knowledge—otherwise, how could the speaker say that it's provided by a good upbringing? So the speaker has assumed what he/she was trying to prove.

9. We can conceive of God, something that is greater in all ways than anything else. A something that actually exists in reality is greater than something that exists only in our mind. Therefore, God actually exists.

This standard ontological argument for the existence of a supreme god is often accused of circularity (perhaps most notably, this was done by Aquinas): the first premise, the opening sentence, assumes God exists in the greatest way—i.e., including actual existence, if we accept the second premise. But God's actual

existence is supposed to be the conclusion—so it can't be the starting point. But a careful reading indicates that the first premise says we can *imagine* God existing in the greatest way, *not* that God *does* exist in the greatest way.

The argument has, however, been rejected on other grounds (see Gaunilo, Kant, Strawson, and others).

2.5a Practice recognizing counterarguments

In which of the following pairs is the second argument a counterargument to the first? Indicate whether the counterargument presents an alternative or a challenge.

1. (i) Sexual harassment is unwanted sexual attention that makes a person feel uncomfortable or causes problems in school or at work, or in social settings.
- (ii) Unwanted sexual attention is part of nature. To find wanted sexual attention, you have to give and receive a certain amount of unwanted sexual attention.

(Princeton pamphlet)

The second argument is *not* a counterargument to the first, as it doesn't provide an alternative definition to that presented in the first argument, nor does it challenge the definition given.

3. (i) It is necessary to take growth hormones if you want to win; every good athlete does it— that's why they're so good.
- (ii) It's possible to win without taking growth hormones; diet and training informed by sound biological principles will maximize your potential just as well.

Yes, the second argument is a counterargument to the first. The first argues that it *is* necessary to take growth hormones in order to win at athletic competition, and the second argues that it is *not* necessary to take growth hormones in order to win at athletic competition.

Note the “every good athlete does it”—not only is this probably an incorrect generalization (jump ahead to Chapter 7), but it's also an appeal to the majority (jump ahead to Section 4.3.5).

5. (i) Cigarettes should be taxed more heavily than other products because they are harmful to those who smoke.
- (ii) Taxing products that are harmful to the user reveals a very patronizing attitude on the part of the government; we're adults and if we want to engage in harmful behavior, that's up to us.

This is not a counterargument. If the second argument had gone further and concluded “Therefore, cigarettes should not be taxed more heavily than other products,” then it would have been a counterargument of the challenging kind. It’s possible that the second speaker endorses cigarette taxes, but for reasons other than the patronizing ones given.

A counterargument of the alternative kind would have been something like “Cigarettes are harmful to those who smoke, so those who purchase them should have to sign a waiver forfeiting their right to public funds for future medical care.” This starts with the same premise, but presents an alternative conclusion. And both this counterargument and the given argument could be accepted.

2.5b Practice constructing counterarguments

1. A house made of styrofoam? Sounds flimsy. But spray it with a new brick-like concoction called Gancrete, and it’s virtually indestructible. Invented by scientists at Argonne National Laboratory near Chicago and builders at Casa Grande, a construction firm in Mechanicsville, Virginia, Gancrete is twice as strong as structural concrete and won’t leak or crack. It’s also affordable: When the first bags roll off the production line later this month, builders will be able to raise a home for \$10 a square foot, compared with \$150 for a standard U.S. home.

Traditional concrete, composed of calcite, water and sand or stone, can take up to three weeks to harden. Gancrete dries in one day. Its main ingredients—magnesium oxide and potassium phosphate—form tighter bonds than those in the concrete mixture. Load the slurry into a handheld pump, spray it over a Styrofoam frame, and you’ve got a home in 24 hours flat.

(Rena Marie Pacella, “Check This Out, Three Little Pigs!,” *Popular Science*, May 2005)

A counterargument to this argument (which could be summarized as “Gancrete is great because it’s indestructible, leak-proof, crack-proof, affordable, and easy to use”) could be something like “Gancrete is not great because the manufacture and disposal of styrofoam creates CFCs which puts holes into the ozone layer which leads to global warming.”

3. When doctors perform euthanasia, they’re deciding who lives and who dies. Who are they to play God? Deciding who lives and who dies, that’s up to God. Doctors should not perform euthanasia.

One counterargument might be “When doctors perform life-saving surgery, they’re deciding who lives and who dies (those who get the surgery live and those who do not die)—and yet we think life-saving surgery is morally acceptable.” Or,

more generally, “We ‘play God’ every time we step out of the way of a boulder about to fall on us.”

One might also comment on the loaded language (though I’m skipping ahead to Chapter 5 with this): the word “play” suggests that people who make such life and decisions are “playing”—surely they take such decisions, such responsibility, very seriously indeed, so the word “play” is insulting in this context.

One might note the assumption (revisit Section 2.3) that there *is* some entity called God, who, apparently, has sole responsibility for decisions about who lives and who dies, who apparently has plans about who lives and dies, plans that are unfolding perfectly, and plans with which we must not interfere.

5. Why do women remain second-class citizens? Why is there a religion-fostered war against women’s rights? Because the bible is a handbook for the subjugation of women. The bible establishes woman’s inferior status, her “uncleanliness,” her transgressions, and God-ordained master/servant relationship to man. Biblical women are possessions: fathers own them, sell them into bondage, even sacrifice them. The bible sanctions rape during wartime and in other contexts. Wives are subject to Mosaic-law sanctioned “bedchecks” as brides, and male jealousy fits and no-notice divorce as wives. The most typical biblical labels of women are “harlot” and “whore.” They are described as having evil, even satanic powers of allurements. Contempt for women’s bodies and reproductive capacity is a bedrock of the bible. The few role models offered are stereotyped, conventional and inadequate, with bible heroines admired for obedience and battle spirit. Jesus scorns his own mother, refusing to bless her, and issues dire warnings about the fate of pregnant and nursing women.

(Nontract no. 10, Freedom from Religion Foundation, 1993)

The conclusion of this argument is most clearly expressed in the third and fourth sentence: the bible establishes woman’s inferior status. A counterargument of the challenging kind would have to argue that the bible does not establish woman’s inferior status (which, by the way, is not quite the same as arguing that the bible establishes woman’s superior status).

A counterargument of the alternative kind might be to argue that the bible doesn’t present men in such a good light either: it’s full of homicidal maniacs (Samson), drunks (Noah), and rapists (too many to list); so many men are gullible and irresponsible (the apostles just walk off with this stranger, leaving their families and jobs . . .); and so on.

2.6a Practice identifying the issue of contention

1. *Tirreas*: It’s a miracle!
Shilby: No, it’s not! It’s just something we don’t understand.

Tirreas: Well, that's true enough. We surely don't understand God's ways!
Shilby: But just because we don't understand something doesn't mean it's a miracle.

The issue is whether or not it's a miracle, and their disagreement seems to stem from a difference in definition.

3. *Turner:* This campus hate speech code is a crock. If it isn't illegal in the real world, it shouldn't be banned here on campus.

Washington: Yeah, people should get a life. I mean, insults are a part of life. You just roll with it.

Turner and Washington are talking about two different issues. The issue for Turner is whether or not hate speech should be banned on campus, but the issue for Washington is whether or not people should tolerate hate speech.

5. *Longspoon:* I can't do my research project on my tribe's politics! Insiders can't research themselves! They're not sufficiently objective, they're too involved.

Charrier: But objectivity, detachment, neutrality—these things don't necessarily make for the best social research.

The issue is whether or not members of a group should research their own group (whether that would result in good research).

7. *Pro-life:* Abortion is wrong because it's ending a life!

Pro-choice: It's my body, so it's my choice!

Many people think these two sides *are indeed* two sides—of the same issue. But the pro-life stance makes an argument about whether or not it's wrong to end a life. And the pro-choice stance makes an argument about whose choice abortion should be. Those are two separate issues. It's quite possible for someone to be both pro-life and pro-choice; someone can believe that it's wrong to end a life, but that that choice (to do wrong or to do right) is up to the individual.

It would be interesting to hear a discussion involving pro-life and pro-choice advocates when the issue is clearly established (whether that issue is when exactly life begins *or* whether abortion is morally wrong *or* whether abortion should be illegal . . .).

9. *Massi:* Grocery stores should be forced to label genetically modified foods. We have a right to know what we're buying.

Shkov: Don't worry! GM foods are safe! GM is a good thing! We can make crops drought-resistant, and pest-resistant. Fruit and vegetables can stay

ripe longer. We can make them contain higher levels of vitamins and minerals. That's all good!

Massi: But it's my money.

Shkov: You're probably just upset because of all those articles that say GM stuff will disturb the natural balance. But we do that all the time, whenever we plant crops.

Massi: But GM seed doesn't replicate itself like normal seeds; farmers will be forced by huge mega-agribusinesses to pay their high prices for seed.

These two people are missing each other. Shkov is arguing about whether or not it's a good thing, biologically, to genetically modify food. Massi is arguing first about whether or not consumers should be informed about which food is genetically modified (which is independent of whether or not GM food is good), and then later about whether or not it's a good thing, economically.

2.7a *Practice recognizing the correct placement of the burden of proof*

1. Exercise can help keep your mind young, and I can prove it!

Good. Because you should—the burden of proof is indeed yours!

3. You don't believe in God? Okay, prove it! Prove to me there's no God!

In this case, the burden of proof is in the wrong place. The speaker is, presumably, making the positive claim that there *is* a god, so it is the speaker who has the burden of proof, not the person being spoken to who has apparently professed disbelief in God.

5. We just supply the demand, consumers are in control; if they don't want it, they should stop buying it. We can't prove it, of course, and we shouldn't have to. That's just the way it is. So you can't blame us for the proliferation of products you think are bad.

Well, yes they *can* prove it (they could refrain from making dangerous products and see if consumers actually take to the streets demanding them, or something like that) and they should. The burden of proof is theirs, since they're the ones claiming "Consumers are in control."

By the way, a good counterexample to their argument is that when leaded gas was taken off market—not because people stopped buying it, but because of new regulations—there was no consumer outcry, no demand for its return.

7. *Etheridge:* I tell you, air pollution triggers heart attacks! A recent study in *The New England Journal of Medicine* reported that people traveling

in cars were less apt to have a heart attack than people traveling by bicycle.

Smeal: It's probably the exercise that triggered the heart attack, not the air pollution!

Etheridge: Prove it!

Smeal: No, *you* prove it!

Both are right; each has the burden of proof—Etheridge for proving that air pollution triggers heart attacks, and Smeal for proving that exercise triggers heart attacks.

9. A risk-assessment approach to environmental protection puts the burden of proof on those environmental and residential groups claiming that certain industry activity puts the environment at risk of degradation.

This is a bit tricky. If the claim is “Industry X puts the environment at risk of degradation,” then the burden of proof is on the environmental and residential groups making that claim. However, if the claim is “This industry’s operations are safe for the environment,” then the burden of proof is on the industry to prove that their operations are safe. Perhaps the—at least for people who don’t think the burden of proof should be on the public at large—is that the risk-assessment approach depends on claims of the first kind being made. If it were a safety-assessment approach, it would require claims of the second kind and the burden of proof would therefore fall on industry, not the public.

2.8a Practice recognizing an appeal to ignorance (an error in reasoning)

1. We have found no evidence suggesting there wasn’t a Lochness monster, so we conclude the story has credibility.

This is an appeal of ignorance. Lack of evidence is given as a reason for accepting the claim as credible.

3. *Jefferson*: You say now that you like the guy, but you’ll go out with him for a while, and eventually the novelty will wear off, and you’ll get bored, and then you’ll say “Oh how could I ever have liked him?!”

Pratt: You don’t know that!

This is *not* an appeal to ignorance. Pratt is simply claiming that Jefferson doesn’t know something; Pratt is not accepting some claim on the basis of that lack of knowledge.

5. One only has obligations to the future if these obligations are based on reliable information. There is no reliable information at present as regards the distant future. Therefore one has no obligations to the distant future. We don't know whether future generations will even exist, let alone their wants and needs.

Yes, this is an appeal to ignorance, identified by Richard and Val Routley in their essay “Nuclear Power—Some Ethical and Social Dimensions” and credited to “official US analyses favouring nuclear development, which ignore (the extensive) costs of waste control on the grounds of uncertainty . . .” (The essay is reprinted in Tom Regan and Donald Van de Veer Eds., *And Justice for All: New Introductory Essays in Ethics and Public Policy*, 1982). Not knowing for sure that future generations will exist doesn't mean they won't.

2.9a Practice distinguishing facts from opinions

1. This music is awful!

Aesthetic judgments such as this one are generally considered opinions. What definition of “awful” is being used? And is it an agreed-upon definition?

3. It's wrong to envy someone else, to be jealous of who they are or what they have.

Ethical judgments are also opinions. What evidence would establish this to be correct to anyone who investigates the matter?

This is not to say, however, that ethical claims are simply matters of taste. Quite the contrary, they are, or should be, important and subject to debate, there is no doubt that some ethical claims are more defensible than others. One can't say that about matters of taste. There's no way, or reason, to challenge “I like vanilla”—but there is a way, and a reason, to challenge “I think it's okay to hurt people.”

5. When Van Morrison visits a recording studio, you can bet your worn-out vinyl copy of *Hard Nose the Highway* he will not leave until he has recorded some seriously astral Irish blues poetry (“Celtic New Year”), tributes to his pop-culture heroes (“Just Like Great”) and a lot of mellow, easy-rolling, folk-jazz numbers about the evils of the modern world and the struggle of the poet.

(Rob Sheffield, review of Van Morrison's
“Magic Time,” *Rolling Stone*, May 19, 2005)

This is a prediction, and since no one can know the future with certainty, it is, therefore, an opinion. It is, however, a very well supported opinion: apparently

Van Morrison has done those things in the past whenever he visits a recording studio (the speaker refers to such instances), and unless we have reason to believe he's changed, we can probably accept this argument.

7. On any given day, hundreds of thousands of people are in a rush.

This is a fact. Or at least it could be if we did the required research to establish its truth. The point is, the claim *is* subject to truth.

9. No ancient civilization is more commonly associated with the word “collapse” than that of the Maya of Central America. In the ninth century A.D., the Mayan population fell from at least 5 million people to a tenth that size or less . . .

. . . Typifying the Mayan collapse was a kingdom whose ruins now lie in western Honduras, at a site known as Copán. . .

Five strands, or major factors, contributing to the downfall of Copán can be tentatively identified. The first strand was simply that population growth was outstripping the available resources. The second strand, already mentioned, compounding that mismatch, was the array of negative effects that were brought on by deforestation and hillside erosion. The third strand was increased warfare, as neighboring kingdoms fought over their diminishing resources. Bringing matters to a head was a fourth strand: climate change. The worst drought to strike the region in 7,000 years began about A.D. 760 and peaked about 800. By then there were no unoccupied favorable lands to which people could move to save themselves. The ensuing decline in the Mayan population must have come about partly from starvation and warfare, as well as a from a fall in the birthrate and in the survival rate of children.

The fifth strand was a failure of the Mayan kings and nobles to address problems within their control. The attention of the leaders was evidently focused on enriching themselves, waging wars, erecting monuments, competing with each other, and extracting enough food and other resources from the peasants to support those activities. Like most leaders throughout human history, the Mayan kings and nobles did not heed long-term problems, if they noticed them at all.

(Jared Diamond, “Collapse,” *Natural History*, April 2005)

Aesthetic claims and moral claims seem clearly to be opinions. How could we establish them as facts? Predictions about the future are also opinions, but they can be subject to a high degree of certainty, depending on the evidence. Claims about the past, such as this one, fall into the same category: strictly speaking, since we can't have direct first-hand experience of the matter, claims about what happened in the past are opinions. However, we *can* access empirical evidence about the past (through archaeological digs, for example), and for this reason,

they may be more convincing than claims about the future. The tricky part is in determining what conclusions that evidence supports.

So, I'd say that the five strands described in the passage can be known as facts (though perhaps some more conclusively than others, depending on whether we arrive at them directly or indirectly, having had to "put two and two together"): we can know that population growth was outstripping available resources, that deforestation and erosion occurred, that warfare had increased, and so on. However, can we know that these factors account for the Mayan collapse? Perhaps not. Not as a certainty. (But then we can't establish similar claims about the present either—for example, that such-and-such account for the collapse of the Republican party . . .) But we *can* accept that claim as a very well-supported opinion, based on the evidence and reasoning.

Thinking critically about what you see



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It's possible this is simply an appeal to emotion—to our pity for the animal—and as such, it's not an argument (it's not an appeal to reason).

But, if it appears in the context of an animal rights magazine, for example, it may be making an argument: animals feel distress or despair, therefore it is morally wrong to cage them (or experiment upon them, if this is a lab cage rather than a zoo cage). Such an argument would have an implied premise along the line of Bentham's argument presented earlier in this chapter: if they can suffer, they have the right not to be treated cruelly. It would require the implied premises that feeling distress or despair is suffering and caging animals and/or experimenting upon them is cruel treatment.

Thinking critically about what you read

1. The paradox, say the skeptics, is that HOT-lanes [High Occupancy Toll lanes of traffic that allow drivers without passengers to drive on them for an extra fee], may actually increase car use: by freeing up extra capacity on the freeways, they allow more cars to use them. Nonetheless, simply to get at least some people from A to B quickly, it would surely be sensible to make more HOT-lanes available.

(“America’s Great Headache,” no author, *The Economist*, June 4, 2005)

The argument assumes that speed for some is the most important factor—more important than other consequences like increased pollution due to increased number of cars.

Also, it's not completely clear to me how the HOT-lanes will be “freeing up extra capacity on the freeways.” Is the expectation that few people will afford to use these lanes,

so they'll be relatively empty, which constitutes the extra capacity? If that's the reasoning, though, won't those who can't afford to use the HOT-lanes just drive in the other lanes, making them more crowded, essentially *decreasing* capacity? The argument would be strengthened if that were clarified.

3. Parents of severely diseased or defective newborns may reasonably choose not to authorize life-prolonging interventions when one of several conditions obtain: (1) extended life is reasonably judged not to constitute a net benefit to the infant; (2) it is reasonably believed that the infant's condition is such that the capacities sufficient for a minimal independent existence of personhood in a strict sense cannot be attained; or (3) the costs to other persons, especially parents and family, are sufficient to defeat customary duties of beneficence toward a particular human infant.

(Earl E. Shelp, "Deciding the Fate of Critically Ill Newborns,"
Born to Die: Deciding the Fate of Critically Ill Newborns, 1986)

This bit by itself is not an argument; it merely states the three-part claim that theologian Shelp will argue for in the rest of his essay.

5. Is there an international Islamic threat? Will humanity witness the rise of a "new Comintern" led by "religious Stalinists" poised to challenge the free world and impose Iranian-style Islamic republics through violence, or through an electoral process that enables Islamic movements to "hijack democracy"?

Muslims vary as much in their interpretations of Islam as followers of other faiths with theirs. For the vast majority of believers, Islam, like other world religions, is a faith of peace and social justice, moving its adherents to worship God, obey His Laws, and be socially responsible.

(John L. Esposito, "Political Islam: Beyond the
Green Menace," *Current History*, January 1994)

The argument here is this:

1. Muslims vary in their interpretations of Islam.
2. Most Muslims consider Islam a faith of peace and social justice.

Therefore, there is no international Islamic threat.

Note that the conclusion is implied.

One might counter that an international threat, of any kind, can come from minorities—so it doesn't matter, for the purposes of this argument, that the majority of Muslims endorse peace and social justice. In particular, such a threat can come from minorities with power.

7. At the root of many of the assumptions about biology and intelligence is the undeniable fact that there have been fewer women "geniuses." The distribution of genius,

however, is more a social than a biological phenomenon. An interesting aspect of the lives of geniuses is precisely their dependence on familial, social, and institutional supports. Without schools to accept them, men of wealth to commission their work, colleagues to talk to, and wives to do their domestic chores, they might have gone unrecognized—they might not even have been so smart.

(Sheila Tobias, *Overcoming Math Anxiety*, 1978)

The argument seems to be this:

1. Geniuses depend on familial, social, and institutional supports.
 2. Women typically do not have these supports. (implied premise)
- Therefore, there have been fewer female geniuses than male geniuses.

Note that the speaker does provide elaboration, via examples, of “familial, social, and institutional supports”—which is a good thing.

Note also that the second premise is implied. The argument would have been better if it had been stated outright, perhaps with a few illustrative examples.

9. I think we have to admit that talk of Santa is a lie and can sometimes do harm. Some kids are bitterly disappointed when their illusion is shattered, and some are morally confused. (“Mom and Dad say not to lie, then do it themselves.”) Fortunately, this doesn’t happen often. Usually the Santa lie, befitting Christmas, is a white one.

For starters, the lie is only temporary. You tell kids about Santa now, but you’ll straighten them out later. The deception isn’t forever.

And the deception is a mild one. You don’t take a falsehood and call it truth; you take a fiction and call it truth—a smaller distortion. This means the loss of the illusion is gentler. When kids are older they don’t lose Santa entirely, they just think of him in a different way.

Finally, the deception is good for kids. Believing in Santa adds magic and excitement to Christmas; the anticipation is keener, the delight sharper. Parental love is fine and even profound, but a guy from the North Pole is far more exotic.

(Thomas Hurke, *Principles: Short Essays on Ethics*, 1994)

The first argument is this:

1. Some kids are bitterly disappointed when their illusion is shattered.
 2. Some kids are morally confused when they find their parents have lied.
- Therefore, talk of Santa Claus can do harm.

Then the speaker presents a counterargument:

1. The lie of Santa Claus is only temporary.
2. The Santa Claus deception is a mild one.

3. The Santa Claus deception is good for kids.

Therefore, talk of Santa Claus is acceptable.

And note that the third premise of the counterargument is argued for:

1. Belief in Santa Claus adds magic to Christmas.

2. Belief in Santa Claus adds excitement to Christmas.

Therefore, the Santa Claus deception is good for kids.

Reasoning test questions

1. Prolonged exposure to nonionizing radiation—electromagnetic radiation at or below the frequency of visible light—increases a person’s chances of developing soft-tissue cancer. Electric power lines as well as such electrical appliances as electric blankets and video-display terminals are sources of nonionizing radiation.

Which one of the following conclusions is best supported by the statements above?

- (A) People with short-term exposure to nonionizing radiation are not at risk of developing soft-tissue cancers.

The passage says that prolonged exposure *increases*—not *creates*—a person’s chances of developing soft-tissue cancer, thus implying that there *is* a risk even with short-term exposure. So this is not the correct conclusion to draw. Also, note that if the passage simply said that there *is* a risk with prolonged exposure, that would *not* mean that there *isn’t* a risk with short-term exposure.

- (B) Soft-tissue cancers are more common than other cancers.

The passage doesn’t talk at all about other cancers, so this conclusion can’t be drawn from it.

- (C) Soft-tissue cancers are frequently cured spontaneously when sources of nonionizing radiation are removed from the patient’s home.

The passage doesn’t talk at all about curing soft-tissue cancers, so this conclusion can’t be drawn from it.

- * (D) Certain electrical devices can pose health risks for their users.

The passage says that certain electrical devices are sources of nonionizing radiation, and that nonionizing radiation increases a person’s chances of developing soft-tissue cancer

(which can be considered a health risk), so, yes, it can be concluded that certain electrical devices can pose health risks for their users.

- (E) Devices producing electromagnetic radiation at frequencies higher than that of visible light do not increase a person's risk of developing soft-tissue cancers.

The passage doesn't talk at all about such devices, so this conclusion can't be drawn from it.

(The Official LSAT Prep Test XXI, Section 3, #18)

3. *Francis*: Failure to become properly registered to vote prevents one-third of the voting-age citizens of Lagonia from voting. If local election boards made the excessively cumbersome registration process easier, more people would register and vote.

Sharon: The high number of citizens not registered to vote has persisted despite many attempts to make registering easier. Surveys show that most of these citizens believe that their votes would not make a difference. Until that belief is changed, simplifying the registration process will not increase the percentage of citizens registering to vote.

The main issue in dispute between Francis and Sharon is

- (A) whether changing the voter registration process would be cumbersome

Neither Francis nor Sharon talk about whether *changing* the process would be cumbersome; Francis argues that the process itself is currently cumbersome.

- *(B) why so many citizens do not register to vote

This is the issue in dispute: Francis claims that people don't vote because the registration process is cumbersome, whereas Sharon claims that people don't vote because they don't think their votes will make a difference.

- (C) what percentage of those registered to vote actually vote

Francis says one-third don't vote, and Sharon says a "high number" aren't registered to vote; since Sharon does *not* challenge Francis' reference to one-third, we can assume she accepts that or some similarly high percentage.

- (D) whether local election boards have simplified the registration process

You might think this is an issue of dispute: Francis says "If local election boards made the excessively cumbersome registration process easier . . ." which implies they haven't yet done that, and Sharon refers to "many attempts to make registering easier." *But* Sharon does

not say any of those attempts *succeeded*; if they have failed, she may well agree with Francis that boards have *not* simplified the process.

- (E) why the public lacks confidence in the effects of voting

Francis doesn't address this issue at all, so we don't know what he thinks about it, so we don't know whether he agrees with Sharon or not on this point.

(*The Official LSAT Prep test XXIV, Section 3, #1*)

5. Early in the development of a new product line, the critical resource is talent. New marketing ventures require a degree of managerial skill disproportionate to their short-term revenue prospects. Usually, however, talented managers are assigned only to established high-revenue product lines and, as a result, most new marketing ventures fail. Contrary to current practice, the best managers in a company should be assigned to development projects.

Which one of the following, if true, most strengthens the author's argument?

- (A) On average, new ventures under the direction of managers at executive level survive no longer than those managed by lower-ranking managers.

Assuming that managers at the executive level are talented managers, this information contradicts the first premise of the argument (that new products/ventures require talented managers in order to succeed—see the first two sentences); therefore, it *weakens* the author's argument.

- (B) For most established companies, the development of new product lines is a relatively small part of the company's total expenditure.

If this were true, and if the argument were limited to "established companies"—which it isn't—this, again, *weakens* the argument: it suggests that even if the premises are correct, it doesn't matter much financially, so it's okay—we need *not*, as the argument concludes, assign the best managers to new products.

- (C) The more talented a manager is, the less likely he or she is to be interested in undertaking the development of a new product line.

This weakens the argument in that it makes an oblique reference to an unpleasant consequence of the conclusion: if talented managers are assigned to new products, they won't be happy.

- *(D) The current revenue and profitability of an established product line can be maintained even if the company's best managers are assigned elsewhere.

This anticipates an objection to the conclusion of the argument—the objection that if talented managers are taken from established products and assigned to new products, revenue and profitability of those established products would decrease—and provides evidence that the objection is unfounded. It thus strengthens the argument.

- (E) Early short-term prospects of a new product line are usually a good predictor of how successful a product line will ultimately be.

This seems to provide support for the conclusion: if talented managers are assigned to new products, they'll do well, and if new products start off doing well, they'll continue to do well. But the argument implies that established products do well because they're assigned to talented managers, not because they had a good early performance. So while a good early performance may be a predictor of later success, it's not a cause. So, in the end, this doesn't provide much support for assigning talented managers to new products.

(The Official LSAT Prep Test XXII, Section 4, #8)



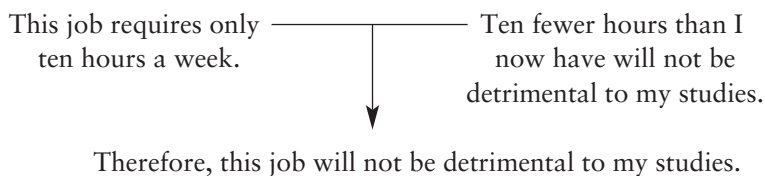
Chapter 3

The Structure of Argument

3.2a Practice identifying single convergent arguments

1. Having this part-time job will not be detrimental to my studies because the job requires only ten hours a week, leaving over forty-five hours of study time (the recommended three hours outside of class for every hour of class; I have five courses, each of which meet for three hours a week).

Yes, this is a single convergent argument. The additional premise would be “Ten fewer hours than I now have will not be detrimental to my studies.”



Note the presumption that forty-five hours of study time will be sufficient.

3. Pesticides can't be that bad for the environment—they make fruit and vegetables look nice.

Yes, this is a single convergent argument: one premise leads to one conclusion.

But if you noticed that the conclusion (pesticides can't be that bad for the environment) doesn't follow at all from the premise (pesticides make fruit and vegetables look nice), you've noticed a *non sequitur*. Congratulations! And take a sneak peek at Section 4.4.3 if you like! (Unless, of course, you added the unlikely premise "Things that make things look nice aren't bad for the environment" ...)

Pesticides make fruit and vegetables look nice.



Therefore, pesticides can't be that bad for the environment.

5. With all these headaches, who'd even want to be CEO? It's an apt question. Leslie Gaines Ross, chief knowledge officer at Burson-Marsteller, has surveyed executives at Fortune 1000 companies, asking how many aspired for a promotion to the corner office. In 2001, 27 percent said they had no interest in becoming chief executive. By 2004, that number jumped to 60 percent. . . . It's important to keep such survey data in perspective: thanks to huge compensation packages and mankind's instinctive appetite for power and perks, there will always be someone who wants to be the boss. But in this day and age, having the title of boss and having real power aren't necessarily the same thing.

(Daniel McGinn, "Building a Better CEO," *Newsweek*, March 28, 2005)

No, this isn't a single convergent argument. What we have here are *two* separate premises leading to a single conclusion; it's a multiple-separate convergent argument (see next section).

There are huge compensation
packages for CEOs.



Mankind has an instinctive
appetite for power and perks.



Therefore, there will always be someone who wants to be boss/CEO.

Note the absence of an arrow connecting the two premises. Note the use of "*mankind*". . . did the person mean their argument to apply to everyone and is using "*mankind*" when perhaps "*humankind*" is clearer, or did the person mean to limit their argument to men only?

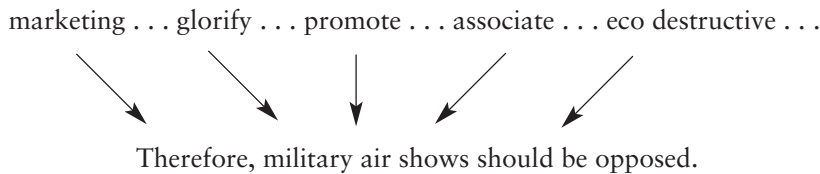
3.2b Practice diagramming single convergent arguments

See answers to Exercise 3.2a.

3.3a Practice identifying multiple-separate convergent arguments

1. Military air shows should be opposed because they pretend to be educational events to teach children and youth about aviation, science, and technology, but they're really marketing opportunities for military corporations to peddle their deadly products of war; they glorify war machines and romanticize as heroes those who wield and use deadly weapons, they promote war as the best means of resolving conflicts while totally ignoring peaceful means, they associate positive feelings of fun and joy with technology that causes grief and misery, and they are ecologically destructive (those warplanes burn more fuel per hour than the average U.S. car in a year).

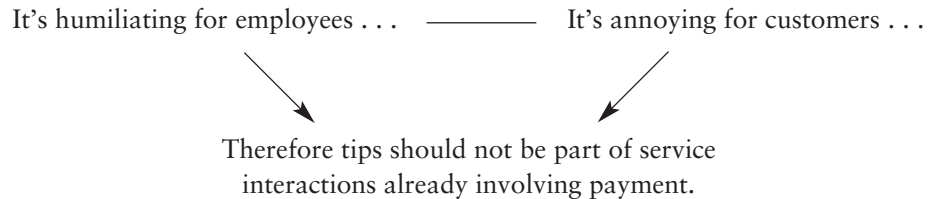
This is a multiple-separate convergent argument. Five separate reasons are given leading to the conclusion that military air shows should be opposed.



3. Regarding Judy McGuire's screed on tipping ("Tips on Gratuity," 6/8): Nobody should ever have to tip for a service they are already paying for. It's humiliating for employees to have to put together tips to make rent, and annoying for customers to have to waste time attaching a monetary figure to a worker's performance. In civilized countries (Japan, Italy, etc.) neither waiters nor waitresses nor bartenders nor taxi-drivers sweat customers. And why is that? They're paid a wage they can live on. Which brings us to the real point: The real cheapskates are not the patrons who leave chump on the bar, but the bar owners who fob off on their customers the responsibility for paying their employees.

(T.M. Gendron, Cuernavaca, Mexico, letter to the editor, *New York Press*, June 22–28, 2005)

Yes, this passage contains a multiple-separate convergent argument. Two reasons (three if we count mention of the case in other countries—though that would be an error in reasoning, an appeal to majority or custom [see Sections 4.3.2 and 4.3.3]) is given to support the conclusion that we shouldn't have to tip (or perhaps more clearly stated, tips shouldn't be part of service interactions already involving payment).



A separate argument (single convergent) is made such that if service personnel were paid a living wage, they wouldn't have to worry about getting tips.

The final sentence is either just a claim (owners who expect tips in their establishment are cheapskates) or an implied argument (it is the owners' responsibility to pay their employees, so when tips are expected in their establishment, they are being irresponsible, "cheapskates").

5. The right to a job? Is there such a thing? On what basis? One might say that it's prerequisite for the pursuit of life, liberty, and happiness. Wait a minute—I have a *right* to happiness? How much happiness? (I can imagine that if an employer has to pay Person A \$X for A to be happy, then he/she can't hire Persons B, C, or D, which causes them unhappiness, or then the employer will have to raise prices, so neither E nor F will be able to buy the product, which will make them unhappy, not to mention the employer him/herself—perhaps we're confusing the right to X with the right to *pursue* X, or even the right to pursue, *on equal grounds*, X.)

This is not really an argument. There is an implied claim that one does not have a right to a job, but no reasoning is given except to suggest that it might be a requisite for certain pursuits. But then those pursuits—or more specifically, the right to those pursuits—is questioned. This questioning implies that the claim that one does not have a right to happiness, in a sort of *reductio ad absurdum* way.

Note the equivocation (see Section 5.3.4) of "pursuit of happiness" with "happiness"—having the right to the former is not the same as having the right to the latter, since *pursuing* happiness is not the same thing as *having* happiness.

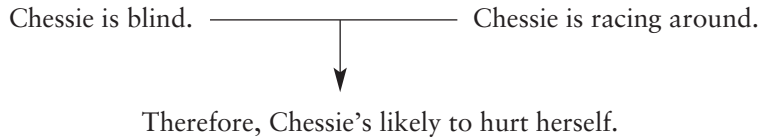
3.3b Practice diagramming multiple-separate convergent arguments

See answers to Exercise 3.3a.

3.4a Practice identifying multiple-linked convergent arguments

1. When Chessie (the canine I lived with before Taffi) went suddenly blind, she seemed not to know it at first and continued to race around like always. I thought for sure she was going to hurt herself.

Yes, this is a multiple-linked convergent argument.



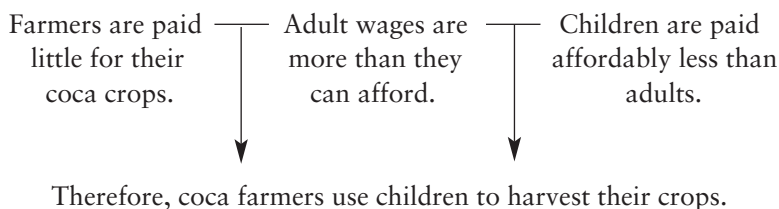
Just being blind is no cause to think she'll hurt herself because she could also be moving slowly and carefully (perhaps she's also arthritic). And just racing around is no cause to think she'll hurt herself because, well, she can see where she's going. Only when the two premises are considered together are we led convincingly to the conclusion (which, by the way, would have been clearer if the speaker had inserted a "So").

3. Life is like a box of chocolates and chances are the key ingredient, coca, was grown and harvested with child labour. More than a quarter of a million children as young as six work in West Africa's cocoa industry, reports the Nigeria-based International Institute of Tropical Agriculture. On Ivory Coast plantations, which supply 40% of the world's cocoa, an estimated 15,000 children are slaves kidnapped by traders or lured with false promises of high pay. For up to 18 hours a day, children use machetes to harvest coca beans from jungle farms. Without masks or other protective equipment, they spray crops with insecticides and pesticides. Farmers claim they rely on underage labourers because they are paid so little for their crops that they cannot afford adult wages. Global chocolatiers like Nestlé and Hershey's have pledged to take steps to end child labour in the industry by 2005. In the meantime, you can sample slave-free chocolate from health food stores or your local fair trade organization.

(Sarah Cox, "Made by Children, For Children,"
This Magazine Jan/Feb 2004)

Most of this is just a claim that coca is harvested by children who are coerced to work in unsafe conditions.

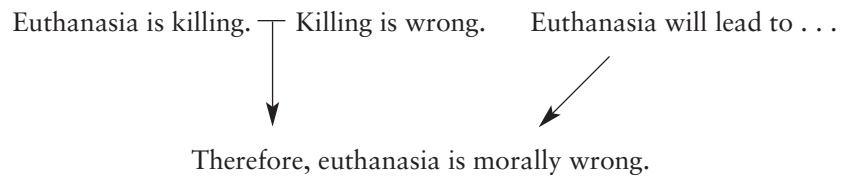
There is, however, a multiple-linked convergent argument in the sentence "Farmers claim they rely on underage labourers because they are paid so little for their crops that they cannot afford adult wages."



Each of the premises by itself doesn't provide support for the conclusion, but when the two are considered together, along with the implied premise, the argument works.

5. Euthanasia is wrong. First off, it's killing. And killing is wrong. Second, if we make it okay, then doctors and nurses might not try as hard to save you, and then that attitude would carry over to those patients who are not suitable candidates for euthanasia, so it would lead to an overall decline in the quality of medical care.

This is a multiple-separate convergent argument—there are two separate arguments leading to the conclusion stated at the outset. However, the first argument, if we insert the missing premise, becomes a linked argument (we need both premises to lead to the conclusion).



Note, however, that the second argument is a “slippery slope” argument, which is sometimes considered an error in reasoning (see Section 8.4.7).

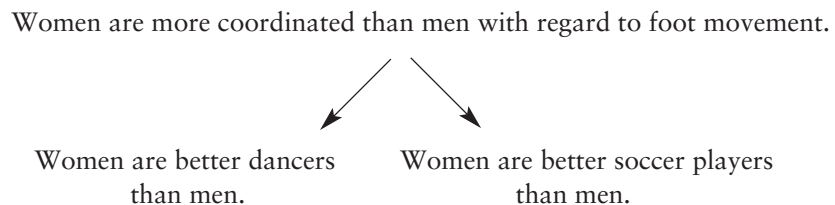
3.4b Practice diagramming multiple-linked convergent arguments

See answers to Exercise 3.4a.

3.5a Practice identifying divergent arguments

1. Women are much better than men on their feet, they're more coordinated with their feet. That's why they make better dancers. And why they make better soccer players.

Yes, this is a divergent argument.

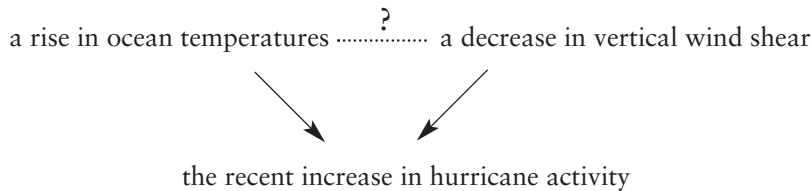


3. Since 1995, the Atlantic has been in a period of higher hurricane activity. Scientists say the cause of the increase is a rise in ocean temperatures and a decrease in the amount of disruptive vertical wind shear that rips hurricanes apart. Some researchers argue that global warming fueled by man's generation of greenhouse gases is the culprit.

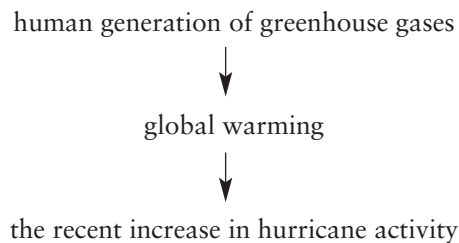
Forecasters at the National Hurricane Center say the busy seasons are part of a natural cycle that can last for at least 20 years, and sometimes up to 40 or 50. They say the conditions are similar to those when the Atlantic was last in a period of high activity in the 1950s and 60s.

It's also difficult to know whether the Atlantic was even busier at any time before record keeping began in 1851. And satellites have only been tracking tropical weather since the 1960s, so some storms that just stayed at sea before then could have escaped notice.

This is not a divergent argument. It's actually a description of three separate arguments for the recent increase in hurricane activity. The first argument attributes the increase to a rise in ocean temperatures and a decrease in certain wind shear. So this one is a multiple convergent argument, but I don't know enough about the issue to say whether these reasons are linked or not.



The second argument is a chain of two single convergent arguments: human generation of greenhouse gases leads to global warming which leads to increased hurricane activity. See Section 2.2.5 for an explanation of chain arguments.



The last argument is a single convergent argument: natural cycles have led to the increase.

there are natural cycles of 20–50 years



the recent increase in hurricane activity

5. Lay-offs are often done according to seniority—but should this be the case? Is that morally right? Some associate seniority with loyalty, but are we sure that length of employment at any one company is a measure of the employee's loyalty to that company? Might it be, instead, as is more likely the case today, a measure of the paucity of other employment opportunities? Or perhaps it is just a measure of the employee's reluctance to take risks, to change directions. Seniority *per se* is merely longevity; it is a measure of quantity, not quality. Quantity *may* affect quality, longevity *may* increase ability and accomplishment; but then again, it may not. (Many a mediocre employee is given a raise year after year just because they've been there one more year. Is it any wonder then that so many employees develop a clock-punching mentality, thinking that just being there, just putting in time, is enough? After all, it is: if they put in enough time, they get that wage increase, those extra holidays—and a stronger guarantee that they'll continue to just be there.)

This is multiple-separate convergent argument: the conclusion is that employees shouldn't be laid off according to their seniority, and there are two reasons given, that stand independently, for that conclusion—seniority doesn't necessarily imply loyalty and seniority doesn't necessarily imply quality (assuming that employers want to keep their loyal and qualified employees).

Seniority doesn't imply loyalty.

Seniority doesn't imply quality.



Lay-offs should not accord with seniority.

3.5b Practice diagramming divergent arguments

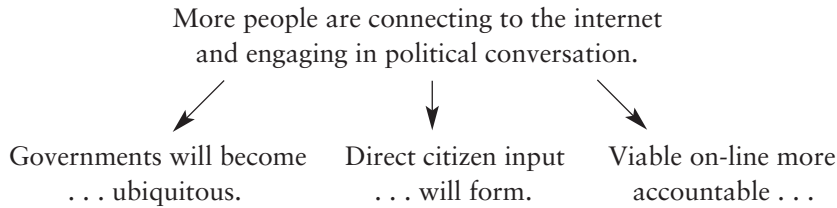
See answers to Exercise 3.5a.

3.6a Practice identifying causal chains

1. “The utopians propose that as more and more people connect to the internet and engage in political conversation, governments will become more accountable to the people, direct citizen input into the political process will become ubiquitous, and viable on-line political communities will form.”

(Kevin A. Hill and John E. Hughes, *Cyberpolitics: Citizen Activism in the Age of the Internet*, 1998)

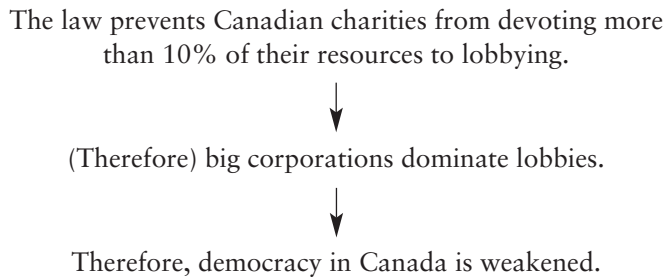
This is not a causal chain; it's a divergent argument (see Section 2.2.4):



3. Canadian charities are governed by an archaic, 400-year-old law that prevents them from really playing politics. Because they can only devote 10% of their resources to lobbying, they're being drowned out by big corporations. If we want a stronger democracy, it's about time that changed.

(Bronwyn Drainie, "Dissent Should Be Tax-deductible,"
This Magazine, March/April, 2002)

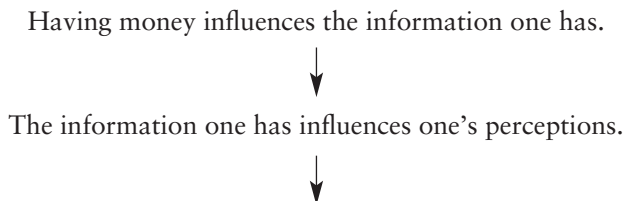
Yes, this is a causal chain, with the conclusion somewhat implied:



5. Money not only can make the difference but can make a huge difference. . . . People make decisions based upon the way they see the world, and the way they see the world is conditioned by the information they have; and money can influence not only the information they have but also the perceptions they have, and therefore influences who wins and loses.

(Richard Wirthlin, Republican pollster, quoted by Elizabeth Drew,
Politics and Money: The New Road to Corruption, 1983)

This might be mistaken as a causal chain:



One's perceptions influence one's decisions.



Decisions can determine who wins and loses.



Therefore, money can make a huge difference to who wins and loses.

But each point is not really the conclusion of the preceding point; instead, this is better thought of as a multiple-linked convergent argument, with each of the four points being linked premises that together lead to the conclusion.

Having money
can influence the
information one
has.

The information
one has
influences
perceptions.

One's
perceptions
influence one's
decisions.

Decisions
determine who
wins and loses.



Therefore, money can make a huge difference to who wins and loses.

3.6b Practice diagramming causal chains

See answers to Exercise 3.6a.

3.6d Practice diagramming multi-structured arguments

1. Competition is the principal mode by which men relate to each other—at one level because they don't know how else to make contact, but more basically because it is the way to demonstrate, to themselves and others, the key masculine qualities of unwavering toughness and the ability to dominate and control. The result is that they inject competition into situations which don't call for it.

(Marc Feigen Fasteau, *The Male Machine*, 1975)

They don't know
how else . . .

Competition is the way
to demonstrate . . .



(Therefore) competition is the principal
mode by which men relate to each other.



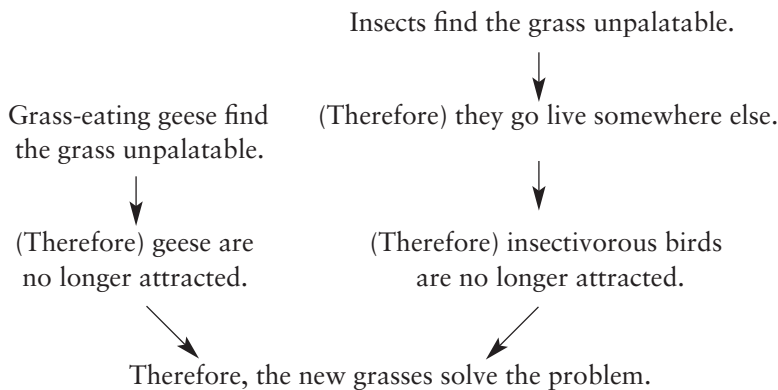
Therefore, they inject competition into situations which don't call for it.

So we have here a multiple-separate convergent argument (two separate premises leading to a conclusion) turning into a chain (that conclusion in turn leads to another conclusion).

3. So Chris Pennell, of AgResearch, a government-owned research firm in New Zealand, is trying to provide [an alternative solution to the problem of birds flying around airports, attracted by the large expanses of grass, and potentially causing great damage]. He proposes to make the grass itself unpalatable . . .

He now has two symbiotic cultivars that seem to [solve the problem of birds flying around airports and potentially causing damage]. One of these is cold-tolerant and grows fastest in the winter, the other is heat-tolerant and grows best in the summer. Canada geese—large, grass-eating birds that cause a lot of problems at airports—learn from a single exposure that these grasses are nasty, and will not return to them. Grass-eating insects get the message, too, so insectivorous birds such as starlings have no reason to hang around the new grasses. At least, that is the result of small-scale trials. Dr. Pennell has now made an arrangement with the airport in Christchurch, New Zealand, to see if it works in the real world. If it does, there will be some hungrier, but longer-lived birds around, and passengers will be less likely to be delayed by avian purée in the engines.

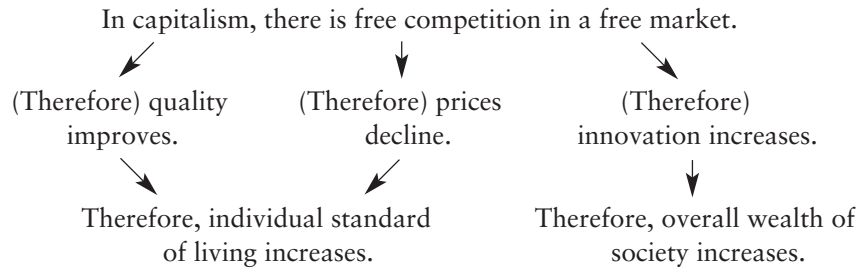
(“Grassed up,” *The Economist*, June 4, 2005)



So we have two separate chains converging to a single conclusion.

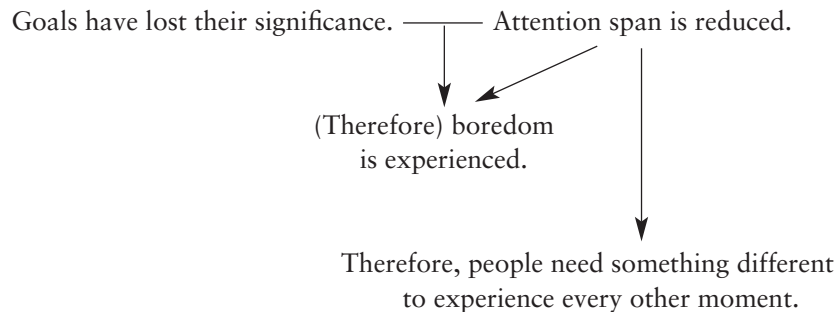
5. The rationale of capitalism is that an unintended coordination of self-interested actions will lead to the production of the greatest welfare of the whole. The logic proceeds thusly: As a natural result of free competition in a free market, quality will improve and prices will decline without limit, thereby raising the real standard of living of every buyer; to protect themselves in competition, sellers will be forced to innovate by discovering new products and new

markets, thereby raising the real wealth of the society as a whole. Products improve without limit, wealth increases without limit, and society prospers.



In this case, we start with a divergent argument, whereby one premise leads to three subconclusions. Then two of those subconclusions lead to a conclusion, in a multiple-separate convergent argument, and the other subconclusion leads to another conclusion, in a single convergent argument.

7. Boredom is a cultural phenomenon unique to Western culture . . . Boredom is a product of culture where individual and communal goals have lost all their significance and meanings, where an individual's attention span is no longer than a single frame in an MTV video: five seconds. In such a culture, one needs something different to do, something different to see, some new excitement and spectacle every other moment. Netsurfing provides just that: the exhilaration of a joyride, the spectacle of visual and audio inputs, a relief from boredom and an illusion of God-like omniscience as an added extra.
(Ziauddin Sardar, *The Cybercultures Reader*, 2000)



In this argument, the premise that we have a shortened attention span serves two purposes. It is part of a multiple-linked convergent argument leading to the subconclusion that boredom is experienced when it is linked with the first premise that goals have lost their significance; presumably if it were only the case that our goals have lost their significance, we wouldn't necessarily be bored because non-goal oriented activities could occupy our attention, *and* if it were only the case that our attention spans have become short, we wouldn't necessarily be bored

because our goals would still have meaning (perhaps with a short attention span, we'd just be more unlikely to reach them). It is also part of a multiple-linked convergent argument leading to the conclusion that people need something different every other moment; again, boredom alone wouldn't lead to that conclusion, nor would a short attention span alone.

9. At least since the 1990s, the U.S. has faced a growing shortage of registered nurses. According to the Department of Health and Human Services (DHHS), in 2020 the demand for nurses could exceed the supply by 40 percent if nothing is done to stop this trend. The 20th century has seen recurrent shortages, but this one is different, in part because of an unprecedented demographic squeeze. The workforce made up of those aged 20 to 35, the prime recruiting pool for nurses will decline at the same time baby boomers begin to reach retirement and consume medical services at a faster rate. But perhaps a more important factor is the low status of nurses. At one time, low status was far less of a deterrent, but now, when virtually all professions are open to women, nursing has become a relatively unattractive career choice. Moreover, the work is physically demanding: it is so strenuous that nurses generally cannot work much beyond their mid-50s. Indeed, the top concerns of nurses are their increasing workload and long hours.

Furthermore, pay lags behind other occupations that have similar educational requirements: an elementary schoolteacher, for example, earned \$14,000 more than a nurse in 2001, according to the DHHS. Registered nurses are leaving the workforce at a faster rate than ever: currently, almost 500,000 RNs do not work in nursing.

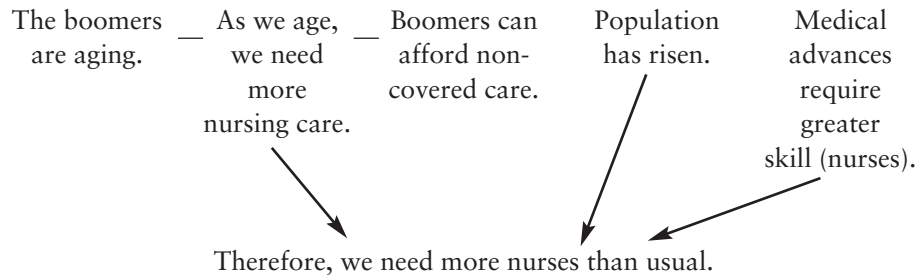
Demand for nurses is rising because of population growth, more elderly persons and medical advances that require greater skill. Health industry economics also drives demand. Since 1990, an average of 85 percent of the population have had some form of health insurance and so have been covered, at least partially, for nursing care. At the same time, real per capita disposable income has grown steadily, making it easier to pay for non-covered health care.

Nursing seems to defy the normal laws of supply and demand, given that pay has lagged at a time of higher demand. A possible explanation lies in the superior bargaining power of hospitals—the major employers of RNs—combined with the relative lack of organization of nurses. Only 38 percent of hospital nurses are unionized. Another factor affecting pay is the failure of nurses to develop a strong constituency among the general public. In contrast, schoolteachers have forged strong community bonds through local parent-teacher organizations.

Broadening the recruitment base—nurses are now 86 percent white—would help alleviate the shortage, but long-term solutions most likely will have to deal with the more fundamental nature of the field. In addition to higher wages, the key to resolving the shortage may lie in giving nurses more

power over working conditions and over health care decisions now made by physicians.

(Roger Doyl, “Nurses in Short Supply,” *Scientific American*, January 2005)



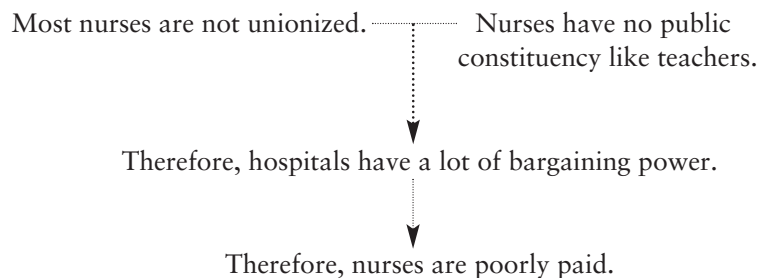
The argument starts with the premise that the boomer generation is aging. As we age, we need more nursing care. But only when that is combined with either “more care is covered” or “the boomers can afford more non-covered care” do we get to “we need more nurses than usual.” Two other reasons for the increased demand for nurses are given in the third paragraph: population growth and medical advances.

Another bit of the extended argument is this:

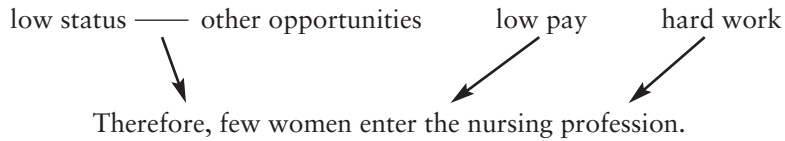
1. Nurses generally come from the 20–35 age bracket.
2. The 20–35 age bracket is decreasing in size.

Therefore, we have fewer nurses than usual.

Then, there’s this bit:



I think this is a multiple-separate convergent argument, but it’s possible to consider the two premises linked—perhaps the speaker means that it’s because of the two factors together (nurses not being unionized and not having a public constituency) that hospitals have a lot of bargaining power. Note that the conclusion of this argument then becomes a premise in the next bit:



And in this bit, four premises lead to the conclusion, a conclusion which adds further explanation to the conclusion of the second bit (that we have fewer nurses than usual), but the speaker presents the first two are linked: low status alone would not mean fewer nurses because if that's the only job available to them, they'd do it; it's because it's low status *and* they have other opportunities that leads to fewer women becoming nurses. However, I'd link the other opportunities premise *also* with the poor pay and hard work, because, again, if that's the only opportunity available, those aspects wouldn't necessarily deter you.

Note the assumption that only women become nurses.

Thinking critically about what you see



Background picture © Corbis

The advertisement seems to imply that cosmetic surgery will increase one's self confidence. So where does that leave us in terms of an argument?

1. Cosmetic surgery will increase your self confidence.
2. You can't put a price tag on self confidence.

Therefore, you can't put a price tag on cosmetic surgery.

Is that the implied conclusion? If so, what does that mean, exactly? That cosmetic surgery should have no price—that it should be free? Unlikely, given that the context is an advertisement for cosmetic surgery. More likely, the intended point is that no price is too high a price.

Thinking critically about what you read

1. There are numerous arguments for the legalization of anything, but there are likely an equal or great number of arguments against legalization.

This is not an argument. The speaker has simply made a claim, or two claims, and while they are likely to be true, he/she has given no reasoning or evidence to convince us to accept the claims.

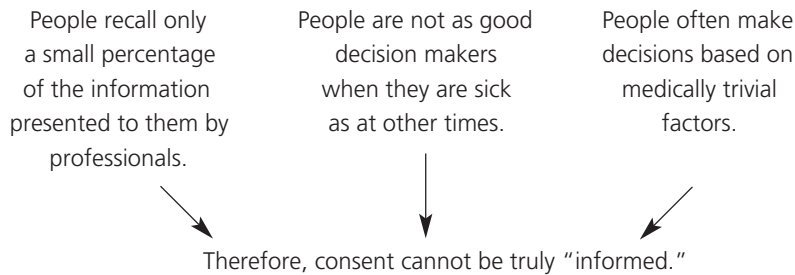
And, shame on you if you didn't point this out, *so*? The *number of arguments* doesn't matter to anything; it's the *quality of the arguments* that matters. One strong argument can make a conclusion acceptable. Just one. One good one. If your argument is full of errors,

and/or if your premises are simply not true, or irrelevant, it doesn't matter whether you've got one or ten. Your conclusion won't have any support. No one will have any reason to accept it. Including yourself.

3. Consent cannot be truly "informed." Many practicing clinicians report that their patients are unable to understand the complex medical information necessary for a fully rational weighing of alternative treatments. There is considerable research support for this view. A variety of studies document that patients recall only a small percentage of the information that professionals present to them (Meisel and Roth, 1981): that they are not as good decision makers when they are sick as at other times (Sherlock, 1986); and that they often make decisions based on medically trivial factors.

(Robert M. Arnold and Charles W. Lidz, "Informed Consent: Clinical Aspects of Consent in Health Care," in Warren T. Reich, ed., *Encyclopedia of Bioethics*, 1995)

There is one conclusion here, making it a convergent argument; three premises lead to that conclusion, so it's multiple, and since the premises stand independently of each other, it's a multiple-separate convergent argument:



One might argue that people's lack of understanding the medical information concerning choosing treatment is probably no worse than their lack of information concerning choosing a spouse, so consent to marriage cannot be truly informed either. Note that this argument would be, however, interesting, irrelevant to the argument in question. Since it doesn't address the conclusion of the argument in question, it's not a counterargument, and it doesn't call into question any of the premises of the argument in question, it doesn't weaken it.

5. *All I would ask would be that people do not meddle with me when I am busy painting, or eating, or sleeping, or taking a turn at the brothel, since I haven't a wife.*

(Vincent van Gogh, 1853–1890)

Vinnie
my idol
my starry starry night
my symbol of the misunderstood

you are all too easy
 to understand.
 I've looked at each painting
 I've read every letter:
 it is a portrait of a young man
 as a commercial artist.
 you're not trying hard enough to sell
 my pretty flowers and sceneries
 you scold your brother as he supports you
 too incompetent or too greedy or too selfish
 to support yourself, to support your own art.
 and that bit with the ear—
 the madness of genius?
 hardly.
 a childish tantrum is more likely
 or the madness of syphilis.

(Chris Wind, in *dreaming of kaleidoscopes*, 2011, p. 25)

I thought you might like to see that literature, even a poem, can indeed present an argument. There are four premises:

1. van Gogh wrote letters to his brother complaining that he (his brother) wasn't selling enough of his (van Gogh's) paintings.
2. van Gogh depended on his brother to support him financially (apart from being his sales agent).
3. van Gogh paints "pretty flowers and sceneries."
4. van Gogh frequently 'takes a turn' at a brothel 'since he hasn't a wife.'

Premises 1 and 2 support the conclusion that van Gogh is greedy or selfish (though perhaps "self-centered" would be a better choice).

Premises 1 (not the complaining part, but the part about selling his work) and 3 support the conclusion that van Gogh is just a commercial artist.

Premises 1 (the complaining part), 2, and possibly 4 support the conclusion that van Gogh is immature. We might add here an implied premise about van Gogh's attitude toward women, or at least wives, that they are primarily (?) for sex.

So this is a multi-structured argument—multiple premises, all separate, leading in various combinations to multiple conclusions.

7. It seems to me that there is something fundamentally irrational about claiming as your identity aspects of your self that are mere accidents of birth, such as race, sex, and

nationality: if you do not choose X, if you have no control over X, then surely you cannot justifiably take any credit or blame for X—nor then can you justifiably take any of the attendant benefits and burdens, rights and responsibilities. It's also a very passive thing, basing your identity on what chance has done to you rather than on what you've done yourself. Perhaps most importantly, it is also unfair, if rights and responsibilities are assigned on such an identity.

1. You do not choose your race, sex, or nationality.
- ↓
2. (Therefore), you cannot control your race, sex, or nationality.
- ↓
3. (Therefore), you cannot justifiably take credit or blame for your race, sex, or nationality.
- ↓
4. Therefore, you cannot justifiably take any rights or responsibilities based on your race, sex, or nationality.

Notice that the move from 1 to 2 assumes that a prerequisite for control is choice. Is that an acceptable assumption?

9. In the United States, I can't be drafted; in Canada, I am not allowed full combat training; and in Israel, I am not permitted to carry arms in the front lines. I am not a conscientious objector; I am not aged, infirm or feeble-minded. I am a woman.

Military leaders have a long list of reasons for not drafting, training or arming me: I'd increase military spending because of all those toilets, separate showers and funny-sized uniforms I need; somebody has to stay home to look after the children; I don't have the stamina to storm hills, assault beaches and kill people and, above all, I would distract the true warriors, men.

Nobody wants to talk about the real reason. War is considered a male sport, despite the fact that bullets and bombs do not kill selectively. And because war is a male sport, I am relegated to the position of cheerleader. The coaches don't quite trust me. And their suspicions are well founded. Draft me and I may refuse to register, choosing instead to fill the jails. Give me combat training and I may refuse to fight. Hand me arms and I may put them down.

I do not have the same enthusiasm for knocking off human beings as do many of the men in power today. Perhaps I am resentful because I have long been expected to stay home, look after children, knit socks, roll bandages, pray, get pillaged, bombed and raped, instead of being out there at the front having all the real fun. For whatever reason, I'm more interested in the business of living, than in the business of dying, and the military honchos know it.

I will fight tenaciously in the Warsaw Ghetto and in the Resistance Movement when I'm directly threatened, but I'm not so hot at supporting wars for esoteric reasons

like anti-communism, religion or winning. I'm especially lethargic about killing people to prove we're top nation.

I often put my energy into protesting senseless wars instead of creating or fighting them. And in an era when many military minds think winning a "limited" nuclear war is both possible and desirable, my attitude is not good enough.

So I'm offered the position of cheerleader, a position which allows me to shout encouragement or disapproval, but permits me no influence over the game. Unfortunately, cheerleaders get killed too. The big game strategy espoused by many of our coaches is leading us all towards a very final playoff match, at the end of which I'll be just as dead as my brothers, husbands, sons and uncles on the field.

If I can't be drafted, I can neither register nor refuse to do so. If I can't receive full combat training, I can neither fight nor refuse to do so. If I can't carry arms, I can neither use them, nor put them down. I can die, though.

And that's not good enough for me. I must get on the field as a full-fledged player. Only then will I share in the decision to keep playing, walk off the field or cancel the game.

(Lyn Cockburn, "Cancel the Game," I, 1986)

Note that the speaker is speaking for all or most women: the argument is surely not just about "I"—her references to the Warsaw Ghetto and the Resistance movement suggest her "I" is not to be taken literally.

Her first argument seems to be this (paragraphs 3–6):

1. Women are not interested in killing unless they are directly threatened.

Therefore, the military is right to consider war a male sport.

However, she follows this with a second, counterargument:

1. War kills women. (paragraph 7)

Therefore, the military is wrong to consider war a male sport.

And then makes two more linked arguments, introduced with the "And that's not good enough for me" sentence (last paragraph):

1. Women suffer the consequences of war.

Therefore, women should have a say in war.

1. Women should have a say in war.

Therefore, women should be drafted, given training, and allowed full participation in war.

This last conclusion is implied.

Reasoning test questions

1. (D)
3. (D)
5. (C)

See the MCAT website for explanations (www.e-mcat.com). This is Passage IX of the Verbal Reasoning section of Practice Test 3R (which you can do online at no cost; when you click “Solution” beside each question, you see the correct answer, as well as explanations for why the correct answer is correct and why each of the incorrect answers is incorrect).

Chapter 4

Relevance

4.1a Practice identifying irrelevant premises

1. *Laverly*: Whether or not to abort a fertilized egg is a personal choice, and the law has no right interfering one way or another in personal choices.
Cevreau: I agree that it's a personal choice, but when personal choices have consequences for others, the law most certainly *does* have a right to interfere!
Laverly: Okay, but what kind of law—I mean, are you advocating total prohibition or partial prohibition? If the latter, on what basis would you allow abortions?

Laverly's argument is as follows:

1. Abortion is a personal choice.
 2. Personal choices should be outside the legal realm.
- Therefore, abortion should be outside the legal realm. (implied conclusion)

As you can see, both premises are related to the conclusion in such a way as to *lead to* that conclusion; both premises are, thus, relevant.

Cevreau's argument is as follows:

1. Personal choices that have consequences for others are justifiably subject to law.
 2. Abortion is a personal choice that has consequences for others.
- Therefore, abortion should be subject to law. (implied conclusion)

Again, both of the premises are related to the conclusion in such a way as to lead to that conclusion; again, both premises are, thus, relevant.

Laverly's second comment takes the discussion into a new direction; it asks pointed questions that define that new direction, but makes no argument for any particular claim.

3. "Put yourself there," says Maj. Dylan Moxness. "You're an 18-year-old kid from Tennessee. You don't even understand why these people don't speak English anyway, you're shouting 'Stop!' and the car's still coming at you—you've got to fire."
(Comment regarding the January 2005 shooting in Iraq by U.S. soldiers at a car accelerating (in their direction; their shots killed two adults and injured their five children and one nephew; *Newsweek*, March 28, 2005)

Moxness' argument seems to be this:

1. You don't understand why these people don't speak English.
Therefore, you're justified in shooting at them.

The premise is irrelevant to the conclusion: that the soldier doesn't understand why the Iraqis don't speak English in no way justifies shooting at them.

However, that they didn't stop when asked to *might* be relevant (though that would require that they understood they were being asked to stop!)—it would be justification if suicide bombers were common in that place and time, and if their method was to accelerate a car toward a group of U.S. soldiers. (Even so, though, one might ask 'Why shoot? Why not just get out of the way?')

Also, notice the loaded language (see Section 5.2.1): an 18-year-old person is hardly a child ("kid")—and if he/she is, what are we doing sending children to Iraq to defend the country?

Notice too the possible emotional manipulation involving an unflattering stereotype: why mention that the person is from Tennessee, if not to suggest that we couldn't have expected the soldier to have known better? (What, people in Tennessee don't know that languages other than English are spoken, especially outside the U.S.?)

5. Both suicide and euthanasia are wrong. My body belongs to God, so only He can decide when I should die.

The argument is as follows:

1. God owns my body ("My body belongs to God").
2. Only the owner of a body has the right to decide when that body dies.
(assumed/implied—required to make the argument work)
3. Therefore, only God has the right to decide when my body dies.

4. In the case of suicide and in the case of euthanasia, someone other than God decides whether my body dies.
 5. Violations of a right are wrong. (implied)
-
- Therefore, suicide and euthanasia are wrong.

(Note that I changed “can” to “has the right to” since it’s obvious that people other than God *can* make the decision.)

The first premise leads, when we add the unstated assumption expressed as the second premise, to the subconclusion, so it’s relevant.

And the third premise leads, when we add the assumptions expressed as the fourth and fifth premises, to the conclusion, so it’s relevant.

7. In practice, religious differences are often not problematic [for establishing tolerance and compromise within a society] because when you actually question many people who are officially identified with a religious group, you find their beliefs are a sort of hotch-potch of half-baked and not fully considered ideas all running together in one mind. Talk to members of the Church of England and you find that many of them think there should be gay bishops, although many oppose this; that many support a woman’s right to abortion, but some do not; that some of them get drunk, swear, and fornicate as much as anybody else, even though some versions of their religion say they shouldn’t engage in that sort of behaviour.

(Piers Benn, “The Identity Trap,” *TPM*, 1st quarter 2004)

The basic argument is this:

1. Religious beliefs are generally half-baked and not fully considered.
- Therefore, differences in religious beliefs are often not problematic.

Even half-baked and ill-considered religious beliefs can be passionately held, and differences in passionately held beliefs *can* be problematic. So whether or not the first premise is true doesn’t make a difference to the conclusion—it’s not relevant to the conclusion.

9. Since there cannot be a gene for every element of our personality, we must have free will.

The argument as implied seems to be this:

1. We have no control over elements of our personality that are determined by genes.
2. There are some elements of our personality that are not determined by genes.

3. Therefore, there are some elements of our personality over which we have control.

Therefore, there are some areas in which we have free will.

However, as far as I understand genetics, even when “there is a gene for some element of our personality,” it is not the case that the gene completely determines that element of our personality (environment also comes into play—so I’m not sure I accept the first premise. Further, the speaker doesn’t say there “is not” a gene, but there “cannot be” a gene—why can’t there be a gene for every element of our personality? Lastly, even if we have no control over elements determined by genes, it doesn’t mean we *do* have control over elements *not* determined by genes; we may also have no control over elements determined by our environment.

What also makes this argument odd is the reference to personality: when people argue for free will, they usually argue for free will for the species as a whole, but personality is generally understood to be unique to the individual. Free will is usually argued for in terms of cognition and action, rather than in terms of personality.

That said, are the premises *relevant* to the conclusion? Yes. As the argument is presented, the premises do lead to the conclusion. However, given the possibility that the first premise is untrue, and given the error in logic from premise 2 to premise 3, the argument nevertheless fails.

4.1b Practice filling in the steps needed to make a premise relevant

3. In order to make the premise about not understanding why people don’t speak English relevant to the conclusion that it’s justifiable to shoot them, one would have to add the premise that any case of not understanding something about a people justifies shooting at said people:
 1. Whenever you don’t understand something about people, you’re justified in shooting at them.
 2. You don’t understand why these people don’t speak English.

Therefore, you’re justified in shooting at them.
7. In order to make the first premise relevant to the conclusion, one could add a premise claiming that half-baked and not fully considered beliefs are not passionately held, or not fought for, or not important, or not a source of interpersonal conflict. . .

4.2.1a Practice recognizing appeals to the person's character (an error in reasoning)

1. *Goverly*: There should be more road signs indicating the distance to the next destination. It's important that people know how far they have to go before they get to wherever they're going. There may be safety concerns.
Willower: You're such a compulsive goal-oriented person, you wouldn't stop to enjoy the scenery even if a volcano erupted right alongside of you!

Yes, Willower's comment is an appeal to the person's character, and thus an error of relevance. Willower should have responded to the argument instead, either the claim that there should be more road signs indicating distance to the next destination or the reasons offered in support of that claim (that it's important and that there may be safety concerns—that last reason isn't clearly articulated though . . . what safety concerns? and is the safety issue *why* it's important or are there two separate reasons there?)

3. The “tragedy of the commons” argument, which says that resources are quickly depleted when they are “owned” by everyone because everyone takes what they want, presumes that everyone is self-interested and that that self-interest is very short-term.

No, this is not an instance of the ad hominem error. There is reference to character in the claim that everyone is self-interested, but that claim is a premise of the argument. For this to be an ad hominem, the reference has to be to the character of the person making the argument.

5. *Smokestack*: You really should stop smoking—it's bad for you!
Ashtray: You should talk! Look who's smoking at this very moment!

Ashtray's response is an ad hominem, but it's a comment about Smokestack's practices, not Smokestack's character. See Section 4.2.1(ii). Either way, it would be irrelevant to the argument being made by Smokestack.

If Ashtray had asked for or had offered clarification (what exactly does “bad for you” mean?), or if Ashtray had offered further evidence (perhaps citing research about the health effects of smoking), that would have been better. Ashtray could have also articulated the missing premise—“You should not do that which is bad for you”—and either agreed or disagreed with it . . .

4.2.1b Practice recognizing appeals to the person's practices (an error in reasoning)

1. *Bocci*: She says I should have the procedure done because it's safe and likely to solve the problem.
Stanieau: Well, she certainly knows something about medical procedures. After all, she's a nurse.

Stanieau isn't responding to the argument (which is that since the procedure is safe and likely to solve the problem, the procedure should be done); instead, Stanieau is commenting on the person who has made the argument, specifically about what she does. So Stanieau's comment is an appeal to the person's practices.

True, that the person is a nurse may increase the likelihood of the premises being true (*if* the nurse is well-informed and honest), but the truth of premises do not depend on the person being a nurse. A mechanic may make the same argument. So the argument should be assessed on its own, independent of who is making it: are the premises relevant, true, and sufficient for the conclusion to be drawn?

3. Of course you'll argue against animal experimentation! You've got a soft spot in your heart for creatures of all kinds!

This is an *ad hominem*, but the comment concerns the person's character more than the person's practices. See Section 4.2.1(i). Either way, the comment is irrelevant. An error-free response would have focused on the claim (which was presumably something like "Animal experimentation is morally wrong" or "Animal experimentation should be illegal" or the reasoning offered in support of that claim.

5. The Pope says "An institution as natural, fundamental, and universal as the family cannot be manipulated by anyone." This from a man who has no family—no wife, no kids.

(The quote is from Pope John Paul II, *International Conference on Population and Development: Letter to President Clinton and Address to Dr. Nafis Sadik*, Vatican City, March 18/19, 1994)

Yes, this is an *ad hominem*—the person has responded to the practices of the speaker (that he is unmarried and has no children). That he has no family (actually, he has a mother and a father) is irrelevant to the argument he's making about the family.

An error-free response would have focused on the speaker's claim that the family is natural and therefore ought not to be changed or the claim that the family is universal and therefore ought not to be changed.

Alternatively, a challenge could have been made to the language: “cannot” suggests unalterable fact, but since the family *can* be changed, that’s clearly not true; what the speaker really means is “should not”—an opinion open to examination.

4.2.1c Practice recognizing appeals to the person’s interests (an error in reasoning)

1. *Robinson*: I think the man should have a say in whether or not the woman has an abortion. After all, he’s the father.
Townsmith: Well, he’s the *biological* father, a mere sperm-donor—he’s not really a father yet.
Robinson: And if he wants the woman to have an abortion, and she doesn’t, he shouldn’t have to pay child support. After all, he didn’t consent to become a father.
Townsmith: But you just said he was a father. Make up your mind. And didn’t he have sex without a condom? Isn’t that tacit consent to creating a child? So of course he should pay child support.
Robinson: But the woman might have lied, said she was on the pill.
Townsmith: And you’d believe her? We’re talking lots of money here. Twenty years child support. That’s an awful lot of trust.
Robinson: And he shouldn’t have to pay if he can’t afford it.
Townsmith: What? If he can’t afford it, he shouldn’t’ve created it!
Robinson: And if he does provide financial support, he should have a say in how that money is spent.
Dobbin: Hey, until you’re actually a father, you don’t know what you’re talking about!

Dobbin’s comment is indeed an *ad hominem*—an appeal to Robinson’s and Townsmith’s interests (if reference to their not being fathers is understood to suggest that their interests would be different if they were). Whether or not they’re fathers has no bearing on the merits of the arguments they have put forth; their personal interests are irrelevant to the argument. Dobbin should have, instead, responded to those arguments (about the nature of consent, the relationship between consent to sex and the right to have a say in an abortion decision, the role of financial support, and so on).

3. *Hough*: Most miracles too trivial to have been performed by a god.
Jaeger: Since when are you interested in miracles?

Jaeger’s comment may sound like an appeal to Hough’s interests, but it’s just a question about his interests. In order to be an *ad hominem* error, Jaeger would’ve had to imply that Hough’s interests are cause to dismiss his claim. Even so, Jaeger’s comment is irrelevant.

5. *Nyung*: Athletes' salaries are way too high. There's no way they deserve that kind of money.
Livres: I don't know . . . doesn't it take into account the fact that they could suffer serious injury? Too, their careers won't last forever.
Nyung: Yeah, well that's true of people who work in a lot of jobs, but they're not making millions.

Both the responses of Livres and Nyung focus on the argument; neither one comments about the other one's interests in any way, so there is no *ad hominem* here.

4.2.2a Practice recognizing the genetic fallacy

1. I will never get married. Did you know that the word "wife" originally referred to those women who were captured, after the invasion and conquest of a neighboring tribe, and brought home to be slaves? Marriage was a degradation!

Yes, by rejecting the idea of marriage (or, perhaps more clearly stated, the claim that one should get married) because of its origin, the speaker has committed the genetic fallacy. The origin of the idea is irrelevant to its merit.

An error-free argument would have made reference to other reasons for not getting married—perhaps the current laws deny certain rights to married women, perhaps society dismisses women as mere appendages when they're married to men, and so on.

3. If you have a party, and one of your guests gets drunk and drives home and kills someone, why should *you* be responsible? I mean, just because he came from your place, that doesn't mean you're responsible for what he does when he leaves your place.

This is not an instance of the genetic fallacy. Yes, there is some mention of origin—where the drunk driver came from that night—but in order to be a genetic fallacy, the speaker must refer to *the origin of the claim being made* (in this case, the claim that people should not be held responsible for the drunk driving of their guests) as a reason for dismissing that claim.

5. *Cohen*: It's perfectly justifiable to prohibit women from working at certain jobs because substances at certain workplaces can harm the fetus after conception.
Adilmun: But that rule would apply only to women, so it would be sexist. You're arguing for something simply on the basis of sex.

Adilmun responds to Cohen's argument, not to the origin of the argument, so there is no genetic fallacy here.

If Adilmun had said something like "That's the line taken by the Republicans, isn't it?" in response to Cohen, *that* would have been a comment about the idea's origin and so the genetic fallacy.

(By the way, Cohen's argument refers only to teratogens; mutagens are substances that can cause a change in the genetic material—in ova *and sperm*—which can lead to deformed fetuses, which would justify prohibiting men from working at certain jobs as well.) (See how it matters what you know and don't know.)

4.2.2c *Practice recognizing errors of relevance that consider the source of the argument instead of the argument itself*

1. Patriotism is your conviction that this country is superior to all others because you were born in it.

(George Bernard Shaw, 1856–1950)

This tongue-in-cheek definition exposes a poor argument, one whose premise is irrelevant (how is being born in a country the reason for its superiority?) unless one presumes an incredible ego ("I am so magnificent that my birth in this country resulted in it becoming the most superior country"), but there is no ad hominem or genetic fallacy here.

3. *Hammond*: Hey listen to this. "Advertisers do one thing—they persuade us to buy products that otherwise we would not buy. If we would buy the products anyway, there would be no point in producers spending the money to purchase magazine space or television time to display ads." Pretty good, eh?

Signet: Whoever wrote that probably just can't afford advertising. That's why they're trashing it.

(Quote is from Lisa H. Newton and Maureen M. Ford, eds., Introduction to *Taking Sides: Clashing Views on Contraversial Issues in Business Ethics and Society*, 4th edn., 1996)

Signet's comment is an appeal to the person's interests (presumably the point is that since they can't afford advertising, it would be in their interests to discourage what is otherwise an advantage competitors who can afford it have over them). As such, the comment is irrelevant.

A better response would have been directed to the argument; for example, by pointing out that advertisements persuade us to buy *this* car, not just *a* car, Signet would have been challenging the claim.

5. We shouldn't pay women to become surrogate mothers—that would be offering an “undue inducement”—someone who hasn't got a lot of money would find it hard to refuse, and that wouldn't be genuine consent. Ditto for paying people for their body parts.

There is no ad hominem or genetic fallacy here. The speaker has made a claim (we shouldn't pay for surrogacy or transplants) and offered supporting reasoning (payment would render consent invalid).

7. *Beatty*: I think we should all donate 10 percent of our money to social causes. There are a lot of people out there who are simply less fortunate than us. They work just as hard and are just as deserving, they've just gotten a lot of bad breaks.
Perkins: You're just saying that because *you* donate 10 percent of your money to social causes.

Yes, Perkins' comment is an ad hominem—an appeal to Beatty's practices. What Beatty does or does not do is irrelevant to the argument that we should donate 10 percent of our money to social causes because that would redress undeserved hardship.

9. The owners of the 30 teams that make up the elite National Hockey League (NHL) have locked out the players as part of an effort to make them accept lower salaries . . .
Fans can usually be relied on to support players rather than owners in a dispute. This time, however, polls indicate that they are backing the billionaires over the millionaires by a wide margin. Most seem to feel that no one should complain about being paid \$1 million or so per year to shoot a puck around a rink. They also know that the players' handsome salaries have a lot to do with the exorbitant ticket prices of \$150 or more for the big games.
Moreover, salary caps seem to be the way professional sports in North American are heading: both the National Basketball Association and the National Football League have adopted them.

(The Economist, October 16, 2004)

While part of the reasoning of this argument makes reference to the interests of both the players and the owners, for an ad hominem to be present, references would have to have been made to the interests of the person making the argument.

4.3.1a *Practice recognizing appeals to inappropriate authority*

1. The guy at the shoe store said these are the best shoes for distance running, so I figured hey, they cost a little more than I wanted to spend, but I don't want to end up with knee problems a few months from now.

This may or may not be an appeal to an inappropriate authority. Many sales staff are not experts with regard to the products they sell; they're merely qualified to process the sale. I have found that even personnel at a sports shoe store don't know the difference between pronation and supination—a critical difference when you're shopping for running shoes. An appropriate authority, in this case, would be an orthopedic specialist. What the guy at the shoe store says should probably be irrelevant to your decision.

3. If our President says this is the right thing to do, well that's good enough for me!

Well, it shouldn't be. Presidents are generally not moral experts; how many courses in Ethics has the President taken? This is an appeal to an inappropriate authority; what the President says about what's right is irrelevant to whether or not it *is* right.

5. Brains are beautiful. Usually a reference to intellect, but for Deborah Hyde, M.D., neurosurgeon, the brain's physical contours are enthralling. "The anatomy is so beautiful. I just find it a turn-on."

Her brain is turned on by . . . well, brains and other finer things. After surgery that starts before dawn, Dr. Hyde may head out for lunch and shopping. En route, Lincoln LS provides stimulation for all the senses. Its heated and cooled leather-trimmed front seats are pleasing to the touch year-round. A reflex-quick aluminum suspension keeps the ride smooth and steady. The clarity of the THX Certified Audio System helps induce a harmonious brain state, no matter how snarled the traffic. And its cabin, trimmed in American walnut burl and satin nickel, flashes through the optic nerve and stimulates the occipital cortex. Pleasure is registered.

The reaction? "I love this car." Dopamine is released, producing a feeling of well-being. Dry Hyde adds, "Current research suggests that the nucleus accumbens is very important in pleasure. It's not the cortex, where cognitive thought occurs. It's deeper in the brain, where feeling is."

Thus, it's possible luxury may be perceived before it reaches the cortex—before you can "think" it, you are already enjoying it. And craving more. "There's so much going on neurally that it's conceivable that we never experience the same thing the same way twice."

The brain: mind-boggling. But whatever mysteries that lie within its folds, there's no better stimulation for the brain of a driver than an empty road, a full tank of fuel and energizing music over the sound system. But be aware: the pleasures of the road are extremely habit-forming. Go online for an inside view of all the ways the Lincoln LS has been designed to tickle your neurons.

(“The Pleasure Neuron,” an advertisement for the Lincoln LS, *Inc. Magazine*, May 2005)

This may seem to be an appeal to an inappropriate authority since, after all, a neurosurgeon is not an expert about cars. But if you read the advertisement, she doesn't actually say anything about the car except “I love this car” which is not the main claim of the advertisement. So, she's not being appealed to as an authority to support the main claim.

But what exactly *is* the main claim? It's hard to say—why is all this brain stuff in the ad? Perhaps their claim is something like “This car stimulates the senses in pleasurable ways (and therefore you should buy one).” Well, they didn't need a neurosurgeon for that. So, again, why is a neurosurgeon and pictures of a brain in an ad for a car? Why are they implying some vague association between the brain and this car? To sell the car to intelligent people? To sell the car to people who want to think of themselves and be thought of as intelligent?

4.3.2a Practice recognizing an appeal to tradition or past practice

1. The company has always done it this way. So I suggest you keep your new-fangled ideas to yourself and follow established procedure.

So? Maybe we've always taxed food and water, but that's no reason to keep on doing it! Whether we've always done it is irrelevant to whether we should be doing it.

This is definitely an appeal to tradition. The speaker isn't considering at all whatever arguments there may be in support of the “new-fangled ideas”; instead, he/she is appealing to tradition as sufficient support for the implied claim that the established procedure is the best procedure.

It would have been much better if the speaker had articulated *why* the company has always done it that way. And if the arguments for the established procedure are stronger than the arguments for the new procedure, fine—carry on the tradition!

3. My parents spanked me and their parents spanked them.

If the past practice of spanking, as described, is used to support a current practice of spanking, then yes, this is an appeal to past practice; otherwise, it's not.

Remember that to be an error of relevance, the appeal to tradition or past practice must be presented as support for a certain claim about what to do or believe.

5. As we've seen with the Mets debacle, however, "infrastructure" can be an awfully flexible term when it comes to stadium finance. A recent study by Rutgers professor Judith Grant Long found that the average pro sports stadium costs the public 40 percent more than the stated price tag—and that figure has risen in recent years, thanks largely to undercounted "land and infrastructure" costs.

"If the Mets plan goes through," says Long, "it's safe to assume that the actual deal, post-approval, will involve public costs far higher than the initial reports."

(Neil DeMause, "A Queen's Ransom," *Village Voice*, June 15–21, 2005)

This is not an appeal to past practice: the conclusion isn't that a certain thing should be done because that's the way it's always been done in the past. Instead, it's just a prediction: a certain thing will probably happen because that's what has always happened in the past. It's like saying the sun has always risen, so it'll probably rise tomorrow. (And if all the relevant factors are tomorrow as they have been in the past, the prediction will probably turn out to be correct. So, with respect to Long's prediction, we need to ask whether the Mets plan is the same sort of plan, occurring in the same sort of context, she has studied.)

4.3.3a *Practice recognizing an appeal to custom, habit, or common practice*

1. It takes 21 pounds of grain to produce a pound of meat. Millions are starving. Put two and two together: if North Americans ate just 10 percent less meat in a year, there'd be enough grain to feed 65 million people.

No, this is not an appeal to custom, habit, or common practice. A certain practice is recommended (the consumption by North Americans of 10 percent less meat), but not because it's *common* practice (but, rather, because it would lead to fewer starving people).

Note that eating less meat won't lead to fewer starving people *unless* that reduced demand leads to a reduction in land used for livestock *and* an increase in land used for grain crops, *and* that increase in grain reached the people who are currently starving, *and* there would not be a further increase in population levels beyond the capacity of those newly planted fields of grain.

3. [M]any of the prochoice movement's writers and intellectuals would have us believe that the early fetus . . . is nothing more than a dewy piece of tissue,

to be excised without regret . . . Yet . . . [a] pregnant woman . . . doesn't call the growth inside her an embryo or fetus. She calls it a *baby*.

(Jason DeParle, "Beyond the Legal Rights: Why Liberals and Feminists Don't Like to Talk about the Morality of Abortion," *Washington Monthly*, 1989)

This could be considered an appeal to habit, an appeal to the linguistic habit of calling the embryo or fetus a baby even though there are differences, significant differences to many people, between an embryo and a newborn.

On the other hand, it may be that many people call an embryo a baby as a conscious speech act, intended to express the opinion that there is no significant difference between an embryo and a newborn.

5. *Anasi*: The rape shield law should be tossed out! It's important to know whether the woman who's accusing some man of rape is in the habit of saying yes.

Hubert: How is that relevant? She could've said no on the occasion in question.

Anasi: Yeah, but unless we've got a witness or circumstantial evidence, it's just her word against his. So either we have to decide who is more likely to tell the truth, which we probably can't do since we don't know either of them. Or we have to decide which story is more likely.

Hubert: You mean if she's in the habit of saying yes, she probably said yes that night.

Anasi: Right.

Hubert: Okay, and if he's in the habit of forcing women, he probably forced that night.

Anasi: Right. The past history of both people should be admissible in court.

Hubert: But people can change.

Anasi: Sure, but hey, that's what a reputation is for. I mean, come on, if I've got a reputation for being the most non-violent person in the world, if no one has *ever* seen me become in the least aggressive, I think that should be admissible in court if I'm accused of rape one day!

Hubert: And if I tend to say yes to men I've just met. . .

Anasi: You got it.

Hubert: But that's basing a conclusion on past practice.

Anasi: No, it's basing a conclusion on character.

This is an interesting one because character is at least to some extent judged by past practice. So perhaps the appeal to custom, habit, or past practice shouldn't be considered an error when it is applied to people? But the same concerns apply: perhaps the current situation is significantly different from the past situations,

such that past practice is not a good guide to present practice and hence character. Perhaps better still would be to determine why the person has acted the way he/she has in the past, and use *that* as the rationale for character judgments, not the past practice.

4.3.4a Practice recognizing an appeal to moderation

1. We are standing in a pool of gasoline. Tom says we should not light any matches. Dick says we should light all the matches we have. I propose a compromise: let's light half of the matches in our possession.

Yes, this is an appeal to moderation: the speaker (Harry?) advocates the view in the middle (arithmetically speaking) for no other reason than that it's in the middle. A little thought would reveal that such a view will have just as destructive consequences as the view at the extreme advocated by Dick.

3. I heard that she had a heart attack right in the middle of the marathon. See, it just goes to show that a little moderation wins the day. Too little exercise and you get fat; too much exercise and you put such a strain on your body, it's not made for that, all these elite athletes that can barely get through a season without injury.

This may seem like an appeal to moderation, but it is not. The speaker advocates a moderate position, but not because it's moderate; instead, other reasons are given (too little exercise leads to fat, and too much exercise stresses the natural capacities of the body).

5. The more we understand the human genome, the more genetic testing will be required by employers, insurance companies, and the government. We should just leave it all alone. If that means you end up with a genetic disease, well, *que sera sera*.

This is not an appeal to moderation. The speaker seems to be advocating an extreme position (stopping all research into the human genome), but it's not an appeal to the extreme either (see next section) because reasoning other than "It's an extreme position" is given.

4.3.4c Practice recognizing an appeal to the extreme

1. I say we should treat people equally. No exceptions. All this affirmative action and special parking spaces for wheelchairs and fragrance-free workplaces, it's all gotten out of hand. We don't have to go to such extremes—a little common sense would go a long way here.

Don't be fooled by the word 'extremes'—this is not an instance of an appeal to the extreme. The speaker is calling a certain position extreme; for it to be an instance of the error in question, he/she would have had to accept a certain position *because* it's extreme.

Also, what exactly does “a little common sense” mean? What if your idea of “common sense” isn't the same as my idea of “common sense”?

3. Surely just because many of our products will be in households with children, we are not obligated to childproof everything we make! The parents must take responsibility for the safety of their children!

The speaker refers to an extreme position (that they must childproof everything they make), but that does not make this an appeal to the extreme. To have been an appeal to the extreme, he/she would have had to advocate his/her position (that they are not obligated to childproof everything they make) because it's extreme; not only is the position taken not extreme, the support given for it is not that it is extreme.

5. We believe it is time that the lodging industry “just say NO” to the Gideons . . . If hoteliers wish to serve customers in possible crisis, it would be far more useful to compile a list of local secular resource numbers: the police, battered woman's shelter, Red Cross, mental health hotline, nearby hospitals, etc. In fact, the bible itself offers not just gruesome bedtime reading (blood is splashed on nearly every page), but potentially violence-inciting and lethal advice. Murderers, child molesters, rapists, sexists, racists and even slaveholders have turned to bible verses to justify crimes. Jesus promotes self-mutilation, the terrifying myth of hell, and the dangerous, primitive belief that sickness results from “demons.” The bible also offends by its often pornographic and bloodthirsty language. Why align your association with this image, and insult customers of other faiths, or no faith?

(Excerpted from letter written by Annie Laurie Gaylor,
Freedom from Religion, Inc., to Kenneth F. Hin, Executive Vice
President, American Hotel & Motel Association, February 14, 1989)

Although the speaker refers to some rather extreme sections of the Bible, she does not make an appeal to the extreme as support for her position; that is, she is not advocating the hoteliers provide resource numbers instead of bibles *because* it's an extreme position.

4.3.5a Practice recognizing an appeal to the majority

1. Everyone knows that it's wrong to steal.

This is an appeal to the majority: everyone thinks it's wrong to steal; therefore, it is wrong to steal. The endorsement of the majority is taken as sufficient support for the claim. But the endorsement of the majority is irrelevant to the merit of the claim so endorsed.

3. I deserve an extension on this assignment because everyone else did.

This is not an appeal to the majority: the majority received an extension, but the majority does not necessarily endorse the speaker's claim that he/she deserves an extension, nor is that the reason given by the speaker for making that claim.

Note the unstated, but needed, premise "I deserve what everyone else gets" or "You should be consistent with extensions (and my case is the same as everyone else's)."

5. *Municom*: Why should business have any more social responsibility than private citizens?

Curran: Because they have that much more power! Power entails responsibility.

Municom: But they're not particularly qualified to solve social problems. Besides, no one elected them to run society.

Curran: And yet they do.

Municom: So what do we do, take away the power of business or require it to comply with certain social solutions?

This is not an appeal to the majority; the speakers are appealing to reasons other than popularity to support their claims.

4.3.5c Practice recognizing an appeal to the minority

1. Many are called. Few are chosen. Be one of them.

Yes, this is an appeal to the minority; the only reason given for us to want to 'be one of them' is that few people are.

(I've wondered why—why are many called but few chosen? If only a few meet the requirements, why are many called?)

3. Very few individuals have need of a researcher's services, so I think you should reconsider your plan to become a researcher-for-hire.

This is not an appeal to the minority. There is reference to few individuals, but that's part of the premise "Very few individuals have need of a researcher's

services.” If few individuals supported the idea of becoming a researcher-for-hire, and that was why the person decided to become a researcher-for-hire, *that* would have been an appeal to the minority.

5. It seems to me that most first-year students take Psych. I think I’m going to take Anthropology instead.

If that’s all there is to the speaker’s argument, then it is an appeal to the minority: he/she is endorsing a claim (Anthropology is the course to take) merely because few others endorse it (at least that’s the case if there’s a “therefore” implied between the two sentences). And again, the number of people endorsing a claim is irrelevant to the merit of that claim.

However, if the reasoning is that since everyone takes Psych, the Psych class will be large and he/she prefers to be in a small class, then it’s not an appeal to the minority, because the reason is not that few people support the idea (taking Anthropology) but rather that it will be a small class. But that should have been articulated!

4.3.6a Practice recognizing the “two wrongs” fallacy

1. It is appropriate to use wickedness against the wicked.
(Hindu proclamation)

Without further elaboration as to why it’s appropriate to use wickedness against the wicked, this seems to be a case of the “two wrongs” fallacy: the implied argument is that since someone else has been wicked, it’s acceptable for you to be wicked. Then again, if the point is that since someone has been wicked *to you*, it’s acceptable for you to be wicked *to them*, well, that’s just revenge.

3. They’re traveling with the ball and committing all sorts of fouls, so I don’t see why we shouldn’t follow suit.

At face value, this is a “two wrongs” argument. If, however, some elaboration were made along the lines of “Winning is valuable only when both teams play according to the same rules; the other team is ignoring certain rules; therefore, we should ignore the same rules if we want a valuable win” then it wouldn’t be simply a “two wrongs” argument.

5. In order to change anything, you need media attention, and the media pays attention only to violence. And if the violence we do to get that media attention is less than the violence we’re trying to stop, then yes, I say it’s okay!

This is not a “two wrongs” argument: the speaker is not justifying their own violence on the basis of someone else’s violence; rather, the justification is that

the media pays attention only to violence, and media attention is required for change.

4.3.6c *Practice recognizing errors of relevance that appeal to inappropriate standard*

1. You will address your superiors as “Sir,” whether they’re male or female. That is correct procedure. Is that understood?

If by “correct procedure,” the speaker means “common practice,” then this is an appeal to custom, habit, or common practice. It would have been better if another, relevant reason had been given: perhaps using “Sir” and “Ma’am” perpetuates a distinction based on sex that is irrelevant in the given context and is therefore discouraged. (Though one would probably have to offer a separate argument as to why “Sir” is used for everyone instead of “Ma’am”—perhaps because at the time of the decision, most people requiring such a title were male.)

3. I don’t know. Jiles says the union is right, and Wos says management is right. The truth is probably somewhere in the middle.

This is an appeal to moderation: a particular viewpoint is endorsed merely because it’s in the middle. But, for example, with respect to the question “Should the workers get a raise in pay?” there *is* no middle—the answer is either “yes” or “no.”

5. Drug use—especially heavy drug use—destroys human character. It destroys dignity and autonomy, it burns away the sense of responsibility, it subverts productivity, it makes a mockery of virtue.

This argument is free of any errors of relevance, specifically those appealing to an inappropriate standard. The main claim, that heavy drug use destroys character, is supported by several premises detailing the specific elements contributory to character that are eroded through drug use.

7. Hey, a slide rule was good enough for my predecessors, so it’s good enough for me. You can keep all your new-fangled calculators and computers and what have you!

This is an appeal to the past practice of using a slide rule. Whether or not the speaker’s predecessors used a slide is irrelevant to whether or not the speaker should use a slide rule. A better argument would have made reference to a relevant reason—perhaps the slide rule provides greater accuracy than the calculators and computers (though that’s probably not true).

9. My doctor says my blood pressure is too high—I'm too stressed. He says I should put in less overtime at work and spend more time at home.

This is an appeal to an inappropriate authority. While a doctor is suitably qualified to claim that the person has high blood pressure, he/she is not an expert on how that person should best reduce stress—maybe it's being at home that's causing the stress!

4.4.1a Practice recognizing paper tigers

1. *Nash*: We should uphold the separation of church and state; it should not be mandatory to say the Pledge of Allegiance—complete with the line “under God” at the beginning of day in public schools.
Schwarz: You will rot in hell! Trying to stop people from believing!

Nash is arguing against the Pledge of Allegiance being mandatory in public schools; he/she is not arguing that people should be stopped from believing—which is what Schwarz suggests. So Schwarz's comment is a paper tiger—it is irrelevant to Nash's point. It would have been better if Schwarz had responded to Nash's claim that we should uphold the separation of church and state.

3. *Newlove*: Because of animal research, we have vaccines against diphtheria, polio, measles, mumps, whooping cough, rubella, and smallpox. We simply can't do everything with computers and tissue cultures. For example, we can't develop medication for high blood pressure that way.
Ditsky: Yeah, but high blood pressure in humans has social causes. It's caused by stress, for example, from working too hard. You can't duplicate that in a rat. In the United States, 17–22 million animals die per year because of animal research.
Newlove: Yeah, but a lot more die when we clear just one acre of forest for cattle for your hamburgers.

Ditsky's response to Newlove is on topic; there is no error of relevance there. However, Newlove's response to Ditsky is problematic; it could be a “two wrongs” response (animal experimentation is okay because clearing forest for cattle is okay) or it could be an attempt at an argument by analogy. Either way, it's *not* a paper tiger: Newlove does not respond to a misrepresentation of Ditsky's argument.

5. Most feminists will reluctantly admit that, at least in sports, the difference in performance between women and men is a result of innate factors and not social conditioning. No amount of political indoctrination will transform a female athlete into a respectable linebacker for the National Football League.

This then places the feminist in the curious position of arguing that innate factors account for the profound difference in male/female performance in sports but in absolutely nothing else.

(Robert Sheaffer, “Feminism, The Noble Lie,” *Free Inquiry*, Spring 1995)

Sheaffer’s comment makes “most feminists” look ridiculous because by admitting to the effect of innate factors in male/female differences in sport, they have put themselves in a “curious” (that is, probably, “indefensible”) position. However, his comment implies that most feminists argue that innate factors account for male/female differences in nothing but sports; that is an extreme position that I’m not sure most feminists actually take. He is thus in part responding to an argument that wasn’t made.

4.4.2a Practice recognizing red herrings

1. *Brewster*: Have you ever looked closely at those school crossing signs? Note that the boy is taller. Taller suggests older which suggests more mature, wiser. And just in case you miss this not-so-subtle suggestion of male authority, look, he has his hand on the little girl’s shoulder, guiding, protecting, patronizing. It will be there for the rest of her life.

Wiebe: But boys *are* taller!

Brewster: Not at that age!

Wiebe: Okay, but if it were the other way around, if the girl were taller and she had her hand on the boy, guiding him across the street, you’d say “Look, they’re teaching girls that it’s their job to nurture, that it’s a woman’s job to look after men!”

There are no red herrings here. Wiebe responds to points made by Brewster, and Brewster responds to a point made by Wiebe.

3. Concern for the morals and health of young soldiers preparing for World War I prompted the surgeon general of the United States to initiate a massive effort to close down all houses of prostitution near training camps.

(Robert T. Francoeur, *Taking Sides: Clashing Views on Controversial Issues in Human Sexuality*, 3rd edn., 1991)

Although this argument makes some questionable assumptions (that the men would catch disease from the women; that the women would not catch disease from the men or, if they did, it wasn’t of concern; that hiring the services of a prostitute leads to a decline in one’s morals), there are no red herrings involved.

5. Fairfax, VA—The National Rifle Association’s Political Victory Fund (NRA-PVF) has endorsed George W. Bush for President of the United States.

“NRA stands with President George W. Bush on November 2nd,” said Wayne LaPierre, NRA executive vice president. “If you believe in freedom and want to preserve the Second Amendment for future generations, vote to re-elect President Bush and Vice President Cheney.

“In the United States we have a long tradition of hunting and sport shooting,” stated LaPierre. “President Bush and Vice President Cheney both love to hunt and fish. They know the Constitution gives people the personal right to bear arms. And, they want to pass the values of our Nation on to a new generation.”

(Press release from the National Rifle Association posted on the NRA website, dated Wednesday, October 13, 2004)

The mention of hunting, twice, is misleading in that the Second Amendment allows more than the right to hunt, as the NRA well knows, since another section of the website is called “The Armed Citizen” and in that section six of six stories describe people shooting other people. The comments about the long tradition of hunting and sport shooting (an appeal to tradition, by the way) and the love of President Bush and Vice President Cheney for hunting and fishing are, therefore, red herrings, possibly distracting us from the possibility that the Second Amendment makes it easier for people to shoot each other.

Note also the conflict of freedoms: one’s freedom to bear arms limits another’s freedom to walk the streets without fear of getting shot.

4.4.3a *Practice recognizing non sequiturs*

1. Because a society is measured by how it treats the weak and vulnerable, we must strive to build a culture of life.

(President George W. Bush, State of the Union Address, 2005)

This is a non sequitur: what does how we treat the weak and vulnerable have to do with whether or not we build a culture of life (whatever that means)? If Bush had said “Because a society is measured by how it treats the weak and vulnerable, we must strive to respect their interests and desires,” that would have made sense; in that statement, the first part is relevant to the second part.

3. *Babcox*: I think the government should take responsibility for our runaway population growth, since it’s apparent that individuals have not.

Reid: So you’re a communist!

Reid’s comment is a non sequitur: communism is an economic system, roughly in opposition to capitalism, and Babcox has not said anything about economics. Calling Babcox a socialist or a totalitarian would’ve been more relevant (but still just an identification of the position articulated, not a response to it).

5. The amazing discovery of the image of “Mother” Teresa in a cinnamon bun in Nashville, Tennessee prompted one of the intellectually challenged to declare: “This should be another example to the people of this planet that God is indeed watching us and Judgment Day is approaching faster than people realize.”

(*The Canadian Atheist*, Summer 1997)

Quite apart from the imprecise thought revealed by the notion that a certain event in time (Judgment Day) can approach *faster* than people realize (it may occur *sooner* than people think, but how can a day approach more quickly?—time would have to speed up for that to happen), the declaration is an example of a non sequitur: how does one get from an image of Mother Teresa in a cinnamon bun (ignoring for the moment the subjectivity of that—ten people look at the clouds and one “sees” a horse, another a house . . .) to either God watching us or the date of Judgment Day (let alone both)? What could possibly serve as the missing premises to make that argument work?

Well, this would work:

1. Whenever the image of Mother Teresa is seen in a cinnamon bun, God is watching us.
 2. The image of Mother Teresa was seen in a cinnamon bun.
- Therefore, God is watching us.

But the first premise is not only implausible—what grounds might one have for claiming it—but also it contradicts Christian teaching that God is always watching over us.

Here’s another possibility:

1. God indicates that he is watching us by making people see images of saints in everyday things.
 2. Someone saw the image of Mother Teresa in a cinnamon bun.
 3. Mother Teresa is a saint.
 4. Cinnamon buns are everyday things.
- Therefore, God is watching us.

But again, the plausibility of the first premise is questionable. The second premise is acceptable if we stretch the notion of “see” and the fourth premise is acceptable, but as for the third premise, apparently Mother Teresa was not the moral icon many believed her to be: Aroup Chatterjee in *Mother Teresa: The Final Verdict* has shown her to be “guilty” of “poor medicine, inadequate charity, shameless self-promotion, corrupt use of donations, and various other sins” (“Mother Teresa: The Final Verdict,” Ian Johnston, *Humanist in Canada* 36.147 Winter 2004, p.35).

4.4.4a Practice recognizing appeals to emotion

1. Look at what you're wearing! I'm so embarrassed! Why must you always embarrass me? Go back into the house and change!

The speaker seems to be claiming that someone's attire is unacceptable because it embarrasses the speaker. But the speaker's emotional response is insufficient reason for concluding that the attire is unacceptable; the speaker's embarrassment is irrelevant to whether or not the attire in question is acceptable. (Unless, of course, the speaker intends to claim as a second premise "Whatever embarrasses me is unacceptable"—that would make the embarrassment relevant, but I suspect few people would accept that premise!)

3. Putting the national flag in your window shows you feel proud of your country. It is good to feel proud. So it is good to put your national flag in your window.

Insofar as patriotism and feeling proud are emotions, this argument does make use of emotion. But the emotional responses are incorporated into premises that do lead to the conclusion, so there's no error of relevance here, no appeal to irrelevant emotional response.

I'd question the second premise though: is it always good to feel proud? What if you feel proud about hitting an infant?

5. One big question is "How offensive is offensive?" One way to decide this is according to the "reasonable person" standard. But one of the problems with this is that a reasonable man may react quite differently than a reasonable woman: for example, suppose there is someone walking behind you at night who changes sides of the street every time you do—if you're a woman, you might reasonably fear attack, but if you're a man, you might reasonably just think that some idiot can't make up his mind which side of the road he wants to walk on.

The speaker refers to offense, but he/she does not present being offended as a reason for rejecting a particular claim, so there is no error here.

4.4.4c Practice recognizing errors of relevance that go off-topic

1. In an episode of *Boston Legal*, a developer is contesting the classification of salmon as an endangered species by adding farmed salmon to the numbers (when that's done, it appears that salmon are not in danger of becoming extinct) in order to be allowed to proceed with a development project which

will detrimentally affect the nearby salmon population. The opposition contests his inclusion of farmed salmon in the numbers. The developer says at one point something like “Is a *fish* going to hold up my city?”

The developer’s response makes a mockery of the issue, which is, on the one hand, far more complex than a fish holding things up, and, on the other hand, far less consequential than holding up a whole city. By reducing the argument in this way, he’s guilty of a paper tiger response. He should have responded to the question of whether or not farmed salmon should be included when determining whether or not salmon are endangered.

3. We are an organization of Christian men of science, who accept Jesus Christ as our Lord and Savior. The account of the special creation of Adam and Eve as one man and one woman and their subsequent fall into sin is the basis for our belief in the necessity of a Savior for all mankind. Therefore, salvation can come only through accepting Jesus Christ as our Savior.

(Marcel LaFollette, ed., *Creationism, Science, and the Law: The Arkansas Case*, 1983)

Therefore? It may well be that salvation can come only through accepting Jesus Christ as our Savior, but how does that claim receive support from the claim that Adam and Eve were specially created and then fell into sin and the claim that those two occurrences form the basis for the speaker’s belief in the necessity of a Savior? As presented, the conclusion is a non sequitur.

Also, the speaker doesn’t explain how we get from the necessity of *a* Savior to Jesus Christ as our Savior.

5. *Potts*: The government should not get involved in censorship. People can decide for themselves what they want to see and what they don’t want to see. After all, we’re adults. Let the marketplace decide. It responds to us—if we don’t buy it, it won’t get made.

McQuilkin: As long as the marketplace doesn’t force images upon us. Pornography is often on the front cover. Which is often in the front window.

Potts: Okay, so some control over display might be warranted. But no control over the images themselves.

McQuilkin: But women can’t even agree about which pictures are pornographic.

McQuilkin’s second comment is a red herring: disagreement about the definition of pornography doesn’t mean agreement can’t be reached on whether or not the government should control either the images themselves or the display of images. The comment is irrelevant, and a red herring—it distracts us from the real issue.

Also, why does McQuilkin refer just to women—why don't men have a say in what's pornographic?

7. Well, your conclusion would certainly make a lot of people happy.

Is the happiness of a lot of people sufficient reason for accepting the conclusion?
No, unless the full argument was something like this:

1. We should accept whatever conclusion makes a lot of people happy.
 2. Your conclusion will make a lot of people happy.
- Therefore, we should accept your conclusion.

I doubt such an argument would be acceptable, so the happiness referred to is irrelevant. Better to accept or reject the conclusion on the basis of reasoning and evidence (that presumably doesn't limit itself to certain people's happiness).

9. One potential invasion of privacy involves monitoring job performance. After all, how else can management be sure it has a quality workforce—by rumour? Surely first hand evidence is preferable. But what, exactly, should this evidence include? Monitoring the employee's phone calls? Reading the employee's email messages? I think not. It's unreasonable to demand, and indeed unhealthy to expect, that all phone calls and email messages be bereft of anything personal. Given that, it would be a personal invasion to monitor calls and messages. Wouldn't it be more effective to respect people's privacy and trust them to do their jobs well? Treat someone like an irresponsible, cheating kid and soon enough they'll act like one.

This argument as presented is free of errors of relevance!

(Though one might suggest that monitoring calls and messages might still be justified even given the invasion of privacy . . .)

Thinking critically about what you see

1.



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Given that the point is that breastfeeding in public should be allowed, are the signs relevant? Do they present reasons in support of that point?

- (1) “Breasts are for Breastfeeding.” First, we might question the words “are for.” They imply some sort of purpose. It may well be that one of the functions of breasts is feeding, but is that the only function? And does that mean breastfeeding should be allowed in public? One could propose the counterargument: “Penises are for Urinating.”
- (2) “Babies are born to be breastfed.” Again, that may be true, but how does it support the right to breastfeed *in public*?
- (3) “Don’t like public breastfeeding? Don’t look!” This one is the most relevant, as it deals specifically with the claim being argued for, but it doesn’t provide a reason in support of that claim; instead, it merely suggests a course of action for those opposed to the claim. On the other hand, it might be providing a response to an anticipated objection (that being, we shouldn’t allow breastfeeding in public because many people don’t want to see it). In any case, is the claim a strong one? What if a person can’t not look?

Thinking critically about what you read

1. A man who had moved to Hialeah, but continued to vote in Miami: “I’ve always felt more in tune with things in Miami than anywhere else. Look, I’m an American citizen and I feel you don’t violate the law when you vote. It’s my right as an American citizen.”
(Dave Barry, *Dave Barry His Below the Beltway*, 2001)

The man gives, as a reason for voting in Miami, feeling more in tune with things in Miami. I suppose that's relevant to him, but given the laws about voting, whether or not you feel in tune with your place of residence is irrelevant to whether or not you can vote there.

Then, perhaps anticipating such an objection, he says "I feel you don't violate the law when you vote." Well, you do when you vote in a jurisdiction in which you're not entitled to vote; whether or not you feel you're violating the law is irrelevant—the law, what's legal and what's illegal, is not determined by our feelings!

3. You know, without Christ, without Jesus, we have no hope. Why? Well, because we know that the standard of God's righteousness is Law, a law of the Ten Commandments, a law of statutes and judgments. And which God gave unto Moses on Sinai, saying this is thy righteousness, O Israel.

(David Koresh, of the branch Davidians, best known for the Waco, Texas, incident, 1993, at: <http://www.serendipity.li/waco/koresh.html>)

The argument presented is "We have no hope without Jesus Christ because the standard of God's righteousness is law," or, put in standard form:

1. We know that the standard of God's righteousness is Law.

Therefore, we have no hope without Jesus.

That doesn't make sense. The conclusion doesn't follow from the premise. It's a non sequitur. Even if we understood what it means to say "the standard of God's righteousness is Law" (how can the measurement of someone's righteousness be law—or even a law? one can measure someone's righteousness according to the extent to which they follow a certain law—that makes sense—but that's not what Koresh said), how is that a *reason* (note the word "because") for our not having hope without Jesus Christ?

The last sentence doesn't clarify things, as it again says a law can be righteousness; a law can be righteous, but how can a law *be* righteousness? Perhaps Koresh meant "Because" instead of "And" (big difference!)—the law is righteous *because* God gave it to Moses on Sinai saying 'this is your righteousness'—but still, how can a law be righteousness?

5. Until Harrah's Casino in Reno, Nev., fired Darlene Jespersen in August 2000, she had been a model employee for more than 20 years. As a bartender in the casino's sports bar, Jespersen consistently received "highly effective" ratings. Her supervisor nominated her in 1996 for a special employee award. Loyal customers wrote her fan mail, and she still gets teary-eyed remembering her regulars.

But in spring 2000, Harrah's introduced a "personal best" policy that required women beverage servers to, among other things, wear makeup—foundation or powder, mascara, blush and lipstick. The makeup had to be applied precisely the same way each day, in order to match a baseline photograph held by the supervisor. Males, in comparison, were required *not* to wear makeup. Jespersen, who felt uncomfortable having to "doll" herself up in an ultrafeminine way, said no to cosmetics and was fired.

She filed a federal sex-discrimination suit under Title VII of the 1964 Civil Rights Act, arguing that the makeup policy posed a bigger burden on women than men and that it perpetuated harmful gender stereotypes. “I don’t think it makes a woman any more professional,” she said. “I think it should be a woman’s choice.”

(Lucia Hwang and Michele Kort, “Judicial Worst,” *Ms*, Spring 2005)

Jespersen gives two reasons in support of her claim that the makeup policy is sex discrimination under Title VII: it poses a bigger burden on women than men, and it perpetuates harmful gender stereotypes. We’d have to know the definition of sex discrimination in Title VII before we can decide whether these reasons are relevant. However, the comments of Jespersen’s lawyer, presented elsewhere in the article—“This is not a trivial requirement—it’s a profoundly demeaning one . . . It would be as if the presiding judge of the 9th Circuit were required to wear makeup”—suggests that Jespersen’s reasons *are* relevant.

Jespersen presents two more reasons—it doesn’t make a woman any more professional, and it should be a woman’s choice—presumably for rejecting the policy (not necessarily for rejecting it as sex discrimination under Title VII). Are those reasons relevant to the implied claim “Harrah’s makeup policy should be rejected”? The first reason is relevant if we insert the premise that a company’s policies concerning employees should bear only on their professionalism. The argument would be, then:

1. A company’s policies concerning employees should bear only on increasing employees’ professionalism
 2. Harrah’s makeup policies don’t make a woman more professional.
- Therefore, Harrah’s makeup policies should be rejected.

Given Jespersen’s ratings as “highly effective,” her supervisor’s nomination, and the fan mail from customers, it would seem that she was able to be quite professional without the makeup prescribed by the new policy, so the second premise is acceptable. However, that would depend very much on our definition of “professional”—I’m using something like “performs the job to the satisfaction of management and customers.” I would also accept the first premise, but I know there are people who would not; many people think a company has the right to require of employees actions and even beliefs that are irrelevant to professionalism (though, again, much depends on one’s definition of “professional”).

The second reason is relevant if we insert the premise that a company has no right to make policies regarding matters that are personal choices. The argument would be, then:

1. A company has no right to make policies regarding matters that are personal choices.
 2. Wearing makeup is a woman’s choice (a personal choice).
 3. (Therefore), Harrah’s has no right making a policy regarding wearing makeup.
- Therefore, Harrah’s makeup policy should be rejected.

Actually, we also need to add the premise that if someone declares a policy without having the right to do so, said policy should be rejected. That doesn’t seem acceptable: a policy may have merit even if the person doesn’t have the right to declare it. So maybe the claim “It

should be a woman's choice" isn't a premise leading to the conclusion that the policy should be rejected; maybe, instead, it's the beginning (or end) of a separate, counter argument.

7. *Question:* "I am a newly anointed thirtysomething, and I recently purchased a black three-quarter-length slim-fitting overcoat. I like it tremendously and favor it over the dowdy full-length version sported by our nation's finest accountants and lawyers. I do, however, have a concern that it may not be formal enough for some occasions. I would think yes with a sport coat, maybe (but risky) with a suit, and no with a tux. Is this correct?"

Answer: "Does it look bad to you? We're having a mod moment here, so the rules are in semi-abeyance if you're cutting a dashing figure. If it's a chic-looking coat, you can wear it with a tux, even if it hits you above the knees. And what's wrong with a black-tie car coat? It's not like you're going to walk to the ball; the coat is just for getting you from the carriage to the cloakroom. Besides, you're 30 now, and you can make a statement if you want to."

(Glenn O'Brien, "The Style Guy," *GQ*, June 3, 2005)

In asking whether the coat would be formal enough for certain occasions, and by asking whether he is "correct," the questioner seems to be asking about fashion (for surely it is only fashion standards that determine whether something is "formal enough" and only according to the rules of fashion can some attire be correct or incorrect). But the respondent asks "Does it look bad to you?" which, to be relevant, would have to suggest either that what is fashionable is determined by what looks good to the person or that whether something is formal enough is determined not by fashion but by whether something looks good to the person. Both of these are questionable—the first seems to challenge the whole notion of fashion, and the second challenges the whole notion of acceptable degrees of formality—so it seems to me the question "Does it look bad to you?" is irrelevant.

However, note that the respondent *also* says "the rules are in semi-abeyance if you're cutting a dashing figure." Given that, his question "Does it look bad to you?" is relevant—as long as the person himself can be the judge of whether or not he's cutting a dashing figure.

But then, with the next comment "If it's a chic-looking coat, you can wear it with a tux, even if it hits you above the knees," he seems to be reverting to fashion rules, contradicting his previous claim: if it looks good on the person, and that's all that matters, it would be irrelevant whether or not it's a chic-looking coat.

I don't know enough about fashion to comment on the relevance of the next two sentences, and as for the last sentence, at first the reference to being 30 puzzled me—how is that relevant to anything?—but then I figured out that the implied argument is something like this:

1. Disregarding the rules of fashion is making a statement.
 2. One should not make a statement until one has developed autonomy.
 3. At 30, one has developed autonomy.
- Therefore, at 30, one can make a statement.

9. In the wake of the embarrassing Harriet Miers nomination, it is time to ask: Shouldn't feminists—the source of the mandate for a female Supreme Court justice—be disqualified from *any* influence on public affairs? An exchange in the Yale alumni magazine provides the perfect vehicle for analyzing the lunacy of feminist ideology and its unfitness for the real world.

In May, the magazine ran several articles on religion at Yale, provoked by the university's decision to sever ties between its chapel and the Congregationalist Church (now known as the United Church of Christ). The magazine's cover showed a close-up of four smiling clergymen sharing a laugh against the backdrop of Yale's neo-Gothic arches. The caption read: "So, a minister, a priest, a Buddhist, and a rabbi walk into a university . . . no joke: religion at Yale."

This image was more than two female Yale graduates could bear. "I was ashamed at the cover of last month's alumni magazine," wrote Danielle Elizabeth Tumminio in a letter to the editor. Demonstrating the deconstructive interpretive skills she undoubtedly picked up as an undergraduate, Tumminio went on: "[T]his image sends the message that Yale as an academic and spiritual center has not progressed far from the days when only men could take books out of the library, enroll in classes, and graduate with diplomas that gave them the privilege to lead congregations. . . . [I]t waters down religion at Yale to a patriarchy in which students are asked to conform to the God of the old boys' network."

The Rev. Clare Robert, a divinity school graduate, was equally distraught: "I couldn't believe my eyes when I saw the latest issue of your magazine," she wrote. "I believe an apology is in order." To the Rev. Robert, Yale's cover shows the failure of "30-plus years of feminism and feminist theology." She asks incredulously: "Didn't anyone look at that front cover of four clergymen and see how unrepresentative it is of Yale, of the people in the pews, and even the campus ministries these men supposedly represent?" Inevitably, Robert also took offense at the article's title: "Gods and Man at Yale." A more "sensitive" editor, she admonished, would have amended the title to "Gods and (Wo)Man at Yale"—and literary style be damned.

The world learned last January that the neurasthenic streak in today's feminists has become so strong that they collapse at the mere mention of scientific hypotheses that displease them (as befell MIT biologist Nancy Hopkins upon hearing Harvard president Larry Summers aver to possible sex differences in mathematical ability). Now it turns out that the neo-Victorians cannot even tolerate the sight of men together without breaking out into shame and dismay.

Tumminio and Robert's elicitation of the "patriarchy" from the magazine's cover is a heavy burden to place on one light-hearted photo—especially since the photo happens to be true. It depicts Yale's four university chaplains—Protestant, Jewish, Buddhist, and Catholic—who just happen to be men. Contrary to Robert's assertion that the picture is "unrepresentative" of Yale, it is perfectly representative of the leaders of Yale's main religious communities and is a wholly unremarkable way of introducing the topic at hand.

The irony is that despite their gripe about the cover, Tumminio and Robert implicitly acknowledge that there is nothing remotely “patriarchal” about Yale. Women have a “prominent role” in spiritually nurturing Yale students, Tumminio notes, and serve in large numbers on the divinity school faculty. “Womanist and feminist theology” features prominently in Yale’s “religious traditions,” says Robert.

The suggestion that the alumni magazine’s editors are insensitive to women is equally delusional. This is the same magazine that enthusiastically follows every latest development in Yale’s women’s and gender studies program, as well as in its queer studies initiatives. In the issue in which Tumminio’s and Robert’s letters appear, the renowned-alumnus slot goes to Debbie Stoller, the editor of *Bust* magazine (“For Women With Something to Get Off Their Chests”) and author of *Stitch ‘n Bitch Nation*, which inspired an international network of women’s knitting groups.

But feminism is above all else insanely narcissistic and hermetically sealed off from reality. The truth doesn’t matter. The fact that the university chaplains are male is irrelevant. Feminists such as Tumminio and Robert insist that they must see the female image everywhere, and if they don’t, they find solace in something far more satisfying: perpetual injury and rage. Actual equality and access to every social institution count for nothing; one lousy picture, however accurate, triggers an eruption of grievance.

So what is a poor photo editor to do? He has a pleasant image of Yale’s university chaplains for a series about the range of religious experience at the college. His problem: The chaplains are men. He knows that this will cause a furor. But what is the proper ratio of male to female that will prevent a feminist wound? If fifty-fifty is always required, does he keep the four chaplains and add four female associate chaplains? If so, the picture will be impossibly crowded. If, on the other hand, he starts jettisoning a chaplain here and a chaplain there in order to reduce the male population, who goes first? The editor’s instinct, of course, will be to throw out the Catholic and the Protestant, since they are most associated with the oppressive Western tradition. But here, the sensitive photo editor breaches another mandate: racial representation. Turns out Yale’s Protestant chaplain is black. Note that the racial “inclusiveness” of the magazine’s cover photo mattered not one iota to the censors, demonstrating that feminists will kick their “people of color” allies in the chops in an instant in their pursuit of female hegemony.

The easiest solution, obviously, is to get rid of the university chaplains entirely and find an all-female photo. And if this picture runs, the editor will receive not one letter from an incensed male reader complaining that he did not see himself “represented” on the cover. Until the feminists can develop a similar degree of immunity to the terrible traumas that daily life inflicts, they should nurse their fragile egos at home and not even think of engagement in anything as bruising as Supreme Court politics.

(Heather MacDonald, “God and (Wo)Man at Yale,”
The Weekly Standard, October 17, 2005)

There are several instances of the paper tiger fallacy in this article. Throughout, the speaker, MacDonald, seems to be attributing to all feminists claims that all feminists simply do not hold. For example, she suggests that feminists wanted a female Supreme Court justice; I suspect that many feminists wanted, instead, a feminist Supreme Court justice (and so would have preferred, if a feminist woman really couldn't be found, a feminist man over a non-feminist woman). MacDonald continues to speak of feminist ideology as if there were a single ideology shared by all feminists; however, feminists disagree on a great number of issues, and there are many different kinds of feminism (liberal feminism and radical feminism, for example; some feminists believe men and women are equal and some feminists believe women are superior to men, for example; and so on).

A more specific paper tiger fallacy appears in this sentence: "Now it turns out that the neo-Victorians cannot even tolerate the sight of men together without breaking out into shame and dismay." MacDonald has presented an oversimplification of Tumminio and Robert's objection, presumably in order to ridicule it and more easily dismiss it. It wasn't just that the image presented men together; their point was that the image was on the one hand, patriarchal, and on the other hand, not representative when "the people in the pews, and even the campus ministries" were taken into account.

MacDonald also implies that Tumminio and/or Robert have suggested that "the alumni magazine's editors are insensitive to women." No. That's a far broader claim than either of them seem to have made, and so another paper tiger. Robert actually said "A more 'sensitive' editor. . .," suggesting the problem is just this editor, perhaps even just this case.

Here's another (probable) paper tiger: "Feminists such as Tumminio and Robert insist that they must see the female image everywhere." MacDonald further suggests that an all-female photo would have solved the problem. I suspect she's exaggerating; I suspect Tumminio and Robert would have preferred a photo that included both men and women. (My suspicions are given support by MacDonald's other paper tigers and by her use of language that ridicules: "This image was more than [they] could bear . . .," "[Robert] was equally distraught . . .," and "they collapse at the mere mention of . . .")

Interestingly, MacDonald says of the image, "It depicts Yale's four university chaplains—Protestant, Jewish, Buddhist, and Catholic—who just happen to be men." This suggests that their being male was merely accidental, and, by implication, that accusations of a patriarchal message unfounded. But if their being men was simply accidental, not important, why is the article titled "Gods and Man at Yale"? Doesn't that title emphasize being male? Doesn't it imply that to be in a relationship with God, one must be a man? And that's in large part why Tumminio and Robert object to the photo—it sends that same no longer true message.

Reasoning test questions

1. A program instituted in a particular state allows parents to prepay their children's future college tuition at current rates. The program then pays the tuition annually for the child

at any of the state's public colleges in which the child enrolls. Parents should participate in the program as a means of decreasing the cost of their children's college education.

Which of the following, if true, is the most appropriate reason for parents *not* to participate in the program?

(A) The parents are unsure about which public college in the state the child will attend.

The program applies to any public college in the state, so whether or not the parents are unsure about which public college in the state the child will attend is irrelevant to whether or not they should participate in the program.

*(B) The amount of money accumulated by putting the prepayment funds in an interest-bearing account today will be greater than the total cost of tuition for any of the public colleges when the child enrolls.

This response explains that if people invest the money they would have used to prepay their children's future college tuition in an interest-bearing account, they will end up with more money than that future tuition would cost. Therefore, while prepaying their tuition may decrease the cost of their children's college education in that they will pay tuition at today's rates rather than tomorrow's rates (which assumes that tuition will increase), if they can come out even more ahead, financially speaking, by investing it in an interest-bearing account, that would be a reason *not* to participate in the program. So this is the correct response.

(C) The annual cost of tuition at the state's public colleges is expected to increase at a faster rate than the annual increase in the cost of living.

If this were true, it would provide a reason *to* participate in the program.

(D) Some of the state's public colleges are contemplating large increases in tuition next year.

This response is relevant only to those people enrolling in the program who have children ready to go to college in the following year, and for them, it would be a reason *to* enroll in the program. Since no mention is made as to whether tuition will subsequently decrease or increase further, this response is not otherwise relevant.

(E) The prepayment plan would not cover the cost of room and board at any of the state's public colleges.

Whether or not room and board is covered by the prepayment plan is irrelevant to the decision to enroll in the program, as the advantages of the program are limited to tuition expenses, which are independent of room and board expenses.

(GMAT® mini test #2)

3. The caterpillar of the monarch butterfly feeds on milkweed plants, whose toxins make the adult monarch poisonous to many predators. The viceroy butterfly, whose caterpillars do not feed on milkweed plants, is very similar in appearance to the monarch. Therefore, it can be concluded that the viceroy is so seldom preyed on because of its visual resemblance to the monarch.

Which one of the following, if it were discovered to be true, would most seriously undermine the argument?

- (A) Some predators do not have a toxic reaction to insects that feed on milkweed plants.

This is irrelevant to whether or not the viceroy is seldom preyed upon because of its visual appearance.

- (B) Being toxic to predators will not protect individual butterflies unless most members of the species to which such butterflies belong are similarly toxic.

This statement contradicts one of the premises of the argument: it is already given that the caterpillar of the monarch butterfly (not just *some* of them) feed on milkweed plants, whose toxins make the adult monarch (not just *some* of them) poisonous to many predators. So this statement doesn't undermine the given argument; it sets up a different argument altogether.

- (C) Some of the predators of the monarch butterfly also prey on viceroys.

This is irrelevant to whether or not the viceroy is seldom preyed upon because of its visual appearance.

- *(D) The viceroy butterfly is toxic to most predators.

This statement provides an alternate explanation for why the viceroy is seldom preyed upon, so it would undermine the argument's conclusion (that the viceroy is seldom preyed upon because of its visual appearance).

- (E) Toxicity to predators is the principal means of protection for only a few butterfly species.

This is irrelevant to whether or not the viceroy is seldom preyed upon because of its visual appearance.

(The Official LSAT Prep Test XXIII, Section 2, #8)

5. When a stone is trimmed by a mason and exposed to the elements, a coating of clay and other minerals, called rock varnish, gradually accumulates on the freshly trimmed

surface. Organic matter trapped beneath the varnish on stones of an Andean monument was found to be over 1,000 years old. Since the organic matter must have grown on the stone shortly after it was trimmed, it follows that the monument was built long before the arrival of Europeans in the Americas in 1492.

Which one of the following, if true, most seriously weakens the argument?

(A) Rock varnish itself contains some organic matter.

This is irrelevant to the claim that the monument was built long before the arrival of Europeans in the Americas in 1492; that is, it wouldn't make a difference to the conclusion one way or the other.

*(B) The reuse of ancient trimmed stones was common in the Andes both before and after 1492.

If this were the case, the monument could have been built at any time; the time of building doesn't change the age of the stones used for the building. So this would indeed seriously weaken the argument that the monument was built long before 1492.

(C) The Andean monument bears a striking resemblance to monuments found in ancient sites in western Asia.

This may be true, but it's irrelevant to the claim that the monument was built long before 1492.

(D) The earliest written reference to the Andean monument dates from 1778.

Since the monument could have certainly existed long before reference was made to it in writing, this would not undermine the claim that it was built long before 1492.

(E) Rock varnish forms very slowly, if at all, on trimmed stones that are stored in a dry, sheltered place.

We don't know whether the stones used for the monument were stored in a dry, sheltered place, but we don't need to know: that information is irrelevant, since the passage already states that the stones used *did* develop rock varnish. And how quickly that rock varnish formed is also irrelevant.

(The Official LSAT Prep Test XXIII, Section 3, #19)

Chapter 5

Language

5.1.1a Practice recognizing and improving imprecise diction

1. “For Smarter Intelligence”—heading of a letter to the editor about the failure of the FBI and CIA to act on information they had.

(*Time*, May 17, 2004)

But it’s not intelligence, it’s information. And it’s not smarter, it’s more accurate. They’re talking about having more accurate information, not smarter intelligence (how can intelligence be smarter? a person can be smarter, more intelligent, but how can intelligence be more intelligent?).

(So why is it called ‘intelligence’ instead of ‘information’? Because it makes them *sound* more intelligent?)

3. Israeli Prime Minister Ariel Sharon suffered a minor stroke but his condition was improving, a hospital spokesman said Sunday.

(CNN website December 18, 2005, at: <http://rss.crossmap.com.article/israeli-prime-minister-sharon-hospitalized-after-stroke/story5221.htm>, accessed January 15, 2010)

This claim is clear: the words used are precise, there are no vague or ambiguous words, and there is no obvious exaggeration.

However, perhaps one word is overly precise: spokesman. Was the hospital representative actually a male? (And is that really worth specifying?)

5. Are children of older parents at greater risk?

“Older” meaning how old exactly? And at risk of what? And greater than children of younger parents or at greater risk of X than of Y?

7. I pledge allegiance to the flag of the United States of America . . .

Why would you pledge allegiance to an inanimate object? Pledge allegiance (promise loyalty) to a group of people, “to the republic for which it stands”—don’t pledge allegiance to the flag. Respect the flag as a symbol, yes, but don’t pledge allegiance to it.

9. History is compulsory in grade ten.

A history course, not history. And, further, it’s probably not a course in the history of ideas, or of art, or of really stupid jokes. No, it’s probably a course in the history of conflicts over power. Call it what it is. Precisely what it is.

5.1.2a *Practice recognizing and improving imprecise grammar*

1. When driving through fog, what should you use?

If you realized that a sensible answer to this question is “your car,” you realized the question wasn’t as precise as it could have been. “What feature of your car is especially helpful for driving through fog?” is more apt to elicit “your fog lights.”

3. What is the difference between a flashing red traffic light and a flashing yellow traffic light?

If you answered “the color,” no one could fault you. A more precise version of the question would be “What is the intended difference in meaning for motorists between a flashing red traffic light and a flashing yellow traffic light?”

5. She said that the proposal to build a security wall along the Canadian-American border indicates a lack of understanding about what the real challenges are of the Canadian-American border.

There is no imprecision here; we don’t know exactly what “real challenges” she is referring to, but presumably she will elaborate on that comment.

7. The higher the profits, the better the company.

This is an ambiguous claim not because of its grammar but because of its diction. It could mean that higher profits enable a company to be better (if you have high profits, you will be a better company). But it could also mean that high profits define a company as good (if you have high profits, you are a good company). To avoid misunderstanding, the meaning of “better” should be clarified one way or the other.

9. All men are created equal.

Does this mean “men” as in “male human beings” (as it once might have) or does it mean “men” as in “men and women” (can “men” *ever* clearly mean “men and women”?)

Again, the problem is diction, not grammar here. It’s quite obvious that people are not born with equal abilities, so what is “created equal” supposed to mean? All people are of equal importance to God? All people have equal rights in a court of law?

5.1.3a Practice recognizing repetition

1. We should do something about the increase in crime, because more and more people are shooting each other.

This is an instance of circularity: more and more people shooting each other is an increase in crime (presumably it’s not all self-defense), so the speaker has essentially said “We should do something about the increase in crime because there is an increase in crime”:

1. There is an increase in crime.

Therefore, we should do something about the increase in crime.

You see how this isn’t really an argument.

Had he/she said something like “We should do something about the increase in crime because more and more people are dying because of it,” that would have been okay:

1. The increase in crime has led to more deaths.

2. Death is a bad thing.

Therefore, we should do something about the increase in crime.

3. Euthanasia is wrong because it violates and goes against the sanctity of life.

There is some redundancy here—“violates” is the same as “goes against”—but there is no circularity:

1. All life is sacred (the “sanctity of life” claim).

2. It is wrong to end that which is sacred.

3. Euthanasia ends life.

Therefore, euthanasia is wrong.

5. Presidents who are tall and have a reputation for being highly charismatic tend to have mistresses. Presidents who are tall and charismatic also tend to

be better performers and to be rated as great or near great in surveys of political scientists. All of these findings are statistically significant, indicating that they could not have occurred by chance. Therefore, Presidents who are tall and charismatic are more likely to have mistresses and to be effective.

(William D. Spangler, “Lives and Loves of Tall, Charismatic Presidents,” *New York Times*, February 16, 1992)

The argument in standard form is this:

1. Presidents who are tall and have a reputation for being highly charismatic tend to have mistresses.
 2. Presidents who are tall and charismatic also tend to be better performers and to be rated as great or near great.
-
- Therefore, Presidents who are tall and charismatic are more likely to have mistresses and to be effective.

The conclusion simply restates the premises:

1. A are X.
 2. A are Y.
-
- Therefore, A are X and Y.

Then again, maybe not. Being charismatic is not the same as having a reputation for being charismatic, nor is “charismatic” the same as “highly charismatic” (so the A in premise 1 isn’t exactly the same as the A in premise 2). Furthermore, being better performers isn’t necessarily the same as being effective (so the Y in premise 2 isn’t the same as the Y in the conclusion). So either the language has been imprecise (and the argument *is* actually the circular one presented above), or the argument is actually this:

1. A are X
 2. B are Y.
-
- Therefore, A are X and Z.

But you’ll see this version also involves a repetition: the conclusion completely restates the first premise. (And the rest of the conclusion, A being Z, simply doesn’t follow from the premises, so it’s a non sequitur.)

(On top of all that, Spangler seems to have assumed that presidents are male heterosexuals or lesbian: neither female heterosexuals nor male homosexuals would have mistresses.)

7. This is an example of what I call “random art”—see how the paint spatters are placed at random on the canvas?

Although the word “random” is repeated, it is first given as the name of an art form and then as part of the definition, so there is no circular argument here (and, actually, no argument of any kind).

However, this is not a very good definition at all—*because* the word being defined is used in the definition! It’s like saying a “sleesh” is “a creature that moves sleeshly”!

9. We have no free will: we have no choice but to do what we do, because we always follow our strongest motive—the strongest motive is the one we can’t help but follow.

If “strongest motive” is indeed defined as “the one we can’t help but follow,” then this is indeed a circular argument: we have no choice but to do what we do because we can’t help (have no choice) but to do what we do.

5.1.4 a Practice recognizing the need for detail

1. The question with which to start my investigation is obviously this: Is there enough to go around? Immediately we encounter a serious difficulty: What is “enough”? Who can tell us? Certainly not the economist who pursues “economic growth” as the highest of all values, and therefore has no concept of “enough.”

(E.F. Schumacher, *Small is Beautiful: Economics as if People Mattered*, 1999 [1973])

Although Schumacher *has* identified “enough” as a word needing further definition, I’d say “to go around” also needs more detail: does he mean to fulfill the needs of the current population level or some future population level? And does he mean to fulfill the *needs* or to fulfill the *wants* of the population he has in mind? It is possible, however, that in defining “enough,” these questions will be answered.

A bit of detail regarding “economic growth”—what is that exactly?—would also help.

3. But the fact is, the United States of America *was* conceived and brought forth by Christians, and history tells us that story in no uncertain terms . . . Anyone who reads about the values upon which this nation was founded understands perfectly well that this was, from the start, a Christian nation.

(D. James Kennedy, *Character & Destiny*, 1994)

For people who might question the truth of the opening statement, names and church membership (or other proof of their being Christian) of those founders would certainly strengthen the speaker’s argument; failing that, a specific reference

to the history that tells us that would suffice (for those who don't know that history).

Also, more detail is needed, I think, with regard to the values being spoken about. I can't think of any *uniquely* Christian values upon which the nation was founded; justice, freedom, the pursuit of happiness—these values are generally held by Christians and non-Christians alike (and, actually, the pursuit of happiness isn't held by Christians who advocate self-denial and turning the other cheek . . .).

5. If there is any one single concept that organizes the passions and actions of men as a gender, I would propose that power is a likely candidate. From the private fantasies of boys becoming men and later of men acting out their internal scripts, being powerful and having power takes a high position. Seldom is powerlessness a preferred and admired quality in the male.

(Joseph A. Kuypers, *Men and Power*, 1999)

This seems to have sufficient detail to be understood; perhaps some readers might benefit from a more specific example of power . . .

7. Strikes are always caused by greedy unions. What's sad about this is the negative impact strikes have on the public. The fact that unions will inconvenience the public at the drop of a hat is further evidence that workers are selfish.

(An example of "Media Think Truisms," from James Winter, *Democracy's Oxygen: How Corporations Control the News*, 1997)

I question the "always," and I think the word "this" is vague (grammatically, it should refer to "strikes being caused by greedy unions" but it seems to just refer to "strikes"). But as for detail, I'd like to hear more about the negative impact referred to. It seems to play an important role in the speaker's argument, but without specific and numerous examples, not only of the negative impact but of unions inconveniencing the public at the drop of a hat, I doubt readers will be convinced of the point (that unions are greedy and selfish).

9. *Mowbray*: Why do you say that television should not be allowed in the courts? Where is the evidence that if court trials are televised, they'll be less fair?

Doyle: Well, to the extent that television is by definition entertainment, court trials that are televised will be turned into entertainment. This alone suggests that said court trials would *not* be fair.

Mowbray: But what about magazines and newspapers in which court reports appear? Are they not entertainment?

Doyle: Well, two wrongs . . .

Mowbray: Besides, only the notorious trials are broadcast.

Doyle: So? Is that supposed to be a red herring?

Mowbray: We have a right to observe, to witness, justice in action. They're *our* courts! It's *our* money!

Doyle: Okay, but can't you just go in person and watch if you want to?

Mowbray: No, a lot of people can't. Not without great expense.

Doyle: Well, not everyone would be able to get the court television channel either.

Mowbray: Right. So every station should broadcast every trial.

Doyle: That's impossible. Do you know how many trials are going on at any given moment?

Mowbray: Okay, so they edit a bit.

Doyle: No way. Either we get the whole trial or none of it. Imagine what parts would be left out and why. That would *really* make things unfair.

Mowbray: Okay, but won't everyone behave better if they know they're being watched?

Doyle: Maybe. Then again, have you ever seen the Canadian parliamentary proceedings? They're televised, and I swear my high school student council meetings were conducted with more maturity. In any case, they may behave better. Or they may just behave differently. Perhaps knowing they're being watched, they'll put on a charade, they'll play it up.

Nothing in this discussion to this point seems to require more detail.

5.2.1a *Practice recognizing and rewriting loaded words or phrases*

1. employment opportunity

employment opportunity—value-positive

mind-numbing soul-sucking life-wasting drudgery—that'd be your value-negative one

job—neutral

3. tree butcher

tree butcher—value-negative

arboreal crop harvester—value-positive

lumberjack—neutral

5. affirmative action

affirmative action—value-positive

reverse discrimination—value-negative

weighted hiring policy—neutral

7. under-developed countries

I'd say that "under-developed countries" *and* "developing countries" are value-negative terms; both suggest that the countries aren't (yet) developed (one must assume that being "developed" is a good thing). But what exactly isn't developed? Their profit potential? Their greed? Can we really say that at 2 kg waste/person/day, *we're* developed?

Of course, perhaps it's only the natural resources that are un- or under-developed. But one, what's the measure? That is, how much do you have to "develop" (destroy?) before you're "developed"? And two, the term should specify that ("resource-under-developed countries") instead of coming across like some blanket descriptor.

9. small business

The term "small business" might be value-negative, at least to those (men?) who think small is belittling. Instead of distinguishing businesses in terms of size ("small business" and "big business"), how about distinguishing them in terms of market (for example, local, regional, national, global) or resource use (sustainable, gobbling)?

5.2.1c *Practice recognizing and rewriting loaded styles of speech*

1. The Rolex Daytona is an excellent watch.

The Rolex Daytona is an "oyster perpetual superlative chronometer officially certified cosmograph" (www.rolex.com).

Hard to say whether it's overly pretentious or overly complicated!

3. They lied.

- (a) The people in question determined, no doubt after extensive deliberation, that under the circumstances it was appropriate to be circumspect in their conveyance of the truth.
- (b) The agents may have engaged in disseminating disinformation from time to time. Calling them "agents" gives the impression, without argument, that they had a legitimate reason for lying. If the speaker thought it was justified lying, fine, they should have made that argument outright and let us judge for ourselves. The word "engaged" also suggests legitimacy. "Disseminating disinformation" is just a euphemism for "lying." And adding "from time to time" makes it sound so harmless.

5. Try this one instead.

- (a) It is our considered opinion that one would be justified in substituting one product for another when circumstances are such that the first product is not yielding results at the desired level of functioning.
- (b) Well, it's very difficult to explain, but if I were in a situation in which I was obtaining substandard results, that is, results below the norm, assuming a norm, and assuming expectations that the norm is achievable by the product in question, I would certainly consider an alternative approach, one that might include the consideration of a substitute or replacement product.

5.2.1d *Practice recognizing and rewriting loaded language*

1. “Well, girls, do you think you can do better second half?” (coach to his losing boys’ basketball team)

Calling the boys “girls” is apparently intended as an insult.

And not only does it insult most boys (all the unenlightened ones), it’s an insult to every girl because it makes what she is an insult.

Also, the “do you think you can . . .?” sounds derisive.

A more neutral wording would be something like “Can you play better during the second half?”

3. “Can I help with the housework?” (husband says to wife)

“Help with” suggests that the housework is the wife’s responsibility, and the husband is being nice, offering to help out. If this is not the case (if they have agreed to share responsibility for the housework), then this is an instance of loaded language.

How would he ask the question in a neutral way? Well, I can’t imagine the question being asked at all if they’ve agreed to share the responsibility. . . the husband would just go ahead and do what they agreed he is to do!

5. “The land has been allowed to become overgrown by invasive species, including weeds.”

Loaded language includes: “allowed to” (suggesting some irresponsibility), “overgrown” (suggesting wild, out of control), “invasive” (suggesting bad), and “weeds” (suggesting bad).

Really, an “invasive” species is merely one that wasn’t there first. And “weeds” are just the plants we prefer not to have there.

So, a neutral version?

“Non-native species are growing more (more quickly? more abundantly?) than native species on the land.”

7. Wherever you look, trade tensions are on the rise. America and the European Union are squealing about surging textile imports from China; both are slapping on “safeguard” quotas to stem the flow. China is furious and has retaliated by scrapping voluntary export taxes on its textile exporters. Meanwhile Americans and Europeans are, once again, spitting at each other about subsidies to Boeing and Airbus.

(“The Key to Trade and Aid,” *The Economist*, June 4, 2005)

Loaded language includes: “squealing,” “surging,” “slapping,” “furious,” “retaliated,” “scrapping,” “spitting.” Also, “safeguard quotas” sounds like such a good thing—good for who though? The owners of American and European textile manufactures who are looking only to maintain or increase their profits. Such quotas wouldn’t be good for Chinese people seeking to sell their textiles internationally, nor would they be good for American and European people who want to purchase Chinese fabric (for whatever reason).

A neutral version would be something like this:

“The governments of the United States and the European Union are upset about the increase in textile imports from China and have instituted quotas to minimize or stop the increase. China has, in turn, removed export taxes on its textile exporters. The governments of the United States and Europe are upset with each other about subsidies to Boeing and Airbus.”

Notice that I have removed the first sentence: it served only to create some sort of emotional hysteria. And it probably wasn’t accurate—surely not *wherever you look* . . . Note the limiting reference to “the governments of” to remove the suggestion that it’s *everyone* in those countries who’s upset; if I could indicate which particular government department or official is involved, that would be even better.

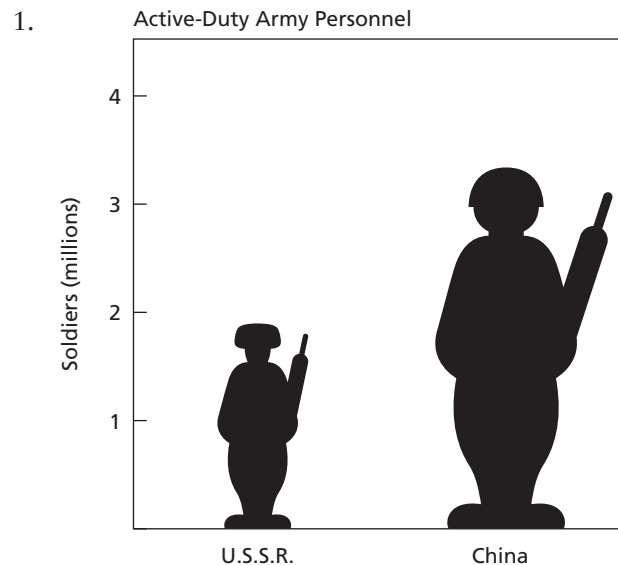
9. My heart breaks for that tiger and for all the animals languishing in makeshift cages and filth-ridden enclosures. If humans were being kept in such conditions, the phrase “torture chamber” would surely apply. Animals are indiscriminately denied their basic freedoms, and in some cases are subjected to pain, neglect, and cruelty . . . Animals are displayed in undersized, sub-standard exhibits that do little to satisfy their full range of biological and behavioural needs. Zoo animals tend to be warehoused for months or years with little to occupy their time. They become lethargic, obese, bored, frustrated or even insane . . . Many zoos still obtain significant numbers of animals from the wild. They are not the conservation institutions they claim to be.

(From a letter from the World Society for the
Protection of Animals regarding zoos)

Loaded language includes: “my heart breaks,” “languishing,” possibly “make-shift,” “filth-ridden,” “indiscriminately denied their basic freedoms,” and “warehoused.”

A more neutral description would start, perhaps, with “Zoo animals are kept in provisional and dirty cages” and the phrase “indiscriminately denied their basic freedoms” would be replaced with “they have no freedom to . . .” (thus removing the assumption that they *have* certain freedoms that we are *denying* them). The rest paints a negative picture indeed, but I can’t see that any other words or phrases are exaggerations or emotionally manipulative.

5.2.2a Practice recognizing loaded visual effects



From Zachary Seech, *Open Minds and Everyday Reasoning*, 2E. © 2005 Wadsworth, a part of Cengage Learning, Inc. Reproduced by permission. www.cengage.com/permissions

Notice that the figures give the impression that the Chinese forces are more than twice the size of the USSR forces; in fact, the total area covered by the figures *is* more than twice the size. But there are actually 3.5 million Chinese soldiers and 2.0 million USSR soldiers; the Chinese forces are less than twice the size of the USSR forces. Hence, the visual presentation, the use of the figures rather than the usual bars, is misleading.

3.



© Corbis

Because this person has been photographed from below, he looks more intimidating than he would have had he been photographed from the front or from above because the size of his upper body is exaggerated by that “from below” perspective. Also, had he been photographed from a greater distance, or, had more of the surrounding space been included, he would not have filled the frame so much and, consequently, would not have appeared as large.

And if someone were to put this picture beside a pack of steroids and photograph them together, merely by associating one with the other, they could imply, what, that Foreman used steroids? That would be nonsense or, at least, not supported by the new photograph: just because two things appear together, that doesn’t mean they are somehow related.

5.



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San Francisco Chronicle

Go to the webpage of “Anatomy of a Photograph” for the analysis of this one! (http://www.zombietime.com/sf_rally_september_24_2005/anatomy_of_a_photograph/)

5.3.1a Practice identifying genus and species

1. dog—a four-legged animal

genus: animal

species: four-legged

Note that “four-legged” isn’t limiting enough: cows, for example, are also four-legged animals.

In order to be more exclusive, in addition to coming up with a more limiting species, one might come up with a more limiting genus (such as “mammal”).

3. murder—the killing of a human being with malicious forethought

genus: killing a human being

species: with malicious forethought

Note that the genus given here would mean that killing any animal other than a human being would not be murder. Note that with the given species, killing a human being with *compassionate* forethought would not be murder.

5. planet—an object that has a mass between that of Pluto and the Deuterium-burning threshold and that forms in orbit around an object that can generate energy by nuclear reactions

genus: an object

species: with a mass between that of Pluto and the Deuterium-burning threshold; forms in orbit around an object that can generate energy by nuclear reactions

Note the genus could be a little more limiting; perhaps “objects occupying interstellar space” would be good (I’m not sure “interstellar” is correct). Note the two-part species in this definition.

5.3.1b Practice defining by genus and species

1. community

One possibility would be something like “a group of people (genus) who share something in common (species).” Perhaps the “something” has to be further defined . . . And must it be a group of *people*? Perhaps not . . .

3. poem

One possibility would be something like “a collection of words (genus) not conforming to strict rules of grammar and intended to be expressive of some moment of beauty, emotion, or insight (two-part species).”

Note that this definition would exclude collections of words that are not perceived by readers as expressive of some moment of beauty, emotion, or insight, but were intended to be so. There is much debate about the importance of intention with regard to whether or not something is considered art.

5. human

A warm-blooded mammal (genus) whose DNA . . . (species).

Note that I don’t know enough to define human! (See the role of knowledge in definition?) I think it’s our DNA that distinguishes us from non-humans, but I don’t know exactly what the distinction is.

Also note that this is not the same definition one would give for “person,” which has been variously defined as an entity with interests, desires, the ability to communicate, the ability to think, and so on.

5.3.2a Practice identifying necessary and sufficient conditions

1. *Thesen*: You need skill to get a job.

Santoz: Oh yeah, then why don’t I have one?! I have skills coming out of my ears!

According to Thesen and Santoz, skill is a necessary condition (you can’t get a job without it), but not a sufficient condition (you need more than skill—perhaps also luck).

3. Any sexually explicit material counts as pornography.

According to this definition, being sexually explicit is a sufficient condition for being considered pornography. However, I suspect most people would say it should be a necessary, not a sufficient, condition, for if that were all it took, then some illustrations in a medical textbook would count as pornography. (So what else is required?)

5. Sergeant John Bruhns is sharply critical of soldiers who go AWOL. “I feel that if you are against the war, you should at least be man enough to stay put and fight for what you believe in,” he says.

(David Goodman, “Breaking Ranks,” *Mother Jones*, November/December 2004)

Bruhns' definition of "man" seems to include staying and fighting for what you believe in—as a necessary condition or as a sufficient condition? Given that he implies that he wouldn't call soldiers who go AWOL men, staying and fighting for what you believe in seems to be a necessary condition. He doesn't seem to believe it's sufficient, however, because he says you should "at least" do that—suggesting that there's more to being a man than that.

5.3.2b *Practice defining by necessary and sufficient conditions*

1. consent

One might identify as necessary and jointly sufficient conditions that consent be capable (given by someone who has the mental capacity to understand the matters at hand), informed (given by someone who understands what is being consented to, the consequences, the alternatives, and so on), and voluntary (freely given, uncoerced, by either negative or positive inducements).

3. cruel and unusual punishment

Did you decide that it was a matter of kind? Intent? Effect?

Compare your definition with dictionary and legal definitions. For example, in *FURMAN V. GEORGIA* (1972), the definition included "irrational and arbitrary," "degrading to human dignity," and depriving the person of "human status."

5. fair

This one has been given a lot of thought by a lot of people . . . necessary conditions have included reference to what one needs and reference to what one deserves. And what defines what one deserves? Reference has been made to one's effort, one's ability, one's contribution, one's time . . .

Although "fair" isn't exactly the same as "just" . . . you might be interested in the standard definition of a just war: there must be sufficient cause to justify going to war, use of force must be a last resort after other reasonable means have been tried, use of force must be backed by correct intentions, the decision to go to war must come from proper authority, there must be a reasonable prospect of success, force must be proportional to ends, and one must discriminate between combatants and noncombatants. Is that a good definition?

Note that, at least in this presentation, there is no stipulation that the "proper authority" must be competent in any way (morally, strategically, and so on), there is no mention of the potential for retaliation, and there is no mention of the costs of going to war.

5.3.3a Practice identifying and correcting definitions that are too broad or too narrow (or both)

1. Pizza is a food item consisting of a bread crust, topped with cheese, tomato sauce, and a variety of meats and/or vegetables.

This definition is too narrow if we want to include pizza with just cheese and tomato sauce, or pizza without the cheese.

3. A leaf is a green thing that hangs from tree branches.

On the one hand, this definition is too narrow: leaves can also be red, brown, and yellow, depending on the time of year. On the other hand, the definition is too broad, as it includes conifer needles (pine needles, fir needles, and so on). It could also include a green snake hanging on a tree branch.

5. A “conscientious objector” is a person who objects to participation in all forms of war, and whose belief is based on a religious, moral, or ethical belief system.

Some might consider this definition to be too narrow, as it excludes those who object to participation in a *particular* war on religious, moral, or ethical grounds.

7. “Domestic terrorism” refers to activities that (A) involve acts dangerous to human life that are a violation of the criminal laws of the U.S. or of any state, that (B) appear to be intended (i) to intimidate or coerce a civilian population, (ii) to influence the policy of a government by intimidation or coercion, or (iii) to affect the conduct of a government by mass destruction, assassination, or kidnapping, and (C) occur primarily within the territorial jurisdiction of the U.S.

(U.S. Criminal Code at 18, U.S.C. 23310)

According to this definition, a person who punches someone (if a punch is a danger to human *life*; see part A) at a pro-environment protest (thus intending to influence government policy by intimidation; see part Bii) is a domestic terrorist. Some might, therefore, consider the definition to be too broad.

9. Computers cannot produce something novel; they can merely rearrange what they’ve been given. That is why I say they cannot think.

So the definition of “to think” is “to have the ability to produce something novel.” I would say Taffi can think even though she might not be able to produce something novel, so the definition seems to me to be too broad. I’d suggest instead something like “the ability to associate images or concepts in one’s mind.”

5.3.4a Practice identifying the error of equivocation

1. Scobie is an asset to this firm. All assets can be liquidated. Therefore, Scobie can be liquidated.

Yes, equivocation has occurred in this argument. Twice. The first “asset” refers to “benefit” but the second “asset” refers to “physical and financial properties.” And the first “liquidated” refers to “conversion to cash” but the second “liquidated” refers to “killed.”

3. It used to be that a husband’s income was sufficient for a family to be middle-class. Nowadays, both husband and wife have to work just to have a decent house and a vacation every year. That just goes to show that men’s real wages have decreased over the years.

Or has the definition of “middle-class” changed? Perhaps it used to be that only upper-class people could afford a vacation every year. If that’s the case, then in this argument, equivocation has occurred: the meaning of middle class as used in the first sentence is not the same as middle class as implied in the second sentence (having a decent house and a vacation every year).

5. Most prisoners in the United States are Christian. So religious instruction obviously does not improve morality.

The speaker has equivocated “being Christian” with “having received religious instruction”—the two are not at all necessarily the same.

The speaker has also assumed that being a prisoner means you are immoral; what about those who have been wrongfully imprisoned or who have broken what they consider to be immoral laws?

7. Indeed, given that there is a developmental continuum from embryo to fetus to infant to child, it is logically sound to extend policies about child abuse post-birth to pre-birth: “To begin legal protection and comprehensive obligations toward human beings only at birth, is to assume that the most vulnerable period of all human life, the period during which the foundations of childhood and adulthood health are laid, is discontinuous with and of no influence on those later stages”

(Edward W. Keyseilingk, *The Unborn Child’s Right to Prenatal Care*, 1984). On this basis, the state may be justified in regulating the behavior of the (biological) parents.

There doesn’t seem to be any equivocation going on in this argument.

9. It is clear there are laws of nature. For example, objects dropped off tall buildings fall down rather than fall up. If there are laws, there must be a law-maker. Who then has set these laws? Why, the supreme lawgiver, God!

In the first case, “laws” refers merely to observed regularities due to physics or chemistry or some such. But then the meaning switches to refer to some sort of legal or moral laws, rules that should be obeyed. Since the meaning of the word has changed, the argument falls apart.

Thinking critically about what you see

1.

[illegible]

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Courtesy of Agilent
Technologies, Inc.

First off, the photograph indicates comparative strength, the caption talks of being “more competent” and the small print talks of “efficiencies.” Since those are three different concepts, there seems to be some equivocation going on here (though, of course, the photograph isn’t a premise in the argument, but, rather, an illustration of the conclusion).

Furthermore, the photograph is rather “loaded”: the person who is three times as strong happens to be male, whereas the others, all three, happen to be female, implying, incorrectly and insultingly, that men are three times as strong as women. I’d be surprised if three reasonably fit adolescent females could *not* win a tug-of-war against one reasonably fit adolescent male!

On top of that, the three young women don't look very angry about it; in fact, they're smiling, as if they're delighted that the three of them together aren't strong enough to outmatch one boy.

Thinking critically about what you read

1. Americans are a free people, who know that freedom is the right of every person and the future of every nation. The liberty we prize is not America's gift to the world, it is God's gift to humanity.

(George W. Bush, Jr., State of the Union Address, 2003)

The language is pretty clear here, but the definition of "free/freedom" and "liberty" probably should have been given. (Unless, of course, they're merely intended as loaded terms, with no real meaning, but put in for the purpose of making you agree with whatever else he's saying—for who can disagree with prizing freedom and liberty?)

Also, note that Bush is not making an argument here; what he is doing is merely making a number of unsubstantiated claims (How do we know that freedom is the right of every person? How do we know it's the future of every nation? What is the evidence for claiming that liberty is a gift to humanity from a god?).

3. There are now more than 4,400 biotech firms in the world, the vast majority still privately owned. America, the birthplace of modern biotech, continues to tower over the field, accounting for more than half of all publicly-traded firms and almost \$43 billion in revenues last year, including from such giants as Amgen and Genentech. America's success is reflected in growing investment: the industry there raised almost \$17 billion from public and private markets in 2004, almost five times as much as in Europe.

("From Seed to Harvest," *The Economist*, June 4, 2005)

The argument seems to be this:

1. More than half of all publicly-traded firms in the U.S. are biotech firms.
 2. Biotech firms in the U.S. made almost \$43 billion in revenues last year.
- Therefore, the U.S. towers over the biotech field; it is successful in the field.

Note that "success" is defined in monetary terms, rather than, for example, the importance of the drugs developed (one could say that a biotech firm that develops only copycat and therefore unnecessary drugs or that develops drugs for minor problems such as erectile dysfunction rather than for major problems like AIDS is not a successful biotech firm).

There's a bit of loaded language—"tower" and "giants," for example, are value-positive, if one accepts that bigger is better (to "tower over" is to be taller than, and "giants" are large).

And I'm wondering about mention that America is "the birthplace" of modern biotech: it doesn't seem relevant to the argument; perhaps there's a bit of a genetic fallacy there (the implication that the genesis of something, in this case the "way back-ness" of genesis, is relevant to its current value).

5. I see it with the executives within the studio area. The other day, I saw a woman producer who was really quite powerful; and she railroaded, walked all over this guy, who was far less successful and powerful than her. She just behaved as if this man wasn't there because her position was more powerful than his. And it was much more disconcerting because it was a woman doing it. It was unfeminine, you know?

(Adrian Lyne, quoted by Susan Faludi in *Backlash: The Undeclared War Against American Women*, 1991)

There is definitely some loaded language here: "railroaded" and "walked all over."

Also, one might certainly challenge the speaker's implied definition of "feminine" (as someone who *doesn't* use her power or status?).

Also, note that he says her *position* was more powerful than his; not that *she* was more powerful than he was (perhaps that would be too much, to admit that a woman is more powerful than a man).

Lastly, there doesn't seem to be any argument here; it's just a description with an implied value judgment ('It's not feminine to . . .').

7. It would be futile to attempt to discuss the question as to what race or races were the original standard-bearers of human culture and were thereby the real founders of all that we understand by the word humanity. It is much simpler to deal with this question in so far as it relates to the present time. Here the answer is simple and clear. Every manifestation of human culture, every product of art, science and technical skill, which we see before our eyes to-day, is almost exclusively the product of the Aryan creative power. This very fact fully justifies the conclusion that it was the Aryan alone who founded a superior type of humanity; therefore he represents the archetype of what we understand by the term: M A N. He is the Prometheus of mankind, from whose shining brow the divine spark of genius has at all times flashed forth, always kindling anew that fire which, in the form of knowledge, illuminated the dark night by drawing aside the veil of mystery and thus showing man how to rise and become master over all the other beings on the earth. Should he be forced to disappear, a profound darkness will descend on the earth; within a few thousand years human culture will vanish and the world will become a desert.

(Adolf Hitler, *Mein Kampf*, 1942 [1939])

The argument seems to be this:

1. By creating culture, one founds humanity.
2. Human culture as we see it today is almost exclusively the product of Aryan creative power.
3. (Therefore) it was the Aryan [man] alone who founded a superior type of humanity. Therefore, if the Aryan disappears, human culture will vanish.

Note that I had to add the first premise in order to connect the given premise with the conclusion.

I think the added premise is reasonably acceptable: culture does seem to define us, at least to some extent.

However, the given premise (the second premise) is quite strong ("almost exclusively"), so it would require a lot of evidence before it's acceptable (the stronger a claim, the stronger the evidence must be). It's my understanding that both the Chinese and the Mayan cultures were quite advanced, and neither is Aryan. However, given that little of the Chinese and Mayan cultures survive, perhaps the given premise *is* accurate. But then one might wonder why the speaker has chosen to base his argument on only that culture which remains. We know that often a defeated people had its cultural products destroyed by those who defeated them, so one might want to exclude the possibility that the culture that remains is, rather than the result of Aryan creative power, the result of Aryan destructive power. In short, I'm not at all convinced it is futile to discuss what race or races were the original standard-bearers of human culture.

Further, I don't understand why the switch was made from humanity in the premise to mankind in the subconclusion; no reason is given for suddenly eliminating the female half of the species.

As for the final conclusion, does it follow from the premises? No. Just because culture up to now has been almost exclusively due to the Aryan race (assuming we accept that), it doesn't follow that no other race will ever be able to be as creative. To reach *that* conclusion, one would have to prove that no other race *is* capable of cultural creativity.

Another problem is definitional: what exactly is an 'Aryan'? Does the speaker mean merely white-skinned? I suspect that's too broad a definition, but I'm not sure how he would narrow it.

And of course there's a lot of loaded language in the second part of passage (which, admittedly, is not part of the argument per se, but still . . .): "shining brown", "divine spark of genius", "flashed forth," "kindling anew", "illuminated the dark night", "a profound darkness."

And, if you read very closely, you'll note that the speaker defines knowledge, or at least valuable knowledge, as that which enables man "to rise and become master over all the other beings on the earth." One might challenge the narrowness of that definition.

9. In an effort to avoid potential conflicts, it is required that Chrysler Corporation be alerted in advance of any and all editorial content that encompasses sexual, political, social issues or any editorial that might be construed as provocative or offensive. Each and every issue that carries Chrysler advertising requires a written summary outlining major theme/articles appearing in upcoming issues. These summaries are to be forwarded to PentaCom prior to closing in order to give Chrysler ample time to review and reschedule if desired . . . As acknowledgment of this letter we ask that you or a representative from the publication sign below and return to us no later than February 15.

(From a letter sent by Chrysler's ad agency, Pentacom, a division of BBDO North America, to at least fifty magazines, as presented in Russ Baker, "The Squeeze," *Columbia Journalism Review*, September/October 1997)

There is no argument here; it's just a directive. But oh, the language! Essentially, the bare bones of the directive are "You must tell us what's in every issue of your magazine because if there's anything negative about us or our products in it, we'll pull our ads." Put another way, "We won't advertise in your magazine unless you censor out everything that might negatively affect the money-making value of our ads—anything that might stop us from making as much money as possible."

But "in an effort to avoid potential conflicts" sounds so good, doesn't it? So reasonable.

And "it is required" neatly sidesteps agency; it's not *me* that's requiring you to do something . . . And at the same time, it's so coercive: if it were a person making the request, you could say no, but since "it is required," well, it sounds like there's no choice.

And then "encompasses" and "construed as"—so pretentious! And "are to be forwarded" and the entire last sentence ("As acknowledgment . . .")—such officialese! Both elements make the "request" that much harder to refuse.

Reasoning test questions

Visit the ETS website (www.ets.org) and download the "GRE Practice General Test." It provides six essays in response to the given prompt, one representative of each score category, along with commentary explaining why it was given that score. See how your essay compares with those they present!

I highly recommend that you also download "An Introduction to the Analytical Writing Section of the GRE General Test." It provides details about the task, a link to a pool of argument topics, excellent advice about how to prepare for this part of the test, and explicit information about what exactly they're looking for (they list the merits and flaws of a typical paper of each score category).

Lastly, the "GRE PowerPrep" (also a free download available at the ETS website) provides additional prompts, each with six scored essay responses.

Chapter 6

Truth and Acceptability

6.1.2a Practice determining whether truth or acceptability applies

1. With the proper meditation techniques, I can invoke an out-of-body experience, one in which my astral body separates from my physical body and floats above for a few moments before departing on an astral journey.

This could be assessed for truth: put a message on the floor (perhaps “You missed a spot” or “This side DOWN”) and see if the person, upon returning from their astral journey, reports seeing the message.

3. This painting is exquisite!

This is an aesthetic judgment, so there is no truth of the matter; instead, one would determine whether the claim is acceptable, probably by first establishing a definition of “exquisite” and then determining whether the painting in question conforms to that definition. The more the painting conforms to the definition, the more acceptable the claim.

5. Paying taxes is morally indefensible.

This is a moral claim, so the standard of acceptability is applied. One would first establish the criteria for actions being morally defensible and then determine

whether paying taxes meets those criteria. The more paying taxes meets those criteria, the less acceptable the claim.

7. God created human beings.

Since nothing can falsify this claim, it cannot be evaluated for truth/falsity; it must be subjected to the standard of acceptability instead.

9. Particles of rock, sand, and mud, which are collectively called sediment, settle in layers at the bottoms of rivers, lakes, and oceans, and as the sediments accumulate, they bury shells, bones, leaves, pollen, and other bits and pieces of living things. With the passing of time, the layers of sediments are compacted by the weight of overlying sediments and cemented together, and the buried plant and animal remains become fossils within the sedimentary layers. Since sedimentary rocks are formed particle by particle and layer by layer, the layers end up stacked one on another; thus, in any sequence of undisturbed sedimentary rock, the layers increase in age the further down they are. Geologists have divided time into four very broad segments: the Precambrian, up to 540 million years ago; the Paleozoic, 540–250 million years ago; the Mesozoic, 250–65 million years ago; and the Cenozoic, 65 million years ago to the present. (Certain elements decay and turn into other elements at a known and constant rate, so by measuring the amount of decay, geologists can determine the age of the rock; for example, it takes 5,700 years for carbon to half-decay into nitrogen, it takes 1.3 billion years for potassium to half-decay into argon, and so on.) So the fossil record provides evidence for the theory that animal life forms have developed along a certain trajectory: invertebrates developed first, as invertebrate fossils are found in the Precambrian layer of rock; then fish and reptiles started showing up, in the Paleozoic time period; mammals and birds don't appear until the Mesozoic.

(Based on John Pojeta, Jr. and Dale A. Springer, "Evolution and the Fossil Record," American Geological Institute, at: <http://www.agiweb.org/news/evolution/index.html>)

What would falsify this theory? The finding of fossilized rabbits in a Precambrian layer of rock (thanks to J.B.S. Haldane).

6.1.2c *Still more practice with the standards of truth and acceptability*

1. People don't refrain from killing their neighbors because they don't want to risk the penalty. They just don't want to kill their neighbors. So punishment isn't a deterrent.

If the speaker means “all” people, then the first two claims could be easily falsified by finding just one person who *does* refrain from killing his/her neighbors because of the penalty and by finding just one person who *does* want to kill his/her neighbors. If we assume the speaker means, however, “most” people, then both claims could be verified by an extensive survey (though we’d have to assume people were telling the truth about themselves).

Both claims, qualified by “most,” are, however, plausible, and even probable. And there are no unsettling implications if either claim is accepted as true. Even so, I wouldn’t accept the conclusion until I had good reason to think that killing one’s neighbors is sufficiently similar to other instances of criminal behaviour—for which punishment may indeed be a deterrent.

(Also note the poor writing—bet you had to read this one a couple times to understand it!)

3. Of course, most parents aren’t thinking of the “higher” good at all. They send their children to college because they are convinced their young benefit financially from those four years of higher education. But if money is the only goal, college is the dumbest investment you can make . . .

If a 1972 Princeton-bound high-school graduate had put the \$34,181 that his four years of college would have cost him into a savings bank at 7.5 percent interest compounded daily, he would have had at age 64 a total of \$1,129,200, or \$528,200 more than the earnings of a male college graduate . . .

In fact there is no real evidence that the higher income of college graduates is due to college. College may simply attract people who are slated to earn more money anyway; those with higher IQs, better family backgrounds, a more enterprising temperament.

(Caroline Bird, *The Case Against College*, 1975)

The claims in the first paragraph seem plausible to me; they’re certainly possible, and reasonable.

I’d have to check the arithmetic of the second paragraph, though I don’t know of *any* savings account that pays 7.5 percent interest compounded daily. An updated example may still support the argument—if one put the money in a long-term deposit account paying 5 percent annual interest.

The claims in the last paragraph are particularly interesting; is there some way of researching this to determine which is the cause and which the effect?

5. [T]he whole notion of the ozone layer as something fixed and finite, to be eroded away at a faster or slower rate like shoe leather, is all wrong to begin with—it’s simply not a depletable resource; . . . even if it were, the process by which CFCs are supposed to deplete it is highly speculative and has never been observed to take place; and even if it did, the effect would be trivial compared to what happens naturally . . .

[O]zone is all the time being created in the upper atmosphere . . .

If ozone were depleting, UV intensity at the earth's surface would be increasing. In fact, actually measurements show that it has been decreasing—by as much as 8 percent in some places over the last decade . . .

. . . CFCs don't rise in significant amounts to where they need to be for UV-C photons to break them up . . .

[Regarding the suggestion that a thousand times more chlorine has been measured over the Antarctic than models say ought to be there] . . . The measuring station at McMurdo Sound [in the Antarctic] is located 15 kilometers downwind from Mount Erebus, an active volcano venting 100 to 200 tons of chlorine every day . . .

[A]n unexpectedly low value in the Antarctic winter-spring ozone level was reported by the British scientist Gordon Dobson in 1956—when CFCs were barely in use . . .

An increasing rate of UV-induced skin cancer means that more people are receiving more exposure than they ought to. It doesn't follow that the intensity of ultraviolet is increasing as it would if ozone were being depleted. (In fact, it's decreasing, as we saw earlier.) Other considerations explain the facts far better, such as that sun worship has become a fad among light-skinned people only in the last couple of generations, or the migrations in comparatively recent times of peoples into habitats for which they aren't adapted: for instance, the white population of Australia. (Native Australians have experienced no skin-cancer increase.)

(James P. Hogan, "Ozone Politics: They Call This Science?" *Omni*, June 1993)

Is it true that ozone is not depletable, that it's being replenished all the time?

Is the ozone being created at same rate as it is being destroyed?

Is it true that the UV intensity at the earth's surface is decreasing? Is that overall?

On average? Just at specific places? Just at specific times?

Are there any causal factors that might be masking an increasing UV intensity at the earth's surface? (That is, perhaps CFCs *are* causing the ozone to deteriorate and hence the UV intensity at the earth's surface to increase, but perhaps something else is causing UV intensity to decrease . . .)

At what elevation do UV-C photons break up CFCs?

What percentage of CFCs reach that elevation?

What amount of CFCs reaching that elevation would have non-trivial consequences?

Do the 100–200 tons of chlorine vented by Mount Erebus account for the "thousand times" increase? (Are there any measuring stations *not* downwind of an active volcano?)

Are there multiple causes of ozone depletion such that the low level in 1956 is irrelevant to whether or not CFCs cause ozone depletion?

Is the increase in UV-related skin cancer due to more time in the sun (or to more intense UV)?

Do Native Australians ever experience UV-related skin cancer? (If not, they do not act as a counterexample.)

How long does it take for CFC damage to become measurable?

Note the “has never been observed to take place” comment—that doesn’t mean the cause-and-effect doesn’t occur, and we can establish whether or not it does by means other than direct observation.

6.4.1a *Practice determining whether personal testimony is acceptable*

1. My eyeball and eye socket were recently destroyed by someone playing a “harmless” prank with a paintball gun. Parents should remember that paintball guns are exactly that: guns and not toys.

There is no reason to doubt the claim, though one might wonder whether “destroyed” is an exaggeration perhaps due to a bias against guns. The claim is of limited value, however, because it presents the experience of only one person, and so would be insufficient for any sweeping generalization about the danger of paintball. It is sufficient, though, as a counterexample to the claim “Paintball is harmless.”

3. I had cancer, then I started taking megadoses of vitamin C and a month later the disease was gone. Miracle cure!

Although the claim of having cancer is perhaps reliable, the claim that the disease is gone might be questioned—is it truly gone or just in remission? Is this a case of wishful thinking (emotional/cognitive states influencing perception)?

More importantly, the implied causal interpretation, that megadoses of vitamin C cure cancer, should definitely not be accepted as there is no indication that alternative explanations have been eliminated. It’s quite possible some information has been omitted; for example, did he/she have chemotherapy while he/she was taking those megadoses of vitamin C?

5. After 9/11, someone told the *New York Times* that her house was still standing because of the protection afforded by a statue of Buddha on her property; houses not similarly protected had been erased, she pointed out.

The speaker’s observation that her house is still standing is probably reliable. But she is not merely making an observation; she is providing an interpretation of that observation—that it is due to her having a Buddha statue. And there is no

reasoning given for that interpretation. On that basis alone (lack of reasoning), I would not accept the claim.

Furthermore, her claim can be falsified by finding a house with a Buddha that had been destroyed. (Of course, if it's been destroyed, how can one find it?) (Finding still-standing houses without a Buddha would not affect her claim since she's not saying that *only* those with a Buddha were saved; she's claiming merely that those without a Buddha were not.)

6.4.2a Practice determining whether survey results are acceptable

1. Twenty-two thousand readers responded [to a 1994 *Consumer Reports* survey about the effectiveness of psychotherapy]. Of these, approximately 7,000 subscribers responded to the mental health questions. Of these 7,000 about 3,000 had just talked to friends, relatives, or clergy, and 4,100 went to some combination of mental health professionals, family doctors, and support groups [for stress or other emotional problems]. Of these 4,100, 2,900 saw a mental health professional: psychologists (37%) were the most frequently seen mental health professional, followed by psychiatrists (22%), social workers (14%), and marriage counselors (9%). Other mental health professionals made up 18%. In addition, 1,300 joined self-help groups and about 1,000 saw family physicians. The respondents as a whole were highly educated, predominantly middle class; about half were women, and the median age was 46.

(Martin E.P. Seligman, "The Effectiveness of Psychotherapy: The *Consumer Reports* Study," *American Psychologist*, December 1995)

At first reading, this might seem to be a reasonably good survey, if only because a whopping 7,000 respondents were involved. But I wonder why a whopping 15,000 decided to respond to a survey about psychotherapy but then decided not to answer the questions about mental health. That, along with the fact that the respondents include only readers of *Consumer Reports*, and more, only those who chose to respond, indicates that the sample is pretty self-selected and, therefore, the results are not very representative. (Maybe those who benefited were more likely to respond, or maybe those who did not benefit were more likely to respond.)

I'd like to know what the questions were; I'd especially like to know how "mental health" was defined.

There is no way to corroborate respondents' reports about what they said about the effectiveness of psychotherapy; it's quite possible that memory may have distorted their views.

Consumer Reports reports finding that the more therapy, the better the outcome, but I suspect they didn't test alternative explanations: maybe the longer

people stay in therapy, the more chance there is for other factors to account for recovery (maybe they quit the job that was causing the stress, left the marriage, or just matured in some important way).

3. According to the June 12–18, 2003, Gallup Poll, American women do not appear to be bitter or disgruntled about their status in society, or about the opportunities they have had in their lives. The first item in the poll asked “Are you very satisfied, somewhat satisfied, somewhat dissatisfied, very dissatisfied with the way women are treated in society?” and 69 percent were very satisfied or somewhat satisfied.

The Gallup Poll is generally good with regard to sampling techniques. And you’ll note that the options cover a good range of possibilities (especially if people can indicate a response somewhere between the given responses).

However, if the researchers concluded, on the basis of these results, that all is well with women in America, that would be an unjustified conclusion; it may be that most women are unaware of how much lower their status still is compared to men or how fewer the opportunities they have had.

It would be interesting to know what other questions were asked—in particular, what questions immediately preceded this one.

5. Question: What do you think has/should have the most influence on the values of young people today?

	<i>Has (%)</i>	<i>Should have (%)</i>
TV and movies	34	1
Parents	20	74
Young people	19	1
Musicians and music videos	10	0
Celebrities and athletes	6	1
Teachers	5	9
Political leaders	2	1
Religious leaders	1	11
Military leaders	1	0

Survey by Mellman & Lazarus for Massachusetts Mutual Life Insurance Co., September 1991, as in Everett C. Ladd, “The Myth of Moral Decline,” *The Responsive Community*, 4.1, 1993/1994.

Note that “Thinking about values” isn’t even listed as a possible influence! Do all young people simply adopt their values from someone, somewhere, else? Does no one think about them for themselves? (Also, I note that “Books” isn’t listed—doesn’t anyone read anymore?)

How many people were asked? Who were these people (how were they selected)? And what other questions were asked?

If the researchers concluded that together, TV and movies and parents have the most influence on values, that would be incorrect: *thinking* they have most influence (which is what the question asks about) isn't the same as *having* most influence.

7. In a study of 1,297 telephone operators, researchers found that the typical ill operator was a married woman, widow, or divorcee who had hoped to be a housewife and mother. Deprived of her husband's support by death, desertion, or incompatibility, she had been forced to continue working, often while rearing small children. The healthiest operators, on the other hand, tended to be single women with little drive toward marriage and whose ambitions did not go much beyond the modest satisfaction of their jobs.

("Down with Love," *Scientific American*, January 2005, quoting something that appeared in their January 1995 issue)

The headline given to this report, "Down with Love," suggests the conclusion that love is the problem, but that conclusion is not supported by the survey: who's to say those single women didn't love? (And who's to say the others did?) The survey classified the women by marital status, presumably having asked about that—did it also ask about love?

And of course alternative explanations don't seem to have been eliminated: perhaps the women were ill from overwork, having to work both outside the home and then having to come home to kids, laundry, meals, and so on; perhaps the operators weren't really ill, but were pretending to be so in order to stay home with an ill child.

In what year was the study done?

Note the loaded language—"deprived" and "forced".

9. Top Five Neighborhood Problems:

Staten Island

1. Potholes
2. Traffic congestion
3. Dangerous intersections
4. Too much growth, over-building
5. Soot or air pollution

Queens

1. Potholes
2. Too much growth, over-building

3. Illegal conversion, lack of enforcement
4. Traffic congestion
5. Dangerous intersections

Manhattan

1. Street noise
2. Litter or garbage
3. Soot or air pollution
4. Rats or rodents
5. Drugs or drug dealing

Brooklyn

1. Litter or garbage
2. Potholes
3. Drugs or drug dealing
4. Vandalism or graffiti
5. Dangerous intersections

Bronx

1. Drugs or drug dealing
2. Vandalism or graffiti
3. Environmental health problems
4. Street noise
5. Youth violence or gangs

(According to a “joint study about the main quality-of-life complaints among New Yorkers released by the non-profit Citizens for NYC and Baruch College’s Town Panel,” as reported in *am New York*, June 23,1995)

Note that the lists are surprisingly similar—too similar to be coincidence. I’ll bet that respondents were given a short list of ten or so problems and asked to rank them. Such an approach would yield far different results than an open-ended question, such as “What are the top five problems in your neighborhood?”

6.4.2b Practice determining whether experiment results are acceptable

1. Research shows that 75 percent of all stomach aches go away after taking “Go Away!”

Well, there’s a lot more we need to know. Was there a control group? Maybe 75 percent of all stomach aches go away after taking nothing at all. Was the study double-blind? How many people were involved? Was the sample representative?

3. I've kept accurate records: a lot of ships have disappeared in the Bermuda Triangle! It's an evil place!

Well, this is not really an experiment. Did you send various ships through the Triangle on different routes, in different weather conditions, and so on? Did you find out how many more ships make it through the Triangle than disappear? Did you find out how many ships outside the Triangle disappear?

Also, that ships are disappearing doesn't necessarily mean the Triangle's evil.

5. The crime rate in Orlando, the home of Disney World, is higher than the crime rate in Atlantic City, the home of many casinos, even though they both have about 30 million visitors per year. This shows that that casinos do not, in fact, attract criminals or otherwise increase crime.

This is not exactly an experiment, but it does illustrate the importance of using the correct control group: in order to determine whether the presence of casinos affects the crime rate, comparison should have been made between pre-casino Atlantic City and post-casino Atlantic City (assuming everything else about Atlantic City remained the same), not between post-casino Atlantic City and post-Disney Orlando. As it turns out, Orlando's crime rate was about the same before and after Disney, whereas the crime rate in Atlantic City increased 237 percent *after* the opening of its casino—and has stayed high. Also, the crime rate in Orlando goes up and down about the same as that in Florida as a whole, whereas the crime rate in Atlantic City is always higher than the rest of New Jersey.

7. So on Friday before the holiday weekend he came up with a press release received on December 9 from Newark-based UMDNJ Medical School: "Researchers Find 'Game Boy' is an Effective Approach for Treating Anxiety in Children About to Undergo Elective Surgery." . . .

. . . Anuradha Patel, principal investigator on the study, thought handheld video games might ease severe anxiety in children about to undergo elective surgery.

Patel and her cohorts, pediatric anesthesiologists, had tried various stress relieving activities, from watching television, to reading, to using coloring books, but nothing really worked. An alternative, an anti-anxiety drug called midazolam, can produce a "drug hangover" that lasts longer than the effect of the anesthesia itself.

Patel hoped video games could substitute for drugs. She tapped the services of an Eagle Scout to collect Game Boys for a randomized controlled study. Some children had only their parents to help them cope with their anxiety. Others, also accompanied by their parents, were given the drug, and a third group, also accompanied by parents, was given a Game Boy about 30 minutes before anesthesia.

You guessed it. Those with Game Boys remained calm, while the drugged group showed an anxiety increase of 7.5 percent, and the control group was 17.5 percent more anxious.

(“Between the Lines,” *US#1*, June 1, 2005)

One can conclude from the study that the use of Game Boys is more effective than either parents or drugs in relieving pre-surgery stress—assuming everything else was pretty much the same. And that’s a pretty big assumption, depending on how many children were involved in the study. If, for example, only ten children were involved, differences in the seriousness of the surgery to be undergone and in the nature of the parents might have skewed the results. So too might the sex of the child—it’s my understanding that boys are much more enthusiastic users of Game Boys than girls.

9. Suspecting a professor of an anti-Hispanic bias, particularly toward male students, based on grades received by students in his classes during previous years (for example, never had a Hispanic male student received a grade higher than B–), the class of ’06, along with the cooperation of the professor, conducted the following experiment. Every assignment in the current year’s course was to be submitted as a Word document, identified only by a number; a student from another course would collect each batch of assignments and record the student’s name and identifying number, before giving the assignments to the professor for grading. A similar procedure was followed for in-class tests and the final examination. When the final grades were tabulated, students and professor discovered a bias (on average, Hispanic male students received lower grades than Hispanic female students and all non-Hispanic students), though not as much as anticipated.

It would be helpful to know the size of the class and the breakdown of Hispanic and non-Hispanic, male and female, students. For example, if there were 100 students in the class and only 3 Hispanic male students, it would be hard to conclude that the professor had an anti-Hispanic bias if 2 of those 3 students received lower grades than everyone else.

Also, one has to compare starting points: if the Hispanic male students had poorer grades coming into the course, it wouldn’t indicate a grading bias if they maintained poorer grades during the course.

Too, one has to eliminate other variables: did the Hispanic males put as much work into the course material as the other students? For example, did they spend the same amount of time and effort completing the assignments?

I think every prof should include at least a few assignments graded in this way just as a check. I’ve found myself time and time again distracted by the handwriting (hard to give an A+ to someone who dots their i’s with hearts), the cleanliness of the paper or type, and so on.

6.4.2c Practice determining whether “the numbers” are acceptable

1. The President won over 80 percent of the vote, showing overwhelming support by the people.

Not if only 50 percent of the people voted (is this in Australia where everyone *has* to vote?): 80 percent of 50 percent is 40 percent of the people, which is less than half, not a majority, so most of the people do not support him.

3. We consider the risk to be minimal: less than .01 percent suffered side-effects.

Out of how many? If the total is 300 million (about the population of the United States), we’re talking about 3,000 people; depending on what we’re talking about, that may be not so minimal.

5. 14 million documents were classified as secret by the U.S. government in 2003. 8 million were classified as secret in 2001 (*Time*, May 17, 2004). Clearly the government is getting more secretive or it has more to hide.

No, it depends how many documents in total there were in 2003 and 2001. For example, suppose there were 100 million documents produced in 2003 and 57 million produced in 2001; 14 of 100 is 14 percent, but 8 of 57 is also 14 percent, so the percentage of documents that were classified has actually stayed the same.

7. Deaths caused by occupational disease: 25,000
Deaths caused by crime: 24,000
Other physical harm caused by occupational disease: 15,000
Other physical harm caused by crime: 1,000,000
So one is as likely to die by some occupational disease as by crime.

The conclusion isn’t acceptable because the comparison is incorrect. The risk of crime falls on the whole population, infants to elderly. But the risk of occupational disease falls only on about half of the population, those who work. So to make the comparison a fair one, we should halve the numbers for crime (assuming that crime affects everyone equally—which probably isn’t a good assumption). That makes the deaths numbers 25,000 compared not to 24,000 but to 12,000, which means there’s twice as much risk of death from occupational disease than from crime.

9. Eight out of ten Lotto winners have one amazing thing in common—they all had high levels of vitamin C in their systems when they won their millions!
That’s the finding of a stunning news study published here last week by a renowned sociologist, Dr. Michael Valsing.

The study has indisputably linked large doses of vitamin C to what is commonly called “good luck.”

The research team headed by Dr. Valsing sent detailed questionnaires to 671 people in France, Australia and America—all of whom had won more than \$4 million in lotteries . . .

“[O]ther than the vitamin C, none of the winners ate the same foods. The only thing their diets had in common was the vitamin C,” [reports Dr. Valsing.]

. . . Dr. Valsing says he has no idea why the taking of vitamins should have an effect on good luck. But his associates have what they think is a plausible theory: They deduced that science has shown that everyone has some degree of psychic ability. But it remains undeveloped in most people.

It could very well be that something in vitamin C has an effect on the part of the mind that receives telepathic thought waves. In other words, these people’s ESP abilities may have been temporarily heightened, allowing them to “tune in”—so to speak—to what numbers would come up in the lottery.

(Ann Victoria, “Shocking Study Reveals . . . Vitamin C Can Help You Win the Lottery!” *The Weekly World News*, February 1, 1994)

Well, 671 people is a substantial number of people, so 8/10 is significant. And the researcher seems to have eliminated other common foods. But he didn’t eliminate other common elements that may have causal significance. For example, did he ask what color of clothing winners usually wore or whether they had jobs?

Furthermore, it may be that 8/10 non-winners also had high levels of vitamin C in their systems.

Also, wouldn’t luck apply to when you pick your number, rather than to when you win (presumably the time of the draw or announcement)? (Perhaps this is just poor reporting: maybe Valsing asked about levels of vitamin C in their systems when they picked their numbers.) (Actually, I doubt that he asked about levels of vitamin C in their systems at all, since people generally don’t know how much of any given element is in their system at any given time; they know only whether they consume foods rich in vitamin C or, more likely, whether they take vitamin C pills, so that’s probably what Valsing asked.)

Of course, since the information is based on questionnaires, there is the assumption that respondents were completely truthful in their responses.

6.4.3a Practice determining whether sources are acceptable

1. “A yearlong examination of death-record data from across the nation conducted by *The Washington Post* indicated that “there have been approximately 1,367 killings of pregnant women or new mothers since 1990 . . . 67% of the women were killed with guns, often at home and usually by husbands or boyfriends. [The victims] spanned a wide range of ages, races,

cultures and socioeconomic backgrounds, including: a minister's wife, a Navy petty officer, a waitress, a college student, a business woman, a high school athlete and an immigrant housekeeper.

(As reported in *Ms.*, Spring 2005)

Both *Ms.* and *The Washington Post* are probably reliable sources, but as *Ms.* notes, the number is only an estimate since there is no established system to track such crimes: "At this time, federal homicide data collected by the FBI and the CDC does not capture the pregnancy status of female victims."

Ms. might be partial when it comes to opinions, but I don't think the magazine would publish (intentionally) a misquote. Is *The Washington Post* qualified to conduct such an examination? I suppose that would depend on who they assigned to the task.

3. During my years in family court, I have seen a dramatic deterioration in the lives of adults and children. At the same time, there has been a dramatic increase in expensive public programs. We are spending a fortune and the result is failure. The recipients of these monies are in the same or worse shape than before, and the consequences are all around us: more and meaner delinquents, more unwanted children, more abused children, more dysfunctional adults, more teenage pregnancies. By shifting the emphasis from individual responsibility to government responsibility, we have infantilized an entire population.

(Judge Judy aka Judy Shendlin, *Don't Pee on My Leg and Tell Me It's Raining*, 1997)

One might dismiss Judge Judy, putting her in the same camp as, perhaps, Jerry Springer, but according to her website, she began a career in the justice system in 1972 as a prosecutor, later becoming a judge in Family Court in the state of New York and retiring in 1996. Such credentials would make her a qualified authority on many matters of justice, and her personal testimony is probably reliable (though, note, it is just personal testimony—just one judge's experience). Also, note that beyond making some observations, she seems to be concluding cause on the basis of correlation (see Sections 8.1 and 8.4), an argument that should be evaluated independent of its source.

5. President Bush is calling on Congress to develop legislation that will offer temporary worker status to undocumented men and women now employed in the United States and to those in foreign countries who have been offered employment here. The legal status would expire after 3 years (with the ability to be renewed). Temporary workers then must return home or apply for a green card under existing law, unlike the blanket amnesty that was enacted in 1986. . . .

Giving criminal aliens any type of legitimate status or legal benefits (jobs) is amnesty. Bottom line: Now is NOT the time to even mention a program like this. It will only encourage a rush of new criminal aliens hoping to take advantage of this “program.”.

What is very frustrating for me is that the ag business won’t stop fighting for this idea. Economic freedom is a republican principle but instead of fighting for economic freedom in terms of reduced regulation, relaxed child-labor laws, and a reduced minimum wage the farmer (and many Republicans) would prefer to fight for access to foreign citizens.

They would rather that money earned in this country be sent to Mexico. They would rather that our culture be diluted. They would rather that we continue to put more and more Spanish translations on everything. . . .

Don’t tell me about “jobs that Americans won’t do” either. I’ll drive my kids to the fields in the morning and guess what, they don’t speak Spanish!

They also don’t send 50% of their wages to another country and they don’t rape 12 year old girls. (Don’t ask me for the stats you idiot, just read my archives) . . .

(Daniel Sherwood, “Daniel’s Political Musings,” excerpts from his blog entries of February 2 and 3, 2006, at <http://danielisright.blogspot.com/>)

Unless you have read and verified (by consulting other sources) previous blogs of Daniel Sherwood, I’d say you have no reason to accept the claims made in this one as true. On the other hand, there’s no reason to reject them as false. Perhaps one should suspend judgment about all blogs until a record of reliability is established.

Credibility would be increased if a source had been provided for the description of Bush’s proposal and the claim that the ag business is fighting for the idea; sources for the stats are apparently somewhere in his archives (I didn’t look for them—a direct link would have been helpful . . .).

The “About Me” section at his site merely says “I will not rest until illegal aliens get treated like the criminals that they are.”

6.4.4a Practice determining whether images are acceptable



According to the website “Museum of Hoaxes” (<http://www.museumofhoaxes.com/photos/bigbear.html>), this photograph is authentic. Apparently bears *can* be that big.

3.

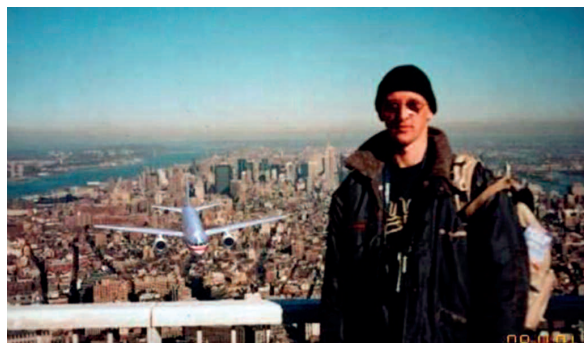


© Getty Images

The legitimacy of this one is hard to determine for two related reasons: scale and context—without context, we can’t determine scale. Is it a picture of a toy action figure placed on an air vent? Or is it a picture of a real person climbing a building? (And is that possible? It doesn’t look like any ropes are being used.)

It actually *is* a picture of a real person climbing a building: Alain Robert climbed the 57-storey Lumiere Building on August 30, 2010 in Sydney, Australia.

5.



There are several indications that this photograph is a fake, each of which can be reached by propositional thinking:

If it was September 11 in New York, it would be relatively warm, a late-summer day, and so a heavy winter coat and hat would not have been necessary.

If this were the plane that flew into the WTC, it would be a Boeing 767. The plane in the photograph is a Boeing 757.

Given that the plane approached the World Trade Center from the north, the tower in the photograph would have had to have been the North Tower. The North Tower does not have an observation deck. (And if somehow the photograph shows a view from the other tower, it does have an observation deck, but it's not open until 9:30 a.m. The first plane hit at 8:49.)

6.5a Practice recognizing counterevidence

1. [H]igh schools across the U.S. are taking soft drinks out of their vending machines because, they say, they want to encourage better eating habits. But they're replacing them with something that's even worse: flavored milk drinks. . . . These strawberry and chocolate concoctions are full of fat, cholesterol, sugar, and sodium—far more than in the soft drinks they replace—and the milk in them is associated with a host of health problems, including diabetes, obesity, cancer, and heart disease.

("Dump the Dairy," *Animal Times*, Spring 2004)

- (A) Flavored milk drinks are higher in calcium and vitamins than soft drinks.
- (B) Flavored milk drinks cost more than soft drinks.
- (C) Water is preferable to both flavored milk drinks and soft drinks.

Option (A) provides counterevidence because if it is true that flavored milk drinks are higher in calcium and vitamins than soft drinks, replacing soft drinks with flavored milk drinks would have some benefit (with regard to better eating habits).

Option (B) does not address the issue of healthy eating/drinking in any way.

Option (C) might be counterevidence if "preferable" referred to dietary preference—but this is not specified; it could refer to convenience or some other aspect.

3. The public school system is a monopoly, and we all know that monopolies don't produce good results because there's no competition, and without competition, the monopoly has no incentive to strive for quality or efficiency. That's why private schools are the way to go.

- (A) Privatizing the school system passes the expense of education onto the individual.

- (B) Countries whose students routinely outperform ours have public education systems.
- (C) Competition is the best motivator.

Option (A) may well be true, but it doesn't address the argument.

Option (B) provides counterevidence to the claim that private schools will produce the best results.

Option (C), if true, provides additional evidence in support of the argument, not against it.

5. In 2004, the Nobel Peace Prize was awarded to Wangar Maathai, a Kenyan environmentalist-turned-politician, for planting 30 million trees. Although some question the award, her supporters say it was well-deserved. Conflict often springs from competition for water or fertile land. As deserts expand and populations soar, such competition can turn violent. The war in the Darfur region of western Sudan, for example, has its roots in the struggle between black farmers and Arab pastoralists over a slab of increasingly arid soil. By reforesting Kenya, W. Maathai has made it less likely to go the way of Sudan. And the way she did it—by paying peasant women to plant seedlings in their own villages—empowers women, and so promotes peace even more.

(The Economist, October 16, 2004)

- (A) A better solution to diminishing water and fertile land would be a decrease in population.
- (B) It is most often men, not women, who initiate and engage in war.
- (C) Skirmishes over pasture are common, but wars are more often the result of struggles for political power; for example, a group of guerrillas rebelled against an oppressive regime, which responded by slaughtering the rebels' ethnic kin.

Option (A) may be true, but it does not address the claim that Maathai's award was well-deserved.

Option (B) may be true, but it does not address the argument.

Option (C) provides counterevidence to the claim that Maathai's award was justified because it challenges the relationship between land quality and war.

6.5b Practice "constructing" counterevidence

1. It is clearly beneficial for American companies to set up shop in developing countries. Such companies benefit from the cheap labor provided by such countries, and the countries benefit from the jobs that are provided.

Counterevidence: The jobs are exploitive (long hours, no breaks, dangerous conditions, no benefit plans, no pensions).

3. The vaccination for hepatitis B was introduced in 1991, but there has been no decline in the disease, proving that vaccinations don't always work.

Counterevidence: One is not at risk for hepatitis B until adolescence, so evidence of success won't appear until around 2006.

5. Women should not serve in the military. As Brian Mitchell points out, "Physical limitations make it impossible for many women to live up to the boast that they perform as well as men. The Marine Corps does not train women to throw hand grenades because a test of female Marines found that barely half of them could throw a hand grenade far enough not to kill themselves."

(Brian Mitchell, "Should Military Women Serve in Combat? Con," *The American Legion Magazine*, May 1990)

Counterevidence: Many jobs in the military do not involve that kind of physical strength; this is the age of technology—women can push buttons as well as men (actually, since their fine motor control is superior—all those typists—they can probably push those buttons better than men).

6.5.1a Practice recognizing the either/or fallacy

1. "Would you like plastic or paper?" the grocery store clerk asks.

Neither, I could respond; I'd like to use the cloth bag or the nylon string bag I've brought with me. The clerk has presented two options as if they're the only possibilities (as if those two options exhaust the possibilities), when in fact there are other, additional possibilities. So, yes, this is an instance of the either/or fallacy.

3. "Sink or swim!"

Or flail about in terror.

5. We either deal with terrorism and this extremism abroad, or we deal with it when it comes to us.

(General John Vines, as quoted by President George W. Bush, June 28, 2005)

There is at least one other option: we don't deal with it (here or abroad). So this is an instance of the either/or fallacy.

6.5.2a Practice recognizing the fallacy of composition

1. Of course this is a great paper! Every single article in it is great!

This is an instance of the fallacy of composition: the individual articles may be great, but overall the paper might lack variety and breadth, which make the paper *not* great.

3. Every part of this flower is made of glass, so this flower is made of glass.

This is *not* an instance of the fallacy of composition.

5. Is Congress ineffective? Is it non-responsive to your interests? The solution is to elect better members of Congress!

Well, not necessarily. This is an instance of fallacious reasoning, of assuming that the whole will have the same properties as the individuals (the fallacy of composition): if individual members are better, then Congress as a whole will be better. It could be that the current Congress is composed of very responsive members, but the procedures by which Congress functions act as obstacles to that responsiveness.

6.5.3a Practice recognizing the fallacy of division

1. This committee has consistently come up with creative solutions. I don't understand why your individual performance is so lack-luster.

The speaker doesn't understand because he/she is assuming that what is true of the whole must be true of the individual parts (the fallacy of division); perhaps the individuals have abilities that complement each other in a wonderful way, or perhaps when they're together they snowball their ideas in a way that results in one fantastic idea.

3. I don't understand why the anthology was such a failure. Nothing but excellent poems were included.

This is an instance of the fallacy of composition: the speaker has assumed that if the individual poems were excellent, the collection would be excellent.

5. My bicycle is in my apartment, so every part of my bike must be in my apartment.

This is *not* an instance of the fallacy of division.

6.5.4a Practice recognizing the gambler's fallacy

1. *Belsito*: I notice you're buying ten tickets today instead of your usual five.
Naljiwan: That's right. I haven't won this month yet, so I figure my day's coming. And I'm being smart about it, gonna make it count, gonna make the most of my winning day!

If Naljiwan is thinking that the chances of her winning are increasing with every passing day that she doesn't win, then she is indeed committing the gambler's fallacy. Her chances of winning depend solely on the number of tickets sold and the number of winners to be declared; thus, she has a greater chance of winning if she buys ten tickets than if she buys five, but buying ten because she has a greater chance of winning since she hasn't yet won is erroneous thinking.

3. The older I get, the less apt I am to have an accident because with every passing day, my driving record gets better and better.

Your previous accident record has nothing to do with your subsequent chances of having an accident: your chances of having an accident a month ago are the same as they are of having an accident today (mind you, those chances may be low if you are a good driver, but they're not lower today because of the previous month's worth of accidents). So, yes, this is an instance of the gambler's fallacy.

5. Ten applicants were shortlisted—I'm one of them! And, it turns out, there are five positions, not just one. And, the news gets better, I just found out that three applicants have been eliminated. So at first I thought my chances were one in ten, but then they were fifty-fifty, and now they're even better!

This is correctly reasoned. With ten applicants and one position, the speaker's chances are one in ten (all else being equal). But with ten applicants and five positions, his/her chances are five in ten (or fifty-fifty). And if three applicants have now been eliminated, her chances are five in eight—which *is* better.

6.5.4c Practice recognizing errors of truth

1. *Security Manager*: We note that there are very few personal email messages being sent by employees, so we're going to extend our surveillance program from email communications to phone communications.
Smart Employee: But you have no way of knowing how many personal email messages were sent before surveillance began—so you can't conclude that the surveillance "worked"—
Security Manager: Yes, well, we don't know that it *doesn't* work.

The Security Manager is making an appeal to ignorance: not knowing that it doesn't work doesn't mean it does.

3. If you don't get married, you'll be a lonely old spinster.

Since there are options other than being a married person and being a lonely and old unmarried person (one could be a very happy person, flying solo), this is an instance of the either/or fallacy.

5. You have taken the most mundane of objects, and used the most mundane of colors, and yet, your painting is stunning.

There is no error here; the speaker is, however, illustrating the very principle that makes the fallacy of composition a fallacy—the whole can be greater than the sum of its parts.

7. I don't profess to be able to understand this at all. I never got past high school chemistry, so I couldn't possibly understand this science. But I want to say that this is the most dangerous research ever conducted in the United States, and it should be prohibited.

(Senator on DNA research, as reported by Paul Berg, "BioBrain Backs Stem Cells," *Discover*, April 2005)

This is not an appeal to ignorance; rather, it is an instance of making a claim despite ignorance.

9. The power goes out at least once or twice each winter. Winter is almost over, and it hasn't yet gone out, so I'm prepared: I'm doing back-up saves of my work every minute—I'm serious!

If the speaker is suggesting that the odds of a power outage have increased because it hasn't yet occurred, he/she is committing the gambler's fallacy. The chances of a power outage depend not at all on how many previous outages there have been, but on weather conditions, power line conditions, and so on.

Thinking critically about what you see

1. Hospital survival rates

Table 1	Survived	Died	Total	Survival rate
Mercy Hospital	750	250	1000	75%
Charity Hospital	840	160	1000	84%

From “Hazards of Irrationality” by Michael Clark, *The Philosophers Magazine*, no. 26, 2nd quarter, 2004. Reprinted with permission.

Are you better off going to Charity Hospital?

Looks like it. But take a look at these two tables:

Table 2 Good condition	Survived	Died	Total	Survival rate
Mercy Hospital	490	10	500	98%
Charity Hospital	810	90	900	90%

Table 3 Bad condition	Survived	Died	Total	Survival rate
Mercy Hospital	260	240	500	52%
Charity Hospital	30	70	100	30%

Table 2 and Table 3 of “Hospital survival rates” from “Hazards of irrationality,” Michael Clark, *The Philosophers’ Magazine*, 2nd quarter 2004, p. 39.

Now it looks like you’re better off going to Mercy Hospital. What’s going on? The numbers add up.

Here’s what’s going on: Charity looks better in the overall table only because their average survival rate was favorably skewed by the fact that 810 of the 840 people who went to Charity were in good condition to begin with.

Thinking critically about what you read

1. A recent study found that 50 percent of men commit sexual assault within a week of their viewing pornographic movies, proving once again that pornography is bad for women!

Note the (probably acceptable) assumption that the sexual assaults were directed toward women.

There is much we need to know about the study before we accept the finding as useful in any way, such as how many men were involved and how the men were selected. A definition of “sexual assault” would also be helpful.

More importantly, the conclusion is unwarranted because there was, apparently, no control group: what percentage of men who do *not* watch pornographic movies commit sexual assault within a week? Until this is determined, one should suspend judgment about the relationship between pornographic movies and sexual assault.

3. Why do you keep pushing me to get married? Each year, two million Americans get married, and one million get divorced. That means that half of all marriages fail! It's not like I'm not all grown up unless I'm married—is *that* what you think? That marriage is some rite of passage to adulthood?

The claim “That means that half of all marriages fail” is incorrect: the two million marriages represent one year, but the one million divorces represent marriages of the previous 40 or so years, so it's a mis-comparison. What is needed instead is something like this: Of those who married between 1950 and 2000, X% have since divorced; therefore, Y percent of marriages fail within 50 years.

5. A neurotoxic poison, mercury, is especially worrisome to developing fetuses. A nationwide study reveals that a significant number of women of child-bearing age have too much of the metal in their systems. Researchers at the University of North Carolina at Asheville based their results on hair samples from nearly 1,500 people of all ages. As hair grows, it incorporates mercury from the bloodstream. Interim results from the Greenpeace-commissioned survey released October 20 revealed that one fifth of those studied had mercury levels above the EPA recommendation of one part per million in hair. The investigators report no other pollutant has anywhere near this high a percentage of the U.S. population with exposure levels above federal standards. The biggest sources of airborne mercury are coal-fired power plants. The investigators will gather an estimated 5,000 samples or more in total and issue their final report in March.

(Charles a. Choi, *Scientific American*, January 2005)

This study was reported in reputable magazine (*Scientific American*), and the researchers are probably reputable researchers (university-affiliated). The sample seems sufficiently large and representative.

The funders (Greenpeace) may have wanted these results—is it likely they exerted undue influence to contaminate the research? The reality is, perhaps, that only environmental groups will fund such research.

I'd like “a significant number” to be defined (specified); ditto for “too much.” It's possible that the later-mentioned 20 percent is the significant number, and “too much” is anything above the EPA recommendation. But this should have been clarified. Whether or not that is the case, one might certainly ask how much above the recommendation the levels of those 20 percent were, and whether the standards are set too high.

7. Hebrews 11:1 says, “Now faith is the substance of things hoped for, the evidence of things not seen.” The *evidence* of your healing is the fact that you claimed it in the name of Jesus Christ, and your *faith* will stand in the place of your total healing until Satan turns loose of the symptoms and he will because he *must*.

(Austin Miles, *Setting the Captives Free*, 1990)

This argument seems to me to be in need of further clarification. The language used makes it very hard to understand. Also, there are several questionable claims made, and some very confusing use of the word “evidence.”

For example, the first sentence indicates that faith is the evidence of things not seen. How can merely believing that something exists be proof that it does exist? Children believe Santa Claus exists—is their faith evidence?

Further, the evidence of one’s healing would be not that one claims it in the name of Jesus Christ, but that one can now walk (if one was lame before) or that one can now see (if one was blind before)—being actually able to walk and see is evidence of being healed. Whether one claims the healing in the name of Jesus Christ rather than in the name of someone else, that addresses the matter of who caused the healing, not the matter of whether one was healed.

How does faith stand in the place of healing? Elaboration is needed here!

“. . . until Satan turns loose of the symptoms”—what does that mean? Did the speaker mean to say “until Satan turns loose *from* the symptoms”—that is, until Satan no longer has the symptoms? What symptoms? The symptoms of your illness? Why does Satan have your symptoms? Or does the speaker mean that Satan will free you of your symptoms? If Satan is the one who heals you, then why would you claim your healing in the name of Jesus Christ?

“. . . he will because he *must*”—again, what does that mean? It’s all very cryptic. Does the speaker mean that Satan has no free will, that he will do X because he is compelled, by God, to do X?

9. In recent years, anthropologists have reevaluated the perspective of “man the hunter,” which long served as a model of the origins of human society . . . Using this model, primatologists and anthropologists . . . had reasoned that hunting, a male activity, was a creative turning point in human evolution—that it required intelligence to plan and to stalk game, and to make hunting and other tools. It also required social bonding of men, the use of language to cooperate in the hunt, and then the distribution of meat and the development of tools for hunting and cutting the meat. According to Washburn and Lancaster in Lee and De Vore’s *Man the Hunter*, “In a very real sense our intellect, interests, emotions, and basic social life—all are evolutionary products of the success of the hunting adaptation.” . . . The question is, what merit is there to the model and the explanations derived from it?

Among others, Frances Dahlbert in *Woman the Gatherer* suggests the account can only be considered a “just-so story” in the light of new scholarship. Beginning in the 1960s, research on primates, on hunter-gatherer societies, and archaeological and

fossil records made this story obsolete. For example, the paleo-anthropological myth of man the hunter was deflated when the “killer ape” of Robert Ardrey’s *The Hunting Hypothesis*, the presumed australopithecine forebear of humans, turned out to be predominantly vegetarian . . . A greater challenge to the man the hunter model came from Sally Linton in Sue Ellen Jacobs’s *Women in Cross-Cultural Perspective*. Linton attacked the validity of theories of evolution that excluded or diminished women’s contributions to human culture and society. She noted that women contribute the bulk of the diet in contemporary hunting and gathering societies, that small-game hunting practiced by both sexes preceded large-game hunting practiced by men, and that females as well as males probably devised tools for their hunting and gathering and some sort of carrying sling or net to carry babies. According to this view, the collaboration and cooperation of women was probably as important to the development of cultures as that of men.

(Cynthia Fuchs Epstein, “Inevitabilities of Prejudice,” *Society*, 23.6, 1986)

Note the four lines of evidence—research on primates, research on contemporary hunter and gatherer societies, archaeological research, and fossil records—that are referred to as challenging the “man the hunter” hypothesis. Of course, more information is needed before we accept or reject these lines of evidence, but we can be ready with some questions: How strong is the evidence indicating that humans evolved from the australopithecine, and, even if the evidence is strong, is that a reason to assume that if the australopithecine was vegetarian, early humans were also vegetarian? Can we justifiably extrapolate from the diet of contemporary hunter and gatherer societies to early hunter and gatherer societies? If so, why? The world in which the two societies lived is quite different, isn’t it?

It seems plausible to me that small-game hunting preceded large-game hunting. It also seems plausible that women would devise tools for hunting and gathering, and, especially, slings for carrying babies.

Speaking of babies, it seems quite plausible that women would do most of the gathering, while they’ve got their babies with them, while men would do most of the big game hunting, *and* it seems plausible that gathering would contribute more to their diet than hunting since the source is more available (both with regard to mere presence and acquisition). Going one step further, it seems likely that women discovered agriculture: they’re the ones who gathered seeds, perhaps dropped a few, and then were in the same place long enough (or returned to the same place seasonally) to see a consequence. All of this would provide additional evidence to the claim that collaboration and cooperation of women was probably as important to the development of cultures as that of men.

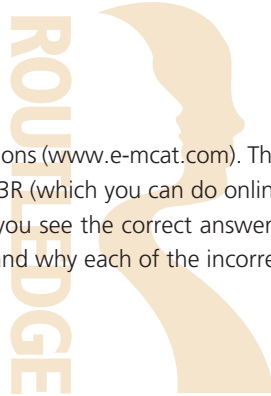
Also, with regard to the development of language, it seems to me that the need for a mother to communicate with her children is just as strong a motive (if not stronger) as the need for hunters to communicate with each other.

Also note that the “man the hunter” hypothesis calls into question the common view that men are competitive. Is that another reason to reject that hypothesis? Or is there a reasonable way to respond to the apparent contradiction?

Reasoning test questions

1. (D)
3. (B)
5. (D)

See the MCAT website for explanations (www.e-mcat.com). This is Passage VIII of the Verbal Reasoning section of Practice Test 3R (which you can do online at no cost; when you click “Solution” beside each question, you see the correct answer, as well as explanations for why the correct answer is correct and why each of the incorrect answers is incorrect).



Chapter 7

Generalization, Analogy, and General Principle

7.1a Practice identifying when and what additional information is required

5. Hydrogen is the most common element in the universe. So hydrogen fuel cells are definitely the wave of the future. We're already running out of oil—it's time to convert now! They're bound to be better than the fossil fuel engines that are currently running our cars.

In addition to clarifying the intended meaning of “better”, we need to know what's involved in extracting hydrogen from the universe and turning it into a fuel cell; perhaps the process is far less safe or far more expensive, or even far more polluting, than extracting oil and turning it into gasoline. (Is ‘abundant’ the same as ‘accessible’?)

3. An American manufacturer of woolen sweaters goes to Congress or to the State Department and tells the committee or officials concerned that it would

be a national disaster for them to remove or reduce the tariff on British sweaters. He now sells his sweaters for \$50 each, but English manufacturers could sell their sweaters of the same quality for \$25. A duty of \$5, therefore, is needed to keep him in business. He is not thinking of himself, of course, but of the thousand men and women he employs, and of the people to whom their spending in turn gives employment. Throw them out of work, and you create unemployment and a fall in purchasing power, which would spread in ever-widening circles.

(Henry Hazlitt, *Economics in One Lesson*, 1946)

The manufacturer's reasoning seemed sufficient to me (to support his conclusion that the tariff on British sweaters shouldn't be removed or reduced). But then what do I know about economics? When I read the rest of the article, parts of which I provide below, I realized that there was a lot of additional information I needed!

The tariff is repealed; the manufacturer goes out of business; a thousand workers are laid off; the particular tradesmen whom they patronized are hurt. This is the immediate result that is seen. But there are also results which, while much more difficult to trace, are no less immediate and no less real. For now sweaters that formerly cost retail \$50 apiece [the ones made by the American manufacturer] can be bought for \$25 [the British sweaters]. Consumers can now buy the same quality of sweater for less money, or a much better one for the same money. If they buy the same quality of sweater, they not only get the sweater, but they have \$5 left over [the British sweaters at one time cost \$30, the total price of \$25 plus the \$5 duty, but the duty or tariff was repealed], which they would not have had under the previous conditions, to buy something else. With the \$25 that they pay for the imported sweater they help employment—as the American manufacturer no doubt predicted—in the sweater industry in England. With the \$5 left over they help employment in any number of other industries in the United States.

But the results do not end there. By buying English sweaters they furnish the English with dollars to buy American goods here. This, in fact (if I may here disregard such complications as fluctuating exchange rates, loans, credits, etc.), is the only way in which the British can eventually make use of these dollars. Because we have permitted the British to sell more to us, they are now able to buy more from us. They are, in fact, eventually *forced* to buy more from us if their dollar balances are not to remain perpetually unused. So as a result of letting in more British goods, we must export more American goods.

5. Hayward CA: A jury began deliberating last week in the Murder case against three young men charged with beating and strangling a teenager after discovering she was biologically male. Attorneys for two of the defendants argued that the killing of 17-year-old Gwen Araujo—who was born male but passed

as a woman—was manslaughter, not murder, because the men acted out of panic and shock over Araujo’s sexual deception. But prosecutor Chris Lamiero rejected that theory as he made his final argument to jurors. “The provocation did not flow from [Gwen] Araujo. The provocation flowed from within them,” Lamiero said. As jurors deliberate the case, community advocates are anxiously waiting. “It is huge,” said Shannon Minter, legal director of the National Center for Lesbian Rights. “We are all on pins and needles waiting to see what the jury does and it will be devastating if they don’t respect Gwen’s humanity and see through the offensive and irrational arguments the defense attorneys have made.”

(*New York Blade*, June 11, 2004)

Before I accept the attorneys’ argument (that the killing was manslaughter, not murder), I would like to know a lot more about the actual event; it doesn’t sound like the three young men acted in self-defense, but I’d like to know for sure that Araujo wasn’t threatening them with a gun, for example.

Also, before I consider as sufficient the reasons put forth by the attorneys, I’d like to see the legal definitions of “manslaughter” and “murder,” and if acting out of panic and shock is all it takes to classify killing as manslaughter rather than murder, then I’d like to see the legal definitions of “panic” and “shock”! I’d also like to consult a bunch of philosophers about the difference between “justified provocation” and “unjustified provocation.”

7.2a Practice imagining counterexamples

1. As price increases, demand decreases because people will become less able to afford the product.

Counterexample: Some people buy more of something when it is high-priced to show off their monetary wealth.

3. Women can’t be good soldiers because of their physical size.

Counterexample: The Vietnamese won the Vietnam War with male soldiers who, on average, were about the same size or smaller than the average American woman.

5. We are quite justified in banning songs like Ice-T’s “Cop Killer”—so many black rap artists glorify killing.

This can be tricky. You might be tempted to say this is a counterexample: We didn’t ban (white) Johnny Cash’s “I shot a man in Reno/ just to watch him die,” the (white) Dixie Chicks “Earl had to die,” or (white) Bruce Springsteen’s

“... I killed everything in my path/ I can’t say that I’m sorry for the things that we done.” (Thanks to Michael Moore, *Stupid White Men*)

But a counterexample to “So many black rap artists glorify killing” would be a black rap artist that did *not* glorify killing. The list of *white* artists that also glorify killing would be a counterexample to the claim “Only black rap artists glorify killing.”

7. There are no rights without responsibilities.

Counterexample: We think children and the severely mentally ill have rights, but what responsibilities do they have?

9. Poverty leads to crime.

Counterexample: The crime rate was lower during the Great Depression than during the prosperous years of the 1960s.

7.2b Practice recognizing generalizations

1. The most recent poll indicates that 77 percent of those surveyed believe that nuclear power plants are unsafe. So I guess the world *isn’t* ready for nuclear power after all.

Assuming that “the world” means “everyone,” and assuming that being “ready for nuclear power” means people think it is safe, the speaker is generalizing from 77 percent of those surveyed to everyone. This generalization is strictly induction by enumeration.

3. Well, we asked our employees—all 31 of them, actually—and 27 wanted to go on a flextime program. In fact, 20 of them agreed to work 40 hrs/wk instead of the current 37.5 if it meant they could work those hours according to a schedule they themselves set. So there you have it: almost 90 percent of our employees want flextime.

This is not a generalization. The conclusion isn’t about a *larger* group of people than that referred to in the premise; it’s about the *same* group of people. So, in fact, the conclusion isn’t a conclusion at all; it’s merely a restatement, presenting the information as a percentage, instead of as absolute numbers (27 of 31 is 87.9 percent).

5. Based on a survey of 1,000 people aged 30 to 50 in the United States and another 1,000, also aged 30 to 50, in Europe, we can say that middle-aged Americans are incredibly out of shape compared to their European counterparts.

The speaker is generalizing from 2,000 people to Americans and Europeans in general. Note, however, that, unlike in the first item of this exercise, the speaker is not making a claim about people in general. The sample is limited to middle-aged Americans and Europeans, and so too is the conclusion.

7. Given that a lot of men don't really want their girlfriends or wives to be smarter than them or to make more money than them, yeah, I'd say we're still living in a patriarchal society.

This is not a generalization if the speaker's definition of a patriarchal society is simply one in which a lot of men don't want their girlfriends or wives to be smarter than them or to make more money than them.

9. Every morning there's some delay with the subway. I am so sick and tired of just waiting, wasting my time, and of being late! The system really needs an overhaul of some kind—I don't know whether the problem is old equipment, bad maintenance, slow drivers, or poor scheduling, but something's got to be done!

This is not a generalization. The speaker is presenting evidence of delay and recommending on that basis that improvement is needed. He/she doesn't seem to be generalizing from one or more instance to the general situation, saying that this and that train is always late, so trains must be late all over the place.

7.2.1a Practice recognizing an overgeneralization

1. I read the other day that 90 percent of medical research and development goes toward diseases that cause 10 percent of the harm. So all those drug studies and medical experiments—they're completely useless!

Well, they're not *completely* useless: we can infer that 10 percent of medical research and development goes toward more far-reaching diseases, and even the research that goes toward the diseases that cause 10 percent of the harm is of some use, no? This is an overgeneralization with respect to scope.

3. This is the breakdown by sex of the 2004 SAT scores: the average score for females was 504 on the verbal section and 501 on the math section, whereas the average score for males was 512 on the verbal and 537 on the math. And that's out of 1.42 million students. So it's pretty clear that sex accounts for a significant proportion of the difference in scores. The SAT scores certainly support the widely-held opinion that men are better at math than women! Employers and graduate schools are wise to keep this in mind.

The SAT sections are “out of” 800, so the difference of 8 points between females and males on the verbal section represents a 1 percent difference, and the difference of 36 points on the math section represents a 4.5 percent difference. I’d hardly call those percentages “a significant proportion”! The stats indicate that sex accounts for a mere 1–4.5 percent difference.

And as for supporting the generalization that men are better at math than women, the SAT scores indicate merely that adolescent males are up to 4.5 percent better than adolescent females at the kind of math the SAT tests. Is that difference sufficient to “warn” employers and graduate schools against hiring or accepting women?

5. In the end, virtually all the solutions involve making drivers pay. More realistic fuel prices would make a difference: a gallon of petrol costs around \$2.50 in California, compared with \$5.90 in Britain. There are some subsidies for greener fuels, but there is no enthusiasm for a carbon tax, even though petrol taxes produce in real terms about one third of the revenue per vehicle mile that they did in 1970.

(“America’s Great Headache,” *The Economist*, no author, June 4, 2005)

“Virtually all” implies, to me, something well over 90 percent and I suspect it’s an overgeneralization, but I’d have to see the data; in particular, I’d have to see how complete it is (that is, did the speaker really examine *all* the solutions?).

Claiming that there is *no* enthusiasm for a carbon tax, presumably in the United States, is definitely an overgeneralization; a quick web search revealed that the Environmental Tax Program at the University of Maryland’s Center for Global Change developed a carbon tax proposal for Maryland, so I’m assuming they’re enthusiastic about it!

7.2.2a Practice recognizing an insufficient sample

1. Eventually you will have to ask: who is doing the art that’s getting censored? Mapplethorpe was gay, Serrano is Hispanic, Scott Tyler is black. The San Diego billboard group is multicultural, promoting a black cause. While this censorship crisis may be a surprise to many, any multicultural, gay or feminist artist can give you a litany of examples.

(Steve Durland, “Censorship, Multiculturalism, and Symbols,” *High Performance*, Fall 1989)

Well, a litany of examples is just personal anecdote, so it’s not a sufficient sample. If the speaker really wanted to establish a “censorship crisis,” he/she would have to do an extensive survey, preferably of a representative sample of cities and towns from across the country, and all the art galleries therein, tallying up the sexual

orientation, skin color, and ethnic background of those artists whose work was accepted and those whose work was not.

3. I've asked 500 of the students here and most of them say that credit card companies should not give someone a credit card unless they have paid in full whatever they owe on all previous credit cards, so I'm concluding that that's probably the opinion of most students at this university.

Assuming there are no more than 100,000 at the university, this is a sufficient sample.

5. Talking about the characters in Michael Crichton's novel *State of Fear*, reviewer Gregory Mone says "At one point, Sanjong shows Evans a graph revealing a 116-year temperature decline in Punta Arenas, Chile. 'There's your global warming,' he says with irony."

(*Popular Science*, May 2005)

Sanjong is suggesting either that 116 years is an insufficient time period from which to generalize that global warming is occurring, or that temperature decline in one place (Punta Arenas, Chile) is an insufficient sample from which to generalize that *global* warming is occurring.

7.2.3a Practice recognizing an unrepresentative sample

1. Based on a study of 500 boys, researchers conclude that violence on television makes children more violent than they would otherwise be.

Since the study's sample included only boys, the results should not be extended to children in general; perhaps girls react differently to violence on television.

And what did the researchers use to establish how violent the children were "otherwise"? If they used observations of boys who did not watch violence on television, fine, but if they used observations of children in general, then there's another problem with their sample because boys may be more predisposed to violence in the first place.

3. Researchers plan to study the deposition of fat in rats in order to draw conclusions about humans and the effect of high-fat diets.

In rats, fatty deposits form in the liver, but in humans, they form in the blood vessels; so in humans, fatty deposits can lead to strokes and heart disease, but not so in rats.

A representative sample upon which to base some conclusion about humans and the effect of high-fat diets would be a large number of humans, with a representative mix of age, sex, class, exercise level, diet, and genetic make-up.

5. I'm a psychiatrist with a large number of teenagers and all of them are troubled. So don't tell me teenagers aren't troubled!

The psychiatrist is basing his/her conclusion on an unrepresentative sample: the teenagers he/she sees are, by definition, only the troubled ones, so to generalize from that narrow sample to teenagers in general is unjustified.

7.3a Practice identifying arguments by analogy

1. Having an organ transplant is like cannibalism. And cannibalism is wrong. So organ transplants are wrong.

Yes, this is an argument by analogy: the speaker is comparing having an organ transplant with cannibalism, and concluding that since the latter is wrong, the former is wrong.

The relevant similarities are that both involve taking a body part of another person into your own body, and doing so in order to live. There may also be another similarity: the person whose body part is taken is dead.

One difference is that in the case of an organ transplant, the “taking” is surgical, whereas in the case of cannibalism, it's by eating. Is that an important difference?

Another difference might be that in the case of cannibalism, the person whose flesh is taken is not consenting, whereas in the case of organ transplants, the person is consenting. If true, that would be a very relevant difference!

3. *Pernecksky*: I can't believe my pay was reduced because I was doing personal stuff on company time!
Santoz: Well, it's like stealing supplies from the storeroom—shouldn't you have to pay for that?

Santoz is indeed making, or at least implying, an argument by analogy: doing personal stuff on company time is like stealing supplies from the storeroom, so if one has to pay for the latter, one should have to pay for the former.

The relevant similarity is that one is taking for personal use something that belongs to the company; of course, this assumes that while you're at work, your time belongs to the company—is the company paying you for your time or is it paying you for your actual work?

A dissimilarity is that in the one case, we're talking about time, and in the other case, we're talking about material supplies. Is that a relevant difference?

5. Here in the West, poverty means a bad life. But poverty in the Third World means death.

(Fareed Zakaria, “The Education of Paul Wolfowitz,” *Newsweek*, March 28, 2005)

This is just a comparison, not an argument, let alone an argument by analogy.

Even if a conclusion followed—for example, “Therefore, it is important that we eradicate poverty in the Third World”—it would be an argument, but not an argument by analogy: the conclusion would follow from the comment about the Third World alone; it does not depend on the comparison between the West and the Third World.

7. As long as we have capital punishment for people who kill other people, we should apply the same principle to corporations: corporations whose activities kill people, immediately or in the long-term, directly or indirectly (through destroying water and the natural resources needed to produce food) should also be put to death—their corporate existence should be ended, their assets taken and sold at public auction.

(Inspired by comments of Eliot Spitzer, Attorney General, New York State)

Yes, this is an argument by analogy: the speaker is comparing people who kill other people and corporations who kill other people, concluding that if we penalize the former with death, we should penalize the latter with death.

The relevant similarity is that in both cases people get killed.

One dissimilarity is that a person is a tangible entity, whereas a corporation is not (isn't it?). Another difference is that a person is singular, but a corporation is a multi-person entity. Do these differences matter in any way?

9. Anyone who has ever struggled to fix a paper jam in a copier knows that most machines aren't very adaptable. When machines break, they don't release a host of component parts to heal themselves. They remain broken until someone calls tech support. Likewise, with the exception of the virtual machines of software, most technology isn't capable of adaptive self-assembly.

(Steven Johnson, “Self-Assembling Robots, *Discover*, April 2005)

This is not an argument by analogy; it's just an illustration by comparison.

7.3.1a Practice recognizing weak or false analogies

1. Just as a football player does not become great without pain, so too with a pianist. I'll bet every great football player has at one time or another torn muscles, ligaments, or tendons; many have broken something; surely all have come away from practice bruised. So you want to be great? You want to be a concert pianist one day, a virtuoso? Then I want to see you hurt! I want to see you bleed, I want to see sprained or crushed fingers!

The analogy is basically this: becoming a great football player entails injury; becoming a great piano player is like becoming a great football player in that both involve dedication, discipline, effort, and the development of specific skills;

therefore, becoming a great piano player should also entail injury. It is a weak analogy because the speaker has ignored relevant dissimilarities: football involves gross motor movement and piano playing involves fine motor movement; more importantly, football involves antagonistic physical contact with other players and piano playing doesn't. Therefore, the expectation and role of injury in the one is quite different than in the other.

3. We should license parents. After all, we already license pilots, scuba divers, plumbers, electricians, teachers, veterinarians, cab drivers, soil testers, and television repair people ... Are our TVs and toilets more important to us than our children?

(Based on Roger McIntire, "Parenthood Training or Mandatory Birth Control: Take Your Choice," *Psychology Today*, October 1973)

The relevant similarities between being a parent and being a pilot, electrician, veterinarian, and cab driver is that there is (i) a potential to cause a great deal of harm (ii) to someone else if one is incompetent. Also (perhaps this is the same point), (iii) they're all responsible jobs. The analogy seems weak in this respect with regard to scuba divers, plumbers, teachers, soil testers, and television repair people: I don't think anyone will die or sustain life-long physical or psychological testing if such people are incompetent (though perhaps that's questionable in the case of teachers of young children). But then that's probably part of McIntire's point: if we license even *these* people, we should *even more* license parents.

Are there any relevant dissimilarities? Some people would argue that we have a right to be a parent, whereas we don't have a right to be a pilot, scuba diver, and so on. But, again, this seems to be part of McIntire's point: we *don't* have a right *until* we're licensed.

This might be a stronger analogy to argue for licensing parents:

People are screened for parent competence by adoption agencies and by NRT providers. A woman who wants in vitro fertilization in order to get pregnant has to fill out a health questionnaire about herself and her relatives, which is reviewed by a clinical geneticist. Tests for HIV and other infectious diseases must be taken. She has to sign a statement indicating that she has received, read, and understood information about the risks, responsibilities, and implications of donor insemination. She even has to have counseling about the alternatives, such as living without children, and an exploration of questions related to values and goals that patients may wish to take into account when making their decisions . . . So when people get pregnant in a clinic, all this is required, but if she gets pregnant at home, well, anything goes? Why shouldn't all of this be required? Why shouldn't they be screened when they want to reproduce or raise kids otherwise?

5. [This scenario is intended to be analogous to the development of nuclear power. The Routleys are suggesting that since the scenario described is

unjustified, so too is the development of nuclear power.] A long distance country train has just pulled out. The train, which is crowded, carries both passengers and freight. At an early stop in the journey, someone consigns as freight, to a far distant destination, a package which contains a highly toxic and explosive gas. This is packed in a very thin container which, as the consigner is aware, may well not contain the gas for the full distance for which it is consigned, and certainly will not do so if the train should strike any real trouble, for example, if the train should be derailed or involved in a collision, or if some passenger should interfere inadvertently or deliberately with the freight, perhaps trying to steal some of it. All of these sorts of things have happened on some previous journeys. If the container should break, the resulting disaster would probably kill at least some of the people on the train in adjacent carriages, while others could be maimed or poisoned or sooner or later incur serious diseases. Most of us would roundly condemn such an action. What might the consigner of the parcel say to try to justify it?

(Richard and Val Routley (also known as Richard Sylvan and Val Plumwood), “Nuclear Power—Some Ethical and Social Dimensions,” in Tom Regan and Donald Van De Veer, eds., *And Justice for All: New Introductory Essays in Ethics and Public Policy*, 1982)

Among the relevant similarities are that both the described scenario and the development of nuclear power involve (i) the chance of (ii) future (iii) great harm to (iv) unconsenting people. (According to the authors, the facts about nuclear waste mean that “40,000 generations of future people could be forced to bear significant risks”)—loss of life, widespread disease and genetic damage, and contamination of immense areas of land.)

Relevant dissimilarities? Nuclear power is necessary(?), whereas it’s not clear that putting the container on the train is necessary.

7.4a *Practice identifying arguments by application of general principle*

1. *Rogail*: Of course the government is justified in forcing a blood transfusion for a child whose parents have refused permission. Hell, they should take the kid away from such parents. After all, they’re looking out for the best interests of the child!
Santana: Yeah, but the parents will argue that that’s exactly what *they’re* doing! It’s just that their conception of the interests of the child go beyond life here on Earth. If the child has a transfusion, their child will be denied the possibility of eternal life. If that’s not looking out for their interests, I don’t know what is!

Rogail and Santana are both arguing by applying a general principle—and they’re both applying the same general principle: whatever course of action is in the best interests of the child is the course of action that should be taken.

So how can they be in disagreement? Because they have different interpretations, different definitions, of “the best interests of the child.” According to Rogail’s interpretation, which is limited to life in the here and now, the blood transfusion is in the child’s best interests. According to Santana’s interpretation, which includes the child’s afterlife, the blood transfusion is not in the child’s best interests.

So one has to decide which claim is the better one. Are blood transfusions in the best interests of the child’s life here and now? Yes, medical science has proven blood transfusions to be life-saving, and a low-risk procedure.

Are blood transfusions in the best interests of the child’s afterlife? This claim is much harder to evaluate. Many people would argue that we have no conclusive proof that there even *is* an afterlife. And since those who support the idea generally claim that the afterlife is an incorporeal life, why does it matter whether one’s physical body is given transfusions? Many would argue that the Biblical passage upon which this practice is based was written by men who had never even heard of a transfusion, so how can the passage prohibit transfusions? In fact, many Jehovah’s Witnesses do allow the transfusion of certain blood products.

3. *Huerjo*: If you have a choice between letting several people die and killing just one in order that those several will live, I do think the one should be killed. It would be nice, of course, if that one person gave consent, but even if not . . . I know it sounds wrong, but trust me, it’s really the most moral course of action.

Jortas: So what’s stopping you? Walk in to the nearest hospital and donate your body. You’ll save several lives, what with your heart, lungs, liver, kidney . . .

Yes, this argument involves the application of a general principle. Jortas is applying the general principle that Huerjo has presented (that if you have a choice between letting several people die and killing just one in order that those several will live, the one should be killed) in a sort of *reductio ad absurdum* way; he suggests the application of Huerjo donating his body, but seems to be implying that since the application is ridiculous, the principle itself is ridiculous.

Here is the argument, in standard form:

1. Whenever one can save several lives by terminating one life, that one life should be terminated.
2. By donating your body and thus terminating your own life, you can save several lives.

Therefore, you should (go to the nearest hospital) and donate your body.

Is the general principle acceptable? As is—with no further qualification (such as the consent of the one)?

Does Jortas correctly apply the principle?

5. Studies show that most people who become sick, with a cold, or the flu, or even with AIDS, are more concerned about their being sick than about the possibility of passing it on to others. We are indeed a self-centered society.

This argument does not involve the application of a general principle. Instead, it is an instance of induction by enumeration: the speaker generalizes from the people involved in certain studies to people at large (society).

Whether or not the generalization is acceptable depends on the studies' samples: are they sufficient and representative?

Also, does being more concerned about being sick than about passing one's sickness onto others make one self-centered? How exactly is "self-centered" being defined?

7. *Bouraoui*: Police and juries often consider those who beat to death homosexual men to be acting in justified self-defense. Their actions are an understandably panicked response to an unwelcome sexual overture.

Chevalier: So, women can now just go ahead and kill any man who makes an unwelcome sexual advance toward them? Great!

Chevalier is not applying a general principle. Instead, he/she is making an argument by analogy: a man making an unwelcome sexual overture to another man is the same as a man making an unwelcome sexual overture to a woman (both situations involve an unwelcome sexual overture), so if in the first case, killing is justified, then in the second case, it is also justified.

It seems to me that the two cases are sufficiently similar; the sex of the person receiving the unwelcome overture isn't relevant.

But is killing justified in the first case? I would say most definitely not. That would require me, then, to reject the conclusion that killing is justified in the second case as well. At least, on the grounds presented. There may be other arguments that might convince me . . . but I doubt it!

9. We don't know what will happen if we go ahead with genetic engineering, and it might be horrible, so we shouldn't go there. Look at Oppenheimer and all those so-called brilliant scientists who invented the atom bomb: they were so blinded by the science, by the sweet problem, isn't that the word they used? They didn't consider the morality! Only *after* they developed and exploded the thing did they think, oh dear, maybe we shouldn't have done that.

The speaker does seem to be implying a general principle and applying it to genetic engineering in order to conclude that we shouldn't proceed:

1. If we don't know what the consequences will be, we shouldn't perform the action.
2. We don't know what the consequences of genetic engineering are.
Therefore, we shouldn't proceed with genetic engineering.

The reference to Oppenheimer seems to be acting as an example in support of the general principle (and not as an analogy).

Of course, the general principle is subject to challenge: maybe the good consequences will outweigh the bad consequences, so it's worth the risk. In that case, caution rather than prohibition is indicated. In this particular instance, one might want to consider the eradication of genetic diseases, the development of better crops (whatever "better" might mean . . .), and so on.

7.4.1a *Practice recognizing misapplied general principles*

1. Emergency vehicles have the right of way, so if a car is coming at you at an intersection, and it's speeding and it's out of control, you should pull over, get out of its way!

This is an instance of a misapplied general principle: the general principle refers to *emergency* vehicles, but the oncoming car described in the particular case is *not* an emergency vehicle, so the principle does not apply.

That's not to say that the conclusion isn't a good one. In fact, it's easily supported by another general principle: when ignoring the rules of the road is more likely to prevent an accident than abiding by them, ignore them!

3. The death penalty is awful to carry out and awful to watch, so we should abolish it.

The implied general principle being invoked to support the conclusion (abolishing the death penalty) is that awful things should not be allowed. Of course, "awful" needs clarification; let's assume it means something like "emotionally distressing."

The general principle is correctly applied:

1. Awful things should not be allowed.
2. The death penalty is awful.
Therefore, the death penalty should not be allowed.

However, one can certainly challenge the merit of the general principle (that first premise) with a simple counterexample: rushing an injured person to the hospital is emotionally distressing.

5. It says right here in the course info: "Students are not allowed to obtain any assistance for any assignments; doing so will be considered cheating and a

grade of zero will be given.” If I can’t get help from a tutor with my homework, I won’t be able to pass!

Presumably, the professor intended to refer only to assignments that are to be handed and graded, not to the day-to-day homework (reading, chapter exercises, and so on); given that, the student has applied the principle too broadly.

7.4.1c *Practice recognizing errors of generalization, analogy, and application of a general principle*

1. I called the local vet to inquire about the risk of spaying adult cats and dogs (as opposed to spaying them at six months of age, the traditionally recommended age) and was told she’d performed five adult cat and dog spays that month and there had been no complications with any of them. I concluded that there was no risk involved in spaying adult cats and dogs.

A mere five cats and dogs is an insufficient sample, given the target population (I’m guessing there are hundreds of thousands of unspayed adults and dogs).

The sample is unrepresentative as well, since it came from one vet only; also, given the low number, it was no doubt not representative in terms of age, sex, or species.

An adequate sample would have included several hundred adult cats and dogs, that had been spayed by several different veterinarians at several different animal clinics, and that proportionately represented the target population in terms of age, sex, species, and general health.

3. I have never yet seen her play her best in a play-off; in practice, yes, and in games throughout the season, yes. But in a play-off? No. She will undoubtedly never be her best when it really counts.

The final claim is an overgeneralization with respect to certainty (“undoubtedly”) and frequency (“never”); a prediction is involved and one can never be completely certain about the future.

Furthermore, we don’t know how many play-off games the speaker has seen.

A more acceptable generalization would have been something like “She’ll probably not play her best in a play-off game any time soon”—given that an adequate number of play-off games had been seen to date.

5. Students left a pile of surveys about library hours at the library’s check out counter beside a box for completed surveys. After one week, they emptied the box, tallied the results, and concluded that most students were happy with the library’s current hours.

First, this is a self-selected sample: perhaps only those students happy with the library hours took the time to fill out a survey.

Second, a week may not be long enough to get a representative sample of library users unless most library users go to the library at least once a week. But it also depends on which week they chose—was it during Spring Break, for example?

Third, and most important, only those students who could use the library during its current hours would have been able to fill out a survey. For example, someone who, perhaps because of employment and family responsibilities, could use the library only after 10 pm during the week and on weekend evenings would never have been able to fill out a survey if the library closed at 10 pm and wasn't open on weekend evenings; such a person would clearly not be happy with the library's current hours.

A telephone survey (with repeat calls until contact is made) or a mail survey (stamped and addressed return envelope provided), directed at a stratified random sample, would have been far better.

7. When medical resources are limited, one should attend first to those in the most critical condition. McDuff's injuries are the most serious, so I'll treat him first.

This is a correct application of a general principle.

Note that this general principle is in opposition to another often-held principle: when medical resources are limited, one should attend first to those most likely to benefit. Which principle do you think is the better one?

9. Consider a language you don't understand. In my case, I do not understand Chinese. To me Chinese writing looks like so many meaningless squiggles. Now suppose I am placed in a room containing baskets full of Chinese symbols. Suppose also that I am given a rule book in English for matching Chinese symbols with other Chinese symbols. The rules identify the symbols entirely by their shapes and do not require that I understand any of them. The rules might say such things as, "Take a squiggle-squiggle sign from basket number one and put it next to a squoggle-squoggle sign from basket number two."

Imagine that people outside the room who understand Chinese hand in small bunches of symbols and that in response I manipulate the symbols according to the rule book and hand back more small bunches of symbols. Now, the rule book is the "computer program." The people who wrote it are "programmers," and I am the "computer." The baskets full of symbols are the "data base," the small bunches that are handed in to me are "questions" and the bunches I then hand out are "answers."

Now suppose that the rule book is written in such a way that my "answers" to the "questions" are indistinguishable from those of a native

Chinese speaker. For example, the people outside might hand me some symbols that unknown to me mean, “What’s your favorite color?” and I might after going through the rules give back symbols that, also unknown to me, mean, “My favorite is blue, but I also like green a lot.” I satisfy the Turing test for understanding Chinese. All the same, I am totally ignorant of Chinese. And there is no way I could come to understand Chinese in the system as described, since there is no way that I can learn the meanings of any of the symbols. Like a computer, I manipulate symbols, but I attach no meaning to the symbols.

. . . if I do not understand Chinese solely on the basis of running a computer program for understanding Chinese, then neither does any other digital computer solely on that basis . . . A program merely manipulates symbols, whereas a brain attaches meaning to them.

(John R. Searle, “Is the Brain’s Mind a Computer Program?” *Scientific American*, 262.1, 1990)

Is Searle’s analogy between the person in the Chinese room and a computer a strong one?

One objection might be that while the person in the room doesn’t understand Chinese, the whole room does, so the correct analogy is not between the person and a computer, but between the room and a computer—the person is like a single neuron in the brain, or a single chip in the computer, which by itself doesn’t understand, but contributes to the understanding of the whole system. But, Searle replies, how could that be? Simply shuffling the symbols around doesn’t give access—to the person *or* to the room—to the meaning of the symbols.

Also, one might object, wouldn’t the person in the room eventually come to understand Chinese? (But how? By paying attention to correspondences between the questions it receives and the answers it assembles? What is it, what is required, to “pay attention”?) Likewise, wouldn’t a computer develop understanding, come to know the meaning of the symbols and rules it uses? But how could that occur? Would the computer program itself be sufficient for that? If not, what else might it need? A certain size or speed or complexity? An additional meta-program? A certain “biological” or “organic” component? (A brain? To cause a mind?)

But otherwise, *is* a person in Searle’s Chinese room sufficiently similar to a computer? Similar enough to justify his conclusion that a computer can’t think or is incapable of understanding?

Thinking critically about what you see

1.



No gang colors allowed



No gang colors allowed



No gang colors allowed

This image is making an argument by analogy: a nation is like a gang, and since gang colors are not allowed, the national flags should not be allowed either.

Are there sufficient relevant similarities between nations and gangs? Certainly both advocate an “us versus them” mentality, and both of them advocate violence in order to protect the “us.” Relevant *dissimilarities*?

Thinking critically about what you read

1. Changizi and Shimojo studied more than a hundred writing systems, and what emerged was a consistent economy of expression. Each character, on average, is made up of three strokes, no matter how many characters occur in the writing system. Such economy might be explained by earlier findings that people can store roughly three objects at a time in visual short-term memory.

(T.J. Kelleher, “Kindred Strokes for Different Strokes,” *Natural History*, April 2005)

In order to determine sufficiency, we need to know the total number of known writing systems—is the 100 studied by Changizi and Shimojo 1 percent of the total, or 10 percent, or 90 percent?

We would also need to know whether the 100 were representative of the total; for example, were only writing systems originating in Asia studied or were writing systems developed in other parts of the world also included in their sample?

Also, is their “average” skewed by extremes?

In any case, their generalization is further supported by an explanation (that people can store roughly three objects at a time in visual short-term memory), which adds to its acceptability. (Statistical results have more strength when we can explain them somehow!)

3. So, um, why is it *exactly* that I should be afraid of black people? I look around at the world I live in—and, folks, I hate to tell tales out of school, but it’s not the African-Americans who have made this planet such a pitiful, scary place to inhabit. . . .No, my friends, it’s *always* the white guy. Let’s go to the tote board:

- Who gave us the black plague? A white guy.
- Who invented PBC, PVC, PBB, and a host of chemicals that are killing us? White guys.
- Who has started every war America has been in? White men.
- Who is responsible for the programming on FOX? White men.
- Who invented the punch card ballot? A white man.
- Whose idea was it to pollute the world with the internal combustion engine? Whitey, that's who.
- The Holocaust? That guy *really* gave white people a bad name (that's why we prefer to call him a Nazi and his little helpers Germans).
- The genocide of Native Americans? White man.
- Slavery? Whitey!
- So far in 2001, American companies have laid off over 700,000 people. Who ordered the layoffs? White CEOs.
- Who keeps bumping me off the Internet? Some friggin' white guy, and if I find him, he's a dead white guy.

You name the problem, the disease, the human suffering, or the abject misery visited upon millions, and I'll bet you ten bucks I can put a white face on it faster than you can name the members of 'N Sync.

And yet when I turn on the news each night, what do I see again and again? *Black* men alleged to be killing, raping, mugging, stabbing, gangbanging, looting, rioting, selling drugs, pimping, ho-ing, having too many babies, dropping babies from tenement windows, fatherless, motherless, Godless, penniless. "The suspect is described as a black male . . . the suspect is described as a black male . . . THE SUSPECT IS DESCRIBED AS A BLACK MALE. . . ."

(Michael Moore, *Stupid White Men*, 2001)

Moore lists ten cases in which a white person has been responsible for making this planet "such a pitiful, scary place to inhabit"—is that sufficient? Probably not. The total list of people or things that have this planet such a pitiful, scary place to inhabit is surely in the hundreds (if we group like phenomena together—for example, "war" rather than "this war" and "that war" and "that war" . . .).

That said, my guess is that if he *did* amass a sufficient number of cases, he would find that the overwhelming majority *are* white. Does that prove his point (that we should be afraid of white people because of what they do)? No, because he hasn't eliminated alternative explanations: perhaps it's not whiteness per se but power that is to blame; perhaps we should be afraid of people in power because of what they do.

Also, note the overgeneralization: "it's *always* the white guy." Well, a single counter-example will disprove that claim. Do we have one? Yes, black people enslaved other blacks; they brought them to the coasts for the white men in their boats to take away.

5. The question of what entails "economic activity" revolves around the question of value. It is said that obvious exclusions from such activity are goods and services on

which no one could put a market price because their values are spiritual, psychological, social, or political. It is then argued that women's role as socializers, as articulators of class and gender ideology, and as (too often the easy) collaborators in reproducing the conditions of their own subordination, has no value. Yet non-profit organizations such as churches and clubs are included as productive services in the national accounts; so are therapists and voluntary agencies where the cost of production is met by members and benefactors. Agents of social reproduction—teachers, crime prevention officers, health workers—are included, as are political campaigners, and government administrative services on the grounds that the services have an economic price in terms of the cost of labor, capital, and materials to produce them. An infant born through the new "test-tube" technology or womb implant, or a child raised in an institution, is considered "products." Those who bring the fetus to term in the laboratory, or who care for the child in the orphanage or juvenile facility are seen as workers. They are economically active. But a mother, daily engaged unpaid in these activities, is "just a housewife."

(Marilyn Waring, *If Women Counted: A New Feminist Economics*, 1988)

Waring first identifies a general principle: goods and services on which no one could put a market price because their values are spiritual, psychological, social, or political do not count as economic activity. She then identifies several exceptions to that rule (or cases in which the rule is not applied): non-profit organizations such as churches and clubs, therapists, various agents of social reproduction (teachers, crime prevention officers, health workers), and so on. She then claims that women, and mothers in particular, are engaged in these same activities (as socializers, as articulators of class and gender ideology, they are indeed agents of social reproduction). Her implied conclusion is that women too should be considered economically active.

Although her claim is that women's activities are similar to those of the other agents of social (and literal) reproduction, this is not an argument by analogy; rather, her argument is an appeal to consistency—in the misapplication of a general principle.

One might perhaps ask for clarification about the meaning or implications of being "economically active," but one suspects that is provided elsewhere in her book.

7. [This scenario is presented by Hardin as a metaphor for the framework within which we must work out solutions to the problems of overpopulation and hunger: each lifeboat is a rich nation full of comparatively rich people, and in the ocean swim the poor of the world, having fallen out of their more crowded lifeboats.] "Here we sit, say 50 people in a lifeboat. To be generous, let us assume our boat has a capacity of 10 more, making 60. . . .

The 50 of us in the lifeboat see 100 others swimming in the water outside, asking for admission to the boat, or for handouts. How shall we respond to their calls? There are several possibilities.

One. We may be tempted to try to live by the Christian ideal of being "our brother's keeper," or by the Marxian ideal (Marx 1875) of "from each according to

his abilities, to each according to his needs." Since the needs of all are the same, we take all the needy into our boat, making a total of 150 in a boat with a capacity of 60. The boat is swamped, and everyone drowns. Complete justice, complete catastrophe.

Two. Since the boat has an unused excess capacity of 10, we admit just 10 more to it. This has the disadvantage of getting rid of the safety factor [a new plant disease or a bad change in the weather may decimate our population if we don't preserve some excess capacity as a safety factor], for which action we will sooner or later pay dearly. Moreover, *which* 10 do we let in? "First come, first served?" The best 10? The neediest 10? How do we *discriminate*? And what do we say to the 90 who are excluded?

Three. Admit no more to the boat and preserve the small safety factor. Survival of the people in the lifeboat is then possible (though we shall have to be on our guard against boarding parties).

(Garrett Hardin, "Living on a Lifeboat," *BioScience*, October 1974)

Is the scenario a strong analogy? How did each lifeboat get to be a well-equipped lifeboat? (That is, how did each rich nation get to be a rich nation?) How did the 50 come to be in each lifeboat? How did the other lifeboats get to become overcrowded? And how did the 100 come to fall out of those overcrowded lifeboats? (And with regard to the first possibility, *would* everyone drown or would the 50 people just have to do with a lot less?)

Consider Onora O'Neill's comment: "If we imagine a lifeboat in which special quarters are provided for the (recently) first-class passengers, and on which the food and water for all passengers are stowed in those quarters, then we have a fair, if crude, model of the present human situation on lifeboat Earth" (Onora O'Neill, "Lifeboat Earth," *Philosophy & Public Affairs*, 4.3, Spring 1975).

(Note that this is just an excerpt, so Hardin's actual argument isn't presented here; this is just the set-up.)

9. [L]et us consider this pair of cases:

In the first, Smith stands to gain a large inheritance if anything should happen to his six-year-old cousin. One evening while the child is taking his bath, Smith sneaks into the bathroom and drowns the child, and then arranges things so that it will look like an accident.

In the second, Jones also stands to gain if anything should happen to his six-year-old cousin. Like Smith, Jones sneaks in planning to drown the child in his bath. However, just as he enters the bathroom Jones sees the child slip and hit his head, and fall face down in the water. Jones is delighted; he stands by, ready to push the child's head back under if it is necessary, but it is not necessary. With only a little thrashing about, the child drowns all by himself, "accidentally," as Jones watches and does nothing.

Now Smith killed the child, whereas Jones "merely" let the child die. That is the only difference between them. Did either man behave better, from a moral point of view? If the difference between killing and letting die were in itself a morally important

matter, one should say that Jones's behavior was less reprehensible than Smith's. But does one really want to say that? I think not. In the first place, both men acted from the same motive, personal gain, and both had exactly the same end in view when they acted. It may be inferred from Smith's conduct that he is a bad man, although the judgment may be withdrawn or modified if certain further facts are learned about him—for example, that he is mentally deranged. But would not the very same thing be inferred about Jones from his conduct? And would not the same further considerations also be relevant to any modification of this judgment? Moreover, suppose Jones pleaded, in his own defense, "After all, I didn't do anything except just stand there and watch the child drown. I didn't kill him; I only let him die." Again, if letting die were in itself less bad than killing, this defense should have at least some weight. But it does not. Such a "defense" can only be regarded as a grotesque perversion of moral reasoning. Morally speaking, it is no defense at all.

(James Rachels, "Active and Passive Euthanasia,"
New England Journal of Medicine, January 9, 1975)

Rachels' implied argument is that there is no moral difference between active euthanasia (taking direct action, such as administering a lethal dose of a drug, which results in a person's death) and passive euthanasia (withholding—stopping or not starting—treatment and thus allowing a person to die). Both Smith and Jones had the same motive (personal gain) and the same intent (to bring about the child's death); that they exhibited different behavior to achieve that end (Smith "did something" by holding the kid under water, whereas Jones "did nothing" by just standing beside the tub) is morally irrelevant.

There are differences, however, between Rachels' scenario and euthanasia: in particular, unlike both Smith and Jones, doctors are generally not motivated by personal gain. But Rachels' analogy is intended to test the moral value of active and passive behavior, so he kept constant all the variables of behavior (such as motive and intent) except the crucial one intended for measure (active versus passive). It may be that euthanasia is morally wrong if done for personal gain, but it would be equally wrong whether it were done "actively" or "passively"—that's Rachel's point; likewise, euthanasia done for humane reasons is morally acceptable whether it's done "actively" or "passively." In fact, as Rachels points out, the slow and painful deaths that occur when one is 'left to die' provide strong grounds for claiming that passive euthanasia is morally *unacceptable*.

But with active euthanasia, some *person* causes another person's death; with passive euthanasia, some *disease or injury* causes death. Is that not a significant—a *morally* significant—difference? (Is it morally significant only if "causing death" is a bad thing?)

Reasoning test questions

1. *Astronomer*: Astronomical observatories in many areas have become useless because light from nearby cities obscures the stars. Many people argue that since streetlights are needed for safety, such interference from lights is inevitable. Here in Sandsville,

however, the local observatory's view remains relatively clear, since the city has restricted unnecessary lighting and installed special street lamps that direct all their light downward. It is therefore possible to have both well-lighted streets and relatively dark skies.

The astronomer's argument proceeds by:

- (A) appealing to a scientific authority to challenge a widely held belief

This response is incorrect since the astronomer makes no appeal whatsoever to a scientific authority.

- (B) questioning the accuracy of evidence given in support of the opposing position

The astronomer's position is expressed in the last sentence (it's possible to have both well-lighted streets and relatively dark skies); the opposing position is implied, mostly by the second sentence (it's not possible to have both well-lighted streets and relatively dark skies), but no evidence has been presented in the passage in support of that opposing position. The astronomer's argument cannot be questioning the accuracy of evidence that is not given!

- (C) proposing an alternative scientific explanation for a natural phenomenon

While the astronomer is proposing an alternative of sorts, it's not an alternative scientific explanation, let alone such an explanation for a natural phenomenon.

- (D) making a distinction between terms

One might examine the terms "light," "necessary" as it's applied to lighting, and "interference"—as they are key—but the astronomer's argument makes no distinction between any terms.

- *(E) offering a counterexample to a general claim

This is the correct response. The general claim is expressed in the first and second sentences: it's impossible to have both well-lighted streets and relatively dark skies (streetlights are needed for safety, and streetlight light lightens the sky, obscuring the stars); the example of Sandsville challenges that claim (in Sandsville, because of the streetlight design, it is possible to have both well-lighted streets and relatively dark skies), and so it is a counterexample (to that general claim).

(The Official LSAT Prep Test XXII, Section 2, #11)

3. *Advertisement:* Anyone who thinks moisturizers are not important for beautiful skin should consider what happens to the earth, the skin of the world, in times of drought.

Without regular infusions of moisture the ground becomes lined and cracked and its lush loveliness fades away. Thus your skin, too, should be protected from the ravages caused by lack of moisture; give it the protection provided by regular infusions of Dewyfresh, the drought-defying moisturizer.

The Dewyfresh advertisement exhibits which one of the following errors of reasoning?

- (A) It treats something that is necessary for bringing about a state of affairs as something that is sufficient to bring about that state of affairs.

Moisturizers may be necessary for beautiful skin, but they are certainly not sufficient. However, the implied claim in the first sentence is not that moisturizers are necessary or sufficient; it is only that they are important. And the implied claim in the last sentence is that moisturizers protect the skin from “the ravages caused by lack of moisture”—the ad doesn’t actually say moisturizers are sufficient for such protection.

- (B) It treats the fact that two things regularly occur together as proof that there is a single thing that is the cause of them both.

The ad implies that lines/cracks and lack of moisture regularly occur, but it does not suggest that, therefore, some other thing causes both lines/cracks and lack of moisture.

- (C) It overlooks the fact that changing what people think is the case does not necessarily change what is the case.

No, the ad doesn’t overlook this fact; in fact, it seems to be trying to change what people think by presenting what is the case.

- (D) It relies on the ambiguity of the term “infusion,” which can designate either a process or the product of that process.

The word “infusion” is used in the same way (to refer to a process) when applied to the earth and when applied to Dewyfresh.

- *(E) It relies on an analogy between two things that are insufficiently alike in the respects in which they would have to be alike for the conclusion to be supported.

This is the correct response. The advertisement is presenting an argument by analogy: the earth requires moisture in order to be free of lines; your skin is like the earth; so your skin too needs moisture in order to be free of lines. It is a weak analogy because soil is quite different from skin: for example, the additional elements that play a role in keeping the earth free of lines (sunlight, temperature, vegetation, and so on) are not the same as the additional elements that play a role in keeping one’s skin free of lines (while sunlight does play a role, and is therefore a similar element, simple age also plays a role); moisture in the case of the

earth is water, whereas the moisture in the case of your skin is Dewyfresh; “regular” means something different for infusions of moisture for the earth and applications of Dewyfresh (probably).

(The Official LSAT Prep Test XXIV, Section 3, #2)

5. *Consumer advocate*: One advertisement that is deceptive, and thus morally wrong, states that “gram for gram, the refined sugar used in our chocolate pies is no more fattening than the sugars found in fruit and vegetables.” This is like trying to persuade someone that chocolate pies are not fattening by saying that, calorie for calorie, they are no more fattening than celery. True, but it would take a whole shopping cart full of celery to equal a chocolate pie’s worth of calories.

Advertiser: This advertisement cannot be called deceptive. It is, after all, true.

Which one of the following principles, if established, would most support the consumer advocate’s position against the advertiser’s response?

- (A) It is morally wrong to seek to persuade by use of deceptive statements.

This is not the issue; both speakers may well agree with this (they disagree, however, about what counts as deceptive).

- (B) A true statement should be regarded as deceptive only if the person making the statement believes it to be false, and thus intends the people reading or hearing it to acquire a false belief.

Neither speaker talks about whether the person making the statement believes it to be false.

- (C) To make statements that impart only a small proportion of the information in one’s possession should not necessarily be regarded as deceptive.

This would support the advertiser’s position (note that the question asks which would support the consumer advocate’s position).

- (D) It is morally wrong to make a true statement in a manner that will deceive hearers or readers of the statement into believing that it is false.

The issue is not whether something is morally wrong, but whether something is deceptive. In addition, neither speaker refers to hearers or readers believing a statement to be false.

- *(E) A true statement should be regarded as deceptive if it is made with the expectation that people hearing or reading the statement will draw a false conclusion from it.

Yes, this supports the consumer advocate’s position. The claim about the sugar used in the chocolate pies (and/or the comparison made to the sugar in fruits and vegetables) has

probably been made with the expectation that people will draw a false conclusion, that being that chocolate pies are no more fattening than fruits and vegetables.

(The Official LSAT Prep Test XXI, Section 2, #16)



Chapter 8

Inductive Argument: Causal Reasoning

8.1.1a Practice distinguishing between correlation and causation

1. Most motor vehicle accidents occur when one is driving within a fifty-mile radius of home.

This is a statement of correlation; the speaker does *not* say there is something about driving near home that *causes* accidents. (So you would be mistaken to conclude that you are safer when you are driving far from home and that you should limit your driving near home.) The correlation probably exists simply because most of one's driving occurs within a fifty-mile radius of one's home.

3. Ryanair, a low-cost airline based in Dublin, posted a 19% rise in net profit to €268.9m (\$338m) for the year ending March 31st. The carrier said its

decision not to follow the trend of imposing fuel surcharges on its fares led to an increase in passengers.

(“Business,” *The Economist*, June 4, 2005)

Ryanair is claiming, in the second sentence, a causal relationship between not imposing fuel surcharges on its fares and an increase in passengers (note the words “led to”).

Whether they are correct to do so is another question; if all they have as evidence is the correlation expressed in the first sentence, their causal claim isn’t very strong.

5. Areas with strongest anti-gun laws have highest rates of crime, so allowing people to have guns will result in low crime rates.

The speaker has indeed made a causal claim (note the words “will result in”).

However, note that the claim that A causes B (allowing guns causes low crime) is based on a (mere) correlation between not-A and not-B (prohibiting guns and high crime). So not only is the claim weak because causation is based on correlation (assuming this is all there is to the argument), but also the claim is invalid because it’s based on an error of propositional logic (denying the antecedent):

If guns are prohibited, then crime is high. If p, then q.
 So if guns are allowed, then crime is low. Therefore, if not-p, then not-q.

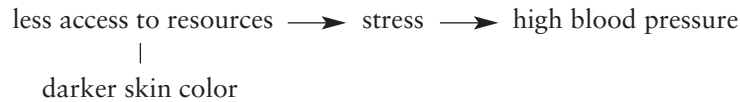
Perhaps crime is high in the areas referred to because people who live in those areas are stressed and frustrated and have a limited repertoire of dealing with such stress and frustration. Perhaps people in those areas have their lives threatened more often than people who live in other areas. And so on. To establish that A causes B, one must eliminate other possibilities.

8.1.3a Practice distinguishing between direct causes and indirect causes

1. Darker-skinned blacks generally have higher blood pressure than lighter-skinned blacks. One might conclude, therefore, that skin color is a direct determinant of blood pressure. However, . . . darker skin color in the United States is associated with less access to scarce and valued resources of the society, which causes greater stress, which increases blood pressure.

(Based on Troy Duster, “Race and Reification in Science,” *Science*, February 18, 2005).

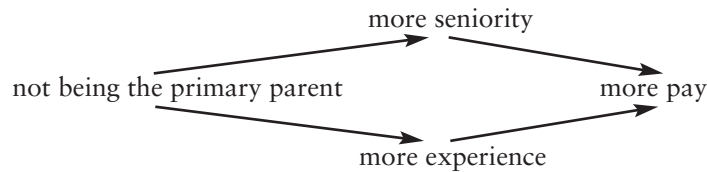
The causal chain established by the speaker is this:



So, the direct cause of high blood pressure is stress (note that stress is the cause immediately prior to the effect in question, high blood pressure), which is caused by less access to resources, making it an indirect cause. Skin color is merely associated with that indirect cause.

3. It's not because you're a man that you're getting paid more than me. It's because you're more experienced and have more seniority. And that's only because you weren't the one to take a few years off to be the primary parent of your child.

The causal chain seems to be this:



So not being the primary parent is an indirect cause of being paid more, and it is the direct cause of both having more seniority and having more experience. And having more seniority and having more experience are direct causes of getting paid more.

5. A 1991 review of the published research on the relationship between religious commitment and suicide rates conducted by my colleagues and I found that religious commitment produced lower rates of suicide in nearly every published study located. In fact, Stephen Stack, now of Wayne State University, showed that non-church attenders were four times more likely to kill themselves than were frequent attenders and that church attendance predicted suicide rates more effectively than any other factor including unemployment.

(David B. Larson, "Have Faith: Religion Can heal Mental Ills," *Insight*, March 6, 1995)

This is a tricky one because it's not clear whether by "produced" the speaker means a causal relationship or a correlational relationship. The same goes, to a lesser extent, for the word "predicted." If a causal relationship is intended, then religious commitment (or church attendance?—see next comment) is presented as the direct cause of low suicide rates (though, of course, it could be that a belief that suicide is wrong is the actual direct cause and it's just that those who are religiously committed believe that suicide is wrong).

Also, note that the speaker equivocates religious commitment with church attendance. People may attend church for the social benefits and not be religiously committed (and maybe it's having a social life that decreases the likelihood of suicide).

8.1.4a Practice distinguishing between necessary and sufficient causes

1. In order to get a job, you have to have the right qualifications. But luck is also required.

“In order to get a job, you have to have the right qualifications”—so having the right qualifications is necessary. “But luck is also required”—so having the right qualifications is not sufficient. Conversely, luck is necessary, but not sufficient.

3. In order for snow to form, it must be cold enough and there must be a sufficient amount of water vapor in the air.

Don't be fooled by the use of the word “sufficient”: in this case, both conditions (a certain temperature and a certain amount of water vapor) are necessary in order to cause snow to form, but each by itself is insufficient (note the use of the word “and”); instead, the conditions are jointly sufficient (assuming there is no other necessary condition).

5. In order for cohesion to develop, one of two things must happen: the members of the group must have a common goal or they must share similar histories.

In this case, each condition (having a common goal or having similar histories) is sufficient to lead to cohesion (note the use of the word “or”), and neither one is necessary (because the other one is sufficient).

8.1.5a Practice identifying Mill's methods

1. But all such theories founder on a striking fact: the nearly invisible relationship between unemployment and crime rates. Charting homicide since 1900 reveals two peaks. The first is in 1933. This represents the crest of a wave that began in 1905, continued through the prosperous '20s and then began to *decline* in 1934 as the Great Depression was deepening. Between 1933 and 1940, the murder rate dropped nearly 40%. Property crimes reveal a similar pattern.

Between 1940 and 1960 the homicide rate remained relatively stable. In the early '60s, a sharp increase began that peaked in 1974, when the murder rate was more than double that of the late 1950s, and far higher than it had

been in the depths of the Depression. Between 1963 and 1973 homicides in New York City tripled. Again, property and most other forms of crime followed a similar pattern.

The cause of this remarkable increase in crime certainly was not unemployment—which was, by contemporary standards, enviably low. In 1961, the unemployment rate was 6.6% and the crime rate was 1.9 per 1,000. By 1969, unemployment had dropped to 3.4% while the crime rate nearly doubled to 3.7 per 1,000. The incidence of robbery nearly tripled. Interestingly, the recession of 1980 to 1982 was accompanied by a small but clearly discernible drop in crime. As the economy revived, so did the crime rate.

(David Rubenstein, “Don’t Blame Crime on Joblessness,”
The Wall Street Journal, November 9, 1992)

Rubinstein is using the method of concomitant variation: to determine whether increased unemployment causes increased crime, he’s looking at changes in unemployment rates and seeing whether there are concomitant changes in crime rates.

3. Anuradha Patel, a pediatric anesthesiologist, tested whether playing with a Game Boy before surgery reduces anxiety. Some children had only their parents to help them cope with their anxiety. Others, also accompanied by their parents, were given an anti-anxiety drug called midazolam. And a third group, also accompanied by parents, was given a Game Boy about 30 minutes before anesthesia.

(Based on “Between the Lines,” editorial, *U.S.1*, June 1, 2005)

Patel is primarily using Mill’s method of difference. She has established three groups of children about to undergo surgery who have their parents with them and makes something different in each group: in one, there is nothing else happening; in another, the children are given a drug; and in the third, the children are given a Game Boy. She will then see which of the three possibilities makes the most difference; that is, she will determine which of three conditions most causes a certain effect (a decrease in anxiety).

5. Some days your car starts and some days it doesn’t. You start paying attention and note that every time it doesn’t start, it’s below freezing. You conclude that it’s the cold that’s causing your car not to start.

You have used the method of agreement: you’ve figured out what’s the same every time the effect (car not starting) occurs, and concluded that that element in common is the cause.

8.1.5b Practice using Mill's methods to establish cause

1. You think that perhaps your marks could be higher if you spent more time reading the course material.

This would be a good hypothesis to test using Mill's method of concomitant variation: simply increase the time you spend reading course material and see if your marks increase. However, be sure to keep everything else the same: when you read, for example, and how you read. (It's often more effective to read course material right after the material is covered in class, and of course, it's better to read when you're mentally sharp; also, it's more effective to read a bit, then close the text, and tell yourself what you've just read, then continue to read a bit more, close the text again, and so on—instead of just reading.)

3. Some teenagers shoot their classmates and some don't. How can we account for that?

One could start with Mill's method of agreement: take a very close look at the teenagers who shoot their classmates—what do they have in common? Then eliminate from that list the elements that are also shared by those teenagers who do *not* kill their classmates (so now you're using the method of difference). Is there anything left on the list? That could be the cause.

5. In a study commissioned by Hewlett-Packard, researchers found that extensive use of email and text messaging can temporarily drop your IQ-test performance by as much as ten points—more of a dip than occurs after losing a night's sleep or smoking pot. It's linked to a new condition dubbed “infomania,” wherein people become addicted to email, instant messaging and text messages.

(*Reader's Digest*, November 2005)

To determine if infomania causes a decrease in IQ-test performance, you could use Mill's methods of agreement and difference: set up two groups of people who are similar in age, sex, occupation, and so on (that's using the method of agreement) and have everyone take an IQ test to establish baseline scores; then, for one week(?), have the people in the one group read *no* email, instant messages, or text messages, and have the people in the other group read email, instant messages, and text messages for five(?) hours a day (that's using the method of difference); then have everyone take an IQ test again. If the IQ scores of those in the “no” group stay the same and those of the other group decrease, you've established that infomania does indeed decrease one's IQ-test performance.

8.2.1a Practice forming alternative explanations

1. As soon as telephones were installed in an area that previously had no telephones, the crime rate doubled.

It was easier for criminals to contact each other and plan their crimes.
More crime was reported.

3. About twenty years ago, Japan had a population of 115 million, of which 10,000 were lawyers. At the same time, the U.S. had more than double Japan's population, but over forty times as many lawyers.

It is easier to become a lawyer in the U.S. than in Japan.

Being a lawyer is a better career in the U.S. than in Japan.

The U.S. has more crime and therefore needs more lawyers than Japan.

The U.S. has more laws than Japan, hence more crime, hence more need for lawyers.

Japan has a better developed non-lawyer-needing mediation system than the U.S. Americans rely on the courts to solve their problems, whereas the Japanese rely more on themselves.

Americans are focused on following legal rules, whereas the Japanese are focused on following moral rules.

5. Back in the eighteenth century, church towers were more often struck by lightning than the gambling houses next to them.

Back then, God disapproved of churches, but he was okay with gambling.

Back then, church towers were the highest structure in the village or town (and had no lightning rods).

Back then, people prayed for gamblers, but didn't pray for themselves.

8.2.2a Practice comparing explanations on the basis of the scope of their explanatory power

1. A ship that continues to sail west will end up where it started. Most nights, when we look at the moon, we see part of it as a curved shadow as if a round object were between it and the sun. When we look at an object traveling away from us, we see the bottom of it disappear before the top.

(A) The earth is flat.

(B) The earth is round.

The first explanation accounts for none of the facts (though the third fact could be explained by a flat earth with gently curving edges that one gradually goes over), whereas the second explanation accounts for all three facts.

3. The continents of South America and Africa look like they fit together like a jigsaw puzzle. Shorelines are continuously undergoing modification by erosion and deposition. Identical animal fossils have been found in South America and Africa. Some animals can swim long distances. Identical plant fossils of a fern with large seeds that could not be blown very far have been found in South America and Africa. There is no now-sunken remnant of a huge land bridge connecting South America and Africa. The Appalachian mountain belt in North America connects with mountain belts of similar age and structure in the British Isles and Scandinavia if one imagines the land masses joined together.
- (A) The present-day continents were at one time joined together into one or two big chunks that have since broken apart and drifted.
 - (B) The shapes of South America and Africa indicate cosmic yin-yangness; they are complementary, in balance.

The first explanation (the theory of continental drift) accounts for all the facts; it would be strengthened if we knew whether the animals whose fossilized remains were found in both South America and Africa could have swum long distances.

The second explanation doesn't account for the similarity of plants and animals found in South America and Africa—if things were in a complementary relationship, then the plants and animals found in South America would somehow be the yin and those in Africa the yang (or something like that).

5. Although their numbers have since risen, musk-oxen had virtually disappeared from Banks Island in the High Arctic by 1917. The first Europeans to spend time on the island's shores were the crew members of the HMS *Investigator*, which stopped there for two years in 1852. Written records kept by the *Investigator*'s crew indicates that while they found many musk-ox bones, they shot only seven of the animals. The Copper Inuit later found the abandoned *Investigator* and made numerous trips to the ship to salvage its wood, metal, and so on. Scientists have since documented catastrophic declines of musk-oxen on the Queen Elizabeth Islands, also in the High Arctic, due to climatic conditions that left most of the islands' food resources buried under crusts of thick ice and snow inaccessible to the musk-oxen. Wolves, which prey on musk-oxen, were not eradicated from Banks Island until 1955.
- (A) The Copper Inuit pushed the musk-oxen to the brink of extinction by killing hundreds of the animals while en route to the *Investigator*.
 - (B) Most of the musk-oxen on Banks Island starved to death.
- (Based on Ed Struzik, "And Then There Were 84,000,"
International Wildlife, January/February 2000)

The first explanation doesn't account for the discrepancy between the number of musk-oxen seen by the *Investigator's* crew and the supposed hundreds killed by the Inuit.

The second explanation is congruent with all of the facts presented, though mention of the Copper Inuit and the wolves are irrelevant.

If we consider the Copper Inuit and wolves relevant, we might suggest a third explanation: musk-oxen were already scarce on the island by 1852 and a combination of Copper Inuit killing, wolf predation, and climate change nearly finished them off.

8.2.2b *Practice comparing explanations on the basis of their creating-puzzles-ness*

1. A ship that continues to sail west will end up where it started. Most nights, when we look at the moon, we see part of it as a curved shadow as if a round object were between it and the sun. When we look at an object traveling away from us, we see the bottom of it disappear before the top.

- (A) The earth is flat.
- (B) The earth is round.

You'll recognize this from the preceding exercise: we said that the second explanation was better because it accounted for the facts, whereas the first one didn't. However, the second explanation *also* creates some puzzles: Why doesn't the ship fall off the Earth when it goes around it? Why do we see the Earth's shape as a shadow when we look at the moon? These puzzles have been solved (the first by understanding gravity, and the second by understanding that the moon is lit by the Sun and that it moves around the Earth passing between it and the Sun), which brings me to my reason for repeating this one: just because an explanation creates puzzles doesn't mean it's not correct—it may just mean that there is more we have to understand.

3. I took a mental empowerment course wherein participants were taught certain techniques that enabled them to diagnose strangers and then, by visualizing white light shining upon them, heal them. At the end of the course, each new student was paired with a guide, who walked us through the newly learned technique; when we were at the appropriate mental level, our guide read the name, age, sex, and symptoms of someone from a file. We were then to proceed and determine what ailment the person was suffering from. I "saw" that the person I was told of had fused vertebrae; no wonder he felt stiff and had trouble walking! Imagine my surprise when, after I had "surfaced," I saw written in the person's file exactly that: "fused vertebrae"!

- (A) I had successfully mastered the mental empowerment technique.
- (B) My guide had written “fused vertebrae” into the file after I had said it, while my eyes were still closed (before I had surfaced).

The first explanation leads us to several puzzles. If the technique is so easily mastered, why isn’t everyone learning it? Why isn’t everyone out there diagnosing and healing each other? That is, why do we still need physicians?

5. There was a tsunami in the Indian Ocean in 2004, causing an estimated 283,000 deaths.
 - (A) The tsunami occurred as a punishment by Allah because humans have been ignoring his laws.
 - (B) The tsunami occurred as a result of an undersea earthquake.

The first explanation creates several puzzles, one of which is aptly expressed by “Schnicky Schnack” (<http://www.macaddict.com/forums/post/736316>): “But why would God be more angry with impoverished Muslims in Sri Lanka and Indonesia than, say, the porn industry? Or the junkies the world over? Or polluters or child abusers?”

The second explanation should have us asking questions as well, such as “But what caused an undersea earthquake?” I believe scientists have answers involving sea-floor uplifting.

8.2.2c *Practice determining whether an explanation is testable (and can enable prediction)*

1. People can walk over hot coals without burning their feet. Three explanations have been put forth: (a) such people have been trained to put “mind over matter”; (b) such people have supernatural powers; (c) wood coal has a low specific heat (like lava rock, unlike a frying pan), so anyone can walk over hot coals without burning their feet.

(Thanks to James Randi’s *Encyclopedia of Claims, Frauds, and Hoaxes of the Occult and Supernatural*, at www.randi.org.)

The first explanation can be tested by presenting such people with other instances in which they can demonstrate their ability to put mind over matter; can they walk through walls, for example?

The second explanation can be similarly tested by asking such people to demonstrate their supernatural powers in other ways; can they fly through the air, for example?

(If they have supernatural powers, why don’t we hear about them using them in a non-trivial way?)

The third explanation can be tested by actually measuring the specific heat of wood coal (and perhaps comparing it to lava rock and a frying pan); it can also be tested by simply walking over hot coals (without prior training or supernatural powers).

3. The flood during the time of Noah covered the entire earth.

This claim can be falsified if something dating to pre-Noah times is found more intact than it would be had it been submerged in water. And, in fact, several paintings in caves in southwestern Europe are in such shape (see <http://www.theskepticalreview.com/jftill/problems/art.html>).

5. Psychics can help police find victims, perpetrators, evidence, and so on.

This claim can be tested. In fact, American psychologist Dr. Martin Reiser conducted two extensive investigations into the use of psychics by the Los Angeles Police Department for that purpose, and after several years of research, concluded that psychics could *not* help police in any special way. Part of Dr. Reiser's experimentation involved mixing items used as weapons in homicides with other "clean" items (that served as the control group); psychics were unable to differentiate among the items.

(If this is true, why are there still so many missing people?)

8.2.2d *Practice determining whether an explanation contradicts established knowledge*

1. Murder rates increased in the 1960s and the first half of the 1970s; then they held steady for a while, and in 1981 and 1982 they declined steadily. Therefore, it would seem that Americans were more violent for a while and then became less violent.

The explanation for the increased, stabilized, then decreased murder rates contradicts what we know about population for the same years: "The surge and subsequent decline in violent crime were paralleled by a surge and decline in the portion of the population in the age groups most likely to perpetrate and suffer violent crime."

(Bruce Jackson, "Criminal Numbers," *Taking Sides: Clashing Views on Controversial Issues in Crime and Criminology*, 1989)

3. America's system of education ranges from the superb to the awful. Its universities, especially at the graduate level, are the best in the world, gaining some 60% of all Nobel prizes awarded since the Second World War. It's

public-school system, however, is often marked by poor teaching, dilapidated buildings and violence (although the rate of violent incidents is falling, more than 5% of schoolchildren played truant last year to avoid violence at school)

(*The Economist*, October 9, 2004)

So either those who win Nobel prizes are foreign students, students who have not come up through American public schools to its universities, or what happens at public school has no bearing on what happens at university (once they're at university, students can easily make up missing ground).

The second explanation seems to contradict the reality that often students *cannot* easily make up missing ground! And, if what happens at public school has no bearing on what happens at university, why are grades and SAT scores important to university admission committees?

There may be a third explanation, given that the passage says the public school system is just “often”—not always—marked by poor teaching and so on: perhaps the prize winners come from the few schools that are good.

5. A child in Chile or Malaysia is less likely to die before one year of age than a black-skinned baby born in certain areas of the United States. This is most likely because there is so much more crime in the U.S. than in Malaysia.

The speaker implies that black-skinned babies born in certain areas of the United States die as a result of crime. So if that's not the case—more, if it's established knowledge that that's not the case—then the explanation does indeed contradict established knowledge. (Perhaps Malaysian mothers have better prenatal health care than black-skinned American mothers. Perhaps they provide better postnatal care to their infants. Or perhaps the correct explanation has to do with natural childbirth vs. hospitalized childbirth.)

8.2.2e Practice identifying best explanations

1. Eating out, once an occasional luxury, has become a way of life.
 - (A) The standard of living has increased.
 - (B) Eating out has become inexpensive due to fast food chains.

The first explanation assumes that eating out is still a luxury; it also assumes that an increased standard of living leads to indulging in more luxuries. The second explanation seems to make no assumptions. On that basis, the second explanation might be better, but the first certainly has merit. Neither creates more puzzles than it solves, neither contradicts established knowledge, and both are testable:

one need only determine *where* people are eating out and whether other luxuries have also become a way of life.

3. Clogged arteries more prevalent in old people than in young people.
 - (A) Age causes clogged arteries.
 - (B) Poor muscle tone causes clogged arteries.
 - (C) A life-long diet rich in meats and other high cholesterol foods causes clogged arteries.

All three explanations are plausible: old people are, well, old; old people generally have poorer muscle tone than young people (partly due to age and partly due to increased sedentariness); and old people have had, by definition, a life-long diet of something or other, but more particularly, people who are old now spent most of their lives eating *before* high cholesterol was identified as a health hazard, so it's quite likely that they have had a life-long diet rich in meats and other high cholesterol foods. All three account for the relevant facts; none creates more puzzles than it solves; and none contradicts established knowledge. Furthermore, all three are testable: one could survey old people with good muscle tone and young people with poor muscle tone to determine the merits of the first two explanations, and one could simply ask those old people with clogged arteries what they've been eating all their lives.

5. Artists have tended to paint portraits in profile, more often painting the left side of the face than the right side. This left-side bias has been more prevalent in portraits of women than men. The left-side bias was very prevalent in the fifteenth century, but has decreased over time; paintings done in the twentieth century show no left- or right-side bias.
 - (A) Right-handed artists find it easier to draw portraits when the model looks to the right.
 - (B) Right-handed mothers are likely to hold their babies in their left arms; consequently, babies imprint the left side of their mothers' faces; this imprinting influences artists, who are then more likely to depict the left side of women's faces in portraits.
 - (C) The right hemisphere of the brain mediates emotions, which are expressed more vividly in the left side of the face; artists are inclined to depict women as emotional, perhaps less so now than in previous centuries.

The first explanation doesn't account for the gender difference or the difference over time (and it assumes that most artists are right-handed). The second explanation doesn't account for the difference over time. The third explanation doesn't completely account for the gender difference: wouldn't painters want to portray

their male subjects as emotional especially when the emotions of strength and toughness are expressed?

None of the explanations seems to create puzzles or contradict established knowledge. All three are testable, to varying degrees, but perhaps only for contemporary artists.

8.3a Practice identifying arguments that advocate a plan or policy

1. Given the increasing sales of alcoholic beverages with less alcohol content than regular alcoholic beverages, and given the increasing disapproval of alcoholism, we should expand our line of low-alcohol beverages.

Yes, this is an argument for a plan or policy, that of expanding the line of low-alcohol beverages.

3. Pornography spreads a distorted view of women's nature that supports sexist attitudes and reinforces women's oppression and exploitation.

(Helen Longino, "Pornography, Oppression, and Freedom: A Closer Look," in Laura Lederer, ed., *Take Back the Night: Women on Pornography*, 1980)

No, this is not an argument for a plan or policy; in fact, it's not an argument at all—as is, it's merely a claim. (In fairness to Longino, however, she of course *does* make the argument in the rest of her essay!)

5. Some 10,000 loudspeakers, all blaring at once: is this an ad man's fantasy or the latest pop concert gimmick? No, the idea was cooked up by Egypt's Ministry of Religious Affairs. It plans to hook all the mosques in Cairo to a city-wide wireless network, so that five times a day they can amplify the Muslim call to prayer in a single voice, in the same instant . . .

The plan is needed to uphold Islam's "civilized face." The religious affairs ministry says it is barraged with complaints about the poor timing, excessive loudness and harsh voices of many *muezzins*. The religious revival that has swept Egypt in the past two decades has packed the country with more mosques than it needs. It is common to find two or more houses of worship on one city block, competing to be noticed.

(*The Economist*, October 2, 2004)

Yes, this passage expresses an argument for the plan of unifying the Muslim call to prayer in Cairo; reasons given in support of the plan are the need to uphold Islam's "civilized face" (what's uncivilized about non-synchronized calls to

prayer?) and to solve the problem of the poor timing, excessive loudness, and harsh voices of the current and many *muezzins*.

8.3b Practice imagining an appropriate plan or policy

1. The township needs someone to plow its roads in winter. It placed an advertisement in the local newspaper, offering pay equivalent to that of similar positions in neighboring townships, but no one applied for the position. If someone had applied, they would have been interviewed by a committee of three people. However, a few calls from interested people suggest the problem is that the position is seasonal, providing income for only six months of the year.

A good plan would be to combine the road plowing position with the parks maintenance position (also presumably a six-month position, during the other six months). Not-as-good plans would be to increase the pay, offer a benefits package, and advertise more widely.

(The bit about being interviewed by a committee of three is irrelevant.)

3. It takes a long time to trust someone with your life. Generally, people have sex with each other long before that point is reached. And yet, given AIDS, having sex with someone is trusting them with your life.

It might be good to develop, as a society, a policy (as etiquette?) of exchanging proof of HIV status as casually as one currently exchanges phone numbers.

(Silly me. People don't lie to get sex?)

5. Political campaigns are funded mostly by the rich. This seems inevitable because they cost so much—there are formidable legal and accounting expenses, not to mention advertising and touring expenses; most of us can't afford to give thousands of dollars, let alone hundreds of thousands, to a candidate for his or her campaign. So when a candidate gets elected, he or she feels obligated to pay back his or her supporters with legislation in their favor. Thus, government fails to serve the public interest, the interests of the not-rich.

There have been several proposals regarding campaign financing reforms. One proposal has the government giving each candidate who chooses to participate a certain, set amount of money. In order to qualify for this money, the candidates must show a minimum level of support by collecting a specified number of signatures and small (usually \$5) contributions. The candidates are *not* allowed to accept outside donations or to use their own personal money if they receive this public funding. This procedure is currently in place for state legislature elections in Maine.

Another proposal allows the candidates to raise funds from private donors, but the current government provides *matching funds* for the first chunk of donations. For instance, the government might “match” the first \$250 of every donation by giving one dollar for the first \$250 by any donor. A system like this is currently in place in the U.S. presidential primaries.

Another possibility is to make the political campaigns cost less: imagine campaigns with *no* advertising or touring—why isn’t it sufficient to simply have on record their past performance and their plans for the future?

Yet another possibility is suggested by the phrase “feels obligated to pay back”: if the monetary contribution is truly a gift and not a bribe, there’s no need to pay it back, so perhaps all contributions should be anonymous.

8.3c Practice assessing whether a plan or policy will work

1. Much of the on-site violence at School X is between members of different gangs. Students often wear gang colors to school. In order to reduce gang-related violence at school, the principal proposes a mandatory school uniform of non-gang colors.

This proposed plan or policy probably won’t work since students will know from outside school who belongs to which gang. (Though I suppose it will work if seeing someone wearing gang colors is a necessary cause of the violence; that is, if seeing someone wearing gang colors is a required prerequisite to the violence.) (Take away that incitement, and, since it’s required, you take away the violence.)

3. Police in one district of Mexico City are learning by the book. They have to. If they don’t read at least one tome a month, they won’t get promoted. Mexican cops have a reputation for being corrupt and incompetent, and the folk promoting the strategy believe higher literacy levels will improve standards, making for better officers and better people. Mexican writers will be giving conferences especially tailored to the cops. Will this mandatory book-of-the-month club be enforced? You betcha: Officers will be regularly tested. Perhaps it’s time to consider investing in the Spanish version of Coles Notes.

(*Reader’s Digest*, November 2005)

That there are many highly literate people who are corrupt (perhaps all the so-called “white-collar criminals”) and incompetent suggests that this policy will not achieve its intended goal. Then again, perhaps on the whole, people who can use words don’t need to use their fists, and people who understand people are less apt to hurt them unnecessarily—and reading leads to both a fluency with words and an understanding of people.

5. Based on current demographics—the number of people, their ages, their sex, etc.—we can predict that we’ll need 100 new physicians to serve our region in the next decade, so that’s what we’re going to budget for.

One might think that their prediction and consequent budget plans don’t take into consideration new drugs, procedures, devices, but even with such advances, they’ll still need physicians to see people to provide diagnoses and prescriptions for those new drugs and so on.

8.4.1a *Practice recognizing when correlation is mistaken for causation*

1. The mind is able to heal because when I was sick, I kept thinking positive thoughts, imagining myself better, and I did, in fact, recover!

Yes, this is an instance of mistaking correlation for causation. We need more than just association in time to establish that thinking positive thoughts *leads to* recovery. We need to know whether thinking positive thoughts releases certain chemicals (such as serotonin) which, in turn, can speed the healing process, for instance.

3. The child’s arm started to hurt right after a bee stung her. And of course bee venom can cause pain, as well as swelling, and sometimes even more serious reactions. So that’s probably why her arm hurts—a bee stung her.

Although the speaker does refer to correlation in time, her conclusion is not based *merely* on that correlation; she also invokes information about bee venom to support her claim that the bee sting caused the child’s arm to hurt. (So this is *not* an instance of mistaking correlation for causation.)

5. There have been more than fifty studies of the relationship between social class and rates of schizophrenia. Almost without exception, these studies have shown that schizophrenia occurs most frequently at the lowest social class levels of urban society.

(Melvin L. Kohn, “The Interaction of Social Class and Other Factors in the Etiology of Schizophrenia,” *American Journal of Psychiatry*, February 1976)

This is just a statement of correlation, so it’s okay. If Kohn had gone on to conclude that being in the lower class *causes* schizophrenia, *that* would have been mistaking correlation for causation.

(It could be that schizophrenia is simply diagnosed more often or reported more often for those in the lower classes. Actually, Kohn goes on to suggest

something along those lines: “psychiatric and other authorities are especially prone to stigmatize and hospitalize people from the lower social classes.”

8.4.2a Practice recognizing the post hoc error

1. If we allow people to sell their organs, we will end up with a murder epidemic—people will go on killing sprees, hoping to sell their victims’ organs.

This is not a post hoc error; the speaker *is* identifying a causal relationship between allowing people to sell their organs and a murder epidemic, but the argument is not that allowing people to sell their organs causes the murder epidemic *because it came before* the murder epidemic.

3. Last January, we implemented random after-lunch breathalyzer tests for middle management personnel; since then reports of excessively long lunches and afternoon aggressiveness toward subordinates have decreased. It seems to have worked quite well, and I say we include upper management starting next month.

The speaker has assumed that the breathalyzer testing was the cause of fewer “liquid lunches” (actually, if you read closely, the only thing that can be assumed is that the breathalyzer testing was the cause of fewer *reports* of certain activity *presumed to indicate* liquid lunches). But perhaps the only restaurant in town had its liquor license revoked. Just because A precedes B, don’t assume A caused B.

5. The argument that nuclear weapons have prevented global conventional wars is open to serious question. Two of the five deadliest wars in U.S. history [took place during the Cold War]. The fact that there [was] no major war in Europe is a result of the clean-cut division into two blocs, neither with any real reason to start a war.

(Lincoln Wolfenstein, “End Nuclear Addiction,”
The Bulletin of the Atomic Scientists, May 1910)

Wolfenstein’s first sentence refers to what is probably a post hoc error: since there have been no global conventional wars since the development of nuclear weapons, it must be that the development of nuclear weapons is the reason for there being no global conventional wars. However, she herself does not make the error; instead, she presents a sort of counterexample to the general claim presented in that first sentence (I say “sort of” because the two wars she refers to were not *global* wars) (but then neither were the two mis-named *World Wars*), and identifies another cause for the absence of global wars (or at least the absence of major wars in Europe), that of there being two blocs with no reason to start a war.

8.4.3a Practice recognizing a failure to consider a common cause

1. Most heart attack victims are obese, so obesity must cause heart disease.

Perhaps a diet high in fat or inactivity causes both obesity and heart disease.

3. The numbers of predator fish A are declining, probably because its prey, fish B, have declined.

Perhaps some change in the habitat, perhaps an increase in water temperature, has caused both fish populations to decline.

5. Because many drug addicts tried marijuana before trying other drugs such as crack, cocaine, heroin, and so on, it's likely that marijuana use causes addiction to hard drugs.

Perhaps boredom or stupidity or curiosity lead to both marijuana use and the use of "harder" drugs.

8.4.4a Practice recognizing a failure to consider additional causes

1. The art of this period doesn't have a lot of blue, you'll notice. We believe it's because blue was a very rare, difficult to get or make, pigment.

Perhaps, also, blue had a very special meaning. (And maybe it had a special meaning *because* it was so rare. See how causes can interact?)

3. There has been a decrease in the number of marriages, and certainly we can point to the effect of unemployment among men 18 to 25: surely it leads them to think twice about marriage and family.

Okay, but the decreasing number of marriages could be, instead, or also, due to women's decisions, or the availability of female contraception (which leads to less need to get married for child support), or to men using contraception (which leads to less need to get married for . . . hmm . . . one can provide economic child support without becoming married), or maybe there's been a change in the divorce laws regarding property division.

5. In the late 1990s, beetles imported to Lake Victoria, which borders Kenya, Tanzania and Uganda, were credited with clearing water hyacinth, an introduced plant that was choking both the lake and the economies of surrounding countries.

("El Niño Helped Beetles Beat Invader," *New Scientist*, June 4, 2005)

The article continues . . . “The collapse of the hyacinth population coincided with an unusual El Niño event in 1997 that meant more rain and less light reached Lake Victoria”—conditions which make hyacinths more susceptible to the beetle.

8.4.5a Practice recognizing a reversal of cause and effect

1. Researchers have noticed a correlation between high self-esteem and high academic achievement. So teachers at many schools have started focusing more on their students’ self-esteem than, perhaps, on their academic work. They tried very hard, and in very many ways, to make their students feel good about themselves. And eventually they did. Students began to feel very confident about their abilities. But their academic performance did not improve.

Perhaps they reversed the cause and effect: it’s quite plausible that high academic achievement causes high self-esteem (instead of high self-esteem causing high academic achievement).

Or there could be common cause: high intelligence leads to both high self-esteem and high academic achievement.

3. Their employees are always getting wage increases. And they do such good work. We should get wage increases too. Maybe then our work would improve as well.

Maybe their employees are getting wage increases *because* they do good work (so the good work is the cause and the wage increase is the effect), not *in order to* do good work (in which case the wage increase would be the cause and the good work the effect).

5. Champion athletes have endurance and self-control. This proves that sport builds character.

Perhaps it’s the other way around: perhaps it’s only people with endurance and self-control who become champion athletes.

Also, do champion athletes have more endurance and self-control than non-champion athletes? Than champions in non-athletic fields? If the answer to either question is “no,” then the conclusion is further weakened.

8.4.6a Practice recognizing a failure to consider a reciprocal causal relation

1. People who are intelligent think a lot.

It's probably also the case that people who think a lot become intelligent.

3. Viruses are the leading cause of "computer frustration." Though "frustration" might be putting it mildly: not only do viruses result in work slowdowns and even stoppage, they also result in lost data—and given the widespread use of computers in hospitals, each of these has, at some point, meant that someone died. Literally.

Is it plausible that "computer frustration" is the leading cause of viruses?

5. Well it serves him right! No wonder he never gets any of the jobs he interviews for! He's so pessimistic and unenthusiastic before he even walks through the door!

Could it be he's pessimistic and unenthusiastic *because* he never gets any of the jobs he interviews for! He's just being realistic. Chances are, he *won't* get the job. And no doubt at some point, the reciprocal cause and effect became a vicious circle that it will be very difficult to break out of!

8.4.7a Practice recognizing a slippery slope

1. If I allow the student who's in hospital because of a car accident to write the final at a later date, then I have to allow the one who's home in bed from mono to write it later, and then the one who's home in bed with a migraine will want to write the exam later, and then of course I'll have to allow any student who has a headache or a cold or what have you to write it later. So, no. My policy is that if you don't show up at the scheduled time to write the final, you're simply out of luck. I'm sorry, but that's life.

The professor has presented a slippery slope argument to justify not allowing anyone to write the final exam at a later date, claiming that if the first step is taken (allowing the student who's in hospital because of a car accident to write the final at a later date), he is committed to the last step (allowing any student with a headache or a cold or what have you to write the final at a later date), and since he thinks the last step is undesirable, he refuses to take the first step.

However, the slope is not slippery, as he claims: one could differentiate between the various situations on the basis of physical impossibility or on the basis of sufficient debility. (And, in fact, that's why the "doctor's note" policy is often used; professors are not qualified to determine which medical conditions

are sufficiently debilitating, so they depend on a medical authority to make that judgment.)

3. Implementing a flex-time program which allows employees to choose their working hours (within limits) will make them feel more like the adults they are than like children who are not allowed to make any decisions of their own. As a result, they will act more like adults, being more responsible on the job, making better decisions. They will become more productive. They will like their jobs more. As a result, they will call in sick less often and be late less often.

This is a chain argument:

Implement a flex-time program/allow employees to choose their working hours → employees feel like adults → employees act like adults/make better decisions → employees become more productive → like their jobs more → call in sick less often and be late less often.

But it is not a slippery slope: every step in the chain is defensible, so the connection between the first step and the last is equally defensible.

5. Truthfully, I have no problem with genetic engineering to prevent a newborn from having, for example, Tay-Sachs—it's excruciatingly painful and we'd be cruel to intentionally bring such a life into existence when we could do otherwise. I don't even think preventing something like blindness with genetic engineering is a problem. But then you're going to have parents wanting to jiggle the genes to give their kid a few more IQ points, or a little less shyness. And I'm just not sure that's where we want to go.

The speaker is suggesting that there is a slippery slope between allowing genetic engineering to prevent certain diseases and allowing it to provide certain aptitudes. There is not a logical slippery slope here because there are clear, defensible differences between preventing pain and providing aptitudes. However, there may be a social slippery slope: it may be that if we as a society allow genetic engineering to remove genetic defects, it'll be that much easier to allow it to provide genetic enhancements. (And is that a problem?)

8.4.7c Practice recognizing errors in causal reasoning

1. Lately I've noticed that whenever I'm tired, my eyes itch. I don't know why being tired should make my eyes itch, do you?

Perhaps there's a common cause: perhaps you have allergies which are causing both your fatigue and your itchy eyes.

3. You know what makes me laugh? All those vanity license plates—if I couldn’t spell, I wouldn’t advertise that fact on my license plate!

The speaker is implying that the reason for “mis-spelled” vanity plates is that the people who have purchased them can’t spell. There are other causes to consider: perhaps there is a limited number of letters available (so they couldn’t get the letters they needed to spell it right); perhaps the word they wanted was already taken (so they had to settle for an “incorrect” version of it); approximation.

(Pasquale Accardo and Barbara Y. Whitman,
“Moving Diagnoses: The Clinical Iconography of Bumper Stickers,”
in Glenn C. Ellenbogen, ed., *The Primal Whimper: More Readings from the
Journal of Polymorphous Perversity*, 1989)

5. Assisted suicide is a form of killing, so if we make it legal, we’ll be on a slippery slope to making all sorts of homicide legal.

Not necessarily. There are lines to be drawn, most notably in this case, the line between those who have consented and those who have not! Even within the subset of those who consent, we could draw a line between those with terminal illnesses and those who may recover, or between those in unrelenting pain and those whose pain can be alleviated. (So the speaker has presented as a slippery slope something that is not, and thus committed an error in reasoning.)

7. The more TV people watch, the shallower they become.

Perhaps the causal relationship goes both ways: perhaps the more shallow people become, the more TV they watch.

9. According to Adam Smith (*The Wealth of Nations*, 1776), each individual, pursuing his or her own selfish interests in a competitive market, will be led by an invisible hand to promote an end which was no part of his intention. So even though they’re pursuing their own personal gain, they will serve the common good because, for example, they will have to keep their prices down and their quality up if they are to compete with others.

There doesn’t seem to be a causal error involved in this argument, but there are self-interested practices besides keeping prices down and quality up that are not considered, practices that do *not* serve the common good. For example, self-interested employers will also keep wages down. Also, there is no consideration of the possibility of collusion among the competitors.

Thinking critically about what you see

1.



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Is it that the accident was caused because she was talking on her cell phone or is she trying to use her cell phone because she was in an accident?

Thinking critically about what you read

1. People born soon after WWII were much more likely to move out of their parents' class than those born in later decades. Perhaps the kids were less motivated for success than their parents. Or perhaps the kids started that much lower than their parents and so had more room to move up than they did. Yet another possible explanation is that due to post-war economic boom and the depleted population that resulted because of war, there were far more job opportunities for those born after the war.

The first explanation equivocates success with upward class mobility. It's also a little implausible in that it postulates less motivation for an entire generation—how could we explain that? (So in this respect, the explanation creates more puzzles than it solves.)

I'm not sure if the second explanation accords with established knowledge, but whether it does or not is certainly testable (what was the standard of living for the kids at that time, compared to that of their parents when they grew up?). But how does having more room to move up account for more moving out—they might have just moved from lower middle class all the way to upper middle class.

I think the third explanation accounts for most of the relevant facts; it is also testable (was there a post-war economic boom and a depleted population that together led to relatively more job opportunities?) and does not suggest any puzzles.

3. "The USA is the only developed market where Formula 1 doesn't play a role like everywhere else in the world," he explains. "So, we said, there must be a reason. It cannot be because of Formula 1, and it cannot be because of the U.S. series, which are strong, so we came to the conclusion that it's because there is no U.S. Formula 1 team."

(As reported by John Zimmerman, "Riding the Red Bull,"
Road & Track, February 2005)

The speaker eliminates Formula 1 itself as the reason for its (presumably) minor role in the USA because (presumably) it's in all the countries he's comparing the USA to, as well as in the USA; he's thus using Mill's method of differences, looking for what's *different* in the USA (and the presence of Formula 1 racing is *not* what's different).

He eliminates the U.S. series on a different basis: he claims that they're "strong" (whatever that means), implying that if the series are strong, they can't be why Formula 1 doesn't play a more major role. It would help if this argument were spelled out a little more.

However, he gives no reason for concluding that the third explanation (that there is no U.S. Formula 1 team) is the best explanation. He may have successfully eliminated two other reasons, but unless having a team is the *only* other possible explanation, which is unlikely, then he hasn't given a sufficient argument for claiming that the absence of a team is the reason for Formula 1's minor role in the U.S.

5. Older people are even more likely to react strongly against any further acceleration of change. There is a solid mathematical basis for the observation that age often correlates with conservatism: time passes more swiftly for the old.

When a fifty-year-old father tells his fifteen-year-old son that he will have to wait two years before he can have a car of his own, that interval of 730 days represents a mere 4 percent of the father's lifetime to date. It represents over 13 percent of the boy's lifetime. It is hardly strange that to the boy the delay seems three or four times longer than to the father. Similarly, two hours in the life of a four-year-old may be the felt equivalent of twelve hours in the life of her twenty-four-year-old mother. Asking the child to wait two hours for a piece of candy may be the equivalent of asking the mother to wait fourteen hours for a cup of coffee.

There may be a biological basis as well, for such differences in subjective response to time. "With advancing age," writes psychologist John Cohen of the University of Manchester, "the calendar years seem progressively to shrink. In retrospect every year seems shorter than the year just completed, possibly as a result of the gradual slowing down of metabolic processes." In relation to the slowdown of their own biological rhythms, the world would appear to be moving faster to older people, even if it were not.

(Alvin Toffler, *Future Shock*, 1970)

The language used is fairly clear and neutral; the authority cited in the third paragraph seems acceptable.

Both explanations (mathematical and biological) seem plausible; neither contradicts established knowledge, nor creates puzzles.

However, there may be yet another explanation: it is likely that as you get older, fewer novel things happen in your life; when you're twenty, so much is happening and it's all exciting and new, so a year is so full, it seems so long, but at forty, life has become a ho hum routine of life, not much happens, so the year doesn't seem as full, as long. And yet, this explanation might actually pose a contradiction: "time flies when you're having fun"—so the ho hum routine may make the year seem *longer*, not shorter.

In any case, the selection as presented, provides two explanations for why time passes more swiftly for the old—but why does *that* explain the increasing conservatism, the decreased tolerance for change, of the old? I guess his reasoning is that the more quickly time passes, the more things seem to change (is that true?), and the more things seem to change, the less we accept additional change (Why? Do we have some maximum threshold for change? Any kind of change?).

7. To be a state is also, in practice, to fight wars, and the bigger and more powerful the state, the more frequent its wars. The belief that lies at the root of all deterrence theory, either nuclear or conventional—that great military strength is the surest guarantee that a country will be left in peace—is demonstrably false and is indeed the exact reverse of the truth.

During the entire period of modern European history from 1480 to 1940, it has been calculated that there were about twenty-six hundred important battles. The only country that was a leading military power during the whole of that period, France, participated in 47 percent of those battles, and Germany (Prussia), Russia, and Britain all fought in between 22 percent and 25 percent of them. By contrast Spain, which ceased to be a major military power at the beginning of the nineteenth century, soon afterward dropped out of Europe's wars almost entirely and can only offer an attendance record of 12 percent over the whole period, and the Netherlands and Sweden (great powers only for brief periods) were present at only 8 percent and 4 percent of Europe's battles respectively [Quincy Wright, *A Study of War*, 1964].

By any other yardstick—the amount of time a given European country has spent at war, the number of wars it has participated in, the proportion of its population that has been killed in war over the years—the result is the same. There is a steep and consistent gradient of suffering, in which the most powerful nations fight most often and lose most heavily in lives and wealth. Nor are these facts unique to Europe. For example, the United States, which has been a great power on the make since soon after its independence, has seen only 25 years of its entire history (now over two centuries) in which its army or navy has not been involved in active operations somewhere during some part of the year, while Sweden, which long ago abandoned its great-power ambitions, has not used its armed forces in a war for 170 years.

(Gwynne Dyer, *War*, 1985)

The language seems fairly straightforward. Wright is probably an acceptable authority with regard to the information given in the second paragraph.

Dyer seems to be assuming that correlation is causation, claiming that since “the bigger and more powerful the state, the more frequent its wars,” wars are *the result of* being bigger and more powerful. But he doesn’t consider and exclude other possible explanations—maybe it’s not the military strength, but a certain culture or sociopolitical character that leads to engagement in war.

Also, the following hypothetical counterexample seems to challenge his claim: Canada will probably be invaded by the U.S. at some point in the future for its water because the U.S. isn’t decreasing the amount it uses (by decreasing its population or by simple restraint or by increased efficiency), nor is it increasing its supply (by decreasing its negative impact on the water table through climate-changing behavior such as heavy driving which causes lots of carbon emissions, causing global warming, causing climate extremes such as drought). So Canada will find itself in a war (unless it just gives its water to the U.S.), not because it’s powerful, but simply because it has the misfortune to have what the U.S. wants.

9. In a series of four experiments, we examined the relationship between male dominance and female preference in Japanese quail, *Coturnix japonica*. Female quail that had watched an aggressive interaction between a pair of males preferred the loser of an encounter to its winner. This superficially perverse female preference for losers may be explained by the strong correlation between the success of a male in aggressive interactions with other males and the frequency with which he engages in courtship behaviors that appear potentially injurious to females. By choosing to affiliate with less dominant male quail, female quail may lose direct and indirect benefits that would accrue from pairing with a dominant male. However, they also avoid the cost of interacting with potentially harmful, more aggressive males.

(Abstract of Alexander G. Ophir and Bennett G. Galef, Jr.,
“Female Japanese Quail that ‘Eavesdrop’ on Fighting Males Prefer
Losers to Winners,” *Animal Behavior*, 66, 2003)

The writers refer to “the loser” of an aggressive interaction—how are they defining “loser”? Certainly in human aggressive encounters, the one who walks away would be called, in my opinion, the winner. However, I’m sure my insecure male neighbour would identify that man as a loser, a coward, a wimp, and probably a sissy too.

Note too the phrase “superficially perverse” in reference to the females’ preference. If the loser is the one who walks away, I certainly wouldn’t call her preference perverse. Actually, even if the loser is the one who gets beaten to a pulp, I wouldn’t necessarily call her preference perverse. To call her preference perverse depends, requires, the assumption that females *do* or *should* prefer the male who *does* the beating to a pulp, not the one who *gets* the beating. True, by labeling such a preference *superficially* perverse, the authors are suggesting it’s not perverse at all once you examine it—which is their suggestion: by preferring the one who loses an aggressive encounter, by *not* choosing the one who wins the aggressive encounter, she is increasing the chances that she herself will *not* be a loser

in a future aggressive encounter with that same male. Choose someone who wins by beating up other people and chances are he'll beat you up at some point in time.

The researchers say that there is a “strong correlation between the success of a male in aggressive interactions with other males and the frequency with which he engages in courtship behaviors that appear potentially injurious to females,” but that doesn’t exclude the possibility that there is *also* a strong correlation between the failure of a male in aggressive interactions with other males and the frequency with which he engages in courtship behaviors that appear potentially injurious to females (which could be explained by the ‘pecking order’ phenomenon—losers just go find someone else to pick on and dominate). Maybe the correlation is between those males who *engage* in aggressive interactions with other males, win or lose, and injurious courtship behaviors, and it’s the ones who never get into an aggressive interaction to begin with that are non-injurious in their courtship behaviors.

I can think of two alternative explanations for the female quails’ preference that perhaps should have been considered and, if possible, eliminated. Maybe it so happens that the males who lose in aggressive encounters actually have better quality sperm, not being subject to an excess of testosterone or something, and it’s not the loser element per se that is attractive to the female quails but the quality sperm element (assuming they’d somehow know). Or maybe the losers develop an emotional empathy for vulnerability which makes them better with baby quails and maybe *that’s* what’s attracting the female quails.

Reasoning test questions

1. A group of unusual meteorites was found in Shergotty, India. Their structure indicates that they originated on one of the geologically active planets, Mercury, Venus, or Mars. Because of Mercury’s proximity to the Sun, any material dislodged from that planet’s surface would have been captured by the Sun, rather than falling to Earth as meteorites. Nor could Venus be the source of the meteorites, because its gravity would have prevented dislodged material from escaping into space. The meteorites, therefore, probably fell to Earth after being dislodged from Mars, perhaps as the result of a collision with a large object.

The argument derives its conclusion by

- (A) offering a counterexample to a theory to a theory
- *(B) eliminating competing alternative explanations
- (C) contrasting present circumstances with past circumstances
- (D) questioning an assumption
- (E) abstracting a general principle from specific data

(The Official LSAT Prep Test XXIV, Section 2, #3)

The second sentence of the passage indicates that there are three possible sources

(explanations) for the meteorites: Mercury, Venus, or Mars. The next sentence eliminates Mercury as a possibility, and the sentence after that eliminates Venus. By process of elimination, then, the speaker concludes that the source is Mars. So, to answer the question, the argument derives its conclusion by (B) eliminating competing explanations.

3. Fact 1: Television advertising is becoming less effective: the proportion of brand names promoted on television that viewers of the advertising can recall is slowly decreasing.

Fact 2: Television viewers recall commercials aired first or last in a cluster of consecutive commercials far better than they recall commercials aired somewhere in the middle.

Fact 2 would be most likely to contribute to an explanation of fact 1 if which of the following were also true?

- (A) The average television viewer currently recalls fewer than half the brand names promoted in commercials he or she saw.
- (B) The total time allotted to the average cluster of consecutive television commercials is decreasing.
- (C) The average number of hours per day that people spend watching television is decreasing.
- (D) The average number of clusters of consecutive commercials per hour of television is increasing.
- *(E) The average number of television commercials in a cluster of consecutive commercials is increasing.

(GMAT® mini test #3)

This is the explanation provided by GMAT for this question:

The last choice indicates that the number of commercials in a cluster is increasing, so it entails that proportionally more commercials are aired in intermediate positions. Hence, the last choice helps fact 2 explain fact 1 by showing that increasingly more commercials are aired in positions in which viewers find them difficult to recall. This is the best answer.

The first choice testifies to the ineffectiveness of television advertising but does not help fact 2 explain fact 1.

The second choice indicates that fact 2 contradicts rather than explains fact 1, since it suggests that the number of commercials per cluster is decreasing.

The third and fourth choice help explain fact 1—the third choice by describing a change in viewing habits and the fourth choice by describing a change in programming—but neither relates fact 2 to fact 1.

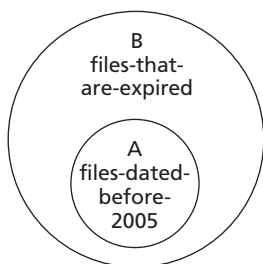
Categorical Logic

1.1a Practice recognizing universal affirmative statements

1. Anything with a date prior to 2005 is considered an expired file and goes in this box.

Yes, this is a universal affirmative statement:

All As (files-dated-before-2005) are Bs (files-that-are-expired).



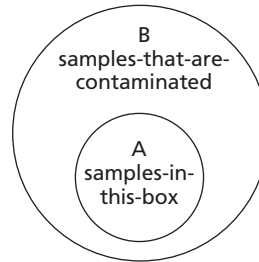
3. This is an essay that's excellent.

No, this is not a universal affirmative statement. It refers only to one essay, not all essays.

5. Each of the samples in this box is contaminated.

Yes, this is a universal affirmative statement:

All As (samples-in-this-box) are Bs (samples-that-are-contaminated).

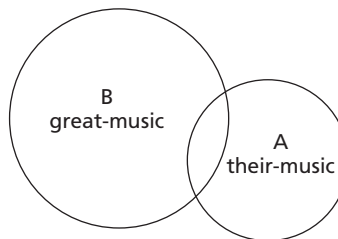


1.2a Practice recognizing particular affirmative statements

1. I'll agree that some of their music is great.

Yes, this is a particular affirmative statement:

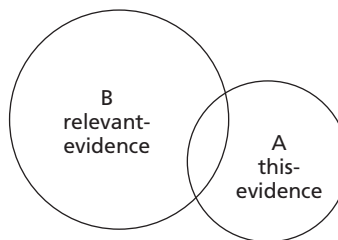
Some A (their music) is B (great music).



3. I have examined all of the so-called evidence and find only one item to be relevant to this case.

Yes, this is a particular affirmative statement:

Some A (this evidence) is B (relevant evidence).



5. None of these paperweights is what I'd call beautiful.

No, this is not a particular affirmative statement. It refers to an entire category (these paperweights), excluding it from that of another category (beauty), rather than referring to just some members of that category.

1.3a Practice recognizing universal negative statements

1. All studies about the ozone layer except this one are incorrect.

This is not a universal negative statement because one member of one category *is* a member of the other category, which makes it a particular affirmative statement: “Some As (studies about the ozone layer) are B (correct studies).”

3. There is simply no possible way for us to achieve that sales quota.

Yes, this is a universal negative statement:

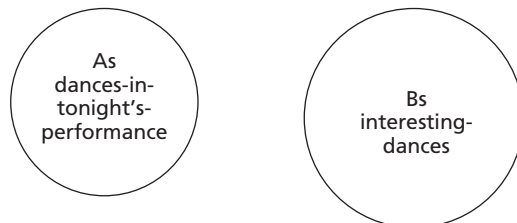
No As (ways-to-achieve-the-sales-quota) are Bs (possible-ways-to-achieve-the-sales-quota).



5. Not one dance in tonight's performance was interesting.

Yes, this is a universal negative statement:

No As (dances in tonight's performance) are Bs (dances that are interesting).

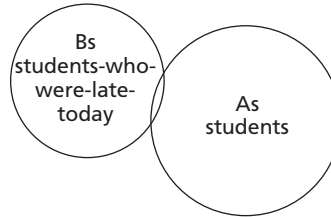


1.4a Practice recognizing particular negative statements

- Several students were late today.

Yes, this is a particular negative statement:

Some As (students) are not Bs (students-who-were-late-today).



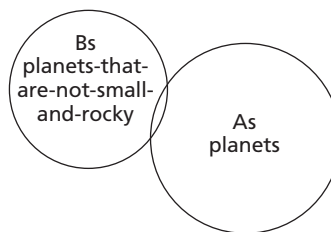
- Not one car on the lot is in good shape.

No, this is not a particular negative statement because the statement refers to *all of the members of the category* of cars on the lot (saying they're all not in good shape).

- You can't say that all planets are rocky and small—consider Jupiter!

Yes, this is a particular negative statement, once we see the implication that Jupiter is not rocky and small (it is, in fact, gaseous and large):

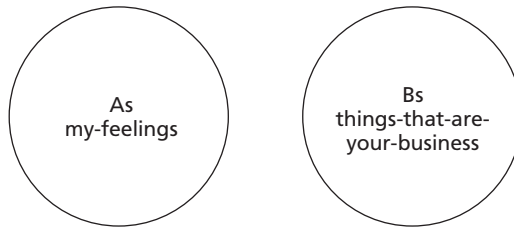
Some As (planets) are not Bs (rocky and small).



1.4b More practice translating ordinary language into categorical statements

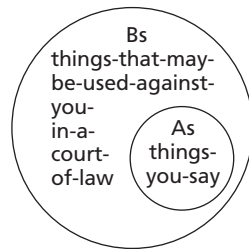
- My feelings are none of your business!

All As (my feelings) are not Bs (things-that-are-your-business)—universal negative.



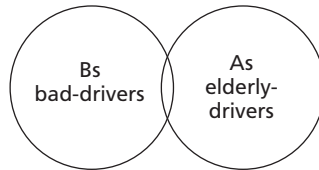
3. Everything you say may be used against you in a court of law.

All As (things-you-say) are Bs (things-that-may-be-used-against-you-in-a-court-of-law)—universal affirmative.



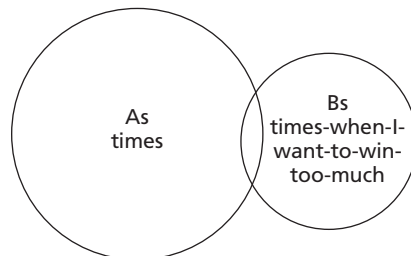
5. Not all elderly drivers are bad drivers.

Some As (elderly drivers) are not Bs (bad drivers)—particular negative.



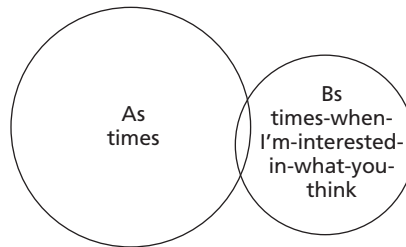
7. I concede that some of the time I want to win too much.

Some As (times) are Bs (times-when-I-want-to-win-too-much)—particular affirmative.



9. It's not that I'm not interested at all in what you think most of the time.

If the speaker means “I am interested sometimes in what you think” then this statement would be a particular affirmative statement: Some As (times) are Bs (times-when-I'm-interested-in-what-you-think).



1.5a Practice recognizing logical equivalence

1. All sci-fi novels written by women are discernibly different from sci-fi novels written by men.
No sci-fi novels written by women are indistinguishable from sci-fi novels written by men.

All A are B.

No A are non-B.

Granting that “indistinguishable from” is the negative of “discernibly different from,” the second statement is the obversion of the first (note that not only has the predicate been negated, but the affirmative was changed to a negative).

All obversions are logical equivalents, so this pair is indeed logically equivalent: if the first statement is true, the second statement will also be true.

3. All people who wear make-up are saying that appearance matters more than reality.
All people who don't say appearance matters more than reality don't wear make-up.

All A are B.

All non-B are non-A.

The second statement is the contrapositive of the first: the subject and predicate have been reversed, and both have been put into the negative. The first statement is a universal affirmative, and since the contrapositive of a universal affirmative is logically equivalent to the universal affirmative, the second statement is indeed logically equivalent to the first: if the first is true, then the second will also be true.

5. No wolves in this forest are sick.
 All wolves in this forest are healthy.
- No A are B.
 All A are non-B.

Granting that “non-sick” means “healthy,” the second statement is the obversion of the first: the predicate has been turned into a negative, and the statement has been changed from a negative to an affirmative. All obversions are logical equivalents, so if the first statement is true, the second statement must, logically, also be true.

7. Some cats are not pets.
 Some non-pets are not non-cats.
- Some A are not B.
 Some non-B are not non-A.

The second statement is the contrapositive of the first: note that the subject and predicate have been reversed, and then both have been made negative (resulting in a double negative for the predicate as that was already in the negative).

The contrapositive of a particular negative is valid, so these two statements are indeed logical equivalents: if the first one is true, the second one will also be true.

9. Some of the waste we’ve dumped into the ocean is radioactive.
 Some non-radioactive waste hasn’t been dumped into the ocean.
- Some A are B.
 Some non-B are non-A.

The second statement is the contrapositive of the first statement: subject and predicate have been reversed, and both have been made negative. However, the first statement is a particular affirmative statement, so its contrapositive is *not* its logical equivalent.

As it turns out, both of these statements are true, but it’s important to understand that they are *independently* true: it’s not the case that the second statement is true *because* the first one is true (the second statement is *not* logically equivalent to the first statement)—it could easily have been the case that we have dumped all our waste into the ocean, radioactive or not.

11. No elite athletes are lazy.
 No non-lazy people are non-elite athletes.
- No A are B.
 No non-B are non-A.

The second statement is the contrapositive of the first statement: note that the subject and predicate have been reversed, and both have been made negative.

The first statement is a universal negative statement, so its contrapositive is *not* its logical equivalent.

13. All perfumes give me a headache, so it follows that some of my headaches are not caused by perfume.

All A are B.

Some C are D.

This is an interesting pair of statements in that there are actually four separate items. The first statement is “All A [perfumes] are B [things-that-give-me-a-headache],” but the second statement is “Some C [my headaches] are not D [things-that-are-caused-by-perfume].”

15. “While it’s true that most Muslims or Arabs are not terrorists, almost all the terrorists are Muslims or Arabs.”

(Bill Maher, *When You Ride ALONE You Ride with bin Laden*, 2002)

Some A are not B.

Some B are A.

For logical purposes, “most” and “almost all” are equivalent to “some” (they’re certainly not equivalent to all or none).

So the first statement “Most Muslims or Arabs are not terrorists” is “Some A are not B.” And the second statement, “Almost all the terrorists are Muslims or Arabs” is “Some B are A.” So he/she’s reversed subject and predicate (conversion), but then he/she’s negated only the predicate—so this is not a contrapositive. But nor is it just a conversion, nor is it an obversion. The two statements are *not* logical equivalents: his second statement does *not* follow from his first statement.

1.6a Practice identifying contradictories, contraries, and subcontraries

1. All university courses are difficult.
Some university courses are not difficult.

All A are B.

Some A are not B.

These statements are contradictories: they can’t both be true (if the first statement is true, the second statement can’t be true), but they can’t both be false (if the first statement is false, the second statement *has* to be true).

3. Some competitions are fair.
Some competitions are not fair.
- Some A are B.
Some A are not B.

These statements are subcontraries: they cannot both be false (for the first statement to be false, it would have to be the case that *all* competitions are not fair, but if that were the case, the second statement could not be false), but they could both be true.

5. All politicians are good leaders.
No politicians are good leaders.
- All A are B.
No A are B.

Both statements can't be true, but both could be false (it could be that some politicians are good leaders). So these are contraries.

7. We cannot possibly know God's will.
But we know that he is on the side of justice.

Both of these statements can't be true: either we can't know God's will (the first statement) or we can (the second statement). Nor can they both be false: either we know or we don't know—one of them has to be true. This makes them contradictories. *But that's only if we ignore the last part of the second statement, which specifies exactly what it is we know.* When we pay attention to that part of the sentence, both statements could be false: it could be that we do know God's will (making the first statement false) and that we know that he's on the side of injustice (making the second statement false). This would make them contraries.

9. They can't both be right, although they could both be wrong.

Both statements could be true: that would be the case if both people were wrong. And both statements could be false: that would be the case if both people were right (in that case, it's false that they can't both be right, and it's false that they could both be wrong). So these two statements are neither contradictories, contraries, nor subcontraries.

2a Practice identifying this first valid form

1. Every kind of infection is serious, and any serious infection should be treated, so of course every infection should be treated!

1. Every kind of infection is serious.	All A are B.
<u>2. Any serious infection should be treated.</u>	<u>All B are C.</u>
Therefore, every infection should be treated.	Therefore, all A are C.

Review the many ways of saying “All A are B” (Section 1.1) if you need to.

3. I can’t believe you’re going to put an ad in the “Personals” section! That’s for losers! You’ll certainly never get a good date that way! See? It just proves that losers never get good dates!

It proves no such thing! The argument, though unclear, is probably this:

People who put ads in the “Personals” section are losers.	All A are B.
<u>People who put ads in the “Personals” never get good dates.</u>	<u>All A are C.</u>
Therefore, losers never get good dates.	Therefore, all B are C.

You’ll see that this is the one that does *not* have the valid form we’ve just covered. (See the fourth invalid form, in Section 3.)

5. *Student to Professor:* But I need an A!

Of course, this is just a claim, but let’s assume that the student was implying the conclusion “You should give me an A!” What additional premise is required to complete the argument? “Professors should give students whatever marks they need.”

1. Professors should give students whatever marks they need.	All A should B.
<u>2. You are a professor.</u>	<u>C is an A.</u>
Therefore, you should give students whatever marks they need.	Therefore, C should B.

And since “I am a student” and “I need an A,” the professor should give the student an A.

Note, by the way, the manipulative use of the word “need” instead of “want.”

2b Practice identifying this second valid form

1. With today’s technology, you can easily fast-forward through commercials and thus avoid them. You can’t call something harmful if you can avoid it. So I don’t see how you can call television commercials harmful.

All television commercials are avoidable.	All A are B.
<u>No harmful things are avoidable.</u>	<u>No C are B.</u>
Therefore, no television commercials are harmful.	Therefore, no A are C.

3. You shouldn't be taking vitamin pills! They're artificially made. I wouldn't put anything artificial into my body—it's not good for you!

1. All vitamin pills are artificial.	All A are B.
2. <u>No artificial things are good for you.</u>	<u>No B are C.</u>
Therefore, no vitamin pills are good for you.	Therefore, no A are C.

5. A Jewish state cannot be democratic, this argument goes, because a state in which the world's Jewish people and the Jewish religion have exclusive privileges is inherently discriminatory against non-Jewish citizens.

(Bernard Avishai, "Saving Israel from Itself,"
Harper's Magazine, January 2005)

1. A Jewish state privileges the Jewish people and the Jewish religion.	A does B.
2. <u>Democracies do not privilege any particular people or religion.</u>	<u>No C does B.</u>
Therefore, a Jewish state is not a democracy.	Therefore, A is not a C.

2c Practice identifying this third valid form

1. Only some dogs are terriers, but all dogs are mammals. So it follows that some mammals are terriers.

1. All dogs are mammals.	All A are B.
2. <u>Some dogs are terrier.</u>	<u>Some A are C.</u>
Therefore, some mammals are terriers.	Therefore, some B are C.

Note that the conclusion "Some terriers are mammals" would be just as valid (because the conversion of a particular affirmative statement, "Some B are C," is logically equivalent to the original statement).

3. Of course all five-year-olds are people, your niece notwithstanding. And we know for a fact that some zepes are five-year-olds—how else do they get from being four-year-olds to being six-year-olds? So it's what I've said all along: some people are zepes.

1. All five-year-olds are people.	All A are B.
2. <u>Some zepes are five-year-olds.</u>	<u>Some C are A.</u>
Therefore, some people are zepes.	Therefore, some B are C.

Note that as long as the premises are true, you can reach this conclusion with absolute certainty even though you don't know what zepes are (so don't throw up your hands and say, "But I can't say people are zepes until I know what zepes are!") because the form of the argument is valid.

5. Rapes increase during the summer months, and so do assaults. So rape is an assault, not sex.

1. Rape is something that increases during summer months.	All A is B.
2. <u>Assault is something that increases during summer months.</u>	<u>All C is B.</u>
Therefore, rape is assault.	Therefore, A is C.

This argument does *not* use the valid form we've just covered; in fact, it has an invalid form (see the first invalid form, Section 3).

There may be some other element, some common cause for both rape and assault increasing during the summer months—perhaps the weather is warmer, so more people are outside, so there is more opportunity. My guess is that meeting new people in the park also increases during summer months.

2d Practice identifying this fourth valid form

1. It's not good enough to say "I was just doing my job!" That doesn't make it right!

There's a bit missing here . . . let's construct the full argument as follows:

- | | |
|-----------------------------------------------------------------------------------------------------|------------------------------|
| 1. All justifications are explanations showing that an action is morally right. | All A are B. |
| 2. Sometimes "I'm just doing my job" is not an explanation showing that an action is morally right. | Some C are not B. |
| Therefore, sometimes "I'm just doing my job" is not a justification. | Therefore, some C are not A. |
3. Don't be so upset: everyone who lives together is bound to have fights from time to time. Though I know some married couples who don't. Hmm. That must mean that some married couples don't live together.
- | | |
|----------------------------------------------------------------|------------------------------|
| 1. All people who live together have some major disagreements. | All A are B. |
| 2. Some married people don't have any major disagreements. | Some C are not B. |
| Therefore, some married people don't live together. | Therefore, some C are not A. |

5. If all hammers are tools, and all screwdrivers are tools, it follows that all hammers are screwdrivers. That’s how screwy all this logic is!

Calm down, the logic isn’t screwy. This is not a valid argument; the form used is invalid (see the second invalid form, Section 3). So you don’t have to accept the conclusion. All hammers are not screwdrivers, not even in logic class!

1. All hammers are tools.	All A are B.
2. <u>All screwdrivers are tools.</u>	<u>All C are B.</u>
Therefore, all hammers are screwdrivers.	Therefore all A are C.

2e *More practice with valid categorical arguments*

1. All clones are twins. All twins are individuals.

Therefore, all clones are individuals. See the first valid form.

1. All clones are twins.	All A are B.
2. <u>All twins are individuals.</u>	<u>All B are C.</u>
Therefore, all clones are individuals.	Therefore, all A are C.

3. Some pets are cats. Some cats are small.

No, you *cannot* conclude “Some pets are small.” That is indeed true, but not because some pets are cats and some pets are small (even though both of those are true). It may not be the same “some”; maybe the some A that are B are not among the B that are C:

1. Some pets are cats.	Some A are B.
2. <u>Some cats are small.</u>	<u>Some B are C.</u>
Therefore, some pets are small.	Therefore, some A are C.
	INVALID

Consider “Some elephants are pets” and “Some pets are small.” Using the same logic, you’d have to conclude “Some elephants are small”:

1. Some elephants are pets.	Some A are B.
2. <u>Some pets are small.</u>	<u>Some B are C.</u>
Therefore, some elephants are small.	Therefore, some A are C.

This should show that the logic is mistaken. Even though the premises are true, and even though the conclusion drawn is true, the conclusion might not follow from those premises. The relationship between the premises and conclusion—

which is captured by the form of the syllogism—must also be correct, or, as we say, valid.

5. All bananas are yellow. No boats are yellow.

Therefore, no boats are bananas. See the second valid form.

1. All bananas are yellow.	All A are B.
2. <u>No boats are yellow.</u>	<u>No C are B.</u>
Therefore, no boats are bananas.	Therefore, no C are A.

This is an interesting one. Note that although the argument is valid, it's not sound: the second premise isn't true (some boats *are* yellow). So actually the conclusion isn't acceptable. Even though it's true. It's true for reasons other than those given. So remember: a sound argument, one whose conclusion you must accept, is one whose premises are true and whose form is valid. Remember also: don't judge an argument by its conclusion!

7. All bananas are yellow. Some bananas are ripe.

Therefore, some yellow things are ripe. See the third valid form.

1. All bananas are yellow.	All A are B.
2. <u>Some bananas are ripe.</u>	<u>Some A are C.</u>
Therefore, some yellow things are ripe.	Therefore, some B are C.

9. All water contains oxygen. Liquid X contains oxygen.

You *cannot* conclude that Liquid X is water!

1. All water contains oxygen.	All A are B.
2. <u>Liquid X contains oxygen.</u>	<u>C is B.</u>
Therefore, Liquid X is water.	Therefore, C is A.
	INVALID

If that were a valid form, then if “All Jews believe in a god” (All A are B) and “This Christian believes in a god” (C is B) were true, you would have to conclude “This Christian is a Jew” (C is A). But that's clearly false (even though that conclusion supposedly came from two true premises), so there's something mistaken about the logic.

3a Practice with invalid categorical arguments

1. Hitler was a vegetarian. Hitler was evil.

You cannot conclude that vegetarians are evil. That would be making an argument with the fourth invalid form.

✗ All A are B.
All A are C.
 Therefore, all B are C.

3. A woman is a person. A man is not a woman.

You cannot conclude that a man is not a person. That would be making an argument with the sixth invalid form.

✗ All A are B.
No C are A.
 Therefore, no C are B.

5. I know what I'm going to do tomorrow. Tomorrow is the future.

You might be tempted to conclude that you know the future. That would be making an argument with the first valid form:

1. I know what I'm going to do tomorrow.	A is B.
2. <u>Tomorrow is the future.</u>	<u>B is C.</u>
Therefore, I know the future.	Therefore, A is C.

But the first premise really says “I know what I'm *planning* to do tomorrow”—and knowing what you plan to do is not the same as knowing what you will do. So essentially there is an error of equivocation here that makes the argument problematic.

7. All Taffi's friends like to wrestle. Anyone who likes to wrestle is welcome at our home.

You cannot conclude that anyone who is welcome at our home is Taffi's friend. That would be making an argument with the third invalid form.

✗ All A are B.
All B are C.
 Therefore, all C are A.

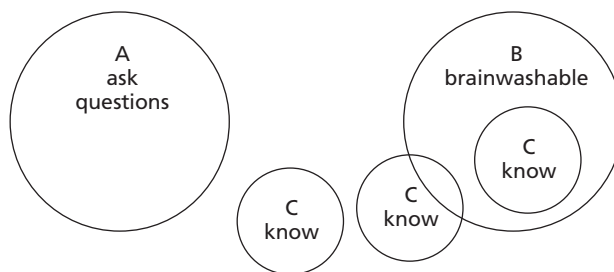
9. All dreams are significant. All dreams are symbolic.

You cannot conclude that all symbols are significant. That would be making an argument with the fifth invalid form.

✗ All A are B.
All A are C.
 Therefore, all C are B.

4.1a Practice determining validity and invalidity using diagrams

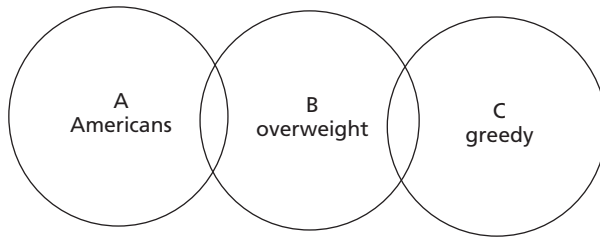
- 1.
- | | |
|-------------------------------------------------------------------|---------------------|
| 1. People who keep asking questions are impossible to brainwash. | A are not B. |
| 2. People who know all the answers don't keep asking questions. | <u>C are not A.</u> |
| <hr/> | |
| Therefore, people who know all the answers are easy to brainwash. | Therefore, C are B. |



As you can see, there are three possible places for C to be put, all of which fulfill “C are not A.” Since in at least one case, it is *not* the case that “C are B,” this syllogism is invalid.

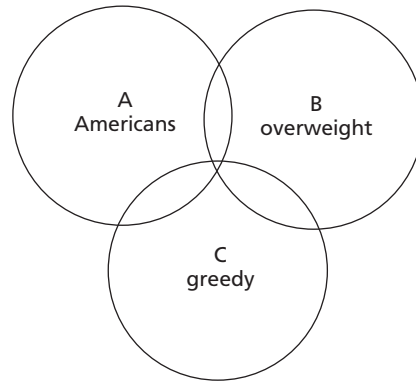
- 3.
- | | |
|-----------------------------------------------------|--------------------------|
| 1. Most Americans are overweight. | Some A are B. |
| 2. <u>Most overweight people are simply greedy.</u> | <u>Some B are C.</u> |
| Therefore, most Americans are greedy. | Therefore, some A are C. |

To indicate the first premise, “Some A are B,” we overlap A and B. Then to add the second premise, “Some B are C,” we overlap B and C.



And in this case, the conclusion is not true, so the syllogism is invalid.

We could have, instead, overlapped C with B in this way:



And in this case, the conclusion *is* true. But there is nothing saying we have to add C this way.

And since for a syllogism to be valid, the conclusion *must* be true, that is, true for all possibilities, this syllogism is invalid.

5.

1. All harmless entertainments should be encouraged.

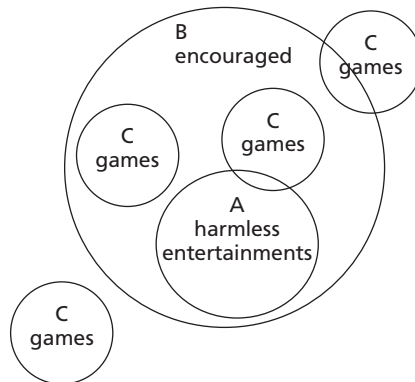
2. Not all games are harmless entertainments.

Therefore, not all games should be encouraged.

All A are B.

Some C are not A.

Therefore, some C are not B.



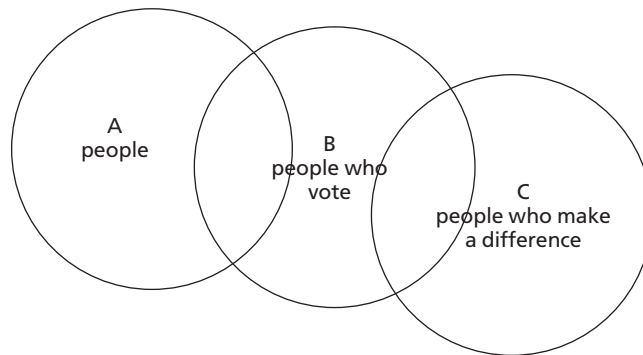
As you can see, there are several ways we can put C into the picture, all of which fulfill the second premise “Some C are not A.” But they don’t all lead to the conclusion that some C are not B, so this is an invalid syllogism

4.1b More practice determining validity and invalidity using diagrams

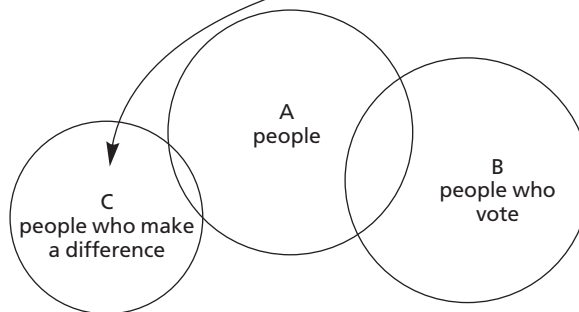
1. Is it true that prisoners can’t vote? I didn’t realize that not everyone is entitled to vote. But I guess that’s no big deal, because it’s not like every vote makes a difference anyway. But it is interesting that we can conclude from that that not everyone is entitled to make a difference.

1. Not all people are entitled to vote.
 2. Not all people who vote make a difference.
 Therefore, not everyone is entitled to make a difference.

Some A are not B.
 Some B are not C.
 Therefore,
 some A are not C.



According to this diagram, the conclusion is true. But we could have put C here instead, also fulfilling “Some B are not C”:

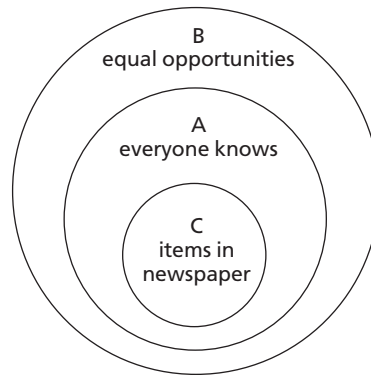


And in this case, the conclusion is *not* true: some A are C.

So even if we accept the equivocation between people entitled to vote (first premise) and people who vote (second premise), and again between people who make a difference (second premise) and people who are entitled to make a difference (conclusion), the syllogism is invalid: the premises do not *necessarily* lead to the conclusion.

3. You can't say there's equal opportunity employment unless everyone knows about the jobs that are available. If a job ad is in the paper, then everyone knows about it. So all jobs that are advertised in the paper are equal opportunity jobs.

1. All instances of everyone knowing are instances of equal opportunity.	All A are B.
2. <u>Items in the paper are known by everyone.</u>	<u>All C are A.</u>
Therefore, all items (including job ads) in the paper are instances of equal opportunity.	Therefore, all C are B.

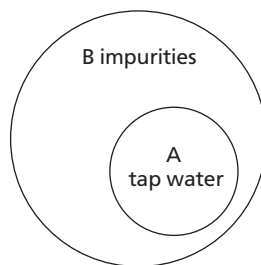


According to the diagram, “All C are B,” so this is a valid syllogism (see the first valid form).

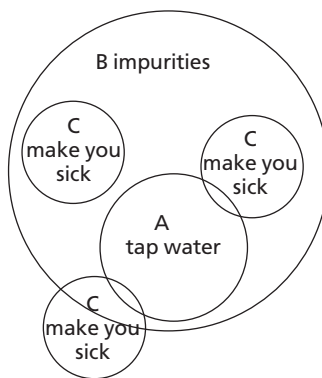
5. I don't care where you live, all tap water contains impurities. And some impurities that are found in water can make you very, very sick. So you're better off with bottled water, and I don't care how much it costs!

1. Tap water contains impurities.	All A are B.
2. <u>Some impurities in water make you sick.</u>	<u>Some B are C</u>
Therefore, bottled water does not make you sick.	Therefore, D is not C.

Okay, the first premise would be this:



Then there are four ways to add C, all of which fulfill “Some B are C”:



Does this lead to the conclusion “D is not C”? No! D isn’t anywhere in the diagram—because it’s not anywhere in the premises. We have no idea where D might be in the picture. We certainly don’t know it’s not a C (the proposed conclusion).

The problem with this syllogism is that it’s *not* a syllogism, because it has not three, but four terms. (See next section!)

4.2a Practice determining validity and invalidity using rules:

1.

1. No job is worth \$100,000+/year.	No A is B.
2. <u>No job is worth ignoring what you know to be right.</u>	<u>No A is C.</u>
Therefore, ignoring what you know to be right is not worth even \$100,000+/year.	Therefore, no C is B. (C is not B)

Rule 1—The syllogism must have three, and only three, terms. Does it? Yes. ✓

Rule 2—The middle term must be distributed in at least one of the premises. The middle term is A, and it is distributed in both premises. ✓

Rule 3—Any term that is distributed in the conclusion must be distributed in the premise in which it occurs. C and B are distributed in the conclusion; C is distributed in the premise in which it occurs (the second premise), and B is distributed in the premise in which it occurs (the first premise). ✓

Rule 4—The syllogism can't have two negative premises. It does. ✗ The syllogism is invalid.

We needn't go any further, but for the practice . . .

Rule 5—If one of the premises is negative, then the conclusion must be negative—and vice versa. One of the premises *is* negative, and so is the conclusion. ✓

Rule 6—If both premises are universal, the conclusion must be universal. Both of the premises are universal, and so is the conclusion. ✓

3.

- | | |
|------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| 1. Any condition that's fatal and contagious should be subject to mandatory testing and the results available to the public. | All A are B. |
| 2. <u>AIDS is fatal and contagious.</u> | <u>All C are A.</u> |
| Therefore, testing for AIDS should be mandatory and the results available to the public. | Therefore, all C are B. |

Rule 1—The syllogism must have three, and only three, terms. Does it? Yes. ✓

Rule 2—The middle term must be distributed in at least one of the premises. The middle term is A, and it is distributed in the first premise. ✓

Rule 3—Any term that is distributed in the conclusion must be distributed in the premise in which it occurs. A and B are distributed in the conclusion; A is distributed in both of the premises in which it occurs, and B is distributed in the premise in which it occurs (the first premise). ✓

Rule 4—The syllogism can't have two negative premises. It doesn't. ✓

Rule 5—If one of the premises is negative, then the conclusion must be negative—and vice versa. Neither of the premises is negative. n/a

Rule 6—If both premises are universal, the conclusion must be universal. Both of the premises *are* universal, and so is the conclusion. ✓

None of the rules are broken; the syllogism is valid. (So if the premises are true, the conclusion must also be true.)

5.

- | | |
|------------------------------------------------------------------|--------------------------|
| 1. Any successful business plan requires a loan. | All A are B. |
| 2. <u>No successful business plan is made overnight.</u> | <u>No A is C.</u> |
| Therefore, most business plans hatched overnight require a loan. | Therefore, some C are B. |

Rule 1—The syllogism must have three, and only three, terms. Does it? Yes. ✓

Rule 2—The middle term must be distributed in at least one of the premises. The middle term is A, and it is distributed in both premises. ✓

Rule 3—Any term that is distributed in the conclusion must be distributed in the premise in which it occurs. No terms are distributed in the conclusion. n/a

Rule 4—The syllogism can't have two negative premises. It doesn't. ✓

Rule 5—If one of the premises is negative, then the conclusion must be negative—and vice versa. One of the premises is negative, but the conclusion is not. ✗
The syllogism is invalid.

For the practice . . .

Rule 6—If both premises are universal, the conclusion must be universal. Both premises *are* universal, and the conclusion is not. ✗ The syllogism is also invalid on this ground.

4.2b *More practice determining validity and invalidity using rules*

1. Desperate people sometimes lie. It's true. And "I love you" has got to be the most common lie of all. So of course "I love you" is often said just to get sex.

This argument is a little difficult to express as a syllogism. "Desperate people sometimes lie" is "Some desperate people lie" or "Some desperate people are people who lie." But then the next sentence talks about "lies" not "people who lie"—and they're not the same. Furthermore, it's not clear whether the person thinks all utterances of "I love you" are lies or just some—I went with "some." The last sentence introduces yet another element—to get sex: Some utterances of "I love you" are intents to get sex?

1. Some desperate people are people who lie.	Some A are B.
2. <u>Some utterances of "I love you" are lies.</u>	<u>Some C are D.</u>
Therefore, some utterances "I love you" are intents to get sex.	Therefore, some C are E.

Rule 1—The syllogism must have three, and only three, terms. Does it? No. It has five. ✗ The syllogism is invalid.

We need go no further, but for the practice. . .

Rule 2—The middle term must be distributed in at least one of the premises. There is no middle term; that is, no term is common to both premises. n/a or, more likely, ✗

Rule 3—Any term that is distributed in the conclusion must be distributed in the premise in which it occurs. No terms are distributed in the conclusion. n/a

Rule 4—The syllogism can't have two negative premises. It doesn't. ✓

Rule 5—If one of the premises is negative, then the conclusion must be negative—and vice versa. Neither of the premises is negative. n/a

Rule 6—If both premises are universal, the conclusion must be universal. Neither of the premises is universal. n/a

3. Some sprinters are fast, but even some of the fastest sprinters are not faster than a two-year-old terrier. Which just goes to prove that a lot of sprinters can't even outrun a little two-year-old terrier.

1. Some sprinters are fast sprinters.	Some A are B.
2. Some fast sprinters are not faster than a two-year-old terrier.	Some B are <u>not C.</u>
Therefore, some sprinters are not faster than a two-year-old terrier.	Therefore, some A are not C.

Rule 1—The syllogism must have three, and only three, terms. Does it? Yes. ✓

Rule 2—The middle term must be distributed in at least one of the premises. The middle term is B, but it's not distributed in either of the premises. ✗ The syllogism is invalid.

For the practice . . .

Rule 3—Any term that is distributed in the conclusion must be distributed in the premise in which it occurs. C is distributed in the conclusion, and it is distributed in the premise in which it occurs (the second premise). ✓

Rule 4—The syllogism can't have two negative premises. It doesn't. ✓

Rule 5—If one of the premises is negative, then the conclusion must be negative—and vice versa. Neither of the premises is negative. n/a

Rule 6—If both premises are universal, the conclusion must be universal. Neither of the premises is universal. n/a

5. Most conservatives don't believe in working for the public good and social justice, and most university professors do. That's why most university professors are liberals—or at least not conservatives.

1. Some conservatives don't believe in working for the public good and social justice.	Some A are not B.
2. Some university professors do believe in working for the public good and social justice.	<u>Some C are B.</u>
Therefore, some university professors are not conservatives.	Therefore, some C are not A.

Remember that it's quite legitimate to change "most" to "some" when you're putting an argument into standard form for logical analysis because, logically speaking, they're equivalent: what's important is whether any members of one category are members of another category; it doesn't matter, logically speaking, how many of them are.

Rule 1—The syllogism must have three, and only three, terms. Does it? Yes. ✓

Rule 2—The middle term must be distributed in at least one of the premises. The middle term is B, and it's distributed in the first premise. ✓

Rule 3—Any term that is distributed in the conclusion must be distributed in the premise in which it occurs. A is distributed in the conclusion, but it's not distributed in the premise in which it occurs (the first premise). ✗ This syllogism is invalid.

For the practice. . .

Rule 4—The syllogism can't have two negative premises. It doesn't. ✓

Rule 5—If one of the premises is negative, then the conclusion must be negative—and vice versa. Neither of the premises is negative. n/a

Rule 6—If both premises are universal, the conclusion must be universal. Neither of the premises is universal. n/a

Thinking critically about what you see



It has conventionally been thought that men can't be both physically strong and emotionally nurturant; this photograph challenges that belief.

But, it must be said, one counterexample is successful only against a universal statement. Is the common belief really that *all* men can't be strong and nurturant at the same time? Or only that *most* men can't be both? If the latter, this photograph loses some of its logical impact.

Thinking critically about what you read

1. Most people profess to be against war. But human history is full of war. So most people must be lying.

Remember that for purposes of categorical logic, "most" and "many" are equal to "some"—so the argument, expressed as a syllogism, would be this:

1. Some people profess to be against war.
 2. Some people engage in war.
- Therefore, some people must be in favor of war.

Some A are B.
Some A are C.
 Therefore, some
 A are not-B.

Note that professing an opinion for or against war is not the same as actually engaging or not engaging in war. (And, actually, that's probably the key to understanding the problem with this argument: both premises may be true, and the conclusion to be drawn is not that most people are lying or are hypocrites, but that that war is fought by minorities or by people who are coerced.) So the second premise is not, as you might have thought, "Some A are not-B."

However, 'lying' in this context can, I think, be legitimately translated as "being in favor of war," which would make the conclusion "Some A are not-B."

This is an invalid syllogism: the middle term is not distributed in at least one of the premises (second rule).

3. God made us in his image. We lie, punish without proper reason, give no rational reasons for our actions, play favorites, curse those who disobey us, tolerate drunkenness, tolerate slavery, are afraid of the ability of others, and have difficulty with math. Therefore, God lies (Gen 3:2–5), punishes without proper reason (Gen 4:3–11), gives no rational reasons for his actions (Gen 6:6–7), plays favorites (Gen 6:8), curses those who disobey him (Gen 3:14–17), tolerates drunkenness (Gen 9:20–22), tolerates slavery (Gen 9:24–27), is afraid of the ability of others (Gen 11:5–7, and has difficulty with math (Gen 6:30 compared to Gen 9:29).

(Based on Bernard Katz, *The Ways of an Atheist*, 1999)

Expressed as a syllogism, the argument seems to be this:

1. Humans are an image of God.	All A are B.
2. <u>Humans lie etc.</u>	<u>All A are C.</u>
Therefore, God lies etc.	Therefore, all B are C.

Note that "all" is understood to indicate humanity as a whole rather than to indicate every individual member of humanity. Also note that I am assuming that things made in the image of other things exhibit the same behavior as those other things (that's what, I take it, "made in the image of" means).

Even so, the syllogism is invalid: the third rule is broken—B is distributed in the conclusion, but it is not distributed in the premise in which it appears.

The argument may still stand, however, since the speaker has given Biblical references for each of the behaviors God is concluded to do, so he doesn't really need the logical syllogism to prove his point. He could merely argue this:

1. Everything in the Bible is true.	All A are B.
2. <u>These things are in the Bible.</u>	<u>C are A.</u>
Therefore, these things are true.	Therefore, C are B.

This would be a valid argument (first form). Is it a sound argument? That is, are the premises true? *Is everything in the Bible true?* And *does the Bible say that God does all those things?* If the answer to both questions is "yes," then we *must* accept the conclusion.

5. Those boys who beat up that homosexual last night were just all-American boys.

Hmm. The argument could be this:

1. All all-Americans beat up homosexuals.	All A are B.
<u>2. Those boys beat up a homosexual.</u>	<u>C are B.</u>
Therefore, those boys are all-American.	Therefore C are A.

This is an invalid syllogism (first form), so the conclusion doesn't follow.

However, the intended argument could be this instead:

1. All people who beat up homosexuals up are all-American.	All A are B.
<u>2. Those boys beat up a homosexual.</u>	<u>C are A.</u>
Therefore, those boys are all-American.	Therefore C are B.

This argument is valid (first form).

So it depends on whether your premise is "All all-Americans beat up homosexuals" or "All people who beat up homosexuals are all-American." Do you see the difference between the two? The second leaves room for people who *don't* beat up homosexuals to also be all-American.

7. We know that God created the Earth because everything has to have a cause.

The argument seems to be this:

1. Everything has to have a cause.	All A are B.
<u>2. Earth is part of everything.</u>	<u>C is an A.</u>
Therefore, God caused (created) the Earth.	Therefore, D [?] C.

You see how it falls apart at the conclusion. An appropriately drawn conclusion would be "Earth has a cause" (taken to be the same as "Earth was created"):

1. Everything has to have a cause.	All A are B.
<u>2. Earth is part of everything.</u>	<u>C is an A.</u>
Therefore, Earth has a cause.	Therefore, C is a B.

However, you can conclude no more from the given premises; specifically, you cannot conclude anything about the nature of that cause from the given premises (that is, that it was God).

Also, if you conclude further that God is uncaused (that no one created God), then you hold two contrary claims: the statements "Everything has to have a cause" and "God has no cause" cannot both be true (though they can both be false)—unless God is not part of everything. And I guess that depends on how you define "everything" and "God."

9. “I think, therefore I am,” said Descartes. It follows that since I am, I think.

First, we need to supply Descartes’ missing premise: things that think are things that are (that is to say, thinking is a sufficient condition of being). Then, expressed as a syllogism, his argument is this:

1. Things that think are things that are.	All A are B.
2. <u>I am a thing that thinks. (I think.)</u>	<u>C is an A.</u>
Therefore, I am a thing that is. (Therefore, I am.)	Therefore, C is a B.

This is a valid syllogism (first form). But does “I am, therefore I think” follow, as the speaker indicates? That argument would be, as a syllogism, this:

1. Things that are are things that think.	All B are A.
2. <u>I am a thing that is. (I am.)</u>	<u>C is a B.</u>
Therefore, I am a thing that thinks. (Therefore, I think.)	Therefore, C is an A.

This is also a valid syllogism (also first form), *but it doesn’t follow from the first one*. The second syllogism starts with the converse of the first premise of the first syllogism, but since that first premise is a universal affirmative, its converse is *not* logically equivalent: just because all A are B, it doesn’t follow that all B are A.

Reasoning test questions

1. Everyone sitting in the waiting room of the school’s athletic office this morning at nine o’clock had just registered for a beginners’ tennis clinic. John, Mary, and Teresa were all sitting in the waiting room this morning at nine o’clock. No accomplished tennis player would register for a beginners’ tennis clinic.

If the statements above are true, which one of the following must also be true on the basis of them?

- (A) None of the people sitting in the school’s athletic office this morning at nine o’clock had ever played tennis.
- (B) Everyone sitting in the school’s athletic office this morning at nine o’clock registered only for a beginners’ tennis clinic.
- (C) John, Mary, and Teresa were the only people who registered for a beginners’ tennis clinic this morning.
- (D) John, Mary, and Teresa were the only people sitting in the waiting room of the school’s athletic office this morning at nine o’clock.
- *(E) Neither John nor Teresa is an accomplished tennis player.

(The Official LSAT PrepTest XXI, Section 3, #1)

We can conclude from the first two statements (“Everyone sitting in the waiting room . . .” and “John, Mary and Teresa . . .”) that John, Mary, and Teresa are registered for a beginners’ tennis clinic:

- | | |
|-------------------------------------------------------------------------------------------------------|---------------------|
| 1. Everyone sitting in the waiting room at nine o’clock is registered for a beginners’ tennis clinic. | All A are B. |
| 2. John, Mary, and Teresa are sitting in the waiting room at nine o’clock. | <u>C are A.</u> |
| Therefore, John, Mary, and Teresa are registered for a beginners’ tennis clinic. | Therefore, C are B. |

Then, using that conclusion as a premise and adding the last statement, we have this syllogism:

- | | |
|---------------------------------------------------------------------------------|------------------------|
| 1. John, Mary, and Teresa are registered for a beginners’ tennis clinic. | A are B. |
| 2. No accomplished tennis player would register for a beginners’ tennis clinic. | <u>No C are B.</u> |
| Therefore, neither John, Mary, nor Teresa are accomplished tennis players. | Therefore, no A are C. |

Option (E) is that neither John nor Teresa is an accomplished tennis player, so that is the correct response; if the statements given are true, that particular statement must also be true.

3. *Essayist:* Every contract negotiator has been lied to by someone or other, and whoever lies to anyone is practicing deception. But, of course, anyone who has been lied to has also lied to someone or other.

If the essayist’s statements are true, which one of the following must also be true?

- *(A) Every contract negotiator has practiced deception.
 - (B) Not everyone who practices deception is lying to someone.
 - (C) Not everyone who lies to someone is practicing deception.
 - (D) Whoever lies to a contract negotiator has been lied to by a contract negotiator.
 - (E) Whoever lies to anyone is lied to by someone.
- (The Official LSAT PrepTest XXII, Section 4, #25)*

The given statements can be expressed as follows:

- | | |
|------------------------------------------------|--------------|
| 1. Every contract negotiator has been lied to. | All A are B. |
| 2. Everyone who lies is practicing deception. | All C are D. |
| 3. Everyone who has been lied to has lied. | All B are C. |

If we rearrange the statements, we’ll see a chain that allows us to conclude “All A are D”:

All A are B
 All B are C
All C are D.
 Therefore, all A are D.

And “All A are D” indicates “All contract negotiators practice deception”—which makes (A) the correct option.

5. All bridges built from 1950 to 1960 are in serious need of rehabilitation. Some bridges constructed in this period, however, were built according to faulty engineering design. That is the bad news. The good news is that at least some bridges in serious need of rehabilitation are not suspension bridges, since no suspension bridges are among the bridges that were built according to faulty engineering design.

If the statements above are true, then on the basis of those statements, which one of the following must also be true?

- (A) Some suspension bridges are not in serious need of rehabilitation.
- (B) Some suspension bridges are in serious need of rehabilitation.
- * (C) Some bridges that were built according to faulty engineering design are in serious need of rehabilitation.
- (D) Some bridges built from 1950 to 1960 are not in serious need of rehabilitation.
- (E) Some bridges that were built according to faulty engineering design are not bridges other than suspension bridges.

(The Official LSAT PrepTest XXIII, Section 2, #10)

The given statements tell us this:

- | | |
|--------------------------------------------------------------------------------------------|-------------------|
| 1. All bridges built from 1950 to 1960 are in serious need of rehabilitation. | All A are B. |
| 2. Some bridges built from 1950 to 1960 were built according to faulty engineering design. | Some A are C. |
| 3. Some bridges in serious need of rehabilitation are not suspension bridges. | Some B are not D. |
| 4. No suspension bridges were built according to faulty engineering design. | No D are C. |

If we put the first two statements together, we get this, the third valid form:

1. All A are B.
 2. Some A are C.
 Therefore, some C are B.

And, if we express each of the responses as a categorical statement, we see that response (C) matches our conclusion—it must be true if the given statements are true:

- (A) Some D are not B.
- (B) Some D are B.
- (C) Some C are B.
- (D) Some A are not B.
- (E) Some C are not non-D.

Propositional Logic

1.4a Practice translating ordinary language into propositional statements

1. As for the 100-mile race, I'd say either Tim Twietmeyer or Ann Trason will win; they've run first and second twice now.

disjunction: The winner will be Tim Twietmeyer or Ann Trason.

3. A mineral is a natural compound that is formed through geological processes.

conjunction: A mineral is a natural compound and formed through geological processes.

5. Their presence at the meeting surely implies their concern about the proposed tax on oxygen.

conditional: If they're at the meeting, then they're concerned about the proposed oxygen tax.

7. Even though few women hold positions of authority, women, as a whole, are not a minority.

negation: Women are not a minority.

9. There are many skills children learn only if they're taught at the right time—too early or too late, and there's no point.

conditional: If children are taught certain skills at the right time, then they will learn said skills.

disjunction: The optimal time for learning many skills is neither too early nor too late.

2.1a Practice identifying the valid form of affirming the antecedent

1. The value to science of any ruins we discover will be reduced if the work is not done in accordance with accepted procedures. Accepted procedures require you to lay a grid before you begin, and you didn't do that! So I'm afraid you won't be getting your paper published after all.

Assuming that not getting the paper published means that the value to science of the ruins discovered (and presumably reported in the paper) has been reduced, the argument is as follows:

If the work is not done according to accepted procedures, the value to science will be reduced.	If p, then q.
<u>The work was not done according to accepted procedures.</u>	<u>p.</u>
Therefore, its value to science is reduced.	Therefore, q.

As you can see, this argument does have the form of affirming the antecedent; it is therefore valid, and if the premises are true, the conclusion must be true.

3. She said that she'd be in class unless her flu took a turn for the worse. I didn't see her, so I think we should go by her place and make sure she's okay.

Assuming the conclusion "Her flu took a turn for the worse" implied by the suggestion that they go and make sure she's okay, the argument is as follows:

If I'm not in class, then my flu has taken a turn for the worse.	If p, then q.
<u>I'm not in class.</u>	<u>p.</u>
Therefore, my flu has taken a turn for the worse.	Therefore, q.

This argument has the form of affirming the antecedent, so it's a valid argument.

5. If Bush were Christian, he would have advocated, after 9/11, that we offer other tall buildings to the terrorists; he would've said we should turn the other cheek. Instead, he said we should go find them and kill them. So he's not Christian.

If Bush were Christian, he would have advocated X.	If p, then q.
<u>He did not advocate X</u>	<u>Not-q.</u>
Therefore, Bush is not Christian.	Therefore, not-p.

This argument does *not* affirm the antecedent; instead, it denies the consequent. But that's a valid form (see the very next section), so if the premises are both true, the conclusion must be true.

2.2a Practice identifying the valid form of denying the consequent

1. "If near-death experiences were based on birth memories (of passing through the tunnel of the vagina into the bright light of the hospital room), then those who were born by Cesarean section should not have tunnel experiences when they are near death. However, they do. Therefore near-death experiences aren't based on birth memories."

(based on Theodore Schick, Jr. and Lewis Vaughn,
How to Think About Weird Things, 1998)

Yes, this argument denies the consequent:

If near-death experiences were based on birth memories of passing through a tunnel, then those born by Cesarean would not have tunnel experiences near death.	If p, then q.
<u>Those born by Cesarean do have tunnel experiences near death.</u>	<u>Not-q</u> _____
Therefore, near-death experiences are not based on birth memories.	Therefore, not-p.

3. If American women are so equal, why do they represent two-thirds of all poor adults? . . . Why does the average female college graduate today earn less than a man with no more than a high school diploma (just as she did in the '50s)—and why does the average female high school graduate today earn less than a male high school dropout? . . .

If women have "made it," why are they less than 8 percent of all federal and state judges, less than 6 percent of all law partners, and less than one half of 1 percent of top corporate managers? Why are there only three female state governors, two female U.S. senators, and two Fortune 500 chief executives?

(Susan Faludi, *Backlash: The Undeclared War Against American Women*. 1991)

There are two very similar arguments here, both of which have the valid form of denying the consequent:

If American women are equal, they'd earn as much as men with the same level of education.	If p, then q.
<u>American women do not earn as much as men with the same level of education.</u>	<u>Not-q</u> _____
Therefore, American women are not equal.	Therefore, not-p.

If American women have “made it,” they’d be well-represented in positions of authority.	If p, then q.
American women are not well-represented in <u>positions of authority.</u>	<u>Not-q.</u>
Therefore, American women have not “made it.”	Therefore, not-p.

5. If the universe were infinitely old, there would be no hydrogen left in it, since hydrogen is steadily converted into helium throughout the universe, and this conversion is a one-way process. But in fact, the universe consists almost entirely of hydrogen. Thus the universe must have had a definite beginning.
(Fred Hoyle, astronomer, paraphrased by Anthony Weston in *A Rulebook for Arguments*, 2008)

Yes, this argument is valid, as it denies the consequent:

If the universe were infinitely old, there would be no hydrogen left.	If p, then q.
<u>There is hydrogen left.</u>	<u>Not-q.</u>
Therefore the universe is not infinitely old.	Therefore, not-p.

Note that I have understood “having had a definite beginning” to be equivalent to “not being infinitely old.”

Since the form is valid, if the premises are true (for example, if there is no other way hydrogen is produced), the conclusion must be true.

2.3a Practice identifying the valid form of *reductio ad absurdum*

1. University teachers are supposed to be men with special knowledge and special training such as should fit them to approach controversial questions in a manner peculiarly likely to throw light upon them. . . . Taxpayers think that since they pay the salaries of university teachers, they have a right to decide what these men shall teach. This principle, if logically carried out, would mean that all the advantages of superior education enjoyed by university professors are to be nullified, and that their teaching is to be the same as it would be if they had no special competence.
(Bertrand Russell, “Freedom and the Colleges,”
Why I am not a Christian, 1957)

Yes, this is a *reductio ad absurdum* argument:

Taxpayers have a right to decide what university teachers teach or they don’t.	p or not-p.
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If taxpayers have a right to decide what university teachers teach, then the advantages of superior education are nullified.	If p, then q.
Nullifying the advantages of superior education would be <u>absurd.</u>	<u>not q</u> _____
Therefore, taxpayers don't have a right to decide what university teachers teach.	Therefore, not p.

Note that the initial “p or not-p” claim is implied, as is the “not q” claim and the conclusion “not p.” It is often the case that these parts of a reductio argument are implied.

Note the incorrect use of “men”—unless, of course, the speaker intends his/her argument to apply only to male university teachers.

Note the assumption that taxpayers do not have special competence as a result of superior education. This is probably generally true, but certainly not absolutely true.

- Of a pro football game that lasts three and a half hours, only about sixteen minutes are composed of actual football playing, according to an evaluation of a sample game by the Scripps Howard News Service. The rest is taken up with players' huddling, picking themselves up off of piles of men, running to the line of scrimmage, and rehuddling (one hour, fifty-three minutes); commercials (twenty-six minutes); halftime (sixteen minutes); penalties (ten minutes); injury delays (six minutes); and other delays including timeouts, official measurements, and fights. Clearly, men who love football are not wading through three and a half hours of television just to see a few spectacular touchdown passes. There must be more to it.

(Mariah Burton Nelson, *The Stronger Women Get, The More Men Love Football: Sexism and the American Culture of Sports*, 1994)

Expressed in standard form, the argument is as follows:

If men love to watch football, it's because of the play.	If p, then q.
But that's absurd (because there's only 16 minutes of play in a three and a half hour game).	<u>not q</u> _____
Therefore, it must be because of something else.	Therefore, r.

While this is probably a good argument (it makes an observation, suggests an explanation, makes another observation that calls the proposed explanation into question, then suggests there must be another explanation), it's not a reductio ad absurdum argument. The speaker does argue that something is absurd, but a reductio would have started with “Either men love to watch football or they don't” and concluded that since “for the play” was absurd, they *don't* love it.

- Professors should refrain from offensive comments. But if a student finds offensive an opinion that is merely contrary to the one he/she currently holds, what is the professor to do?

Yes, this is a reductio, if we fill out the argument as follows:

Professors should refrain from offensive comments or they should not.	p or not-p.
If they refrain from offensive comments, they'll end up not saying much that is important (since much that is important is bound to be contrary to some student's currently held opinion).	If p,
That would be absurd. (It's counter to the purpose of education?)	then q.
Therefore, professors should not refrain from offensive comments.	<u>not q.</u>
	Therefore, not-p.

Of course, the argument stands only if we accept the given definition of "offensive" as whatever is contrary to a student's currently held opinion.

2.4a Practice identifying the valid form of a chain argument

1. The population will increase if contraceptives are taxed. And if the population increases, the labor pool will increase. And we all know when there is more labor available, the economy improves. So, you want a better economy? Put a tax on condoms, the pill, IUDs, whatever!

Yes, this is a valid chain argument:

If contraceptives are taxed, the population will increase.	If p, then q.
If the population increases, the labor pool will increase.	If q, then r.
<u>If the labor pool increases, the economy will improve.</u>	<u>If r, then s.</u>
Therefore, if contraceptives are taxed, the economy will improve.	Therefore, if p, then s.

(But is an increased labor pool sufficient for the economy to improve?)

3. "You see?" [Italie bring back to life some ants she just killed.] "Well, if I can make and unmake them, I have the right to decide for them, haven't I?"

Catherine thinks this over, frowning. She hadn't looked at it in this way. But no. No. Her parents made her, didn't they? Nevertheless, she doesn't feel the least desire to let them decide for her . . .

(Elisabeth Vonarburg, *Reluctant Voyagers*, 1995)

If I can make and unmake them, I have the right to decide for them.	If p, then q.
<u>My parents don't have the right to decide for me.</u>	<u>not q.</u>
Therefore, that can't be right.	Therefore, not if p, then q.

This is not a chain argument, but don't think it's a reductio either: Catherine considers q to be unacceptable (perhaps absurd), but she doesn't reject p on that basis. What she's rejecting is the first premise, the entire conditional "If p , then q ."

5. The trickle-down theory is this: the wealth of the rich trickles down to the poor because when people are rich, they invest in businesses, which hire the poor thus providing them with an income, and they in turn make products which are affordable, products which in turn improve their quality of life.

Yes, this is a valid chain argument:

If people are rich, they'll start businesses.	If p , then q .
Businesses provide the poor with jobs.	If q , then r .
Those jobs will result in affordable products.	If r , then s .
Affordable products will improve the quality of life of the poor.	<u>If s, then t.</u>
Therefore, people being rich will result in improved quality of life for the poor.	Therefore, if p , then t .

(And yet . . . "The ratio of CEO compensation to average worker salary in 1980 was 42. In 2000, that gap had grown more than tenfold, and a CEO made 531 times what the average worker does"

(Bill Maher, *When You Ride ALONE You Ride with Bin Laden*, 2002)

2.5a Practice identifying the valid form of a disjunctive syllogism

1. If you really want to read an eye-opener, read Crichton's *State of Fear* or Atwood's *The Handmaid's Tale*.

No, this is not a disjunctive syllogism. It has a disjunction, p or q (Crichton's *State of Fear* or Atwood's *The Handmaid's Tale*), but it doesn't eliminate one and, on that basis, conclude the other.

3. Either he's going to stay at home to raise his kids or he's going to keep working and hire someone else to do it. There's no way he's going to choose his dead-end boring job over his kids, so he's going to stay home.

Yes, this is a disjunctive syllogism:

Either he's going to stay at home to raise his kids or he's going to keep working and hire someone else to do it.	Either p or q .
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<u>He's not going to keep working.</u>	<u>Not q.</u>
Therefore, he's going to stay at home and raise his kids.	Therefore, p.

5. Either something is good because God tells us to do it or God tells us to do only those things that are good. If it's the former, then that would mean God could tell us to kill our children and we'd have to say it's good to do so—because God said to do it. That can't be right. But if it's the latter, that would mean there's some higher standard which God consults, which means he's not the supreme judge or whatever. And that can't be right either.

(Based on Plato's *Euthyphro*, 380 BCE)

This is close to being a disjunctive syllogism, but it's not; it opens with a disjunction, p or q , but ends up rejecting both p and q . It's also close to being a *reductio ad absurdum*, but again it's not that either; it rejects p because its consequent is ridiculous, but it also rejects q because its consequent is ridiculous. The form of the argument is this:

p or q .
 if p , then r
not r (it's ridiculous)
 Therefore, not p .

If q , then s
not s (it's ridiculous)
 Therefore, not q .

2.6a Practice identifying the valid form of a conjunctive syllogism

1. It's impossible that you're making over \$30,000/year and that you're too poor to provide the necessities of life for yourself. You are making over \$30,000/year. So you are clearly able to provide your own necessities.

Yes, this is a valid conjunctive syllogism:

It is not the case that you are making over \$30,000/year and that you're too poor to provide your necessities.	Not both p and q .
<u>You are making over \$30,000/year.</u>	<u>p.</u>
Therefore, you are not too poor to provide your necessities.	Therefore, not q .

3. There are those who, in the face of all evidence to the contrary, continue to believe that women are by nature inferior to men. If this were the case, however,

there would have been no need for the creation of laws and institutions constricting women's rights and freedom, excluding them from the public world. If any class is actually inferior to any other class in all ways—physically, emotionally, and intellectually—it is not necessary to subjugate the inferior class.
(Marilyn French, *Beyond Power*, 1985)

No, this is not a conjunctive syllogism. The form is that of denying the consequent (second valid form, above, see Section 2.2):

If women are by nature inferior to men, there would be no need for the creation of laws and institutions constricting women's rights and freedoms.	If p, then q.
<u>There is a need for . . . (apparently, given their existence).</u>	<u>Not-q.</u>
Therefore, women are not by nature inferior to men.	Therefore, not-p.

5. The passing star hypothesis and the solar nebular hypothesis can't both be right. Stars collide very infrequently, and worse, any gas pulled from the sun and the star when a passing star collided with or passed close to the sun would be too hot to condense to make planets, and worse still, even if planets formed, they wouldn't go into stable orbits. For these reasons, the passing star hypothesis is incorrect. So our solar system must have originated as the solar nebula hypothesis suggests: the planets formed from a disk of gas that surrounded the sun as it formed.

(Based on information in Michael A. Seeds, *Foundations of Astronomy*, 2007)

No, this is not a valid conjunctive syllogism:

The passing star hypothesis and the solar nebular hypothesis can't both be right.	Not both p and q.
<u>The passing star hypothesis is incorrect.</u>	<u>Not p.</u>
Therefore, the solar nebula hypothesis is correct.	Therefore, q.

Notice that the second premise denies a conjunct (not p); it should affirm a conjunct (p). This syllogism is actually an invalid form called "denying a conjunct" (see Section 3.6).

2.7a Practice identifying the valid form of a constructive dilemma

1. If I stay home and study, I'll pass the exam, but if I don't go to work, I'll get fired. Either I stay home or I go to work. So either I pass the exam or I keep my job.

No, this argument is *not* in the valid form of a constructive dilemma. Look closely:

Either I stay home or I go to work.	p or q.
If I stay home, I'll pass the exam.	If p, then r.
<u>If I don't go to work, I'll get fired.</u>	<u>If not-q, then s.</u>
Therefore, either I pass the exam or I keep my job.	Therefore, r or not-s.

You'll see that second conditional is "If *not-q*, then s" which is not the same as "If q, then s." And if we make it "If q, then s," calling "q" 'I don't go to work,' then the opening disjunction becomes not "p or q" but "p or not-q." We can make this a valid argument, however, if we argue this:

Either I stay home or I go to work.	p or q.
If I stay home, I'll pass the exam.	If p, then r.
<u>If I go to work, I won't get fired.</u>	<u>If q, then s.</u>
Therefore, either I pass the exam or I won't get fired.	Therefore, r or not-s.

But this isn't quite what was said: saying if you don't go to work, you'll get fired is *not* the same as saying if you go to work, you won't get fired, because maybe you'll get fired either way. That is, all we've been told is that if you don't go, you'll get fired; it may be that even if you do go, you'll still get fired.

3. Either the Bible was written by men or it was written by God. If it was written by men, most likely long after the events described had happened, and quite probably for various reasons, there are probably errors in it. But if it were written by God, an infallible god, well, he seems to condone some pretty gruesome things. Check out Deut 28:53 and Hos 13:16. So I guess we have to conclude that either there are mistakes in the Bible or God is not as loving as we've been led to believe.

Yes, this is a constructive dilemma:

Either the Bible was written by men or it was written by God.	p or q.
If it was written by men, there are probably mistakes in it.	If p, then r.
<u>If it was written by God, then God is gruesome.</u>	<u>If q, then s.</u>
Therefore, there are mistakes in the Bible or God is gruesome.	Therefore, r or s.

5. Whenever you identify yourself by your skin color, you give tacit permission to be judged by your skin color—racial discrimination. And whenever you identify yourself by your sex, you're doing the same thing, you're saying it's okay for people to make judgments about you on the basis of your sex. That's why if you insist on calling yourself black or a woman, you'll be subject to discrimination of one kind or the other.

Yes, this is a valid constructive dilemma:

Either you identify yourself by your skin color or by your sex.	$p \text{ or } q.$
If you identify yourself by skin color, you'll be open to racial discrimination.	If p , then r .
If you identify yourself by sex, you'll be open to sex discrimination.	<u>If q, then s.</u>
Therefore, you'll be open to either racial discrimination or to sex discrimination.	Therefore, $r \text{ or } s$.

In this case, it's quite possible that the disjunction is inclusive rather than exclusive, so all of the instances of "or" could be replaced with "and/or." (That is, it's quite possible to identify oneself by *both* skin color and sex, in which case one would be open to both racial and sex discrimination.)

2.8a Practice identifying the valid form of the destructive dilemma

1. In order to increase wages, they're going to have to fire some part-timers. And if they think they're going to hire more consultants, on a contract basis, they're going to have to fire some full-timers. I know for a fact they're not planning on firing anyone! So don't count on a wage increase or consulting assistance!

Yes, this is a destructive dilemma:

If they increase wages, they'll fire part-timers.	If p , then q .
If they hire more consultants, they'll fire full-timers.	If r , then s .
<u>They're not going to fire part-timers or full-timers.</u>	<u>Not-q and not-s.</u>
Therefore, they're not going to increase wages or hire more consultants.	Therefore, not- p and not- r .

3. I keep hearing two theories about global warming: either it's caused by industry (fossil fuel emissions, CFCs, and so on) or it's caused by natural cycles. If it's caused by industry, there would have been no warming prior to the industrial revolution. And if it were due to natural cycles, then I guess it would be happening on some regular or at least predictable basis. Either it has occurred prior to the Industrial Revolution or it's not occurring on a regular or predictable basis.

Yes, this is a valid destructive dilemma:

If global warming is due to industry, it would have occurred only since the Industrial Revolution.	If p , then q .
----------------------------------------------------------------------------------------------------	---------------------

If global warming is due to natural cycles, it would be occurring on a regular or predictable basis.	If r, then s.
Either global warming occurred prior to the Industrial Revolution or it's not occurring on a regular basis.	<u>Not-q or not-s.</u>
Therefore, either global warming is not due to the Industrial Revolution or it's not due to natural cycles.	Therefore, not-p or not-r.

5. It's so highly improbable that life formed on Earth, that the world evolved the way it did. I forget what I read, but it's like one in a million. So God must have created us.

This is *not* a destructive dilemma. This is the form of the argument:

Either life evolved or God created it.	p or q.
<u>Life didn't evolve (too improbable).</u>	<u>Not-p</u>
Therefore, God created it.	Therefore, q.

You'll see that it's a simple disjunctive syllogism (see Section 2.5).

Note, however, that one might consider the existence of a god who created life on Earth just as improbable! (see Richard Dawkins, "Who Owns the Argument from Improbability?" *Free Inquiry*, October/November 2004).

2.9a Practice identifying the valid combinations

1. If our sales are declining, then either people don't want to buy slinkies any more or there is competition out there that's making a better slinky. There is no one else who makes slinkies, so it must be that people just aren't interested anymore in having a slinky.

This is the argument in standard form, a simple conditional with a disjunction, all of it valid:

If sales are declining, then either people don't want to buy slinkies any more or someone is making a better slinky.	If p, then q or r.
<u>No one is making a better slinky.</u>	<u>Not r.</u>
Therefore, people don't want to buy slinkies any more.	Therefore, q.

3. . . . [L]et's consider some unpopular theories about September 11 and the war against terrorism. Differing from orthodox accounts, they haven't figured much in mainstream media and debate . . .

Theory Two: People in the CIA and the FBI knew that bin Laden and his al-Qaeda collaborators were planning these attacks. They knew because they had received

many warnings in advance—various anonymous tips, and warnings from German and Russian intelligence. Had they sought to, they could have prevented the attacks; since they didn’t prevent them, we can infer that they didn’t try. And there’s a motive that will make sense of this stunning omission: agents in the CIA and FBI had reasons of their own for wanting these attacks to occur. If the American people saw the country attacked by terrorists, they would support an expansive military campaign enhancing the resources and power of the military. The resulting realignment of U.S. policy would favor oil interests, militarism, and U.S. domination around the world. The war against terrorism has indeed resulted in tremendous public support for the U.S. military campaign. Thus, it’s argued, the attacks must have been sponsored or tolerated by people who were working from inside government agencies to build that public support. Call this the Theory of Internal Collusion.

If people in the CIA and the FBI had received warnings of the September 11 attack, they would have known about it in advance. <u>People in the CIA and the FBI did receive warnings.</u> Therefore, people in the CIA and the FBI did know about it in advance.	If p, then q. p. Therefore, q.
If people in the CIA and the FBI knew about it in advance, they would have tried to prevent it. If people in the CIA and the FBI had tried to prevent it, they would have succeeded. People in the CIA and the FBI did not succeed in preventing it. Therefore, people in the CIA and the FBI did not try to prevent it.	If q, then r. If r, then s. Not-s. Therefore, not- r.
If people in the CIA and the FBI didn’t try to prevent it, the attack would be seen by Americans. If it was seen by Americans, Americans would support an expansive military campaign. <u>Americans did support an expansive military campaign.</u> Therefore, people in the CIA and the FBI didn’t try to prevent the attack.	If not-r, then t. If t, then u. u. Therefore, not- r.

You’ll see that the first highlighted part is valid; it’s affirming the consequent. The second highlighted part is also valid; it’s denying the consequent. And there’s a valid link between the two.

The part that follows, however, is a bit strange. We should expect a valid conclusion to the chain: “if not-r, then u.” But “u” is established independently as a fact, not as a logical conclusion to the established chain.

Also, note that I may be guilty of equivocating as I have taken “must have been sponsored or tolerated by people who were working from inside government agencies” to be “didn’t try to prevent”—but sponsoring or tolerating may be quite different from not preventing.

5. The sanctity of life argument says that life itself is sacred, regardless of its quality. Advocates of euthanasia argue on the basis of quality of life. That leads us to conclude that sanctity of life advocates would not advocate euthanasia.

This is more of a categorical argument than a propositional argument:

Those who advocate sanctity of life are not those who focus on quality of life.	All A are not-B.
Those who advocate euthanasia are those who focus on quality of life.	<u>All C are B.</u>
Therefore, those who advocate sanctity of life are not those who advocate euthanasia.	All A are not-C.

Is this a valid syllogism? When we convert the first premise and the conclusion, we see that the argument is in the second valid form (see Section 2):

No A are B.
All C are B.
 Therefore, no A are C.

2.9b More practice with valid propositional arguments

1. If we have a natural will to survive, suicide is wrong. Suicide *is* wrong.

You cannot conclude from these two statements that we have a natural will to survive. The argument to this point is this: if p, then q; q. You see that the second premise is affirming the consequent, and none of the valid forms open with a conditional, then affirms the consequent. In fact, that’s setting up for an *invalid* argument (see Section 3.1).

3. If we continue to allow the Vatican a veto vote at the United Nations, that’ll mean we approve of one religion having more power than any other. But we don’t approve of that.

So, we should not continue to allow the Vatican a veto vote at the UN.

That conclusion makes the argument a valid form, denying the consequent: if p, then q; not-q; therefore, not-p.

5. If you're not present, you can't participate. Participation is important.

You *cannot* conclude "Therefore, if you're not present, you're not important"!

First, "you can't participate" is not the same as "participation," so the second premise introduces *two* new terms: "If not p, not q; r is s." No conclusion can be reached from this point.

7. Allowing more people to have more guns cannot lead to both more crime and more safety. Stats show it leads to more crime.

So, allowing more people to have more guns does not lead to more safety.

That conclusion makes the argument a valid conjunction: not both p and q; therefore, not-q.

9. If private money rather than public money is to be used for political campaigns, then we'd have an incredibly unfair competition: the richest would have the advantage and the election would be unduly influenced by rich private interests. That is totally unacceptable.

So, public money rather than private money should be used for political campaigns.

That conclusion makes this a valid reductio: (assume) p or not-p; if p, then q; q is ridiculous, so not-q; therefore, not-p.

(Of course, if we set a ceiling to private moneyed campaign spending, the described consequence would *not* occur.)

3.1a Practice identifying the invalid form of affirming the consequent

1. *McCormack*: I tell you it's a conspiracy!
Germain: What evidence do you have that they're covering it up?
McCormack: None! Don't you see? That proves it's a conspiracy—they're covering it up!

Yes, this is a case of affirming the consequent, and, thus, is an invalid argument:

If there's a conspiracy, there won't be any evidence of it.	If p, then q.
<u>There isn't any evidence of it.</u>	<u>q.</u>
Therefore, there's a conspiracy.	Therefore, p.

Maybe there's no evidence of a cover-up because there is no cover-up!

3. Divorced and single men should get sick and die more often than married men if it's true that marriage is good for your health or, at least, good for

men's health. Unmarried men *do* get sick and die more often than married men. I wonder why that is . . . In any case, I guess it shows that marriage *is* good for men's health.

Yes, this is a case of affirming the consequent and, thus, is an invalid argument:

If marriage is good for men's health, then unmarried men should get sick and die more often than married men.	If p, then q.
Unmarried men do get sick and die more often than married men.	q. _____
Therefore, marriage is good for men's health.	Therefore, p.

There could be reasons other than marriage for why unmarried men get sick and die more often than married men; perhaps unmarried men take more dangerous jobs, for example.

5. The doctor said that if my child is hyperactive, Drug X will calm him. Well, I gave him the drug, and sure enough, he calmed right down. I guess he was hyperactive after all!

Yes, this is an instance of affirming the consequent, and is, thus, an invalid argument:

If your child is hyperactive, Drug X will calm him.	If p, then q.
Drug X calmed him.	q. _____
Therefore, your child is hyperactive.	Therefore, p.

Perhaps Drug X calms everyone who takes it.

3.2a Practice identifying the invalid form of denying the antecedent

1. Religious people are moral people; they have a moral compass, the word of God. It follows that if you're a pagan, someone who hasn't yet found the Lord Jesus Christ, you're floundering in a moral abyss, without any sense of right or wrong to guide you in this life.

Yes, argument has the form of denying the antecedent and is therefore invalid.

If you're religious, then you're moral.	If p, then q.
You're not religious.	Not-p. _____
Therefore, you're not moral.	Therefore, not-q.

The speaker has forgotten to consider the possibility of *r* and *t* (see the diagram in Section 3.2): that is, there may be bases other than religion for morality—one may have thought through and developed a code of ethics that doesn't require involvement with religion, however it's defined. If you think that religion is the only way to be moral, then you must state your argument thus: "Only if you're religious are you moral; you're not religious; therefore, you're not moral." That would be a valid argument. (Though, of course, since one could easily argue that the first premise is not true, it's not a sound argument.)

3. If the Earth is only 6,000 years old, then most of cosmology, astronomy, physics, chemistry, biochemistry, geology, paleontology, archaeology, genetics, etc. are wrong.

(Michael Shermer <http://www.skeptic.com/eskeptic/archives/2004/04-05-10.html#miracle> retrieved May 10, 2004)

If we assume the rest of the argument, that most of cosmology, astronomy, physics, chemistry, biochemistry, geology, paleontology, archaeology, genetics, etc. are *not* wrong, and conclude that the Earth must *not* be only 6,000 years old, then the argument is as follows:

If the Earth is only 6,000 years old, most of science is wrong.	If <i>p</i> , then <i>q</i> .
<u>Most of science is not wrong.</u>	<u>Not-<i>q</i></u>
Therefore, the Earth is not only 6,000 years old.	Therefore, not- <i>p</i> .

As you can see, this argument has the form of denying the consequent (see Section 2.2) and is therefore valid.

5. *Lalibert*: Homosexuality is unnatural. That's why it's wrong!
Swiede: You're mistaken. There's a genetic basis for homosexuality. So it's not wrong!

If homosexuality is unnatural, it's wrong.	If <i>p</i> , then <i>q</i> .
<u>Homosexuality is natural (there's a genetic basis).</u>	<u>Not-<i>p</i></u>
Therefore, it's not wrong.	Therefore, not- <i>q</i> .

There may be other reasons for arguing that homosexuality is wrong; for example, many people argue that it's wrong because it's sex without reproduction (but so is sex after 40 for most women and, for many, even sex before 40!).

3.3a Practice identifying the invalid form of a broken chain

1. The main reason to abolish nuclear weapons is to eliminate the danger of a great nuclear disaster. Even "extreme" proposals that would allow "each

side” a thousand warheads leave this danger in place. As long as military establishments retain large nuclear stockpiles, they will plan for the use of these weapons in war; and as long as such plans exist, one cannot rule out the possibility of a deliberate decision to carry them out.

(Lincoln Wolfenstein, “End Nuclear Addiction,” *The Bulletin of the Atomic Scientists* May 1991, rpt. in John T. Rourke ed., *Taking Sides: Clashing Views on Controversial Issues in World Politics* 6th edn., 1995)

This argument has the form of a valid chain (see Section 2.4), once we add the implied last premise:

If military establishments have nuclear weapons, they will have plans for their use.	If p, then q.
If they have plans for their use, they may carry out those plans.	If q, then r.
If they carry out those plans, the result will be great nuclear disaster.	<u>If r, then s.</u>
Therefore, if military establishments have nuclear weapons, there is a danger of great nuclear disaster.	Therefore, if p, then s.

3. Whenever she’s angry, she goes and works out, hard. And whenever she has lots of energy, she has a hard workout. So whenever she’s angry, she must have lots of energy. Maybe we should piss her off before each race.

This is an instance of a broken chain and is, therefore, an invalid argument:

If she’s angry, she has a hard work out.	If p, then q.
<u>If she has lots of energy, she has a hard work out.</u>	<u>If r, then q.</u>
Therefore, if she’s angry, she has lots of energy.	Therefore, if p, then r.

It may still be true that whenever she’s angry, she has lots of energy (so that might work—pissing her off before every race), but it’s not true because of *this* argument!

5. Let us carry this now to its logical extreme. Let us say, for example, that separation of church and state were accepted as a constitutional premise, which I submit you could not because it is not even in the Constitution.

Let us say further that we require that all vestiges of traditional religious belief or practice in this country of the Judaic–Christian heritage were required to be eliminated. Look at the monstrosity we would create. We could have no chaplains in the Armed Forces; we could have no religious facilities on military bases. We could not open the Senate or the House with prayer. We could not have “In God We Trust” on our coins. We could not say “God

Save This Honorable Court” when the Supreme Court opens, and Lord knows, it needs it. We could not allow the President, at the conclusion of his Presidential oath, to say—and every President has acknowledged that he needs it—“so Help Me God.”

All of that would have to be eliminated. Why? Well, now, you see, Mr. President, according to the opposition, you can have absolutely no vestige, no symbolism whatsoever between church and state at any level in the American federal system.

Do you know where that leaves us ultimately, Mr. President? It leaves us with the Central National Government establishing a national religion of secularism. And that is the total perversion ultimately of the intention of the framers, which was that we would have no established national religion. In this case, the religion was becoming secularism. It is a world view. It is materialistic, it is naturalistic.

I think the American people maybe were not constitutional experts but they began to feel, down in the recesses of their hearts and souls where common sense resides, that something had gone astray, that this was a tortured and wretched interpretation of the constitution that Madison, Jefferson, and other great men of that period could not have meant.

(John P. East from US Senate Debate, March 6, 1984
 “The Framers would not have Banned Payer,” as rpt. in
 George McKenna and Stanley Feingold, *Taking Sides: Clashing
 Views on Controversial Political Issues*, 4th edn, 1985)

This argument seems to be a combination of a chain and a reductio ad absurdum, both valid:

If separation of church and state is accepted as a constitutional premise, then all vestiges of traditional Judaic-Christian religious belief or practice will be eliminated. If p, then q.

If all vestiges of traditional Judaic-Christian religious belief or practice is eliminated, then “we’d have no chaplains . . . ‘so Help Me God’” and we’d have the Central National Government establishing a national religion of secularism. If q, then r and s.

The first is a “monstrosity” and the second “total perversion.” Not-r and not-s.

Therefore, separation of church and state should not be accepted as a constitutional premise. Therefore, not-p.

Note the veiled appeal to tradition: all the things listed as a “monstrosity” are departures from tradition. The speaker doesn’t really explain what would be so

monstrous about them. (Also note that secularism isn't a religion; "secular" refers to matters of a non-religious nature.) One could also point out that secularism isn't at all necessarily materialistic. Lastly, any reference to "the American people" should start your warning lights flashing: is there a single such entity or is America peopled by millions with hundreds of viewpoints . . .? (But it sounds so good, doesn't it—so folksy, so solid—"the American people" . . .)

3.4a Practice identifying the invalid form of a backward chain

1. When the real estate, I mean houses, when the price of houses goes up, people, or at least, homeowners feel rich. As a consequence, they spend more. They go out and upgrade their home entertainment systems, they buy computers, and most of all they probably buy a new car. And then they suddenly realize they're not so rich. The bills for those purchases start coming in . . . so they think about selling the house. Crazy, I know. But it just goes to show that if people even *think* about selling their houses, the price of houses will go up!

This is indeed a backward chain:

If the price of houses goes up, homeowners feel rich.	If p, then q.
If homeowners feel rich, they spend more.	If q, then r.
If they spend more, they become poor.	If r, then s.
<u>If they become poor, they think about selling their house.</u>	<u>If s, then t.</u>
Therefore, if they think about selling their house, its price will go up.	Therefore, if t, then p.

The argument would have been valid if the conclusion had been, instead, "If the price of houses go up, people think about selling their houses" (though that claim could probably be supported better with a different, shorter, chain of reasoning!).

3. Since there cannot be a gene for every element of our personality, we must have free will.

The argument is barely hinted at, but I think it's this:

If there isn't a gene for every element of our personality, there are some elements of our personality that are not determined by genes.	If p, then q.
If there are some elements of our personality not determined by genes, there are some elements of our personality over which we have control.	If q, then r.

If there are some elements of our personality over which we have control, there are some areas in which we have free will.	<u>If r, then s.</u>
Therefore, if there isn't a gene for every element of our personality, we have free will.	Therefore, if p, then s.

You'll note that is a valid chain, as it works forward, concluding from p to s.

(Though one could challenge the second premise: even if there are some elements of our personality not determined by genes, that doesn't mean there are some elements over which we have control—the rest might be determined by environment, over which we have no control.)

5. If there is no god, there is no creation or beginning, and therefore, time is infinite. The number of things and arrangements of things is finite. Therefore, events must repeat themselves, infinitely—hence eternal recurrence.

(Based on Nietzsche, *The Will to Power*, 1968)

While this argument is valid, it isn't a backward (or forward) chain argument:

If there is no god, then there is no beginning (time is infinite).	If p, then q.
The number of things and arrangements of things is finite.	r.
If time is infinite and if the number of things and arrangements of things is finite, then things and arrangements must recur through time.	If q and r, then s.

3.5a Practice identifying the invalid form of affirming a disjunct

1. It's not safe to walk on the streets of New York. I'm glad I live in Toronto.

One has to assume the premise "It's not safe to walk in New York or it's not safe to walk in Toronto" which may not be a plausible assumption to make. Given that assumption, however, the argument is as follows:

It's not safe to walk in New York or it's not safe to walk in Toronto.	p or q.
<u>It's not safe to walk in New York.</u>	<u>p.</u>
Therefore, it's safe to walk in Toronto.	Therefore, not-q.

You'll note that this is an instance of affirming a disjunct. Remember that "p or q" doesn't exclude the possibility of "p and q."

3. Once again, I can't start my car. Okay, I know from experience that either the battery is dead or the starter needs replacement. Since the lights go on

and the engine is at least turning over, I can conclude the battery is not dead.
So I must need a new starter.

This is a valid argument (disjunctive syllogism; see Section 2.5):

The battery is dead or the starter needs replacement.	p or q.
<u>The battery is not dead.</u>	<u>not p.</u>
Therefore, the starter needs replacement.	Therefore, q.

5. I predicted she'd have her father's eyes or her mother's ears. And from the picture you sent, I can see that she did indeed get her father's eyes. She has a cute little hat on so I can't see her ears, but now that I'm taking some logic, I can conclude that she doesn't have her mother's ears.

You can conclude no such thing! Reread this section! This argument affirms a disjunct and is, thus, invalid:

She has her father's eyes or her mother's ears.	p or q.
<u>She has her father's eyes.</u>	<u>p.</u>
Therefore, she doesn't have her mother's ears.	Therefore, not-q.

She could have *both* her father's eyes *and* her mother's ears; if she has both features, she still fulfils the stipulated condition of having one of them!

3.6a Practice identifying the invalid form of denying a conjunct

1. When the press decides whether to withhold or print the name of a rape victim, it has to decide between protecting privacy and sending the message that being raped is no more shameful than being otherwise assaulted. It can't do both. Most newspapers opt not to protect privacy. Therefore, they're obviously sending that message. Good for them!

This argument denies a conjunct:

The press can't both protect privacy and send a message that . . .	Not both p and q.
<u>The press opts not to protect privacy.</u>	<u>Not p.</u>
Therefore, the press sends a message that . . .	Therefore, q.

The press could be doing neither.

3. Perhaps the most telling evidence of Christians' lack of faith in their religion is the fact that they know so little about it. I have yet to meet anyone, apart

from some who have a professional interest in it, who has actually read the Bible. Oh yes, the book is everywhere, but how many people read it? . . . If they really believed that this text was the “word of God,” could one not reasonably expect them to know it by heart, or, at least, to be constantly reading it, from cover to cover?

(Henry Beissel, “Crisis in Civilization” *HiC* 36, Autumn 2003)

This argument does *not* deny a conjunct; it denies the consequent (which is a valid form, see Section 2.2):

If Christians really believed the Bible was the “word of God,”	If p, then q.
they’d be constantly reading it.	
<u>Christians are not constantly reading the Bible.</u>	<u>not-q.</u>
Therefore, Christians don’t really believe the Bible is the	Therefore,
“word of God.”	not-p.

5. There is simply not enough money for both wage increases and new hires. The current increase in workload is probably temporary, so I advise against new hires. What sort of wage increase do you recommend?

There will not be both wage increases and new hires.	Not both p and q.
<u>There will not be new hires.</u>	<u>Not-q.</u>
Therefore, there will be wage increases.	Therefore, p.

No, saying there won’t be both is not saying there will be one of the two; there could be neither.

This is invalid, having the form of denying a conjunct.

4a Practice determining validity and invalidity using truth tables

1. If the government institutes a medical plan, people will be more apt to go for regular check-ups. If people become more health-conscious, people will be more apt to go for regular check-ups. Therefore, if the government institutes a medical plan, people will become more health-conscious.

<i>p</i>	<i>q</i>	<i>r</i>	<i>If p, then q</i>	<i>If r, then q</i>	<i>If p, then r</i>
T	T	T	T	T	T
T	T	F	T	T	F
T	F	T	F	F	T
T	F	F	F	T	F
F	T	T	T	T	T

F	T	F		T	T		T
F	F	T		T	F		T
F	F	F		T	T		T

As you can see, there is at least one case in which the premises are true and the conclusion false, which means this is an invalid syllogism.

And indeed, it's a broken chain (see Section 3.3):

If p, then q.

If r, then q.

Therefore, if p, then r.

3. Migrants move as a result of pull forces or push forces. These migrants did not move as a result of pull forces. Therefore, they must have moved as a result of push forces.

p	q	$p \text{ or } q$	$\text{not-}p$	q
T	T	T	F	T
F	T	T	T	T
T	F	T	F	F
F	F	F	T	F

As you can see, there is only one line in which both premises are true, and that line has also a true conclusion, so this is a valid syllogism. In fact, it's a disjunctive syllogism (see Section 2.5):

p or q.

not-p

Therefore, q.

5. If most juries impose the death penalty whenever it's a legal option, then the death penalty is acceptable to the general public. Most juries do not impose the death penalty whenever it's a legal option. Therefore, the death penalty is not acceptable to the general public.

p	q	$\text{If } p, \text{ then } q$	$\text{not-}p$	$\text{not-}q$
T	T	T	F	F
T	F	F	F	T
F	T	T	T	F
F	F	T	T	T

As you can see, there is one line with true premises and a false conclusion, which means that this syllogism is invalid. And indeed, it has the form of denying the antecedent (see Section 3.2):

If p , then q .
 $\underline{\text{not-}p}$.
 Therefore, $\text{not-}q$.

7. Most advertisements cannot be both effective and completely truthful. Most advertisements are effective. Therefore, most advertisements are not completely truthful.

p	q	$\text{not } p \text{ and } q$	p	$\text{not-}q$
T	T	F	T	F
F	T	T	F	F
T	F	T	T	T
F	F	T	F	T

Note that the one line with both premises as true has a true conclusion, so the syllogism is valid; it's a conjunctive syllogism (see Section 2.6):

Not both p and q .
 \underline{p} .
 Therefore, $\text{not-}q$.

9. If "Stars on Ice" is on tonight, I'll be watching figure skating. If that movie about suffrage is on tonight, then I'll be watching the movie. I'm not watching figure skating, nor am I watching the movie. Therefore, neither "Stars on Ice" nor the suffrage movie is on tonight.

p	q	r	s	If p , then q	If r , then s	$\text{not-}q \text{ and } \text{not-}s$	$\text{not-}p \text{ and } \text{not-}r$
T	T	T	T	T	T	F	F
T	T	F	T	T	T	F	F
T	F	T	T	F	F	F	F
T	F	F	T	F	T	F	F
F	T	T	T	T	T	F	F
F	T	F	T	T	T	F	T
F	F	T	T	T	F	F	F
F	F	F	T	T	T	F	T
T	T	T	F	T	T	F	F
T	T	F	F	T	T	F	F

T	F	T	F	F	F	T	F
T	F	F	F	F	T	T	F
F	T	T	F	T	T	F	T
F	T	F	F	T	T	F	T
F	F	T	F	T	F	T	F
F	F	F	F	T	T	T	T

As you can see, there is one instance in which all premises are true, and in that case, the conclusion is also true, which means that the argument is valid; in fact, it's a destructive dilemma (see Section 2.8), but with a conjunction instead of a disjunction:

If p, then q.
 If r, then s.
Not-q and not-s.
 Therefore, not-p and not-r.

4b More practice determining validity and invalidity using truth tables

1. Whenever the elevator is broken, I have to walk up ten flights of stairs. I had to walk up ten flights of stairs (and, guess what, I'm not as out of breath as I used to be), so you can draw your own conclusion. It starts with "The elevator is . . . !"

Assuming the implied conclusion of "The elevator is broken," we have an argument with this form:

If p, then q.	If the elevator is broken, I have to walk up ten flights of stairs.
q. _____	<u>I had to walk up ten flights of stairs.</u>
Therefore, p.	Therefore, the elevator is broken.

Hopefully, you'll recognize it immediately as the invalid form of affirming the consequent, but you can see that the truth table confirms its invalidity:

p	q	If p, then q	q	p
T	T	T	T	T
T	F	F	F	T
F	T	T	T	F
F	F	T	F	F

3. You can't argue for humane treatment of animals used in experiments and for using animals for medical experiments (but not for cosmetic research). Since the potential medical benefits are so much greater—more far-reaching, more long-term—than the pain caused to a few individual animals, I can't see how you can opt for the former at the expense of the latter. We must continue to condone the use of animals, humans included, in medical experiments.

This argument has the following form:

Not p and q.	You can't argue for both the humane treatment of animals used in experiments and for using animals for medical experiments only.
<u>not p.</u>	<u>You aren't arguing for the humane treatment of animals.</u>
Therefore, q.	Therefore, you are arguing for using animals in medical experiments.

Check out its truth table:

p	q	$\text{not } p \text{ and } q$	$\text{not-}p$	q
T	T	F	F	T
F	T	T	T	T
T	F	T	F	F
F	F	T	T	F

You can see from the table that it's invalid; perhaps you recognized the form as denying a conjunct (see Section 3.6).

5. Groups like the FRC use the term "Christian" in a reckless manner. They seem to imply that there is a universal collection of Christian teachings with which most Americans agree. There isn't. If that were the case, we would not have hundreds of distinct Christian denominations operating in the country today. Christian denominations disagree on how the Bible is to be interpreted; on the relationship of Jesus to God; on whether salvation is obtained through good acts, faith alone, or a combination of both; on whether worship and communion with those of other beliefs is acceptable; on the question of salvation outside the faith; and many other doctrinal issues. These are not minor differences that can cavalierly be papered over. They mean something to people.

(Robert Boston, *Close Encounters with the Religious Right*, 2000)

If p , then q . If there is a universal collection of Christian teachings with which most Americans agree, then we would not have hundreds of distinct Christian denominations. . .

not- q . We do have hundreds of distinct Christian denominations.

Therefore, not- p . Therefore, there is not a universal collection of Christian teachings with which most Americans agree.

p	q	$If\ p, then\ q$	$not-q$	$not-p$
T	T	T	F	F
T	F	F	T	F
F	T	T	F	T
F	F	T	T	T

The validity of this argument should be no surprise; it has the form of denying the consequent (see Section 2.2).

7. I have been giving this a lot of thought. If I continue my studies at the School of Ballet, I can have a career in ballet. The instructors there say I have the potential. And if I enroll in the college's dance program, I can have a career in jazz. I passed the audition last week. And I've just checked out my bank account. I can afford at least one of them. Especially if I continue to teach classes at the studio after my own classes and on the weekends. So it looks like I can afford to have a career in ballet or one in jazz.

p	q	r	s	$If\ p, then\ q$	$If\ r, then\ s$	$p\ or\ r$	$q\ or\ s$
T	T	T	T	T	T	T	T
T	T	F	T	T	T	T	T
T	F	T	T	F	F	T	T
T	F	F	T	F	T	T	T
F	T	T	T	T	T	T	T
F	T	F	T	T	T	F	T
F	F	T	T	T	F	T	T
F	F	F	T	T	T	F	T
T	T	T	F	T	T	T	T
T	T	F	F	T	T	T	T
T	F	T	F	F	F	T	F
T	F	F	F	F	T	T	F
F	T	T	F	T	T	T	T

F	T	F	F		T	T	F		T
F	F	T	F		T	F	T		F
F	F	F	F		T	T	F		F

There are six possibilities in which all the premises are true, and in every case, the conclusion is also true; therefore, this is a valid argument. And, in fact, it has the form of a constructive dilemma (see Section 2.7):

If p, then q.	If I continue my studies at the School of Ballet, I can have a career in ballet.
If r, then s.	If I enroll in the college's dance program, I can have a career in jazz.
<u>p or r.</u>	<u>I can afford to continue my studies at the School of Ballet or enroll in the college's dance program.</u>
Therefore, q or s.	Therefore, I will be able to have a career in ballet or a career in jazz.

9. I think we should bring back the possibility of failing in school. Starting from grade one. If kids knew they wouldn't be allowed into the next grade until they had achieved some basic level of competency in the previous grade, they'd come to realize that just "being there" isn't enough. And then it would occur to them that they actually have to *work at* learning stuff; it's not all fun. There'd be a lot of less fooling around—partly because they'd be paying attention and trying to learn, and partly because they would, therefore, *be* learning and wouldn't have to clown around trying to cover up their ignorance. Teachers could be teachers instead of parents and police. The conclusion of my argument is that if kids actually work at what they're supposed to be learning, they won't fail.

If p, then q.	If it was possible for kids to fail, then they'd realize that "being there" isn't enough.
If q, then r.	If they realize that "being there" isn't enough, then they'd work at learning.
<u>If r, then s.</u>	<u>If they worked at learning, then there'd be less fooling around.</u>
If r, then not-p.	If they worked at learning, then they wouldn't fail.

Note that there's a slight equivocation: the possibility of failing ("p" in the first premise) isn't the same as failing ("p" in the conclusion). But there's a more serious problem with the conclusion itself: it should have been "If it was possible for kids to fail, then there'd be less fooling around." As it is, it's a backward chain (see Section 3.4) and invalid, as the truth table will show:

p	q	r	s	$If\ p, then\ q$	$If\ q, then\ r$	$If\ r, then\ s$	$If\ r, then\ not-p$
T	T	T	T	T	T	T	F
T	T	F	T	T	F	T	T
T	F	T	T	F	T	T	F
T	F	F	T	F	T	T	T
F	T	T	T	T	T	T	T
F	T	F	T	T	F	T	T
F	F	T	T	T	T	T	T
F	F	F	T	T	T	T	T
T	T	T	F	T	T	F	F
T	T	F	F	T	F	T	T
T	F	T	F	F	T	F	F
T	F	F	F	F	T	T	T
F	T	T	F	T	T	F	T
F	T	F	F	T	F	T	T
F	F	T	F	T	T	F	T
F	F	F	F	T	T	T	T

You'll note that there are several possibilities in which the premises are true and so is the conclusion, but as long as there's one possibility in which the premises are true and the conclusion is false, then the argument is invalid.

Thinking critically about what you see

1.



One, if this photograph were true, then that's a whale, not a shark! (The proportion of the shark to the people is wrong).

Two, if this photograph were true, then the people and the shark should have the same lighting. (Note the relative clarity of the people).

Therefore, this is a hoax photo!

See <http://www.hoax-slayer.com/shark-behind-divers.shtml>.

Thinking critically about what you read

1. When a country has an army, this army will continuously seek means to justify its existence and to intervene at the first opportunity. The USA has an army. So no wonder a military response is always the first response to any sort of problem.

The argument, expressed as a syllogism, is this:

If a country has an army, the army will continuously seek means to justify its existence and to intervene at the first opportunity.

The U.S.A. has an army.

Therefore, the U.S.A. army is continuously seeking means to justify its existence and to intervene at the first opportunity.

If p, then q

p.

Therefore, q.

This is a valid argument; it has the form of affirming the antecedent (see Section 2.1).

The language is clear.

The first premise might justifiably be challenged: is it true that whenever a country has an army, that army will always seek to justify its existence, by intervening at the first opportunity?

The argument would be weakened if we could present a counterexample: a country with an army in which military response is *not* the first response to any sort of problem.

3. Surely an absence of employment can make crime an attractive option, and so enhanced job opportunities ought to make it less so.

. . . One would think that limited job options would mean more to a man approaching 30 than to a teenager. But conviction rates for men between 25 and 30 are about one-third the rates for boys between 14 and 16. Similarly, a man with a family faces more urgent economic imperatives than a single man, and yet his inclination to crime is far less. It is noteworthy that women, despite various economic barriers, are invariably less prone to crime than men.

(David Rubinstein, "Don't Blame Crime on Joblessness,
The Wall Street Journal, November 9, 1992)

This seems to be the argument, in standard form:

If the absence of employment makes crime an attractive option, then crime rates should be higher for those for whom employment is more important.	If p, then q.
Crime rates are not higher for those for whom employment is <u>more important.*</u>	<u>not-q.</u>
Therefore, the absence of employment does not make crime an attractive option.	Therefore, not-p.

*Employment is more important for men approaching 30, for men with children to support, and for women with various economic responsibilities. Crime rates are higher for teenagers and men without children to support.

The argument is valid (denying the consequent, see Section 2.2).

The language is clear.

The statistics sound right, and *The Wall Street Journal* is reasonably reputable (I believe they have a staff of fact-checkers).

Note that I've assumed that "with a family" means "with children to support" since merely having parents or a spouse doesn't seem to incur "more economic imperatives" than not having parents or a spouse. I've also 'translated' "economic barriers" into "economic responsibilities"—presumably the author means to refer to women who have children to support or, like men, rent to pay, food to purchase, and so on.

Note also that I've supplied the conclusion, assuming it to be implied by the author. However, the intended conclusion may be one that is less strong; perhaps the author means only to indicate that the presence of employment is one factor among many, and not the

strongest factor, affecting the attractiveness of crime. This is, it seems to me, a far more defensible claim.

5. Jeffery House's strategy is bold: He is challenging the very legality of the Iraq war, based on the Nuremberg principles. Those principles, adopted by a U.N. commission after World War II in response to the Nazis' crimes, hold that military personnel have a responsibility to resist unlawful orders. They also declare wars of aggression a violation of international law.

(David Goodman, "Breaking Ranks," *Mother Jones*, October 11, 2004)

This argument seems to have the following form:

All countries that are members of the United Nations are countries that must abide by UN principles.	All A are B.
<u>The U.S. is a member of the United Nations.</u>	<u>C is an A.</u>
Therefore, the U.S. must abide by U.N. principles.	Therefore, C is a B.
 If the U.S. is to abide by U.N. principles, it must abide by the Nuremberg principles.	 If p, then q.
If the U.S. abides by the Nuremberg principles, it must agree both that wars of aggression are violations of international law and that military personnel have a responsibility to resist unlawful orders.	If q, then r and s.
If wars of aggression are violations of international law and if military personnel have a responsibility to resist unlawful orders, then military personnel should resist engaging in the <u>war in Iraq.</u>	<u>If r and s, then t.</u>
Therefore, if the U.S. is to abide by U.N. principles, military personnel should resist engaging in the war in Iraq.	Therefore, if p, then t.

The first part is a valid categorical syllogism (see Section 2, first form).

The second part is a valid chain argument (see Section 2.4). Note the use of a conjunction: both r and s must be true in order to lead to t; that is, in order to conclude that military personnel should resist engaging in the war in Iraq, it must be the case both that wars of aggression are unlawful and that military personnel must resist unlawful orders.

Note lastly that the argument depends on the assumption that the war in Iraq is a war of aggression. If that is not true (if the war in Iraq is not, therefore, illegal), then the conclusion does not follow from the given premises. And in order to determine whether this assumption is acceptable, one must define "war of aggression" (and know a fair amount about the war in Iraq).

Also, note that "bold" is a bit loaded.

7. Miracles mean God has changed his own laws, and that would mean his laws had been mistaken, and that would mean he's not really God. So there aren't any miracles.

Either there are miracles or there are not.
 If there are miracles, then God has changed his own laws.
 If God has changed his own laws, then his laws must have
 been mistaken.
 If God's laws have been mistaken, then he is not God.
This is ridiculous.
 Therefore, there are no miracles.

Either p or not-p.
 If p, then q.
 If q, then r.
 If r, then s.
Not-s.
 Therefore, not-p.

This is a valid chain with a reductio making the chain into a denying-the-consequent argument.

Are the premises true? If not, we don't have to accept the conclusion (at least, not on the basis of this argument). One could challenge the second conditional: maybe God's changing his own laws does *not* indicate that they have been mistaken, but that circumstances have arisen necessitating the change in the name of justice or goodness or whatever. But if he's omniscient, wouldn't he have known of those circumstances and made the law flexible in the first place? Ah, but, maybe he did: maybe the laws aren't rigid laws, but flexible tendencies. But that would support the conclusion then: insofar as miracles are violations of some rigid law, if all there is are flexible tendencies, then there *aren't* miracles (there aren't violations of some rigid law)!

9. Either there is a God or there is not a God. Let's assume there is a God. If you believe in Him, you will be rewarded with eternal bliss in heaven, but if you don't believe in God, you suffer in Hell forever. Now let's assume there isn't a God. If you believe in Him nevertheless, you will have lost the earthly pleasures you may have chosen to forego because of that belief, and if you don't believe in Him, well it's of no consequence. What is losing some earthly pleasures against the fires of Hell? Don't you see? It makes more sense to believe in God! What have you got to lose? (a paraphrase of "Pascal's Wager").

The argument Pascal is making seems to be this:

Either there is a God or there is not.
 Let's assume there is a God.
 If you believe in God, you get eternal bliss in heaven.
 If you don't believe in God, you suffer in hell forever.
 Let's assume there isn't a God.
 If you believe in God, you lose earthly pleasures.
 If you don't believe in God, it is of no consequence.
 Therefore, if you believe in God, you get eternal bliss or
 you lose earthly pleasures.
 And if you don't believe in God, you get eternal
 damnation or no consequence.

p or not-p.
 Assume p.
 If r, then s.
 If not-r, then t.
 Assume not-p.
 If r, then u.
 If not-r, then v.
 If r, then s or u.
 If not-r, then t or v.

The consequences of belief are far better than the consequences of disbelief.	<u>s or u is better than t or v.</u>
Therefore, it is better to believe in God.	Therefore, r is better than not-r.

Pascal seems to be defining “better” as “in your best interests”—such self-interest doesn’t sound very Christian!

(“What if there *is* a god, and heaven is only for those bright enough to recognize there’s no *proof* that he exists?” Jass Richards)

Reasoning test questions

Note: “S1” refers to the first sentence in the given passage; “S2” refers to the second sentence, and so on.

1. Carl’s Coffee Emporium stocks only two decaffeinated coffees: French Roast and Mocha Java. Yusef only serves decaffeinated coffee, and the coffee he served after dinner last night was far too smooth and mellow to have been French Roast. So, if Yusef still gets all his coffee from Carl’s, what he served last night was Mocha Java.

The argument has the form of a valid disjunctive syllogism (see Section 2.5):

The coffee was French Roast or Mocha Java. (S1 + S2 + S3)	p or q.
<u>The coffee was not French Roast. (S2)</u>	<u>not-p.</u>
Therefore, the coffee was Mocha Java. (S3)	Therefore, q.

So, we need to determine which of the following options has the same form.

- (A) Samuel wants to take three friends to the beach. His mother owns both a sedan and a convertible. The convertible holds four people so, although the sedan has a more powerful engine, if Samuel borrows a vehicle from his mother, he will borrow the convertible.

Samuel will take the convertible or the sedan. (S2)	p or q.
Samuel will take the convertible. (S3)	p.

- (B) If Anna wants to walk from her house to the office where she works, she must either go through the park or take the overpass across the railroad tracks. The park paths are muddy, and Anna does not like using the overpass, so she never walks to work.

Anna walks through the park or over the overpass. (S1)	p or q.
Anna walks neither through the park nor over the overpass. (S2)	not-p and not-q.

- (C) Rose can either take a two-week vacation in July or wait until October and take a three-week vacation. The trail she had planned to hike requires three weeks to complete but is closed by October, so if Rose takes a vacation, it will not be the one she had planned.

Rose takes a two-week vacation in July or a three-week vacation in October. (S1)	p or q.
<u>Rose will not take a three-week vacation in October. (S2)</u>	<u>not-q.</u>
Therefore, Rose will not take the vacation she planned.(S3)	Therefore, r.

- * (D) Werdix, Inc. has offered Arno a choice between a job in sales and a job in research. Arno would like to work at Werdix but he would never take a job in sales when another job is available, so if he accepts one of these jobs, it will be the one in research.

Arno will choose a job in sales or a job in research. (S1)	p or q.
<u>Arno will not choose the job in sales. (S2)</u>	<u>not-p.</u>
Therefore, Arno will choose the job in research. (S2)	Therefore, q.

Like the given argument, this one has the form of a disjunctive syllogism and so is the correct option.

- (E) If Teresa does not fire her assistant, her staff will rebel and her department's efficiency will decline. Losing her assistant would also reduce its efficiency, so, if no alternative solution can be found, Teresa's department will become less efficient.

If Teresa does not fire her assistant, the staff will rebel and the department's efficiency will decline. (S1)	If p, then q and r.
If Teresa does fire her assistant, the department's efficiency will decline. (S2)	<u>If not-p, then r.</u>
Therefore, Teresa's department will become less efficient.	Therefore, r.

(The Official LSAT Prep Test XXIV, Section 2, #13)

3. Several carefully conducted studies showed that 75 percent of strict vegetarians reached age 50 without developing serious heart disease. We can conclude from this that avoiding meat increases one's chances of avoiding serious heart disease. Therefore, people who want to reduce the risk of serious heart disease should not eat meat.

The argument opens with a categorical statement:

Some people who are strict vegetarians are people who have reached the age of 50 without developing serious heart disease.	Some A are B.
----------------------------------------------------------------------------------------------------------------------------	---------------

From that point on, the argument is propositional (the A and B becoming the p and q) having a sort of affirming the consequent form:

If one avoids meat, one increases one's chances of avoiding serious heart disease.	If p, then q.
Therefore, if one wants to increase one's chances of avoiding serious heart disease, one should avoid meat.	Therefore, if q, then p.

(A) The majority of people who regularly drive over the speed limit will become involved in traffic accidents. To avoid harm to people who do not drive over the speed limit, we should hire more police officers to enforce the speed laws.

Some people who regularly drive over the speed limit become involved in traffic accidents.	Some A are B.
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So far so good. But then the argument takes a turn from A and B, and introduces two new elements (avoiding harm to people who do not drive over the speed limit and hiring more police officers).

(B) Studies have shown that cigarette smokers have a greater chance of incurring heart disease than people who do not smoke. Since cigarette smoking increases one's chances of incurring heart disease, people who want to try to avoid heart disease should give up cigarette smoking.

Cigarette smokers have a greater chance of incurring heart disease.	All A are B.
If one smokes cigarettes, one increases one's chances of incurring heart disease.	If p, then q.
Therefore, if one wants to avoid heart disease, one should not smoke cigarettes.	Therefore, if not-q, then not-p.

Aside from the universal categorical statement instead of a particular categorical statement, you'll see that the conclusion involves denying the consequent, unlike that of the given passage above.

(C) The majority of people who regularly drink coffee experience dental problems in the latter part of their lives. Since there is this correlation between drinking coffee and incurring dental problems, the government should make coffee less accessible to the general public.

This argument starts with a particular categorical statement, but then it simply states a conclusion, so the argument has the form "Some A are B; Therefore r."

(D) Studies show that people who do not exercise regularly have a shorter life expectancy than those who exercise regularly. To help increase their patients' life expectancy, doctors should recommend regular exercise to their patients.

People who do not exercise regularly have a shorter life expectancy.	All A are B.
If one does not exercise regularly, one has a shorter life expectancy.	If not-p, then q.
Therefore, if one does not want a shorter life expectancy, one should exercise regularly.	Therefore, it not-q, then p.

Again, apart from the universal categorical statement, and apart from some possibly illegitimate equivocations (for example, I've replaced the doctors and their recommendations), this has the valid form of denying the consequent—which is *not* the form of the given argument.

*(E) Most people who exercise regularly are able to handle stress. This shows that exercising regularly decreases one's chances of being overwhelmed by stress. So people who want to be able to handle stress should regularly engage in exercise.

Most people who exercise regularly are able to handle stress.	Some A are B.
If one exercises regularly, one can handle stress.	If p, then q.
Therefore, if one wants to handle stress, one should exercise regularly.	Therefore, if q, then p.

This has the same form as the given argument and so is the correct option.

(*The Official LSAT PrepTest XII, Section 2, #23*)

5. To classify a work of art as truly great, it is necessary that the work has both originality and far-reaching influence upon the artistic community.

The given proposition is this:

If a work of art is to be classified as truly great, it has originality and far-reaching influence upon the artistic community.	If p, then q and r.
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Recall that with a conjunction, *both* parts must be true. Therefore, we can infer the following propositions from the given one: If not-q, then not-p; if not-r, then not-p. That is, if a work of art is just original, and not influential, it can't be considered a great work of art. Likewise, if it has great influence but is not original, it can't be considered a great work of art.

- (A) By breaking down traditional schemes of representation, Picasso redefined painting. It is this extreme originality that warrants his work being considered truly great.

This claim does not follow from the given proposition, as only one term of the conjunct is affirmed; in order to be considered truly great, it must be original *and* influential.

- *(B) Some of the most original art being produced today is found in isolated communities, but because of this isolation these works have only minor influence, and hence cannot be considered truly great.

This claim *does* follow from the given proposition; the absence of major influence is sufficient to disqualify art from being considered truly great.

- (C) Certain examples of the drumming practiced in parts of Africa's west coast employ a musical vocabulary that resists representation by Western notational schemes. This tremendous originality, coupled with the profound impact these pieces are having on musicians everywhere, is enough to consider these works to be truly great.

The claim in this option is this: If q and r, then p. But that proposition does not necessarily follow from the given proposition (and, in fact, it is a case of affirming the consequent—an invalid form).

- (D) The piece of art in the lobby is clearly not classified as truly great, so it follows that it fails to be original.

The claim in this option is 'Not-p, Therefore not-q' but that doesn't necessarily follow from the given proposition.

- (E) Since Bach's music is truly great, it not only has both originality and a major influence on musicians, it has broad popular appeal as well.

This claim adds another term to the conjunct, s (broad popular appeal), and is thus not supported by the given proposition.

(The Official LSAT PrepTest XXII, Section 2, #18)

Thinking Critically about Ethical Issues

1a Practice recognizing ethical issues

1. If you want to play Beethoven's *Pathétique* someday, you should practice more.

Don't be fooled by the "should"—it doesn't *always* mean a moral "should." And in this case, the "should" is not moral, but merely hypothetical—if you want to achieve x, then y is required.

3. I recommend we approve the first salary schedule rather than the second simply because we can't afford the second.

At first glance, this might seem like an issue that has nothing to do with ethics. Not so. There are many ethical issues involved in deciding who gets paid how much. Should there even be different wages for different positions? Why? Should the people who have been with the company longer get paid more? Why? Should two people working at the same job get paid the same? Even if one person has special needs and requires more money than the other? The answers to all of these questions involve values, most notably of fairness and generosity; that is, they involve ethics.

5. You say that women shouldn't be allowed to be soldiers because they'll miss so many days because they're the ones, like it or not, who get pregnant, but

not all women get pregnant, so you should make pregnancy the disqualifying factor, not the mere fact of being a woman. And anyway, even when pregnancies are included, men tend to miss more days on duty than do women, due to sports injuries, alcohol abuse, and disciplinary causes. At least that was the case in the Gulf War.

The “should” in this case is not a moral “should,” but, as in the previous case, a strategic “should,” a hypothetical “should” (see the explanation for the first one); the implied argument is something like if we want to have effective soldiers, we should not hire women. And yet, like the third one in this exercise, there are unrecognized moral issues involved: for example, is prohibiting women from being soldiers a violation of the right to equality?

1b Practice recognizing implicit general principles in the context of ethical arguments

1. The federal government should have the responsibility for determining how many and what kind of professionals get trained because it provides the funding for professional graduate education.

The underlying principle is that whoever provides the money makes the decisions about what that money buys (also known as “He who pays the piper picks the tune”).

3. They took their cat in for euthanasia just because it became an inconvenience. Unbelievable!

The underlying principle would be something like killing animals, or at least cats, just because they’re inconvenient is not morally right, or perhaps, animals, or at least cats, have a right to life that human convenience does not trump.

5. Of course he’s slime: half the stuff on his CV is made up.

The underlying principle here is that lying is morally wrong.

1c Practice recognizing justifiable exceptions to general principles

1. It’s wrong to exceed the speed limit. He drove way over the limit when he was taking his wife, who had gone into labor, to the hospital. Even so, he was in the wrong.

It’s possible to argue that this is a justified exception; perhaps the principle should be “It’s wrong to exceed the speed limit unless it is an emergency and one can do so safely”; one might even qualify “emergency” to be a “life-and-death emergency” . . .

3. It's wrong to lie, especially in court. You say that you've received threats, and fear for your children if you tell the truth, but still—

Well, that might qualify as an exception; perhaps we should say “It's wrong to lie unless your life, or the life of those you love, is in danger if you tell the truth.”

5. Yes, I admit I assaulted the guy. But one, I thought he was someone else. And two, I never intended to hurt him that badly.

Oh, well then. But does that excuse you? This is a very big question: how much does intent count? Does it matter whether you *should* have known that your assault would have caused that much hurt? Also, does it matter that you intended to assault someone else? Would the other assault have been justified?

2a Practice recognizing ethical arguments based on values

1. Pornography is the vehicle for the dissemination of a deep and vicious lie about women. It is defamatory and libelous.

(Helen E. Longino, “Pornography, Oppression, and Freedom: A Closer Look,” in Laura Lederer, ed., *Take Back the Night: Women on Pornography* William Morrow, 1980. rpt. in *Taking Sides: Clashing Views on Controversial Moral Issues*. 5th edn Stephen Satris. ed. Guilford, CT: The Dushkin Publishing Group, 1996.)

If we assume that Longino's conclusion is that pornography is therefore morally wrong, the argument would be appealing to values, specifically the value of truth. The underlying principle would be “Telling a lie is morally wrong.”

3. If I have the right to sell the labor of my body, why shouldn't I have the right to sell my body parts?

This argument is making an appeal to rights (see the next section), specifically the right to one's body, rather than an appeal to values. It is nevertheless an ethical argument, with an implied conclusion that one has the right to sell one's body parts.

5. If the purpose of the First Amendment is to foster the greatest amount of speech, racial insults disserve that purpose. Assaultive racist speech functions as a preemptive strike. The invective is experienced as a blow not as a proffered idea, and once the blow is struck, it is unlikely that a dialogue will follow. Racial insults are particularly undeserving of First Amendment protection because the perpetrator's intention is not to discover truth or initiate dialogue but to injure the victim. In most situations, members of minority

groups realize that they are likely to lose if they respond to epithets by fighting and are forced to remain silent and submissive.

(Charles R. Lawrence II “On Racist Speech,” orig. in *The Chronicle of Higher Education* October 25, 1989. rpt. in *Current Issues and Enduring Questions: A Guide to Critical Thinking and Argument, with Readings*. 4th edn. 1996.)

To the extent this argument appeals to the First Amendment, it is an appeal to rights rather than values since the Constitution is a proclamation of our rights. The underlying principle would be something like “That which violates the Constitution is morally wrong.” By the way, this kind of ethical reasoning is criticized above as being inadequate (see (3) of the last part of Section 1); it assumes that whatever is legal is morally right (and, perhaps, vice versa).

However, to the extent the argument is appealing to freedom of speech, independent of the First Amendment, it is an appeal to values, specifically to freedom. The underlying principle would be “That which violates freedom is morally wrong.” Of course, much work would have to be done to define freedom.

There is also an implied appeal to non-violence (see the second and third sentences) which can be considered a value; alternatively, the appeal can be phrased as toward a right—the right to be free of injury. The underlying principles would be, then, “Violence is morally wrong” and “That which violates our right to be free of injury is morally wrong.” These two principles are, however, most likely far too broad and work would have to be done to qualify them. In particular, if one is free to avoid such injurious speech, does it violate our right to be free from injury?

3a Practice recognizing ethical arguments based on rights

1. On the one hand, I suppose children have a right to a happy and healthy childhood. Or at least maybe the right to grow up free of fear and injury. But on the other hand, if we don’t spank them from time to time, they’ll never learn the consequences of their actions—don’t they have a right to learn that? (And don’t I have a responsibility to teach them that?) Plus, if they don’t learn the consequences of their actions, they’ll grow up to be monsters. Surely society has a right that that does not happen.

This argument does involve an appeal to rights, those of the child (to have a happy and healthy childhood or to grow up free of fear and injury, as well as to learn the consequences of their actions) and those of society (to not have monsters among them). But the speaker seems to be using rights in a rather casual way, invoking them at the drop of a hat. Who says the child and society has those rights? (And what exactly do those referred to rights entail?)

Also, there seems to be an assumption that the only way to teach a child the consequences of their actions is to spank them.

3. The use of drugs during pregnancy (illegal drugs such as crack cocaine and heroin, as well as legal drugs such as alcohol, nicotine, and prescribed drugs to treat conditions such as cancer and epilepsy) can cause, in the newborn, excruciating pain, vomiting, inability to sleep, reluctance to feed, diarrhea leading to shock and death, severe anemia, growth retardation, mental retardation, central nervous system abnormalities, and malformations of the kidneys, intestines, head, and spinal cord. Exposure to tobacco, carbon monoxide, lead, alcohol, and infectious diseases can cause prenatal injury. Refusal of fetal therapy techniques (such as surgery, blood infusions, and vitamin regimens) can result in respiratory distress, and various genetic disorders and defects such as spina bifida and hydrocephalus.

One is generally considered free to ingest whatever substances one wants as long as no harm to others is caused, but as Lynn Paltrow points out, “the biological event of conception transforms the woman from drug user into a drug trafficker or child abuser” (Lynn M. Paltrow, “When Becoming Pregnant is a Crime,” *Criminal Justice Ethics*, 9.1, 1990). Drug-using men are also at fault to the extent the drugs affect the quality of their sperm. Furthermore, as Michelle Harrison points out, “men are not *required* to impregnate drug-addicted women.”

(Michelle Harrison, “Drug Addiction in Pregnancy:
The Interface of Science, Emotion, and Social Policy,”
Journal of Substance Abuse Treatment, 8, 1991)

Surely, then, they are partly responsible for such prenatal abuse? If we understand the implied conclusion to be something like “The use of drugs during pregnancy or prior to conception is morally wrong,” this is indeed an ethical argument, but the appeal is not to rights, but to consequences (see the next section), specifically the consequences suffered by the newborn/child/person that is created as a result of said conception/pregnancy.

5. *Shipley*: The public has a right to know! Knowledge should never be kept private.

Germain: But what about the right to privacy? And the right to benefit from one’s labor and one’s investment—knowledge is the result of hard work, you know, and it often takes a lot of money to do the work!

Shipley: Okay, maybe it depends on what knowledge we’re talking about.

Germain: Well, we were talking about the human genome research. Say one day I go for genetic testing, because they’ve got all the genes identified and everything, should my insurance company be able to find out what genetic diseases I’m predisposed to develop? They could raise my premiums. Is that fair?

Shipley: Well, more fair than *I* should pay for your unlucky genes, no?

Germain: Actually, I’m not so sure about that. Isn’t the whole point of insurance to have a safety net for bad luck?

Shipley: Well, many young men have the bad luck to be young men—they pay high car insurance rates because of it. The fact is young men cause most of the accidents. And if the fact is you’re likely to develop a certain disease and need a lot of medical assistance . . .

Germain: But okay, what about more general genetic knowledge. If scientists can patent their discoveries, then not only will the cures for a lot of diseases take a lot longer to develop (because only a few people will have the knowledge to develop a cure) (and in the meantime a lot of people will die), but also, the cure, when it *is* developed, will cost a lot of money. So only the rich will be able to live.

Yes, there are several very important rights invoked in this argument: the right to know, the right to privacy, the right to benefit from one’s labor, and the right to benefit from one’s investment. Although not as clearly articulated, Germain may also be appealing to a right to fair insurance premiums, the right to a cure, and the right to an affordable cure—though these aspects might be as effectively presented as consequences to be taken into account.

4a *Practice recognizing ethical arguments based on consequences*

1. Rev. Thomas E. Trask, the superintendent of the Michigan District of the Assemblies of God, told me how in those early days he caught Oral using a “plant” in a wheel chair who would pop up on Roberts’ healing command. The faith healer explained the deception to Rev. Trask this way: “Why, this kind of thing just stimulates faith.”

(Austin Miles, *Setting the Captives Free*, 1990)

Yes, this involves an appeal to consequence: the deception is considered morally acceptable because of the result or consequence it has, that of stimulating faith.

3. Entrepreneurs believe that when you borrow money, you ought to pay it back . . . Harvard law professor Elizabeth Warren, a bankruptcy expert, has long argued that America’s entrepreneurial spirit is embedded in the concept that we, as a society, treat risk takers charitably when they fail. Reweighting the system in favor of creditors could diminish that spirit, she warns . . . “Many successful entrepreneurs suffered failures before they made it big,” Warren notes. “They learned, they paid what they could, and they tried again. This bill [passed by Congress in March 2005 to help creditors recover more debt when entrepreneurs declare bankruptcy] is designed to make it much harder to try again.”

(Mike Hofman, “Capital Brief,” Inc. Magazine, May 2005)

It's not clear that this is an ethical argument; Warren may not be saying the proposed bill is *morally* wrong. In any case, she is appealing to consequences, those of diminishing the entrepreneurial spirit and making it harder for failed entrepreneurs to try again.

5. Because conventional cars and trucks create significant emissions, the use of electric vehicles sounds like a good way to combat air pollution. But because producing electricity also creates pollution, electric vehicles do not eliminate emissions—they simply move them elsewhere. Unless this electricity comes from nuclear power plants (neither environmentally acceptable nor economically feasible right now) or renewable sources (unlikely to be sufficient), the power to propel electric vehicles will come from burning fossil fuels. But using fossil fuels to power electric vehicles is doubly pernicious. The fuel loses up to 65 percent of its energy when it is burned to produce electricity; 5 to 10 percent of what is left is lost in transmitting and distributing the electricity before it even gets to the electric car.

(Richard de Neufville et al., "The Electric Car Unplugged," *Technology Review*, 99.1 (Jan. 1996) rpt. in *Taking Sides: Clashing Views on Controversial Environmental Issues* 7th edn. Theodore D. Goldfarb, ed. 1997)

This argument is appealing to consequences, most notably the creation of emissions, but it's not explicitly an ethical argument unless one understands the premise that creating pollution is morally wrong to be implied.

4c Practice using the hedonistic calculus

1. Well, I can either go out tonight or stay in and do my critical thinking homework.

Going out might provide, for the person making the decision, a somewhat intense, almost certain, relatively immediate pleasure, but it would be of short duration, probably of mixed purity, and not very extensive. Doing the homework, however, might trump going out simply on the grounds of fecundity: the experience might not be that intense (though it will be as certain, as immediate, and of equal duration), but it will lead to understanding and the pleasure that entails, as well as perhaps a thirst for more . . . it will also lead to getting a degree, which may lead to a satisfying and rewarding career . . . enabling you to have a positive effect on countless others.

However, there are consequences to others that should also be considered: assuming that the person is going out with friends, those friends would be affected by the decision (their pleasure might be increased if the person in question came along—or not), as would the CT professor (who would certainly experience more pleasure if the homework is done than if it is not). . .

3. We should ban deer hunting, or we can continue to allow it on a limited basis (setting a maximum with regard to how many deer can be killed per year, as well as how many of what age and what sex, and restricting it to certain times of the year and certain areas), or we can allow it without limitation.

As for the deer, it's hard to say what the consequences would be. One might assume that if we ban deer hunting, more deer will live (resulting in pleasure for them, of indeterminate intensity, duration, purity, and so on,), but perhaps, instead, more will just slowly die of starvation because they'd reproduce beyond carrying capacity or be killed by wolves. It's also hard to say which kind of death would involve less pain, in the terms of intensity, duration, propinquity, and so on.

Other animals may also be affected. We need to know the ways in which deer provide benefits or detriments to others. For example, do they wreck habitats by grazing? Important habitats? This additional information would be relevant to determining fecundity and extent.

And, of course, there are the consequences to people: the hunters who would be deprived of pleasure and meat if hunting were banned, the non-hunters who would be deprived of deer-feeding and deer-sighting pleasure and who would be caused pain to know the deer were being killed if hunting were allowed, and the government who would be deprived the revenue from hunting licenses if hunting were banned, and whoever would have benefited from that lost revenue.

5. You think it's wrong to give money to those on the street who ask for it. I think it's right. I think it's wrong *not* to give.

For the people to whom the money is given, there will be pleasure—probably rather immediate and probably rather certain, but whether it will be intense, long-lasting, and extensive depends on what the money will be used for.

For the people who give the money, there is the pain of the loss of money, probably not of great intensity or duration, as well as the pleasure of having given, perhaps more intense and more long-lasting.

5.1a Practice recognizing the *is/ought* fallacy

1. We have a natural will to survive, so suicide is wrong.

Quite apart from the fact that a desire to suicide calls into question the premise that we do have a natural will to survive, this argument does contain the *is/ought* fallacy: the speaker concludes that because we have a will to survive, we should have a will to survive (and having a will not to survive, that is, to suicide, is therefore morally wrong).

It would have been a better argument if an appeal to the consequences of suicide were made, or an appeal to the right to life perhaps, or an appeal to various values.

3. It is wrong for schools to buy expensive sports equipment, such as for football, and build swimming pools and what have you when those same schools are using outdated books. Quite apart from the mixed up priorities, how many students use the equipment compared to how many use books?

This is not an instance of the is/ought fallacy; the speaker is describing, at least by implication, what *is* the case, but he/she is not concluding on that basis that that *should* be the case.

5. If we were meant to fly, we'd have wings. (I suspect someone said this to the Wright brothers.)

The implied argument here does contain an is/ought error: the speaker is claiming that since we can't fly, we shouldn't try, drawing a conclusion about what should be the case from what is the case.

The argument would have been stronger if an appeal to consequences (you'll crash) had been made to support the conclusion that we should not try to fly.

5.2a Practice recognizing the arbitrary line fallacy

1. The whole old age pension thing should be scrapped. I mean, really, what's the difference between being 65 and 66?

The speaker is committing the arbitrary line fallacy. Even if there is no clear difference between 65 and 66, there is a clear difference between, say, 50 and 80, and the 80-year-old is considerably less able to earn an income than the 50-year-old, which justifies an old age pension.

3. There's no real difference between a 49 and a 50, but the one is a fail and the other is a pass. That's so stupid. If there's no difference between a 49 and a 50, there's no real difference between a fail and a pass, so we should just toss out the pass/fail distinction altogether.

But, there *is* a clear difference between the 20 and the 90, so this is an instance of the arbitrary line fallacy. (And the fact that there often isn't a clear difference between a 49 and a 50 is why professors often use additional indicators of performance, such as an impromptu oral exam or attendance records.)

5. Men have larger brains than women, therefore they are superior to women.
(19th-century belief)

This is not an instance of the arbitrary line fallacy. One might think that there's an implied line being drawn between the large brains of men and the smaller

brains of women. However, the line is not being accused of being arbitrary; on the contrary, it is presented as a rather clear line. More importantly, the line is not being used as a reason to dismiss some further distinction; on the contrary, it's being used to justify some further distinction (that of superiority).

(Of course, brain size not related to superiority; otherwise, the rhinoceros would be superior to man. And, anyway, what does "superior" mean? Brain size doesn't even indicate intellectual ability; apparently, that correlates with the number and depth of creases in a brain, not its size. Lastly, one might wonder at the decision to consider absolute size rather than relative size; it may be that relative to the rest of women's bodies, their brains are equal in size, that is, proportion, to men's brains.)

Thinking critically about what you see

1.



What exactly are “family values”? Not all families have the same values. In fact, the members of any given family often don’t have the same values.

And is the “family” in “family values” the same as the “family” in “a family company” or is this a case of equivocation (see Section 5.3.4)? (Though I suppose if anything’s a family value, nepotism is!)

And then, what does buying insurance have to do with family values? I can see a relationship between a certain family value (that of caring for members of your family by providing money for them) and buying life insurance (though what a misnomer that is—is that all a life is? the money one makes?—more precise would be “income insurance,” or more precise still, “economic support insurance”).

But then we have only “If you have such and such a family value, you should buy life insurance”—we have nothing that makes the next step, that of buying life insurance *from Smith and Son*! (By the way, why do we never see “Smith and Daughter”?)

Thinking critically about what you read

1. I’m so sick and tired of complaints about the salaries of professional athletes. They deserve every penny they make. Lottery winners also get millions and they don’t do anything! At least the athletes work hard, they sweat, they tear muscles, they get hit. And they work hard for years before they even get to pro. Like doctors and lawyers

who put themselves through school and work hard for years, they should expect to make the big bucks once they get to the professional level. Professional athletes also risk injury—shouldn't they be compensated for that risk? And an athlete's career is over by the time he hits 40. So they have to make a lifetime's income in just 10 or 15 years. Lastly, it's all supply and demand: if thousands of people want to pay a couple hundred each to see these guys play, why shouldn't they get that money?

With the reference to lottery winners, the speaker is committing the "two wrongs" fallacy: it may be that lottery winners also do not deserve their millions.

Certainly the notion of "desert" needs definition. Related to that, how hard must one work in order to deserve millions? Miners also work hard, they sweat, they tear muscles, they get banged around, but they don't make millions. (But then, that's sort of an inverted "two wrongs" mistake—maybe miners *should* make millions.)

The analogy to doctors and lawyers is promising, but undeveloped. Certainly the years of hard work prior to attaining professional level is a relevant similarity, but one could argue that, at least in the case of some doctors, their contribution to society is a relevant dissimilarity: one can justify paying millions more easily to someone who saves lives than to someone who plays games.

Miners, and workers in a host of other occupations, also risk injury—but again, maybe they should also, then, be paid millions.

Many people get laid off at 40; they have to find another job, often starting over in another occupation altogether.

The supply and demand argument is another "two wrongs"—maybe the supply and demand system is unjustified. The argument would be strengthened if the speaker could justify the high salaries without reference to other instances; that strategy is really just a plea for consistency and it's a weak strategy because if the other instances can be shown to be problematic, the support disappears.

3. Many would argue that if it was wrong to take race or sex into account in the past, we called it racism and sexism, then it's wrong to take it into account now, as in the case of various affirmative action programs. But Richard Wasserstrom argues otherwise: it's not fair to compare then and now because the social realities are different. Then, to favor the white male was to maintain and augment the dominant group, but now to favor the black female is *not* to maintain and augment the dominant group (which is still the white male).

But it seems to me that affirmative action programs are still wrong because they don't take merit into account. Whoever is the best person for the job should be hired, regardless of race, whatever that is, and sex, even that is apparently not as clearcut as we once thought, *and* regardless of the social realities. If it just so happens that white males tend to be the best people for the job, so be it.

The speaker has presented what amounts to a contest between the consequence-based approach and the value-based approach. The consequence-based approach, taken by

Wasserstrom, argues that affirmative action programs are acceptable because their consequences are acceptable: they do not maintain and augment the dominant group. The value-based approach, taken by the speaker, argues that affirmative action programs are not acceptable because they do not adhere to the value of fairness, as defined as “getting what one deserves.”

Both arguments could be strengthened. Other consequences could be considered, including the role model factor (that is, seeing other black-skinned people in certain positions might encourage young black-skinned people to think that such positions are possible for them, thus encouraging what might be very healthy self-actualization), the representation factor (whereby the workforce has the same proportions, by race, sex, and so on, as the general population, assumed to be a good thing, perhaps if only because visible diversity changes the expectations of those within and outside the group, thus increasing freedom of choice at least for those within the group), and the group identity factor (individuality gets lost when people identify others or themselves by group membership).

A clear definition of “fair” would strengthen the second argument, though such a definition might be complicated by unfair starting points (that is, it’s hardly fair to assess the relative merit of job applicants when they have not had equal opportunity to develop whatever it is that warrants assignation of merit). Also, the value of compensation might be incorporated into the argument, such that affirmative action programs are justified because they provide compensation for past wrongs (though not to the individual people who have been wronged; another problem here would be determining how much compensation is sufficient).

5. According to Ziauddin Sardar (*Adbusters* 13.1), America constitutes 3 percent of the world’s population but consumes 25 percent of its energy and produces 30 percent of its pollution. The three richest Americans have assets exceeding the combined gross domestic products of the 48 least-developed countries. Americans spend \$8 billion on cosmetics, almost as much on pet food, and \$10 billion a year on pornography—more than the estimated total needed to provide clean water, safe sewers, and basic health care to the world’s poor. You say, “Yeah, well, who’s to say what’s right or wrong?” “Me,” I’ll say. And I say this is so clearly morally wrong!

Unfortunately, no reasons are given to support the conclusion. That is, no argument is made!

There are several questions one can ask that lead to fruitful lines of reasoning, both for and against the claim of moral wrongness. First, should resource consumption be proportional to population? Or, for example, proportional to contribution? That is, what if America, even though 3 percent of the world’s population, is responsible for extracting 25 percent of the world’s energy and turning it into a usable resource? Would it then be morally acceptable for them to use 25 percent of it? Or should it be proportional to need? And then how do we define “need”?

Second, how much of that pollution stays within America? For example, if all of it does, then wouldn’t that be okay? Doesn’t a country have the right to pollute itself if it wants to?

Third, what's wrong with individuals having more assets than some countries? Is the speaker suggesting the wealth is undeserved? If so, evidence is required. As well as a definition of "deserved." Or is the problem that wealth is power, and it's morally wrong for individuals to be more powerful than some countries? Why?

Fourth, what obligates someone to spend his/her money on meeting someone else's needs before spending it on providing his/her own luxuries? Especially if someone else's needs are unmet through no fault of the person whose needs are met (and therefore wants to spend money on luxuries) and possibly through the fault of the person whose needs are still unmet. For example, if you spend all your money on guns, and then don't have any left for food, why should I buy you dinner when I'd rather buy myself a CD?

7. I come back to a fundamental question. Do the elderly have an unlimited medical claim on public resources? No, they have only a reasonable and thus limited claim. What is a "reasonable" claim? I take it to be a claim to live a long life with public support, but not indefinitely long, and not at the price of potential harm to others. If we can agree with that proposition, then a "natural life span" is one that is highly useful—though admittedly not precise—allowing us a way of talking about what should count as a premature death, and as the basis for a claim on the public purse. It will surely work better than, say, "individual need," which is subject to technological escalation and intractable subjective desires. If we agree, for instance, that the preservation of life is a basic medical need, then in the nature of the case with the aging person there are no necessary limits at all, scientific or economic, to that can be done to achieve that goal. To be sure, any specific age to invoke as a limit will be arbitrary, but not necessarily capricious. That was true of age 65 when Medicare was established. It could have been 66 or 64. The point is that it was within a generally acceptable range of choices, and that is sufficient for fair public policy.

...

Still another criticism might, for lack of a better name, be called the repugnance argument. It takes a number of forms. One of them is that we would find it repugnant to deny reimbursement to someone for a form of care that would clearly save that person's life; we could not just stand by and let the person die for lack of money. Another form is that, however nice my theory of justice between age groups, it would *look* like we were devaluing the worth of the elderly if we used age as an exclusive standard for denying care; we would find that hard to stand.

I agree that most people would find these consequences of an age limit repugnant. But again we are left with a dilemma, indeed more than one. What will we do about the repugnance that could well result from seeing a larger and larger, and even more disproportionate, share of resources going to the elderly while the needs of younger groups are going unmet? Or placing heavier and heavier economic burdens on the young to sustain the old? If we leave all choices about resource allocation to doctors and families at the bedside, what will we do about the repugnance regarding the variations in treatment that method will bring, with some getting too much treatment and others getting too little? If we find the open use of an age limit

repugnant, will we feel better about a covert use, one that could be forced by a shortage of money?

(Daniel Callahan, "Setting Limits: A Response," *The Gerontologist*, 34(3) (June 1994), rpt in *Taking Sides: Clashing Views on Controversial Issues in Health and Society* 2nd edn. Eileen L. Daniel. 1996)

The main claim is that the elderly do *not* have an unlimited medical claim on public resources; they have only a reasonable and thus limited claim. That is, there is only so much public money we are morally obligated to spend on the elderly. The speaker wisely goes on to define "reasonable"; his definition entails the concept of a "natural life span" but he realizes that any line we draw will be somewhat arbitrary. Wisely, he understands that that's okay: a "generally acceptable range" is sufficient for public policy. He considers an alternative definition of "reasonable" which entails the concept of "individual need" and explains why his definition is better.

However, while he deals with the "not indefinitely long" part of a reasonable claim to live a long life, he does not deal with the "not at the price of potential harm to others" part: given unlimited medical resources, isn't *any* medical care given to Person A at the expense of Person B?

He anticipates an objection, the repugnance argument, but instead of simply dismissing repugnance as an insufficient basis for rejecting a claim (it is an emotional response, not a cognitive response), he points out that the repugnance argument can go both ways; that is, while we may feel repugnance at the consequence of limiting medical care to the elderly (note the use of consequence-based ethical reasoning there), that of letting the person die, we would also feel repugnance at the consequence of *not* limiting medical care to the elderly, that of letting *other* people die.

Callahan's argument for the elderly having only a reasonable and thus limited medical claim on public resources could be strengthened by considering the various values and rights that are involved. For example, certainly justice comes into play, however, one might define it. Compassion and generosity may also be relevant.

He could also anticipate reference to both the right to life and the right to healthcare as challenging his claim, but he could respond by arguing that neither right is absolute and unlimited—because of the consequences of such absolute and unlimited rights (most notably, the intrinsic contradictions: not everyone can have an unlimited right to life if the medical care required to guarantee that right is limited).

9. There's nothing wrong with downloading music from the internet. First, everyone does it, and second, it's not like you're taking something—after you download, the song's still there, it's not like taking someone's car. Some people say downloading music from the internet isn't fair because the musicians don't get paid when you download, but you're paying for the internet connection—why should you have to pay twice? *That's* not fair! And people say that if everyone does it, sales of CDs will decrease, and then since there'll be no money in making CDs, the record companies will stop doing it. But everyone's not doing it, so CD sales won't decrease. And actually, a friend of mine told

me that after their band put one of their songs on their website, sales of their CD increased! Lastly, downloading is legal; anything that's morally acceptable is legal; so downloading must be morally acceptable. People should stop worrying about this stuff and go after the *real* criminals!

You'll recall this argument from Chapter 1. Compare your analysis of it now to what you did back then. Hopefully you'll see a difference!

Here are some of the points you may have made:

"First, everyone does it . . ." This is an appeal to the majority (Section 4.3.5(i)) and is irrelevant.

"[A]nd second, it's not like you're taking something—after you download, the song's still there, it's not like taking someone's car." This is a **good analogy** (Section 7.3), but it's undeveloped. The argument could be strengthened by articulating the additional relevant dissimilarities between downloading a song and taking someone's car.

"Some people say downloading music from the internet isn't fair because the musicians don't get paid when you download . . ." It's good to have **anticipated a counter-argument** (Section 2.5), but it's not dealt with very thoroughly.

". . . but you're paying for the internet connection"—this does not refute the anticipated objection that the musicians don't get paid when you download (so the "but" doesn't make sense). It's a **non sequitur** (Section 4.4.3)—irrelevant.

"—why should you have to pay twice? *That's* not fair!" Clearly a **definition** (Section 5.3) of "fair" is needed. Who deserves what? On what basis? (Who owns what? And so what—what rights does ownership entail? Is ownership the best way of approaching the issue?)

"And people say that if everyone does it, sales of CDs will decrease, and then since there'll be no money in making CDs, the record companies will stop doing it." Again, good to anticipate a counterargument, but, in this case, it's not dealt with correctly—see next comment.

"But everyone's not doing it, so CD sales won't decrease." So the counterargument was 'If p, then q' and the speaker has responded with "Not p, so not q"—which is **denying the antecedent**, an error in propositional logic.

"And actually, a friend of mine told me[.]" This reference to **personal testimony** (Section 6.4.1) won't carry much weight: it's anecdote, an insufficient sample (Section 7.2.2).

". . . that after their band put one of their songs on their website, sales of their CD increased!" This is an instance of the **post hoc** error (Section 8.4.2).

"Lastly, downloading is legal; anything that's morally acceptable is legal; so downloading must be morally acceptable." Well, no. As stated, it's an instance of invalid categorical logic:

All morally acceptable things are legal things.
Downloading is legal.
 Therefore, downloading is legal.

All A are B.
C is B.
 Therefore, C is A.

And even if the person meant to say it the other way around, which would be valid:

All legal things are morally acceptable things.

Downloading is legal.

Therefore, downloading is morally acceptable.

All A are B.

C is A.

Therefore, C is B.

The first premise is not necessarily true: there are some legal things that are not morally acceptable; for example, one could argue in this manner about collecting taxes to pay for executions.

“People should stop worrying about this stuff and go after the *real* criminals!” This is an instance of **loaded language** (Section 5.2.1): “worrying” and “stuff” is a little insulting, a little dismissive, suggesting that the issue at hand isn’t very important.

As for strengthening or weakening the overall argument, consequences could be considered a little more thoroughly, not just to the musicians and business, but to society-in-general. . . if we don’t download, will our lives, our society, become music-poor?

Intent could also be considered. . . when you download, are you trying to get something for nothing?

Lastly, especially if you’re trying to develop a counterargument, you might consider alternative arrangements or “solutions” to the “problem”—minimal payment, consent, barter—that might affect whether or not it’s right to download music.

Reasoning test questions

Discuss how well reasoned you find this argument.

Hospital statistics regarding people who go to the emergency room after roller-skating accidents indicate the need for more protective equipment. Within this group of people, 75 percent of those who had accidents in streets or parking lots were not wearing any protective clothing (helmets, knee pads, etc.) or any light-reflecting material (clip-on lights, glow-in-the-dark wrist pads, etc.). Clearly, these statistics indicate that by investing in high-quality protective gear and reflective equipment, roller skaters will greatly reduce their risk of being severely injured in an accident.

Visit the ETS website (www.ets.org) and download the “GRE Practice General Test.” It provides six essays in response to the given prompt, one representative of each score category, along with commentary explaining why it was given that score. See how your essay compares with those they present!

I highly recommend that you also download “An Introduction to the Analytical Writing Section of the GRE General Test.” It provides details about the task, a link to a pool of argument topics, excellent advice about how to prepare for this part of the test, and explicit information about what exactly they’re looking for (they list the merits and flaws of a typical paper of each score category).

Lastly, the *GRE PowerPrep* (also a free download available at the ETS website) provides additional prompts, each with six scored essay responses.