INSTRUCTOR'S MANUAL TO ACCOMPANY

Critical Thinking

An Appeal to Reason

Peg Tittle

contents

Note to instructors

A few notes, actually . . .

1. Content

The table of contents is pretty standard, no surprises here. And if you would like to include more logic in your critical thinking course, check out the two chapters on the companion website.

And as for the examples and exercises, I have used everyday material from everyday sources (such as letters to the editor, magazine article excerpts, website posts, and so on), focusing on a variety of issues. Such material is not terribly intimidating due to its plain and simple language. However, it's often challenging because the arguments aren't well articulated, so I've also used more academic material from, most especially, classic sources.

2. Organization

Many critical thinking texts "build up" to argument, starting with a chapter on language, following with a few chapters on the elements of good arguments (relevance, truth, adequacy), and *then* presenting the finished product, the argument. While that order certainly has a conceptual logic to it, I have chosen instead a more pedagogical-minded order. It's been my experience that students need all the practice they can get with the finished product. So I introduce the students to argument right away (slowly and one small step at a time), right after the general introductory chapter on critical thinking. That way, by the time they get the hang of identifying premises and conclusions, there's still time left for them to get the hang of *evaluating* those premises and conclusions! (This approach also

allows lots of room to graduate the arguments presented: the ones in Chapter 2 are very easy; the ones in Chapters 7 and 8 are considerably more difficult.)

Also, it seems to me that when the first chapter is the language chapter, students often decide the course is easy (and by the time they realize it's quite possibly the hardest, not the easiest, course they'll take, it'll be too late to drop it, so you'll have a room full of hostile students) or they decide the course is boring (and they might drop it—for the wrong reason). Furthermore, putting the language chapter after the argument chapter increases its value: once students have worked through the argument chapter (and the relevance chapter[1]), they'll have already started to appreciate the importance of choosing one's words carefully—they'll be "primed" for the language chapter.

Lastly, the fallacies. I agonized over the organization of fallacies. I examined over 50 critical thinking texts. And I swear, there are over 50 ways to organize the fallacies. But the bottom line is most texts put the fallacies into one (or two) mega-chapters. Not only does this give a lot of "weight" to the fallacies (no wonder *that's* what our students walk away with), but it seems to me to increase the likelihood that students will see fallacies as one huge, arbitrary, difficult-to-grasp (but perhaps easy-to-memorize) list. So, instead, I just put each fallacy wherever it belonged, conceptually speaking—that is, I've put the fallacies of language (restatement, equivocation) in the language chapter, the fallacies of relevance (ad hominem, appeal to tradition, etc.) in the relevance chapter, and so on. That way, they serve, and underscore, the essential concepts of language, relevance, validity, truth, and adequacy. (Turns out, however, that most of the fallacies are fallacies of relevance!) Note, however, that Appendix 2 presents a mega-list of the fallacies, organized in various ways.

3. Tone

I have tried to keep the tone light, even entertaining. I have also tried to redress the tendency of many critical thinking texts to emphasize the destructive part of critical thinking, to focus heavily on what's *wrong* with an argument; to our dismay, students often come away from a critical thinking course with nothing but a list of fallacies and the urge to attack every argument they hear. Of course, there's great value in being able to identify the flaws in an argument. But there's also a constructive part to critical thinking, and I'm referring not only to the ability to construct arguments (which I attend to in every chapter; see #5(4) below), but also to the ability to identify what's *right* with an argument and, more importantly, to identify whether and how an argument can be strengthened—what information would they need to know, what would have to be true, in order for

1 I put that one next because for some reason relevance seems to be a slippery matter for many students, so, again, by introducing it early, they get the rest of the course to get a grip on it.

the argument to be a good one? (By the way, that's a common question on reasoning tests such as the LSAT, GMAT, MCAT, and GRE, and I include several such questions in the text; see #5(6) below.)

4. Critical analysis template

A critical analysis template (a step-by-step approach to critical analysis) is presented in the first chapter and at the beginning of each subsequent chapter, and specific reference to it is made at the beginning of each end-of-chapter "Thinking critically about what you read" exercise (see #5(3) below). This is intended to develop the thorough analysis of argument into a habit.

Note that, in keeping with my comments in #3 above, the template includes the question "How could the argument be strengthened?" and makes specific mention of the provision of additional reasons/evidence and the anticipation of objections and replies. Analyses throughout the text also attend to this question (students are often asked to "fix" an argument that has been identified as having a particular error), thus making the text one that pays attention to strengthening arguments rather than merely tearing them apart.

Also note that the first part of step 4 ("If deductive, check for truth/acceptability and validity") is primarily for students who go through the logic chapters.

5. End-of-chapter exercises

While the exercises within each chapter focus on a specific lesson, those at the end of each chapter are less specific and more inclusive with regard to the skills required. There are six different end-of-chapter exercises, the same six occurring at the end of each chapter.

(1) Thinking critically about what you see

In addition to thinking critically about textual material, today's students need to be able to think critically about visual material. This skill area is covered to some extent in Chapter 5 (5.2.2 Visual effects) and Chapter 6 (6.4.4 Evaluating images). In this end-of-chapter exercise, one or two images are presented for students to critically examine. (And, of course, part of the examination is to determine whether the image is making an argument or just a claim or not even that . . .)

(2) Thinking critically about what you hear

Although television has replaced radio to a large extent, students are still exposed to many "audio-only" arguments (or non-arguments) and so need to be able to

apply their critical skills to what they hear. Indeed, as we become less of a literate culture and more of an oral culture, this ability becomes increasingly important. In this end-of-chapter exercise, two audio bits are presented on the companion website.

(3) Thinking critically about what you read

Ten arguments are presented for analysis in this end-of-chapter exercise. These arguments are drawn from books, magazines, newspapers, and websites. The arguments are arranged (more or less) in increasing order of difficulty not only within each chapter, but also throughout the text (with the arguments in Chapter 2 being considerably easier than those in Chapter 8, for example).

(4) Thinking critically about what you write

Rather than present writing arguments as a separate skill, as is the case in many critical thinking texts when there is a separate chapter on writing position papers or thesis essays, I focus on writing throughout the text with this end-of-chapter exercise.[2] The exercises are carefully graduated throughout the text, assuming almost no skill at the beginning (students are asked, for example, merely to put the premises and conclusions of a given outlined argument into complete sentences), but leading up to, in the last chapter, writing their own 2,000-word position paper.

(5) Thinking critically when you discuss

It seems to me that not only has the art of debate been lost, or turned into rhetoric and PR, but the ability to have a simple discussion, a *real* discussion, is facing extinction. (My respect for good talk-show hosts increases steadily.) But instead of a separate chapter on speaking and listening, I have prepared an end-of-chapter exercise, specifically designed to foster these skills. As with the previous exercise, this one is carefully graduated throughout the text, to gently lead the students from sounding like a bad Jerry Springer show to being able to hold an intelligent discussion. So, for example, early in the text, students are asked to get together in groups of three and discuss something, but they must follow a script of simple response options; later, they are asked to get together in groups of five (making the thread harder to follow) with an expanded script (the possible responses are more numerous and more advanced); by the end of the course, it is hoped that they are able to have a free-form discussion that is clear and coherent.

2 There are also brief writing exercises within chapters that ask students to construct their own arguments.

To break up the monotony, Chapter 7 suggests a "Taking it to the street" exercise wherein it is recommended that the students go out into the community and attend board meetings, ethics committee meetings, and so on, to listen carefully and contribute to the discussion, using their newly developed critical thinking skills (and a lot of diplomacy).

(6) Reasoning test questions

Reasoning test questions (such as those found on the LSAT, the GMAT, the MCAT, and the GRE) test many different critical thinking skills: the ability to identify the issue of contention, assumptions, unstated conclusions, inferences, flaws in reasoning, additional information that would contribute to an explanation, and relevant evidence that would weaken, strengthen, or counter an argument; the ability to recognize structural similarity between arguments; the ability to understand the role of individual statements in an argument or the relationship between two statements; and so on. They are, thus, perfectly suited for inclusion in a critical thinking text.

These questions are intended to give the text a high degree of logical rigor not only because students are asked to work through so many of these demanding questions, but also because full explanations are provided as to why the right answer is right and why the wrong answers are wrong. Of course, the questions also provide practical preparation for students who intend to take the LSAT, GMAT, MCAT, or GRE. Lastly, as multiple-choice format questions, they have great motivational value: quite simply, their deceptive simplicity makes them rather enticing—my guess is that students will often skip ahead to try them.

(7) Answers, Explanations, and Analyses

Rather than a simple "Answers" section at the back of the book, there is an extensive "Answers, Explanations, and Analyses" section on the companion website providing not only answers to exercise questions, but also detailed explanations, as well as analyses of the exercise bits that aren't questions per se. And when I say "explanations," in keeping with what I said above (#3), I explain not only why the wrong answers are wrong, but why the right answers are right. Almost half of the teaching value of this text is in this section, so do encourage your students to work through it after they've done the exercises.

Answers, explanations, and analyses for the odd-numbered exercise items are accessible to the student on the companion website; those for the even-numbered items appear only in the Instructor's Manual (along with teaching notes for each chapter).

(8) Appendix 1: Extended Arguments for Analysis

This appendix includes 16 longer essays (longer than those in each chapter) that students can analyze. Their inclusion in the text may reduce the necessity of a separate reader. Also, several of the essays are, to my mind, exemplary models of argument presentation and critique which will be helpful when the students are writing their own position papers. Other essays in this section are, intentionally, models of what not to do—which can be equally valuable!

(9) Ethics

Note that in addition to the two logic chapters, there is another chapter available on the companion website, "Thinking Critically about Ethical Issues". I *strongly encourage* you to take a look at it. There are no new critical thinking skills in this chapter; it was originally the last chapter of the text, intended to give students the opportunity to apply everything they've learned in the course. And what better to apply their newly acquired critical thinking skills to than the most important aspect of their lives—deciding what's right and wrong!

Peg Tittle, 2011

Chapter summaries

CHAPTER 1 CRITICAL THINKING

The first time I taught Critical Thinking, it did not go well. At all. Which took me quite by surprise since at that point I'd been teaching, rather successfully I thought, for over ten years. So I contacted a former professor of mine, who was then also teaching CT. "At first," she said, "I thought Critical Thinking was the easiest course to teach because there was no content. Then I thought it was the hardest course to teach. Because there's no content."

It was a good insight, I thought. CT is a skills course. And the skills are invisible. Unlike, say, the skill of riding a bicycle. So if a student is lying on the ground, you don't know if they leaned too far to one side, or made a turn too sharply, or couldn't find the brakes before they got to the wall. Or haven't yet gotten onto the bike.

So that was part of "my" problem. I came to understand there were additional factors.

The course was mandatory, so there was a certain amount of resentment from the get go. This course was taking valuable time away from their major; they could be taking such and such a course if they didn't have to take this one.

The course was taught in a portable classroom, by a sessional instructor (me), who was female. All of which indicated to the students low status—the course was obviously not worth much of their time, effort, or attention.

Being female also meant I wasn't much of an authority. So not only did the students not take the course too seriously, they didn't take me too seriously either. After all, they knew more than me.

And it was a philosophy course. By definition, a "bird" course. Much easier than their business or science courses. So they expected an A. For showing up. Most of the time. And they were indignant when they got nowhere near an A.

I told them that philosophy courses tended to be more, not less, difficult than business or science courses. I told them that the people who scored highest on the GRE were physics and philosophy students: *those* disciplines required the higher levels of thinking (I referenced Bloom's taxonomy)—analysis, synthesis, and evaluation, rather than just recall, comprehension, and application. But they didn't believe me. After all, what did I know?

Most of the students expected some sort of "anything goes" debating class. We'd all sit around and discuss stuff. Close, but they seemed to think that merely having an opinion was sufficient. Maybe for some, that had been the case in their high school English courses. And since philosophy isn't taught at the high school level in the United States (it is in Europe, and even Canada now has a high school philosophy course), and since any social science course that's offered isn't likely to be mandatory, English was the closest they'd come to the kind of course CT is—a course in which opinions are important. Math, science, languages—at the high school, these do not involve opinions at all. So the students weren't prepared at all for high standards to which their opinions would be held.

In fact, when I explained that some opinions were better than others, they marched off to the Dean to complain that I didn't respect their opinions. After all, everyone's entitled to their opinions. (Alas, the Dean didn't get it either.)

So half way through the course, I finally came to realize that the students were failing not because they had come up to the plate, swung, and missed, but because they weren't even in the ball park. So I ended up sort of starting over. Half way through the course.

All of which brings me to the opening exercise of Chapter 1, the very first page of the book. Some reviewers weren't thrilled with the Zoné jeans ad. That's okay. Use your own bit—an argument or a non-argument, text or visual, whatever. As long as you *demonstrate critical thinking*. Do a "think aloud." I've imported that technique from teaching reading. Students who don't have good reading skills (those who read a whole article and then can't tell you what it was about even though they knew, and read, all the words) often fail to *engage*—they don't *think* while they read. So the reading teacher thinks aloud while reading aloud, demonstrating to the student the kind of thinking they should be doing while reading; the teacher reads the material, saying out loud as they go something like "Oh, this is what this article is all about, how beavers build a dam . . . oh, this paragraph talks about what kind of trees they cut down . . . and this one talks about what's next, how they get the tree to where they want it to go . . . I'll bet the next paragraph talks about what they do to the tree once they get it there . . ."

So do the same thing with critical thinking. Read the bit you've chosen, and as you do, think out loud: identify the point, claim, statement, conclusion; mention premises, reasons, supporting evidence; ask a question that challenges something; hum and haw about an iffy definition; point out the relevance of one thing to another; and so on. Your students won't completely follow you, they

won't get it all, but *they'll get the general idea*. They'll get a glimpse of *what critical thinking is*.

Remember it's invisible: how else will they know what they're aspiring to, what the goal is, if you don't show them? You could also show them the written manifestation of critical thinking, but at this point, an oral demonstration is likely to be much more effective.

That might be the most important part of Chapter 1. The next two sections just articulate what the opening demonstration was to show: what critical thinking is and what it isn't.

The next two sections—well, unlike a lot of introductory chapters, perhaps, this one is actually quite dense. There's more here than meets the eye. Much more. A lot of this chapter won't really sink in. Not now. Try referring back to it, even assigning a reread, after Chapter 3. And again some time around Chapter 6.

Consider having the critical thinking template blown up to a poster and mounted on foamcore or something. Hang it in your classroom.

Lastly, please note that the instructions for the end of chapter exercises are *intentionally unhelpful* in Chapter 1. That's because these exercises are intended to be a pre-test, to establish a starting point, a baseline, a "where you are now" for each of the six applications. At the end of the course, when these same six exercises are completed in Chapter 8, you might want to ask your students to compare their Chapter 8 work with their Chapter 1 work so they can see just how far they've come. (Then again, you might not.) You might even want to tape their first discussion, so you can play it back at the end of the course. (Or not.)

CHAPTER 2 THE NATURE OF ARGUMENT

The primary objective of this chapter is to get your students into the right ballpark. The ballpark lit with a neon sign that says **"This is what I think. And this is why."** Don't underestimate the importance of this task. And don't underestimate the difficulty.

Another very important objective of this chapter is to get your students to start looking for all the things that are just assumed. Very often it's these unarticulated and, therefore, unexamined claims that, once identified and evaluated, lead us to more precise and more defensible arguments. Refer to the critical thinking template as you teach and as you take up the exercises.

Also, as I've indicated in the Note to the Instructor, almost half of the teaching value of this text is in the "Answers, Explanations, and Analyses"—so be sure your students know about it and spend the time working their way through it. (*After* they've done the exercises on their own. Emphasize that if they consult this section *as* they're working through the exercises, they're shooting themselves in the foot.)

Be prepared to spend a fair amount of time on, and to come back to, the sections at the end of Section 2.2 explaining that appeals to emotion, intuition, instinct, and faith are not arguments. The lengthy excerpt from Singer's book might help with the last mentioned. Be sure your students read it.

The material on deductive arguments, especially the concepts of validity and soundness, and the syllogism, is merely introductory. Elaboration is provided in the two logic chapters. Similarly, the material here on inductive arguments is merely introductory: relevance is treated at some length in Chapter 4, the notion of truth and acceptability in Chapter 6, and sufficiency is treated throughout Chapters 7 and 8, as are the forms of generalization, analogy, general principles, and causal reasoning.

Although I have attempted to include, as mentioned above, a fair amount of material from non-academic sources focusing on a variety of important and interesting issues, my guess is that most students will still not fully *engage* with the arguments. At best, they may merely highlight the topic sentences. This is why I have encouraged students to read with pen in hand, to underline, circle, draw arrows, make note of questions, comments, examples—to engage in conversation with me and the many people whose words, whose arguments, I've presented. They've got to think about this stuff! Otherwise they're just watching someone else ride a bicycle, all the while telling themselves they know how to do it, they can do it. (Lots of white space is provided for just this purpose.)

I have also annotated three examples in this chapter to act as a model (but it's just an example—students should develop and use their own system!), to encourage such active reading. Two examples will be annotated in the next chapter, as reminders, and one example in the chapter after. If this is insufficient, consider putting some of the exercise bits on an overhead, before and/or after you've assigned them, and annotate them yourself in front of the class as you read them and think aloud about what you're reading. Consider it teaching by example.

About the end-of-chapter exercises, note that there will not be any "Answers, Explanations, and Analyses" for the audio clips of the "Thinking critically about what you hear" exercise because these are expected to change. So be sure you discuss them with your students.

I have introduced the students to writing arguments very gently. Don't be impatient. If all goes well, the baby steps at the beginning will pay off and you'll be impressed with the 1,000-word thesis essays produced by your students at the end. And if you need to reach 2,000-word essays by the end of the course, just expand the writing exercises along the way as needed.

It looks like I've made overly much to do about discussion. I haven't really. I've just analyzed and then codified "good" discussion—because it was far too exhausting to keep in-class discussions "on track"! You know yourself how difficult it is to comprehend what a student says and then immediately put your finger on why it was irrelevant or incorrect or whatever and articulate that before

the next student speaks up, making yet another somewhat irrelevant comment, leading everyone yet further astray.

So you might want to read that section ("Thinking critically when you discuss") and present it yourself—it does look rather intimidating in the text. Note that another potential response is challenging the logic of the speaker. If you work through the logic chapters available on the companion website, you might thereafter make a point of adding this option for this end-of-chapter exercise.

Your students may rebel at the rigidity of this exercise, but encourage them to stick with it; after just a few weeks, especially if they also conduct their out-of-class discussions according to the "rules" presented, they'll start to internalize the repertoire of responses, and their discussions will really become worthwhile.

CHAPTER 3 THE STRUCTURE OF ARGUMENT

If your students aren't philosophy majors, and if you're not going to teach the two logic chapters provided on the companion website, I'd strongly suggest foregoing this chapter in favor of the "Thinking Critically about Ethical Issues" chapter (also on the website).

However, do note that many of your students are likely to be visual learners—and they may find this chapter very enlightening.

This chapter elaborates on the main point of the preceding chapter: arguments aren't just a bunch of statements more or less on the same topic; they are bunches of statements that have a very specific relationship to each other (one or more provides reason for accepting another one or more . . . or variations on that theme).

So I would say that it's not particularly important that students learn by name all the different structures; it's more important that they learn that arguments *have* structure.

Given the emphasis on structure, if you *are* teaching the logic chapters, you should definitely cover this chapter first. It introduces students to the concept of structure, the notion of relationships between statements, and the practice of diagramming.

If you decide not to teach this chapter, you may still want to use the many bits of argument in the exercises (not only the end-of-chapter "Thinking critically about what you read" but also the in-chapter exercises), especially if your students need more practice identifying conclusions, premises, and so on. There are some very interesting bits here.

You may need this ammunition: the bit about subsidies to the ethanol industry (#10 in "Thinking critically about what you read") was written by a junior majoring in computer science and political science.

Lastly, this chapter has one of the two MCAT sample question bits (in the end-of-chapter "Reasoning test questions" exercise), so if you've got

med.– school-bound students, you might want to draw their attention to it. (The other MCAT bit is in Chapter 6. The rest of the chapters feature GMAT and LSAT questions, except for Chapter 5 and the "Thinking Critically about Ethical Issues" chapter, both of which have GRE bits.)

CHAPTER 4 RELEVANCE

Relevance is big. And slippery. And although I claimed in the Note to Instructors that I opted not for the mega-chapter on fallacies, I confess this chapter is close. But that's only because most of the fallacies seem to be errors of relevance. To help negotiate through this mega-chapter I have grouped the fallacies into three kinds: considering the source instead of the argument, appeals to an inappropriate standard, and going off topic. It might help your students if you often referred to this organizing principle.

Alternatively, you might emphasize which of the errors in this chapter are errors of *response* (appeals to the person, genetic fallacy, "two wrongs," paper tiger, and red herring) and which are errors of construction. See Appendix 2 for various groupings of all of the fallacies covered in the text.

With respect to Exercise 4.1b, it might be pointed out by some students, especially those with great imagination, that *any* premise can be made relevant with the insertion of additional premises, so the whole notion of fallacies of relevance falls apart. Those students should receive an A.

My guess is that students won't always be able to distinguish between the three different ad hominems or between an ad hominem and the genetic fallacy. I would say this is okay, especially as there are additional variations—an appeal to a person's circumstances, an appeal to a person's person (perhaps that's what we should call the appeal to a person being female, or black, or blue-eyed . . .). The important thing is that they understand that taking the person who makes an argument into consideration, in any way, is a mistake. They should be focusing only on the argument—it stands or falls no matter who makes it.

Before you teach appeal to inappropriate authority (Section 4.3.1), you might take a look at Section 6.4, especially Section 6.4.3, which covers evaluating claims of truth generally and, specifically, evaluating sources. You may need to spend some time distinguishing between appropriate and inappropriate authority.

Appeals to moderations and appeals to popularity might best be taught as a pair, since in both cases, there are "one end, other end" variations.

The "two wrongs" fallacy is perhaps more slippery than others. Prepare to spend a bit of time on this one. One key is understanding that the first action is indeed considered a wrong.

The "going off topic" errors of relevance are, it seems to me, most prevalent when people talk—so extra attention to and extra practice identifying these errors can be done during the "Thinking critically when you discuss" exercises.

For students who have difficulty determining whether something is relevant, first confirm that they can tell you the issue of contention. Often that's the problem right there (see question 10 of Section 4.4.4c). Sometimes, though, they know the issue of contention, but haven't correctly, or haven't at all, identified the actual argument—the premises and the conclusions. Or, yet another possibility, the student simply may not have enough background knowledge about the topic to know whether a supposed premise actually bears on the conclusion.

In general, you might notice that in my "Answers, Explanations, and Analyses" there is some degree of humming and hawing: fallacies are not always easy to apply and, more relevantly, whether something is an instance of this or that fallacy often depends on context not provided in the bits herein.

CHAPTER 5 LANGUAGE

Hopefully, your students will find this chapter a little bit of relief after the chapter on relevance. The material is less thought-intensive and a little more fun.

You'll note that in the exercise about imprecise diction, I included a problem with imprecise grammar, which is the next section. I do this so that you and your students have something to look forward to. Consider it a page turner.

You'll also note that in the exercise about imprecise grammar, I included a few problems with imprecise diction, which was the previous section. I do this so students have to keep going back (consider it review), and they have to keep considering *everything* they've learned so far (so the course, the text, becomes a cumulative thing . . .)—with every bit, they should be considering everything they've learned so far in their analysis, not just the lesson of the moment.

You could add a discussion of amphiboly while in Section 5.1.2. I've treated imprecise grammar rather lightly because I find so many students have a real phobia of grammar or a real ignorance of grammar that I have neither the time nor the inclination to address!

If your students have a firm grasp of circular arguments (covered in Section 2.4) and you are pressed for time, Section 5.1.3 could easily be skipped.

It is debatable whether neutrality in language is possible. I take the stance in this text that it is, but this is more a theoretical stance, and motivated by pedagogical purposes, than a pragmatic one! In any case, have fun with the "rewrite" exercises! Introduce your students to a thesaurus!

Note that Exercise 5.2.1d asks students, in question 10, to consider the latest "State of the Union" address. Obviously, there can be no entry for this one in the "Answers, Explanations, and Analyses"—you're on your own!

For Section 5.2.2, you might want to bring, or ask your students to bring, various front pages of newspapers into the classroom to pass around. Actually, you might want ask your students to bring a slew of magazines as well—no doubt, every point in this section will be readily illustrated by a casual perusal!

For Exercises 5.2.3a (Practice recognizing loaded aural effects) and 5.2.3b (More practice recognizing loaded visual and aural effects), there are no entries in the "Answers, Explanations, and Analyses" for obvious reasons—enjoy!

With respect to Section 5.3.2, especially if you'll be teaching the logic chapters, you could introduce the notion of conditionals here (the antecedent of a conditional statement expresses a sufficient condition and the consequent expresses a necessary condition . . .).

Note that there are no entries in the "Answers, Explanations, and Analyses" section (for students or for you) for Exercise 5.3.3b. You might want to turn this exercise into a group game: students arrange themselves in groups of four or five, and each group works on the same word at once; give them maybe two minutes per word, at the end of each two minutes, go around the room and see which group has come up with the best definition. Then everyone has a minute or so to come up with challenges: examples of things that are excluded and shouldn't be or things that are included and shouldn't be (essentially, they're testing the definition for excessive exclusion and excessive inclusion, testing whether the definition is too narrow or too broad). Be sure to go through the words of the exercise in order—'spoon' is so much easier to define than "freedom"! And, of course, be prepared to go off on a delightfully important tangent, not only with "freedom" but also with "Hispanic-American" and the difference between "religion" and "cult".

Reminder: your students should be about halfway to where you want them to be by the end of the course with respect to writing and discussing; if they're not, you might want to spend more time on the end-of-chapter "Thinking critically about what you write" and "Thinking critically when you discuss" exercises in this chapter. With regard to the latter, it might be very instructional for your students to record their discussion and then review it. (Peer review for their writing is also a possibility, but I'm always concerned that if the peer doing the reviewing has poor reading skills, which is not unlikely, the review will do more harm than good for the writer!)

CHAPTER 6 TRUTH AND ACCEPTABILITY

One of my main reasons for talking about theories of truth and how we discover truth is to get students to raise their standards. It seems to me that most people have far too low a threshold regarding when they say they know something. I often come across as the stupidest person in the neighborhood. This has always puzzled me since I have more degrees and am by far the most widely read. Then I realized that my standards of knowledge were just so much higher. Other people were throwing around "I know . . ." like they were saying "Hello"!

The other reason for this chapter is to thoroughly introduce the scientific process—its rationale as well as its method—before the next two chapters. If you have science majors in your classroom, be sure to call on them!

Be forewarned that the section on theories of truth (Section 6.2) is brief and superficial. If you're into epistemology, feel free to supplement this section. If you're not, and your students are philosophy majors, feel free to skip this section: they'll get into it later and this introduction might do more harm than good. If your students are *not* philosophy majors, though, this brief look might be a good idea if only to show your students that what can be said to be true is subject to debate among fine minds in the philosophical community.

The many checklists of questions provided in Section 6.4 could be prepared and provided in a more user-friendly way: for example, a cut-and-paste job could be done so there's one batch of questions per sheet of paper, and these could be photocopied and distributed so students could keep them in a prominent place. I don't know if the lists are worth laminating to poster size like the template, but they have the same "constant reference" value.

If you've got a small class and a lot of enthusiasm, you might want to teach Section 6.4.1 this way: arrange for all of your students to "accidentally" witness an incident (you could prearrange such an incident with the theater department—a few budding actors could stage an incident at a predetermined location, which happens to be on the route you take with your students for their annual library visit . . .); a few days later, ask everyone to describe the people they saw and what they saw them do; then compare descriptions, pointing out the effects of all the variables listed in Section 6.4.1.

You might want to be sure to read ahead to Section 6.4.2, questions 6 and 8, to prepare yourself for class response and discussion.

There may be students in your class who would enjoy preparing a few fake photos for Section 6.4.3 that might be more fun to use than the ones in the exercise!

CHAPTER 7 GENERALIZATION, ANALOGY, AND GENERAL PRINCIPLE

As I note at the beginning of this chapter, "sufficiency" is sometimes called "adequacy" (a quick browse through five CT texts shows that two use "sufficient" and three use "adequate" in this context). I decided to go with "sufficiency" since it sounds like a more precise, and higher, standard (if only because the word "adequate" is so much a part of our everyday vocabulary). However, if you have or will be teaching the logic chapters, you might want to mention that our use of "sufficient" here is not quite the same as its use with reference to conditionals.

When you discuss generalizations (Sections 7.2 and 7.5.1) and sample issues (Sections 7.5.2 and 7.5.3), you might want to refer back to sections of the previous chapter, the scientific method (Section 6.3.3), and surveys, experiments, numbers (Section 6.4.2): generalization plays a large role in the scientific method and sample issues are very important in surveys and experiments. Part of the

information students need on these matters is in Chapter 6, introduced via truth, and part of it is in Chapter 7, introduced via inductive reasoning.

I consider argument by analogy to be the weakest of the three types of inductive argument covered in this chapter. Partly that's because, as I explain in the chapter, such an argument is a one-step-removed appeal to a general principle: one argues "A, therefore X, and B is like A, so B also therefore X," when instead it would be better to just figure out *why* "A, therefore X" (perhaps it's because A is Y) and then just make *that* argument for B (B is Y, therefore X), without recourse to A. In this respect, arguments by analogy are like appeals to precedent (Section 4.3.2).

Other times, arguments by analogy seem to be simply appeals to consistency, and not really arguments at all.

Or they're simply illustrations, most often illustrations of the ridiculous intended to challenge the A of the analog, not the B. In this respect, they're much like a reductio ad absurdum, which, to my mind, is more a rhetorical strategy than an argument. Rather than argue that A is unacceptable because that would mean B, which is like A, is acceptable (which is absurd), why not just direct your attention to A's unacceptability—independent of B's absurdity.

Students may have trouble with the third kind of inductive argument covered in this chapter, that of using general principles. I think this is because a general principle is an abstraction, and the more abstract the thought, the harder it is to grasp. So consider the possibility that you may need to spend a fair amount of time on simply *identifying* general principles.

Note that Exercise 7.4.1c is actually a comprehensive exercise involving all of the errors presented in this chapter, rather than just the error of Section 7.4.

CHAPTER 8 INDUCTIVE ARGUMENT: CAUSAL REASONING

Students might need a bit of time to wrap their heads around the notion that we don't actually *see* causation, that causality can't ever be more than an inference. I think this is important, though—at the very least, it's at the heart of the complexity of causation. So don't skip over the Hume excerpt.

The difference between correlation and causation may be an eye-opening experience for many. Be gentle.

The next two sections, 8.1.2 (Cause, time, and space) and 8.1.3 (Direct and indirect causes) are pretty straightforward and should cause no problems.

With regard to Section 8.1.4 (Necessary and sufficient causes), if your students are philosophy majors and/or you are covering the logic chapters, you might want to use stick to "necessary and sufficient *conditions*."

I'm not convinced Mill's method of residues is as useful as those of agreement,

difference, and variation, so if your students are getting overwhelmed, you might want to consider skipping that one.

Have lots of fun with alternative explanations (Section 8.2.1)—tell your students the more ridiculous, the better. Some of the best explanations have started with the ridiculous.

Admittedly, there's more to making plans and policies than I indicate. I'm focusing only on the cause and effect part of plans and policies—a necessary but not sufficient part! Also, a typical reasoning test question (mostly on the GMAT and LSAT, I think) is something like "Will the plan achieve its intended goal?"

As for predictions, that bit can be tied more strongly to scientific investigation if so desired: hypotheses as predictions.

Perhaps more than any other bunch of errors (well, except for the relevance errors), the causal errors are common and important. They are, all of them, tricky variations on "jumping to conclusions" if you will. Spend enough time with them.

The end-of-chapter exercises here may well be your end-of-course exercises. So be sure the writing exercise, in particular, is the pinnacle of what you want your students to be able to do. Change the assignment as needed!

And the discussion exercise—if it will give your students a strong sense of how much they've learned, replay the tape you made first day of their discussion!

Answers, Explanations and Analyses

for even-numbered questions in the book. For Answers, Explanations and Analyses for odd-numbered questions, please go to the 'Students' page on the companion website.

Chapter 1

Critical Thinking

Reasoning test questions

2. Which of the following best completes the passage below?

In a survey of job applicants, two-fifths admitted to being at least a little dishonest. However, the survey may underestimate the proportion of job applicants who are dishonest, because _____.

*(A) some dishonest people taking the survey might have claimed on the survey to be honest

This is the correct answer. If some of the surveyed people who said they were honest were lying, then the total number of those who are dishonest would be higher than the two-fifths finding.

(B) some generally honest people taking the survey might have claimed on the survey to be dishonest

If this were the case, then the survey would have *over*estimated the proportion of dishonest applicants (rather than underestimated it).

(C) some people who claimed on the survey to be at least a little dishonest may be very dishonest

This would not affect the survey's estimate of the proportion of job applicants who are dishonest because it doesn't distinguish between degrees of dishonesty.

(D) some people who claimed on the survey to be dishonest may have been answering honestly

If this were the case, then the survey's estimate would be correct (and not an underestimation).

(E) some people who are not job applicants are probably at least a little dishonest

This may be true, but it's irrelevant to the issue (which is the proportion of job applicants who are dishonest).

(GMAT®Mini-Test #1)

Chapter 2

The Nature of the Argument

2.2a Practice recognizing premises and conclusions

2. Hydrogen is the most common element in the universe. Since it's so abundant, cars powered by hydrogen fuel cells will eventually be so much cheaper than gasoline powered cars.

Note that the word "so" is *not* a conclusion indicator in this case. The conclusion is "Cars powered by hydrogen fuel cells will eventually be so much cheaper than gasoline powered cars"; that hydrogen is so abundant is the premise supporting that conclusion.

Also note that there's an assumption here (see Section 2.3) that if it's abundant, it's accessible. As it turns out, this assumption is unacceptable: apparently hydrogen atoms are bound up in molecules with other elements, so energy must be expended to extract the hydrogen before it's usable. But, one might counter (see Section 2.7), oil isn't just sitting around either—energy has to be expended before it's usable as well. Which process is cheaper? And is that the only determinant of which kind of car will be cheaper?

4. Compared to the rest of the world, our kids are simply not very smart. I mean, look, on proficiency tests conducted in 30 countries, our 15-year-olds scored 25th on the math proficiency test, 18th on reading proficiency, and 21st on science proficiency.

(Statistics for 2003, from United States Department of Education)

Notice that this argument doesn't have any of the indicator words listed in the text. Nevertheless, there is a conclusion (our kids aren't very smart compared to the kids in the rest of the world) which is supported by the proficiency test results (that part of the second sentence would be the premise—or three premises if you want to break it down).

Note the error of generalizing from "15-year-olds" to "kids"—the argument would be stronger if the conclusion was just "Our 15-year-olds aren't very smart . . ."

6. Studies have shown that children in single-parent families are far more likely to have psychological problems than children in two-parent families. They are also more likely to drop out of school, get pregnant, become a drug-user, and become criminal. All of which goes to show how important it is to have a father, a male figure in the family.

Five premises are given (compared to children in two-parent families, children in single-parent families are far more likely to have psychological problems, drop out of school, get pregnant, become a drug-user, and become criminal) to support the conclusion that it is important to have a father, a male figure in the family.

This argument is not particularly strong, by the way, because there's no explanation as to why or how a male figure in the family would reduce psychological problems, dropping out of school, getting pregnant, becoming a drug-user, or becoming a criminal. It may not be the presence of a second parent, let alone one who's male, but the presence of a first parent: with only one adult in the household, the mother may well be out working full-time to pay for food and shelter. So the problem is not gender-related, but income-related.

8. "That's not the way I wanted to finish my season," [Danica] Patrick said. "I was on my radio all day about him. He [Jacques Lazier] was all over the track [during the 2005 Toyota Indy 400] even when he was running by himself. No wonder he jumps around from team to team. Needless to say, I'm pretty frustrated."

("Patrick physically confronts Lazier after crash,"
ESPN News Services, October 17, 2005, www.espn.com)

Notice how much of this is *not* making an argument. The only argument I can see is that Lazier jumped around from team to team (conclusion) because he was all over the track (premise)—and this is closer to an explanation than an argument (unless *why* Lazier jumps around from team to team is an issue of some contention).

10. Legalizing drugs will not eliminate crime. It will not even necessarily decrease crime because while it might decrease the mugging and burglaries committed

in order to get money to get the drugs, it will *increase* crimes committed under the influence of such drugs, such as homicides, car accidents, child abuse, and sexual abuse.

Note that this is a counterargument to the presumed argument that legalizing drugs will decrease or eliminate crime. The conclusion of this counterargument is that legalizing drugs will *increase* crime. The reason for that, the premise supporting that conclusion, is that (and this is somewhat implied) people under the influence of drugs commit more crimes than those not under the influence of drugs.

Note the assumption, then, that legalizing drugs will lead to more people under the influence of said drugs (or the same number of people more often under the influence). It's possible once drugs are legalized, there will not be an increase in their purchase or, more relevantly, their use.

Also note that the argument that legalizing drugs will decrease mugging and burglaries committed in order to get money for drug purchase assumes that drugs when legal will not be as expensive as when they're illegal.

2.2b Practice using standard form

2. Hydrogen is the most common element in the universe. Since it's so abundant, cars powered by hydrogen fuel cells will eventually be so much cheaper than gasoline powered cars.

   1. Hydrogen is abundant.

   Therefore, cars powered by hydrogen fuel cells will eventually be so much cheaper than gasoline powered cars.

4. Compared to the rest of the world, our kids are simply not very smart. I mean, look, on proficiency tests conducted in 30 countries, our 15-year-olds scored 25th on the math proficiency test, 18th on reading proficiency, and 21st on science proficiency.

   (Statistics for 2003, from United States Department of Education)

   1. Our 15-year-olds scored 25th on the math proficiency test.
   2. Our 15-year-olds scored 18th on the reading proficiency test.
   3. Our 15-year-olds scored 21st on the science proficiency test.

   Therefore, our kids are not very smart, compared to those in the rest of the world.

6. Studies have shown that children in single-parent families are far more likely to have psychological problems than children in two-parent families. They are also more likely to drop out of school, get pregnant, become a drug-user,

and become criminal. All of which goes to show how important it is to have a father, a male figure in the family.

1. Children in single-parent families are far more likely to have psychological problems than children in two-parent families.
2. Children in single-parent families are far more likely to drop out of school than children in two-parent families.
3. Children in single-parent families are far more likely to get pregnant than children in two-parent families.
4. Children in single-parent families are far more likely to become drug-users than children in two-parent families.
5. Children in single-parent families are far more likely to become criminal than children in two-parent families.

Therefore, it is important to have a father, a male figure in the family.

8. "That's not the way I wanted to finish my season," [Danica] Patrick said. "I was on my radio all day about him. He [Jacques Lazier] was all over the track [during the 2005 Toyota Indy 400] even when he was running by himself. No wonder he jumps around from team to team. Needless to say, I'm pretty frustrated."

("Patrick physically confronts Lazier after crash,"
ESPN News Services, October 17, 2005, www.espn.com)

1. Jacques Lazier drives all over the track.

Therefore, he jumps around from team to team.

10. Legalizing drugs will not eliminate crime. It will not even necessarily decrease crime because while it might decrease the mugging and burglaries committed in order to get money to get the drugs, it will *increase* crimes committed under the influence of such drugs, such as homicides, car accidents, child abuse, and sexual abuse.

1. People under the influence of drugs commit more crimes than those not under the influence of drugs.

Therefore, legalizing drugs will increase crime.

2.2c Practice distinguishing arguments from non-arguments

2. But why wouldn't you apply for a job even if it's beneath you? What does that mean, anyway? I mean, what does it imply to say that such-and-such a job is beneath you?

This is not an argument; it's merely a series of questions. There is a vague suggestion that someone should apply even if it's beneath him/her, but no reasons are given. And there is a vague suggestion that it's in some way wrong to consider a job to be beneath oneself, but, again, no reasons are given.

4. "I think it's about time there was 'the pill' for men!"
   "Yeah, right." [laughing]

The second speaker clearly disagrees with the first (the expression of emotion—the laugh of ridicule? disbelief?—can be taken to mean "There should not be a pill for men"), but neither of them gives a reason for their opinion. So neither of them has made an argument.

6. I am definitely against the death penalty. First of all, it's applied discriminately—more black-skinned people and low-income people get the death penalty. Second, there is always the possibility of wrongful conviction. Third, the death penalty doesn't act as a deterrent, because people who commit crimes punishable by death generally don't think ahead—or they aren't deterred by the death penalty.

This is an argument—and very nicely laid out one at that!

1. The death penalty is applied discriminately.
2. The death penalty may be mistakenly applied.
3. The death penalty doesn't act as a deterrent.

Therefore, the death penalty should be abolished.

There is even a subargument, in support of the third premise:

1. People who commit crimes punishable by death don't think ahead.

Therefore, people who commit crimes punishable by death aren't deterred by the possibility of that punishment (the death penalty doesn't act as a deterrent).

Note that I have assumed that by being "against" the death penalty, the speaker thinks it should be abolished.

8. There should be a maximum wage just as there is a minimum wage. Surely there's a limit to how hard a person can work—no one works a hundred times harder than I do, so they don't deserve to be paid a hundred times what I get an hour.

This is an argument:

1. No one can work a hundred times harder than me.
2. Therefore, no one deserves to be paid a hundred times what I get paid.

Therefore, there should be a maximum wage.

Or, put another way:

1. There's a limit to how hard a person can work.
2. Pay should be determined by how hard one works.

Therefore, there should be a limit to how much one gets paid.

Notice that there is a bit of a chain going on here: the first premise leads to the first conclusion, which is in turn a premise that leads to the final conclusion.

10. Ironically, if some alien anthropologists of the future were to visit our post-apocalyptic planet and try to make sense of American and Iranian culture on the basis of film archives, they could easily reach some puzzling conclusions. Iranian films—the product of an authoritarian, theocratic society—celebrate life in its most humble details and display enormous respect for the individuals whose stories are being told and for the viewers who are watching, while the big, mainstream American films—the product of a democratic, individualistic society—routinely humiliate their subjects, seduce their viewers by the most primitive means, and are alarmingly casual about killing and death.

(Shirley Golberg, "Iran's Remarkable National Cinema," *Humanist in Canada*, Autumn 2003)

This is not an argument; it is a general comparative description of Iranian and American films and a suggestion that alien anthropologists might draw puzzling conclusions on the basis of those films. Don't think that just because the word "conclusion" is in there, there's an argument! *Think as you read!* The word "conclusions" refers to the conclusions that could be drawn by the alien anthropologists, not to any conclusions drawn by the speaker as the end of any arguments that have been made.

However, if we add the premise that one can expect a country's films to reflect its society (and this may be something the author took for granted), there is an argument in this passage:

1. One can expect a country's films to reflect its society.
2. Iranian society is authoritarian, but its films celebrate individualism.
3. American society celebrates individualism, but its films denigrate individualism.

Therefore, the films of both Iran and America are puzzling.

2.2d More practice distinguishing arguments from non-arguments

2. You are surely smart enough to see that no amount of recycling is going to save the world.

This is not an argument. There is a conclusion—no amount of recycling is going to save the world—but there is no evidence to support that claim. What we have instead is an appeal to pride, or flattery—the speaker is hoping to persuade on that basis. And hopefully, once you've completed this course, you won't need to resort to such tactics! (*And* you won't fall for them!)

4. The last forty years saw the fastest rise in human numbers in all previous history, from only 2.5 billion people in 1950 to 5.6 billion in 1994. This same period saw natural habitats shrinking and species dying at an accelerating rate. The ozone hole appeared, and the threat of global warming emerged.

   Worse is in store. Each year in the 1980s saw an extra 85 million people on earth. The second half of the 1990s will add an additional 94 million people per year. That is equivalent to a new United States every thirty-three months, another Britain every seven months, a Washington every six days. A whole earth of 1980 was added in just one decade, according to United Nations Population Division statistics. After 2000, annual additions will slow, but by 2050 the United Nations expects the human race to total just over 10 billion—an extra earth of 1980 on top of today's, according to U.N. projections.

   (Paul Harrison, "Sex and the Single Planet: Need, Greed, and Earthly Limits," *The Amicus Journal*, Winter 1994)

There are lots of numbers in this passage, but there's no argument; it's just a description of what's happening. If a reason was given for the increase in population, *then* it would be an argument.

6. I don't have to think about it. I just do what comes naturally. You can call it irresponsible if you want, but that's the way we are.

This is, I think, an appeal to instinct; it almost seems as if the speaker is trying to avoid having to have reasons for his/her behavior.

One might point out that "the way we are" isn't necessarily compelling; that is, we might have tendencies to behave in a certain way due to the way we are, tendencies that we can refuse to act upon.

8. I have faith that the good Lord will protect us! I believe Jesus is our Lord and Savior!

This is an appeal to faith; if a reason had been given for that faith, then it would be an appeal to reason, and an argument.

10. "Because." "Because why?" "Just because!"

Okay, I figured you'd be tired by now and would appreciate a freebie. (An all-too-familiar freebie!)

2.3a Practice articulating implied conclusions

2. Astrology is both descriptive in that it purports to describe a person's personality based on time of birth and predictive in that it purports to foretell what sort of day, week, month, or year a person is going to have. However, consider a hundred people who were born at exactly the same time: surely they do not all have the same personality—they have not had the same life experiences. Further, given their differing personalities and given their differing life experiences, surely they will not all have the same sort of day, week, month, or year.

Therefore, astrology is unlikely to be correct in either its descriptive or prescriptive capacity.

4. Nancy Henley, psychologist and author of *Body Politics*, has written, "In a way so accepted and so subtle as to be unnoticed even by its practitioners and recipients, males in couples will often literally push a woman everywhere she is to go—the arm from behind, steering around corners, through doorways, into elevators, onto escalators . . . crossing the street. It is not necessarily heavy and pushy or physical in an ugly way; it is light and gentle but firm, in the way of most confident equestrians with the best-trained horses." . . . Steering and leading are prerogatives of those in command.
(Susan Brownmiller, *Femininity*, 1984)

The conclusion is that such men (men who steer a woman everywhere) believe themselves to be in command of the women they do that to.

6. Schools should serve national economic needs, and a lot of the courses taught in school today—history, geography, literature, phys-ed, music—we don't have jobs for that, the marketplace needs people to fill jobs in computers and telemarketing. We're also going to need a lot of people to work in nursing homes, because the baby boomers are getting old.

So, this passage seems to be suggesting, school should teach courses in computers, telemarketing, and nursing.

8. Since 2002, the average price of gasoline in the United States has increased 35.2 percent. Since 2002, the average consumption of gasoline by Americans per capita has not changed.

(U.S.Department of Energy/Harper's Research, *Harper's Index*, January 2005)

These premises lead to the conclusion that gas consumption by Americans is not influenced by the price of gasoline.

10. The purpose of marriage is family. And homosexuals can't have kids!

Therefore, homosexuals should not get married or should not be allowed to marry.

2.3b Practice articulating unstated premises

2. It's wrong to sell unsafe products because unsafe products can cause harm to people.

The person has assumed that causing harm is wrong. You may say, "well, duh." But the value in identifying assumptions is that one can then assess them—one might just as well have *not* agreed that causing harm is wrong; if you don't know what the assumption is, you can't figure out if you agree with it or not. And if it turns out that you *don't* agree with or accept the assumption that was being made, then you don't have to agree with or accept the argument.

4. The percentage of heterosexuals with AIDS is less than the percentage of homosexuals with AIDS, proving that heterosexual sex is less risky than homosexual sex.

Not so fast. The speaker has assumed that heterosexuals with AIDS acquired it through sex; it may be that they acquired it by using needles previously used by someone with HIV.

6. There's nothing wrong with the ladies, God bless them, let them play. But what they're doing is eliminating much of the available time when young players can get on the course.

(Jack Nicklaus, golfer, 1978)

The speaker has assumed that all the "young players" are men.

8. If there is no God, then everything is permitted. (Dostoyevsky)

This assumes that it is only God who can determine what's permitted and what's not; many people develop other ways to decide what's permissible and what's not.

10. Military training prepares the mind and body for war. It thus perpetuates the desire for war. So nations that force military training on their young are more likely to engage in the war they have prepared for. I call it the "All dressed up and no place to go? Hell no, we'll find a place!" phenomenon.

The missing premise here is that we tend to do what we're trained to do. True?

12. This company is run by sales, not by R and D. So the priority is style, not safety.

But that assumes that sales are influenced by style and not safety—or at least influenced *more* by style than safety.

14. Are there intelligent life forms out there in the universe? Well yeah. No one's visited us yet.

(Jass Richards)

The speaker is assuming that only unintelligent life forms would visit us. (Probably because we'd kill them. Or maybe because we're just not worth visiting.)

Note the faulty reasoning though: even if only unintelligent life forms would visit us, the fact that we have not been visited proves nothing—it may be that there are neither unintelligent life forms or intelligent life forms out there.

16. I keep telling Anne [Fornoro, his longtime public relations representative] I might have been an asshole, but I must have done something right, I got so many people still following me.

(A.J. Foyt, in interview with Leo Levine in *Road and Track*, February 2005)

The speaker assumes that people are following him because he's doing something right; there could be a number of other reasons for their behavior.

18. On June 6, the Public Health Council should say no to mandating mass medicating New Jersey's public water supplies with the corrosive metal fluoride. There are too many questions about the risks of adding fluoride to water, and it is not proven to reduce cavities significantly enough to warrant adding it to the entire water supply.

The benefit of fluoride to teeth, if there is one, can be provided through fluoride in toothpaste, mouth rinses, topical application and supplements.

No other public health problem has been addressed by adding a chemical substance to public drinking water, taking away the choice of every consumer whether to ingest fluoride.

It's difficult to justify putting in drinking water a corrosive metal that is likely to leach lead from older pipes more readily and enhance the human body's ability to absorb lead. In addition, fluoride ingestion over the long term can lead to brittle bones, joint disease that mimics arthritis and hormone disruption.

Let individuals, not the state, make the choice.

(Jane Nogaki, Marlon, letter to the editor, *The Times*, May 27, 2005)

While the speaker has given many reasons for choosing not to have fluoride in our drinking water, the last claim, which we can take as a conclusion, doesn't seem to have any supporting premises articulated in the letter—*why* should individuals rather than the state make the choice? Perhaps the missing premise is that individuals are likely to make a better choice. Or perhaps the missing premise is that in matters that concern individuals, individuals should make the choice.

20. Years ago it was, "I'm the parent, you have to listen and that's it." And we can't feel guilty about that because that is the way we were raised and socialized.

(Fran Ianacone, "Got Kids? Then You Got Anger," *U.S.1*, June 8, 2005)

The implied premise here is that we shouldn't (I think she's using "can't" to mean "shouldn't") feel guilty about having opinions that we were socialized to believe. True? If not, at what point *should* we feel guilty about that? Surely not at five years of age—but at 15? 20?

2.3c Practice identifying missing connections

2. I knew war as few living people today know it. The extreme destruction that war produces amongst our friends as well as amongst our enemies renders it useless as a way to solve international conflicts.

(General Douglas MacArthur)

The connection here is that war is useless *because* it causes extreme destruction—this is indicated with the words "renders it . . ."

4. Hey there's nothing wrong with pursuing your own self-interest. If you don't, who will? What's wrong with being happy, with trying to be happy, to have a good life?

The implied connection is that pursuing your own self-interest will make you happy:

1. Pursuing one's self-interest makes one happy.
2. There's nothing wrong with being happy.

Therefore, there's nothing wrong with pursuing one's self-interest.

But note there's a lot of sloppiness: *being* happy and *trying to be* happy are not the same, and having a good life is different, possibly way different, still.

2.3d More practice identifying implied arguments

2. It costs more than $115,000 to create a job in crude oil production. It costs only $20,000 to create a job in solar energy production. We have an unemployment problem. We have an energy problem.

The implied conclusion is that we should create more jobs in solar energy production and/or we should use less oil. (So the statements given would be premises supporting that conclusion.)

4. I don't doubt that the country is as rich in moral values as it is in apple trees, but I'm never sure that I know what the phrase means, or how it has come to be associated with the Republican Party, the Santa Fe Trail, or the war in Iraq. How is it moral for the President of the United States to ask a young American soldier to do him the service of dying in Fallujah in order that he might secure for himself a second term in the White House? Why is it moral to deny medical care to 40 million people who can't pay the loan-shark prices demanded by the insurance companies and to allow 12 million American families to go hungry in the winter? What is moral about an administration that never goes before a microphone to which it doesn't tell a lie?

(Lewis H. Lapham, "Notebook—True Blue," *Harper's Magazine*, January 2005)

This could be an implied argument, but *much* is implied! First, there is the implied claim that the President of the United States/the Republican Party is not moral. So if this is to be the conclusion of the argument, what are the premises? What support is given? Well, we are given examples of this supposed lack of morality—asking a young soldier to die, denying medical care, allowing families to go hungry—but the immorality of these examples is, again, merely implied.

6. The day may come when the rest of the animal creation may acquire those rights which never could have been withholden from them but by the hand of tyranny. The French have already discovered that the blackness of the skin

> is no reason why a human being should be abandoned without redress to the caprice of a tormentor. It may one day come to be recognized that the number of the legs, the villosity of the skin, or the termination of the *os sacrum* are reasons equally insufficient for abandoning a sensitive being to the same fate. What else is it that should trace the insuperable line? Is it the faculty of reason, or perhaps the faculty of discourse? But a full-grown horse or dog is beyond comparison a more rational, as well as a more conversable animal, than an infant of a day, or a week, or even a month, old. But suppose they were otherwise, what would it avail? The question is not. Can they reason? nor Can they talk? but, Can they suffer?
>
> (Jeremy Bentham, *The Principles of Morals and Legislation*, 1789)

The implied argument is that rights should be accorded because of the ability to suffer (rather than because of any rational capacity or linguistic capacity).

1. The capacity to suffer determines whether one has rights.
2. Animals have the capacity to suffer.

Therefore, animals have rights.

Of course, "rights" should be (as they certainly are in the longer piece) defined, or further delineated—the right to do what exactly, the right be free from what exactly. . .?

8. Why do we never ask, "Can a *man* have a career and a family too?"

To understand the implied argument here, one must know that the question is typically asked only about women ("Can a woman have a career and a family too?"). So the implied claim is that family should be as much men's responsibility as women's, as that would make the question as askable for men as for women. But a single claim is not an argument.

10. "Oh," said the doctor to the woman seeking contraception, "so you want to have your cake and eat it too!"

The implication is that for women, the price of sex is pregnancy. Thus, to obtain contraception, and thus avoid pregnancy, is to fail to pay the price. I suppose the full argument would be something like this:

1. Sex should lead to pregnancy.
2. Contraception enables sex not to lead to pregnancy.

Therefore, contraception challenges the "should" of sex.

2.4a Practice identifying circular arguments

2. We should accept more students because then our tuition revenue would increase. And if we have more money, we could expand. And if we were bigger, we could accept more students.

Yes, this is circular: the speakers have assumed to be good (accepting more students) exactly what they were supposed to proving was good (accepting more students).

4. You have to be really intelligent to get into medical school, and since fewer black-skinned people are admitted into medical school than white-skinned people, blacks must be less intelligent than whites. That's why fewer blacks than whites are admitted into medical school.

First, this seems to be providing an explanation rather than making an argument. Second, the argument seems to be this:

1. You have to be really intelligent to get into medical school.
2. Fewer black-skinned people are admitted into medical school than white-skinned people.

3. Black-skinned people are less intelligent than white-skinned people.

Therefore, fewer black-skinned people are admitted into medical school than white-skinned people.

Not only is it circular—the second premise is identical to the conclusion—it doesn't hang together correctly at all. The first two premises would better lead to the third premise—*that* should have been the conclusion. However, *that* argument assumes that intelligence *is all you need* to get into medical school. You also need, among other things, money. Possibly also connections. Possibly also the right skin color! The "better" argument also assumes that *all* intelligent people get into medical school. It's possible that black-skinned people are as intelligent as white-skinned people, or more intelligent than white-skinned people, but they are not applying to medical school.

6. If capitalists are required to share the wealth with the workers who produced it, they'll lose motivation to put their money at risk in productive enterprises. Many good things have come of taking such risk. And surely they're entitled to the entire return on their investment. True, they invest only the money, not the labor of how many workers, but the workers are paid a wage. Are they to be paid a wage *and* a share of the profit? Much of that profit is not earned by work, but by taking the risk.

No, this is not a circular argument. The argument opens with an "If . . . then . . ." and then identifies why the "then" should not come to pass (good things will be lost, they're entitled), then anticipates and responds to a counterargument (the workers also invest, their labor, but they're paid a wage).

One might reply, don't some workers (executives) get paid a salary *and* a share of the profit?

8. You can tell Stud is a real sleazeball—look at the people who hang around with him! They're sleazeballs! Because only sleazeballs hang around other sleazeballs!

Yes, this is circular, but it's a bit hard to see because there are actually two arguments. First, the speaker establishes that the people who hang around Stud are sleazeballs, and he/she does this with this argument:

1. Only sleazeballs hang around other sleazeballs.
2. Stud is a sleazeball.

Therefore, the people who hang around Stud are sleazeballs.

Note the second premise—it's a hidden premise, required to reach the conclusion. But there's where the circularity comes in—note the second argument, to establish that Stud is a sleazeball:

1. The people who hang around with Stud are sleazeballs.
2. Sleazeballs hang around other sleazeballs.

Therefore, Stud is a sleazeball.

10. When a new "sports bar" opens in New York and it feature topless dancers, we understand that this seems natural to the bar's owner and its enthusiastic patrons. We sense a connection: there's something about male sports privilege that contributes to the sexual objectification and abuse of women. Given how pervasive and what cultural icons men's sports are, that's a scary thought.

(Mariah Burton Nelson, *The Stronger Women Get, The More Men Love Football: Sexism and the American Culture of Sports*, 1994)

No, this is not a circular argument. In fact, it doesn't seem to be an argument at all, but more of an explanation about why a certain phenomenon doesn't seem odd to us.

2.5a Practice recognizing counterarguments

2. (i) The increase in children's allergies is due to their decreased fitness level. Kids don't go outside to play any more!
   (ii) The increase in children's allergies is due to the increase in air pollution. I wouldn't be surprised if all species were having more trouble breathing these days.

Yes, the second argument is a counterargument to the first argument—it specifically challenges the conclusion that the increase in children's allergies is due to their decreased fitness level by arguing for an alternative cause, that of an increase in air pollution.

4. (i) That's why gays are immoral: because they don't have kids.
   (ii) Many marriages are childless, some by choice, some not. Furthermore, heterosexuals don't divorce when they're past reproductive age.

The first person is making an argument about why gays are immoral; the second person doesn't address this matter at all, so it's not a counterargument. A counterargument would be that gays are *not* immoral because. . .

It is tempting to argue, in response to the first person, that heterosexual people who don't have kids are then also immoral; while this wouldn't be a counterargument per se, it would probably make the first person reconsider their argument.

2.5b Practice constructing counterarguments

2. I no longer believe those who say that a poor politician could be a good President if he could only be appointed to the job. Without the qualities required of a successful candidate—without the ability to rally support, to understand the public, to express its aspirations—without the organizational talent, the personal charm, and the physical stamina required to survive the primaries, the convention, and the election—no man would make a great President, however wise in other ways he might be.

   (Theodore G. Sorensen, *Decision-Making in the White House: The Olive Branch or the Arrows*, 1963)

First off, I have to point out the obvious, and obviously mistaken, assumption that presidents must be men.

Okay, a counterargument? Well, the argument is that campaigning is essential to being a good/great president because of all the skills required by campaigning that are also required of being a president. The mistake here is the assumption that the skills required by campaigning are only present in people who actually campaign, so I'd construct a counterargument along those lines: campaigning is

not essential to being a good/great president because the skills required by campaigning may also be present in a person who is appointed to the position.

4. How about *not* going hunting in silly camouflage outfits and being photographed with blood dripping from the rifle hand? Really, guys, it doesn't prove strength or leadership ability. Try mentioning women's healthcare and pay equity, and having real conversations about how women in the United States are trying to combine family and career. Just a thought.

   (Elaine Lafferty, "Lettter from the Editor: Going Forward with Grit and Wit in 2005," *Ms. Magazine*, Winter 2004/2005)

The argument here is "Strength and leadership ability are not indicated by killing animals; these attributes are indicated by attention to women's healthcare and pay equity." So a counterargument would be one that says killing animals *does* indicate strength and leadership ability.

Actually, the second bit of this is a counterargument to that implied in the first bit: strength and leadership ability are not indicated by killing animals; to the contrary, strength and leadership ability are indicated by attention to women's healthcare and pay equity.

2.6a Practice identifying the issue of contention

2. *Dburn*: We should get rid of the legal aid system. Why should we, you and I, taxpayers, pay for someone else's divorce?

   Johanssen: But what about people who are evicted without notice? That's not fair! They should be able to go to court about that!

Dburn is talking about the justice of the legal aid system (given that taxpayers pay for it), whereas Johanssen is talking about the need for the legal aid system (but seems to assume that without the legal system people evicted without notice would not be able to go to court).

4. *Chang*: Given how uninterested men really are in women, I'm surprised so many women still want to get married.

   Santana: I find it puzzling too. Gloria Steinem once said that to men, families mean support and an audience, but to women, they just mean more work. So why is everyone so desperate—for more work?

   Chang: Men just want the sex, and the kids—the precious progeny, the knowledge that their genes live on. That's why they want to get married. But what's the big deal? Why is it so important that their genetic make-up continues? It's not like they're all Einsteins. It's ego. That's all. If they had to be the ones looking after those little gene-carriers, full-time, I bet they'd change their minds.

Santana: Yeah, so why are so many women so eager? *They're* the ones gonna be looking after those kids 24/7.

Although this is a little unfocused—marriage and kids seem to be conflated, and Chang focuses more on men whereas Santana focuses more on women—they both seem to be on the same issue: whether or not it's puzzling that so many women want to get married. (And, they both seem to agree that it *is* puzzling.)

6. *Jibler*: You know, we wouldn't have a problem with these mega-stores coming in and putting all the local small stores out of business if things weren't cheaper by the dozen.
   Chowski: What do you mean?
   Jibler: Well, it's bulk pricing that enables the huge stores to have such low prices—they buy so much of the stuff, they get a good price, and they pass that on to the customer.
   Chowski: So you're saying they shouldn't get bulk pricing?
   Jibler: Well, why should something be cheaper just because you're buying two of it?
   Chowski: I think you might be right. I mean, a sweater is a sweater is a sweater. It should cost X number of dollars because that's how much it costs—that's how much wool how many hours it takes to make it. It doesn't suddenly take less wool or less time if someone buys two of them, so why should they pay less per sweater?

Both Jibler and Chowski are talking about price being related to quantity. That things are "cheaper by the dozen" is given by Jibler as an explanation for mega-stores having an advantage over, and putting out of business, smaller stores; Chowski seems to accept this explanation and joins Jibler in discussing the matter of pricing.

8. *Notharly*: I don't think doctors should tell prospective parents whether it's a boy or a girl. Sex selection only reinforces our sexist society. What can boys do that girls can't? And vice versa?
   Smythe: But a lot of parents want boys to carry on the family name or take over the family business. Anyway, just because the parents know, it doesn't mean they'll abort if it's not the sex they want.
   Notharly: Sure they will.
   Smythe: No, they won't. A lot of people are against abortion. And anyway, a lot has to do with how you raise the kids. A baby girl isn't necessarily going to grow up to be a passive, little wife.

Both discussants are talking about whether or not doctors should tell prospective parents the sex of their fetus (or embryo—when is sex evident?).

10. *McDein*: Now that I know he's into drugs, I'm going to boycott all his movies.
    Roulin: But that doesn't make any sense. You may think using drugs is morally wrong, but so what? If he's a bad actor, *then* don't go see his movies.
    McDein: Well he should at least apologize.
    Roulin: To who? For what? If you lie to me, should you have to apologize at work, to your boss, to your office-mates?
    McDein: No, because that's my personal life. And it's none of my boss' business. Or my office-mates' business.
    Roulin: Exactly. What an actor does on his own time is his personal life. If he messes up a role, *then* you can insist on an apology.
    McDein: But it's different. He's a public figure, a celebrity. It's like when a politician has an affair.
    Roulin: Yeah . . . and that's her own business too. If she embezzles public monies, then okay, you have cause for complaint.
    McDein: But they're role models!
    Roulin: Says who? Did he ever say he was a role model? No! *You've* made him into one—he didn't agree to be some shining example of humanity. So he hasn't broken any promise.

Both McDein and Roulin are discussing the same issue: whether an actor's behavior off screen is any of their business.

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

2. *Hebner*: I was abducted by aliens!
   Lattler: I don't believe you. Do you have any evidence?
   Hebner: Of course not—do you think the aliens would let me bring anything back with me? You'll just have to believe me.
   Lattler: No, I don't have to just believe you. You have to convince me—with proof!

Lattler is correct: since Hebner made the positive claim, that he/she was abducted by aliens, it is Hebner who must provide the evidence.

4. We should not have to prove that they have weapons of mass destruction; it is up to them to prove that they don't.

Wrong. (And that's all I have to say about this one!) (Okay, I lied, I do have more to say: this sounds a little like "guilty until proven innocent," doesn't it? "Prove that you *didn't* do it!")

6. *Kowalski*: If we legalize marijuana for medicinal use, a lot of people will use it for non-medicinal uses.
   Bendetta: Can you provide evidence for that claim?
   Kowalski: Yes, I can—I've researched the history of similar substances that have both medicinal and non-medicinal uses, and in every case, legalizing the substance led to both kinds of use.

It's good that Kowalski was able to back up his/her claim—because the onus was on him/her to do just that!

8. This will cure your baldness! Don't ask how I know! Try it for yourself and see!

But I *will* ask how you know. And the burden of proof is on you to tell me!

10. You're firing me because I haven't been "appropriately deferential"? Prove it!

This one's also a bit tricky. The burden of proof is in the correct place: the supervisor who has made the claim "You are not appropriately deferential" must prove it. You might say, though, that that's a negative claim, so the burden of proof should be on the employee to prove that he/she *has* been appropriately deferential. If the claim is considered to be, however, something like "You should be fired (because you have not been appropriately deferential)," then it becomes a positive claim, and the burden is on the supervisor.

By the way, why is lack of deference cause for dismissal? Why should someone be deferential to another human being just because they're in a higher position in some bureaucratic hierarchy? That doesn't necessarily mean the other person is older, more experienced, or more qualified, let alone wiser.

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

2. 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?

This is an appeal to ignorance *if* the conclusion is that court trials will not be less fair if television is allowed.

4. To repeat, just about every important long-run measure of human welfare shows improvement over the decades and centuries, in the United States as well as in the rest of the world. And there is no persuasive reason to believe that these trends will not continue indefinitely.

That last sentence makes an appeal to ignorance: just because there's no reason to believe the trends won't continue doesn't mean there's reason to believe they will.

2.9a Practice distinguishing facts from opinions

2. You'll hear many claims about audio systems, but the truth is, nothing sounds as good as live.

(www.bose.com/auto ad)

That's opinion, not fact. Although "good" is undefined, the implication is an aesthetic one. However, if the speaker intended a technical definition—for example, "good" means the audio system reproduces all of the original sound waves within 10 percent accuracy—then it could be fact.

4. Military recruiters offer $30,000 to sign up, while on average only $7,000 is spent on education per student in public schools.

(From a pamphlet published by the Global Women's Strike/Phila, philly@crossroadswomen.net, www. optoutofwar.net)

This is a fact. I'm not sure it's correct, but that can easily be established: it is either true or false that military recruiters offer $30,000 to sign up, and it is either true or false that the government spends on average only $7,000 per student.

6. God gets right to the source of most of our problems: SIN. The Bible says, "All have sinned and fall short of the glory of God" (Romans 3:23).

The second sentence is fact; whether or not that quote appears in the Bible can be determined by anyone who looks. But the conclusion, the first sentence, is not; there is no way to establish that God does, or does not, get right to the source of our problems. What sort of test would you perform to establish that? A test that anyone can conduct and get the same results?

Also, note the problematic connection between the two parts of this bit: how do we get from "we have all sinned" to "sin is the source of our problems" and then to "God gets to our sin"?

8. People who listen to music during surgery with local anaesthetic experience less stress than those who do not listen to music.

As long as you have an objective definition and measurement of stress (heart rate? cortisol levels?), this is, potentially, a fact. Though my guess is it would probably have to be qualified in some way—"*Most* people who listen to music . . ."

10. But meetings [between organ donors and recipients] or even a written contract are not for everyone. I've seen cases in which it was not a good idea.
(Lisa Colainni, donor family advocate at the Washington Regional Transplant Consortium, as quoted by Gretchen Reynolds in "Heart to Heart," *O: The Oprah Magazine*, November 2004)

This is a bit tricky, mostly because "not for everyone" is so vague. What exactly does that mean? If it means that such meetings can cause distress for some people, then the claim is testable—we can establish its truth (or not).

Thinking critically about what you see

2. 

© Corbis

This is simply a claim; if reasons were given to support that claim—why do we all deserve a Coke?—then it would be an argument.

Thinking critically about what you hear

1. BP Oil Spill: Media Lies & the Truth About a Teotwawki Event Happening Now

   http://www.youtube.com/watch?v=NSmQubagg2o&feature=related

The speaker says "I felt I needed to" (address the BP oil spill)—too bad he doesn't *think* he should because, after all, there are several very good reasons for addressing the incident. See Chapter 1.

There is little in the way of argument. See Chapters 2 and 3.

"We've dug into an area that we are not supposed to"—says who? And why (aren't we supposed to)?

"And that [the Exxon Valdez incident] was clean tanker oil . . . this is a hot geyser of natural gas . . . two hundred plus hydrocarbons . . . toxic chemicals. . ." I'm not sure I accept the implication that processed oil is less harmful when spilled than unprocessed. I'd like to hear more about that.

I'd also like to hear more evidence in support of the comments about the warming effect of the spill and the effect on hurricane systems.

Most of what is said is relevant. See Chapter 4.

Lots of loaded language, loaded body language, loaded tone, the close-up image imposes itself on us . . . See Chapter 5.

The speaker is not an expert (or even perhaps very well-educated—I note he misused "extrapolate" incorrectly at the end, and "dissipate" earlier), but at least he cites a source, so we can evaluate it. A visit to the site he uses as a source is not encouraging: I'm immediately suspicious because of its claim to be my "#1 Source for Earth Science News"; the "Prophecy and Predictions" section seems based more on ancient texts than any contemporary science; the site's "host" doesn't have even a B.Sc. See Chapter 6.

I think there may have been a few unsupported generalizations made, but the analogy to Katrina might be apt. See Chapter 7.

Causation is ill-addressed. See Chapter 8.

Thinking critically about what you read

2. I have my own opinion as to which is more important—car or driver—but before voicing it I thought I'd ask some of the experts, starting with newly crowned Champ Car World Series titlist Sébastian Bourdais. "A good driver without a good car is not gonna do anything," said Bourdais. "But a bad driver in a good car is not gonna go anywhere either. So I think it's pretty much a toss-up . . ."

   Former Champ-car driver Chip Ganassi. . . said the balance between car and driver depends on the type of racing. "In some series a great driver can overcome a not-so-good car. In other series a good car can overcome some deficiencies in the driver." In the Nextel Cup, for example, where the rules are quite restrictive and the cars are relatively simple, the driver is much more important. Conversely, in the IRL or Champ Car where you have a highly engineered piece of machinery, if you get the car set up right a lot of guys can drive it—at least at the very top levels of the sport . . .

   Indy 500 winner Bobby Rahal . . . explained that with the onset of major technological advances, which began a quarter-century ago, the car began to play a greater role in the quest for victory . . .

   World Champion and America's ambassador to racing Mario Andretti says that when you add it all up, it's 50 percent car, 50 percent driver, although some days it may be 70 percent driver, 30 percent car. "A driver contributes more at Monte Carlo than at Indianapolis," said Mario, adding that it also depends on racing conditions.

"On a wet day a driver contributes maybe 70 percent of the equation." Andretti said that in the old days when cars were slower and simpler, the driver made a huge difference. "If the car didn't work well you had to *wrassle* with it, but with today's specialized cars, there's only so much a driver can contribute."

(Joe Rusz, "Pole Position: Car or Driver?," *Road & Track*, February 2005)

Bourdais claims that car and driver are equally important—but it's just a claim: since no reasons are given, it's not an argument.

Ganassi's argument is this:

1. A great driver can overcome a not-so-good car.
2. Any top level driver can drive an excellent car.

Therefore, which is more important, car or driver, depends on the complexity of the car (which depends on the type of race, as different races have different rules about the type of cars allowed).

Rahal, like Bourdais, just makes a claim: since about 25 years ago when there were great technological advances in cars, the car is more important.

Andretti's argument is this:

1. On wet days, the driver is more important than the car.
2. The driver is less important with today's specialized cars than he/she was with previous cars.

Therefore, car and driver are equally important.

Note that Andretti's conclusion seems broader than his premises support. Before I accept his conclusion, I'd want a lot more instances in which the car is more important and a lot more instances in which the driver is important.

And the argument of the speaker? Isn't one. He says at the outset he has an opinion but, at least in this excerpt, doesn't get around to stating it, let alone arguing for it.

4. Most people do not know what sin is. It is generally assumed that sin is doing what one thinks or feels is wrong—or what is viewed as wrong by society generally. But that is IGNORANCE!

   And it could be very costly ignorance! The first thing we need to get settled in our minds is this: The living GOD of ALL POWER does not allow us to decide WHAT is sin! He forces us to decide WHETHER to sin! And the PENALTY of sin is DEATH for all eternity! That penalty is REAL! It is an Awful—a FRIGHTFUL fate!"

   (Herbert W. Armstrong, Worldwide Church of God)

The speaker claims that we are ignorant when we assume that sin is doing what we think or feel is wrong (or what society thinks or feels is wrong), but there is no reasoning given to support this claim.

Five more claims are made, in the second paragraph after the colon, but again, no evidence is given to support these claims.

Of course, providing evidence for these claims would strengthen the argument!

Notice, also, the use of exclamation points and capital letters—to intimidate us? to impress us with the importance?

6. The US has rejected the Kyoto Protocol, and they produce at least four times its per capita share of carbon dioxide emissions. They have opposed the establishment of an International Criminal Court (unless its own soldiers and government officials are exempt from prosecution) and helped establish the World Trade Organization as a mechanism for "accelerating and extending the transfer of people's sovereignty from nation states to global corporations" invariably expressing US interests.

(Simon Eassom, quoting Peter Singer, *The Philosophers' Magazine*, 25, 2004)

There doesn't seem to be a conclusion here. Given the premises—basically the whole paragraph—a conclusion *might* be "The U.S. is not interested in playing fair" but it could just as easily be "The U.S. works in mysterious ways."

8. We now engage in a wide variety of practices to control, influence, or select the genes and characteristics of offspring. Most of these techniques involve carrier and prenatal screening and operate in a negative way by avoiding the conception, implantation, or birth of children with particular characteristics. But there is a large amount of active genetic selection, albeit at the gross level, that occurs in choosing mates or gametes for reproduction, or in deciding which embryos or which fetuses will survive and go to term.

Cloning does differ in some ways from existing selection technology. Because it actively seeks to replicate DNA, it involves positive choice rather than negative deselection, as occurs with most other means of genetic selection. In addition, it selects or replicates the entire genome (except for mitochondria), rather than focus on the presence or absence of particular genes. Yet neither of these differences are qualitatively different from the genetic selection that now occurs in reproductive medicine. If cloning does not lead to tangible harm to others, it should be no less legally available than existing practices are.

(John A. Robertson, "A Ban on Cloning and Cloning Research is Unjustified," Statement, National Bioethics Advisory Commission, Full Committee Meeting, 1997)

The argument seems to be this:

1. The differences between cloning and existing genetic selection technology are not qualitative differences.
2. Cloning does not lead to tangible harm to others.

Therefore, cloning should be no less legally available than existing practices.

The second premise seems, to me, to strongly support the conclusion, but I'm not so sure about the first one: what if there *were* qualitative differences—how would that affect the appropriateness of legal availability one way or the other? Does this premise just make a "we're already doing it" argument? If so, skip ahead to the error in reasoning known as "Appeal to tradition or past practice" (Section 4.3.2).

10. The Gross Domestic Product (GDP) is the tool economists use to gauge the economy . . . The GDP is the value of all goods and services produced in a country. But the GDP makes no distinction between good and bad activity. It also ignores important parts of the economic engine. [For example,] pollution is counted as economic growth when we spend money to clean it up, [and the] GDP ignores so-called "non-monetary" activity such as the unpaid household and child-rearing work that many women do every day. That's why think tanks such as *GPI Atlantic* are arguing to scrap or at least augment the GDP with something called the Genuine Progress Index (GPI). In contrast to the GDP, which merely measures overall economic production, the GPI adjusts for resource depletion, housework, volunteer work, long-term environmental damage and pollution.

    ("Grossly Inaccurate," no author, *Sustainable Times,* Spring 1999)

This seems to be the argument:

1. The GDP makes no distinction between good and bad activity.
2. The GPI does make a distinction between good and bad activity.
3. The GDP ignores important parts of the economic engine.

<u>4. The GPI does not ignore important parts of the economic engine.</u>

Therefore, the GPI is a better measure of the economy than the GDP.

Note that premises 2 and 4 are *somewhat* implied—the last sentence does say that the GPI adjusts for long-term environmental damage and pollution, which is probably to say it distinguishes between good and bad activity, and it also says that it adjusts for housework and volunteer activity, which is probably to say it does not ignore important parts of the economic engine.

Note also that premises 1 and 3 could have been more carefully elaborated. It's merely implied that pollution is a bad thing and should not be counted as economic growth. And I think we're to understand that unpaid housework and childcare are examples of the "important parts of the economic engine" that are ignored by the GDP. These things could have been made more explicit.

Reasoning test questions

2. After purchasing a pot-bellied pig at the pet store in Springfield, Amy was informed by a Springfield city official that she would not be allowed to keep the pig as a pet, since city codes classify pigs as livestock, and individuals may not keep livestock in Springfield.

   The city official's argument depends on assuming which one of the following?

Here's the argument in standard form, with a place for the assumed premise:

1. City codes classify pigs as livestock.
2. Livestock may not be kept in Springfield.
3. _____

Therefore, Amy can't keep the pig.

*(A) Amy lives in Springfield.

This is exactly what fits in line 3. If Amy lived elsewhere, and was intending to keep the pig in her home, then the Springfield city codes wouldn't apply. They're relevant only if Amy lives in Springfield (and intends to keep the pig as a pet at her Springfield residence).

(B) Pigs are not classified as pets in Springfield.

This statement contradicts the information given in the passage ("city codes classify pigs as livestock"); it can't be, therefore, the implied premise.

(C) Any animal not classified as livestock may be kept in Springfield.

This may be true, but it doesn't apply to the argument since the pig *is* classified as livestock.

(D) Dogs and cats are not classified as livestock in Springfield.

This may be true, but it's irrelevant—it doesn't affect the argument one way or the other.

(E) It is legal for pet stores to sell pigs in Springfield.

This may be true, but it's irrelevant—it doesn't affect the argument one way or the other.

(*The Official LSAT Prep Test XXIII,* Section3, #30)

4. Electrical engineers have repeatedly demonstrated that the best solid-state amplifiers are indistinguishable from the best vacuum-tube amplifiers with respect to the characteristics commonly measured in evaluating the quality of an amplifier's musical reproduction. Therefore, those music lovers who insist that recorded music sounds better when played with the best vacuum-tube amplifier than when played with the best solid-state amplifier must be imagining the difference in quality that they claim to hear.

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

(A) Many people cannot tell from listening to it whether a recording is being played with a very good solid-state amplifier or a very good vacuum-tube amplifier.

This would not weaken the argument because the argument speaks only of "those music lovers who insist that recorded music sounds better when. . .," not people in general (in which case, something about "many people" might be relevant).

(B) The range of variation with respect to the quality of musical reproduction is greater for vacuum-tube amplifiers than for solid-state amplifiers.

Since the music lovers compared the best vacuum-tube amplifiers with the best solid-state amplifiers, this fact is irrelevant.

*(C) Some of the characteristics that are important in determining how music sounds to a listener cannot be measured.

This is the correct response. If there were characteristics important in determining how music sounds that cannot be measured, it may well be that the music lovers "insist that recorded music sounds better when played with the best vacuum-tube amplifier than when played with the best solid-state amplifier" are considering these non-measurable characteristics—and not imagining things (as the argument claims).

(D) Solid-state amplifiers are more compact, use less power, and generate less heat than vacuum-tube amplifiers that produce a comparable volume of sound.

This may be true, but it's irrelevant to the argument that some music lovers must be imagining a difference in sound because measurements indicate no such difference.

(E) Some vacuum-tube amplifiers are clearly superior to some solid-state amplifiers with respect to the characteristics commonly measured in the laboratory to evaluate the quality of an amplifier's musical reproduction.

The argument limits itself to the *best* amplifiers, so what's true of *some* amplifiers is irrelevant.

(*The Official LSAT PrepTestXXI,* Section 3, #23)

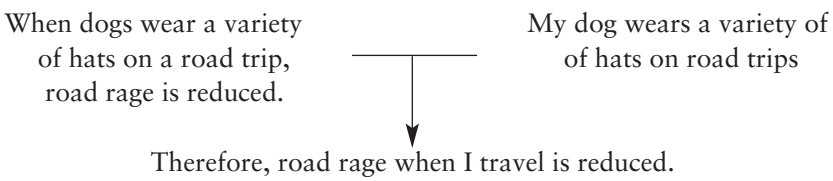
Chapter 3

The Structure of the Argument

3.2a Practice identifying single convergent arguments

2. Having the dog wear a variety of hats on the trip, like those of firefighters, police officers, construction workers, and cowboys, helps reduce road rage.
(William J. Thomas, *The Dog Rules (Damn Near Everything!)*, 2003)

This is more of a conditional "If . . . then . . ." statement than an argument, but if you were desperate to see it as an argument, you could consider the speaker to be saying this:



4. Only those who have already given birth should be allowed to become surrogate mothers, because unless you've gone through it you can't possibly

know what it's like, and if you don't know what something's like, you can't possibly give true consent to that something.

No, this is a chain argument. (See Section 3.6.)

You might note that by this argument, since surrogate mothers must give up the child they bear, only those who have given birth and *lost* the child through death or adoption should be allowed to become surrogate mothers.

3.2b Practice diagramming single convergent arguments

See answers to Exercise 3.2a.

3.3a Practice identifying multiple-separate convergent arguments

2. Sociologists Candace West and Donald Zimmerman did some extensive eavesdropping at various sites around the University of California campus at Santa Barbara and found that men interrupt women much more often than they interrupt other men and that they do so more often than women interrupt either men or other women. In analyzing her tapes of men and women who live together, Pamela Fishman found that topics introduced by men "succeeded" conversationally 96 percent of the time, while those introduced by women succeeded only 36 percent of the time and fell flat the rest of the time. Men can and will talk—if they can set the terms.

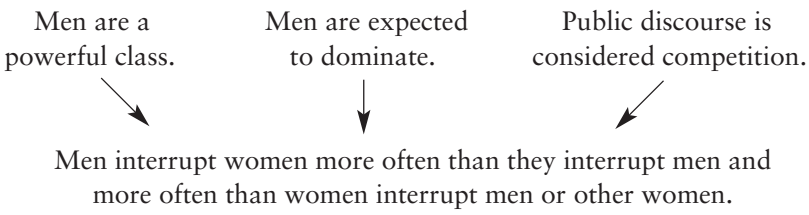
   There are all kinds of explanations for the conversational mismatch between the sexes, none of which require more than a rudimentary feminist analysis. First, there's the fact that men are more powerful as a class of people, and expect to dominate in day-to-day interactions, verbal or otherwise. Take any intersex gathering and—unless a determined counter-effort is undertaken—the basses and tenors quickly overpower the altos and sopranos.

   For most men, public discourse is a competitive sport, in which points are scored with decisive finger jabs and conclusive table poundings, while adversaries are blocked with shoulder thrusts or tackled with sudden interruptions. This style does not, of course, carry over well to the conversational private sector. As one male informant admitted to me, albeit under mild duress, "If you're just with a woman, there's no real competition. What's the point of talking?"

   (Barbara Ehrenreich, *The Worst Years of Our Lives: Irreverent Notes from a Decade of Greed*, 1991)

This could be considered an explanation rather than argument. But the speaker is arguing for a certain explanation for certain behavior, so . . .

This would be a multiple-separate convergent argument: two separate reasons —men are a powerful class and expected to dominate (or are those two separate reasons?) and public discourse is a competition—lead to the conclusion that (or are taken to explain why) men interrupt women more often than they interrupt men and more often than women interrupt men or other women.



4. I agree that companies should not have to provide benefits to same-sex partners. But then, I don't think they should have to provide benefits to other-sex partners either. Why should a company pay for the upkeep of their employees' partners?

This is not really an argument. One claim is articulated and another is implied, but reasoning is not given for either.

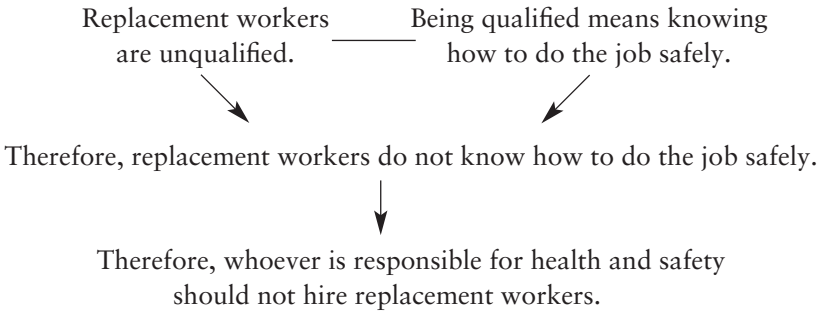
3.3b Practice diagramming multiple-separate convergent arguments

See answers to Exercise 3.3a.

3.4a Practice identifying multiple-linked convergent arguments

2. Whoever is responsible for workplace health and safety should make hiring scabs illegal. When people go on strike, it should be illegal for management to hire replacement workers. It's simply a matter of safety. Replacement workers are unqualified. And in our particular industry, being qualified means knowing how to do the job safely.

Yes, this is a multiple-linked convergent argument: that replacement workers are unqualified doesn't, by itself, lead to the conclusion that replacement workers should not be hired, and the definition of "being qualified" doesn't, by itself, lead to that conclusion. Only when the two together are accepted does the conclusion follow (with the insertion of "replacement workers do not know to do the job safely"—which adds a bit of a chain argument).

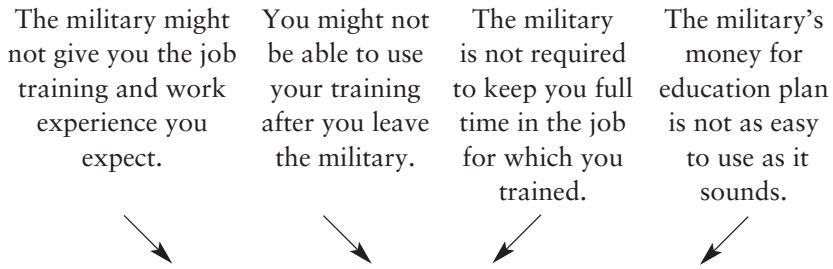


One might question, by the way, the truth of the first premise: often replacement workers *are* qualified—do you think for a moment that there are enough jobs to go around for everyone who's qualified?

4. Before you decide to enlist, look carefully at what you'll actually be doing—not just your job title. You may find that your job isn't what you thought it would be. The military might not give you the job training and work experience you expect. Jobs with fancy sounding titles often are low skill and non-technical. Many military jobs are so different from civilian jobs that you may not be able to use your training after you leave the military, or you may have to be retrained. The military is not required to keep you full time in the job for which you trained or for the entire time you are in the military. The military's money for education plan (New GI Bill) is not as easy to use as it sounds. It is only after you leave the military that you find out whether you've met all of the requirements. The largest amount of money mentioned in the ads—$70,000—is offered only to those GIs who take jobs the military has a hard time filling.

   (American Friends Service Committee, National Youth & Militarism Program, Philadelphia, 2000)

This is a multiple convergent argument, but the premises aren't linked; it's a multiple-separate convergent argument—there are four separate reasons leading to conclusion stated at the outset.



3.4b Practice diagramming multiple-linked convergent arguments

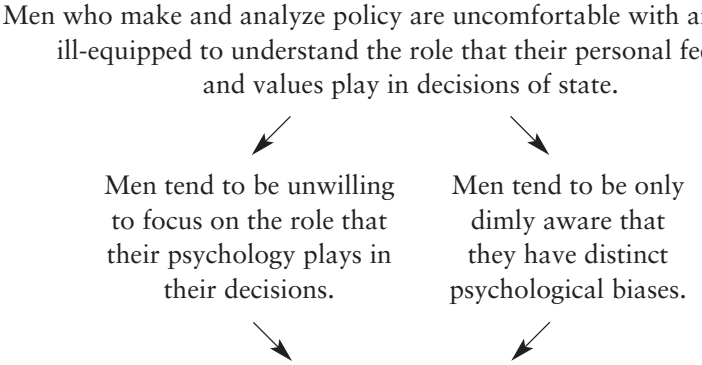
See answers to Exercise 3.4a.

3.5a Practice identifying divergent arguments

2. American foreign policy is almost never analyzed in terms of the psychology of its makers. By unwritten consensus, this influence on public policy has been regarded as too personal and too subjective to be reliable. In fact, the taboo exists because the men who make the policy and analyze it are often uncomfortable with and ill-equipped to understand the role that their personal feelings and values play in decisions of state. As a result, men tend to be not only unwilling to focus on the role that their own psychology plays in their decisions but also only dimly aware that they have distinct psychological biases.

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

Yes, this is a divergent argument—that then turns into a multiple-separate convergent argument.



4. Mother Teresa received reportedly 50 million dollars in donations, but it sat in bank accounts. Her hospices continued to re-use needles, dull ones at that. She herself, when she needed medical attention, went to a clinic in California. "With that money she could have built at least one absolutely spanking new, modern teaching hospital in Calcutta without noticing the cost," says Christopher Hitchens.

   (*Free Inquiry*, 16.4, 1996)

This is not a divergent argument. In fact, as excerpted, it doesn't seem to be an argument at all—a conclusion is missing. (And what might that conclusion be?)

3.5b Practice diagramming divergent arguments

See answers to Exercise 3.5a.

3.6a Practice identifying causal chains

2. Clinton's greatest gift to the Big Three automakers was exempting SUVs from the mileage requirements of regular passenger cars. Because of this exemption, these gas gluttons use up an extra 280,000 barrels of fuel *each day*. That fuel demand is one of the reasons the Bush administration is pushing to drill in the Arctic National Preserve in Alaska. Bush says the drilling will give us an extra 580,000 barrels of oil each day, enough to double the number of SUVs on the road.

(Michael Moore, *Stupid White Men*, 2001)

Yes, this is a single causal chain:

SUVs are exempt from the mileage requirements of regular cars.

↓

Therefore, SUVs use 280,000 more barrels of fuel each day than regular cars.

↓

Therefore, the Bush administration is pushing to drill in the ANP in Alaska.

4. The working world has not treated people so well in recent decades, according to Rick Jarow, Professor of Religion at Vassar College. Real wages, adjusted for inflation, are not going up. People are working more and making less than 30 years ago, and they have less vacation. And on a personal level, says Jarow, "most people sacrifice so much of themselves when they go to work."

(Michael Alperin, "Love Your Job," *U.S.1*, June 22, 2005)

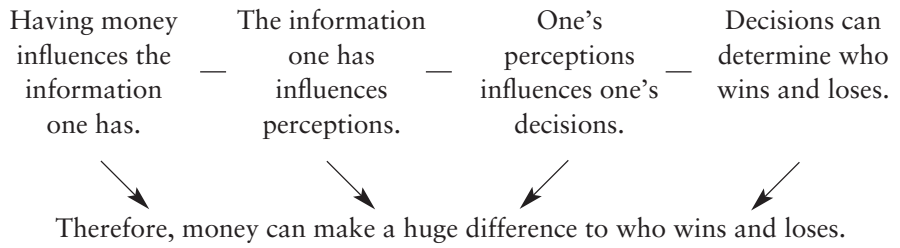
No, there are causal links here, so this is just a multiple-separate convergent argument, with four separate reasons leading to one conclusion:

Real wages are not going up. / People are working more and making less. / People have less vacation. / People sacrifice much of themselves when they go to work.

↘ ↘ ↙ ↙

The working world has not treated people so well in recent decades.

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.

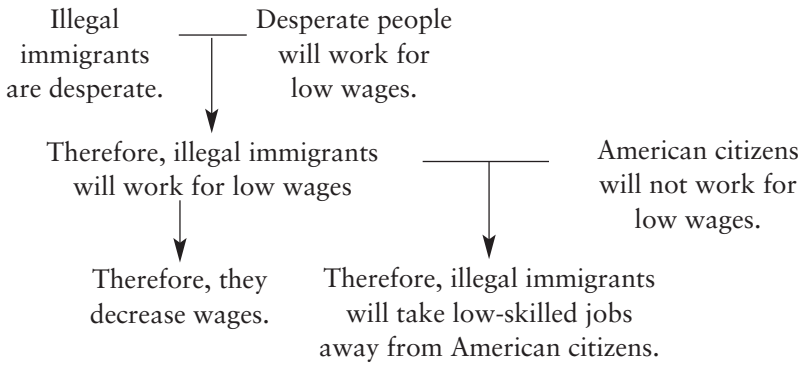


3.6b Practice diagramming causal chains

See answers to Exercise 3.6a.

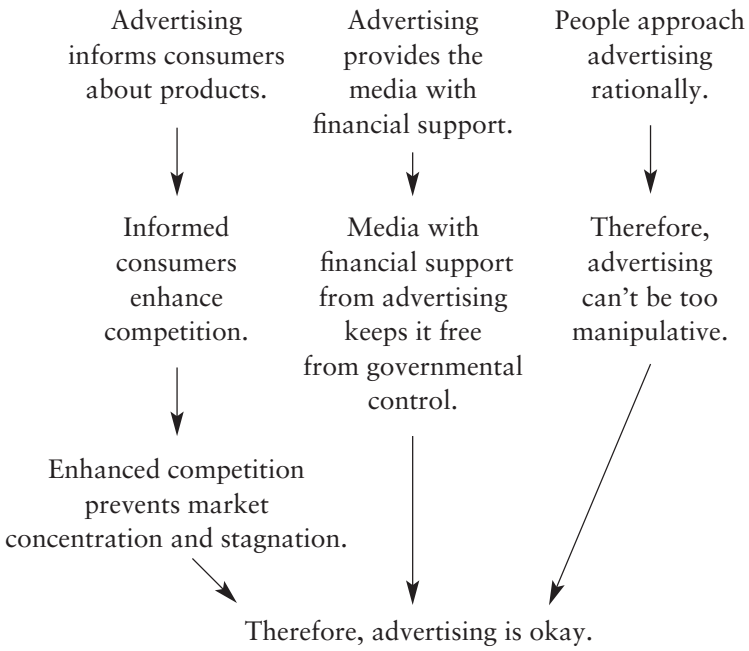
3.6d Practice diagramming multi-structured arguments

2. We should crack down in illegal immigrants. Because they're desperate, they're willing to work for next to nothing. So they take low-skilled jobs away from American citizens and they decrease wages.

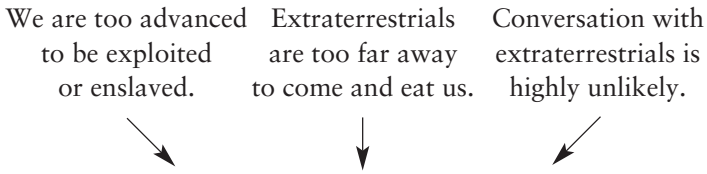


Note the assumption that's required at the second step, that American citizens won't work for as low wages as illegal immigrants; otherwise, why would illegal immigrants take away jobs rather than just compete for them (and perhaps lose).

4. Advertising informs consumers about products, which enhances competition, which prevents market concentration and stagnation, and it provides the media with financial support, which keeps it free from governmental control, and people approach advertising rationally and therefore it can't be too manipulative, so advertising is okay.



6. I want to show that we need not be afraid of interstellar contact, for unlike the primitive civilizations on Earth that were overpowered by more advanced technological societies, we cannot be exploited or enslaved. The extraterrestrials aren't going to come and eat us; they are too far away to pose a threat. Even back-and-forth conversation with them is highly unlikely, since radio signals, traveling at the speed of light, take *years* to reach the nearest stars, and many *millennia* to get to the farthest ones, where advanced civilizations may reside. (Frank Drake and Dava Sobel, *Is Anyone Out There? The Scientific Search for Extraterrestrial Intelligence*, 1992)



Note that there might also be an implied connection between extraterrestrials being too far away to enslave us.

Also note the assumption that there could be something fearful about conversations with extraterrestrials.

8. Should people pray for their team to win? Isn't that asking God to cheat? The rules of a game permit only a certain number of players. If God were to help

one side more than the other, wouldn't he be breaking the rules? Wouldn't he be dishonest and illegal?

. . .

And if God were to favor one team more than another, he wouldn't be acting like a father. If we're all his children, shouldn't he treat us equally? Would a decent father like to see some of his children defeat his other ones and make them feel miserable? Would he be proud to be the cause of this?

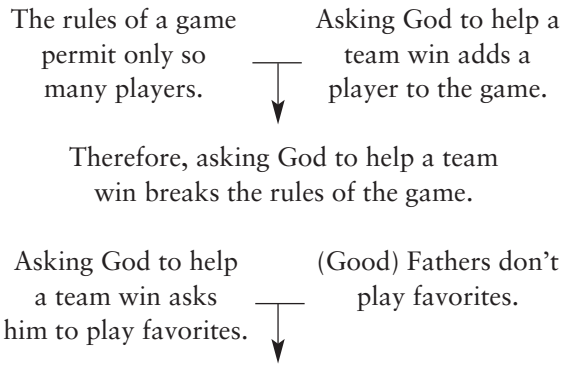
. . .

Shouldn't we assume that God realizes he shouldn't interfere in games, that he'd be cheating if he guided footballs and baseballs and basketballs, that he'd be unsporting if he provided an athlete with an extra spurt? Spiritual steroids are as dishonest as medicinal ones.

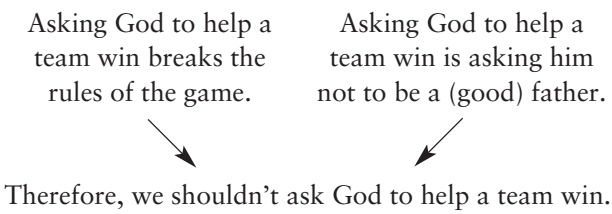
If you were running the universe, would you cheat for your favorite athletes? Of course not. Why would God?

(Dexter Martin, "Asking God to Cheat in Sports," in *African Americans for Humanism*, 1993)

There are two separate convergent arguments, each of which has linked premises:



And the conclusions of these form the premises of the overall argument, and in this case the premises are not linked (each alone provides support for the conclusion):



10. The Christian belief that Christianity is necessary to salvation is morally unjustifiable. Christianity did not come into being instantaneously all over the world. In fact, it spread rather slowly after the death of Christ, involving missionary work even into the nineteenth century. Since there have been millions who died without ever hearing of Christ, the Christian is confronted with a dilemma. Either these people could be saved or they could not. If they could not, then we are confronted with an obvious example of injustice. Some people were given a chance to be saved, while others were not. The geographical area or historical era in which a person lives does not make any difference in what he deserves. And yet, according to Christianity, people are being treated differently on the basis of factors which do not make any difference in what they deserve. On the other hand, suppose that these people could be saved. Then it follows that the Christian religion is not necessary to salvation. But the fact that Christianity offers salvation is its only excuse for existence, at least according to fundamentalists. Therefore Christianity is worthless. The whole enterprise of sending out missionaries to preach the Gospel has been a foolish waste of time. In fact, if only those who hear and reject the Gospel are damned, then it has imperiled souls rather than saving them.

(B.C. Johnson, *The Atheist Debater's Handbook*, 1983)

Actually, this argument seems simpler to follow without a diagram. The speaker opens with two mutually exclusive possibilities:

Either the millions who have died without hearing of Christ were not (could not be) saved or were saved.

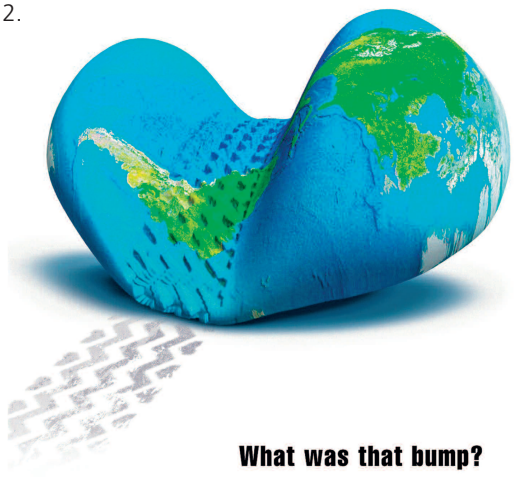
So far, so good, if one accepts the "were not" equals "could not be" part.

Given these two mutually exclusive possibilities, Christians must accept either an injustice or the idea that Christianity is not necessary to salvation

The author then fails to argue why the first option is not tenable, skipping right to the implication of accepting the second option: according to fundamentalists, salvation is the only reason for Christianity—so if that reason disappears, Christianity is worthless.

Thinking critically about what you see

2.



Courtesy www.adbusters.org

This image seems to be saying that cars and trucks and so on are running over Earth, and since the "beach ball" Earth is deflated by the tire tracks, it would seem to be an injurious or destructive running over (rather than simply a traveling upon). So it is clearly making a point.

But is it making an argument? If we grant the assumption that the Earth is more valuable than our cars and trucks, then we could assume a conclusion of something like "We should reduce our use of cars and trucks."

Thinking critically about what you hear

Royal Marines Advert

http://www.youtube.com/watch?v=5f8mG4KvqMw

Although the point of this advertisement is to convince people to enlist in the Royal Marines, not one argument is articulated. There is only an implied argument: Royal Marines are X (X being they are others' worst nightmare, they have conquered fear, they have come to terms with terror, they like pain, they are stealthy, they will die for their "brothers"); if you want to be X or if you already are X, you should join the Royal Marines.

The persuasion is all an appeal to emotion, an appeal to one's desire to be the kind of person described.

One might question, of course, whether being a member of the Royal Marines does in fact guarantee that one will become that kind of person. (And whether it is desirable to be that kind of person.)

Thinking critically about what you read

2. Of course climate change is real. Even the insurance industry knows it—they're quite concerned about the increasing number and magnitude of claims because of natural disasters.

The argument seems to be a simple convergent one:

1. The insurance industry is quite concerned about the increasing number and magnitude of claims due to natural disasters.

Therefore, climate change is real.

Note that the speaker has assumed that the increasing number and magnitude of *claims* due to natural disasters means that there has been an actual increase in the number and magnitude of those natural disasters; it could just be that people are reporting losses more often and/or exaggerating the extent of their reported losses.

Note also, of course, that the speaker has assumed that the increasing number and magnitude of natural disasters is due to climate change.

4. Some evangelical Christians have trouble reconciling evolution and a traditional belief in God as creator and sustainer of the world, but I do not. Within the evangelical tribe, I belong to the Calvinist wing, where a long history exists of accepting that God speaks to humans through "two books" (Scripture and nature), and since there is but one author of the two books, there is in principle no real conflict possible between what humans learn from solidly grounded science and solidly grounded study of the Bible. Of course, if "evolution" is taken to mean a grand philosophical Explanation of Everything based upon Pure Chance, then I don't believe it at all. But as a scientific proposal for how species develop through natural selection, I say let the scientists who know what they are doing use their expertise and whatever theories help to find out as much as they can. On the Bible side, I do not think it is necessary to read everything in early Genesis as if it were written by a fact-checker at the *New York Times*. But as a persuasive basis for believing 1) that God made the original world stuff, 2) that he providentially sustains all natural processes, and 3) that he used a special act of creation (perhaps out of nothing, perhaps from apelike ancestors) to make humans in his own image, the Bible is not threatened by responsible scientific investigations.

(Mark Noll, at: http://www.pbs.org/wgbh/evolution/religion/faith/statement_02.html)

There are two arguments here, the one leading to the next:

1. God speaks to humans through Scripture and nature.
2. God is but one.

Therefore, there can be no real conflict between Scripture and nature—between what we learn from solidly grounded science and solidly grounded study of the Bible.

The conclusion of the foregoing argument is then used as a premise for the next:

1. There can be no real conflict between what we learn from Scripture and what we learn from nature.
2. We learn from nature that species develop through natural selection (the theory of evolution).

Therefore, the theory of evolution is not in conflict with the Bible.

6. In 1991 [crop circle] designs started getting more complex. We started to see fractals for the first time including a huge Mandelbrot set which appeared near Cambridge—the home of Benoit Mandelbrot. This formation was interesting because the Mandelbrot Set is a recognizable human mathematical discovery. It would not appear through random wind damage or natural phenomenon. It has intelligence behind it. Therefore, this formation *has* to either be a hoax or a message from intelligent circlemakers. What I mean by this is that if you assume the formation is not just the work of silly pranksters, then it is undisputed proof of some kind of intelligent entity—ET?

(Paul Vigay, excerpt from a lecture given at David Kingston's Dorchester Crop Circle Conference, 4 April, 2004, at: http://www.cropcircleresearch.com/articles/e024-dorchester.html)

This seems to be a chain of simple convergent argument.

There is some lack of clarity in the phrase "the Mandelbrot Set is a recognizable human mathematical discovery"—the sentence is fine if it's referring to the mathematical discovery referred to as the "Mandelbrot set," but it seems to be referring to a particular crop circle so perhaps the speaker meant to say what I have presented below as the first premise for the first part of the speaker's argument:

1. The Mandelbrot Set crop circle has a pattern mimicking that of a recognizable human mathematical discovery.
2. Such a pattern would not appear through random wind damage nor a natural phenomenon.

Therefore, the pattern was made by an intelligence.

Note the additional premise needed to this point, that natural phenomena are not made by an intelligence. Acceptable?

The next step takes the conclusion of the preceding argument and uses it as a premise:

1. The Mandelbrot Set crop circle was made by an intelligence.

Therefore, it was made either by humans as a hoax or by an extraterrestrial intelligence.

Note the additional premise needed here that those are the only two possible intelligences—that, for example, some other animals couldn't have made the circles.

The speaker then continues, again using the conclusion of the previous bit as premise of the next bit . . .

1. The Mandelbrot Set crop circle was made either by humans as a hoax or by an extraterrestrial intelligence.
2. It was not made by humans as a hoax.

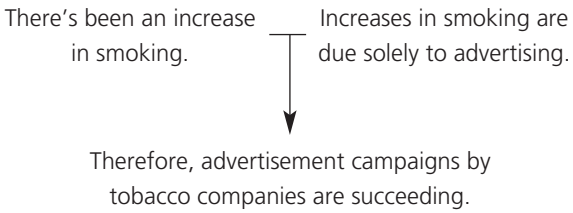
Therefore, it was made by an extraterrestrial intelligence.

Note the conspicuous lack of support for the second premise.

8. Since there has been an increase in smoking, it's pretty clear the advertisement campaigns by tobacco companies are succeeding. The anti-smoking lobby should try harder.

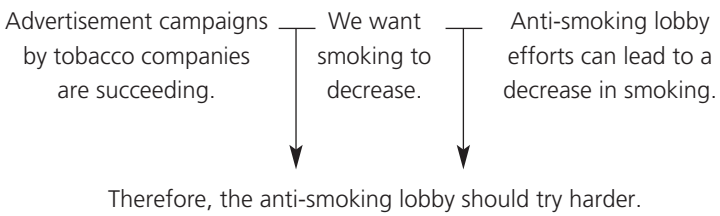
First, note the lack of clarity of "an increase in smoking": is that an increase in the numbers of people who smoke, an increase in the percentage of the population (American? worldwide?) who smoke, or an increase in the number of cigarettes smoked (which could mean that current smokers are smoking more, not that there are more smokers . . .).

The argument starts with a single convergent one:



Note that the second premise was unstated—but it's necessary if the first premise is to lead to the stated conclusion. Note also that this second premise is questionable: there are a great number of reasons why people begin smoking or increase their smoking; being influenced by advertising is just one.

The third sentence seems to be the conclusion of another argument, which uses the conclusion of the first argument as a premise. And again, there's a missing premise we need to supply:



Note that all three premises are linked; any one by itself does not in any way lead to the conclusion—it is only when all three are considered together that the conclusion follows.

10. Although the media and the public spend most of their time focusing on the largest and easiest issues to understand in politics, some of the worst government policies often arise in the lesser-known areas.

One of these areas is the subject of government subsidies to business: direct payments, tax cuts or other benefits given to producers of a particular good or service. One of the worst offenders in terms of federal and state subsidies is the ethanol industry.

On the surface, the arguments that politicians and ethanol-industry advocates use to justify the massive federal and state subsidies for ethanol seem persuasive. One line of argument pushes for the United States to increase ethanol production to achieve energy independence from foreign oil sources. Another argues that ethanol burns cleaner than gasoline and is renewable.

Unsurprisingly, this has resulted in a spurt of political support from politicians who see this as an easy and effective way to cater to farmers and environmentalists. This has resulted in the creation of a tax break for ethanol production that effectively pays producers an extra $0.51 for every gallon of ethanol they produce, as well as mandating ethanol be blended into gasoline.

The problem with current ethanol production arises from the use of corn as the main ingredient in producing ethanol. Right now, the amount of energy used to produce a gallon of ethanol from corn is just a bit less than the amount of energy gained from that ethanol. The process does not produce the excess energy necessary to drive a car or otherwise replace the use of gasoline.

. . .

Regrettably, the ethanol subsidy has had an impact not just in terms of wasteful tax spending but also in the increasingly worrisome inflation of food prices both inside and outside the United States. Since 2005, the price of corn per bushel has tripled, from $2 to more than $6 today. Given the broad uses of corn as feed for meat and dairy animals, as well as in processed foods, the higher price of corn has translated into higher food prices.

. . .

The revealed drawbacks of the ethanol subsidy show what needs to be done: Eliminate the artificial market conditions that spur producers to make it. The current technology for the industrial production of ethanol is not efficient enough to justify the inflation it is causing in food prices. The only responsible step policymakers in Washington and the states have left is to eliminate the subsidies that continue to drive the ethanol market until better technology is available.

(Andrew Wagner, "Corn Subsidies Distort Market,"
The Badger Herald, April 18, 2008)

Note the definition in second paragraph; excellent and wise to define one's subject, one's terms at the outset.

The third paragraph summarizes the argument which the speaker will counter:

1. Increased ethanol production will achieve energy independence from foreign oil sources.
2. Ethanol burns cleaner than gasoline.

3. Ethanol is a renewable energy source, unlike gasoline.

Therefore, ethanol production is preferable to oil production.
Therefore, subsidies to the ethanol industry are good.

This is a convergent argument with three separate (unlinked) premises.

Note that no reasoning is given to support moving from the first conclusion to the second; although it is easy enough to supply the premise required—that subsidies to an industry result in increased production within that industry—it would strengthen the argument if that premise had been articulated, and perhaps even argued for (*do* subsidies have that effect?).

The fourth paragraph isn't essential to the argument; it provides a bit of elaboration, but mostly it identifies the source or motive for the argument—which (skip ahead to Chapter 4) is irrelevant.

In paragraph five, the speaker begins his argument, first presenting a challenge to the first premise: the amount of energy used to produce a gallon of ethanol from corn is just a bit less than the amount of energy gained from that ethanol—so (implied) increased ethanol production will *not* achieve energy independence from foreign oil sources. Consider this his first premise.

In the next given paragraph, the speaker presents a chain argument:

increase in ethanol subsidies
↓
increase in price of corn
↓
increase in price of other foods

Consider the last step in this chain his second premise.

These two premises support the conclusion given in his last paragraph, thus:

1. Increased ethanol production will *not* achieve energy independence from foreign oil sources.

2. Ethanol subsidies lead to increases in food prices.

Therefore, subsidies to the ethanol industry should be eliminated.

Note that the speaker has not addressed the second and third premise of the original argument; if he could challenge one or both of those premises, his argument would be

stronger. Or, if he could show that the increased food prices somehow count more than the environmental advantage of ethanol and/or its renew-ability, again, his argument would be strengthened.

Reasoning test questions

2. (A)
4. (A)

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

2. Because marriage is a sacred institution and the foundation of society, it should not be re-defined by activist judges.
(President George W. Bush, State of the Union Address, 2005)

Whether or not marriage is a sacred institution and the foundation of society is irrelevant to whether or not it should be re-defined by activist judges.

4. Plea bargaining should be abolished. When a defendant agrees to plead guilty and thus not go to court in exchange for a reduced charge or lenient sentence, justice is not being served. Furthermore, it can hardly be called bargaining, since the one party isn't really in a position to bargain—I mean, their only alternative is immediate jail time, even if it's only until the trial, assuming they'll be found innocent.

The speaker gives two reasons for abolishing plea bargaining: it does not lead to justice, and it's not done freely. Both reasons are relevant to the conclusion.

6. Since there are no definite answers in ethics, this ethics course will be offered on a pass-fail basis.

What does "no definite answers" have to do with a pass-fail basis? There being no definite answers would be relevant to a refusal to mark students' work as right or wrong, but it's not relevant to a refusal to determine grades (as opposed to just "pass/fail"). There are standards besides correctness that can be used to determine a grade, so pass-fail is not the only option in the absence of definite right/wrongness.

8. Home schooling should definitely be allowed as a substitute for public school and/or private school. For one thing, parents may object to the methods used in public schools. Ditto for the material taught in public school. Also, children are often at risk of violence in public schools. What's wrong with their parents trying to protect them? What good is a public education if you're not alive to benefit from it? People may object, saying that homeschooled kids don't get socialized, but school is not the only social activity available! Last, but not least, teachers have been saying all along that if their class sizes were reduced, or even if they could teach one-on-one, they'd be able to do a much better job. Well, home schooling allows just that: individualized attention!

The three reasons given (sentences 2, 3, and 4) are all relevant to the conclusion (sentence 1)—though additional premises are required (such as "Parents' objections to the methods and materials used in a school are sufficient for the state to deem their children's attendance at the school optional").

One might consider whether home schooling is the best solution to the violence problem: wouldn't it be better to remove the potential criminals than to remove the potential victims? (And women shouldn't walk the streets at night because they might get mugged . . .)

The point re socialization is relevant to the counterargument that home schooling is adequate, as is the point about individualized attention. However, one might question whether all parents are qualified teachers (individualized attention is to nought if they aren't . . .).

10. I am absolutely convinced that UFOs have landed here on Earth. I have had strange sensations in my feet and hands for ten years now, and those circles in the fields, remember those? They're landing spots. The grass was burned away by the exhaust. And the pyramids? Who built them? No, sir, there is overwhelming evidence to support my belief. We have been visited by UFOs.

The strange sensations are irrelevant to the claim that UFOs have landed here on Earth *without* further reasoning on that connection. The circles are relevant, as are the pyramids, though one would be wise to consider alternative explanations. (Remember that relevance is only *one* requirement.)

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

2. If one added the premise "Activist judges should not redefine anything that sacred and foundational," then the given premise would be relevant to the given conclusion.
6. One would have to add the premise that grades other than pass/fail can be determined only when the course deals with definite right and wrong answers.

10. "The strange sensations I have been feeling in my feet and hands for ten years are residual effects of the highly advanced communications technologies used by visiting aliens." That would do it.

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

2. I had also been alerted to the fact that Hovind was under investigation by the I.R.S. for tax fraud and evasion, that he believes income tax is a tool of Satan to bring down the United States, democracy is evil and contrary to God's law, and recommends the infamous anti-Semitic hoax, *The Protocols of the Elders of Zion*, that he received his doctorate from a diploma mill, and that even Ken Ham's creationist organization, Answers in Genesis, disavowed many of Hovind's wackier beliefs in a fascinating web page document entitled "Arguments We Think Creationists Should Not Use." (Michael Shermer regarding Kent Hovind prior to engaging in a debate with him, http://ofgodandlogic.com/morality/miracle/index.htm).

None of this will matter: the speaker should respond to the arguments presented in the debate. These claims about Hovind's character (and they are claims about Hovind's character only to the extent that one's beliefs reveal something about one's character; the claim about his being under investigation is a claim about his circumstances, and also irrelevant, and the claim about his doctorate is a claim about his practices, see Section 4.2.1[ii]) are irrelevant to the merit of whatever argument Hovind may make.

4. *Sergimento*: Cancer is increasing, compared to 100 years ago. That proves that there are more carcinogens in our environment.
   Plouffe: Or, since cancer increases with age, maybe it's just that 100 years ago people didn't live long enough to develop cancer.

No, there is no ad hominem here; Plouffe responds to Sergimento's argument, not his character (or his practices or interests).

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

2. Wasn't it Jefferson who said "All men are created equal"? He was a slave-owner!

Yes, this is an appeal to the person's practices, specifically Jefferson's practice of owning slaves. The speaker should have responded to Jefferson's claim "All men are created equal"—perhaps by pointing out that it's just a claim! (There's no argument here.)

4. People should be free to govern themselves. And if the people of the United States of America oppose that, they're being hypocritical! They should take another look at their own history!

While the speaker is making reference to the character of the people of the United States (they're hypocritical), the reference is not made in response to any argument that's being put forth. Actually, it's being made in response to an anticipated disagreement with a mere claim ("People should be free to govern themselves")—not in response to an anticipated counterargument (which would be something like "People should *not* be free to govern themselves because they are not the best judge of what is best for themselves and . . .").

Also note that the comment that they should look at their own history suggests that an appeal to tradition or past practice is in the making.

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

2. *Diversky*: In the 1920s, after women scored higher on the first IQ tests, the authors of the test changed the questions.
   Pollitta: Who told you that, a woman?

This might be an appeal to the person's interests, if being a woman is a reference to interests; it could also be a reference to character, in which case it would be an appeal to the person's character, equally an error of relevance.

However, to the extent that Pollitta is challenging the veracity of Diversky's claim (and note it's just a claim, not an argument), implying (rightly or wrongly) that a woman would have a biased interest in proclaiming that claim to be true, Pollitta's response is fine.

4. *Harris*: It's my body, so I have the right to decide whether or not to abort!
   Haveras: You're just saying that because now you're pregnant!

Yes, Haveras is making an appeal to the person's interests, to the extent that being pregnant says something about one's interests.

Haveras *should* have responded to Harris' argument—which is that one has a right to decide matters concerning one's own body, deciding to abort is such a matter, so one has a right to decide whether to abort—perhaps by suggesting that one's right over one's body is limited by harm to another and since by aborting, one is causing harm to another (is a fertilized ovum, an embryo, or a fetus "another"?) (and is "ending the life of" causing harm?), one does not have the right to abort.

4.2.2a Practice recognizing the genetic fallacy

2. *Ipinswich*: You know, I really think we should do this.
   Nartov: Why, because the idea came to you in a dream?

On the one hand, one might think this is an instance of the genetic fallacy: Nartov is making reference to the source of Ipinswich's claim in order to, presumably, reject it.

On the other hand, Nartov is merely asking for the premise(s) in support of Ipinswich's claim. No fallacy.

Though perhaps one will suggest that Nartov's suggested premise makes for a weak argument indeed:

1. That we should do this came to me in a dream.
2. We should do everything that comes to me in dreams.

Therefore, we should do this.

4. Benny Proffitt told the crowd at a workshop on religion in public schools that church–state separation comes from the *Communist Manifesto*, (Robert Boston, *Close Encounters with the Religious Right*, 2000)

At face value, this is just a claim, a statement of fact. (Which happens to be incorrect, by the way—the speaker goes on to indicate that: ". . . the *Communist Manifesto* says nothing about separation of church and state. . . . As for the old Soviet Constitution, it might have. So what? That document also contained a guarantee of free speech and press. Does that make those concepts communistic?"

However, to the extent that the speaker intended to "contaminate" the notion of church–state separation *because* it came from Marx, because of its origins, this is an instance of the genetic fallacy.

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

2. *Hogan*: If God's responsible for the sudden disappearance of a tumour, why isn't he also responsible for its sudden appearance, huh?
   O'Clair: Oh don't be such a smartass!

O'Clair has made an appeal to the person, specifically an appeal to the character.

O'Clair should have, instead, responded to Hogan's implied argument, perhaps by asking for a clarification of the reasoning—in what way does being responsible for the one event *necessarily* mean responsibility for the other event? Perhaps there is a significant difference between the two events that explains why

God is responsible in the one case but not in the other. Perhaps causing the disappearance was answering a prayer.

4. *Luccock*: I was reading an article by Walter E. Williams in the 1990 issue of *Society*, and he says the term "African American" has to go. First of all, there is no single African culture. Second, black-skinned people living in the United States generally don't know what part of Africa their ancestors came from. Even if they did, they probably have nothing in common with the people living in that part of Africa. Lastly, they have nothing to gain by discovering or inventing myths about their affinities with Africa.
   Ellmann: Yeah, and I'll bet he's not African American.

Ellman has made an appeal to the person, though whether it's an appeal to character or interests is not clear. Perhaps it's a genetic fallacy, an appeal to the historical group of African Americans. Whether or not Williams is African American has no bearing on the merits of his argument. Ellman could have instead responded to one or more of the three premises (four, if you separate the "Second" comment in two).

6. Saint Augustine said "Any woman who acts in such a way that she cannot give birth to as many children as she is capable of makes herself guilty of that many murders." He is so full of it.

This is not an ad hominem fallacy. That it seems to be is due to imprecise wording: "He is so full of it" is, literally, a reference to Augustine's character, but I think the speaker intends instead just a general condemnation of the argument. To be an ad hominem, his being so "full of it" would have to be the speaker's reason for rejecting the argument. Something like "Saint Augustine said 'Any woman . . . murders,' but since he's a Catholic, he must be wrong" would be an ad hominem or perhaps the genetic fallacy.

8. The guy's Jewish (or Christian, or Atheist, or White, or Black, or . . .), so of course he denies it. What do you expect?

This is a genetic fallacy. The speaker is making reference to some group, membership to which is taken as reason to reject the denial. The speaker should have instead asked for the guy's reasons for denial and then dealt with those reasons.

10. *Grosset*: If telling the truth endangers the health and well-being of patients, can doctors withhold truth? Can they lie about their patients' conditions? I think so. It would be in the patients' best interests.

Klinck: But people are more likely to follow treatment if they know truth of the matter.

No fallacy here—nice engagement by Klinck of Grosset's nicely put argument.

4.3.1a Practice recognizing appeals to inappropriate authority

2. Dr. Bob said that you shouldn't be completely honest about yourself during the initial stages of a relationship. Too much information can be overwhelming. He says to wait until a certain level of trust has developed before you're completely truthful.

This may be an appeal to an inappropriate authority. It depends on who Dr. Bob is. Does he have a doctorate? In interpersonal psychology? Relationship counseling?

As for the argument, I'm wondering how that trust will develop if you're not telling the truth.

4. As a practicing physician, I am convinced that boxing should be banned.

   First, boxing is a very visible example that violence is accepted behavior in our society—outside the ring as well as inside. This sends the wrong message to America's youth, and at a time when so many kinds of violence are on the rise, it is a message we should stop.

   Second, boxing is the only sport where the sole object is to injure the opponent. Think about what a knockout really is: It is a cerebral concussion that knocks the victim senseless! Boxing, then, is morally offensive because its intent is to inflict brain injuries on another person. And it is medically indefensible because these injuries so often lead to irreversible medical consequences, such as subdural hematoma, nonfatal acute intracranial hemorrhages, "punch drunk syndrome," progressive neurological disorder and serious eye conditions.

   (Robert E. McAfee, "Ban Boxing," *USA Today*, 1999)

One doesn't need to be a practicing physician to make the argument presented in the first paragraph (boxing should be banned because it gives the message that violence is acceptable, and this is the wrong message, especially given the rise of violence), so it seems to be a little manipulative to start with "As a practicing physician . . .". Why appeal to your own authority if it's irrelevant?

The argument presented in the second paragraph is not as clear, but it seems to me that the speaker is just presenting another reason in support of the conclusion that boxing should be banned, and that other reason is that it's morally offensive. He goes to say that it's morally offensive because its intent is to inflict irreversible brain damage.

The appeal to the authority of being a practicing physician is relevant to the premise that boxing does indeed inflict irreversible brain damage, but otherwise, it seems inappropriate to mention.

4.3.2a Practice recognizing an appeal to tradition or past practice

2. Why do I want to be a police officer? My dad was in the force. So was his dad before him.

The speaker is appealing to tradition—it's tradition in that family that the men become police officers (I've assumed the speaker is male only to make the tradition more obvious). This is irrelevant unless the speaker believes that one's occupation should be the same as that of one's father.

4. In recent years, a flood of books and articles has advanced the notion that all is well with the environment, given credence to this anti-scientific "What, me worry?" outlook . . . One reason the brownlash [anti-science] messages hold so much appeal for many people, we think, is the fear of further change. Even though the American frontier closed a century ago, many Americans seem to believe they still live in what the great economist Kenneth Boulding once called a "cowboy economy." They still think they can figuratively throw their garbage over the backyard fence with impunity. They regard the environmentally protected public land as "wasted" and think it should be available for their self-beneficial appropriation. They believe that private property rights are absolute (despite a rich economic and legal literature showing they never have been).

   (Paul R. Ehrlich and Anne H. Ehrlich, "Brownlash: The New Environmental Anti-Science," *The Humanist*, November/December 1996)

Although the argument refers to a past practice (throwing garbage over the backyard fence), it doesn't use that practice as a premise to support the conclusion.

Given this argument (note the second premise was not articulated)—

1. We fear further change.
2. If all were not well with the environment, we'd have to change our past practices and beliefs.

Therefore, we like the "all's well with the environment" messages.

The reference to past practices and beliefs serves as an example to support the second premise.

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

2. It is common practice to pay men more than women; we will not depart from that standard.

Yes, this is an appeal to common practice:

1. It is common practice to pay men more than women.
Therefore, we will pay men more than women.

You see the problem. *Why* is it common practice to pay men more than women? If the practice is justified, then appeal to those justifications and not just the common practice. If the practice is not justified, then stop doing it.

4. There are diminishing returns from money, or, as economists would say, there is diminishing marginal utility. The more dollars you have, the less you benefit from an extra dollar.

   Let's say you're poor, a single mother living on welfare. An extra thousand dollars will make a large difference to your quality of life. Now imagine that you're Paul Reichmann. An extra thousand dollars won't get noticed, and even if it does, won't significantly affect your well-being.

   Given this trend, if we have extra funds to distribute we do best by giving them to those who have least. And if we take from the rich to give to the poor—as we do if we combine progressive taxation with welfare payments—we do more good than harm. The losses to the rich are smaller than the gains to those who started with less.

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

Although Hurka describes a common practice (combining progressive taxation with welfare payments), he is not appealing to that practice as a *reason for* something. Rather, he is appealing to reasons (there are diminishing returns from money, and we do best by giving them to those who have least) to support that common practice.

4.3.4a Practice recognizing an appeal to moderation

2. Taxpayers have a right not to be offended by what their tax dollars buy, so art intended to appear in public places should be mild and inoffensive.

No, this is not an appeal to moderation. Although the speaker invokes moderation (the art should be mild), it is part of the conclusion, not the reason for accepting the conclusion.

4. "When it comes to sentencing," says the judge, "I tend to favor neither the minimum nor the maximum sentence."

Yes, this is an appeal to moderation: the middle position is advocated with no reason other than, presumably, that it *is* the middle position. Had the judge given *reasons* for favoring neither the minimum nor maximum (perhaps the minimums are not penalizing enough, even for the "mild" crimes and perhaps the maximums are too harsh, even for the "severe" crimes).

4.3.4c Practice recognizing an appeal to the extreme

2. If you're going to do this at all, you have to do it all the way. Anything else is wimping out.

Yes, this is an appeal to the extreme: the speaker advocates doing it in the extreme ("all the way") but gives no reasons for that course of action other than that it *is* "all the way."

4. I think you'll find that people are most unhappy if they're at either end of the spectrum—lower class and upper class. Middle-class people seem to be the happiest. Perhaps that's because they have enough money to meet their basic needs, but not so much money they worry about the responsibility that comes with it.

Although reference is made to the extremes of the class continuum, the speaker is not simply advocating a position as good or bad because it is at the extreme. Rather, the argument has two reasons, given in the last sentence, that support the conclusion that the extreme positions are less desirable (that people in the middle are happiest).

4.3.5a Practice recognizing an appeal to the majority

2. Hey, I'm not the only one who believes in UFO abductions!

The argument implied is something like "Others believe in UFO abductions, so I'm right to believe in UFO abductions." While this is an appeal to others, unless the "others" are a majority, it can't be called an appeal to the majority.

It might be called an appeal to an inappropriate authority though, if those others aren't specially qualified to form such a belief.

4. A focus on "Islamic fundamentalism" as a global threat has reinforced the tendency to equate violence with Islam, to fail to distinguish between illegitimate use of religion by individuals and the faith and practice of the majority

> of the world's Muslims who, like adherents of other religious traditions, wish to live in peace. To equate Islam and Islamic fundamentalism uncritically with extremism is to judge Islam only by those who wreak havoc—a standard not applied to Judaism and Christianity. The danger is that heinous actions may be attributed to Islam rather than to a twisted or distorted interpretation of Islam.
>
> (John L. Esposito, "Political Islam: Beyond the Green Menace," *Current History*, January 1994)

No, there is no appeal to the views of the majority to support a particular claim.

4.3.5c Practice recognizing an appeal to the minority

2. Affirmative action is justified because it will achieve a representative workforce: there will be the same proportions of minorities in all sectors of the workforce as there are in the population at large. Also, seeing members of minority groups in positions of power and responsibility will change people's attitudes about people who belong to such minority groups. And of course, there's the compensation for past injuries argument, though those compensated are not those who were injured (at least not directly) and those doing the compensating are not those who did the injuring (at least, again, not directly).

Although the speaker talks about minorities, he/she does not appeal to the views of a minority in order to support some claim.

4. Everyone's got a PC, so I'm going to buy a Mac.

Yes, here the speaker implies that the minority who have purchased a Mac are an appropriate authority to call on, to support his/her own opinion (that a Mac should be purchased). It would be better if the speaker could determine *why* everyone's got a PC and then argue that those reasons are inadequate. Alternatively, the speaker could argue why it's a good thing for him/her to *not* do what everyone else has done in this case.

4.3.6a Practice recognizing the "two wrongs" fallacy

2. An eye for an eye. (Christian proclamation)

If it was wrong to take the first eye, then yes, this is an instance of the "two wrongs" fallacy.

4. *Rogers*: A student's right to free speech doesn't stop when she enters the school. So if she wants to say a prayer, whether she's meeting others in

a classroom or whether she's on stage making a valedictorian speech, she should be allowed to do so.

Bruck: And would you say the same if she wanted to make a racial speech rather than a religious speech?

Bruck is not claiming that the same wrong action is right when he/she does it because Rogers did it. Actually, Bruck isn't claiming anything at all; he/she is asking whether Rogers' argument about free speech in the school extends beyond prayer to racial speech.

However, if one takes Bruck to be implying that racial speech is acceptable in the school if prayer is acceptable in the school, it still it wouldn't be a "two wrongs" fallacy unless it were clear Bruck is considering prayer in the school to be a wrong. It seems instead that Bruck is merely exploring the implications, or making sure Rogers understands the implications, of Rogers' argument.

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

2. "Look," Ted said, "you may enjoy putting me down, but the fact is, lots of people think there will be more extreme weather, including more hurricanes and tornadoes and cyclones, in the future."

"Yes, indeed, lots of people think so. But scientific studies do not bear them out. That's why we *do* science, Ted, to see whether our opinions can be verified in the real world, or whether we are just having fantasies."

(Michael Crichton, *State of Fear*, 2004)

Ted is making the error of appealing to the majority, as long as "lots of people" is understood to be a majority. And even if not, he is appealing to an inappropriate authority, unless those "lots" are especially qualified to make predictions about more extreme weather.

The other speaker is quite correct! A+.

4. I know it's wrong to let my kids eat junk food. But if they're going to eat chips, they may as well drink soda too.

This is not an instance of the "two wrongs" fallacy. Two "wrongs" are being advocated by the same speaker; a second "wrong" is not being advocated by one person because another person has already done the same "wrong."

6. If we say that since animals have no capacity for moral judgment, they have no rights, then we must also say that newborns and psychopaths have no rights.

There is no appeal to any inappropriate standard in this argument.

8. Never follow the masses. It's as simple as that.

This is an appeal to the minority, if the implication that the majority are wrong is understood to indicate that the minority are right.

10. You know, she's trying to be a size 0. A little extreme, don't you think?

If we assume the speaker disapproves of her attempt to become a size 0 *because* it's extreme, then this is actually an appeal to moderation—the speaker is rejecting an extreme because it's extreme and presumably(?) accepting a more moderate action because it's more moderate.

It would be far better if the speaker had given other reasons for rejecting the attempt: perhaps the attempt will likely cause irreversible damage to the person's health.

4.4.1a Practice recognizing paper tigers

2. I cut into his monologue. "'Hey, I didn't do this, Chester. You can rant and rave all you want, but the place was fine when I left. I locked up and put the key back through the mail slot like Bucky suggested. Ray Rawson was here. If you don't believe, me, you can ask him."

   "Everybody's innocent. Nobody did nothing. Everybody's got some kind of bullshit excuse," Chester groused.

   (Sue Grafton, *L is for Lawless*)

Yes, Chester is committing the paper tiger fallacy. His response, such as it is, is to an argument, or more correctly, a claim that wasn't made: the "I" didn't say *everybody*'s innocent, *nobody* did anything, or *everybody*'s got an excuse—just that he/she is innocent; didn't do anything, has an excuse.

It would have been better, of course, if Chester simply addressed exactly, and only, what the speaker said—by, for example, questioning Ray Rawson.

4. "Anyway, what are you doing trying to turn some of our open land into a mall?"

   "What mall? Look here, what are you talking about? We're making an inquiry about the extra water MWD is offering, because it makes sense, it saves us money. That's part of our job on the council. Now as to this other thing, if someone is exploring the possibilities of a multi-use center, what's the problem? Are you saying we shouldn't try to create jobs here in El Modena?

   (Kim Stanley Robinson, *Pacific Edge*, 1990)

The first speaker is objecting, one can infer, to the turning of open land into a mall. But the second speaker is acting as if that first speaker had objected to the

creation of jobs. So the second speaker, responding to an argument or claim that was not made, is committing the paper tiger fallacy. The second speaker should have addressed the matter of turning open land into a mall, arguing perhaps that such an action was for the greater good or that the open land in question was of no value whatsoever in its current state.

Note, by the way, the language of the second speaker—"exploring the possibilities of a multi-use center" sounds so benign, nothing like turning open land into a mall.

4.4.2a Practice recognizing red herrings

2. Simply put, the state has rights that the private individual does not. In a democracy, those rights are given to the state by the electorate. The execution of a lawfully condemned killer is no more an act of murder than is legal imprisonment an act of kidnapping. If an individual forces a neighbor to pay him money under threat of punishment, it's called extortion. If the state does it, it's called taxation. Rights and responsibilities surrendered by the individual are what give the state its power to govern. This contract is the foundation of civilization itself.

   (Edward I. Koch, "Death and Justice," *The New Republic*, 1985)

Everything here is on topic—no red herrings.

4. *Rubinsky*: Hip hop deserves far more serious attention than it has received. It's an innovative hybrid of sound-based poetics and blues improvisation.
   Whitt: I heard that a lot of hip hop artists just pretend to be from the Black ghetto.

Whether or not hip hop artists pretend to be from the Black ghetto has no bearing on whether or not it deserves more serious attention than it has received; thus, Whitt's comment is irrelevant. And since the comment is somewhat antagonistic, it's probably a red herring, intended to lead Rubinsky away from his/her point. Whitt should have, instead, responded to Rubinsky's claims about hip hop.

4.4.3a Practice recognizing non sequiturs

2. *Host*: I certainly hear what you're saying. What do you think of President Reagan's economic plan?
   Caller: President Reagan's what?
   Host: His economic plan.
   Caller: Well, I really haven't been too involved in it, because we live in the suburbs . . .

   (Dave Barry,"Radio's Air Heads," in *Dave Barry's Bad Habits*, 1985 [1982/83])

The caller probably has no knowledge of what President Reagan's economic plan is, let alone an opinion of it, which explains the comment about living in the suburbs. Clearly, that comment doesn't follow.

Mind you, this isn't exactly an argument . . . but still, the comment is a non sequitur.

4. Most murders are committed by someone known to the victim. This means that most murders cannot be prevented by the police.

Hm. Does being able to prevent a murder follow from the fact that victims know their murderers? I suppose it could, but there are a few steps from "here" to "there" that need to be filled in.

4.4.4a Practice recognizing appeals to emotion

2. You're saying we should pass legislation that would force industry to make all of their products meet certain energy use ceilings—not only during use, but also during production and disposal? That's outrageous!

It may well be outrageous, but it still might be a defensible idea. The speaker is appealing to emotion to dismiss the argument (presumably there was an argument leading to the claim that we should pass such legislation). The speaker should have responded to the argument.

4. I need an A to get into law school. So, you should give me an A.

This is not an appeal to emotion. Though no doubt such an argument is often accompanied by a great deal of emotion. A good response would be a challenge to the unstated, but required, premise that the "you" should give the "I" whatever that "I" needs. On what grounds does the "I" make that claim?

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

2. Now, as for parental leave, why should that be a right—with or without pay? I mean if Person A gets a year off to go have a kid, why shouldn't B get a year off to go write music? Is there something special about kids? Let's face it—almost anyone can make a kid, but few people can write music; some kids grow up to be real nasty, but I've seldom heard of music doing any real damage—well, okay, except for country. Is there something special about kids, something that obligates an employer to provide some benefit to employees? If anything, shouldn't society as a whole bear the burden of maintaining the species? (And I'm not suggesting for a minute that maintaining the species is necessarily a good thing.)

There are no errors of going off-topic here. The speaker makes a reductio ad absurdum argument by analogy.

4. *Stennet*: You know, if you object to animals in a zoo, you should also object to animals as pets.
   Tittle: But Taffi is so cute!

Yes, alas, Tittle has committed the red herring fallacy, no doubt blinded by Taffi's cuteness.

She should have, of course, pointed out the differences between being an animal in a zoo and being a pet, differences that are significant to the conclusion that one is acceptable, whereas the other is not. For example, pets typically have a great deal more freedom. Not to mention happiness. They get to go for long walks. Several times a day. They get to listen to Brian Eno. They get to eat ice cream. They get to go kayaking. And then they get to sleep in a snuggly bed.

6. *Patters*: Homosexuality is wrong.
   Conti: But homosexuals don't choose to be the way they are; they're born that way.

Conti's comment is irrelevant: if it's wrong, it's wrong, doesn't matter whether chosen or not. So I would call Conti's argument a non sequitur.

Of course, at least in our society, choice bears on our response to wrongdoing. If you couldn't help it, you tend to be blamed less and punished less. But the action is still considered wrong. Generally speaking.

8. The aim for which we were fighting the War was the loftiest, the most overpowering, that man can conceive: it was the freedom and independence of our nation, the security of our future food supply, and—our national honor: a thing which, despite all contrary opinions prevailing today, nevertheless exists, or rather should exist, since peoples without honor have sooner or later lost their freedom and independence, which in turn is only the result of a higher justice, since generations of rabble without honor deserve no freedom. Any man who wants to be a cowardly slave can have no honor, or honor itself would soon fall into general contempt.

   (Adolph Hitler, *Mein Kampf*, 1925)

Lots of appeal to honor in here, but I wouldn't consider honor an emotion, and, in any case, the honor was part of the argument; it wasn't a reaction to the argument and, hence, reason to accept or reject it. No going off-topic here.

10. *Mitton*: A classic case of worker safety is the asbestos thing. The Johns Manville company became aware of the adverse health effects of asbestos

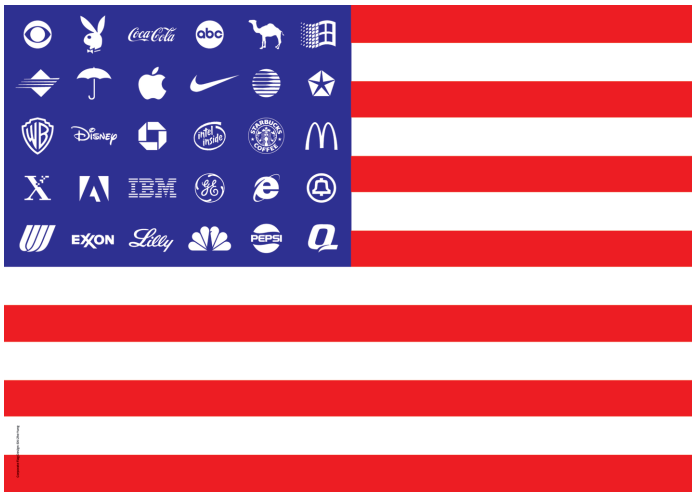
exposure in the 1930s but did nothing to inform its workers. Are they therefore more at fault than the company that unawares causes harm to its workers? Does knowing make you more responsible? If so, companies may refuse to thoroughly investigate matters, enabling them to later plead ignorance and therefore innocence.

Boresen: It could take years before one knows for sure though. Is the company supposed to test its materials and procedures for decades before opening?

The issue of contention here is whether knowledge of wrongdoing affects responsibility for such wrongdoing. Therefore, although Boresen's comment is correct and his/her question a good one, it's irrelevant to Mitton's point. (See how identifying the issue of contention is prerequisite to identifying errors of relevance!)

Thinking critically about what you see

2.



© Courtesy www.adbusters.org

Is the point that mega-corporations run the country, that the United States is nothing but a conglomerate of big business? Or is the point that mega-corporations are the backbone of the country, that we have big business to thank for our high standard of living?

Thinking critically about what you hear

Bill O'Reilly Gets Crazy

http://www.youtube.com/watch?v=l-F-zmTNuk4

O'Reilly and Taylor start off well: good question, good answer. But then at 1:45, Taylor makes an overly broad claim "This is the only just solution" and, worse, provides no support for that claim.

Notice the issue of what's fact and what's opinion is raised at 2:30—excellent issue that, unfortunately, doesn't get resolved very well, partly because O'Reilly at that point resorts to calling Taylor a lunatic. (Which is too bad, because he was, to that point, nicely sticking to asking her to defend her course of action, that of simply shouting down speakers, while she was, to that point, refusing to defend the course of action per se and, instead, emphasizing the facts which led to the action—a bit of a red herring perhaps.)

He then follows with "If you weren't a lunatic, 90 percent of America would agree with you." What unstated, and erroneous, assumption is required for that to be true? That, put somewhat simplistically, most Americans wouldn't endorse a crazy point of view. Definition of crazy, anyone?

Notwithstanding that, it is an instance of the valid form of denying the consequent: If not-A, B (if you weren't a lunatic, most people would agree with you); not-B (most people don't agree with you); therefore, A (therefore you are a lunatic). However, remember that unless the premises are true, you don't have to accept the conclusion; a sound argument is one in which the form is valid *and* the premises are true. And in this case, his first premise—"If you weren't a lunatic, 90 percent of America would agree with you" is of questionable truth. It is likely that more is needed than not being a lunatic for so many people to agree. At least I hope so.

Next O'Reilly, unfortunately, appeals to the majority: most think you're a loon, so you're a loon.

However, he nicely brings the discussion back to the course of action, that of shouting down speakers, by asking Taylor "What exactly is your obligation?" when she says they have an obligation. However, it would have been even better if he had asked her on what basis does she think they have an obligation to "bring the crimes of this administration to a halt" and if he had pointed out that shouting down speakers is unlikely to bring the crimes to a halt.

Unfortunately, at 4:15 he dismisses her opinion on the basis that it's an opinion, rather than by challenging her reasoning.

At around 4:30, he presents a reasonable recap, only to have her present a paper tiger (he did not say torture should be allowed to go on just because Bush and Congress don't want to challenge it).

At around 5:07, he retaliates with a paper tiger of his own ("they're all complicit, they're all corrupt, and the American people are too stupid . . .") and ends with the implication that she's living in an imaginary world (Oz).

Thinking critically about what you read

2. Norm Brodsky knows that unions do quality work and that hiring local people is good for a business's reputation in the community ["Why the Union Can't Win," March]. He says that before he met with the representatives from Local 361, he was considering hiring a few union guys, as a gesture of goodwill—but after the business manager for Local 361 was gruff with him, that went out the window. The lack of sales technique on the part of Local 361's representative was an affront to the author's entrepreneurial sensibilities.

   (Robert Cavanaugh, Exton, PA, *Inc. Magazine*, May 2005)

One could say this is an error of relevance (what does the behavior of the business manager have to do with hiring union members). But since the speaker is probably generalizing from the behavior of the manager to that of other or even all union members, it's more likely to be an error of generalization (see Section 7.2).

4. Question asked in Jun29/05 issue of *am New York* "What do you think of New York City's chances of winning the 2012 Olympic Games?"

"Outside of Paris we have an excellent chance. Hopefully our perseverance over recent setbacks with the stadium deal will convince the Olympic Committee that we deserve the games." Leonard Wilson, age 20

"My impression of New York City is that after 9/11 the city made such an effort to be strong that it deserves to win the games." Marion Strack, age 47

"I think there is a great chance for us. The athletes work hard and need to relax after the games, and where can you find better nightlife than in New York?" Chancel Torres, age 16

"According to the papers our chances are very slim, but the versatility of the city might carry us through in the end." Jim Behrens, age 44

"We have a lot of enthusiasm for the Olympics. I'm new to the city and I'm always shocked by the diversity of people here. And New Yorkers are much friendlier than their stereotype." Ruchi Pancholy, age 22

The first sentence of Wilson's response is on-topic, but the comment about deserving the games is irrelevant unless one thinks that the decision about which city gets to host the Olympics is based on desert.

Thus, Strack's response is also irrelevant—it doesn't address the question asked.

Torres' first sentence is on-topic, and the second sentence about nightlife is relevant only to the extent that a city's nightlife is one of the factors taken into account in the decision.

Behrens sort of avoids the question by saying what the papers think (the question was "What do *you* think . . ." unless it can be considered an appeal to an appropriate authority (see Chapter 6; the comment about versatility is probably relevant (it seems reasonable to assume that a city's versatility is one of the factors in the decision).

Pancholy doesn't come right out and answer the question, but it can be inferred that he thinks the chances are good because of the city's enthusiasm, diversity, and friendliness—and his answer is relevant to the extent these factors are considered when the decision is made.

6. We certainly don't want a society in which the *average* wage paid to *all* women equals the *average* wage paid to *all* men because that would be a society which would have eliminated the role of motherhood. The career of motherhood is not recorded or compensated in cash wages in government statistics, but that doesn't make it any less valuable. It is the most socially useful role of all. We don't even want a society in which the average wage paid to all *working* women equals the average wage paid to all working men, because that would be a society in which working wives and mothers would be working in paid employment all their lives for as many hours a week as men. Most wives do not do this now, and they don't want to do it. By working fewer hours in the paid labor force, wives and mothers can give more time to their families and to the role of motherhood.

   We want a society in which the average man earns more than the average woman so that his earnings can fulfill his provider role in providing a home and support for his

> wife who is nurturing and mothering their children. We certainly don't want feminist pressure groups to change public policy in order to force us into a society in which all women are locked into the work force on a lifetime basis, because that would mean forfeiting their precious years and hours as a mother.
>
> (Phyllis Schlafly, "Government Intrusion in the Workplace," in "Statement to Committee on Labor and Human Resources," United States Senate, in Hearings *on Sexual Discrimination in the Workplace*, 97th Congress, 1st Session, April 21, 1981)

First of all, the phrase "average wage paid to all" is puzzling and very much confuses the issue: the average wage would be obtained by totaling all hourly wages and dividing by the number of wages you totaled—whether or not some people earn that wage for five years and some for 50 doesn't enter the calculation. Furthermore, how would mothers enter the calculation if they are not paid a wage? Presumably one would consider only wage-earning women when one calculates the average wage. Then again, perhaps the speaker is suggesting not—in which case unemployed men and children of both sexes and retired people of both sexes would also be added in, all as zeroes. The final result would, yes, be that the average for women is less than the average for men because mothers don't receive a wage—but why would one want to make such a calculation? A similar point can be made about the speaker's second "We don't want . . ." This points to the likelihood that the speaker is committing the paper tiger fallacy—responding to an argument that likely wasn't made. I doubt that anyone wants *that* average to be the same. The argument involving comparative pay for men and women are usually about equal pay for equal work.

As for the speaker's second paragraph, she seems to assume all women are not only wives but also mothers. Worse, that they are mothers financially supported by a man. (And if we accept her argument, it will be possible to be a mother *only if* one is financially supported by a man.)

8. Advertisers who sell to children are asking the most impressionable and least experienced members of the audience to make complex and reasoned consumer judgments. In order to make a meaningful purchase decision, the child, whose skills of analysis and judgment are still in a developmental stage, must answer an intricate series of questions: Is the product as it appears in the TV commercials? Is the product more desirable than other products in its category? Does the desire or need for the product justify its price? Does the product have limitations or potential harmful effects which should be considered? Is the price a reasonable and/or affordable one?

   At every step of the consumer reasoning process, the child is at a disadvantage. Analysis of child-oriented commercials suggests that children are given little true consumer information, few facts about the price, durability, or nutritional value of a given product. . . .

   . . .

   Since most young children do not comprehend an advertiser's motives, they lack the reasonable skepticism which adults exhibit when evaluating commercials. Research

> findings have revealed that as many as half of all preschool children believe that all commercials are true in a literal sense. Findings such as these reflect the child's incomplete conception of the world. The geocentric nature of the young child as described in cognitive development theory suggests that he cannot see into the minds of others and that he cannot imagine that others see the world differently than he does.
>
> . . .
>
> It is believed that advertising directed to very young children is inherently deceptive and unfair and should be stopped.
>
> (Peggy Charrren, "Should We Ban TV Advertising to Children? Yes," *National Forum; Phi Kappa Phi Journal*, Fall 1979)

I would say that, with regard to the point made in the second paragraph, adults are at a similar disadvantage—but that would be an irrelevant comment. It would not affect the speaker's conclusion one way or another.

I would also say that, with regard to the points made in the third paragraph, many adults also lack a "reasonable skepticism"—but that would be a red herring.

One might ask whether advertisers are really asking their audiences to make "complex . . . judgments". If not, then advertising to children is no more unfair than advertising to adults—the cognitive differences are irrelevant if advertisers really don't intend, and in fact, hope you don't, use your cognition. But this point too would be irrelevant, since the speaker is arguing that "advertising directed to very young children is inherently deceptive and unfair and should be stopped"—not that it's worse than that directed to adults. He/she may also argue that advertising directed to adults should be stopped.

10. "In September, *Adbusters* entered into high-level negotiations with the Fox Broadcast Corporation. We wanted to do what any burger, beer, SUV or shampoo company can do every day in America: buy 15, 30 or 60 seconds of airtime. Fox, he said, makes an effort not to rock the boat.

    . . . So up the ladder we went to Darlene Lieblich, executive director of broadcast standards. The Fox policy comes from the top, she said—"the Fox über-mensch." Product ads are okay, and advocacy ads are not. Case closed.

    . . .

    What we needed was a network with guts, so we went knocking on doors at MTV. We showed Jackie Soriano, the director of commercial clearance, a set of eight TV spots about everything from anti-consumerism to voodoo economics to television addiction. "We can't advertise something that's too controversial," said Soriano. But is it controversial to point out, for example, that 52 percent of a Big Mac's calories come from fat? It's a fact: we got the information from McDonald's own website.

    MTV: As I said, we're a network and we are loyal to our advertisers. We cannot accept advertising that disparages our major advertisers.

    Adbusters: And isn't having all the information important when the public makes a decision?

MTV: They do have all the information. They know what they're eating. We do make the public aware, absolutely. But anything controversial, we cannot accept.
Adbusters: And you feel the basic health information about a product is controversial?
MTV: Like I said, it is up to the fast food chains to decide whether or not they want to expose the public to that.
Adbusters: To know all the health information of food—is that not important to know?
MTV: Sir, all I can tell you is that it would be up to McDonald's to tell you how terrible their food is for you.

There's a problem with Lieblich's "Product ads are okay, and advocacy ads are not"—products advocate.

There's a need for "controversial" to be defined. *Adbusters* understands it to mean "open to debate" or "opinion rather than fact" but Soriano uses it to mean "whatever disparages our major advertisers."

Adbusters' question "And isn't having all the information important when the public makes a decision?" is a non sequitur. The issue of contention is whether certain ads will be accepted (and if not, why not), not whether they are important. Unless, of course, MTV's mandate was something like "We do our best to make the public aware." But in that case, Adbusters should have pointed out the contradiction of their mandate and their refusal to broadcast their ads.

Reasoning test questions

2. Most adults in country X consume an increasing amount of fat as they grow older. However, for nearly all adults in country X, the percentage of fat in a person's diet stays the same throughout adult life.

   The statements above, if true, most strongly support which one of the following conclusions about adults in country X?

   (A) They generally consume more fat than do people of the same age in other countries.

This may be true, but since the passage doesn't even mention people in other countries, the passage doesn't provide any support for this conclusion. That is, we can't conclude this on the basis of what's given; this statement is, when considered in relation to the passage, a non sequitur (it doesn't follow).

   *(B) They generally eat more when they are older than they did earlier in their adulthood.

If the percentage of fat in their diet stays the same, the only way they can end up consuming more fat is if they consume more overall—which is exactly what this statement says. This statement is indeed supported by the passage.

(C) They generally have diets that contain a lower percentage of fat than do the diets of children in country X.

Again, this may be true, but since the passage doesn't even mention children, the passage doesn't provide any support for this conclusion. Again, this statement is, when considered in relation to the passage, a non sequitur (it doesn't follow).

(D) They tend to eat more varied kinds of food as they become older.

This may be true, but eating a greater variety is not the same as eating a greater amount (see explanation for response B). This statement doesn't follow at all from the information given in the passage; it's a non sequitur.

(E) They tend to lose weight as they become older.

This may be true, but nothing in the passage supports it; it doesn't follow from what's given. If the passage had said something like "muscle weighs more than fat and muscle mass decreases as one grows older," *that* would have provided some support.

(*The Official LSAT Prep Test,* Section 4, #12)

4. *Antinuclear activist*: The closing of the nuclear power plant is a victory for the antinuclear cause. It also represents a belated acknowledgment by the power industry that they cannot operate such plants safely.

Nuclear power plant manager: It represents no such thing. The availability of cheap power from nonnuclear sources, together with the cost of mandated safety inspections and safety repairs, made continued operation uneconomic. Thus it was not safety considerations but economic considerations that dictated the plant's closing.

Which one of the following, if true, most strongly supports the activist's claim of victory?

(A) The plant had reached the age at which its operating license expired.

This would undermine, not support, the activist's claim that the plant closed because of safety concerns.

*(B) The mandate for inspections and repairs mentioned by the manager was recently enacted as a result of pressure from antinuclear groups.

If pressure from antinuclear groups (part of the antinuclear cause) led to the closing of the plant, even indirectly (their concerns for safety leading to expenses that lead to closing), that would support the activist's claim that the closing of the plant was a victory for the antinuclear cause.

(C) The plant would not have closed if cheap power from nonnuclear sources had not been available.

This would support the manager's argument, not the activist's argument.

(D) Per unit of electricity produced, the plant had the highest operating costs of any nuclear power plant.

This may be true, but it's irrelevant to both the activist's argument and the manager's argument.

(E) The plant that closed had been able to provide backup power to an electrical network when parts of the network became overloaded.

This may be true, but it's also irrelevant to both the activist's argument and the manager's argument.

(*The Official LSAT Prep Test XXI,* Section 2, #23)

Chapter 5

Language

5.1.1a Practice recognizing and improving imprecise diction

2. What it is, however, is a convenient list of products designed, crafted, and produced by Americans for Americans in America (I realize that sounds a little redundant).

(Posted on the Free Republic website, at: www.freerepublic. com/focus/f-news/1542841/posts, accessed January 15, 2010)

"Crafted" means the same thing as "produced" so there is some redundancy in this sentence—though I see no imprecision.

4. People often underestimate the commitment in merging two lives together. The reason we fight most about money is because it's the most measurable. Sure, compromises also need to be made when it comes to issues of time, space and affection, but with money the give and take is quantifiable.

(Dr. Phil's website, at: http://www.drphil.com/articles/article/32, accessed January 15, 2010)

There is no imprecise diction here, though it might have made for a bit easier reading to indicate "the most measurable *what*?" Grammatically (see Section 5.1.2), the speaker may have meant not that money is the most measurable, but that the fights about money are the most measurable, so that could be clarified as well: "The reason we fight most about money is because money is the most measurable commodity." True, these ambiguities are clarified once one has read the next sentence, but the reader may be puzzling before that.

6. Make a fresh start! Set goals and achieve your dreams with a little help from the cosmos. (msn astrology)

"A little help from the cosmos" is a little vague—how exactly can the cosmos help in setting goals and achieving dreams? What, in fact, is being referred to by "the cosmos"?

8. The California Highway Patrol is turning to the classroom for a new driver education program the agency hopes will lower a sobering statistic: Teen drivers are involved in automobile collisions at a higher rate than any other segment of the motoring public. The program, called Start Smart, will begin early in 2006 and bring together the CHP and newly licensed teen drivers, along with their parents or guardians, to discuss ways to prevent the young adults from developing bad—read: aggressive—driving behaviors that lead to injuries and fatalities.
(Posted on the Free Republic website, at: http://freerepublic.com)

Very precise, very nice.

10. This organization is dedicated to strategic wildlife management.

"Strategic wildlife management" sounds precise, but knowing that it often means "hunting/killing" one has to wonder whether a more precise word than "management" should be used. This might be more a case of euphemism (see Section 5.2.1) than imprecise diction, however.

5.1.2a Practice recognizing and improving imprecise grammar

2. *Berzins*: Mary had a little lamb.
Vanderholt: Wow, genetic engineering has advanced more than I thought.

Obviously, the "had" is the problem here, and this is more a case of imprecise diction than imprecise grammar. "Had" can mean "gave birth to" as well as "owned" (as well as a number of other things).

4. I could care less.

This typically means exactly the opposite, that one *couldn't* care less, that one already cares as little as humanly possible. (Talk about imprecise grammar when the positive form of a verb means the negative form!)

6. A Conservative government would consider abandoning the United States as Canada's main trading partner if the two countries can't quickly resolve the softwood lumber dispute, Stephen Harper said Saturday. The Tory leader said the future of the North American Free Trade Agreement depends on the

United States agreeing to honor a ruling that it should repay at least $5 billion in illegal softwood duties collected since 2002.

(Michelle Macafee, *National Post* website, December 17, 2005, at: http://www.nationalpost.com)

Grammar okay here, and no other critique seems called for. (Well, "abandon" has a bit more emotive content than is necessary, given the context . . . see Section 5.2.1.)

8. Randy Thomas, arguably the Washington Redskins' best offensive lineman, fractured his right leg early in the fourth quarter yesterday and will miss the rest of the season. Thomas will have surgery today to repair the break in his fibula.

(*Washington Times*, December 19, 2005)

Grammar is fine, but "miss" is a little bit ambiguous: it could just mean he won't be able to play in or it could mean he is sad about that. Given the common use of the phrase in this context to mean the former, however, I would say there is no problem. Unless, of course, Thomas also said, at some point, "I'll miss the guys."

10. However, more elaborate versions of this particular argument exist, and that developed in the book, *Dismay,* which, for reasons that will later become apparent, is of particular interest to us.

In this case the grammar is simply incorrect, and that's why the meaning of the sentence isn't clear. Either the "and" or the "which" should be deleted.

5.1.3a Practice recognizing repetition

2. I believe X because that's just my faith, it's what I believe.

Yes, this is a circular argument—the conclusion is just a repetition of the premise: I believe X because I believe X.

4. If the government gives you money to send your kids to private school, well, they're no longer private schools, are they? They're public schools, if public money is used to support them.

This does not involve any repetition:

1. A school is a public school if public money is used to support it.
2. Money from the government is public money.

3. Money paid to a school for tuition is money that supports the school.
Therefore, if the government provides money for tuition, the school receiving that tuition is a public school.

6. I find this kind of thinking so hard—because it's just so difficult!

(No, you find it hard because it involves thinking about how ideas are related to each other.)

Yes, this is circular because of the repetition:
I find it hard because it's hard.

8. Externalities are those sorts of expenses outside our sphere of responsibility such as the cost of dealing with the product once the consumer is through with it and waste disposal. So, we're not responsible for externalities.

Yes, this is circular:

1. Externalities are outside our responsibility.
Therefore, externalities are outside our responsibility (that is, we're not responsible for externalities).

Note also the redundancy: what is "dealing with the product once the consumer is through with it" but "waste disposal"?

10. I watched the World Cross-Country championships the other day. Kenya won, but Ethiopia was a close second. It was a good race, but I could have done without all those bank commercials. But then it occurred to me: one of the biggest and most powerful financial institutions has staged a race, dangled $100,000 at the finish line, and now watches representatives of two starving countries compete for it. (How sick is that?)

No repetition here.

5.1.4a Practice recognizing the need for detail

2. In a famous study of children's aggression, children were observed while at play. However, the toy available for play was a Bobo doll, a life-sized doll with a weighted bottom such that when one strikes it, it falls over but always rebounds back to an upright position. How many and how often children hit the doll was taken to be some measure of their aggression. But as one researcher noted, "What else can one to do to a self-righting Bobo doll except hit it?" Touché. What if the "toy" available had been a tray of water serving as a doll's swimming pool? Nevertheless, the study may have been

enlightening, if only to show that it's the opportunity for aggression that is the critical factor.

This is adequate with respect to detail: we are given a description of the relevant characteristics of Bobo, and we are told not just that hitting the doll was taken as a measure of aggression, but specifically "how many" and "how often" children hit it.

4. With respect to the state's important and legitimate interest in potential life, the "compelling" point is at viability. This is so because the fetus then presumably has the *capability of meaningful life outside the mother's womb* . . . If the state is interested in protecting fetal life after viability, it may go so far as to proscribe abortion during that period *except when it is necessary to preserve the life or health of the mother*.

(from Roe v. Wade, 1973)

Although "viability" is defined, covertly, in the sentence following its first mention, we'd need a definition of "meaningful life" (mere cardiovascular function or neurological function as well? more than that?) and "health" (mere physical health or psychological health as well? more than that?).

6. I read somewhere that 82 percent believe in heaven, whereas only 28 percent believe in evolution. Well, if the theory of heaven had as much detail as the theory of evolution and was, therefore, more difficult to follow, those percentages would be a lot more equal!

82 percent and 28 percent of what, people? People in the U.S.? People who happened to be home when we called to do this survey? (foreshadowing of Section 6.4.2)

8. This book presents a detailed program for teaching academic skills—reading, language, arithmetic—to your preschool child, an endeavor that may seem intimidating to you. There are three reasons for teaching academic skills to your preschool child. These are:

   (1) If your child learns these skills as a preschooler, your child will be smarter than the average child and will be in a position to learn new skills at a faster rate.
   (2) The schools are not well designed to teach every child academic skills. If you leave the teaching to the schools, your child may be a school failure and may learn to hate school and academic work.
   (3) Perhaps most important, teaching your child is a very nice and natural thing to do. The most basic relationship among humans is the transmission of knowledge from parent to child. Parents teach other important skills,

> such as dressing and eating. They direct the child's activities. Academic skills are important, and the child will be engaged in them for a lifetime. When the skills are taught in a home-teaching situation, the child is shown that the parent is interested in these skills and that they are part of the parent-child relationship.
>
> (Siegfried and Therese Engelmann, *Give Your Child a Superior Mind*, 1966)

Hopefully, "smarter" will be defined early on in the book.

Hopefully, evidence and reasoning in support of the second claim will be provided in the book.

Okay, I draw the line at "nice" and "natural"—these are notoriously vague terms which make me wonder whether any part of the book will have the detail I require.

10. [The] feminist movement is sexually harassing the role of motherhood and dependent wives (homemakers) [by] Affirmative Action for women. Affirmative Action in favor of women is grievously unjust to everyone, but most especially to the dependent wife and mother in the home whose breadwinner-husband is denied a job, a raise or a promotion he deserves or has earned, which is given instead to a less qualified woman, perhaps even to one who is the second wage-earner in the family.

    (Phyllis Schlafly, "Government Intrusion in the Workplace," from "Statement Submitted to Committee on Labor and Human Resources," United States Senate, in *Hearings on Sexual Discrimination in the Workplace*, 97th Congress, 1st Session, April 21, 1981)

"The feminist movement" is, by now, considered too broad a label to be useful; the speaker should perhaps specify which feminists or which strand of feminism he/she is talking about.

Given the claim of injustice, the concept of justice will have to be addressed in greater detail.

5.2.1a Practice recognizing and rewriting loaded words or phrases

2. bribe
   bribe—value-negative
   incentive—value-positive
   payment—neutral

4. failure
   failure—value-negative

partial success (learning experience—ugh!)—value-positive
??—neutral

6. volunteer work
volunteer work—value-positive
unpaid labor—value-negative
something to do in the evening—neutral?

8. white-skinned
melanin-impoverished (whitey)—value-negative
white-skinned—neutral
white—value-positive (hm . . .)

10. unborn baby
unborn baby—value-positive
cells—value-neutral??
whiney-shit-machine-in-progress—value-negative

5.2.1c Practice recognizing and rewriting loaded styles of speech

2. The attack was successful.

(a) and (b) The operation, offensive in nature and carried out according to specifications determined by management actualizing policy directives was deemed to have reached and/or exceeded all stated targets of said policy directives.

4. This is a good car.

(a) I must say that in my considered opinion, this particular vehicle, knowing what I do about its various qualities, is a fine specimen of its kind.
(b) This vehicular mode of transportation falls without reservation on the positive side of any continuum measuring value and/or performance.

5.2.1d Practice recognizing and rewriting loaded language

2. Terminator Fluid fights bad breath!

"Fights" is loaded. A substance can't fight, but personifying it gives it qualities that make it seem stronger, having agency. "Bad" is also loaded, inappropriately, with moral connotations.

A more neutral statement would be "Terminator Fluid eliminates odorous breath."

"Dissipates" is even less loaded, but I'm not sure that's the actual effect—it might mask rather than dissipate odorous breath. In which case, perhaps "masks" or "covers up" should be used!

4. "You are instructed to manage the release of the data effectively, to minimize any potential negative commercial impact," internal memo, giant pharmaceutical company.

(*Adbusters*, "Bad Pharma," November/December 2005)

"You are instructed" loads the message with authoritative intimidation. The rest is pretentiously wordy, it seems to me; "negative commercial impact" sounds like a euphemism.

As for a neutral version, how about "Don't tell anyone"—isn't that essentially what they're saying? Do they really expect the recipients of the message to reveal the information only to and only in a way that would not have an impact on sales?

Note the contradiction: "effectively" according to the recipient, *Adbusters*, probably means *maximizing* potential negative commercial impact!

6. The 2006 Infiniti M45 Sport: The G35's bigger, better, faster brother. . . . A quick look at the numbers shows the 4000-lb M45 is no slouch, blazing to 60 mph in 5.3 seconds and through the quarter mile in 13.8 sec. at 101.6 mph. It accomplishes this with fluid ease, the engine and transmission working together seamlessly to deliver smooth, linear acceleration through the powerband. These times are almost identical to those of the last BMW 545i Sport we had at our office, putting it in good company. Factor in a price difference of around $10,000 (the M45 Sport starts just under $50K), and this latest Infiniti looks poised to hassle the 5 Series much as the G35 challenged the 3 Series.

(Kim Wolfkill, "2006 Infiniti M45 Sport," *Road and Track*, 2005)

The name, for starters, is excessively lengthy. It could be just one word. Like "Tulip." Notice the abundance of numbers. Makes the description sound so—technical. Which makes it sound, what, impressive? Because numbers are exact? Because men like numbers (and this car is primarily marketed to men)? Notice that the car isn't anyone's bigger, better, faster sister.

And the loaded words suggesting superior performance . . . "slouch," "blazing" (I recall someone once say something like 'I don't care how quickly the car goes from zero to 60mph—I want to know how quickly it goes from 60mpg to zero!), "accomplishes," "fluid ease," "seamlessly."

Note the loaded words suggesting a kind of aggression—"hassle," "challenged"—intended, no doubt, to appeal to the male market.

Note also the pseudo precision—for example, what other kind of acceleration would a car achieve but "linear" acceleration? Exponential? Circular?

A neutral restatement? This is a good car. Or, more precisely, this is a big, fast car.

8. Conservatives, like Americans generally, have no wish to return to the days of black smoke billowing out of smokestacks. But they do believe common sense can be brought to bear in dealing with the environment: that it is possible to protect the environment without sacrificing the freedoms for which America stands.

(John Shanahan, "Environment," in Stuart M. Butler and Kim R. Holmes, eds., *Issues '96: The Candidate's Briefing Book*, 1996)

The phrase "black smoke billowing out of smokestacks" is not inaccurate, nor exaggerated, but the point could have been made as easily without the emotive content of such a description ("Conservatives, like Americans generally, don't want (visible) pollution.")

Oh, here we go again with the "common sense"—calling something "common sense" makes it almost impossible to disagree with. They know this. But hey, you're smarter than that, challenge it! Ask where's the sense in whatever it is they're calling that. Show them it's not necessarily "common" in the sense (!) of being accepted by everyone.

And oh, "the freedoms." Especially "the freedoms for which America stands." Challenge *that* and you're downright unpatriotic. They know this too. Challenge it! Suggest that whatever they're proposing violates some of the freedoms for which America stands. Suggest that your counterproposal doesn't sacrifice those freedoms either.

10. Consider the most recent State of the Union Address, at: http://www.whitehouse.gov.

5.2.2a Practice recognizing loaded visual effects

2. Please see the image in *Critical Thinking* appearing on page 192.

First, the (stereotyped) sexuality of the picture draws our attention. Or at least the attention of people who are sexually excited by women's legs, and especially, since the composition and camera placement draws attention to the woman's crotch (as neutral a term as I can think of). Or at least by being able to *see* a woman's crotch (since the picture doesn't suggest the man is going to do anything but look as he rides through—he's fully clothed, his hands are occupied holding himself onto the luge, and there's some distance between her crotch and his body).

Beyond that, I'm at a bit of a loss as to what the picture is supposed to be suggesting. The man screams in horror—is he afraid of woman's crotches? Her legs are lit, he's wearing sunglasses—is he blinded by her sexual appeal?

He's shown as a complete human being; she's just some body parts. There's a point being made there.

He's relatively realistic; she's wildly idealized (the length of the legs, the utter hairlessness, perhaps even the shape is unrealistic). Another point.

He's dark, she's light (almost angelic by the lighting). Yet another point, related to the previous one.

4. Please see the image in *Critical Thinking* appearing on page 192.

It's possible the colors have been enhanced: is the sky really that pink and purple? (Was the photograph taken by your friend or is it on a tourism pamphlet?)

Also, if you asked "What's outside the frame?" you could be onto something: is the beach *ever* that empty? Perhaps just outside the frame there are cordons blocking off tons of people who would otherwise be walking or sitting on that same beach.

5.3.1a Practice identifying genus and species

2. water—liquid composed of two parts hydrogen and one part oxygen
   genus: liquid
   species: composed of two parts hydrogen and one part oxygen

4. banff—that facial expression which is impossible to achieve except when having a passport photograph taken
   (Douglas Adams and John Lloyd, *The Meaning of Liff*, 1983)
   genus: facial expression
   species: impossible to achieve except when having a passport photograph taken

5.3.1b Practice defining by genus and species

2. curiosity

That feeling (genus) characterized by a strong desire to know (species).

4. angel

A supernatural being (genus) with status less than that of a god but more than that of human beings (species).

5.3.2a Practice identifying necessary and sufficient conditions

2. There is no such thing as "safe sex."

If that is the case, then there are no sufficient conditions for the definition of "safe sex."

4. To succeed in the world it is not enough to be stupid, you must also be well-mannered.

(Voltaire, 1694–1778)

Being stupid is a necessary but not sufficient condition for success; being well-mannered is a necessary but not sufficient condition. It is unclear whether the two attributes together comprise a sufficient condition (or whether other attributes are also necessary).

5.3.2b Practice defining by necessary and sufficient conditions

2. intoxicated

"Stupified by alcohol"—but is that really a necessary condition? The legal definition is something like having in your system "over 80 milligrams alcohol per decilitre of blood" and yet people with that much alcohol in their system are often not stupefied.

4. terrorist

"A person who makes someone very afraid" would surely be a necessary condition, but I don't think it's sufficient. The making afraid has to be "intentional." Do we also want to say it has to be "systematic"? (What exactly does that mean?) And "for political purposes"?

5.3.3a Practice identifying and correcting definitions that are too broad or too narrow (or both)

2. A book consists of a bunch of pages.

The definition is for a book, not a novel, so the pages could be blank (as in a notebook).

It is though a little too broad in that it includes a mess of loose pages, which is, properly speaking, a manuscript. So we need to add "bound together in some fashion."

But it might also be too narrow in that it excludes e-books. So do we say, instead, that a book consists of a bunch of pages that can be physical or virtual? But, then, only in the first case must they be bound? Or do we come up with some definition of "virtual binding"?

Introducing the notion of some sort of conceptual unity is problematic.

4. A tunnel is a hollow space dug out in the ground that has an entrance and an exit.

Can the entrance and the exit be the same end? A "dead-end" tunnel is still a tunnel, isn't it?

Does "dug out" imply it must be animal-made? Can a tunnel come into being just by natural accident?

How does this definition distinguish between a hole and a tunnel? Do we need to say "the dimensions of which are greater in its length than in its diameter and height" or something like that?

Lastly, this definition is too narrow in that it excludes tunnels in space, such as wormholes.

6. "Rape" is doing anything sexual to someone who doesn't want it.

Is "anything sexual" too broad? Does this definition make an unwanted kiss rape?

What if the someone doesn't want it but they consented nevertheless for some reason—is that rape?

8. A hero is someone who does something for someone else at great expense to him- or herself.

This might be too broad in that it includes people who donate great amounts of money to others. Should we call them heroes or should we limit the definition to those who put their lives at risk for others (and thus qualify "at great expense to him- or herself").

Also, does the something one does for another have to be saving their lives? Am I rightly called a hero if I risk my life to give you a birthday cake?

10. In a memo issued Monday, the NBA set forth a "minimum" dress code starting with the 2005–2006 season. The following highlights are excerpted from the memo:

    (1) General Policy: Business Casual

    Players are required to wear Business Casual attire whenever they are engaged in team or league business. "Business Casual" attire means:

- A long or short-sleeved dress shirt (collared or turtleneck), and/or a sweater.
- Dress slacks, khaki pants, or dress jeans.
- Appropriate shoes and socks, including dress shoes, dress boots, or other presentable shoes, but not including sneakers, sandals, flip-flops, or work boots.

(2) Exceptions to Business Casual

There are the following exceptions to the general policy of Business Casual attire:

a. Players In Attendance At Games But Not In Uniform

Players who are in attendance at games but not in uniform are required to wear the following additional items when seated on the bench or in the stands during the game:

- Sport coat.
- Dress shoes or boots, and socks.

(3) Excluded Items

The following is a list of items that players are not allowed to wear while on team or league business:

- Sleeveless shirts.
- Shorts.
- T-shirts, jerseys, or sports apparel (unless appropriate for the event (e.g., a basketball clinic), team-identified, and approved by the team).
- Headgear of any kind while a player is sitting on the bench or in the stands at a game, during media interviews, or during a team or league event or appearance (unless appropriate for the event or appearance, team-identified, and approved by the team).
- Chains, pendants, or medallions worn over the player's clothes.
- Sunglasses while indoors.
- Headphones (other than on the team bus or plane, or in the team locker room).

(As reported on espn.com news service, "NBA adopts 'business casual' dress code," October 17, 2005)

Note that in (1), the detailed list of acceptable and unacceptable shoes is undone by including "or other presentable shoes." Of course, even "dress shoes" is

problematic and doesn't really solve the problem; my guess is a lot of players will show up insisting that what they have on their feet are "dress shoes" or at least "presentable"—and what recourse does the NBA have, given this definition?

It may be of interest to consider two responses to this code:

> "I think it is appropriate, definitely, on the bench," Marion said. "I think you should be in a nice shirt and slacks."

Clearly, Marion thinks everyone shares his definition of "nice" as applied to shirt and slacks.

> "I understand they're making it out to make us look better to corporate and big business. But we don't really sell to big business," Jazz guard Raja Bell said. "We sell to kids and people who are into the NBA hip-hop world. They may be marketing to the wrong people with this."

Hm. Yeah, what's the purpose of the (any) dress code again?

5.3.4a Practice identifying the error of equivocation

Which of the following arguments contain the error of equivocation?

2. If practice makes perfect, why do lawyers who've been in practice for years lose cases?

The first time, "practice" means something like "repeated performance of a skill as part of the learning process," whereas the second time, it means something like "engaged in as employment"—since the definition of the word has changed in the course of the argument, equivocation has occurred.

4. Men often resort to violence to resolve a conflict even when it's not life-threatening. Most animals would just leave the scene. Clearly we are not the superior species.

The first use of "men" seems to mean "male human beings" since women typically do not resort to violence to resolve a conflict. However, in the conclusion of the argument, the "we" seems to include all human beings (since it's saying we aren't the superior species compared to other animals). So, yes, equivocation has occurred.

6. How, then, should the United States formulate a foreign policy? Every action taken abroad should reflect the purpose behind the creation of the government: namely, to serve the interests of American society and the people who

> live in it. Washington's role is not to conduct glorious utopian crusades around the globe. It is not to provide a pot of cash for the secretary of state to pass out to friendly regimes to increase United States influence abroad. It is not to sacrifice the lives of Americans to minimize other people's sufferings. In short, the money and lives of the American people are not there for policy-makers, or even the president, to expend for purposes other than defending the American community.
>
> (Doug Bandow, "Keeping the Troops and the Money at Home," *Current History*, January 1990)

There is no equivocation here.

8. Nobody's perfect. And I'm nobody. (bumper sticker)

   1. Nobody's perfect = No person is perfect.
   2. I'm nobody = I'm no one important.

   Therefore, I'm perfect.

Yes, equivocation has occurred: the meaning of "nobody" changes from one premise to the next, first meaning simply no person, then meaning no important person.

10. Regarding proposed legislation governing surrogacy in the United States, under which if the surrogate mother miscarries prior to the fifth month of pregnancy, no compensation other than medical expenses will be paid. If she miscarries after this time, 10% of the fee plus medical expenses would be paid . . . Of course this makes it clear that the baby is a product. You don't deliver the goods, you don't get paid. But there is another point to be made here. If the woman miscarries prior to the fifth month of pregnancy, does the physician who examined her not get paid? Does the physician who inseminated her not get paid? Does the psychiatrist who screened her not get paid? Does the lawyer who arranged the surrogate pregnancy lose out on his money? Not on your life.

    They all get their money. But there is no need to pay the woman. And most people don't notice anything amiss in this arrangement. They really don't know what you are talking about when you object to it. You can't rent *cow* in this country for five months for free. But you can rent a woman.

    (Personal communication from Gena Corea, author of *The Mother Machine*, to Marily Waring, September 5, 1986)

There is no equivocation here.

Thinking critically about what you see

2. Please see the image in *Critical Thinking* appearing on page 209.

First, there is the obvious (at least it should be obvious, now!) appeal to the majority (see Section 4.3.5): "the cars ahead are using Methyl, so you should too" is the implied argument (with the missing premise presumed to be that it's good to use what so many others are using).

Then there are the visual manipulations: the strong arm (implying there's something strong, fit, good about using Methyl); the pointed finger not only supposedly pointing at the cars ahead, but with the strong arm, looking very commanding; the smile (it's always hard to refuse someone who's smiling at you); the perspective that makes the figure lean, tower, over us in a possibly imposing, perhaps even threatening, way; the red, white, and blue of the logo (chosen deliberately by Chevron, I'm sure), suggesting there's something patriotic (and therefore, good?) about using Methyl.

Thinking critically about what you hear

Gumbel Commentary

http://www.youtube.com/watch?v=dGvwXQ4h2MU

Gumbel's main claim, simplified, is that it is good to see public figures held accountable for their behaviour. He cites three examples that happen to be in the news that week: Adam "Pacman" Jones (football player), Don Imus (radio talk show host), and Mike Nifong (district attorney) were suspended, fired, and likely disbarred because of their behaviour.

Although there isn't much argument here to analyze, there are many terms that would need to be defined (see section 5.3) if one were to attempt to evaluate Gumbel's stance: "simple decency," "acceptable behaviour," and "civility," for example. He also mentions "the basics of right and wrong" as if we are all in agreement as what those basics are (see web chapter "Thinking Critically about Ethical Issues). One would even have to define "hurt" (Gumbel accuses the three of saying or doing whatever they want without regard for who gets hurt).

One would also need to obtain more information (step 7 in the template): for example, according to Wikipedia (*not* reliable since entries are often submitted by "inappropriate authorities" (see section 4.3.1), Imus called the Rutgers' women's basketball team "nappy-headed hos", whereas Jones "grabbed [a woman] by her hair and slammed her head on the stage". Should both behaviors really be put in the same category? Is the latter, for example, a case of merely not meeting the bar of civility?

Lastly, Gumbel's claim that their behaviours were a result of being "emboldened by voters, fans, or celebrity guests . . . enablers who conveniently overlooked their ugly excess"

is worth considerable thought. To what extent is that relevant (see Chapter 4)? Does it absolve them of any degree of responsibility?

Thinking critically about what you read

2. A survey reported in the December 27, 2004 issue of *Sports Illustrated* listed the average number of households in a region that tuned in each week to various sports concluding that "the most watched sport on television continues to be pro football . . ."

("What Fans Wach")

'Tuned in' doesn't necessarily mean "watched"—many people turn on their TV, tuned in to a particular station, but then don't sit and watch it. While this isn't exactly equivocation, it is perhaps sloppy attention to words or uncareful thinking!

4. I have to be honest: I really don't think Britney is that bad. Sure she made some mistakes, but who doesn't when they are in their early 20s? We only know what the tabloids say about her, which is most likely a bunch of lies. From everything I have heard, she is a sweet, fun-loving girl who does have high morals. The fact is that she is married now and probably will have a child soon. I am sure she has the same dreams that we did: to be married and to have children. Give the girl a break! I, for one, am glad to see her on the cover!

(Posted on *Redbook*'s online message board by jess0521 and printed in March 2005 issue of *Redbook*)

"Bad" in the first sentence is vague.

The second sentence appeals to the majority if the argument is that since everyone makes mistakes, it's okay that she made mistakes.

There is a problem with the third and fourth sentences: the tabloids lie about Britney (when they say "bad"), but everything the speaker has heard (which is good) is to be believed—why are the tabloids an inaccurate source of information but whatever she's heard (and that's not very specific—who has she heard from?) an accurate source of information?

What is the speaker's definition of "high morals"? How can morals be high? High moral standards, that makes sense. Well, more sense. But high morals?

The relevance of being married and pregnant?

And then another appeal to the majority: Britney has the same dreams everyone has, so those dreams must be okay. (Or is the point that she must therefore be okay?)

So the conclusion, "give the girl a break" (which means what, exactly, that she shouldn't be criticized?), is not well supported at all. Essentially, the speaker's argument is this:

1. Britney has made mistakes.
2. We've all made mistakes.
3. Therefore, she's okay.

4. Britney is married and pregnant.
5. Many of us have been married and pregnant.
3. Therefore, she's okay.

3. Britney is okay.
6. Britney is sweet and fun-loving.
7. Britney has high morals.

Therefore, Britney should get a break.

6. Thousands participated in the June 3 Gay Pride parade in Jerusalem, faced with protesters and the condemnation of the city's mayor, Ha'aretz reported. Jerusalem Mayor Uri Lupolianski, in a radio interview on June 4, decried the downtown parade, according to media reports. "To carry out an insulting parade—I don't call that pride," Lupolianski told reporters. "In a place like Jerusalem, this is an ugly phenomenon, which need not happen." He said the event was inappropriate in a "sacred city," Ha'aretz reported. "This parade is not only ugly, it's also a provocation," Lupolianski said in the interview. "It's not appropriate for the city, and it offends the sensitivities of its residents. Even people distant from Jerusalem must grasp that this is a sacred city for the Jewish people, and the world as a whole. This isn't Paris, and it isn't London. I'm not talking about what a person does privately in his home—a parade in public is something else . . . If somebody has some sort of deviant trait, it doesn't mean that he has to raise its banner in public.

(*New York Blade*, June 11, 2004)

Lopolianski's argument is a definitional one: to have a Gay Pride parade in Jerusalem is insulting, ugly, provocation, inappropriate in a sacred city, and offensive to the sensitivities of the city's residents.

But what exactly is insulting and ugly about it? I can guess that the Jewish religion considers homosexuality a sin and I know Jerusalem is important to those who are Jewish, which explains the claims that such a parade would be provocative, inappropriate, and offensive.

But do *all* Jewish people consider homosexuality a sin and are *all* residents of Jerusalem Jewish? It's not a private city; does freedom of expression not prevail in public spaces? (Always?)

Furthermore, one could argue that a Gay Pride is not insulting or ugly and Jerusalem *needs* the provocation and offense in order to reconsider its beliefs. Lupolianski doesn't anticipate this counterargument and provides no response to it.

8. Americans are constantly told that their health care is the best in the world. In terms of research, technology and advances in surgery, the boast is undoubtedly true. In other

> ways, it is hard to justify. At any one time, more than 43m Americans under the age of 65 have no health insurance (the elderly are covered by Medicare, a federal insurance programme). The infant mortality rate for black Americans runs at 14 per 1,000 live births, double the rate for white Americans and over four times the rate in Japan. Indeed, in a 2000 study of the effectiveness of health-care systems around the world, the World Health Organization ranked American only 37th (France came top).
>
> (From "Headaches for All," posted November 14, 2004 on Physicians for a National Health Program website, at: http://pnhp.org/news/2004/november/headaches_for_all.php)

This is well done: the general claim in the opening sentence is elaborated with detail in the next sentence ('In what way is it the best?' is answered).

The rest of the paragraph provides detail to support the imposed conclusion that the American health care system is *not* the best in the world.

The language is clear and unmanipulative.

10. Laws that operate on the basis of race require definitions of race. Because of the Court's decision today, our statute books will once again have to contain laws that reflect the odious practice of delineating those qualities that make one person a Negro and make another white. Moreover, racial discrimination, even "good faith" racial discrimination, is inevitably a two-edged sword. "[P]referential programs may only reinforce common stereotypes holding that certain groups are unable to achieve success without special protection based on a factor having no relationship to individual worth" (*University of California Regents v. Bakke, supra,* 438 U.A., at 298, 98 S.Ct., at 2753, opinion of Powell, J.). Most importantly, by making race a relevant criterion once again in its own affairs, the Government implicitly teaches the public that the apportionment of rewards and penalties can legitimately be made according to race—rather than according to merit or ability—and that people can, and perhaps should, view themselves and others in terms of their racial characteristics. Notions of "racial entitlement" will be fostered, and private discrimination will necessarily be encouraged.

    (Potter Stewart, "The Constitution and Discrimination," from Dissenting Opinion, *Fullilove v. Kluznick* 448 U.S. 448, 1980)

Nice job of pointing out the importance, and difficulty, of definition.

Clear explanation of some problems with preferential programs.

The language is clear; there is no manipulation; no key terms are un- or ill-defined.

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*

2. "Overall, in the United States, in public testing sites, 32% of the people who test positive don't come back for their results."
(Dr. Bernard M. Branson, of the Divisions of H.I.V./AIDS Prevention at the Federal Centers for Disease Control and Prevention, quoted by Richard Pérez-Peña in *The New York Times*, June 6, 2005)

This claim should be evaluated for truth. It can be verified by checking the records of all public testing sites in the United States.

4. The U.S. has twice as many shopping malls as high schools.
(*Mother Jones*, November/December 2004)

This is an empirical claim, verifiable by counting the shopping malls and the high schools in the U.S.

6. I am having a vision: tomorrow you will be offered a job you can't refuse.

This is an interesting one. The claim of the prediction must be subject to the standard of acceptability today; tomorrow, one can apply the standard of truth.

As for the claim that the person is having a vision, since it's a purely subjective claim, it can't be tested—how could we falsify or verify whether or not the person was indeed having a vision, let alone that vision? Even so-called lie detector technology actually just measures certain changes in physiology generally associated with lying (but also associated with anxiety, I believe . . .). So, the standard of acceptability must be used. At least until we develop some high-tech neuroimaging technique that will tell us when a person is having a vision!

8. Tom created new toys.

If we had the chance to actually see Tom create the toys (or not), we could subject this claim to the standard of truth. But if all we have is circumstantial evidence, as in the case of causation, we'd have to use the standard of acceptability.

10. There were four main causes of the Mexican War. First, the annexation of Texas: Mexico said it would regard annexation of Texas as an act of war. Second, the boundary dispute: the United States maintained that the southern border of Texas was formed by the Rio Grande, but Mexico argued that the traditional boundary was at the Nueces River farther north. Third, the California question: United States President Polk clearly wanted to expand the United States to the Pacific Oceana by taking control of California and lands in the Southwest—a prime example of the "manifest destiny" mentality. Fourth, the monetary claim issue: the United States had extracted a promise from the Mexican government to pay $3 million to cover the claims of American citizens who had lost property during turmoil and revolution; Mexico defaulted on those payments and the American creditors pressed their government for action.

    (From http://www.u-s-history.com/pages/h322.html)

Not only is this a claim about the past, generally unverifiable except by circumstantial evidence, it's also a claim about causation. The standard of acceptability is the best we can do.

6.1.2c Still more practice with the standards of truth and acceptability

2. There should be "girls only" schools because girls speak up in class more often when there are no boys around. And, of course, they're not interrupted by boys when they do so. They become more assertive; they become more sure of themselves. And when not distracted by attractions or animosities—especially when the fear of appearing too smart is removed—they focus more on the subject matter and actually become quite good, even at subjects traditionally thought of as "boy" subjects (math, engineering, law, and so on).

People say that eventually they'll have to live in a world with males, so they should get used to it. But isn't it better if they meet the challenges of constant silencing and put-downs when they're mature and they've developed the confidence and skills to insist on equal consideration?

People also say that segregation perpetuates significant differences that underlie sexism, so if we endorse such segregation, we'll never become a sex blind society. But I'm not convinced that differences underlie sexism; after all, men are quite different from each other. I think it's something else.

Whether or not girls speak up in class more often when there are no boys around needs to be verified (and it can be). Whether that leads to increased assertiveness can be established to some degree (but not to an absolute) by a very sophisticated and long-term study. Also, the explanation suggested at the end of the opening paragraph can also be established to some degree. I find these claims to be very plausible (possible and reasonable), even probable.

The claim in the last paragraph, that "if we endorse such segregation, we'll never become a sex blind society" is predictive—the standard of acceptability must be used to assess its merit.

4. Chlorine monoxide is a derivative of an important family of synthetic chemicals that are known as chlorofluorocarbons (CFCs). They have enjoyed wide use for decades as coolants in refrigerators and air conditioners, propellants in aerosol spray cans, blowing agents in the manufacture of plastic and rubber foam products and as solvents in the production of electronic equipment.

   Once released into the atmosphere, CFCs drift upward until they reach the ozone layer, which begins in the stratosphere [and protects the Earth by blocking out most of the sun's harmful ultraviolet light]. As long as they remain in their original molecular form, CFCs are harmless. But intense ultraviolet radiation can break the CFC molecule apart, producing chlorine monoxide and setting off a series of reactions that destroy ozone. [Cooper elsewhere in her article describes the effects of excessive UV radiation, including cataracts, cancer, weakened immune systems and hence decreased ability to ward off infectious diseases, and disrupted photosynthesis leading to reduced crop yields.] . . .

   Ozone-destroying chemicals are extremely stable, so they last in the atmosphere for many decades. That means that even if production of all CFCs and halons stopped today, the chemicals already in the atmosphere would go on destroying ozone well into the 21st century.

   (Mary H. Cooper, "Ozone Depletion," *CQ Researcher*, April 3, 1992)

The first two statements, in the first paragraph, are verifiable.

All of the statements in the second paragraph are also verifiable, I think. I could appeal to the appropriate authority (a biochemist?) to confirm that these

are matters about which we can be certain (about which we can make measurements and determine their truth).

The last two statements, in the third paragraph, are also, I believe, purely empirical claims verifiable by measurement of some kind.

6.4.1a Practice determining whether personal testimony is acceptable

2. I lowered my vibrations to be able to come to Earth and pay off a debt I owed to a girl in a previous lifetime—a karmic debt.

(Omnec Onec, a visitor from Venus, speaking at the World UFO Congress held in Tucson in May 1991)

This claim implies life (complete with moral awareness) previous to birth. As an extraordinary claim, it requires extraordinary evidence. Until such evidence is provided, I would not accept this claim.

4. Yes, that's the man! [says a person pointing out the only tall, bald, black-skinned man in a police line-up]

It's possible the identification is correct. But we can infer that if the person saw the man while a crime was being committed (or shortly after), it is likely the person was stressed (by fear, anxiety, or mere excitement). It's also possible the speaker saw the person for only a brief time, possibly at a distance. These factors, and others, could affect the reliability of the identification.

I'd also want to ask "How do you know?" And if the person responds "He's the only tall, black guy" I'd follow up with a test: present another line-up, a week later, consisting of only tall, bald, black-skinned men. (Actually, I'd probably do that even if the person didn't respond in that way—after all, the consequences of a misidentification are serious indeed.)

6.4.2a Practice determining whether survey results are acceptable

2. Anyway, Dr. Kaplan sent questionnaires to people who requested mail from the [Vampire Research Center], and forty responded that, yes indeed, they are vampires. (Dave Barry, "Junkyard Journalism," in *Dave Barry's Bad Habits*, 1985 [1982/83])

The mailing. list of the Vampire Research Center is likely to be heavily weighted with vampires (!) and, thus, presumably, unrepresentative of the population at large. So while the survey results are acceptable (who can argue with the claim that forty responded to say they were vampires), any generalization drawn from that result would be pretty useless.

4. More than half of Americans will develop a mental illness at some point in their lives, often beginning in childhood or adolescence, researchers have found in a survey . . .

(*The New York Times*, June 7, 2005)

Of course, the big questions here are how is "mental illness" defined and who funded the survey (the makers of Prozac?)?

Actually, the article goes on to say the National Institute of Mental Health was the primary sponsor of the study (see how important it is to read more than the first paragraph).

6. According to a 1977 study of gun crime inmates in a Florida prison, only 8.8 percent acquired a handgun for crime purposes. 87% acquired it for self-defense, hunting or target practice, etc.

(Sam Fields, "Handgun Prohibition and Social Necessity," *St. Louis Law Review*, 23, 1979)

Yeah right. Did someone actually expect people convicted of gun crimes to say (confess) they acquired the gun for the purpose of committing the crime?

Then again, given the milieu in which they probably lived, it's plausible that they did acquire the gun for self-protection.

8. Web Poll: What should the Bush administration's top economic priority be? 48% said reducing the cost of providing health care. This month's poll: What is your biggest challenge in doing business overseas?

(From the website of *Inc. Magazine*, www.inc.com)

Keeping in mind that the poll is directed only to those who read the magazine, and even more selectively, only those who visit www.inc.com *and* vote, any conclusions about the general population based on the poll's results would be unacceptable. The poll's results, however, would be acceptable—I believe *Inc. Magazine* to be competent at administering a web poll correctly.

I suspect *Inc. Magazine* might be biased toward business, and especially big business (given their next question), but I don't think that bias would affect these poll results.

10. Studies show that external reward can lower your performance, especially if creativity is involved. Intrinsic interest in something—doing it for its own sake—declines when people are given an external reason for doing it. Philip Slater, *Wealth Addiction,* says "Using money as a motivator leads to a progressive degradation in the quality of everything produced." Rewards encourage people to focus only on getting the task done, as quickly as possible, without taking risks that might be fun but that might lead to failure.

> Turning a task into a means to an end changes the way it's perceived – it's no longer seen as an end in itself.

Ah yes, the ubiquitous "studies show." Which studies? Done by whom? With how many participants? And so on. Review Section 6.4.2.

And is Philip Slater just saying that because he thinks it's true or have the studies mentioned indicated this (how did the researchers define and measure "degradation" and "quality"—and "everything produced"?!).

6.4.2b Practice determining whether experiment results are acceptable

2. Researchers at the University of Washington in Seattle had 19 people follow an eating program that provided 30% of calories from protein and 20% from fat with no calorie restrictions. The participants ate an average of 441 calories a day less on the 30%-protein diet than they did on the 15%-protein diet they were on before the program began. They dropped 11 pounds in 12 weeks.

   "Protein definitely reduces appetite both in the short term and the long term," says lead researcher Scott Weigle of the University of Washington School of Medicine.

   (Nanci Hellmich, "Protein is the New Diet Hook," *USA Today*, October 16, 2005)

The sample is small—19 people—so I'd be cautious about any generalization.

I'd also be a bit wary about the use of the *average* caloric intake: if 3 of the 19 ate 2,000 calories a day less, that would mean the average of the remaining 16 would be 150 calories a day less, which is not quite as dramatic a difference.

And was exercise held constant for all participants before and during the study?

Also, Weigle is inferring reduced appetite from reduced caloric intake. Perhaps the participants were just as hungry as before, but they ate less because they wanted to please the researchers or because they were being watched and measured.

Also, as diet studies go, I'm not sure 12 weeks can be considered "long term."

4. In 1993 . . . ABC sent a male and female, Chris and Julie, on an "experiment" to apply in person for jobs several companies were advertising. Chris and Julie were both blonde, trim, neatly dressed college graduates in their 20s, with identical resumes indicating management experience . . . [W]hen the company recruiter spoke with Julie, the only job he brought up was a job answering phones. A few minutes later, the same recruiter spoke with Chris. He was offered a management job.

The sample is, alas, very small. Can't generalize with much certainty from what happens to just two people.

But I like how they kept all variables the same except for sex (both blonde, trim, neatly dressed, college graduates, in their 20s, with identical resumes), so it's unlikely some factor *other than* sex was responsible for the difference in job offers.

6. The Canadian Department of Indian Affairs and Northern Development spent $80,000 to determine the effect of oil spills on polar bears. The procedure involved immersing three polar bears in a container of crude oil and water. One polar bear died after licking oil from her fur for 12 hours. A second polar bear was killed for "humane reasons" after suffering intense pain from kidney failure. The third survived after suffering from severe infection that was caused by injections that the bear was given through her oil-stained skin by veterinarians who were attempting to treat her for the kidney and liver damage that was caused by her immersion in oil.

   (See *The Province* and *The Vancouver Sun*, March 28, 1980 and April 8, 1980)

Of course my first reaction is "They needed to test this? They really didn't know?" and "They needed to test this in this way? Couldn't they soak a fur coat in oil and then measure the penetration through the skin of the coat?"

The second reaction is "After seeing the bear lick the oil for three hours, couldn't they extrapolate the end results and intervene to save the bear?"

It's possible the "lab" nature of the experiment affected the results, perhaps by making the bears stressed to begin with, and/or perhaps by eliminating some natural antidote (maybe the bears could have rubbed the oil off their fur by surfing on the ice?).

This is the kind of experiment one would hope would *not* need replication. Small sample, yes, but surely the results are generalizable given the homogenous nature of polar bears.

8. To determine the most effective means for treating German pilots who had become severely chilled from ejecting into the ocean, or German soldiers who suffered extreme exposure on the Russian front, [Dr. Sigmund] Rascher and others conducted freezing experiments at Dachau. For up to five hours at a time, they placed victims into vats of icy water, either in aviator suits or naked; they took others outside in the freezing cold and strapped them down naked. As the victims writhed in pain, foamed at the mouth, and lost consciousness, the doctors measured changes in the patients' heart rate, body temperature, muscle reflexes, and other factors. When a prisoner's internal body temperature fell to 79.7°F, the doctors tried rewarming him using hot sleeping bags, scalding baths, even naked women forced to

copulate with the victim. Some 80 to 100 patients perished during these experiments.

("NOVA Online," at: http://www.pbs.org/wgbh/nova/holocaust/experiside.html#free)

Again, an experiment one might have done without. Can we not extrapolate from data we have about tissue, physiology, temperature, and so on? Did we actually have to conduct this experiment? (And really, "forcing naked women to copulate with the victim"—did someone actually think that would work?)

Of course, this raises the ethical question of consent. All matters raised in Section 6.4.2 aside, are the results acceptable *given the way they were obtained*?

6.4.2c Practice determining whether "the numbers" are acceptable

2. Psychologist Terry Orlick discovered that 90 percent of the children he surveyed would rather play on a losing team than warm a bench on a winning team. Winning was actually at the bottom of their list—they wanted fun and excitement, they wanted to improve their skills and be with their friends.

How many kids did he ask? Boys as well as girls? What ages? Before or after a winning or losing game?

4. We have over a dozen satisfied customers in your neighborhood.

This doesn't say much if there are a thousand people in your neighborhood.

6. This headache pill is 3.7 times better!

This an incomplete comparison: better than what, no headache pill at all or another headache pill?

Also, define "better"—does it provide more relief or does it provide relief more quickly or does it provide relief with fewer side-effects . . . what exactly about it makes it "better"?

Also, note the questionable precision.

8. According to studies by the American Association of University Women and the Institute for Women's Policy Research, women with four-year college degrees still earn 72 percent as much money as comparably educated men.

(as reported in *Ms.*, Spring 2005)

On the one hand, I want to suggest that this might be biased since the two organizations involved, as well as the reporting magazine, have a vested interest in such

a finding (as it would support their lobbying for affirmative action programs). On the other hand, alas, only organizations with such an interest in women would undertake such research!

A greater concern is whether other variables were kept the same: did the researchers compare men and women in the same field, with the same years of experience, and so on?

10. However, there is strong evidence that racial profiling does not work. In fact, where racial profiling has been studied in the context of law enforcement, such as in the United States, it has been found by some scholars to be neither an efficient nor effective approach to fighting crime. Studies in the United States have consistently found that while minorities (African American and Latino persons) were targeted more, the chance of finding contraband when their cars were searched was the same or less than White persons. In several studies, minorities were found to be statistically significantly less likely to have contraband found following a search. For example, a 2001 U.S. Department of Justice report on 1,272,282 citizen-police contacts in 1999 found that, although African Americans and Hispanics were much more likely than White persons to be stopped and searched, they were about half as likely to be in possession of contraband.

(http://www.ohrc.on.ca/english/consultations/racial-profiling-report_5.shtml#_TOC55791618)

Well, there's so much about the studies mentioned that we need to know, but as far as the numbers go, the size of the sample that is mentioned (1,272,282) seems sufficient, but I would prefer actual percentages to the vague phrases "much more likely" and "about half as likely."

6.4.3a Practice determining whether sources are acceptable

2. If your wife does not obey you, first give her notice, then separate your bed from her, then beat her.

(The Koran, Chapter 4, Verse 34)

First, the authority of the Koran is convincing only to those who believe it to be authoritative. Second, the source of the quote is given, so that's a plus, and the source has been around for a while, which might indicate some level of reliability, but it's difficult to determine the qualifications and impartiality of the author—indeed, it's difficult to determine the author (it was very likely written by more than one person, and subject to additions and deletions over time by people who apparently disagreed about facts and opinions)—so its acceptability is questionable.

4. You will be earning up to $1,000 a day in just days! Pay your bills! Get out of Debt! Spend time with your family. Buy your dream home. Let me show you how I do it! I put $1,000++ in my account every day and so can you! Fill in the form below and press "Get More Info" button. Start today and your world will be different tomorrow!

(http://waterhousereport.com/ns10.htm)

6.4.4a Practice determining whether images are acceptable

2.

Actress and anti-war activist Jane Fonda speaks to a crowd of Vietnam veterans as activist and former Vietnam vet John Kerry listens and prepares to speak next concerning the war in Vietnam (*Washington Post*).

In this case, finding the two original photos that were merged proves the fakery (see http://www.snopes.com/photos/politics/kerry2.asp).

Note that you'd need knowledge about John Kerry and Jane Fonda—you may even need to have been at the Register for Peace Rally—in order to even be suspicious about this one.

4. Please see the image in *Critical Thinking* appearing on page 266.

There doesn't seem to be anything amiss about this image. (However, you might ask how many students noticed that the sign exhibits the either/or fallacy covered in the nearly next section, Section 6.5.1!)

6.5a Practice recognizing counterevidence

2. Crop circles are UFO landing sites.

   (A) A certain fungus dehydrates grass in a circular pattern.
   (B) Engineering principles support the likelihood that space vehicles will be circular.
   (C) Crop circles have been found mostly in the United States.

Option (A) provides counterevidence, as it provides an alternative explanation for the crop circles.

Option (B) would counter the claim only if the claim specified non-circular UFOs.

Option (C) is irrelevant to the claim.

4. How can we explain getting involved in a gang or cult? Simple. Desire for recognition, for feeling special, chosen, accepted.

   (A) Many gangs and cults have a rite of passage that prospective members must pass before they're considered members.
   (B) Some people join gangs for protection.
   (C) Many people who join cults have low self-esteem.

Option (A) is irrelevant unless the rite of passage is an indication of recognition, in which case this option would be supporting evidence, not counterevidence.

Option (B) provides another explanation, but since it's not mutually exclusive to the explanation presented, it's not really counterevidence.

Option (C) provides evidence to support, not counter, the claim if one understands that people with low self-esteem are most apt to seek recognition and acceptance.

6.5b Practice "constructing" counterevidence

2. Stem cell research is clearly a good thing. Embryonic stem cells can be grown to produce organs or tissues to repair or replace damaged ones. Skin for burn victims, brain cells for the brain damaged, spinal cord cells for quadriplegics and paraplegics, hearts, lungs, livers, and kidneys could be produced.

The claim is that stem cell research is a good thing. The evidence consists of numerous examples of good things resulting from stem cell research. Counterevidence would consist of examples of bad things resulting from stem cell research. For example, it might encourage women to become pregnant and then abort, repeat-

edly, in order to produce stem cells to sell for research (assuming researchers would purchase such stem cells). (This is an example of a bad thing if one accepts that multiple pregnancies and abortions are a bad thing.)

4. Everything in the world shows evidence of intelligent design.

Counterevidence: We don't have ear lids. (We can't close our ears—ever!)

6.5.1a Practice recognizing the either/or fallacy

2. Dr. Phil's Life Law #1: You either get it or you don't.
(http://www.drphil.com/articles/article/44)

Well, it depends what the "it" is—is it possible to sort of get it? If not, then this is not an either/or fallacy because the two options presented are actually the only two possible: p and not-p.

4. Wanted: Dead or Alive.

I don't think this is an instance of the either/or fallacy. Seems to me there are only these two options.

Then again, brain-dead or cardio-dead or totally hooked up to machines . . .?

6.5.2a Practice recognizing the fallacy of composition

2. The days get longer in summer. So of course summer is the longest season of the year.

First of all, the days don't actually get longer; they're still 24 hours; what's meant is that the proportion of sunlight in the 24-hour period increases.

So this isn't really an instance of the fallacy of composition, because the quality of the parts (length referring to the proportion of sunlight) is not the same quality assumed to be present in the whole (length referring to the total number of days).

4. I will bring you many beautiful flowers tomorrow; you will be able to make a beautiful bouquet!

Yes, this is an instance of the fallacy of composition—individually beautiful might not make beautiful when put together.

6.5.3a Practice recognizing the fallacy of division

2. My team has won every game it's played this season. I'll put any one of my players against any one of yours any day!

Bad idea. This is an instance of the fallacy of division: individually, the players may be poor, but together, they're great.

4. If you use only the best-tasting ingredients, *any* casserole you bake will taste fantastic!

This is not an instance of the fallacy of division; it's an instance of the fallacy of composition—assuming that what's true of the parts (ingredients) is true of the whole (casserole).

6.5.4a Practice recognizing the gambler's fallacy

2. Okay, this time I'll get a basket. I mean, I've missed every one so far, so the odds are good that this will be the one that makes it.

Yes, this is an instance of the gambler's fallacy: the speaker is mistakenly assuming that the odds of the current throw are calculated according to the past history of success/failure.

4. Of course the chances of making a mistake increase the longer I work because the longer I work, the more tired I become!

No, this is not an instance of the gambler's fallacy; it is correctly reasoned.

6.5.4c Practice recognizing errors of truth

2. You're not going to get every question on the test right, so of course the more you get in a row right, the greater the chance the next one will be wrong, so you shouldn't leave the big questions for the end! That's when your chances of getting one wrong are highest! Do the ones that count the most at the beginning!

What? Gambler's fallacy and a couple non sequiturs!

4. The university is very well-known, which is why I'm surprised there are so many unknown professors here.

You shouldn't be surprised; it's the fallacy of division that has made you surprised—you've assumed that what is true of the whole is true of the parts.

6. The only way the planet will sustain itself is if each country becomes self-sustaining.

Hm . . . this seems to make sense, but, alas, the speaker is assuming that what is true of the parts will be true of the whole. It isn't that difficult to imagine that one country may become self-sustaining in a way that will destroy the planet.

8. The Bush administration claimed that the December 2002 UN report regarding Iraq's weapons of mass-destruction was incomplete. Of course it was. The United States had removed over 8,000 pages of information implicating twenty-four American corporations and government agencies that had provided Iraq with not only biological and chemical weapons, but also with material for nuclear weapons.

(Michael I. Niman, "What Bush Didn't Want You to Know About Iraq," *The Humanist*, March/April 2003)

There are no errors of truth in this argument. There might be, however, an error of equivocation: I suspect that what the Bush administration meant by "incomplete" wasn't what the speaker describes!

10. I submit that justice is, or should be, a truth-seeking process. The court has a duty to the accused to see that he receives a fair trial; the court also has a duty to society to see that all truth is brought out; only if all the truth is brought out can there be a fair trial. The exclusionary rule [that evidence seized through illegal search and seizure may not be presented in court] results in a complete distortion of the truth.

(Malcolm R. Wilkey, "The exclusionary rule: Why Suppress Valid evidence?" *Judicture*, November 1978)

Lots of talk about truth here, but no errors of truth!

Thinking critically about what you see

2.

According to Larry Bossone (letter to the editor in *American History*, February 2005), the painting does not conform to the facts in the following ways:

1. The uniforms of the soldiers are not American but European, probably Prussian.
2. The American flag shown was not even known in 1776. It would be more than a year later before the Stars and Stripes would be designed.
3. Washington is seen standing at the head of the boat. Doing so would have unbalanced the boat and capsized it.
4. No. 3 doesn't really matter. With the number of men Leutze shows in the boat, it would have been too heavy and sunk before it even left the shore.

Thinking critically about what you hear

Social Media Revolution 2

http://www.youtube.com/watch?v=lFZ0z5Fm-Ng

Admittedly, there's not much to hear in this clip, and the song "Right Here Right Now" has a pretty transparent impact on your perception: the phrase "Right Here Right Now" underscores the point of the video, and the music is energetic and relentless, both of which also underscore the point.

The rest of the lyrics, "Waking up to find your love's not real" have no relevance as far as I can see, but then, the rest of the lyrics aren't intelligible (I had to Google to find out what they were).

Amusingly, though, I saw that the entire song consists of just those two lines: "Right here right now" is repeated 36 times and "Waking up to find your love's not real" is repeated 40 times. Is that an ironic comment on the subject of the video? (Twitter as relentless repetition of the inane . . . see the essay in the Appendix.)

However. My real reason for including this clip is that it's full of statistics for you to think critically about, now that you've worked through Chapter 6.

For example, as TheOtherGeneration points out, the statistic "96% of the Millenials have joined a social network" seems questionable, but shotty101 quickly gets to the heart of the problem: "it depends on what you define as a 'Millenial'" (sounds like he/she's taking a CT course!). I would add that that stat came immediately after "Over 50% of the world's population is under 30"—but a good percentage of those under 30s are children in the developing nations who are unlikely to have internet access, so the stat, although correct, is misleading as it suggests over 50 percent of the world are prime social media participants.

The comparison of radio, television, internet, ipod, and Facebook with respect to the time it took to reach 50 million users doesn't take into account the growing population; a percentage rather than an absolute number would've been more appropriate to use.

The video is also full of visual effects, some of which enhance, some of which manipulate.

And of course the final question, which is not addressed, is "So what?"

Thinking critically about what you read

2. Twenty-four out of the twenty-five jobs ranked worst in terms of pay and working conditions by the Jobs Related Almanac have one thing in common: they are all 95 percent to 100 percent male. This proves that men have *not* arranged everything to be so wonderful for themselves as feminists suggest.

   (Based on Robert Sheaffer, "Feminism, The Noble Lie," *Free Inquiry*, Spring 1995)

What if twenty-four out of the twenty-five jobs ranked the *best* in terms of pay and working conditions were *also* 95–100 percent male?

What factors were considered to rank the working conditions? Just physical danger? Constant infantilization (by a supercilious boss) also makes for lousy working conditions. (And physical danger is often compensated by high pay; constant infantilization is not.)

4. It's quite clear to me that the Sun moves around the Earth and not the other way around. I *see* the sun rise in the east, move across the sky, and then fall in the west out of sight as it goes around the other side. Furthermore, I am standing here on Earth and I tell you it's not moving! I'm not the least bit dizzy!

You see how the senses can deceive? How personal testimony is not necessarily reliable? (Or at least personal testimony based on sensory experience that is taken at face value, that has not been interpreted with any sophistication.)

6. Nothing about contraception should be taught in schools. There is no question that it will encourage sexual activity.

(Phyllis Schlafly, *New York Times*, October 17, 2002)

Note the loaded language ("There is no question that . . .")—always an indication of weak substance. Quite simply, this isn't an argument; it's an unsupported claim.

Research could provide support for the claim. Identify two sufficiently large (see Section 7.2.2) groups of adolescents, with a similar spectrum of age, sex, class, moralities, cultural background, and so on (see 7.2.3). Provide contraception instruction to one group and not the other. Then measure (how much later?) how many adolescents in each group engage in sexual activity. (How many is more indicative than how often, yes?) Best to note, too, exactly what sexual activity is engaged in (could be the one group engages more in non-reproductive activities—so you'd have to figure out what that means).

8. Economists seem to assume that economic growth is a good thing. Why? If it means everyone will get more, then okay. But in Canada, for example, between 1991 and 2001, per capita real economic growth increased 25 percent. Hourly wages increased 1.4 percent. Okay, but maybe those workers got more through government spending (because government revenues increased due to taxes on the wealth created by that economic growth)—more health care, more education, and so on. In 1990/91 per capita spending by government was about $3800; in 2000/02, it was $3879—a bit of an increase, but nothing near 25 percent. So who exactly benefits from economic growth?

(based on Ellen Russell, "Let Them Eat Pie," *This Magazine*, September/October 2005)

More information is needed for non-economists. I understand that 'per capita' means 'per person," but what does the "real" in the phrase "real economic growth" mean? I suspect it might be significant in the way that the difference between "gross" and "net" is significant.

But, okay, point made first is that economic growth doesn't necessarily mean we make more money (growth increased 25 percent but wages increased only 1.4 percent). Why is only hourly wages counted? Shouldn't increases in salaries also be counted? And should changes in unemployment rate be considered?Point made next is that maybe economic growth means we get more services—but, alas, no that's not the case (growth increased 25 percent but government services spending increased only $79).

The study covered a ten-year span, which is good—because I think it takes a while for economic growth to "filter down" to wages and government spending.

Only Canada was considered, but the point was about economic growth in general (not economic growth in Canada), so we need to know whether Canada is typical or atypical in ways that matter to the argument.

10. *Ipellie*: Immigrants take jobs away from Americans.
Sileilka: Nonsense. They either take the jobs Americans turn down or they get the jobs Americans can't do. One in three engineers working in the United States is an

immigrant. Over half of all scientists graduating with doctorate degrees from American universities are immigrants.

Ipellie: Yeah, but I just read a study indicating that public assistance to the 19.3 million immigrants who have settled here since 1970 will cost us $42.5 billion.

Sileilka: What about the taxes they'll have paid though? Immigrants tend to come to the U.S. when they are young and working; I read that over their lifetimes, they'll each pay about $20,000 more in taxes than they use in services.

Ipellie: Well, the study I mentioned—the $42.5 billion in public assistance was what they'll cost us *after* subtracting their taxes, which, the study says, will be $20.2 billion.

Sileilka: Okay, but how much will public assistance to the how many million native-born Americans cost us? You've got to compare. The 1990s census reveals that about 6 percent of native-born Americans are on public assistance versus 7 percent of foreign-born. That's not that much of a difference.

Sileilka's "One in three engineers working in the United States is an immigrant" provides support to her point only there are no Americans qualified to hold those engineering positions and/or no native Americans who want those positions. She doesn't tell us this is so.

Sileilka's "Over half of all scientists graduating with doctorate degrees from American universities are immigrants" is irrelevant *unless* those graduates also become employed in the United States. And then she has to show that, again, the positions held by those graduates are unwanted by native Americans and/or there are no native Americans qualified to hold them.

Ipellie's point about public assistance is irrelevant to her opening point about jobs. A red herring?

Both Sileilka and Ipellie appeal to something they read: was it on the back of a cereal box or in *The Economist*? Details of the source and any study mentioned by the source would strengthen their arguments. It could be their disagreement on this point is a matter of comparing apples and oranges.

Sileilka's last point, wherein she points out the need for a comparison group, is a very good one.

Reasoning test questions

2. (A)
4. (C)

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

2. I know firsthand that drinking water helps your skin, wards off infection, and prevents bloating, and I can feel it when I don't get enough.

(Stacy Lenher, "Health: What Are You Waiting For?," *O: The Oprah Magazine*, June 2005)

Assuming I have no reason to disbelieve this person (though, of course, I'll ask "How do you know?"—it's quite possible the effects mentioned are due to other things), it's still evidence of just one incidence. Perhaps water does have those effects on her body, but that doesn't necessarily mean it has the same effects on other people's bodies.

So I'd like more information about the effects of drinking water on skin, infection, and bloating—testimony from many others, as well as biochemical explanations that would support the reported effects.

4. Who says Disney is bad for kids? Sexist role models? Racism? That's crazy! I watched Disney when I was a kid and I turned out alright.

Again, even granting that the speaker "turned out alright" (which might be debatable!), we have just personal testimony, which is an insufficient sample on which to base any kind of generalization.

I'd like to read the results of well-designed studies: longitudinal studies of children who watched Disney compared to those who did not; methodical analyses of the characters and themes of Disney productions; and so on.

7.2a Practice imagining counterexamples

2. Marriage for homosexuals should not be permitted because they can't have children.

Counterexample: Homosexuals can adopt (as do many heterosexual couples) or one can be the sperm donor and they can hire a surrogate (as many heterosexual couples do).

Counterexample: Marriage for heterosexuals is permitted even when they can't have children.

4. Abortion is wrong because it is wrong to kill.

Counterexample: We kill cancerous cells and do not consider that wrong.

6. There's never been a war between democratic countries.

Counterexample: What about the U.S. civil war? Surely the North and the South were democracies at the time.

8. The purpose of business is to make profit.

Counterexample: There are not-for-profit businesses.

10. Entrepreneurs should be allowed to keep the millions they make—that's the payoff for taking risks.

Counterexample: What about miners, police officers, firefighters, and mothers who put their lives at risk to do their jobs? Their pay, should they get paid, is fixed, and much lower than most entrepreneurs' profit. Why should a person get more for risking money (and often not even their own money, certainly seldom money they need, for food, clothing, and shelter) than for risking health or life?

7.2b Practice recognizing generalizations

2. According to our survey, most people do not read a lot: only 267 of 3,000 people reported reading more than one book per week.

Yes, this generalization is strictly induction by enumeration: the speaker is generalizing to most people from 267 people.

Note the implied definition of "a lot"—more than one book per week.

4. Only the rich pay taxes! The top 50% pay 96.54% of all income taxes; the top 1% pay more than a third, 34.27%.

(From http://www.rushlimbaugh.com/home/today.guest.html)

This is a generalization, but it's incorrect: the speaker makes a universal statement ("*Only* the rich pay taxes!"), but the statistics indicate that bottom 50 percent (the not rich) also pay taxes (albeit only 3.46 percent).

6. Every year I ask my students to fill out a questionnaire in addition to the standard course survey, and though they all complain during the year, at the end, they all say yeah, they could've worked harder. I tell you most students don't deserve the As we're giving out!

The speaker generalizes from the students in his/her classes to most students; it's an instance of induction by enumeration.

Note the assumption that whether students deserve an A depends on whether they work hard (as opposed to whether they've mastered the material) (which, for some students some of the time, could be done without working hard).

8. Every Republican I know believes in individual responsibility, so yes, I'd say that's a fundamental Republican principle.

If one assumes that fundamental Republican principles are those that are endorsed by every Republican, then yes, the speaker is generalizing—from every Republican he/she knows to every Republican.

One might ask for a definition of "individual responsibility."

One might also point out that it's like that every Democrat known to the speaker *also* believes in individual responsibility. Does that mean that some fundamental Republican principles are also fundamental Democrat principles?

10. In a recent study, we found that daycares staffed by only women seemed to have more stereotyped girls and boys; for example, the girls would play with dolls and the boys would play with guns. However, in daycares staffed with women *and* men, the children seemed less stereotyped; little boys would play

with stuffed toys, for example. Whether the staffing is a cause or an effect, that is whether the male staff somehow encourage the boys to be less macho or whether male staff are attracted by daycares with a less polarized clientele, is hard to say. But what we can say is that in general, daycares with male staff have less genderized children than daycares with mixed staffing, so if we want to reduce sexism, we should hire more male daycare workers.

This argument does involve a generalization—from the daycares studied to daycares in general. Furthermore, the generalization is made from daycares with women-only and mixed staff to similarly staffed daycares.

Note, however, that the conclusion ("If we want to reduce sexism, we should hire more male daycare workers") seems to take an extra leap: it assumes that less genderized children will result in reduced sexism.

7.2.1a Practice recognizing an overgeneralization

2. You never ever support me! No matter what I say or do, you always criticize!!

This is a universal statement, a statement about all of the time, but it's not an argument, so we can say the speaker is making an overgeneralization.

If the speaker had said something like "You didn't support me when X, and you didn't support me when Y. You never ever support me!" *that* would be an overgeneralization.

4. I swear to tell the truth, the whole truth and nothing but the truth.

Again, there is no argument here, just a series of absolute statements.

7.2.2a Practice recognizing an insufficient sample

2. *Sue*: If you're having trouble with your knee, you should try this cream! It really works! I tried physio and everything, but the pain just kept coming back. Then I tried this cream, and no pain since!
   Dan: She's right! I've got a bad back from a football injury. I use the same thing. It's great!

Two people is an insufficient sample from which to conclude that the cream is an effective antidote to joint pain.

4. In separate aviaries littered with twigs and pocked with holes and crevices, ornithologists [Ben Kenward and his colleagues at the University of Oxford] hand-raised two New Caledonian crow chicks, each in isolation. The young birds spontaneously began to use the twigs to reach into the holes and

> crevices, and, at the tender ages of sixty-three and seventy-nine days, respectively, they got hold of their first tasty morsels. (Two other chicks, raised together and tutored in the art of twig probing by the investigators, first retrieved food from crevices on days sixty-eight and seventy-two.) On day ninety-nine, one of the isolated birds even shaped its own tool by tearing up a proffered leaf and probing for food with the remaining rib.
>
> If two random New Caledonian crows can, by themselves, acquire expertise in twig usage—and if having companions and regular tutelage doesn't speed up the learning process—it seems safe to assume that most members of the species are naturals with an organic version of the bar that bears their name. The scientists conclude that the crow's brain is well wired for both tool use and toolmaking.
>
> (Stephen Reebs, "Crow Bar," *Natural History*, 2005)

Again, this is an insufficient sample from which to generalize.

Notice the Mill method (see Section 8.1.5).

7.2.3a Practice recognizing an unrepresentative sample

2. Based on a telephone survey conducted between the hours of 9:00 am and 5:00 pm, Monday to Friday, using residential phone numbers, researchers conclude that most people think the current income tax rates are fair.

Who's home between 9:00 am and 5:00 pm Monday to Friday? Mostly *not* those with full-time jobs! (I say mostly because many people have full-time jobs with evening or overnight shifts; also, many people work out of their home full-time.) So this would be an unrepresentative sample—at least, unrepresentative of "most people."

A representative sample would involve phone calls before 9:00 am and after 5:00 pm, as well as calls on Saturdays and Sundays. Furthermore, perhaps calling every tenth person in the phone book would yield a representative sample in terms of age, sex, income level (or maybe not—perhaps people with higher income levels have unlisted phone numbers), political affiliation, and so on.

4. A study conducted simultaneously in California and New York, involving a stratified random sample of people in both states ensuring that age, sex, and class were proportionately represented, led to the conclusion that the American people do not feel superior to European people.

Although the stratified random sampling with respect to age, sex, and class makes for a good sample, generalizing from California and New York to the States as a whole is not defensible.

7.3a Practice identifying arguments by analogy

2. Do you realize three out of four Americans now believe in angels? . . . What about goblins? Doesn't anybody believe in goblins?

(George Carlin, *Napalm & Silly Putty*, 2001)

Yes, this is an (implied) argument by analogy: goblins are being compared to angels, and the implication is that belief in goblins is ridiculous, so belief in angels is also ridiculous.

Angels and goblins are similar in that they're both supernatural entities; we can't see, hear, touch, smell, or taste them.

They're dissimilar in that the former are related to a god, whereas the latter aren't.

(Is that a significant difference? Significant enough to render the argument unconvincing?)

4. It is obviously not justifiable for me to kill another person because it is in my self-interest to do so . . . So why has national self-interest sometimes been flagged up as a reason to go to war?

(Julian Baggini, *Making Sense: Philosophy behind the Headlines*, 2002)

Yes, this is an argument by analogy: killing a person because it's in my self-interest is like killing many people (going to war) because it's in my (a nation's) self-interest. The implication is that since the former is unjustifiable, so too is the latter.

The two are similar in that they both involve killing, killing people, and the motive of self-interest.

Is personal self-interest sufficiently different from national self-interest to render the argument unconvincing? I don't think so: what is a nation but a bunch of people, what is national self-interest but the personal interests of a bunch of people?

6. Veterans rightly have legislation to make it easier for them to get a job or an education, but what about all those women who stayed at home and worked in munitions factories and raised those soldiers' children—don't they deserve a similar break?

This is an argument by analogy: veterans have a right to employment and education legislation, so munitions factory workers/mothers of veterans' kids also have a right to employment legislation.

What are the similarities between the two groups of people? Both did war work—one made the munitions, the other used them. Both didn't have the chance to go to college or obtain job training because of that.

What are the dissimilarities? One group is male; the other group is female. Is that relevant in a way that weakens the argument? Only if you think men need jobs/education more than women.

8. Most dogs I've met are friendly unless they have a specific reason not to be, so I think it's safe to say you can approach almost any dog without fear.

This is just a generalization, from most of the dogs I've met to almost any dog; it's strictly induction by enumeration.

10. What do you want in a female companion? What is the first thing that attracts you? Her ability to cook and keep house, or the way she looks? It's not politically correct, GM hates it when I draw that analogy. But it's absolutely correct. The initial pull comes from the exterior performance.

(General Motors Vice Chair Bob Lutz, likening women to an automobile's exterior design at a product seminar in September 2004, according to *Ms. Magazine*, Winter 2004/2005)

This is not an argument by analogy. Yes, a comparison is made, between choosing a car and choosing a female companion; in the latter, it's appearance that matters first, so too in the former. Is it an argument though? No, because no claim is made *because* of that analogy. The speaker doesn't say *because* appearance matters first when choosing a car, appearance matters first when choosing a female companion.

Also, note the equivocation: wanting is not same as being attracted by, and choosing/ buying is different still.

Also, it's odd to call *appearance* "external *performance*"–imprecise diction? Note too the false dichotomy: one can have appearance *and* abilities.

Lastly, of all the abilities a woman may have, he mentions her ability to cook and keep house.

7.3.1a Practice recognizing weak or false analogies

2. Did you see Arlen Specter's justification for subsidizing stem cell research on human embryos? The senator from Pennsylvania noted that "there are some 400,000 of these frozen embryos, which were created for in-vitro fertilization, which are going to be thrown away . . . ." So why not put them to good use?

Listening to the senator brought back the reasoning that German doctors once used to justify their experiments on concentration camp inmates. They were going to die anyway; why just throw them away?

(Paul Greenberg, "Stem Cell Rhetoric," *am New York*, June 23, 2005)

The argument seems to be this: using the concentration camp inmates for experiments was wrong even though the inmates were going to die anyway, so using human embryos for stem cell research experiments is also wrong even though they were going to die anyway.

The similarity between the analogues is the use for research something that was going to die anyway.

To the extent that one considers embryos similar to adult human beings, the analogy is a strong one. If, however, one considers embryos to be undeveloped, human tissue, then that dissimilarity would make the analogy a weak one.

Regardless, another dissimilarity, quite significant to my mind, is that using embryos for stem cell research does not involve causing pain to a subject, whereas the concentration camp experiments did.

One might also ask about the importance of the relative research: perhaps in the one case, it's justified, and in the other case, it's not.

A more acceptable analogy would be that between concentration camp inmates and prison inmates, or between frozen embryos and aborted embryos.

Note what I think is an error: shouldn't that be "from" in-vitro fertilization?

4. Politics is like football. That's why the briefcase that contains the secret codes that launch our nuclear weapons? The one that follows our President everywhere, day and night? It's called the "football." Politics is all about strategy, defense, offence, feints. It's us against them. And of course the only object of the game is winning. Really, nothing else matters. That's why, as your President, I will be as tough, as aggressive, as I can be.

The analogy is between, obviously, politics and football. But this doesn't seem to be an argument. Rather, the analogy provides merely an explanation for why the briefcase is called a football.

7.4a Practice identifying arguments by application of general principle

2. *Doleske*: It's not just what ads say that bothers me—it's what they don't say. Don't you remember that awful Nestlé infant formula thing? Mothers in developing countries mixed it with polluted water since that's all they had, and since they couldn't afford very much of the formula, they diluted it, so babies died! Of malnutrition and disease.

   Barlow: There's no way they can blame that on Nestlé! The formula itself was okay. Nestlé can't be held responsible for polluted water! Or for their decision to dilute it! Besides, caveat emptor! Let the buyer beware!

Barlow is making an argument by application of the general principle, "Buyer Beware":

1. The person who buys a product is responsible for the consequences of using the product—it is their responsibility to detect and avoid negative consequences.

2. Mothers in developing countries bought Nestlé infant formula.

Therefore, the mothers in developing countries are responsible for the negative consequences of their using the formula.

One might question the principle: why is it the responsibility of the buyer to beware? Why should A have to be vigilant against bad products? Shouldn't B have to refrain from *making* bad products?

And if the problem isn't that the product is bad, but that the advertising is incomplete or misleading, leading to the product being used incorrectly, the same questions can be asked. Why should A have to be vigilant against deception? Shouldn't B have to refrain from deceiving?

All of which is to say shouldn't the *right* thing be the default mode?

Also, the buyer beware principle assumes that the buyer is *capable* of being aware and sufficiently informed.

4. *Ruffo*: You are responsible for your own behavior.
   Bok: Yeah, which is why whenever my supervisor tells me he's responsible for what I do, I tell him to shove it.

No, this is not an argument by application of general principle. Ruffo does indeed state a general principle, that people are responsible for their own behavior. But neither Ruffo nor Bok apply the principle to reach a conclusion. Instead, Bok merely presents his/her supervisor's apparent lack of acceptance of that principle.

6. My body, my choice, you say? Okay, then, I most certainly have a say in whether or not you have an abortion! That's my sperm in there!

The argument (yes, an application of a general principle) is this:

1. People have the right to make decisions about what happens to their bodies.
2. Sperm is part of one's body.

Therefore, I have a say in whether or not you have an abortion (I have a right to make a decision about what happens to my sperm).

One could challenge the slippery equivocation: is "their bodies" the same as "parts of their bodies"?

Perhaps the argument could be clarified either by making this the general principle:

1. People have a right to make decisions about what happens *in* their bodies.

Or this:

1. People have a right to make decisions about their body parts wherever they happen to be.

Or one might work out whether or not the right to one's body parts is forfeited when one voluntarily "gives up" that body part. (Is ejaculation in a vagina "giving up" one's sperm?)

8. I really get pissed off with all those celebrities who shove their way through reporters and put their hands in front of the cameras. I mean, the public has a right to know!

The general principle invoked in this argument is "The public has a right to know." Does it? Always? On what grounds?

And does the right to know entail the right to find out? By any means?

10. People who don't contribute to the office birthday fund shouldn't expect a birthday present. It's that simple. We keep a list of people's birthdays, and we keep a list of contributions, which are collected once a month, so we know who's who.

Although there is a general principle here (the first sentence), there is no application of the principle to some specific in order to reach a conclusion. Rather, the speaker just explains how they run the fund in accordance with that principle.

7.4.1a Practice recognizing misapplied general principles

2. From each according to his or her ability, to each according to his or her need. That's why we're justified in taxing those with high incomes more than those with low incomes, and then using that money to provide social programs for the latter.

This seems to be a correctly applied general principle to the extent "ability" is understood to mean "ability to pay."

4. Merely challenging any one of your precious opinions disturbs your peace—are you going to arrest everyone who dares to disagree with you?

This is a misapplication of the general principle "People who disturb the peace should be arrested and so charged" if one understands "disturbing the peace" to refer to actions that are likely to lead to violence. Challenging someone's opinions is not likely to lead to violence. (Hopefully.)

7.4.1c Practice recognizing errors of generalization, analogy, and application of a general principle

2. We traveled to every single national dance competition and interviewed a random sample of the competitors at each one (we simply chose every fifth name on the registration lists). We can say with a reasonable degree of confidence that most advanced competitive dancers believe dance is "far more difficult" than other physical activities (including the most popular ten sports).

This involves a good sample—likely to be representative of competitive dancers because the researchers went to *every* national dance competition and because they interviewed *every fifth* dancer on the registration lists.

The generalization is limited to competitive dancers, which makes it *not* an overgeneralization, since that's the only kind of dancer they interviewed. If they had generalized to all dancers or to all people, *that* would have been an overgeneralization.

Note too that they limited their generalization not only to competitive dancers but to the "most advanced" competitive dancers—the only ones that would even *be* at a national competition. Nicely done.

4. So, if abortion is seriously wrong because it kills a potential person, then the use of a contraceptive is equally seriously wrong. In using a spermicide, one commits mass murder! Indeed, even abstinence is wrong, insofar as it prevents the development of a new human being.

(Bonnie Steinbock, *Life Before Birth: The Moral and Legal Status of Embryos and Fetuses*, 1992)

This is a correct application of a general principle (that being "it's wrong to kill a potential person").

Note that because the application is ridiculous, it's a challenge to the principle.

One might counter the analogy, however, by arguing that sperm by itself doesn't have the potential to become a person; only when it is united with an ovum does it have that potential. But then, a fetus doesn't by itself have the potential either—only when it is provided with adequate resources does it have the potential to become a person.

Clearly "potential" needs to be defined in such a way as to indicate the minimum proximity to the final point that is required before one says it has the "potential to . . ."

6. 80 percent of our subscribers responded to our survey, and 70 percent of that 80 percent said they were happy with the magazine just as it is. So I can say with absolute certainty that most of our subscribing readers are happy indeed with our magazine.

This is a correctly drawn conclusion, not an overgeneralization: 70 percent of 80 percent is more than 50 percent.

8. The township council says that residents must submit a plan and obtain the approval of a building inspector prior to undertaking any home improvements. That's a ridiculous lot of trouble just to repaint the house!

To apply the principle (the township policy) to repainting the house, and therefore to conclude that one needs a building permit in order to repaint (which is deemed ridiculous), the speaker is applying the principle too broadly. Surely the policy was not intended to include repainting.

And yet, isn't repainting improving? Perhaps the problem is that township's policy was not precise enough: "any home improvements *involving construction*" might be more accurate.

10. "Suppose that there be a machine, the structure of which produces thinking, feeling, and perceiving; imagine this machine enlarged but preserving the same proportions, so that you could enter it as if it were a mill. This being supposed, you might visit its inside; but what would you observe there? Nothing but parts which push and move each other, and never anything that could explain perception." Therefore, Leibniz concludes, the mind is more than the brain; thinking, feeling, and perceiving cannot be explained by mechanism, by mere parts and movements of parts.

(Gottfried Wilhelm von Leibniz, *Monadology*, 1714, trans. Paul Schrecher and Anne Martin Schrecher, 1965)

We know today that the brain is more than the visible physical mechanism of the machine that Leibniz compares it to; the brain has electrical and biochemical properties that are measurable correlates to various mental states. But even so, if we extend Leibniz's analogy from "visible" to "measurable," does it not still stand?

But if, as he implies, the mind is something more than or separate from the brain, why would brain injuries affect mental features like reason, emotion, and consciousness?

And yet a brain scan can indicate only *that* we're thinking, not *what* we're thinking. Furthermore, the actual *experience* of thinking is not at all like the corresponding brain state. Has Leibniz missed the importance of point of view? Does his analogy just prove that thinking, feeling, and perceiving are not *visible* (or measurable) processes—that is, visible from a third-person perspective? (How could they be "visible" from a first-person perspective?)

Thinking critically about what you see

2.

Bipedal robot created by Shadow Robot Company, London. Image copyright: Siobhan Hapaska. Courtesy of Kerlin Gallery.

The artist may be making an argument by analogy with this work. The pose of the man holding the dead robot is identical to that of the famous Pietà, with the grieving Madonna holding the crucified Christ across her lap.

So, with this analogy, robot/technology as Christ, is Hapaska suggesting that we look to technology for salvation? That we look to technology as God?

And given that the robot is dead, is she saying, further, that technology will not save us? But the crucified Christ did save us, according to the story, so maybe that's not right.

Why is the background a cityscape? I have taken that as reason to generalize from "robot" to "technology" in general, but maybe there's something more there.

Thinking critically about what you hear

Bob Goldacre on Homeopathy

http://www.youtube.com/watch?v=TZiLsFaEzog&feature=fvst

Goldacre opens with an argument by analogy, using two analogies (the orange cordial one, and the drop in a sphere the size—presumably means the diameter?—of the distance from the Earth to the Sun); Goldacre implies that because homeopathy dilutes the substance so much, it is ineffective. But are the analogies good ones? I don't know. I don't know whether there are sufficient similarities; certainly there are some cases in which a microscopic amount of something can have great effect (for example, a single speck of uranium-238 can cause cancer).

Note the use of visual effect—the many beakers in a row. Is it manipulative or a fair visual aid?

Goldacre goes on to say that homeopaths can only argue for homeopathy's effectiveness by invoking some magical principles. That sounds like it might be a paper tiger—I'd like to hear from a homeopath. Goldacre's position would have been strengthened if he had identified what those principles were and then evaluated them.

The section on testing, starting at 1:20, is well argued (see Chapter 6).

(Nice parting question: is it ethically acceptable to deceive people (such as by giving them a placebo) in order to help them get better?)

Thinking critically about what you read

2. Everything Christians possess of time, money, and resources is given to them by God as a stewardship for which they will give an account before a holy God. Many entertainment providers including, but not limited to, the Disney Company are increasingly promoting immoral ideologies such as homosexuality, infidelity, and adultery, which are biblically reprehensible and abhorrent to God and His plan for the world that He loves. We realize that we cannot do everything to stop the moral decline in our nation, but we must do what lies before us when it is right through a proper use of our influence, energies, and prayers, particularly when it affects our nation's children. Therefore . . . every southern Baptist should refrain from patronizing the Disney Company and any of its related entities.

   (Based on a resolution presented at Southern Baptism Convention, as printed in Daniel McDonald and Larry W. Burton, *The Language of Argument*, 9th edn., 1999)

If one accepts the premise in the first sentence, and if the information presented in the second sentence is true (and one accepts that homosexuality, infidelity, and adultery are immoral), then the conclusion (boycotting Disney) is an acceptable application of the general principle stated in the third sentence ("we must do what lies before us . . .").

The phrase "proper use" is a bit vague; "proper" should be defined.

And though I can imagine an acceptable argument that supports the "particularly when it affects our nation's children" part (an argument appealing to their limited autonomy and critical abilities) (though I can't imagine an acceptable argument supporting the exclusion of the children of other nations), if that argument were included, the whole would be strengthened.

4. Before He created the world He foresaw all the pain and misery that it would contain; He is therefore responsible for all of it . . . If I were going to beget a child knowing that the child was going to be a homicidal maniac, I should be responsible for his crimes.
(Bertrand Russell, *Why I Am Not a Christian*, 1957)

There is a general principle implied here that drives the argument: if you foresee it and go ahead and do it anyway, you're responsible for it happening. This principle is behind our laws about foreseeable harm.

An application to God's action of creating the world seems acceptable to me; I can't imagine any aspect of God that would make him exempt from the general principle.

I would not consider this an argument by analogy. Rather, Russell seems to be illustrating his point with another application of the principle, one in which the wrongdoing is less contestable. I suppose he is implying an analogy though—that God creating the world is like a person creating a person (so if the latter is wrong because of foreseeable harm, so too is the former).

6. Men consume pornography because they find that entering its fantasy world is enjoyable, not because it is sexually arousing to perpetuate discredited theories about the nature of women. Similarly, the massive consumption of romance novels by women is motivated by the enjoyment of contemplating a fantasy world in which everlasting loves are more plentiful than they happen to be; these novels hardly depict men as they are, yet they are not defamatory. The key here is that to engage in pretense is not to disseminate lies. Pornography is understood better by analogy with playing cops and robbers, than by analogy with a piece of journalism.

The author seems to suggest that consuming pornography is like playing cops and robbers and is *therefore* harmless (or am I overgeneralizing? Perhaps the author's point is not that it's harmless, but only that it doesn't harm by disseminating lies), so the first thing is to consider that hidden assumption: *is* playing cops and robbers harmless—or does it desensitize the participants to the violence of guns, the possibility of serious injury?

Note the lack of clarity due to poor grammar (a lack of parallelism): consuming pornography cannot be like a piece of journalism—at best, it can be like *reading* a piece of journalism. Thus clarified, is *that* analogy a good one? The author seems to want to say consuming pornography doesn't mean you endorse the defamation therein. But reading a piece of journalism doesn't mean you endorse whatever is therein either. In which case, it *is* like reading a piece of journalism.

Another point of analysis worth mention: where's the evidence for the opening claim?

8. The "bad blood" theory of crime has held appeal for both the public and experts alike. What could be more logical than "like father, like son," or "like mother, like daughter"? Criminal traits *must* be genetic since so many criminals have relatives who are also criminals, according to this thinking. The biological origins of crime were sometimes attributed to flawed genes, physiological body deficiencies, or other inherited defects. It was frequently argued that particular ethnic groups and/or races had a "predominance" of such criminogenic traits.

The conclusion seems to be overstated—"must" is pretty strong. Given the many alternative explanations—family members often share the same values, and these values may make crime acceptable; family members have often been raised in a similar fashion, a fashion that might foster similar character traits, such as selfishness and tendency not to think things through, that make crime attractive; family members may share the same socioeconomic class, with the same limited resources that make crime attractive, and the same opportunities to be criminal—I would modify that "must" to a "may."

Note the absence of evidence for the genetic link. Crime may have been "attributed" to flawed genes and physiological body deficiencies, but where's the research supporting that attribution?

Note the misuse of the word "logical."

10. I have said that the difference between animals like deer—or pigs and chickens, for that matter—whom we ought not to think of "harvesting," and crops like corn, which we may harvest, is that the animals are capable of feeling pleasure and pain, while the plants are not. At this point someone is bound to ask: "How do we know that plants do not suffer?"

    This objection may arise from a genuine concern for plants; but more often those raising it do not seriously contemplate extending consideration to plants if it should be shown that they suffer; instead they hope to show that if we were to act on the principle I have advocated we would have to stop eating plants as well as animals, and so would starve to death. The conclusion they draw is that if it is impossible to live without violating the principle of equal consideration, we need not bother about it at all, but may go on as we have always done, eating plants and animals.

    The objection is weak in both fact and logic. There is no reliable evidence that plants are capable of feeling pleasure or pain. Some years ago a popular book, *The Secret Life of Plants*, claimed that plants have all sorts of remarkable abilities, including the ability to read people's minds. The most striking experiments cited in the book were not carried out at serious research institutions, and attempts by researchers in major universities to repeat the experiments have failed to obtain any positive results. The book's claims have now been completely discredited (*Natural History* 83.3, p. 18).

    In the first chapter of this book I gave three distinct grounds for believing that nonhuman animals can feel pain: behavior, the nature of their nervous systems, and

> the evolutionary usefulness of pain. None of these gives us any reason to believe that plants feel pain. In the absence of scientifically credible experimental findings, there is no observable behavior that suggests pain; nothing resembling a central nervous system has been found in plants; and it is difficult to imagine why species that are incapable of moving away from a source of pain or using the perception of pain to avoid death in any other way should have evolved the capacity to feel pain. Therefore the belief that plants feel pain appears to be quite unjustified.
>
> So much for the factual basis of this objection. Now let us consider its logic. Assume that, improbable as it seems, researchers do turn up evidence suggesting that plants feel pain. It would still not follow that we may as well eat what we have always eaten. If we must inflict pain or starve, we would then have to choose the lesser evil. Presumably it would still be true that plants suffer less than animals, and therefore it would still be better to eat plants than to eat animals. Indeed this conclusion would follow even if plants were as sensitive as animals, since the inefficiency of meat production means that those who eat meat are responsible for the indirect destruction of at least ten times as many plants as are vegetarians! At this point, I admit, the argument becomes farcical, and I have pursued it this far only to show that those who raise this objection but fail to follow out its implications are really just looking for an excuse to go on eating meat.
>
> (Peter Singer, *Animal Liberation*, 1975)

This is a response to a presumed argument by analogy (which is presumably, in turn, a response to the pro-vegetarian, or anti-meat-eater, argument); that presumed argument by analogy is that if it's wrong to eat meat, it's also wrong to eat vegetables.

Singer points out the weakness in the analogy, a weakness he considers of sufficient relevance and significance to dismiss the argument: animals feel pain, whereas plants do not. Singer then points out the absence of research to support the claim that plants *do* feel pain, essentially identifying that the burden of proof is on those who make the positive claim, that claim that plants feel pain. He further points out the absence of three specific bits of evidence that *would* suggest they *do* feel pain.

Singer then argues that even if it were true that plants do feel pain, it still wouldn't follow that we should resume eating meat, for two reasons:

(1) "If we must inflict pain or starve, we would then have to choose the lesser evil. Presumably it would still be true that plants suffer less than animals, and therefore it would still be better to eat plants than to eat animals." Note the appeal to a general principle here—that we should choose the lesser evil.

(2) Given the relative efficiencies of production, a vegetarian diet involves one-tenth the destruction of a meat diet. Some support (there are studies indicating the yield per acre of cattle versus grain crops) for those relative inefficiencies would have strengthened his argument.

Reasoning test questions

2. The authors of a recent article examined warnings of an impending wave of extinctions of animal species within the next 100 years. These authors say that no evidence exists to support the idea that the rate of extinction of animal species is now accelerating. They are wrong, however. Consider only the data on fishes: 40 species and subspecies of North American fishes have vanished in the twentieth century, 13 between 1900 and 1950, and 27 since 1950.

   The answer to which one of the following questions would contribute most to an evaluation of the argument?

First, we have to understand what the argument is: the argument is that contrary to the opinion expressed by the authors of a recent article, there *is* evidence supporting the claim that the rate of extinction of animal species is accelerating; that evidence is the fish data presented (13 extinctions per 50 years, increasing to 27 extinctions per 50 years).

*(A) Were the fish species and subspecies that became extinct unrepresentative of animal species in general with regard to their pattern of extinction?

Since the argument refers to the extinction of animal species in general, it would indeed be helpful to know how representative the fish extinctions are of extinctions of animal species in general; the more representative, the stronger the argument.

If the fish extinctions are unrepresentative, however, the data is still relevant; it constitutes a counterexample to the universal claim that "*no* evidence exists to support the idea that the rate of extinction of animal species is now accelerating." (If the fish extinctions are representative, the data may constitute one counterexample of several out there.)

(B) How numerous were the populations in 1950 of the species and subspecies of North American fishes that have become extinct since 1950?

The issue is rate of extinction of species; how many members there were of any given species prior to extinction is irrelevant to how many species are becoming extinct per time period.

(C) Did any of the species or subspecies of North American fishes that became extinct in the twentieth century originate in regions outside of North America?

This is irrelevant to whether there is evidence of an increasing rate of species extinction.

(D) What proportion of North American fish species and subspecies whose populations were endangered in 1950 are now thriving?

The passage refers to extinct fish species and subspecies, not endangered fish species and subspecies.

(E) Were any of the species or subspecies of North American fishes that became extinct in the twentieth century commercially important?

Again, this is irrelevant to whether there is evidence of an increasing rate of species extinction.

(*The Official LSAT Prep Test XXIV,* Section 2, #16)

4. Currently, the city of Grimchester is liable for any injury incurred because of a city sidewalk in need of repair or maintenance. However, Grimchester's sidewalks are so extensive that it is impossible to hire enough employees to locate and eliminate every potential danger in its sidewalks. Governments should be liable for injuries incurred on public property only if they knew about the danger beforehand and negligently failed to eliminate it.

Which one of the following describes an injury for which the city of Grimchester is now liable, but should not be according to the principle cited above?

According to the passage, the city of Grimchester is now liable if an injury occurs

(i) because of a city sidewalk in need of repair or maintenance, but it should not be liable
(ii) if the government didn't know about it. So to answer the question, both conditions must apply to the described injury.

(A) A person is injured after tripping on a badly uneven city sidewalk, and the city administration had been repeatedly informed of the need to repair the sidewalk for several years.

The first condition is met, but the second is not—the government *did* know about it.

(B) A person is injured after tripping over a shopping bag that someone had left lying in the middle of the sidewalk.

The first condition is not met—a sidewalk in need of repair was not the cause of the injury.

*(C) A person is injured after stepping in a large hole in a city sidewalk, and the city administration had first learned of the need to repair that sidewalk minutes before.

Both conditions are met; this is the correct response.

(D) A person who is heavily intoxicated is injured after falling on a perfectly even city sidewalk with no visible defects.

The first condition is not met—the sidewalk was "perfectly even" with "no visible defects."

(E) A person riding a bicycle on a city sidewalk is injured after swerving to avoid a pedestrian who had walked in front of the bicycle without looking.

The first condition is not met—the injury resulted from swerving to avoid a pedestrian, not from an in-need-of-repair sidewalk.

(*The Official LSAT Prep Test,* Section 4, #4)

Chapter 8

Inductive Argument: Causal Reasoning

8.1.1a Practice distinguishing between correlation and causation

2. Christopher Pittman shot his grandparents then set their house on fire, after taking the antidepressant Zoloft for just three weeks, and Donald Schell killed his wife, daughter, granddaughter, and himself three hours after taking his first two tablets of the antidepressant Paxil.

(Based on Rob Waters, "Prosecuting for Pharma," *Mother Jones*, November/December 2004)

As is, this is just correlation, but the correlation is perhaps sufficiently strong or sufficiently worrisome to investigate the possibility of causality. One would have to establish some sort of causal link besides just association in time; for example, perhaps these drugs eliminate inhibitions and impulse control such that a fleeting

emotion such as anger would be acted on—we'd need to show the physiology of that though.

4. Since 2001, when the No Child Left Behind Act tied federal school funding to performance on annual tests for students in grades three through eight, critics have charged that the law encourages schools to boost their test scores artificially. A new study of one potential score-padding maneuver—suspending probable low scorers to prevent them from taking the test—provides grist for this argument. Researchers examined more than 40,000 disciplinary cases in Florida schools from the 1999–1997 school year (when Florida instituted its own mandatory testing) to the 1999–2000 school year. They found that when two students were suspended for involvement in the same incident, the student with the higher test score tended to have a shorter suspension. This isn't in itself surprising: high achievers are often cut some slack. But the gap was significantly wider during the period when the tests were administered, and it was wider only between students in grades being tested that year.

   (David N. Figlio, "No Smart Bully Left Behind," summary of "Testing, Crime and Punishment," National Bureau of Economic Research, *The Atlantic Monthly*, July/August 2005)

"They found that when two students were suspended for involvement in the same incident, the student with the higher test score tended to have a shorter suspension"—okay, this is a statement of correlation only. Good.

"This isn't in itself surprising: high achievers are often cut some slack"–good, an alternative explanation is identified.

"But the gap was significantly wider during the period when the tests were administered, and it was wider only between students in grades being tested that year . . ."—okay, still just correlation, but sufficiently "coincidental" to merit further inquiry in order to establish the causal connection described in the opening sentence.

8.1.3a Practice distinguishing between direct causes and indirect causes

2. If we used wood products to insulate our houses, that would reduce the use of oil for heating, which of course would reduce polluting emissions.

The causal chain identified is this:

> use of wood products → decreased use of fossil fuels → decreased polluting emissions

So the use of wood products is a direct cause of reduced use of fossil fuels and an indirect cause of reduced polluting emissions; the reduced use of fossil fuels is a direct cause of reduced polluting emissions.

4. If we allow euthanasia for those who are senile, that will lead to euthanasia for anyone who is cognitively deficient, whether old or not. And then that will lead to euthanasia for people who are physically deficient in some way. And no doubt that will lead to euthanasia for those who are financially deficient!

If we understand "will lead to" to mean "will cause" (a *big* assumption—this seems to be more of a slippery slope argument, see Section 8.4.7), then allowing euthanasia for those who are senile (1) is the direct cause of euthanasia for those who are cognitively deficient (2), which is in turn the direct cause of euthanasia for those who are physically deficient (3), which is a direct cause of euthanasia for those who are financially deficient (4).

And (1) is an indirect cause of (3) and (4), and (2) is an indirect cause of (4).

8.1.4a Practice distinguishing between necessary and sufficient causes

2. All you need to succeed in business is immaturity—a two-year-old's capacity for exclusive self-interest along with his absolute willingness to throw a tantrum if he doesn't get those interests met.

Immaturity is both a necessary and sufficient cause for business success—the speaker says it's "All you need."

4. The animal must feel threatened in order for the flight or fight response to be triggered.

Feeling threatened is a necessary condition for flight or fight ("must feel threatened in order for. . ."), but my guess is it isn't sufficient—an escape route is likely also required for flight and minimum physical capabilities are likely also required for fight. If neither are available, my guess is that feeling threatened might result in surrender, not flight or fight.

8.1.5a Practice identifying Mill's methods

2. You and your partner have had arguments before, but you've always been able to reconcile the next day. This time, it's been a few days and things are still not resolved. You replay the argument and your reconciliation attempts over and over in your head trying to figure it out—what was different this time?

You are using the method of difference, trying to figure out what element was present this time that wasn't present in all the previous times—that will be the element that has caused this not-yet-reconciled argument.

4. For all the worries over global warming, there's one quick, though impractical, way to turn down the heat: ground all the jets. That's one conclusion to be drawn from a new NASA study linking the world's rising temperatures to the proliferation of wispy cirrus clouds that can form as a result of trails of condensation left by airliners. A team headed by Patrick Minnis, a senior scientist at NASA's Langley Research Center in Hampton, Va., analyzed 25 years of cirrus-cloud counts and 20 years of temperature records and found that cloud cover increased most where jet traffic was heaviest, including flight corridors over the Atlantic and Pacific Oceans.

   . . .

   The only way to prove the point [that contrails should be included in climate-change scenarios because they lead to increased cloud formation which leads to increased temperatures] is to keep the jets on the tarmac and see what happens.

   (Jeffrey Kluger, "Why High-Flying Planes Make Us Less Cool," *Time*, May 17, 2004)

The method of agreement was used here: the team analyzed 25 years and found that the common element when cloud cover increased was heavy jet traffic, so that's been identified as the cause.

8.1.5b Practice using Mill's Methods to establish cause

2. You want to figure out why your child has started fussing at bedtime and not sleeping through the night.

I would combine the methods of agreement and difference by listing all the elements which have been kept the same (is the child going to bed at the same time as usual, does the child have the same bedtime routine, does the child have the same bedtime stuffed toy, and so on) and thus eliminating them as the cause of the sudden fussing, then listing the elements which have changed (perhaps dinner time has been later, perhaps it's just that the child is older and there's some developmental thing kicking in), and considering one or more of them to be the cause.

4. They recovered because someone prayed for them.

I would use the method of concomitant variation to test whether prayer is the cause of their recovery: have some people prayed for, and compare their recovery with that of some people not prayed for; if all of the people in the second group didn't recover, and all of the people in the first group did, then prayer may indeed be the cause of their recovery (I'd have to be sure everything else was the same—including chance of spontaneous recovery and absence of medications, for example).

8.2.1a Practice forming alternative explanations

2. Public schools in the wealthiest neighborhoods win state team championships at more than twice the rate of poor school districts.

(*Mother Jones*, November/December 2004)

Perhaps the schools in the wealthy neighborhoods can afford better coaches. Or maybe the schools in the wealthy neighborhoods (can afford to) bribe the referees. Or maybe kids from wealthy families are in better physical condition. Or maybe kids from wealthy families are more pressured to excel in sports (in everything).

4. Compared with kids who were never hit, white non-Hispanic toddlers who were spanked five times a week were four times as likely to have behavioral problems later [measured by having "trouble at school"]. No significant link was found between spanking and later misbehavior in black and Hispanic children.

(Sora Song, *Time*, May 17, 2004)

As for the link with white non-Hispanic toddlers, spanking in the white non-Hispanic culture is so taboo that kids who were spanked developed stigmas that led to the bad behavior.

Or maybe the ones who were spanked were spanked because they had bad behavior problems at home (and so why wouldn't they have bad behavior at school too?). (So in this case it's not the spanking that caused the bad behavior, it's that some other thing caused both the spanking and the bad behavior—see Section 8.4.3.)

As for no significant link for black and Hispanic children, it could be there are so many other reasons for black and Hispanic kids to get in trouble at school that the effect of spanking is masked.

8.2.2a Practice comparing explanations on the basis of the scope of their explanatory power

2. Your professor hasn't shown up for class. Instead, there's a note on the door, not in her handwriting, saying she is at the hospital. Until now, she has never been absent. She drives a car. Her partner is very pregnant. She is a cautious no-risk sort of person. The university is in a rural area, and while traffic is light, it is high-speed highway traffic.

   (A) Her partner has gone into labor.
   (B) She has been in a car accident.

Given her cautious nature and the light traffic, I would say the first explanation is more likely than the second. Though one should consider that both explanations may be possible: perhaps she became a more risk-taking driver because her partner

went into labor and had an accident (given the high-speed highway traffic). It would help to know whether she needed to drive on the highway in order to get to the hospital.

Note that her absence until now is irrelevant.

4. Researchers studying foraging behavior observed an adult baboon named Mel digging in the ground, trying to extract a nutritious plant bulb. A young baboon named Paul approached Mel and looked around. There were no other baboons within sight. Suddenly he let out a yell, and within seconds his mother came running, chasing the startled Mel over a small cliff. Paul then took the bulb for himself.

   (A) Paul engaged in deceptive behavior (misleading his mother into thinking he was being attacked, in order to get the bulb Mel had extracted).
   (B) Paul was simply repeating earlier behavior that had led to getting food (something like "Scream, Mom comes, and I get fed").

   (Based on James Shreeve, "Machiavellian Monkeys," *Discover*, June 1991)

The second explanation doesn't account for Paul taking the bulb for himself (as opposed to expecting Mom to get it for him) or for looking around first (unless he was looking for his Mom); the first explanation does.

8.2.2b Practice comparing explanations on the basis of their creating-puzzles-ness

2. Someone is unexpectedly in your third-storey apartment.

   (A) The person found the key hidden under the mat and unlocked your door.
   (B) The person levitated to the third storey, then dematerialized enough to pass through the screened balcony door.

The second explanation leaves you with a few questions: How did he/she levitate? How did he/she dematerialize?

4. Taffi is limping one day. The previous day we went on a long walk through the winter woods, and she spent most of her time off the path chasing rabbits.

   (A) Taffi's limping because she hurt her leg while chasing rabbits.
   (B) Taffi's limping because something bit her and her leg is infected.

The second explanation creates this puzzle: what could have bitten her in the middle of winter? (Snakes, raccoons, and so on are in hibernation.) Also, there is no mention that she yelped or got into some sort of confrontation with something.

8.2.2c Practice determining whether an explanation is testable (and can enable prediction):

2. It is better to be bullied for the first time as a young child than as an adolescent.

(*Harper's Magazine*, January 2005)

Yes, this is testable: establish some definition of "better" (do you mean they learned more easily how to deal with bullies? more successfully?), then survey (or observe) people who were first bullied as a young child and people who were first bullied as an adolescent, comparing whatever you need to compare in order to determine which is better.

4. Fossils have been placed in rocks by the devil to mislead people. Or God created them when he created Earth and placed them where they've been found as a sort of picture of things to come. Either that or they're discards—the animals God created and didn't like.

(Explanations proposed some time between 1500 and 1700)

I don't know how to test which of these explanations is best. I cannot make direct inquiries of the devil or God, nor would I know how to establish the veracity of their response. And I don't know what indirect evidence of one explanation over the other I could seek.

8.2.2d Practice determining whether an explanation contradicts established knowledge

2. Many people think the pyramids were built as tombs for pharaohs.

This explanation contradicts the fact that there were many more pyramids than there were pharaohs, at many points in time.

However, it's possible that some pyramids were built for one reason and some for another reason, so we don't necessarily have to toss out this explanation.

4. She left Halifax on Monday and arrived in Vancouver on Friday. I know she hates flying, and that's pretty unlikely for a road trip, especially since she was traveling alone. She must have taken the train.

It is indeed pretty unlikely for a road trip, given that it's about 4,000 miles coast to coast (to cover 1,000 miles per day (12 hours a day at an average of 75 mph). And there is indeed a train that would get her from Halifax to Vancouver in five days. So this explanation does *not* contradict established knowledge.

8.2.2e Practice identifying best explanations

2. Adverse reactions to vaccinations have risen in the last couple decades.

   (A) Vaccinations have become stronger in the last couple of decades.
   (B) Vaccinations have become more contaminated in the last couple of decades.
   (C) Children are less resilient than they were before.
   (D) Doctors are required now to report all reactions—something they were not previously required to do.

All four explanations seem to equally account for what little facts we've been given.

None of the explanations seems to cause any more puzzles.

All four explanations are testable, perhaps the third a little less so (or with more difficulty) than the others.

So we're down to which ones contradict established knowledge. It's my understanding that given our increasing dependence on antibiotics, some bacterial infections (viral infections too?) are getting harder and harder to combat—they adapt to our antibiotics. So it might be that our vaccinations are getting stronger. On the other hand, due to our increased understanding, we might have been able to fine-tune the dosages, so they might be getting weaker. So this could go either way until I obtain more information.

The second explanation contradicts what I think have been *increasing*, not decreasing, standards of hygiene in the medical profession.

The third explanation doesn't seem to contradict established knowledge—in fact, we are told children are playing less, and perhaps due to vaccinations and other medications, their immune systems aren't allowed to develop as much as before.

Whether the fourth contradicts knowledge is easily determined.

So . . . pending further information, I'd say all four explanations are equally good.

4. Men by far commit more crimes than women.

   (A) Crime is related to testosterone.
   (B) Crime is related to the Y chromosome.
   (C) Women are simply better people than men.
   (D) Women are less risk-taking than men, possibly because they feel more responsible for their children.
   (E) Men simply have more opportunity than women to commit crime.

All five explanations seem equally good with respect to accounting for the given relevant facts and with respect to being testable (though the third explanation

would be the hardest to test, and would certainly depend on a contestable definition of "better").

The third explanation creates a bit of a puzzle: *why* are women better than men? But I can imagine several plausible explanations (for example, women aren't driven by testosterone—isn't it true that most crime is committed by men when they are most under the influence of testosterone?) (or, girls are raised to be more other-concerned than boys), so that's not a real problem for me.

I suspect many would say the third explanation also contradicts established knowledge—again, *much* depends on how "better" is defined.

8.3a Practice identifying arguments that advocate a plan or policy

2. Cloning should be allowed because a lot of people would like to have a clone so that it may lead the life that was meant to be theirs. Typically, these are people who have suffered some terrible physical or mental handicap and feel robbed of the opportunities they should have had in life. Some see this life as a sacrifice so that the life of their clone may be enriched.

   (Simon Smith at: http://www.humancloning.org/allthe.php)

Yes, this is an argument advocating the policy that clones should be allowed.

4. "When I started as a financial advisor 20 years ago, there were almost no couples in this situation," says Bob Mecca, a certified financial advisor in Mt. Prospect, IL, a suburb of Chicago. "Now 40 percent of the couples who come through my door have a wife who earns more than her husband."

   The simplest explanation for this change is a practical one: Women today are better educated and better prepared for the workforce than ever. "The number of women getting high school, college, and advanced degrees is higher now than at any other point in history," says Randi Minetor, author of *Breadwinner Wives and the Men They Marry*. In fact, women today are *more* educated than men. In 1998, there were 125,000 more college-educated women than men, according to the Center for the Study of Opportunity in Higher Education."

   (Kimberley Goad, "Big-Earning Wives," *Redbook*, March 2005)

No, this is an explanation (for why more wives are earning more than their husbands), not an argument for a plan or policy.

8.3b Practice imagining an appropriate plan or policy

2. Your adult son has come back home to live. He says he can't find a good-paying job, and it's expensive to rent an apartment. Unfortunately, he also

expects the kind of looking after he received when he was twelve. Neither you nor your spouse is particularly happy with his return—you rather liked having the house to yourselves again, and you figure your job as parents is pretty much done. You live in a medium-sized city.

Okay, so one goal might be to not have your son come live with you. Since the son can't find a good-paying job, one plan would be to encourage him to accept a paying job. Since a paying job doesn't, apparently, cover rent, he could also be encouraged to look for room-mates—they could share the rent. A paying job and room-mates should be possible to find in a medium-sized city.

Another possible goal is to have the son in a converted part of the house, if that's possible. He'd be living in his own basement apartment or some such. He would pay rent to you, which could be cheaper than paying for a whole apartment, and he would not be entitled to any housekeeping services of any kind (as would be the case if he were to rent an apartment).

4. People are required by law to pay taxes. Taxes are generally, but not exclusively, based on one's level of income. The government is responsible for paying for many things that the public needs and wants. Many people object to many things tax money is used to purchase.

If the plan is to address the objection stated in the last sentence, one might propose some sort of selective tax-paying policy, whereby people would still be required to pay taxes, and the total would still be based on one's level of income, but how that total is allocated (that is, to what goods and services) is up to the taxpayer. Tandem with that would be, perhaps, the stipulation that if the person chose not to allocate any portion of his/her taxes to roads, he/she could not use the roads.

Another plan is to have the public vote on what tax money is used for, and only goods and services receiving a certain percentage of the popular vote would be government funded.

That taxes are linked to income levels seems irrelevant in this context.

8.3c Practice assessing whether a plan or policy will work

2. I read the other day that coffee consumption is connected with heart disease. I'm planning to decrease my coffee consumption!

What you read was a correlation, not necessarily a causal connection. It could be that coffee drinkers tend to drink more alcohol, eat more fats, smoke, and not exercise, and any of those factors could be the cause of heart disease, not the coffee. So your plan is unlikely to work.

4. HIV infection is more prevalent among homeless individuals than among the non-homeless. So, in order to lower HIV infection incidence, we should provide low-cost housing and low-skilled jobs.

First, you've assumed that homeless people are homeless because housing is expensive and there are no low-skilled jobs. That may not be the case.

Even so, the relationship between HIV infection and homelessness is just correlational, not causal; maybe homeless people are more likely to be needle-users than others, a characteristic that may or may change once they have homes.

Therefore, the plan is unlikely to achieve the goal of reducing HIV infection among the homeless.

8.4.1a Practice recognizing when correlation is mistaken for causation

2. Wherever I see grass, I see dirt. The grass must cause dirt to form.

Yes, correlation is mistaken for causation; association in space doesn't mean causation.

4. There is an increase in men beating up their wives on Superbowl weekend. See? Watching sports incites violence!

Yes, here again, correlation is mistaken for causation. It could be that men drink a lot on Superbowl weekend, and it's *that* that incites violence.

8.4.2a Practice recognizing the post hoc error

2. As Halley's Comet approached the earth, the price of ice cream cones in Boston rose regularly. So of course the increase in the price of ice cream cones in Boston was due to Halley's Comet!

(Thanks to Stephen J. Gould)

No, just because Halley's Comet *preceded* the price increase, that doesn't mean it *caused* the price increase!

4. Civarro claims that since she has been hired, sales have doubled; she therefore asks for a raise.

Again, we have a post hoc error here: Civarro has assumed that she is the cause of the increased sales just because sales increased after she was hired; perhaps the competition shut down just after she was hired. To make a better argument, one has to consider and eliminate alternative explanations!

8.4.3a Practice recognizing a failure to consider a common cause

2. Since there are more churches in big cities, as well as a higher overall consumption of alcohol, it must be that churches somehow encourage drinking.

Perhaps the larger population causes both more churches and more drinking.

4. The child speaks so quickly; that's why he's stuttering.

Perhaps nervousness causes both the speed and the stutter.

8.4.4a Practice recognizing a failure to consider additional causes

2. Our accounting is a mess this month! All because of that new computerized system we're using!

And maybe the new accountant has something to do with it as well.

4. Lung cancer is on the decrease! Must be all those improved treatments we keep hearing about!

Or maybe it's just that people have stopped smoking.

8.4.5a Practice recognizing a reversal of cause and effect

2. It's quite clear to me that your headache is due to your excessive drinking.

Could it be that the excessive drinking is due to the headache?

4. *Gunthera*: Haven't you noticed that every time you have a so-called "out-of-body" experience, you're either very stressed or very tired?
   Milocz: Well, yeah, it's very stressful and tiring to *have* an out-of-body experience!

Milocz has done our work for us, by suggesting a reversal of the cause and effect relationship suggested by Gunthera (stress and fatigue causes an out-of-body experience vs an out-of-body experience causes stress and fatigue).

8.4.6a Practice recognizing a failure to consider a reciprocal causal relation

2. I'm too tired to exercise!

And it's because you don't exercise that you're tired!

4. We should get rid of all these discrimination programs, the affirmative action hiring policies and the security racial profiling policies. Such policies just cause prejudice.

Or maybe prejudice causes (leads to) such policies—or both.

8.4.7a Practice recognizing a slippery slope

2. First we gave several days off at Christmas, then we agreed to sick days, then we were talked into a day off if someone got married. Pretty soon they're going to want "Earth Day" declared a holiday, then they'll ask for a holiday in memory of Louis Riel, and eventually they'll ask for a day off to celebrate their bird's birthday! I tell you we should have stopped with Christmas!

This is definitely a chain argument, though I question the truth of the order of the links, with the conclusion being that if they hadn't taken the first step, they wouldn't be at that predicted last step. Is it plausible? I don't think so, because the reason for giving days off at Christmas is different to the reason for giving days off for sickness. And the reason for giving a day off for "Earth Day" is likely a different reason still! I suggest that the reason for days off at Christmas might be so that everyone can have some family time and a general holiday break, whereas the reasons for giving time off for sickness might be a don't-infect-the-rest-of-us reason. And "Earth Day" might be given because it's a public holiday. Given that the causal connection between each step is different, it's hard to argue that the last step is a direct causal consequence of the first step.

4. If we let the Communists take over Nicaragua or El Salvador, pretty soon they will be in other countries like Guatemala and Honduras. Soon all of Central America will be Communist. Then the Communists will take over Mexico, and we'll be looking at Russian troops and missiles from El Paso.

Well, I don't know enough about military minds and politics, but I suspect this is exaggeration. From the Russian take-over of Nicaragua to a Russian invasion of the United States?

8.4.7c Practice recognizing errors in causal reasoning

2. Suppose we do say that groups that have been discriminated against in the past are entitled to some sort of compensation. How much is enough? This much? No, this much then? *This* much?

This isn't really an argument; in particular, it's not a slippery slope—rather, the speaker is identifying a point that needs definition.

Unless the speaker is suggesting that giving this much compensation will lead to them asking for more and giving that much more will lead to them asking for more still . . . but this is not clearly indicated.

4. All this increase in hurricanes, tornadoes, tsunamis, and so on? Started happening 'bout the same time people started using cellphones in a big way. I tell you, cell phones are EVIL! Every last one of them should be pulverized!

The speaker is mistaking correlation for causation.

6. Our clinical studies revealed that people who took our antidepressant drugs became less depressed, proving its effectiveness at combating depression.

But, if people who took inert placebos also became less depressed . . . This could be a case of the post hoc error, of assuming that just because a decrease in depression came after taking the drug, it was the drug that caused the decrease in depression.

8. You shouldn't use such long cords where a short cord will do—think of all that extra electricity you're using and paying for!

This is a mistake—I'm just not sure what to call it! The speaker is mistakenly thinking (it *is* mistaken, isn't it?) that the length of electrical cord has some proportionate relationship to the amount of electricity traveling through the cord—it's sort of an equivocation, but not really.

10. People with high self-esteem were judged by others to be more attractive than people with low self-esteem. This shows that being attractive causes high self-esteem.

Or it could be the other way around: maybe high self-esteem leads one to pay more attention to one's appearance, which in turn results in higher evaluations of one's attractiveness.

Thinking critically about what you see

2.

Various explanations for the figures and lines on the Nazca plains in Peru, whose design is visible only from the air, have been proposed, from "It is a landing strip for returning aliens, made long ago by them" to "It is a map of underground water supplies, made by the early human inhabitants of the area." Some explanations are stronger than others. Check out http://www.world-mysteries.com/mpl_1.htm and http://www.skepdic.com/nazca.html

Thinking critically about what you hear

Free! Why $0.00 is the future of business

http://www.youtube.com/watch?v=RZkeCIW75CU

Chris Anderson claims that as more and more businesses become digital, as more and more services become software, and as more and more products become downloads, these things will eventually become free. This is because, he says, bandwidth, storage, and processing are becoming too cheap to meter. He cites Google and Yahoo as examples, as well as the blogosphere, open source, and social networking.

However, he seems to assume that price is based solely on costs. We know that a pair of athletic shoes often costs just pennies to make, and yet they as often cost over a hundred dollars to purchase. Businesses often charge what they think the market will bear, and that price is often quite unrelated to the cost of making the product or providing the service.

Also, what about labor costs? Google and Yahoo pay their employees with advertising revenue, but as he points out, Craiglist and Wikipedia don't have advertising—people are working for free in those cases. So as long as some people do *not* work for free, it won't matter how cheap bandwidth, storage, and processing become.

Thinking critically about what you read

2. Most internet activists are liberals, but most of the actual content of newsgroups, chatrooms, and so on, is conservative. What can explain this apparent paradox? There is a small but very vocal group of conservative users.

Nice catch with the numbers in that explanation.

An alternative explanation is that internet activists do not participate in newsgroups, chatrooms, and so on.

Also, what does it mean to say the actual content is conservative? Could it include content that is a critique of conservative opinions, policies, and so on? Such critique would well be posted by all those liberal internet activists.

To strengthen the argument, one could define "liberal" and "conservative."

4. Men typically refuse to ask questions because they perceive such a stance as neediness, and that puts them "one down" in the competition that is life. Also, real men know everything. And anything they don't know isn't very important. Or it could be that the men who don't ask questions simply don't know what questions to ask—they don't know what they don't know. Or maybe it's just that it's more fun to figure it out for yourself.

Okay, there are lots of explanations suggested here for the observation that "Men typically refuse to ask questions." First, is that truly the case? Some research could establish whether or not this is indeed the case.

Second, if it is, what of the five suggested explanations? The first three resonate with my experience of our patriarchal society, and I have read many good studies that back up my perception of our society. They account for the facts, and they don't create more puzzles. And they are testable, to the extent that personal report explaining one's behavior is valid. So I would consider these good explanations.

The fourth explanation is weaker because it contradicts studies that show that men talk more than women (see Dale Spender's work, for example)—so I have a hard time accepting that they would be at a loss for questions to ask.

The fifth explanation is weaker still because it contradicts my perception, based on personal observation and general studies indicating superordination of the male, that men don't just wanna have fun. (Certainly those who don't stop to ask for directions get progressively angrier as they get progressively more lost. Are they having fun yet?)

6. I've just read that fetal alcohol syndrome means that the child is actually unable to see the consequences of its actions; it can't reason from cause to effect because certain centers in its brain were destroyed by the alcohol put into its system when it was developing. Can you imagine what a life you would have if you couldn't connect cause and effect? Even as little as one drink a week will do it! I think we should have a policy such that any person who gives their child alcohol, whether before birth or after, should take full responsibility for everything their child does. So if it burns down a house down because it didn't see the connection between lighting a match and the house burning down, the parent should have to pay for the house. And serve the time. And if the kid, as an adult, spends its money on movies and beer, not foreseeing that it wouldn't have enough for rent, the mother should pay its rent (not the state, not us). And so on.

I accept the information about fetal alcohol syndrome, though references to specific research would certainly strengthen the argument.

As a plan, this *should* achieve its intended goal. The speaker has clearly, and I believe, correctly, identified cause and effect. And putting the responsibility on the mother seems justified; after all, she is the cause of the effect.

But *will* the plan achieve its intended goal? The plan assumes that the *mother* can reason from cause to effect. If the mother fails to be responsible enough to refrain from drinking while pregnant, how likely is it she will take responsibility for the child's later actions? My guess is that before the child reaches puberty, she'll be in jail, at the very least for unpaid debts. Then we'll be responsible for the child after all.

A better plan might be to stop the cause and effect from happening in the first place (rather than letting it happen and then holding the causer fully responsible for the effects)—that is, can we prohibit pregnant people from drinking? But then, if we were to make that a law (we could make an argument by analogy: child abuse is illegal, so too should be fetal abuse), what do we do with the transgressors? Force an abortion? Force an adoption?

If this plan as described is put into action, however, I think it important that contraception and abortion be easily accessible (logistically as well as financially)—because if the mother *does* understand that she'll be responsible for all the consequences she will have wrought, she should have the option of not causing those consequences, by not becoming or remaining pregnant in the first place.

Also, the role of the father should be considered. Although he is not directly responsible for giving the fetus alcohol, he may be *in*directly responsible—he may be an indirect cause of the effect. As such, he should bear some responsibility as well. He is certainly directly responsible for creating the fetus—did he not know the mother would be drinking during the pregnancy? If he did, then he is clearly at least somewhat responsible for the resulting state of affairs. And if he did not, then he is clearly, and incredibly, negligent with regard

to procreation—and responsible for his irresponsibility. So to the extent the plan does not address the father, it seems to me to be an incomplete plan.

8. The ACLU's got to take a lot of blame for [the terrorist attack on the World Trade Center, September 11, 2001] . . . But, throwing God out successfully with the help of the federal court system, throwing God out of the public square, out of the schools. The abortionists have got to bear some burden for this because God will not be mocked. And when we destroy 40 million little innocent babies, we make God mad. I really believe that the pagans, and the abortionists, and the feminists, and the gays and the lesbians who are actively trying to make that an alternative lifestyle, the ACLU, People for the American Way—all of them who have tried to secularize America—I point the finger in their face and say "you helped this happen."

   (Jerry Falwell at: http://www.rotten.com/library/bio/religion/televangelists/jerry-falwell/)

The speaker is claiming that the ACLU, abortionists, pagans, feminists, and gays and lesbians are responsible for the 9/11 attack because they made God angry. So they would be the indirect cause, and God would be the direct cause? He did it, or allowed it to happen, because he was angry?

First, I need evidence or reasoning that supports the claim that God did it or allowed it to happen.

Second, I need evidence or reasoning that supports the claim that God did it or allowed it to happen because he was angry.

Third, I need more evidence that supports the claim that the ACLU, abortionists, pagans, feminists, and gays and lesbians made God angry. The speaker implies that the ACLU made God angry—presumably he is referring to the ACLU's role in having public prayer removed from the courts and schools (and what public squares—sports, games?). Why should that necessarily make God angry? People can continue to pray on their own. Why does it have to be in public? The speaker claims that the abortionists made God angry by killing "little innocent babies"—while that's more acceptable, I question the label "babies" for what is, in many cases, a cluster of cells. I also note the loaded language there. As for the alternative lifestyles made by the pagans, feminists, and gays and lesbians, there is no argument presented as to why they should anger God. I suspect, though, it's because those lifestyles go contrary to the Bible (though I'm not sure they do), and the speaker's God is the God of the Bible taken literally.

This seems to be more of an explanation than an argument, though perhaps it's both: the speaker argues that X is responsible for Y because X caused A which caused Y. Is it a good argument? No. There is insufficient evidence.

The argument would be strengthened not only by further evidence, but also by a consideration of alternative explanations.

Reasoning test questions

2. Most small children are flat-footed. This failure of the foot to assume its natural arch, if it persists past early childhood, can sometimes result in discomfort and even pain later in life. Traditionally, flat-footedness in children has been treated by having the children wear special shoes that give extra support to the foot, in order to foster the development of the arch.

   Which one of the following, if true, most calls into question the efficacy of the treatment described above?

First, we have to understand what the argument is: the argument is that contrary to the opinion expressed by the traditional treatment plan (having flat-footed children wear special shoes) is based on a causal connection, specifically that wearing special shoes that give extra support to the foot will foster the development of the arch. So what would call into question the efficacy of the traditional treatment (the posed question)? Something that calls into question that particular causal connection.

(A) Many small children who have normal feet wear the same special shoes as those worn by flat-footed children.

If this were true, it could still be the case that the special shoes foster the development of the arch in flat-footed children, so this is not the response we're looking for.

(B) Studies of flat-footed adults show that flat feet are subject to fewer stress fractures than are feet with unusually high arches.

This is irrelevant to the causal connection supporting the treatment plan.

(C) Although most children's flat-footedness is corrected by the time the children reach puberty, some people remain flat-footed for life.

This is also irrelevant to the causal connection supporting the treatment plan; it may simply reveal that some people do not undergo the traditional treatment plan (that is, do not wear the special shoes when they're children).

*(D) Flat-footed children who do not wear the special shoes are as likely to develop natural arches as are flat-footed children who wear the special shoes.

This does call into the causal connection supporting the plan, for if flat-footed children who do *not* wear the special shoes are as likely to develop natural arches as those who do, then it can't be the shoes that do it. This is, therefore, the correct response.

(E) Some children who are not flat-footed have hip and lower leg bones that are rotated excessively either inward or outward.

This is irrelevant to the causal connection supporting the treatment plan.

(*The Official LSAT Prep Test XXII,* Section 2, #4)

4. Essayist: The existence of a moral order in the universe—i.e., an order in which bad is always eventually punished and good rewarded—depends upon human souls being immortal. In some cultures this moral order is regarded as the result of a karma that controls how one is reincarnated, in others it results from the actions of a supreme being who metes out justice to people after their death. But however a moral order is represented, if human souls are immortal, then it follows that the bad will be punished.

Which one of the following most accurately describes a flaw in the essayist's reasoning?

*(A) From the assertion that something is necessary to a moral order, the argument concludes that that thing is sufficient for an element of the moral order to be realized.

The opening sentence of the passage states that one needs the concept of immortality for the concept of a moral order, as defined to include eventual punishment and reward; that is, immortality is necessary to a moral order. But the conclusion, stated in the last sentence, indicates that as long as there is immortality, there will be punishment—that is, immortality is sufficient for punishment (one element of the moral order). Thus, this is the correct response.

(B) The argument takes mere beliefs to be established facts.

While the passage mentions different beliefs, it does not mistake them for facts.

(C) From the claim that the immortality of human souls implies that there is a moral order in the universe, the argument concludes that there being a moral order in the universe implies that human souls are immortal.

The opening sentence of the passage puts it the other way around: a moral order implies immortality. And the conclusion is that immortality implies punishment.

(D) The argument treats two fundamentally different conceptions of a moral order as essentially the same.

No, the passage presents only one conception of a moral order (first sentence), that could be achieved in two different ways (second sentence).

(E) The argument's conclusion is presupposed in the definition it gives of a moral order.

The conclusion is the complete conditional statement "if human souls are immortal, then it follows that the bad will be punished"; it is not just "the bad will be punished" (which *is* presupposed in the definition it gives of a moral order, "a moral order in the universe—i.e., an order in which bad is always eventually punished and good rewarded").

Companion Website-Only Chapter

Categorical Logic

1.1a Practice recognizing universal affirmative statements

2. You're a runner, not a jogger, only if you can do a mile in under 8 minutes.

Yes, this is a universal affirmative statement.
All A (runners) are B (things that can cover a mile in under 8 minutes).

4. If it quacks like a duck. . .

No, this is not a universal affirmative statement; it is not a categorical statement, of any kind.

1.2a Practice recognizing particular affirmative statements

2. Some days he just doesn't feel like doing anything.

Yes, this is a particular affirmative statement.
Some As (days) are Bs (days he just doesn't feel like doing anything).

4. There are ways of making you talk.

Yes, this is a particular affirmative statement.
Some As (ways) are Bs (ways of making you talk).

1.3a Practice recognizing universal negative statements

2. If its leaves are waxy, the plant does not belong to this species.

Yes, this is a universal negative statement.

No As (plants with waxy leaves) are Bs (members of this species).

4. Every potato in the bag is rotten.

No, this is a universal affirmative statement.
All As (potatoes in this bag) are Bs (rotten potatoes).

1.4a Practice recognizing particular negative statements

2. Every group follows the same process.

No, this is not a particular negative statement.
All As (groups) are Bs (things that follow the same process).

4. Some people are not giving up hope!

Yes, this is a particular negative statement.
Some As (people) are not Bs (people who are giving up hope).

1.4b More practice translating ordinary language into categorical statements

2. Not one professional figure skater is over six feet tall.

This is a universal negative statement.
No As (professional figure skaters) are Bs (people who are over six feet tall).

4. I think all presidential candidates have a vested interest in gaining that much power; otherwise, they wouldn't want the position.

This is a universal affirmative statement.
All As (presidential candidates) are Bs (people with a vested interest in gaining that much power).

6. Most people who get married haven't really thought about staying unmarried.

This is a particular negative statement.
Some As (people who get married) are not Bs (people who have thought about staying unmarried).

8. Some university students still act like they're in high school.

This is a particular affirmative statement.

Some As (university students) are Bs (people who act like they're in high school).

10. Sometimes I think you're the only one who doesn't get it!

This is a particular negative statement.
Some As (you) are not Bs (people who get it).

1.5a Practice recognizing logical equivalence

2. Some condoms are defective.
Some condoms are not non-defective.
Some A are B.
Some A are not non-B.

The second statement is the obversion of the first, so these statements are logically equivalent.

4. Some jokes are stupid.
Some stupid things are jokes.
Some A are B.
Some B are A.

This is a conversion: the subject and predicate are merely reversed.
The first statement is a particular affirmative statement, and so its conversion is indeed its logical equivalent: if the first statement is true, the second statement will also be true.

6. All rapists are men, so it follows that all men are rapists.
All A are B.
All B are A.

This is a conversion: the subject and predicate are merely reversed.
The first statement is a universal affirmative statement, so its conversion is *not* logically equivalent.

8. Some cats are not pets.
Some cats are non-pets.
Some A are not B.
Some A are non-B.

The second statement is the obversion of the first, and since all obversions are logically equivalent, the two statements here are indeed logically equivalent.

10. No elite athletes are lazy.
    No lazy people are elite athletes.
    No A are B.
    No B are A.

This is a conversion: the subject and predicate are merely reversed.

The first statement is a universal negative statement, and so its conversion is indeed its logical equivalent: if the first statement is true, the second statement will also be true.

12. Some part-time jobs are not jobs worth having.
    Some jobs worth having are not part-time jobs.
    Some A are not B.
    Some B are not A.

This is a conversion, and since the first statement is a particular negative statement, they are *not* logically equivalent.

14. Some pleasurable activities are not, in the long term, good for you. So not everything that's good for you in the long term is painful.
    Some A are not B.
    Not B are non-A.

The subject and predicate have been reversed, as per a conversion, but then the subject has been negated—so it's neither a conversion (in which case no term would have been negated), nor is it a contrapositive (in which case both terms would have been negated), and it's not an obversion either. The two statements are not logically equivalent.

1.6a Practice identifying contradictories, contraries, and subcontraries

2. The team is not training as often as it should.
   The team is training too much.

Both statements can't both be true, but both could be false (could be training just right), so they are contraries.

4. Our government's environmental policies do not indicate an understanding of biochemical principles.
   Our government's environmental policies do indicate an understanding of biochemical principles.

These statements are contradictories: they can't both be true (either the policies do or do not indicate an understanding of biochemical principles), and they can't both be false (again, either the policies do or do not indicate an understanding of biochemical principles).

6. No drunk drivers are safe drivers.
   Some drunk drivers are safe drivers.
   No As are Bs.
   Some As are Bs.

These two statements are contradictories.

8. A certain amount of intelligence is required in order to be a good parent.
   Some intelligent people do not make good parents.

Both of these statements could be true (note that the first statement suggests intelligence as a necessary condition, not as a sufficient condition—that's why the second statement could be true). And both statements could be false. So they're neither contradictories, contraries, nor subcontraries.

10. Christians believe that only Christians have a place in heaven.
    Muslims believe that only Muslims have a place in heaven.

"Only Christians have a place in heaven." "Only Muslims have a place in heaven." Both statements can't be true, but both statements could be false (perhaps only Hindus have a place in heaven), so these are contraries.

2a Practice identifying this first valid form

2. Everything that can be made profitable gets corrupted by big business. The internet can be made profitable. Therefore, the internet will be corrupted by big business.

1. Everything that can be made profitable gets corrupted by big business.	All A will B.
2. The internet can be made profitable.	C is an A.
Therefore, the internet will be corrupted by big business.	Therefore, C will B.

4. Of course this car was built for speed! It's a race car!

1. This car is a race car.	C is an A.
2. All race cars are built for speed.	All A are B.
Therefore, this car was built for speed.	Therefore, C was B.

2b Practice identifying this second valid form

2. I don't think sperm donors or even surrogate mothers should be called parents. After all, they get paid for their services. And real parents don't get paid.

1. Sperm donors and surrogate mothers get paid.	All A are B.
2. No real parents get paid.	No C are B.
Therefore, no sperm donors or surrogate mothers are real parents.	Therefore, no A are C.

4. People should have a say about what happens to the things they own, but they don't own anything once they're dead. So people shouldn't have a say about what happens to their organs once they're dead.

1. All things owned by people are things they should have a say about.	All A are B.
2. The organs of their dead body are not things they own.	C are not A.
Therefore, their post-death organs are not things they should have a say about.	Therefore, C are not B.

This argument is not in the valid form we've just covered. (See the fifth invalid form, in Section 3). The argument would be valid if the first premise had been *only* A are B.

2c Practice identifying this third valid form

2. All meat is toxic, at least to some extent, because of the food the animal eats while it's alive—it's full of chemical preservatives, growth hormones, and all sorts of yummy stuff. And yet, I know that some meat is good for you. So I guess some things that are good for you are actually or also toxic.

1. All meat is toxic to some extent.	All A are B.
2. Some meat has high nutritional value.	Some A are C.
Therefore, some substances high in nutritional value are toxic to some extent.	Therefore, some C are B.

4. The Heinz dilemma indicates that sometimes stealing is necessary: if Heinz doesn't steal the drug, his mother will die. So surely sometimes stealing is justified.

   Note that we have to add a premise to make this argument work: all necessary actions are justified.

1. All necessary actions are justified.	All A are B.
2. Some theft is necessary.	Some C is A.
Therefore, some theft is justified.	Therefore, some C is B.

2d Practice identifying this fourth valid form

2. All ducks quack. I have a cat. It doesn't quack. Therefore . . . some cats are not ducks.

1. All ducks quack.	All A are B.
2. Some cats do not quack.	Some C are not B.
Therefore, some cats are not ducks.	Therefore, some C are not A.

4. I used to be convinced that all my neighbors are aliens. But now that I've taken logic, I see that I was wrong. Because, you see, I figure all aliens will be more intelligent than me; I mean, after all, they've been able to get from their home planet to here; most days I can't even get from here to the corner. And all, okay most, well, some of my neighbors aren't more intelligent than me. So there you have it! Some of my neighbors are *not* aliens!

1. All alien lifeforms will be more intelligent than me.	All A are B.
2. Some of my neighbors are not more intelligent than me.	Some C are not B.
Therefore, some of my neighbors are not alien lifeforms.	Therefore, some C are not A.

2e More practice with valid categorical arguments

2. She is an astronaut. No physically unfit people are astronauts. Therefore, she is not physically unfit. See the second valid form.

1. She is an astronaut.	A is a B.
2. No physically unfit people are astronauts.	No C are B.
Therefore, she is not physically unfit.	Therefore, A is not C.

4. All gamblers are eternal optimists. No eternal optimists are realists. Therefore, no realists are gamblers. See the second valid form.

1. All gamblers are eternal optimists.	All A are B.
2. No eternal optimists are realists.	No B are C.
Therefore, no realists are gamblers.	Therefore, no C are A.

6. All F-rays are dangerous. Some F-rays are pink.
Therefore, some pink things are dangerous. See the third valid form.

1. All F-rays are dangerous.	All A are B.
2. Some F-rays are pink.	Some A are C.
Therefore, some pink things are dangerous.	Therefore, some C are B.

8. All medical doctors are licensed. Some chiropractors are not licensed.
Therefore, some chiropractors are not medical doctors. See the fourth valid form.

1. All medical doctors are licensed.	All A are B.
2. Some chiropractors are not licensed.	Some C are not B.
Therefore, some chiropractors are not medical doctors.	Therefore, some C are not A.

10. A loan that's not repaid is theft. No theft is morally right.
Therefore, it's not morally right to have an un-repaid loan. See the second valid form.

1. A loan that's not repaid is theft.	An A is B.
2. No theft is morally right.	No B is C.
Therefore, it's not morally right to have an un-repaid loan.	Therefore, no C is A.

3a Practice with invalid categorical arguments

2. All fossils are found in rock. All gold is found in rock.

You cannot conclude that all fossils are gold. That would be making an argument with the second invalid form.

✗ All A are B.
All C are B.
Therefore, all A are C.

4. Some fatalities are life-changing. Some accidents are fatal.

You cannot conclude that some accidents are life-changing. That would be making an argument with the eighth invalid form.

✗ Some A are B.
Some C are A.
Therefore, some C are B.

6. All Ferengi are schlick. Will Riker is schlick.

You cannot conclude that Will Riker is a Ferengi. That would be making an argument with the first invalid form.

✗ All A are B.
C is a B.
Therefore C is an A.

8. A toaster is a small appliance. No cow is a small appliance.

You *can* conclude that a toaster is not a cow. That would be making an argument with the second valid form.

✓ An A is a B.
No C is a B.
Therefore an A is not a C.

10. All tooxens are phlatch. Some phlatch are creesh.

You cannot conclude that some tooxens are creesh. That would be making an argument with the seventh invalid form.

✗ All A are B.
Some B are C.
Therefore, some A are C.

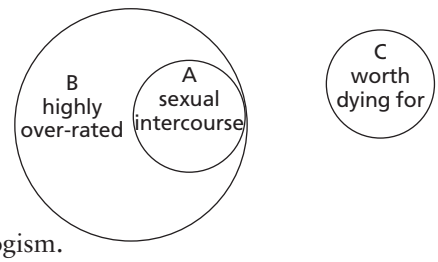
4.1a Practice determining validity and invalidity using diagrams

2.

1. Sexual intercourse is highly over-rated.
2. Nothing that's highly over-rated is worth risking your life for.

Therefore, sexual intercourse is not worth risking your life for.

All A are B.
No B are C.
Therefore, all A are not C.

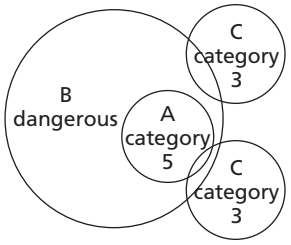


This is a valid syllogism.

4.

1. All Category 5 storms are dangerous.
2. Some Category 3 storms are dangerous.

Therefore, some Category 3 storms are actually Category 5 storms.



In one case, the conclusion is true, but for the syllogism to be valid, the conclusion has to be true for all cases. Thus, this is an invalid syllogism (see the seventh invalid form).

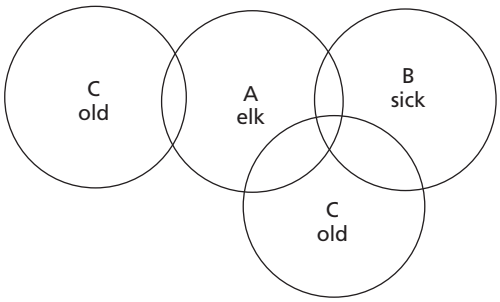
4.1b More practice determining validity and invalidity using diagrams

2. Many of the elk are sick, and of course, many of them are old, so you can expect to see a lot of old elk with a disease or an infection of some kind.

1. Some elk are sick.
2. Some elk are old.

Therefore, some old elk are sick.

Some A are B.
Some A are C.
Therefore, some C are B.

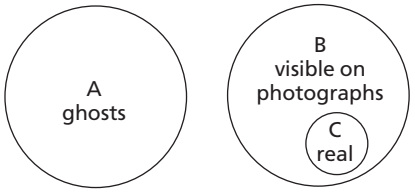


If we overlap "old animals" just with "elk" to indicate "Some A are C" then the conclusion doesn't follow, so the syllogism is invalid.

(We could draw C to overlap both elk and sick, which would also fulfill "Some A are C" and which *would* lead to the conclusion "Some C are B"—but there is nothing saying we *have* to do it this way.)

4. Ghosts aren't real! If they were, you could take a photograph of them!

1. No ghosts are visible on photographs.	No A are B.
2. Anything real shows up on film.	All C are B.
Therefore, ghosts aren't real.	Therefore, A are not C.



According to the diagram we have constructed (which is the only one possible), "A are not C"—so the syllogism is valid (see the second valid form).

4.2a Practice determining validity and invalidity using rules

2.

1. Some fines are excessive.	Some A are B.
2. No excessive fines should be paid.	No B are C.
Therefore, all fines should not be paid.	Therefore, no A are C. (All 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, and it's distributed in the second premise. ✓

Rule 3—Any term that is distributed in the conclusion must be distributed in the premise in which it occurs. Both A and C are distributed in the conclusion; C is distributed in the premise in which it occurs (the second premise), but A is *not* distributed in the premise in which it occurs (the first premise). ✗ The 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. The second premise is negative, and so is the conclusion. ✓

Rule 6—If both premises are universal, the conclusion must be universal. Only one of the premises is universal. n/a

4.

1. Sometimes airbags do more harm than good.	Some A are B.
2. Things that do more harm than good shouldn't be mandatory.	No B are C.
	(All B are not C)
Therefore, airbags shouldn't be mandatory.	Therefore, no A are C.
	(All 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, and it is distributed in the second premise. ✓

Rule 3—Any term that is distributed in the conclusion must be distributed in the premise in which it occurs. A and C are distributed in the conclusion; C is distributed in the premise in which it occurs (the second premise), but A is *not* distributed in the premise in which it occurs (the first premise). ✗ The syllogism is invalid.

But just 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. Only one of the premises is universal. n/a

4.2b More practice determining validity and invalidity using rules

2. Some people are proud of what they don't know, proud of their ignorance. But not knowing something can really limit your choices. So it's real stupid to be proud of your ignorance.

1. Some people are proud of their ignorance.	Some A are B.
2. Ignorance can limit your choices.	Some C are D.
Therefore, being proud of your ignorance is stupid.	Therefore, B is F.

This is invalid: the syllogism breaks rule 1—it has more than three terms.

4. Because of grade inflation, an "A" no longer means "Excellent." It means "Good." That means that a "B" means "Fair." And fair isn't good enough for university. You need to be able to read difficult material with comprehension,

you need to be able to write correctly and clearly, and you need to be fluent with all basic mathematical operations. So people should need an "A" in high school in order to get into university.

1. A "B" grade means "Fair."	All A are B. (an A is a B.)
2. "Fair" is not good enough for university.	No B is C. (a B is not C)
Therefore, a "B" grade is not good enough for university.	Therefore, no A is C. (an A is not C)

This one is valid.

Thinking critically about what you see

2. Note the shadow on the lower front of the figure in the back row, second from the right. No other figures have shadows. That can't be. Turns out the woman wasn't present when the family photo was taken, and someone inserted her picture later.

Thinking critically about what you hear

The witch scene from Monty Python and the Holy Grail

http://www.youtube.com/watch?v=yp_l5ntikaU

The first "argument" is "She looks like a witch, therefore she is a witch." More precisely . . .

1. Everyone who has such a nose and wears such a hat is a witch.
2. She has such a nose and wears such a hat.

Therefore, she's a witch.

This is a valid syllogism. Never mind that the first premise is untrue. And they put the nose and hat on her themselves.

The second "argument" is witches burn, wood burns, so if she's made of wood, she's a witch, so she burns. Note the circularity: the opening premise is the same as the conclusion. Though . . . the first "witches burn" refers to whether they *can* burn—are they flammable? The second "witches burn" refers to whether they *should* burn. So there's some equivocation here. Which means the argument may not be circular . . .

1. Witches are flammable.	All A (witches) are B (things that are flammable).
2. Wood is flammable.	All C (wood) is B.
3. Therefore, wooden things are witches.	Therefore, all C is A.

This is invalid (first form).

No matter . . .

4. Therefore, if she's wood, she's a witch.
5. She's wood.
6. Therefore, she's a witch.
7. Therefore, we should burn her.

4, 5, and 6 comprise a valid syllogism. But 7 doesn't follow from 6—it's a non sequitur.

Alternatively, this was the argument:

1. All things made of wood burn.	All A (things made of wood) are B (things that burn).
2. She is made of wood.	C is an A.
Therefore, she burns.	Therefore, C is a B.

Also a valid syllogism.

Either way, the key premise is she's made of wood. Can they prove this? They can try . . .

1. All bridges are made of wood.	All A (bridges) are B (things made of wood).
2. She can be made into bridge.	C is an A.
Therefore, she's made of wood.	Therefore, C is a B.

This is a valid syllogism, but the first premise is not true: you can also make bridges out of stone.

They try again. . .

1. Wood floats.	All A (things made of wood) are B (things that float).
2. She floats.	C is a B.
Therefore, she's made of wood.	Therefore, C is an A.

Invalid syllogism (section 3, second form). Not only wood floats; ducks also float.

So. . .

1. Ducks float.
2. If she weighs the same as a duck, she's made of wood, so she's a witch.

Okay . . . so what missing premises are needed to make *that* line of reasoning work?

Thinking critically about what you read

2. 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 (Gen9:24–27), is afraid of the ability of others (Gen 11:5–7), and has difficulty with math (Gen 6:30 compared to Gen 9:29).

Expressed as a syllogism, the argument seems to be this:

1. Humans are an image of God.	All A are B.
2. Humans lie etc.	All A are C.
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. These things are in the Bible.	C are A.
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.

4. 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.
2. Earth is part of everything.	C is an A.
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.
2. Earth is part of everything.	C is an A.
Therefore, Earth has a cause.	Therefore, C is a B.

Reasoning test questions

2. Dr. Z: Many of the characterizations of my work offered by Dr. Q are imprecise, and such characterizations do not provide an adequate basis for sound criticism of my work.

   Which one of the following can be properly inferred from Dr. Z's statement?

   (A) Some of Dr. Q's characterizations of Dr. Z's work provide an adequate basis for sound criticism of Dr. Z's work.
   (B) All of Dr. Q's characterizations of Dr. Z's work that are not imprecise provide an adequate basis for sound criticism of Dr. Z's work.
   (C) All of the characterizations of Dr. Z's work by Dr. Q that do not provide an adequate basis for sound criticism of Dr. Z's work are imprecise.
   (D) If the characterization of someone's work is precise, then it provides a sound basis for criticizing that work.
   *(E) At least one of Dr. Q's characterizations of Dr. Z's work fails to provide an adequate basis for sound criticism of that work.

Using the given statements as premises, we reach the conclusion indicated below:

1. Many of the characterizations of my work offered by Dr. Q are imprecise characterizations.	Some A are B.
2. Imprecise characterizations do not provide an adequate basis for sound criticism of my work.	All B are not C.
Therefore, some of the characterizations of my work offered by Dr. Q do not provide an adequate basis for sound criticism of my work.	Therefore, some A are not C.

(Check the syllogism with the rules; none of them are broken, so it is indeed a valid syllogism.)

To say that "some" of the characterizations. . . is to say that "at least one" of the characterizations. . ., so response (E) is the correct response, the one that can be properly inferred from Dr. Z's statements.

(*The Official LSAT Prep Test XXIV,* Section 3, #15)

4. Political theorist: The vast majority of countries that have a single political party have corrupt national governments, but some countries with a plurality of parties also have corrupt national governments. What all countries with corrupt national governments have in common, however, is the weakness of local governments.

   If all the political theorist's statements are true, which one of the following must also be true?

The statements given in the passage are as follows:

1.	Most countries with a single political party have corrupt national governments.	Some A are B.
2.	Some countries with a plurality of parties have corrupt national governments.	Some C are B.
3.	All countries with corrupt national governments have weak local governments.	All B are D.

Since there are four terms involved in the argument, this is not a syllogistic argument. So instead of reaching a conclusion on that basis, perhaps we can reach a conclusion on the basis of logical equivalence. "Some A are B" necessarily means "Some B are A" (it's the valid conversion of a particular affirmative statement). "Some C are B" necessarily means "Some B are C" (also the valid conversion of a particular affirmative statement). And if "All B are D," then we can replace "B" with "D" in the original two statements, giving us "Some A are D" and "Some C are D," as well as in the conversions, giving us "Some D are A" and "Some D are C."

So we now know these statements to be true:

Some A are B = Some B are A = Some A are D = Some D are A
Some C are B = Some B are C = Some C are D = Some D are C
All B are D

Are any of these one of the responses?

(A) Every country with weak local government has a single political party = All D are A.

This is not among the statements we know to be true; we can know only that "*Some* D are A."

*(B) Some countries with weak local governments have a plurality of political parties = Some D are C.

Yes, this is one of the statements we arrived at as being logically equivalent to the given statements.

(C) Some countries with weak local governments do not have corrupt national governments = Some D are not B.

There are no negative statements among the statements we know to be true, but it may be among their logical equivalents. "Some D are not B" is logically equivalent to "Some not-B are not non-A" (it is its contrapositive), but that is not among the statements we know to be true.

(D) The majority of countries with weak local governments have a single political party = Some D are A.

Yes, this is one of the statements we arrived at as being logically equivalent to the given statements. However, this response makes a claim about *the majority* of countries with weak local governments, and all we know is that *some* D are A—it could be a minority..

(E) Fewer multiparty countries than single-party countries have weak local governments = Fewer C than A are D.

The given statements don't enable us to compare C with A in this way.

(*The Official LSAT Prep Test XXIII,* Section 2, #12)

Companion Website-Only Chapter

Propositional Logic

1.4a Practice translating ordinary language into propositional statements

2. In order to pass this course, you have to have an average grade of 60% or better on your course assignments and tests and you must pass the final exam.

   conjunction: You must have an average grade of 60% or better (on course assignments and tests) and you must pass the final exam.

4. Neither injury nor poverty kept them from practicing.

   disjunction: They were not kept from practicing by injury or by poverty.

6. Memoirs, no matter how interesting the characters, are not considered to be novels.

   negation: Memoirs are not novels.

8. When you travel, even outside your own town or city, you discover there's more than one way to do everything, including live.

   conditional: If you travel, then you discover there's more than one way to do everything.

10. Provided that our suppliers continue to stock high quality material, we can continue to produce high quality goods

    conditional: If our suppliers continue to stock high quality material, then we can continue to produce high quality goods.

2.1a Practice identifying the valid form of affirming the antecedent

2. Since the description of what an Aries is fits me perfectly, astrology is accurate!

This is the argument in standard form:

If the description of Aries fits me perfectly, then astrology is accurate.	If p, then q.
The description of Aries fits me perfectly.	p.
Therefore, astrology is accurate.	Therefore, q.

This argument is in the valid form of affirming the antecedent.

However, one might question the truth of the first premise. Is the fact that the Aries description fits you perfectly proof that astrology is accurate? What if description of Taurus and Scorpio also fits you perfectly?

4. If the new policy results in fewer people applying for assistance, I'd say it's a success. Well, it's official: the numbers have gone down by 10%. Time to celebrate!

Yes, this is also an argument in the valid form of affirming the antecedent:

If the new policy results in fewer people applying for assistance, then it's a success.	If p, then q.
The new policy did result in fewer people applying for assistance.	p.
Therefore, the new policy is a success.	Therefore, q.

2.2a Practice identifying the valid form of denying the consequent

2. The Roman Catholic Church believes we are all born in a state of "original sin." Just by being born, you're bringing sin into the world. We don't want to bring more sin into the world, so we should endorse abortion.

Yes, this argument is in the valid form of denying the consequent:

When people are born, they bring sin into the world.	If p, then q.
We don't want to bring more sin into the world.	Not-q.
Therefore, people should not be born.	

Note, however, that the speaker equates being born in a state of original sin as bringing sin into the world—I'm not sure whether that's accurate Catholic dogma.

Note also that "people should not be born" is equated with "endorsing abortion"—it could, instead or in addition, be equated with "endorsing contraception" or "endorsing sexual abstinence."

4. If she arrived before me, I would have seen the tire tracks of her truck in the snow. I didn't see any tracks, so she must've arrived on foot.

The argument is as follows:

If she arrived before me, I would have seen her tire tracks.	If p, then q.
I didn't see her tire tracks.	Not-q.
Therefore, she must've arrived on foot.	Therefore, r

As you can see, this argument is *not* in the form of denying the consequent.

2.3a Practice identifying the valid form of reductio ad absurdum

2. If people engaged in sports only to win, then they'd seek out and play against only those opponents they could most likely beat.

If people engaged in sports only to win, they'd play against only those opponents they could beat.	If p, then q.
People do not play against only those opponents they can beat.	not q.
Therefore, people do not engage in sports only to win.	Therefore, not p.

This is more an argument involving simply denying the consequent than it is a reduction.

4. Suppose that the world has a Creator like a house does. Now when houses are not perfect, we know who to blame: the carpenters and masons who created them. But the *world* is also not wholly perfect. Therefore, it would seem to follow that the Creator of the world, God, is not perfect either. But you would consider this conclusion absurd. The only way to avoid the absurdity, however, is to reject the supposition that leads to it. Therefore, the world does not have a Creator in the way that a house does.

Either the world has a creator or it does not.	p or not-p
If the world has a creator, then the creator is not perfect.*	If p, then q.
That's absurd! God is perfect!	not q.
Therefore, the world does not have a creator.	Therefore, not p.

* Note that the following "affirming the consequent" argument is also needed:

If the world is not perfect, then its creator is not perfect.	If p, then q.
The world is not perfect.	p.
Therefore, its creator is not perfect.	Therefore, q.

2.4a Practice identifying the valid form of a chain argument

2. "But if there be no resurrection of the dead, then is Christ not risen: and if Christ be not risen, then is our preaching vain, and your faith also vain."

If there is no resurrection of the dead, then Christ has not risen.	If p, then q.
If Christ hasn't risen, our preaching and your faith is in vain.	If q, then r.
Therefore, if there is no resurrection of the dead, then our preaching and your faith is in vain.	Therefore, if p, then r.

Yes, this is a (short) chain argument, with the conclusion implied.

4. If you know what you really want to do with your life, you'll do it. And if you do what you really want to do, you'll be happy. So knowing what you want is the first step to being happy.

Yes, this is a valid chain argument:

If you know what you really want to do, you'll do it.	If p, then q.
If you do what you want to do, you'll be happy.	If q, then r.
Therefore, if you know what you want to do, you'll be happy.	Therefore, if p, then r.

2.5a Practice identifying the valid form of a disjunctive syllogism

2. Either the animal is suffering from X or Y. If it were suffering from X, it would have these symptoms. But it doesn't. So it must be suffering from Y.

Either the animal is suffering from X or Y.	Either p or q.
If it were suffering from X, it would have these symptoms.	If p, then r.
It doesn't have these symptoms.	not r.
Therefore, it's not suffering from X.	Therefore, not p.
Therefore, it must be suffering from Y.	Therefore, q.

Yes, this argument involves a disjunctive syllogism, as well as denying the consequent.

4. Either extraterrestrial beings visited Earth some time in the past or the pyramids are a mirage. I've seen the pyramids with my own eyes, even walked part way up. So ET was here!

Either extraterrestrials visited Earth in the past or the pyramids are a mirage.	Either p or q.
The pyramids are not a mirage.	Not q.
Therefore, extraterrestrials visited Earth in the past.	Therefore, p.

So, yes, this is a disjunctive syllogism.

Note the obvious untruth of the opening disjunct.

Also note that seeing something with one's own eyes doesn't mean it's not a mirage!

2.6a Practice identifying the valid form of a conjunctive syllogism

2. In order to vote, one must be both a citizen of the country and over eighteen. You were obviously allowed to vote yesterday, and I know you're a citizen. So now I know you're also over eighteen.

In order to vote, one must be a citizen and over eighteen.	If p, then q and r.
You voted.	p.
Therefore, you must be a citizen and over eighteen.	Therefore, q and r.

This argument uses the "affirming the antecedent" form with a conjunct as the consequent.

4. If circus animals have to be hurt in order to learn the tricks they do, you can't say they're being treated well. Listen to elephant trainer Tim Frisco: "Sink that hook into 'em. When you hear that screaming, then you know you got their attention." We have a video tape of an elephant trumpeting in agony as Frisco's bullhook, with its sharp metal hook and spiked end, tears through her sensitive skin. The fact is, animals do not naturally ride bicycles, stand on their heads, balance on balls, or jump through rings of fire. To force them to perform these confusing and physically uncomfortable tricks, trainers use whips, tight collars, muzzles, electric prods, bullhooks, and other painful tools of the trade. So, no, circus animals are not treated well. We should abandon the idea of animals in circuses and stick to the amazing gymnasts, acrobats, and so on.

If circus animals have to be hurt in order to learn, they aren't being treated well.	If p, then q.

Circus animals have to be hurt in order to learn.	p.
Therefore, circus animals are not treated well.	Therefore, q.

This is a valid argument (affirming the antecedent), but there is no conjunct involved.

2.7a Practice identifying the valid form of a constructive dilemma

2. You're saying that you don't remember what you read, so either you're not remembering what you're reading or you're not understanding it in the first place. As for not remembering, here's something you can do: close the book every now and then and explain to yourself what you just read. That kind of constant review or rehearsal will put the information into your memory. And if you're not understanding what you're reading and *that's* the problem, then just make sure you do! Look up every single word whose meaning you don't know, and put every single paragraph into your own words before you move on.

Either you aren't remembering what you read or you aren't understanding what you read.	p or q.
If you aren't remembering, engage in constant rehearsal.	If p, then r.
If you're not understanding, look up words and paraphrase.	If q, then s.
Therefore, you should either engage in constant rehearsal	Therefore, r or s.

Without the conclusion, this isn't really an argument, but with the conclusion it is a valid form of a constructive dilemma.

4. I'm not going to go for a run if it's raining, and I'm not going to drive into town if it's snowing. Look at the sky! It's going to do one or the other! So I guess I'll just curl up with a good book!

It's going to rain or snow.	p or q.
If it's going to rain, I'm not going for a run.	If p, then r.
If it's going to snow, then I'm not driving into town.	If q, then s.
Therefore, I'll just curl up with a good book.	Therefore, t.

Note the invalid conclusion. The conclusion should be only that either she's not going for a run *or* she's not driving into town. Concluding that she'll curl up with a book implies *neither r nor s*—which is not the same as *not-r or not-s*.

2.8a Practice identifying the valid form of the destructive dilemma

2. When she dreams her eyelids flutter, and when she's awake, of course, her eyes are open. Her eyes are firmly shut. I conclude that she's neither dreaming nor awake!

When she dreams, her eyelids flutter.	If p, then q.
When she's awake, her eyes are open.	If r, then s.
Her eyes are firmly shut.	Not-q and not-s.
Therefore, she's neither dreaming nor awake.	Therefore, not-p and not-r.

So, yes, this is a destructive dilemma, a valid argument.

4. ". . . [T]here are even more serious logical flaws in the abductee stories of alien behavior. Most glaring is the obvious lack of any sign of intelligence . . . They are scientifically stupid, mathematically stupid, statistically stupid, linguistically stupid, anthropologically stupid, and psychologically stupid. In fact, they are so generally and far-reachingly stupid they reportedly say they want to breed with human beings, clearly the most aggressive and warlike creatures in the cosmos. . . . Aliens are also so naive they think they *can mate with us!* Biologically humans cannot even breed with their closest relatives, the apes and chimpanzees, much less with aliens that, reportedly, have no sex organs. . .

. . . [I]n spite of nearly fifty years of collecting human samples they still need more and more of the same things from more and more victims. . . . Why don't they ever keep some of the specimens for detailed and intensive study? Why haven't they taken corpses and performed autopsies? . . . Why do they slaughter hundreds of cows when only one or two would give them all the biological information any intelligent scientist would ever need? . . . As for the kinds and types of people they abduct, why don't they show some political savvy and abduct the power brokers—heads of state, influential folk like Bob Dole, Rush Limbaugh, or Ross Perot? . . . If their goal is to truly understand us, why don't they abduct leading scientists, Nobel Prize winners, or at least people who know something worth knowing? . . . If their aim is to warn or send messages to humanity, why don't they make use of our wonderfully efficient communication facilities? . . .

If aliens are abducting us, they would do so intelligently.	If p, then q.
Abduction reports indicate a lack of intelligence .	Not q.
Therefore, aliens are not abducting us.	Therefore, not p.

This seems to reduce to a simple "denying the consequent" argument, not a destructive dilemma.

2.9a Practice identifying the valid combinations

2. Given that there's evil in the world, either God doesn't want to prevent it or he can't prevent it. If he doesn't want to prevent it, he's not all-good, and if he can't prevent it, he's not all-powerful. But that's ridiculous! He *is* all-good and all-powerful. So I have no choice but to conclude there's no evil.

Either there's evil in the world, or there is not.	p or not-p.
If there is evil in the world, then either God doesn't want to prevent it or he can't prevent it.	If p, then q or r.
If he doesn't want to prevent it, then he's not all-good.	If q, then s.
If he can't prevent it, then he's not all-powerful.	If r, then t.
But it's ridiculous to think he's not all-good or all-powerful. (He is all-good and all-powerful.)	Not-s and not-t.
Therefore, it's not the case that he doesn't want to prevent it or that he can't prevent it.	Therefore, not-q and not-r.
So there's no evil in the world.	Therefore, not-p.

So we start with a disjunct, p or not-p. Then we have a conditional with a disjunct as the consequent. A reduction follows, involving a chain "denying the consequent," leaving us with the not-p of the opening disjunct. All valid.

4. I can tell you why women are not in high-ranking positions. They haven't put in the overtime that's required to be promoted to such positions. And I can speculate as to why they haven't put in the over-time. It could be that they simply didn't want to. That's the standard explanation. Or it could be that they weren't allowed to. Did you know that in 1970, 43 states limited the number of hours women could work, generally to eight per day? So while the men were racking up all those hours for the last ten or twenty years, to finally now be CEO or whatever, the women simply weren't allowed, by law, to do the same.

If women worked overtime, they'd be promoted to high-ranking positions.	If p, then q.
They haven't been promoted to high-ranking positions.	Not-q.
Therefore, they haven't worked overtime.	Therefore, not-p.
If they haven't worked overtime, it's because either they haven't wanted to or they haven't been allowed to.	If not-p, r or s.
They weren't allowed to.	s.
So it's not that they haven't wanted to.	Therefore, not r.

Two arguments, one a simple denying the consequent, the other a disjunctive syllogism, both valid.

2.9b More practice with valid propositional arguments

2. If biological mothers want to assert any right over the child they carry, they must take responsibility for its interuterine development. Biological mothers, especially surrogate mothers, often do assert such a right.

So, biological mothers must take responsibility for the interuterine development of the child they carry.

That would be the conclusion of a valid argument affirming the antecedent: if p, then q; p; therefore, q.

4. If your partner has HIV, sex with him or her may be fatal. If sex may be fatal, you should refrain from having sex with him or her.

So, if your partner has HIV, you should refrain from having sex with him or her.

That would be the conclusion of a valid chain argument: if p, then q; if q, then r; therefore, if p, then r.

6. The team wins either because they play well together, they co-operate, they are always aware of each other's position, and they know each other's strengths and weaknesses—or because they have a few individual stars. I know for a fact there is not one outstanding athlete on the team.

So, the team wins because they play well together.

That would be the conclusion of a valid disjunction: p or q; not-q; therefore, p.

8. If drug X is working, then you'd be experiencing fewer headaches, and if drug Y is working, your nausea would be gone. You've still got headaches and nausea.

So, neither drug X nor drug Y is working.

That would be the conclusion of a valid destructive dilemma: if p, then q; if r, then s; not-q and not-s; therefore, not-p and not-r.

10. We'll either increase jail sentences or increase fines. If we increase jail sentences, the state will have more expenses, but if we increase fines, the state will have more income.

So, either the state will have more expenses or it will have more income.

That would be the conclusion of a valid constructive dilemma: p or q; if p, then r; if q, then s; therefore, r or s.

3.1a Practice identifying the invalid form of affirming the consequent

2. Whenever there is sufficient food, little disease, and a good standard of living, a population will increase. In India, population is increasing. Therefore, there must be sufficient food, little disease, and a good standard of living in India.

This argument affirms the consequent and is therefore invalid:

When there's sufficient food, little disease, and a good standard of living, population will increase.	If p, then q.
Population is increasing.	q.
Therefore, there must be sufficient food, little disease, and a good standard of living.	Therefore, p.

4. If the state mandates that employers pay a living wage, complete with health benefits, parental leave, and pension, many jobs will go underground and become illegal because many small companies simply can't afford to do that. At least not for their low-productivity workers—it's simply not cost effective. Without government mandated wages and benefits, low skill workers can at least find jobs, less desirable jobs to be sure, but jobs just the same. But now, they can't—at least not legal jobs.

(based on "When Jobs are Illegal, Only Illegals Will Have Jobs," Jennifer Roback Morse. rpt in *The Women's Freedom Network Newsletter* 11.1 (January/February 2004); first appeared in *National Catholic Register* February 8-14/04)

If the state mandates . . ., then many jobs will go. . .	If p, then q.
Many jobs have . . .	q
Therefore, the state must have mandated. . .	p.

So, yes, this is also an invalid argument, as it affirms the consequent.

3.2a Practice identifying the invalid form of denying the antecedent

2. The Pope says that if a man with AIDS can't abstain from intercourse, it's better that he infect his wife than use a condom. Men *can* abstain from intercourse, so it's *not* better that he infect his wife than use a condom.

Yes, this argument has the form of denying the antecedent and is therefore invalid.

If a man with AIDS cannot abstain from intercourse, it's better that he infect his wife than use a condom.	If p, then q.

A man can abstain from intercourse.	Not-p.
Therefore, it's not better that he infect his wife than use a condom.	Therefore, not-q.

The conclusion might still be reached, however—just not this way.

4. If we had a natural will to survive, we wouldn't want to commit suicide. But we do. People do want to commit suicide on occasion. So that proves we *don't* have a natural will to survive.

Yes, this argument has the form of denying the antecedent and is therefore invalid.

If we had a natural will to survive, we wouldn't want to commit suicide.	If p, then q.
We do want to commit suicide.	Not-q.
Therefore, we don't have a natural will to survive.	Therefore, not-p.

3.3a Practice identifying the invalid form of a broken chain

2. If we eat late, we have pizza. And if we eat cheap, we have pizza. Therefore, if we eat late, we eat cheap.

This argument has a broken chain:

If we eat late, we have pizza.	If p, then q.
If we eat cheap, we have pizza.	If r, then p.
Therefore, if we eat late, we eat cheap.	Therefore, if p, then r.

The conclusion should be if we eat cheap, then we eat late.

4. When grades are inflated and everyone gets an A or a B, students stop taking pride in their achievements. This also happens when grades are unfair. So it's pretty clear to me that when grades are inflated, they're unfair.

When grades are inflated, students stop taking pride in their achievements.	If p, then q.
When grades are unfair, students stop taking pride in their achievements.	If r, then q.
Therefore, when grades are inflated, grades are unfair.	Therefore, if p, then r.

This is an invalid argument.

3.4a Practice identifying the invalid form of a backward chain

2. When we put growth hormones into cattle feed, of course it gets into their muscle tissue – which is the beef we eat, so of course the growth hormones will get into us. It stands to reason that if we ingest growth hormones, our cattle will too.

No, it doesn't stand to reason—this is a backward chain and, thus, an invalid argument:

If we put growth hormones into cattle feed, they'll get into beef.	If p, then q.
If hormones get into beef, they'll get into us.	If q, then r.
Therefore, if growth hormones get into us, they'll get into cows.	Therefore, if r, then p.

4. If I run, then I'll want to eat salty things, to replenish what I've lost through sweat, and if I eat salt, I'll crave sugar, and so then I'll eat sweets, but then I'll feel like I'm getting fat, and when that happens, guess what: I'll want to go for a run. So the bottom line is this: if I want to go for a run, I'll go for a run.

This is a circular chain:

If I go for a run, then I'll eat salty things.	If p, then q.
If I eat salty things, I'll eat sweet things.	If q, then r.
If I eat sweet things, I'll feel fat.	If r, then s.
If I feel fat, then I'll go for a run.	If s, then p.
Therefore, if I go for a run, I'll go for a run.	Therefore, if p, then p.

And since it's an explanation rather than an argument, the circularity is fine.

3.5a Practice identifying the invalid form of affirming a disjunct

2. Should we pay surrogate mothers or not? Well, do we say babies cannot be bought and sold or do we say women's labor and the use of their bodies should not be free? I for one say babies cannot be bought and sold. So, I guess women just have to go on providing their labor and bodies free of charge.

Either we say babies cannot be bought and sold or we say women's labor/bodies should not be free.	p or q.

Babies cannot be bought and sold.	p.
Therefore, women's labor/bodies should be free.	Therefore, not-q.

This is an invalid argument, with the form of affirming a disjunct.

4. Looking ahead, if China's consumption of raw materials and energy per person were to rise to the level of that in the rich countries, and in fairness, I don't see why it shouldn't, then we, the planet, will simply run out of resources. Do you have any idea how many people there are in China at the moment? But let's imagine they're smarter than the rest of us. Let's imagine they intend to limit their consumption. That would mean we won't run out!

China's consumption will rise to the level of rich countries or it won't.	p or not-p.
If China's consumption rises to the level of rich countries, the planet will run out of resources.	If p, then q.
China's consumption won't rise to the level of rich countries.	not-p.
Therefore, the planet won't run out.	Therefore, not-q.

The argument starts out fine, with a simple disjunct, but the conclusion derives from denying the antecedent—invalid (3.2).

3.6a Practice identifying the invalid form of denying a conjunct

2. He won't put a triple combination and a quad in his routine. He simply can't do both in a short program. So if there's not a triple, there will be a quad.

This argument does indeed deny a conjunct and is, therefore, invalid: he could put *neither* a triple *nor* a quad in his routine.

He won't put in a triple combination and a quad.	Not both p and q.
There's not a triple.	not p.
Therefore, there will be a quad.	Therefore, q.

4. The way things are going, we will not be able to have both cheap energy and safe energy in the future. Nuclear power plants will become dominant, because available fossil fuels are being depleted more quickly than they're being formed, so obviously we won't be having safe energy. Oh well, at least it'll be cheap.

This argument too denies a conjunct:

We won't have both cheap energy and safe energy.
We won't have safe energy.
Therefore, we will have cheap energy.

Not both p and q.
not q.
Therefore, p.

It's quite possible to have neither cheap energy nor safe energy.

4a Practice determining validity and invalidity using truth tables

2. Muffins are not sweetened with both sugar and honey. These muffins are not sweetened with sugar. Therefore, they must be sweetened with honey.

This is invalid, denying the conjunct. (The muffins could be sweetened with molasses.)

Not p and q.
not p.
Therefore, q.

Not sugar and honey.
Not sugar.
Therefore, honey.

p	*q*	*not p and q*	*not-p*	*q*
T	T	F	F	T
F	T	T	T	T
T	F	T	F	F
F	F	T	T	F

The last row shows that this form is invalid (if it were valid, it would be impossible to have true premises and a false conclusion).

4. If fraternity members are adults, then the university should not be held responsible for their behavior. The university should not be held responsible for their behavior. Therefore, fraternity members are adults.

This is invalid, affirming consequent.

If p, then q.
q.
Therefore, p.

If frat members are adults, the university should not be held responsible.
The university should not be held responsible.
Therefore, frat members are adults.

p	*q*	*If p, then q*	*q*	*p*
T	T	T	T	T
T	F	F	F	T
F	T	T	T	F
F	T	T	F	F

Again, the highlighted row shows this form to be invalid.

6. If repeated viewing of violent acts desensitizes the viewer to violent acts, then watching a lot of television desensitizes the viewer to violent acts. If watching a lot of television desensitizes the viewer to violent acts, then heavy television viewers will be more apt to commit violent acts than light television viewers. Therefore, if heavy television viewers are more apt to commit violent acts than light television viewers, that proves that repeated viewing of violent acts desensitizes the viewer to violent acts.

This is invalid, a backward chain.

If p, then q.
If q, then r.
If r, then p.

p	*q*	*r*	*If p, then q*	*If q, then r*	*If r, then p*
T	T	T	T	T	T
T	T	F	T	F	T
T	F	T	F	T	T
T	F	F	F	T	T
F	T	T	T	T	F
F	T	F	T	F	T
F	F	T	T	T	F
F	F	F	T	T	T

Again, the highlighted rows show true premises leading to a false conclusion – which shows that the form is invalid.

8. The team has speed or endurance. If it has speed, it will do well on the short races. If it has endurance, it will do well on the long races. Therefore, the team will do well on the short races or the long races.

This is a valid argument, a constructive dilemma.

p or q.	Speed or endurance.
If p, then r.	If speed, then well on short races.
If q, then s.	If endurance, then well on long races.
Therefore, r or s.	Therefore, well on short or long.

p	*q*	*r*	*s*	*p or q*	*If p, then r*	*If q, then s*	*r or s*
T	T	T	T	T	T	T	T
T	T	F	T	T	F	T	T
T	F	T	T	T	T	T	T
T	F	F	T	T	F	T	T
F	T	T	T	T	T	T	T
F	T	F	T	T	T	T	T
F	F	T	T	F	T	T	T
F	F	F	T	F	T	T	T
T	T	T	F	T	T	F	T
T	T	F	F	T	F	T	F
T	F	T	F	T	T	T	T
T	F	F	F	T	F	T	F
F	T	T	F	T	T	F	T
F	T	F	F	T	T	F	F
F	F	T	F	F	T	T	T
F	F	F	F	F	T	T	F

So you'll see there is no row in which all three premises are true, but the conclusion is false – valid!

10. If the floating feeling of peace that people experience when they're near death is due to being near God in Heaven, then only Heaven-bound people should experience it. If that feeling is due to oxygen deprivation, then it should happen not only when people are near death but also when they're at high altitudes. Bad people experience the floating feeling of peace when they're near death, as do people at high altitudes. Therefore, the feeling is not due to being near God in Heaven.

There are two arguments, the second requiring the conclusion to be added:

If p, then q.	If the floating feeling near death is due to being near God, then only Heaven-bound people should experience it.
Not q.	People not Heaven-bound experience the feeling.
Therefore, not p.	Therefore, the feeling is not due to being near God.
If r, then s.	If the floating feeling near death is due to oxygen deprivation, then people at high altitudes should experience it.

s.	People at high altitudes experience the feeling.
Therefore, r.	Therefore, the feeling is due to oxygen deprivation.

The first is an instance of denying the consequent, and truth tables indicate that it's valid:

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 second is an instance of affirming the consequent, and truth tables indicate that it's *in*valid:

r	*s*	*If r, then s*	*s*	*r*
T	T	T	T	T
T	F	F	F	T
F	T	T	T	F
F	F	T	F	F

4b More practice determining validity and invalidity using truth tables

2. "For over 200 years the market has been devouring 'the commons' in two ways. First, it takes valuable stuff from the commons and privatizes it. This is called 'enclosure.' Second, it dumps bad stuff into the commons and says, 'It's not our problem.' This is called 'externalizing.' (Peter Barnes, 'Who Owns the Sky?,' quoted in *Adbusters* 55). I think external costs should be internalized. The cost of doing what business does, the full cost—including repair to the environment they damage—should be reflected in the prices charged for the product or service in question. That way, those who benefit, pay. And pollution costs are no longer borne by those who receive no benefit, those outside the process. If we had such full-cost accounting, the world would be a different place. For example, organic food, without pesticides and other chemical additives, would cost half what non-organic food costs. So guess what food people would start buying?

If p, then q.	If we had full-cost accounting, prices would be different.
If q, then r.	If prices were different, purchasing patterns would be different.

Therefore, if p, then r.

Therefore, if we had full-cost accounting, purchasing patterns would be different.

This is a valid chain argument (2.4), as you can see from the following truth table:

p	*q*	*r*	*If p, then q*	*If q, then r*	*If p, then r*
T	T	T	T	T	T
T	T	F	T	F	F
T	F	T	F	T	T
T	F	F	F	T	F
F	T	T	T	T	T
F	T	F	T	F	T
F	F	T	T	T	T
F	F	F	T	T	T

4. If the consequences of treatment affect people other than the patient, then people other than the patient should have a say in whether the treatment is accepted or not. Since treatment generally costs money which is often not completely provided by the individual patient in question (and in almost every case, treatment is to some extent paid for by the state, which often means that if treatment is provided for this patient, another patient may be denied treatment), and since the future well-being of the patient, whether that refers to future care needs or to the patient's death, certainly affect others in the patient's life, it is certainly the case that the consequences of treatment *do* affect people other than the patient. Therefore, when a physician is seeking consent for treatment, the consent of people other than the patient should also be sought.

If p, then q.

p.

Therefore, q.

If the consequences. . . affect others, then others should have a say. . .

The consequences . . . do affect others.

Therefore, others should have a say . . .

This is a simple "affirming the antecedent" argument, valid:

p	*q*	*If p, then q*	*p*	*q*
T	T	T	T	T
T	F	F	T	F
F	T	T	F	T
F	F	T	F	F

6. The use of contraception indicates that one thinks it's okay to deliberately choose whether to have a child. So why isn't it okay to deliberately choose what attributes it has, or at least to choose that it does not have any debilities? We have a choice. We can either use genetic engineering to determine our children's attributes or we can refuse to use it and play roulette with their lives. Genetic engineering is nothing more than utilizing our knowledge for good, for who wouldn't say it's incredibly cruel to deliberately, knowingly, bring into the world a child that has a disease that will cause it to experience excruciating pain and severe incapacities? How is that different from deliberately torturing it once it's born?

Note that the conclusion is implied.

p or not-p	We can either use genetic engineering to determine our children's attributes or we can refuse to use it in that way.
If not-p, then q.	If we don't use it in that way, we're being cruel.
not-q.	That cruelty is unacceptable.
Therefore, p.	Therefore, we should use genetic engineering to determine our children's attributes.

p	*q*	*p or not-p*	*If not-p, then q*	*not-q*	*p*
T	T	T	T	F	T
T	F	T	T	T	T
F	T	T	T	F	F
F	F	T	F	T	F

The truth table indicates that this first argument is valid.

There is another argument, presented right at the beginning:

If r, then s.	If it's okay to deliberately choose to have a child, it's okay to deliberately choose its attributes.
r.	It is okay to deliberately choose to have a child.
Therefore, s.	Therefore, it's okay to deliberately choose its attributes.

This is a basic affirming the consequent syllogism, also valid; see truth table above for #4.

8. Either patriotism is morally right or it's morally wrong. Let's assume it's morally right. But if patriotism is morally right, then that implies that it's right to give more consideration to some people's interests (those who happen to live in your country) than to other people's interests. But that's unequal treatment—and that can't be right. So it's morally wrong to be patriotic.

p or not-p	Patriotism is morally right or morally wrong.
If p, then q.	If patriotism is morally right, then it's right to show favoritism.
not q.	Favoritism is wrong.
Therefore, not-p.	Therefore, patriotism is morally wrong.

This is a valid reduction:

p	*q*	*p or not-p*	*If p, then q*	*not-q*	*not-p*
T	T	T	T	F	F
T	F	T	F	T	F
F	T	T	T	F	T
F	F	T	T	T	T

10. Most people are hired for reasons that have nothing to do with merit: they knew someone who got them an interview, they attended the right schools, they were from the right part of the country, they were members of the right class, the right nationality, the right fraternity, or they just got lucky —they were in the right place in the right time. Of course they had to be adequate as well, but they didn't have to be the best; it would take too long to winnow out the best and, since adequate will do, why bother? Given that, it seems indefensible to object to affirmative action because it bypasses merit as a criterion.

This reduces to a simple instance of affirming the antecedent:

If p, then q.	If people aren't hired on the basis of merit, then it's indefensible to object to affirmative action.
p.	People aren't hired on the basis of merit.
Therefore, q.	Therefore, it's indefensible to object to affirmative action.

See #4 above for the truth table showing this form's validity.

Thinking critically about what you see

2.

http://www.leimha.com/

If a real woman had these proportions, she'd fall over.

"If Barbie were scaled to the size of an actual woman, she would be 5'9", 110 pounds, and her measurements would be 39-18-33. 'It's not that she has an unusually large chest, but only one that is perceived as such in its comparison to her waist' (Portanier). If a real woman had a chest this large compared to the rest of her, it would be physically impossible for her body to support it with such a small waist and feet." http://www.leimha.com/

Thinking critically about what you hear

Do Only Fools Pay for Online Dating Sites?

http://www.youtube.com/watch?v=AjFU5o6GUHQ

There is a conditional in here—if you're really serious, use a pay site—but it's just a statement. (Oh where oh where is extended reasoning?) In particular, where is the argument to support the implication that spending money on X means you're serious about X? Or that not spending money on X means you're not serious about X?

Another conditional,half gigles/if you're serious, you'll fill out the profile—and the converse—if you've filled out the profile, you're serious—implies a connection between spending time and effort (rather than spending money) which, to me, is less contestable.]

At first, one might think there's an appeal to popularity in here, and there is—everyone's doing it—but it's not used to justify a behaviour, so it's not an error in reasoning; it's used to support the claim that doing it doesn't make you desperate (it's the norm now). (Unless, of course, everyone's doing it but that just means everyone's desperate—desperation is the norm.)

Thinking critically about what you read

2. When the arts and sciences flourish in a civilization, that means that the civilization must be producing a surplus—they must have extra time and resources available for such activities. In the Mayan culture, the arts and sciences did indeed flourish. So the Mayans must have been producing more than enough food, shelter, and other basic goods.

This is a valid argument, affirming the antecedent:

If the arts and sciences flourish, the civilization must be producing a surplus of time and resources.	If p, then q.
The Mayan culture had flourishing arts and sciences.	p.
Therefore, the Mayan culture must have produced a surplus of time and resources.	Therefore, q.

I wonder about the initial 'if p, then q'—are there no other explanations for the flourishing of arts and sciences? I would have expected an 'if p, then q or r or s . . .'

4. The Arabs must struggle for a national truth; they cannot achieve true liberty without nationalism and the struggle towards Arab unity.

(Saddam Hussein in interview with Fuad Matar 1980, reported in *The Saddam Hussein Reader: Selections from Leading Writers on Iraq*, 2002)

The phrase "a national truth" could be defined; I'm not sure what exactly it means. Same goes for "true liberty." (Interesting that Americans believe the same thing, I think—that true liberty can't be achieved without nationalism and unity.)

The argument, if there is any, seems to be a simple one (affirming the antecedent, valid):

If Arabs want true liberty, they must achieve nationalism and unity.	If p, then q.
They want true liberty.	p.
Therefore, they must achieve nationalism and unity.	Therefore, q.

6. It might at this point be worthwhile asking . . . whether . . . Gargiulo's pictures of the revolt [painted circa 1656] may have been originally commissioned by another collector and then acquired by Piscicelli on the secondary market sometime prior to 1690. We can be reasonably certain that this was not the case, however, since the inventory establishes that Gargiulo's pictures of the revolt occupied a central place in Piscicelli's collection, which contains an unusually consistent and chronologically focused group of paintings by artists active in the 1640s and 1650s. Conspicuously absent from the collection are works by artists active during the 1660s through the 1680s, whose presence we would expect were the collection still being assembled at this date.

   (Christopher Marshall, "'Causa Di Stravaganze': Order and Anarchy in Domenico Gargiulo's Revolt of Masaniello," *Art Bulletin*, 80.3, September 1998)

If Gargiulo's pictures of the revolt were originally commissioned by another collector and later acquired by Piscicelli, then they would not have occupied a central place in Piscicelli's collection.	If p, then q.
The pictures do occupy a central place in Piscicelli's collection.	not q.
Therefore, Gargiulo's pictures of the revolt were not originally commissioned by another collector and later acquired by Piscicelli.	Therefore, not p.

This is a valid argument, in the form of denying the consequent.

8. Salt and sugar increase the tastiness of food. So if salt and sugar is put in baby food, babies will prefer it, and so parents will buy it. But babies don't develop taste buds until they're five or six months old. And they eat baby food before then.

If a food contains salt and sugar, then it is tasty.	If p, then q.
If a food is tasty, babies will prefer it.	If q, then r.
If babies prefer a food, their parents will buy it.	If r, then s.

To this point, the argument is a good chain—but the conclusion is missing. Perhaps the speaker isn't making an argument, but just explaining why baby food manufacturers put so much salt and sugar in their baby food products.

The next point indicates that r is impossible, at least for babies under five months of age:

But babies don't develop taste buds until five to six months.	Not r.

So, this would render the explanation void, at least for baby food products intended for babies under five months of age.

10. Suppose a brave officer to have been flogged when a boy at school, for robbing an orchard, to have taken a flag from the enemy in his first campaign, and to have been made a general in advanced life: suppose also, which must be admitted to be possible,

that, when he took the standard, he was conscious of his having been flogged at school, and that when made a general he was conscious of his taking the standard, but had absolutely lost the consciousness of his flogging. If it is true that, as Locke says, our personal identity depends on our consciousness or memory of our thoughts and actions and can be extended backwards only as far as that consciousness or memory goes, then the officer is the same person as the boy, and the general is the same person as the officer, but the general is *not* the same person as the boy. And yet logic indicates that the general *is* the same person as the boy (if A = B and B = C, then A = C).

(Based on Thomas Reid, *Essays on the Intellectual Powers of Man*, 1785. As edited by A.D.Woozley, 1941)

This is a valid argument, denying the consequent:

If our personal identity depends on our consciousness or memory of our thoughts and actions, then the officer is the same person as the boy, and the general is the same person as the officer, but the general is *not* the same person as the boy.	If p, then q.
But logic says the general is the same person as the boy.	not q.
Therefore, our personal identity does *not* depend on our consciousness or memory of our thoughts and actions.	Therefore, not p.

So what does our personal identity depend on? *How* will *you know you're the same person when you wake up tomorrow morning?*

Reasoning test questions

2. Allowing more steel imports would depress domestic steel prices and harm domestic steel manufacturers. Since the present government will not do anything that would harm the domestic steel industry, it will not lift restrictions on steel imports.

   The pattern of reasoning in the argument above is most similar to that in which of the following?

The argument denies the consequent in a valid form:

If more steel imports are allowed, domestic steel prices will decline, harming domestic steel manufacturers.	If p, then q.
The government will not harm domestic steel manufacturers.	not-q.
Therefore, the government will not allow more steel imports.	Therefore, not p.

(A) Building construction increases only when people are confident that the economy is doing well. Therefore, since people are now confident in the economy we can expect building construction to increase.

If people are confident that the economy is doing well, building construction increases.	If p, then q.
People are confident that the economy is doing well.	p.
Therefore, building construction will increase.	Therefore, q.

This argument is valid, but it doesn't have the same form as that in the question; this argument affirms the antecedent.

(B) Since workers are already guaranteed the right to a safe and healthful workplace by law, there is no need for the government to establish further costly health regulations for people who work all day at computer terminals.

This option merely states a causal relationship: since p, q. No argument is made beyond that.

(C) In countries that have deregulated their airline industry, many airlines have gone bankrupt. Since many companies in other transportation industries are in weaker economic condition than were those airlines, deregulating other transportation industries will probably result in bankruptcies as well.

This option states a conditional (if p, then q), then argues that since another situation is similar (or, actually, worse in a relevant way), the same conditional applies.

(D) The chief executive officer of Silicon, Inc. will probably not accept stock in the company as a bonus next year, since next year's tax laws will require companies to pay a new tax on stock given to executives.

This option merely states a causal relationship: since p, q. No argument is made beyond that.

*(E) The installation of bright floodlights on campus would render the astronomy department's telescope useless. The astronomy department will not support any proposal that would render its telescope useless; it will therefore not support proposals to install bright floodlights on campus.

If bright floodlights are installed, the telescope becomes useless.	If p, then q.
The astronomy department would not support rendering the telescope useless.	not-q.
Therefore, the astronomy department will not support the installation of bright floodlights.	Therefore, not-p.

This argument has the same form as that in the question and is therefore the correct option.

(*The Official LSAT Prep Test XXII,* Section 2, #16)

4. If a mechanical aerator is installed in a fish pool, the water in the pool can be properly aerated. So, since John's fish pool does not have a mechanical aerator, it must be that his pool is not properly aerated. Without properly aerated water, fish cannot thrive. Therefore, any fish in John's fish pool will not thrive.

   Which one of the following arguments contains an error of reasoning that is also contained in the argument above?

First, let's establish the argument:

If a mechanical aerator is installed, the water is properly aerated.	If p, then q.
John's pool does not have a mechanical aerator.	Not-p.
Therefore, the water in John's pool is not properly aerated.	Therefore, not q.
If the water is not properly aerated, fish cannot thrive.	If not-q, r.
Therefore, if John's pool does not have an aerator, John's fish will not thrive.	Therefore, if not-p, then r.

*(A) If alum is added to pickle brine, brine can replace the water in the pickles. Therefore, since Paula does not add alum to her pickle brine, the water in the pickles cannot be replaced by brine. Unless their water is replaced with brine, pickles will not stay crisp. Thus, Paula's pickles will not stay crisp.

If alum is added to pickle brine, brine replaces the water in the pickles.	If p, then q.
Paula does not add alum to her pickle brine.	Not-p.
Therefore, the water in Paula's pickles will not be replaced with brine.	Therefore, not-q.
If the water is not replaced with brine, the pickles will not be crisp.	If not-q, r.
Therefore, if Paula does not add alum, Paula's pickles will not be crisp.	Therefore, if not-p, then r.

This has the same form as the given argument, so this is the correct response.

(B) If pectin is added to jam, the jam will gel. Without a setting agent such as pectin, jam will not gel. So in order to make his jam gel, Harry should add a setting agent such as pectin to the jam.

If pectin is added to jam, the jam will gel.	If p, then q.
If pectin is not added, the jam will not gel.	If not-p, not-q.

We need go no further; this argument does not have the same form as the given argument.

(C) If stored potatoes are not exposed to ethylene, the potatoes will not sprout. Beets do not release ethylene. Therefore, if Sara stores her potatoes together with beets, the potatoes will not sprout.

If stored potatoes are not exposed to ethylene, the potatoes will not sprout.	If p, then q.

This argument is similar to the given argument only to this point . . .

(D) If a carrot patch is covered with mulch in the fall, the carrots can be left in the ground until spring. Without a mulch cover, carrots stored in the ground can suffer frost damage. Thus, since Kevin covers his carrot patch with mulch in the fall, the carrots can safely be left in the ground.

If a carrot patch is covered with mulch in the fall, the carrots will not suffer frost damage. (= can be left in the ground till spring?)	If p, then not-q.
If a carrot patch is not covered with mulch, the carrots will suffer frost damage.	If not-p, then q.

We need go no further; this argument does not have the same form as the given argument.

(E) If tomatoes are not stored in a dark place, their seeds sometimes sprout. Sprouted seeds can make tomatoes inedible. Therefore, since Maria does not store her tomatoes in a dark place, some of Maria's tomatoes could be inedible.

If tomatoes are not stored in a dark place, their seeds sometimes sprout.	If not-p, then q.
If the seeds of tomatoes sprout, the tomatoes can be inedible	If q, then r.
Therefore, if Maria does not store her tomatoes in a dark place, Maria's tomatoes may be inedible.	Therefore, if not-p, then r.

This is a valid chain argument (and so not in the form of the given argument).

(*The Official LSAT PrepTest XXI,* Section 2, #21)

Companion Website-Only Chapter

Thinking Critically about Ethical Issues

1a Practice recognizing ethical issues

2. People should never pay less for a product than will lead to a living wage for the people who made the product because that would be stealing.

Yes, this argument involves an ethical issue, that of taking what's rightfully yours.

4. The best way to protect people from wrongdoing is to make the wrongdoing illegal.

Though the claim involves wrongdoing, the speaker is not making a claim about what we should or should not do in the ethical sense. Rather, he/she is making a claim about what we should do (we should make wrongdoing illegal) in the strategic sense. The claim is not dependent on any morality; rather, it is dependent on psychology and sociology (dependent upon the assumption that people's behavior is guided by law).

1b Practice recognizing implicit general principles in the context of ethical arguments

2. She's always breaking arrangements she's made with her friends; as soon as some guy asks her out, well, that takes precedence! Some friend she is!

One should not break arrangements one has made with friends.

(Or perhaps this—Women should not break arrangements they have made with their women friends in order to make an arrangement with a man.)

(Or perhaps this—People should not break arrangements they have made with their friends except in exceptional circumstances.)

4. They owe money to the government (I heard they haven't paid last year's income taxes yet) and to a creditor (visa) for stuff they've bought, and yet they "afford" to take trips to Florida and Arizona. How wrong is that!

One should pay one's debts before spending one's money on unnecessary things.

1c Practice recognizing justifiable exceptions to general principles

2. It's wrong to have sex before you're married. And I don't care that the minister was a fake and it turns out you weren't really married.

Given that the intent or spirit of the general principle seems addressed to the "spirit" of being married (the emotional, ideological, and social quality of being married) rather than to the legality of being married, I would say that the proposed exception is justified. The person believed he/she was married and so did not believe she/he was engaging in sex *before* marriage.

4. I just posted those pictures as a joke! How was I to know he'd lose his family and his career. I can't see into the future. And the pictures weren't fakes—he really did that stuff!

If the general principle is something like "don't post pictures that will cause seriously harmful consequences," then whether or not they are fake is irrelevant, so that they weren't fake doesn't make the posting as an exception to the rule.

2a Practice recognizing ethical arguments based on values

2. *Cesoris*: I think euthanasia is morally acceptable when the person is unable to suicide on their own and they have clearly and repeatedly requested assistance.

   Bates: Who appointed you God? Who gave you the right to play God?

   Cesoris: First, I'm not playing; death is always serious. Second, what's your point exactly—that we should never intervene in God's divine plan? One, we've been intervening, changing the natural course of things for a long time—we've been building dams, making paper out of trees, having surgery, making aspirin. . . Two, God told you that life at all costs is part of his plan, butt out?

Bates: I believe life is precious, yes. That's why euthanasia's wrong; it violates the sanctity of life.

Cesoris: Life at all costs though? Life when the person isn't even aware of being alive? Life when the person is in pain and highly unlikely to get better?

Bates: But God gives life; only He can take it away.

Cesoris: Well, no, my parents gave me life. And that doesn't mean only they can take it away.

Cesoris and Bates are to some extent arguing about a right (see next section, part 3 of this chapter), though Bates also introduces a value, the sanctity of life, with the underlying principle of "One should respect the sanctity of life."

4. "The very notion of dumping one's wastes in someone else's territory is repulsive. When the Mexican navy turned back an American barge laden with garbage, one Mexican newspaper columnist commented that "the incident serves to illustrate once again the scorn that certain sectors of U.S. society feel toward Mexico in particular and Latin America in general" ("Mexico Sends Back", *Montreal Gazette*, April 27, 1987, p. F9). Others have pointed to the export of wastes as an example of neo-colonialist behaviour. An official of an environmental organization expressed this view in the following manner: "I am concerned that if U.S. people think of us as their backyard, they can also think of us as their outhouse" (Porterfield and Weir, 1987). In addition to arousing emotions such as those described above, the international trade in hazardous wastes raises a number of ethical issues.

   . . .

   To export these [hazardous] wastes [such as solvents, radioactive wastes, PCB wastes, pharmaceutical wastes, and so on] to countries which do not benefit from waste generating industrial processes or whose citizens do not have lifestyles that generate such wastes is unethical. It is especially unjust to send hazardous wastes to lesser developed countries which lack the technology to minimize the deleterious effects of these substances.

   (Jang B. Singh and V. C. Lakhan, "Business Ethics and the International Trade in Hazardous Wastes," *Journal of Business Ethics*, 8.11, November 1989)

The main argument, which is in the second part, appeals to consequences (see part 4 of this chapter) in claiming that the action is morally wrong.

The first part, however, does make oblique reference to the values of respect and equality; the underlying principle would be something like "Countries should respect each other and treat each other as equals." This argument could have been articulated much more clearly though.

3a Practice recognizing ethical arguments based on rights

2. I'm entitled to a passing grade. I came to every class. I did every assignment. I paid tuition.

Yes, this is an appeal to rights: saying "entitled" implies "have a right to." The speaker is claiming a right to a pass, based on attendance, assignment completion, and tuition payment.

4. Why doesn't the Roman Catholic church allow women to be priests? Because men in the congregation wouldn't be able to concentrate on the service; they'd be distracted by the woman's body. Because it would put women in positions of authority over men—no can do. Because God is male. Because Jesus Christ is male. Because women are inferior to men, remember Eve was made out of Adam's rib.

The first two reasons for not allowing women to be priests refer to consequences; the next reason (the maleness of God and Jesus Christ) is not developed enough to know what the principle involved involves; the last reason invokes a value, I suppose, that of superiority. In any case, no rights are invoked in this argument.

4a Practice recognizing ethical arguments based on consequences

2. Would the machismo of [the] Catholic culture flourish if God was addressed as Madre as well as Padre? Would a Catholic man be so ready to raise a hand to slap his wife if he had seen the hands of women lift up the body and blood of Christ at the altar? Would Catholic soldiers in places like Bosnia or Rwanda consider the rape of women just another act of war if they knelt in confession before the female face of God as presented by a woman priest?

(Joanna Manning, Is the Pope Catholic?, 1990)

The speaker seems to be implying that the machismo Catholic culture would not flourish if God's representative were female. In support of that conclusion, the speaker suggests two consequences (Catholic men would be less apt to assault their wives, and Catholic soldiers would be less apt to rape women while on duty) that would result should that be the case. So yes, this is an argument based on consequences.

Or perhaps the implied conclusion is that God's representative *should* be female—because of the desirable consequences.

Note that it's generally not a good idea to make an argument with questions!

4. Consider also "dumping"—selling a product in a foreign market at a lower price than in the home market, a price that doesn't cover export costs. Many

people consider dumping to be morally wrong because it damages competition and hurts workers in the other country. In fact, it can be illegal if it reduces competition. But since when is competition more important than people? What if the product is much needed and at "competitive prices" unaffordable to many? Wouldn't the *right* thing be to sell it at that low price, to "dump" it?

Of course, that's a consequentialist analysis. An analysis of intent may render a different judgment: if your reason for dumping were to enter and capture a market—get in with low prices, get people wanting your product, then increase the price—perhaps dumping is *not* the right thing to do. Let's expand this analysis: why are you interacting with other countries in the first place? To escape home tax laws? Labour laws? Environmental laws? Safety laws? Well, without the tax advantages, the cheaper labour, and the lenient standards, you say, I'd have no reason to go to other countries. Hm. You can't think of any reasons other than those of self-advantage? Well, what's wrong with self-advantage as long as you do no harm to others? But aren't you doing harm by avoiding those taxes, by doing more environmental damage than you would in your own country?

The argument under analysis is this: dumping, selling a product in a foreign market at a lower price than in the home market is wrong (conclusion) because it damages competition (first premise) and it hurts workers in other countries (second premise). Since both premises refer to consequences of dumping, this is an appeal to consequences.

The speaker counters by suggesting that dumping is right (conclusion) because it helps people (who need the product at an affordable price). This counter-argument also appeals to consequences.

The speaker next considers intents in order to decide whether or not dumping is wrong. We didn't cover intent per se as an approach to ethical issues, but I think at least here, we can see that while examining intent, the speaker is invoking an underlying principle involving a value: it is wrong to manipulate people and avoid laws for your own ends. A consequence is then invoked to qualify that principle: self-advantage is wrong when it causes harm to others.

4c Practice using the hedonistic calculus

2. I can walk, run, bike, take the bus, take the subway, drive a compact car, or drive an SUV to school/work.

It's hard to make a determination about the pleasure or pain involved to the speaker of the various options. If he/she is a runner, for example, the first three options are likely to be pleasurable: pleasure that is of variable intensity (depending on the person and the walk/run/bike), of variable duration, likely certain,

immediate, fecund (I'm thinking of the long-term fitness and health benefits), and of variable purity. However, if the speaker is a couch potato, the last two options are likely to be pleasurable, though of little intensity, less duration, as certain, as immediate, and with little fecundity. The other options are likely to be pleasurable, but only in the long-term (fitness and health benefits) and unless it becomes a habit, these pleasures will not be certain or intense.

As for the consequences of others involved, driving the car and SUV both have negative environmental consequences for others, certain, but not very intense (by themselves), nor very immediate.

4. We could legalize marijuana, perhaps at least for medicinal use (that is, for people undergoing chemotherapy) or we could keep it illegal.

Legalizing marijuana could increase harm due to increased use (assuming marijuana use is harmful) and due to the increase in use of worse drugs (assuming that the use of marijuana leads to the use of worse drugs).

However, that harm would be offset by the increase in safety, presumably because legalization would include regulation. It would also be offset by the benefit to all those chemotherapy patients.

I think intensity, duration, purity, and fecundity would vary considerably, depending on the person. Certainty and propinquity is greater, I think, with reference to all harms and benefits.

5.1a Practice recognizing the is/ought fallacy

2. Give it up! Men are dominant by nature! You'll never change that! So go back to your kitchen and let us run the world.

The speaker seems to be saying just "that's the way it is"; without a "therefore, that's the way it should be," this is *not* the is/ought fallacy.

4. There will always be poverty. That's just part of life.

Again, the speaker seems to be making a claim about the way things are, not about the way things should be on the basis of the way they are—hence, no is/ought fallacy here.

5.2a Practice recognizing the arbitrary line fallacy

2. I don't see why I can't get a driver's license now. I'm not going to suddenly be a better driver a month from now on my sixteenth birthday.

True enough, perhaps, but there is a big difference between being ten and being

sixteen and a month. And yet, the person is not arguing that he/she should get his/her driver's license at ten. This doesn't seem like an instance of the fallacy to me, just a restatement, with a little stretching, of the arbitrariness of the line.

4. We have to draw a line somewhere. We can't keep letting people into our country, no matter how badly off they are in their native country. I sympathize for them, I really do, but there's only so much we can absorb before our own standard of living starts to decline.

Again, I would say this is not an instance of the fallacy. The speaker is indicating a need to draw a line, not concluding that since a given line is arbitrary, there are no significant differences anywhere on the continuum in question.

Thinking critically about what you see

2.

© Getty Images

Looks like the right thing to do—proud father with happy son (presumably—I'm inferring from context, body language, and a partial facial expression)—but don't be swayed by the appeal to emotion or the implied appeal to tradition (it's considered by many to be a rite of passage for a boy to kill an animal, the bigger the better) (passage to what?). Is killing for sport morally acceptable? (I'm assuming it's for sport—though I question the definition-—as it's unlikely to be self-defence.) (Though it could have been, secondarily, for food.)

Is it true that we're the only species that kills for sport? If so, what does that say about us?

Thinking critically about what you hear

How Ethical Are You? Take The Ethics Guy's Quiz on CNN

http://www.youtube.com/watch?v=Lhwhgf01Ozw&feature=related

For starters, the word "ethics" is being used incorrectly; what they actually mean when they refer to the possibility that she "doesn't have ethics" is that she may make a choice about an ethical issue that he doesn't agree with.

His answer to the first question reveals a consequence-based approach: he appeals to the "bad" consequences of options one and three: when the relationship doesn't work out, one or both of you will end up feeling uncomfortable, one of you may have to leave the company, obligations to the client may be hurt, and the door to sexual harassment is opened (though he unfortunately identifies this as just a legal problem, not a moral problem).

He points out the appeal to the majority error ("Just because everyone does it doesn't make it right").

He wisely distinguishes the legal from the ethical.

His answer to the second question reveals a values-based approach: he appeals to honesty and fairness. Interestingly, her answer also appeals to fairness, and he doesn't clearly articulate their difference. He also appeals to consequence when he says the boss has to consider how it will affect everyone.

His answer to the third question again seems mostly consequence-based. I would like to hear why blowing the whistle is too harsh, and I am really disappointed with the "unless your company requires it" because that implies the right thing to do is whatever your company says to do. How does he reconcile that advice with his consideration of consequences and values?

His five basic principles are simplistic, at best, starting points. (This is the case with every workplace code of ethics I've looked at!) How are "harm," "better," "respect," "fair" and "compassionate" defined? What happens when the principles contradict each other—how does one decide which principle trumps? And it's certainly not a complete list.

I also strongly object to his "the right one to do" stance as it presents the matter as one of fact rather than one of potentially well-supported opinion.

Thinking critically about what you read

2. According to a story on CNN.com (October 16, 2005) a Long Island, New York principal cancelled the prom because of "prom-night debauchery" involving a rented party house in the Hamptons (costing $20,000), pre-prom cocktail parties, a liquor-loaded limo, and a late-night "booze cruise" (on a boat chartered by students' parents).

   However, his letter to the parents presented a somewhat different rationale: "It is not primarily the sex/booze/drugs that surround this event, as problematic as they might be; it is rather the flaunting of affluence, assuming exaggerated expenses, a pursuit of vanity for vanity's sake—in a word, financial decadence . . . Each year it gets worse—becomes more exaggerated, more expensive, more emotionally traumatic . . ."

   A student responded by saying, "I don't think it's fair, obviously, that they canceled the prom . . . There are problems with the prom, but I don't think their reasons or the actions they took solved anything." One parent who disagreed with the principal's decision said "This is my fourth child to go through Kellenberg and I don't think they have a right to judge what goes on after the prom . . . They put everybody in the category of drinkers and drug addicts. I don't believe that's the right thing to do."

The principal's argument is that the prom triggers the flaunting of affluence, the flaunting of affluence is bad, perhaps morally wrong (he refers to vanity, decadence, emotional trauma), so the prom should be canceled. His argument would be strengthened if he elaborated on *why* exactly the flaunting of affluence, vanity, decadence, and emotional trauma is objectionable.

The student's response is that canceling the prom isn't fair—but he/she provides no reasons for that opinion, nor a definition of "fair" (though it's a good start to appeal to the value of justice).

The student also says that the prom has problems, but canceling it ("the actions they took") (it's unclear what's being referred to with "their reasons"—how would reasons solve anything?) wouldn't address those problems. More detail is required!! What problems? If we knew that, we could begin to assess whether or not we agreed that canceling the prom didn't address the problems.

The parent says "This is my fourth child to go through Kellenberg and I don't think they have a right to judge what goes on after the prom . . ."—what a non sequitur! What does the second part of that have to do with the first? Furthermore, how is the first part relevant—to anything?

The second part on its own has merit—*does* the school have a right to judge what goes on after the prom? Is what happens outside of school hours ever the school's business? Again, good start—rights must be delineated.

The parent further says "They put everybody in the category of drinkers and drug addicts. I don't believe that's the right thing to do"—but according to the report, it wasn't the alcohol and drugs that were the problem for the principal. So is this a red herring? Or is the reporter not being accurate?

And isn't that the right thing to do? You can't just make a claim then walk away!

4. Of course it's a matter of opinion. But my opinion is better than yours. You say homosexuality undermines the family. I agree, of course, that homosexual sex doesn't result in a child, but how does not making a family *undermine* family? Every time I don't do something you do, do I *undermine* whatever it is you do? No! I just don't do the same thing, I just don't make the same choice.

   Besides, a lot of sex doesn't result in a child—is it all evil sex then? Are you saying that every time you have sex, you are trying to create a child? If so, then either you're going to have sex only a few times in your life or you're going to have to support as many kids as your poor wife can bear. I hear women can go through a dozen pregnancies before they up and die. 'Course then, I suppose it would be your moral obligation to remarry, and have another dozen. What line of work are you in that you can feed and clothe 20 kids? And what about all that emotional quality time a good parent should spend with their kids? Seems to me the more kids you have, the worse parent you'll be, able to provide less and less per child. And if everyone did that as you're suggesting, well, we'd be bulging at the seams, like China or India or something.

   Besides, I'm not so sure family is a good thing. You say it's the foundation of our

society, well no wonder we're still a patriarchy: a man's home is his castle and his wife and kids are his servants.

The speaker does well in the first paragraph to ask exactly how homosexual sex undermines the family.

Counterexamples are presented next, nicely illuminating the absurdity or inconsistency of the claim that it's the non-procreational aspect of homosexual sex that's objectionable. Though there is some loaded language, some emotional manipulation, with "as your poor wife can bear" and "before they up and die."

The last counter could use a good definition of "family"—need it necessarily be one man, one woman, and their children? But it's good to identify and question the underlying assumption that family is a good thing.

6. It has come to our attention that some employees are unhappy about our new employee drug-testing policy. We at ABC Manufacturing would like to offer the following explanation in the hope that it will alleviate any concern the new policy has caused.

   While we respect employees' right to privacy, we believe that employees also have the right not to be harmed on the job, and it is in the interests of employee safety that we will be requesting and testing urine samples for drugs. We are considering the consequences, as any responsible business must do.

   We also respect employees' freedom to conduct their private lives as they see fit, but we would be remiss not to recognize that drugs taken while on personal time may affect employee performance while on company time. While we do have a right to know, our intent is not to uncover illegal activity; we recognize that many prescribed drugs have an equally detrimental effect on performance as illegal drugs and we will be testing for both.

   We also have a right to our employees' very best performance and we are proud of the work our employees have done to date. However, as we also have the right to maximize our profit, we will be requiring not only that employees submit to regular testing for performance-inhibiting drugs, but also, following the lead taken by those in the business of professional sports, wherein athletes—employees—are required to follow a strict diet of nutrients, we will be requiring that employees incorporate the use of performance-enhancing drugs into their work regimen.

   Employees are, of course, free to withhold consent, and we would like to take this opportunity to wish such employees the best in their future employment endeavors.

   Sincerely,
   Management

Nice appeal to consequences, specifically the consequence of injury on the job (though that consequence is implied—it would have been better if it had been articulated outright).

Implied argument that the right to safety trumps the right to privacy—an explanation as to why that is so would strengthen Management's argument.

Also, on what grounds does the employer have a right to know whether their employees are engaging in illegal activity on their own time ("While we do have a right to know, our intent is not to uncover illegal activity")?

Good that they're testing for both illegal and legal drugs—this is in line with their safety argument.

Woh, they also have "a right to our employees' very best performance"? On what grounds? Do they not have, instead, merely a right to the level of performance they pay for? They may not be paying enough for employees' *best* performance!

And they have "the right to maximize profit"? Says who? That is, on what grounds? At others' expense? And, since they're using that right to justify the insistence that employees take performance-enhancing drugs, it seems they think that right trumps employees' right to privacy.

If they don't consent, they'll be fired. So how are they "free" to withhold consent? What exactly does "free" mean when applied to consent? If one has no alternative, or no reasonable (?) or attractive (?) alternative … are they really free to withhold consent?

One might counter that instead of testing for drug use, could they not simply test for performance? Either by monitoring their on-the-job work or by conducting tests of hand—eye coordination, manual dexterity, reaction time, mental dexterity, and so on (whatever is relevant)? Those falling below some defined level, related to safety (and profit?), whether due to drug use or any number of other reasons, would then be fired. Isn't that more to the point?

Although not as bad as some Management memos, there is a certain amount of "officialese" present here ("alleviate any concern," "we would be remiss," and, of course, the "we would like to take this opportunity to wish such employees the best in their future employment endeavors") which should alert readers. (Why are they trying to intimidate or cover up with such language?)

8. Sexual harassment is most commonly understood as a direct proposition from a superior with firing the penalty for refusal. Termination is not, however, the only penalty that is inflicted on women by sexual harassment and their response to it. Others include: negative job evaluations; poor personnel recommendations; denial of overtime; demotions; injurious or undesired transfers; reassignment to less desirable shifts, hours or locations of work; loss of job training; and being subjected to impossible performance standards.

   The situation is just as serious when the harassment comes from co-workers. Peers can exert tremendous power over a woman's ability to remain on the job. They can sabotage work directly and indirectly. Even absent such overt undermining efforts, they can render the work environment so tense and intolerable or even hostile as to force a woman to leave the job.

   Clients and customers are unfortunately also a frequent source of sexual harassment. This is often caused by an explicit requirement by the employer that a woman wear revealing clothing or that she acquiesce in the permissive environment of the workplace. Harassment from this quarter is similar in its impact to that from coworkers.

> The work environment becomes increasingly stressful and degrading, thus interfering with a woman's job performance and often resulting in her departure from the job.
>
> Sexual harassment thus impedes women's equal and employment opportunity in direct and indirect ways. Directly, by conditioning advancement or continued employment on accepting explicit propositions for sexual compliance. Indirectly, through either denying women work opportunities based on the belief that they are sexual objects and therefore not real workers; or actively impeding them in the performance of their jobs through noncooperation, sabotage or the creation of an anti-woman work environment.
>
> (Karen Sauvigne, "Sexual Harassment and the Need for Legal Remedies," from Statement Submitted to Committee on Labor and Human Resources, United States Senate, Hearings on Sexual Discrimination in the Workplace, 97th Congress, 1st Session, April 21, 1981.)

The speaker has wisely opened with a definition of "sexual harassment" which is furthered in the second and third paragraphs.

The first three paragraphs go to some length to describe the consequences of sexual harassment in order to support the conclusion, "Sexual harassment thus impedes women's equal and employment opportunity in direct and indirect ways." The speaker has assumed that women *have* equal opportunity—an assumption I don't find contestable, but, depending on the audience, the speaker might have anticipated objections and argued for that equality rather than just assumed it.

There isn't actually an ethical argument here unless we take the speaker to imply that *because* sexual harassment impedes women's equal and employment opportunity, it is morally wrong. In that case, we definitely need an argument *for* that presumed right to equal and employment opportunity. And perhaps responses to anticipated objections that, for example, other rights (the right of the employer to treat employees at will?) trump that right.

10. A bill in Congress would offer federal grants to encourage researchers to destroy new human embryos from fertility clinics for their stem cells.

    Such killing in the name of "progress" crosses a fundamental moral line. Government has no business forcing taxpayers to subsidize the destruction of innocent human life. President Clinton's National Bioethics Advisory Commission conceded that human embryos "deserve respect as a form of human life." How does it show respect to treat human lives as mere crops for harvesting?

    Those who say these embryos "would be discarded anyway" are wrong. Embryos that couples want discarded are barred from being used in research. In fact, many couples who initially chose to discard their "excess" embryos have later changed their minds and let them survive. But now, government-funded researchers would reach in and destroy these young lives before that can happen.

    This bill would lead to much killing that would not otherwise happen. And since all the "spare" embryos available for research cannot provide enough stem cells to

> treat any major disease, the proposed law would inevitably lead to creating human lives in the laboratory solely to destroy them.
>
> That hope of treating disease is the driving force behind this bill. Yet the "promise" of embryonic stem cell research has been exaggerated. The journal *Science* last week published a warning by Stanford University experts that "it is nearly certain that the clinical benefits of the research are years or maybe decades away." They added: "This is a message that desperate families and patients will not want to hear." But they need to hear it. They were led to support this unethical research by hyped promises of miracle cures.
>
> Stem cells from umbilical-cord blood and adult tissues, posing no moral problem, have advanced quickly toward treating juvenile diabetes, Parkinson's disease, spinal cord injury, sickle-cell anemia, cardiac damage and other conditions. The fixation on destroying embryos has diverted resources away from more promising therapies, and therefore ill serves suffering patients as well as embryonic human beings. Congress should reject this bill and support promising medical research that all Americans can live with.
>
> (Cardinal William H. Keeler, "Killing Embryos not Progress," posted to *USA Today* at: http://www.usatoday.com/news/opinion/editorials/2005-05-23-oppose_x.htm?POE=click-refer, May 23, 2005)

Is the use of "destroy" and "killing" loaded language? Do researchers destroy and kill when they utilize other human tissue for research? Certainly "reach in and destroy these young lives" seems over the top; if the argument is solid, there is no need to appeal to our emotions, to tug on our heart strings, as it were.

It is a little unclear as to what the main claim is—that killing embryos for stem cell research is wrong (which is what paras 4–6 address) or that forcing taxpayers to subsidize that activity is wrong (which is the claim articulated at the outset in para 2—and given no further attention).

Certainly the activity contradicts Clinton's claim that human embryos "deserve respect as a form of human life" but surely there are stronger grounds for that claim than that appeal to authority, an authority without any particular ethical expertise.

The next paragraph is confusing: if "Embryos that couples want discarded are barred from being used in research," then which embryos are being used for research? Certainly not the ones the couples choose to implant. This point needs clarification.

I question the claim that "all the 'spare' embryos available for research cannot provide enough stem cells to treat any major disease"—isn't the use for *research*, not *treatment*? And, therefore, aren't *any number of* stem cells useful? This point needs clarification.

The next claim, "the proposed law would inevitably lead to creating human lives in the laboratory solely to destroy them" is a non sequitur as put—it is given as "since" the spare embryos aren't enough. Wouldn't the proposed law lead to that whether or not the spares were enough? And *would* the proposed law lead to that? Is the speaker suggesting that couples go through IVF specifically to create embryos for research? This point needs development.

If it is true that couples "were led to support this unethical research by hyped promises of miracle cures," then it is relevant to introduce the evidence that the benefits of the research are years away. But if it's not true, then that point is unnecessary—and irrelevant to both the claim that killing embryos for stem cell research is wrong and the claim that forcing taxpayers to subsidize that activity is wrong.

The last paragraph raises an important question—what is the difference in research that uses embryonic stem cells and research that uses cord and adult tissue stem cells? Information about that difference would possibly strengthen the argument.