

How to Reason

A Practical Guide

Richard L. Epstein

Illustrations by Alex Raffi



Advanced Reasoning Forum

How to Reason

A Practical Guide

Preface

Claims

1	Claims	2
2	Definitions	7
3	Subjective Claims	11
4	Prescriptive Claims	15
5	Concealed Claims	17

Arguments

6	Arguments	22
7	What's a Good Argument?	25
8	Evaluating Premises	34
9	Common Mistakes in Evaluating Claims	41
10	Repairing Arguments	46
11	Too Much Emotion	56
12	Reasoning with Prescriptive Claims	59
13	Counterarguments	63

The Form of an Argument

14	Compound Claims	70
15	Valid Forms of Arguments using Conditionals	77
16	General Claims	83

Numbers and Graphs

17	Numbers	92
18	Graphs	101

Reasoning from Experience

19	Analogies	108
20	Generalizing	116
21	Cause and Effect	127

22	Cause in Populations	141
23	Inferential Explanations	149
24	Functional Explanations	160

Making Decisions

25	Evaluating Risk	166
26	Making Decisions	175

Writing Well	177
------------------------	-----

Index	179
-----------------	-----

Preface

When I first began to teach inmates at the local jail, I was told,

“They aren’t bad people. They just made bad decisions.”

This was always said in a sympathetic tone. But it’s the basis on which to blame the prisoners. They had a choice. They didn’t have to end up in jail. Now they must pay. There’s no empathy for their suffering; it’s justice. But it’s wrong. They didn’t make bad decisions. They didn’t make any decisions. Asked in exasperation, “But what were you thinking?” the only truthful answer they can give is “I wasn’t thinking.”

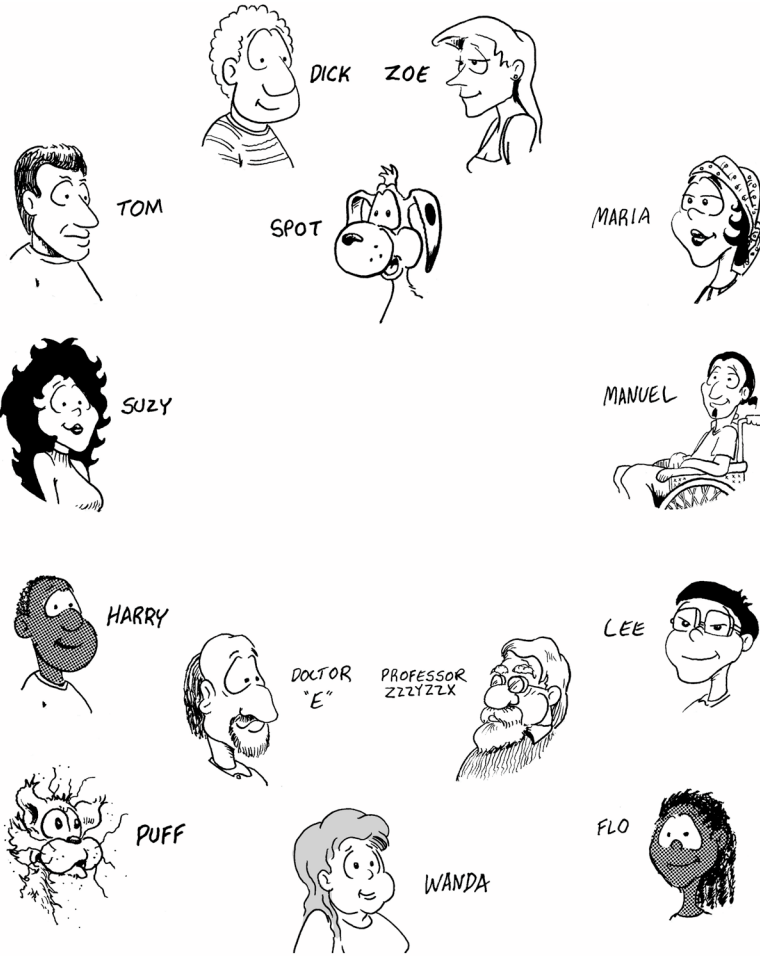
You, me, we’re the same. We’re guided by what we last heard, by our friends’ approval, by impulse—our desires, our fears. Without reflection. Without even stopping to think

Here you’ll learn how to reason and find your way better in life. You’ll learn to see the consequences of what you and others say and do. You’ll learn to see the assumptions that you and others make. You’ll learn how to judge what you should believe.

Reasoning well requires judgment and the ability to imagine possibilities. The practice you need for that can come from using these ideas every day when you’re studying, watching television, browsing the internet, working at your job, or talking to your friends and family. Plus, there are exercises at the end of most chapters to help you.

Because your thinking can be sharpened, you can understand more, you can avoid being duped. And, we can hope, you’ll reason well with those you love and work with and need to convince, and you’ll make better decisions. But whether you will do so depends not just on method, not just on the tools of reasoning, but on your goals, your ends. And that depends on virtue.

Cast of Characters



Claims

To reason well, to search for what is true, we need to know how to recognize what in our speech can be true or false—what we call “claims”—and what is so vague that it’s just nonsense. Definitions can help us make clear what we’re talking about.

Whether a sentence is too vague to be a claim depends in part on whether it’s meant as a description of the world outside us or whether it’s about thoughts, beliefs, or feelings. What counts as too vague depends also on whether a sentence is meant to say what is or what should be.

We’ll see, too, how people can mislead us into believing a claim by a clever choice of words.

1 Claims

Claims A *claim* is a declarative sentence used in such a way that it is either true or false, but not both.

To understand this or any definition we need to see examples of what fits the definition, of what doesn't fit, and what's on the border line. Only then can we begin to use the idea.

EXAMPLES

- *Dogs are mammals.*

This is a claim.

- $2 + 2 = 5$

This is a claim, a false one.

- *Dick is a student.*

This is a claim, even if we don't know if it's true.

- *How can anyone be so dumb to think cats can reason?*

This is not a claim. Questions are not claims.

- *Never use gasoline to clean a hot stove.*

Instructions and commands are not claims.

- *I wish I could get a job.*

Whether this is a claim depends on how it's used. If Maria who's been trying to get a job for three weeks says this to herself, it's not a claim—we don't say that a wish is true or false. But if Dick's parents are berating him for not getting a job, he might say, "It's not that I'm not trying. I wish I could get a job." Since he could be lying, in that context it's a claim.

- *There are more bacteria alive now than there were 50 years ago.*

This is a claim, though there doesn't seem to be any way we could know whether it's true or whether it's false.

We don't have to make a judgment about whether a sentence is true or whether it's false in order to classify it as a claim. We need only judge that it is one or the other. A claim need not be an *assertion*: a sentence put forward as true by someone.

Vague sentences

Often what people say is too vague to take as a claim. There's no single obvious way to understand the words.

EXAMPLES

- *People who are disabled are just as good as people who aren't.*

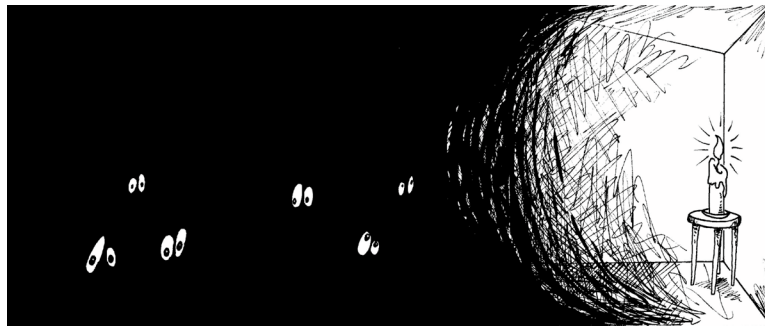
Lots of people take this to be true and important. But what does it mean? A deaf person is not as good as a hearing person at letting people know a smoke alarm is going off. This is too vague for us to agree that it's true or false.

- *Susan Shank, J.D., has joined Zia Trust Inc. as Senior Trust Officer. Shank has 20 years' experience in the financial services industry including 13 years' experience as a trust officer and seven years' experience as a wealth strategist.* — *Albuquerque Journal*

April 29, 2010 and the Zia Trust website

"Wealth strategist" looks very impressive. But when I called and asked Ms. Shank what it meant, she said, "It can have many meanings, whatever the person wants it to mean." This is vagueness used to convince you she's doing something important.

Still, everything we say is somewhat vague. After all, no two people have identical perceptions, and since the way we understand words depends on our experience, we all understand words a little differently. So it isn't whether a sentence is vague but whether it's too vague, given the context, for us to take it as a claim. In a large auditorium lit by a single candle at one end, there's no place where we can say it stops being light and starts being dark. But that doesn't mean there's no difference between light and dark.



Drawing the line fallacy It's bad reasoning to argue that if you can't make the difference precise, then there's no difference.

Throughout this text we'll pick out common mistakes in reasoning and label them as a **fallacies**.

4 How to Reason

EXAMPLES

- *If a suspect who is totally uncooperative is hit once by a policeman, that's not unnecessary force. Nor twice, if he's resisting. Possibly three times. If he's still resisting, shouldn't the policeman have the right to hit him again? It would be dangerous not to allow that. So, you can't say exactly how many times a policeman has to hit a suspect before it's unnecessary force. So the policeman did not use unnecessary force.*

This argument convinced a jury to acquit the policemen who beat up Rodney King in Los Angeles in the 1990s. But it's just an example of the drawing the line fallacy.

- *Tom: My English composition professor showed up late for class today.*
Zoe: What do you mean by late? How do you determine when she showed up? When she walked through the door? When her nose crossed the threshold?

Zoe is asking for more precision than is needed. In ordinary talk, what Tom said is clear enough to be a claim.

- *Zoe: Those psychiatrists can't agree whether Wanda is crazy or not. One says she's clinically obsessive, and the other says she just likes to eat a lot. This psychiatry business is bunk.*

Just because there are borderline cases doesn't mean there isn't a clear difference between people who are really insane and those who aren't.

A sentence is **ambiguous** if it can be understood in two or a very few obviously different ways.

EXAMPLES

- *Zoe saw the waiter with the glasses.*

Did the waiter have drinking glasses or eyeglasses, or did Zoe use eyeglasses? If we don't know which is meant, it's not a claim.

- *There is a reason I haven't talked to Robert [my ex-lover] in seventeen years (beyond the fact that I've been married to a very sexy man whom I've loved for two-thirds of that time).*

—Laura Berman, *Ladies' Home Journal*, June 1996

The rest of the time she just put up with him?

- *Tom: Saying that having a gun in the home is an accident waiting to happen is like saying that people who buy life insurance are waiting to die. We should be allowed to protect ourselves.*

Tom, perhaps without even realizing it, is using two ways to understand "protect": physically protect vs. emotionally or financially protect.

- *Dr. E's dogs eat over 10 pounds of meat every week.*

Is this true or false? It depends on whether it means "Each of

Dr. E's dogs eats over 10 pounds of meat every week" (big dogs!)
or "Dr. E's dogs together eat over 10 pounds of meat every week."
It's an **individual versus group ambiguity**.

We can tolerate some vagueness, but we should never tolerate ambiguity in our reasoning, because then we really don't know what we're talking about.

Now you should know what these mean:

- Claim.
- Too vague to be a claim.
- Drawing the line fallacy.
- Ambiguous sentence.
- Individual vs. group ambiguity.

You should be ready to use these, perhaps uncertainly, but as you see them put to use in more examples and with other ideas, you'll soon be able to make them your own.

Try your hand at these!

Which of the following is a claim?

1. College is really expensive now.
2. Pass the salt, please.
3. Bill Gates founded Apple.
4. Your best friend believes that Bill Gates founded Apple.
5. A friend in need is a friend indeed.
6. The sky is blue.
7. The sky is blue?
8. Whenever Spot barks, Zoe gets mad.
9. The Dodgers aren't going to win a World Series for at least another 10 years.
10. If you don't pay your taxes on time, you'll have to pay more to the government.
11. Suzy: I feel cold today.
12. Public education is not very good in this state.
13. Men are stronger than women.
14. Americans bicycle thousands of miles every year.
15. He gave her cat food.

Answers

1. Not a claim. Too vague.
2. Not a claim. A command.
3. A claim (false).
4. A claim, but not the same as the last one.
5. What the heck does this mean?

6 *How to Reason*

6. A claim.
7. Not a claim. A question.
8. A claim.
9. A claim. We just don't know whether it's true or false and won't know for another 10 years.
10. A claim.
11. A claim. Sure it's vague, but what do you expect when talking about feelings?
12. Not a claim. Too vague.
13. Not a claim,. Too vague. Strong in what way? Can lift more? Can lift more for their body weight? Can survive trauma better?
14. Not a claim. Individual vs. group ambiguity.
15. Not a claim, ambiguous.