SECOND EDITION

Richard L. Epstein

Critical Thinking

ILLUSTRATED BY ALEX RAFFI

Critical Thinking

Second Edition

Richard L. Epstein

Advanced Reasoning Forum

Illustrations by Alex Raffi

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Printed in Canada.
1 2 3 4 5 6 7 04 03 02 01

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Library of Congress Cataloging–in–Publication Data

Epstein, Richard L. , 1947–
Critical thinking / Richard L. Epstein ; illustrations by Alex Raffi . —2nd ed.
p. cm.
Includes indexes.
ISBN 0–534–58059–9 (alk. paper)
1. Critical thinking. 2. Critical thinking—Problems, exercises, etc. I. Title
BF441 .E67 2001 2001026057
160—dc21

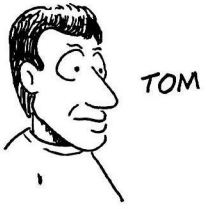
THE SLEEP OF REASON BEGETS MONSTERS

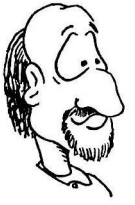
Dedicated to

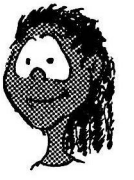
Peter Adams

A great editor, a good friend.
With gratitude for his patience, encouragement,
and good advice that helped shape this book.

Cast of Characters







Preface to the Student

You can read this book on your own. There are plenty of examples. The exercises illustrate the ideas you're supposed to master. With some effort you can get a lot out of this text.

But if you only read this book by yourself, you'll miss the discussion and exchanges in class that make the ideas come alive. Many of the exercises are designed for discussion. That's where your understanding will crystallize, and you'll find that you can begin to use the ideas and methods of critical thinking.

You'll get the most out of discussions if you've worked through the material first. Read the chapter through once, with a pencil in hand. Get an overview. Mark the passages that are unclear. You need to understand what is said—not all the deep implications of the ideas, not all the subtleties, but the basic definitions. You should have a dictionary on your desk.

Once the words make sense and you see the general picture, you need to go back through the chapter paragraph by paragraph, either clarifying each part or marking it so you can ask questions in class. Then you're ready to try the exercises.

You should try all the exercises. Many of them will be easy applications of the material you've read. Others will require more thought. And some won't make sense until you talk about them with your classmates and instructor. When you get stuck, look up the answer in the back.

By the time you get to class, you should be on the verge of mastering the material. Some discussion, some more examples, a few exercises explained, and you've got it.

That pencil in your hand is crucial. Reading shouldn't be a passive activity.

You need to master this material. It's essential if you want to write well. It's essential in making good decisions in your life. If you can think critically you can advance in your work. No matter where you start in your career—flipping hamburgers or behind a desk—when you show your employer that you are not only responsible but can think well, can foresee consequences of what you and others do and say, you will go far. As much as the knowledge of this or that discipline, the ability to reason and communicate will speed you on your way. Those skills are what we hope to teach you here.

Preface to the Instructor

This textbook is designed to be the basis of classroom discussions. I've tried to write it so that lectures won't be necessary. I've minimized the jargon while retaining the ideas. The material is more challenging than in other texts, while, I hope, more accessible.

The chapters build on one another to the end. Rely on your students to read the material—quiz them orally in class, call on them for answers to the exercises, clear up their confusions. The exercises are meant to lead to discussion, encouraging the students to compare ideas. Instead of spending lots of time grading the exercises, you can use the Quickie Exams from the Instructor's Manual. It is possible to do the whole book in one semester that way. I've chosen just the material that is essential for a one-semester course, the fundamentals of reasoning well.

This course should be easy and fun to teach. If you enjoy it, your students will, too.

The order of the material

The Fundamentals (Chapters 1–5) is all one piece. I suggest you go through it in a direct line. It's the heart of the course. Here and throughout there is a lot of emphasis on learning the definitions.

The Structure of Arguments (Chapters 6–8) is important. Chapter 6 on compound claims—an informal version of propositional logic—is probably the hardest for most students. There's a temptation to skip it and leave that material for a formal logic course. But some skills in reasoning with conditionals are essential: If you skip this chapter you'll end up having to explain the valid and invalid forms piecemeal when you deal with longer arguments. It's the same for Chapter 8 on general claims—an informal introduction to quantifiers in reasoning—except that the material seems easier. The second half of Chapter 7 is optional.

Avoiding Bad Arguments (Chapters 9–11) is fun. Slanters and fallacies give the students motive to look around and find examples from their own lives and from what they read and hear. For that reason many instructors like to put this material earlier. But if you do, you can only teach a hodge-podge of fallacies that won't connect and won't be retained. I've introduced the fallacies along with the good arguments they mock (e.g., slippery slope with reasoning in a chain with conditionals, *ad hominem* with a discussion of when it's appropriate to accept an unsupported claim), so that Chapter 11 is a summary and overview. Covering this

material here helps students unify the earlier material and gives them some breathing room after the work in Chapters 6 and 8.

It's only at the end of this section working through the Arguments for Analysis that students will begin to feel comfortable with the ideas from the earliest chapters. You can conclude a course for the quarter system here.

The last part, *Reasoning About Our Experience* (Chapters 12–15), covers specific kinds of arguments: analogies, generalizations, and cause and effect. Chapter 13 on numerical claims could follow directly after Chapter 5.

The standard *Workbook* for *Critical Thinking* contains every exercise from the text in a format that forces students to do the basic steps in argument analysis for each argument they encounter. Grading is much easier from the uniform answer sheets. The Workbook contains additional material, too, including Exercises and Examples from the Law. There is an alternative *Science Workbook* for the text that contains exercises on applying critical thinking to the sciences, along with additional text material on observations and experiments, models, and a chapter on explanations. The Instructor's Manual has suggestions and a syllabus for using the Science Workbook.

It is possible to teach students how to write good arguments. I've included two types of writing exercises. The *Essay Writing Lessons* require the student to write an argument for or against a given issue, where the issue and the method of argument are tied to the material that's just been presented. About midway through the book your students can read Composing Good Arguments, which summarizes the lessons they should learn. The writing exercises take some time to grade, but, as I discuss in the Instructor's Manual, there are shortcuts.

The *Cartoon Writing Lessons* present a situation or a series of actions in a cartoon, and require the student to write the best argument possible for a claim based on that. These lessons do more to teach students reasoning than any other exercise I've used. Students have to distinguish between observation and inference; they have to judge whether a good argument is possible; they have to judge whether the claim is objective or subjective; they have to judge whether a strong argument or a valid argument is called for. These deserve class time for discussion.

Special features of this text

• The material is tied into a single whole, a one-semester course covering the basics. The text is meant to be read and studied from one end to the other.

As an example of how the ideas fit together as one piece, the Principle of Rational Discussion and the Guide to Repairing Arguments (Chapter 4) play a central role in any argument analysis and are used continuously to give shape to the analyses. They serve to organize the fallacies (Chapter 11), so that fallacies are not just a confusing list.

• There are more than 1,200 exercises and hundreds of examples taken from daily life. Dialogues among cartoon characters sound like the reasoning students encounter every day. Examples from newspapers and media are focused on the ideas in the text and on what will interest students. Philosophical issues are raised, but in the context of dialogues that students can imagine hearing their friends say. The text relates theory to the needs of students to reason in their own lives.

In each section the exercises move from simply stating a definition, to relating the various ideas, to applying the concepts. The most important ideas are reinforced with similar exercises in many sections. Worked examples in the text help students see how to begin with their homework.

• Cartoons have been drawn especially for this book to reinforce the ideas, to show relationships of ideas, and to get students to convert nonverbal experience into arguments. The cartoon writing lessons help students grasp the ideas much faster.

• There is a very complete Instructor's Manual. Besides answers and many sample exams, there is a running commentary on teaching methods. There's also an Instructor's Disk that contains all the sample exams ready to modify and print, with other handouts and answers to the exams.

• Definitions and key ideas are boxed. It's easy to find the important material.

• The text is fun to read, yet challenges the very best student.

New to the Second Edition

• Many new cartoons have been added. There are now thirty-eight individual cartoon writing exercises.

• A new *Science Workbook* has been written to accompany the text. As an alternative to the regular Workbook, it is designed to prepare first-year students to apply critical thinking to science. It includes substantial discussions of observation vs. deductions in science, models and analogies, and a new chapter on explanations. Hundreds of exercises on scientific reasoning, including journal articles for analysis, make the Science Workbook suitable for science majors or as an introduction to science for non-science majors.

• Examples and Exercises from the Law have been added to the regular Workbook. For example, Montana's Supreme Court decision regarding the basic law on speeding is presented in the discussion of vagueness; a Federal Trade Commission decision on truth in advertising is linked to the discussion of when to accept an unsupported claim.

• A new Appendix summarizes the steps in evaluating each kind of reasoning discussed in the text: arguments, analogies, generalizations, cause and effect, and cause in populations.

- There is a new Appendix on Aristotelian Logic.
- To supplement the Instructor's Manual, I've written another book for instructors, *Five Ways of Saying "Therefore."* In it I try to give a clear presentation of the foundations of reasoning—all the basics of inference analysis from arguments and proofs, to conditionals, cause and effect, and explanations. *Five Ways of Saying "Therefore"* discusses and expands on all the topics in this text and is also suitable for an upper-division course on critical thinking.
- A new website has been created for instructors to share examples, exams, and suggestions for teaching the text, which can be accessed from Wadsworth's Philosophy website, <http://philosophy.wadsworth.com>.
- The text has been improved for greater clarity, especially on conditionals and cause and effect.
- There are hundreds of new exercises and examples.
- Sixty-five pages of additional examples and exercises that are not in the text or workbooks have been included at the end of the Instructor's Manual.
- Many new sample exams and aids in teaching have been added to the Instructor's Manual.

I've tried to steer between the Scylla of saying nonsense
and the Charybdis of teaching only trivialities. I hope
you find the journey memorable. The water is deep.

Acknowledgments

I am grateful that so many people have been willing to give their time and ideas to help me improve this text. I am indebted to:

- Tom Bittner, Todd Jones, Maurice Finocchiaro, Peter Eggenberger, Susan Kowalski, Peter Hadreas, Fred Kroon, and Benson Mates for discussions on the ideas and early drafts.
- Stephen Epstein for a careful reading of an early version of the first five chapters.
- Vanessa Christopher and Maria Sanders for reading and checking the exercises of the first edition.
- Neta Hoff for many discussions on the nature of the course and the organization of this material, and for comments on the entire text of an earlier draft.
- Ron Leonard and Jeanette Catsoulis, who did classroom testing of the first edition.
- The following reviewers whose comments were crucial in clearing up confusions and shaping the text of the first edition: David Adams, Phyllis Berger, Blanche Radford Curry, Betsy Decyk, Roger Ebertz, George Gale, Kevin Galvin, James W. Garson, Don Levi, Isabel Luengo, Brian J. Rosmaita, Darlene Macomber, and Kenneth Stern.
- The following reviewers of the second edition and the Science Workbook who suggested many useful changes: Sharon Crasnow, Brian Domino, Gary Elkins, James F. Sennett, William Tinsley, James F. Sennett, and Gina Zavota.
- Peter Adams for many good suggestions on how to organize and present the material, and for his help and encouragement throughout.
- Alex Raffi who contributed so much in collaboration on the cartoons.
- Alan Venable, whose editing improved the first edition enormously, and Kara Kindstrom for a careful editing of the second edition.
- Stephen Epstein, Paul Yackel, and Adriana Zuñiga for working through and correcting a draft of the Science Workbook.
- Elizabeth Ray and Mark McNellis for some excellent examples.
- Carolyn Kernberger for editing the Science Workbook.
- Robert Epstein and Christian Fritz for help on the examples from the law.
- Mircea Dumitru and William S. Robinson for comments on the appendix on aristotelian logic.
- And my students, who provided me with many examples, whose quizzical looks made me rewrite, and whose delight in the material motivated me to finish this book.

I am grateful to them all. Much of what is good in this text comes from them. What is bad is mine, all mine.

The FUNDAMENTALS

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