
THE
—
CRITICAL
—
THINKING
—
HANDBOOK

ARTHUR K. BIERMAN
ROBIN N. ASSALI

THE CRITICAL THINKING HANDBOOK

A. K. Bierman

R. N. Assali

San Francisco State University



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Preface for Instructors

“I thought that in an ideal college the students would not be rushed through learning and rewarded for a storehouse of carefully arranged and neatly labelled packets of facts and [would] be given time for reflection and rumination, for development of the sensibilities, for cultivation of critical thinking, and for self-expression.”

Ved Meta, *The New Yorker*, December 19, 1988

“Handbook” in the title of this book signifies that it is based on a principle different from the mass of existing texts designed for courses in “critical thinking.” It is not based on the personal principle that a good text is one that echoes a teacher’s successful course.

We chose the less personal format of a handbook, because “personal best” texts do not often easily adapt to other instructors’ ideas of what they want or are able to teach in their critical thinking courses.

A handbook in any field contains an up-to-date representative presentation of a field’s various components, organized in such a way that the user may consult it for information about any component without presuming expertise in the remaining ones. Thus, this book does not rely on serial order in which understanding later parts presupposes understanding earlier ones, although it may be used in a serial way. Our handbook’s four parts are relatively independent of each other. Yet, its index of concepts (the **boldface** entries in the index) enables the student studying one part to find readily the explanation of a term that has been introduced in a different, independent part.

This handbook is introductory. It covers the basics at the beginning level, but, for those who have well-prepared students or plan a two-semester course, it also offers

the opportunity of reaching a more sophisticated level than most other texts.

This handbook has four parts.

- | | |
|-----|--------------------------|
| I | Deductive reasoning |
| II | Inductive reasoning |
| III | Reasoning about concepts |
| IV | Reasoning about values. |

They cover the most fundamental and least topic-specific aspects of ratiocative activity. Courses in various fields also develop critical thinking skills, but they are adapted to the special needs of their subject matter. Psychology courses in probability will differ from those in economics; physicists and musicians will concentrate on organizing different conceptual systems.

The handbook format has the advantage of curriculum flexibility. An instructor may easily mine his or her own course out of it without having to wrestle with a text tailored to someone else's course plans. For example, an instructor might use those sections of Part I where students learn to identify arguments, distinguish premises from conclusion, assess validity and soundness, and learn to write critical essays analyzing and evaluating complex discourse. Then she might choose those sections in Part III that deal with language systems, fruitful use of dictionaries, relations between concepts, and how to reason about concepts.

Or she may wish to spend the most time on those sections in Part IV that deal with value concepts, the elements in evaluations, and the difference between personal, group, and moral evaluations.

On the other hand, an instructor whose interests lie in scientific reasoning and hypothesis testing could choose to emphasize Parts I and II.

Each part has an abundance of practical exercises, including applications to real-life situations from newspapers, magazines, and books. The consistent aim in our choice of exercises is to enhance students' ability to apply what they've learned to their everyday personal and public lives. The final aim of a critical thinking course is to get students to use rather than merely store information about reasoning strategies.

This handbook has some novelties that distinguish it from traditional critical thinking texts.

Coaching expository writing: Because language proffers arguments as a tool for organizing sentences and thought, it is central to expository writing. This handbook takes students beyond grammar and "writing rules." In a special section of Part I, it offers instructors the next step beyond "English composition," with its token nod to "logic," for coaching writing.

Ample inductive reasoning: Inductive reasoning gets short shrift in most texts, yet for students in the social and physical sciences it would be the most productive part of ratiocination for them to learn. It is also the field many instructors know best. This handbook offers this segment of the academy a choice they are generally denied.

Reasoning about concepts: Part III goes beyond standard texts “advice” to “clarify” and “define your terms.” It explains the logical relations between concepts and how to use them to construct and analyze arguments about concepts.

Many controversies that agitate our era arise from differences in people’s concepts. Can computers/artificial intelligence systems think? Is abortion immoral/murder? Is a spouse’s professional education acquired during marriage property for purposes of divorce settlements? Is a film pornographic or is it erotic? Is alcoholism a disease? Should pornography be protected by the First Amendment or should it be prohibited because it subordinates women?

Given the desirability of rationally coping with conceptual disagreements about answers to such questions, instruction in conceptual reasoning should be a standard component of critical thinking texts. Seat-of-the-pants intuition is not the solution, it’s the problem; dictionaries and “defining your terms” are hopelessly inadequate remedies; and traditional truth-value logic does not have the tools to deal with coherence relations between concepts.

Reasoning about values: Part IV is a thorough, accessible treatment of reasoning about values—personal, group, and moral. It goes far beyond the cursory, superficial treatment it’s usually given in critical thinking texts—if it’s treated at all—even though coaching students to reason about values may have a more rewarding and appreciated payoff than anything else in reasoning courses.

Our approach makes reasoning as independent of its subject matter—values—as logic is of any particular subject matter. It includes Utilitarian, Humean, and Kantian reasoning strategies.

Part IV identifies the elements—facts, consequences, attitudes, maxims, etc.—people consider when making evaluations; it maps and distinguishes the value concepts we use in making personal, group, and moral evaluations; and it explains how we reason differently about personal ends and prudence, about group ends and justice, and about moral ends and duties.

We explain how to critique one’s own and others’ evaluations of ends and deeds. The emphasis is on cooperative rather than adversarial critiques.

You may wish to advise your students to do their critical thinking homework to Mozart. A recent experiment suggests that ten minutes spent listening to a Mozart piano sonata raises the measurable IQ of college students by up to nine points while rock music with simple, repetitive rhythms seems to interfere with abstract reasoning.

The authors assume joint responsibility for all Parts, although Parts I and II were written by Assali and Parts III and IV by Bierman.

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DEDUCTION

The Linguistic Components of Arguments

The words “sentence,” “statement” and “proposition” are technical terms in the study of logic. Their use varies with the philosophical perspectives of different logical and linguistic theories. Since our purpose is to introduce the theory of argument, we do not advocate any one of these perspectives. Instead, we give an account of these terms that is sufficient for describing the elements of arguments.

Sentences, Statements and Propositions

Definition A **sentence** is a string of words, constructed in accordance with the grammatical rules of a language, which can be used for such purposes as asserting, asking or commanding.

The grammatical rules of a language determine when a sentence is properly constructed. They determine the proper construction of declarative, interrogative or imperative sentences, which we use for asserting, asking and commanding.

Definition A **statement** is a sentence used to make a claim or to assert something that is true or false. The words **claim** and **assertion** are often used as synonyms for “statement.”

Unlike questions or commands, statements can be true or false. It makes no sense to claim that questions (Where is the post office?), exclamations (Ouch!), or commands (Please shut the door.) can be true or false. But to make a statement is to use a sentence to assert something that can be true or false: The post office is on Elm; My head hurts; The door is shut; Every action has an opposite and equal reaction. Logicians describe this by saying that statements have **truth value**. A statement’s truth value is either true or false, never both.

Words have meaning. They express concepts. Sentences, which are strings of words, also have meaning. They express propositions.