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# Critical Thinking

The Art of Argument

George W. Rainbolt

Sandra L. Dwyer

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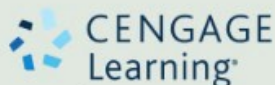
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# Preface

## Why *Critical Thinking: The Art of Argument*?

In 2006, we faced the task of choosing the textbook for Phil 1010, Critical Thinking. At Georgia State University, Phil 1010 is a core curriculum course, taken by more than 3,000 students a year, and taught almost exclusively by graduate students. During our textbook search, we identified two challenges that our textbook must meet. First, we needed a book that would speak to students. Georgia State students take Critical Thinking because the course is required. They are under pressure to quickly acquire the skills needed to complete their courses for graduation. They do best if it is clear to them that the course and the required book are helping prepare them for college classes and the rest of their life. Second, we wanted our Critical Thinking instructors, many of whom are in their first year of teaching, to be able to trust the book to explain the fundamentals clearly and accurately so that they do not have to defend oversimplifications and omissions.

In short, we needed a textbook that was **accessible** (easy for students to read and understand), **relevant** to students' lives (both in and out of the classroom), and **rigorous** (did not oversimplify the material).

None of the existing textbooks that we reviewed met all of these criteria, so we wrote *Critical Thinking: The Art of Argument*. Over the course of six years, the book has been tested with more than 20,000 students and more than 100 instructors. We revised the book four times in light of feedback from students, instructors, and reviewers. Throughout this process, we focused on maintaining the rigor that has made the text a success at Georgia State. For the four semesters prior to the introduction of the new textbook, 26% of students in Critical Thinking earned an unsatisfactory grade (i.e., a D, a W, or an F), but in the four semesters after the introduction of the new book, only 21.2% of students in the course earned an unsatisfactory grade.

Through this process, we refined our own understanding of what we meant by "rigor." The right balance needs to be achieved between two extremes: lengthy, complicated explanations and oversimplified, incomplete

presentations. “Rigorous” does not mean overly complex and incomprehensible. On the other hand, every teacher has had the experience of presenting a simplified definition or explanation to a class of students, only to have a good student raise a hand and ask, “But what about...” or say “But that doesn’t make sense if...” Extensive class testing and several development reviews have helped us craft, test, and clarify explanations and examples to ensure that they are rigorous, relevant, and accessible.

## What You Will Find in *Critical Thinking: The Art of Argument*

*Critical Thinking: The Art of Argument* introduces all major types of arguments. Its focus on accessibility and rigor particularly enhances the presentation of analogical, statistical, and causal arguments. The book’s informal, conversational style and relevant, real-life examples from students’ lives in class, online, with friends, or at home are proven tools that facilitate comprehension without sacrificing accuracy or thoroughness. In addition, extensive sets of exercises emphasize application over memorization and help meet the goal of offering a complete, approachable presentation of the essentials of critical thinking.

*Critical Thinking: The Art of Argument* has unique features to help students learn and help instructors teach.

### Consistent Focus on Arguments

Students learn best when they see patterns. To provide this consistency, we use an innovative two-part test for a good argument (the true premises test and the proper form test) for all types of arguments. Students sometimes struggle to see the overarching commonalities across the range of arguments found in good reasoning. When we started using our book with the consistent use of the two-part test, students were able to see these patterns clearly and this problem was solved.

### Distinctive Semiformal Method for Standardizing Arguments

Students need to focus on argument form in order to grasp the fundamental point that arguments can have a proper formal structure independent of the truth or falsity of their premises. On the other hand, the complexity and abstraction of formal symbolic language intimidates some students. We have adopted an easy-to-understand semiformal method of standardizing arguments. Consider, for example, the case of Affirming the Antecedent (a.k.a. *Modus Ponens*) discussed in Chapter Five. The purely formal approach can be too disconnected from meaning for students to understand:

- (1)  $P \supset Q$
- (2)  $P$
- $\therefore$
- (3)  $Q$

Arguments presented in ordinary language are more comfortable for students:

- (1) If Coke has calories, then it provides energy.
  - (2) Coke has calories.
- Therefore,
- (3) Coke provides energy.

However, when arguments are presented only in ordinary language, students cannot “see” the argument’s logical form. They are often unable to recognize which form the particular example illustrates.

Our semiformal method bridges the student’s need for meaning and the requirement to focus on form by using a combination of letters as variables (such as S1 for one statement and S2 for another statement), and common words instead of symbols, like this:

- (1) If S1, then S2.
  - (2) S1.
- Therefore,
- (3) S2.

Testing of the book revealed that retaining the use of common words for the key parts of arguments (such as “if,” “then,” and “therefore”) allows students to “see” an argument’s logical form more easily. The use of S1 and S2 as variables reminds students that affirming the antecedent expresses a relationship between statements. This semiformal method illustrates the concept of logical form while maintaining a visible connection to ordinary speech. The book avoids both extremes: what can be the confusing novelty of purely symbolic standardizations and the inadequate representation of logical form in arguments expressed in ordinary language.

## Semiformal Method’s Unified Focus on Every Argument Form

To further our goal of showing students the commonalities of all arguments, we use the semiformal method of notation to present the logical form for all of the major types of arguments. As an example, look at the treatment of form in Ad Hominem Fallacy (Chapter Two) and Causal Arguments (Chapter Nine).

### The Form of the Ad Hominem Fallacy

- (1) Person H asserts statement S.
  - (2) There is something objectionable about Person H.
- Therefore,
- (3) Statement S is false.

### The Form of Causal Arguments

- (1) Event E1 is correlated with event E2.
  - (2) E2 is not the cause of E1.
  - (3) There is no event E3 that is the cause of E1 and E2.
  - (4) E1 and E2 are not coincidentally correlated.
- Therefore,
- (5) E1 is a cause of E2.

This unified focus on form combined with the consistent use of the two-part test for a good argument lead students to better comprehend the fact that arguments can have a proper formal structure independent of the truth or falsity of their premises.

### Informal, Conversational Style of Language

This style facilitates comprehension and makes the content accessible to all students, at all levels and from all backgrounds. For example, we use contractions to make the writing style more accessible and we address the students directly in the second person.

### Fallacies in Context

The study of fallacies is useful when students learn to identify fallacious arguments and to avoid resorting to fallacies in their own arguments. When students study fallacies in a single chapter, for example, they tend to focus on memorizing the names of the fallacies rather than really being able to distinguish a fallacious argument from a good one. To better contrast fallacies with properly formed arguments of the same type, *Critical Thinking: The Art of Argument* introduces each fallacy alongside good arguments of the same type, e.g., causal fallacies are discussed in the chapter on causal arguments, propositional fallacies are in the chapter on propositional arguments, etc.

### Exercises Require Application, Not Merely Memorization

Critical thinkers must know how to identify and analyze arguments, not merely define terms. Learning the art of argument requires practice and application—recitation of technical definitions does not contribute to the development of this skill. For this reason, we crafted all of our exercises to avoid mere memorization. We chose exercises like this one:

“Call me Ishmael.” This sentence is

- (a) a statement.
- (b) a question.
- (c) a command.
- (d) an exclamation.

instead of an exercise that requires memorization like this one:

A statement is

- (a) a sentence that makes a claim that can be either true or false.
- (b) a sentence that asks for information.
- (c) a question or command.
- (d) a speech.

Before we started using this book, we found that many students could, for example, spit back the definition of an argument but could not identify one in a passage. In addition to offering invaluable practice, exercises that require application help students overcome this problem.

## Unique Pedagogical Aids

- **Habits of a Critical Thinker.** Critical thinking is a skill and, like all skills, it requires habits of mind in addition to content knowledge. Special boxes throughout the text point to the habits required to be a good critical thinker. Examples include being inquisitive, being attentive to detail, and being bold.
- **Technical Terms.** One barrier to college students' learning is the fact that different disciplines use different words for the same thing or the same word for different things. Technical Terms notes throughout the text explain these differences. For example, one Technical Terms note explains different uses of the word "valid."
- **Guides.** These tools are step-by-step instructions that tell students how to perform important tasks. For example, the end of Chapter One presents a guide for finding and standardizing arguments, and this guide is included at the end of relevant chapters, updated with specific comments keyed to each type of argument.
- **Reference Guide.** Found at the end of the book, the Reference Guide allows students to find material quickly. It contains alphabetical lists of Key Concepts, Guides, Fallacies, and Technical Terms. It also includes all the argument forms discussed in the book.

## New to This Edition

The second edition includes the following changes to the content:

- **Reinforces the effectiveness of the semi-formal method.** The new edition highlights how the semi-formal helps students in other classes, at work, and in their daily lives. A new "Key Form" margin note points to each use of the semiformal method. In addition, every chapter has been revised to include a list of all the forms at the end of the chapter.
- **Covers 40% more fallacies.** Fallacies new to this edition include Appeal to Force, or Fear, Appeal to Pity, Common Cause, Composition, Division, False Precision, and Red Herring.
- **Reworks the discussion of unstated premises.** The treatment of unstated premises has been completely revised in light of reviewer suggestions and testing with students. The revised discussion simplifies the use of unstated premises.
- **Simplifies the format for standardizing arguments.** The new format is clearer and easier to use.
- **Streamlines the discussion of causal arguments.** This revision helps students better see the underlying form of causal arguments.

The second edition also includes the following updates to the presentation:

- **Integrates learning outcomes into the explanations and the exercises.** The learning outcomes, which open each chapter, are visually tied to the text and to exercise sets. This integration enables instructors and students to measure progress. It also helps students review and prepare for exams.

For example, in Chapter One, the first learning outcome, “Identify arguments,” is noted with an “LO1” graphic in the margins. This graphic appears next to the “What Is an Argument” section head and next to the Exercise 1.1 subsets A, B, and C. This helps students see which text and exercises apply to each individual learning outcome.

- **Emphasizes the relevance of the content to students’ lives.** Examples and exercises relate more closely to the life of today’s students, relying on more real-world references from such diverse areas as social media, current events, music, and film.
- **Adds a set of marginal elements to help students identify essential material.**
  - Key Term** boxes highlight important terms presented in the text and include their definition.
  - Key Concept** boxes point to fundamental notions that students need to know to succeed.
  - Key Form** boxes identify argument forms that students need to master. These forms all are in the semiformal format.
  - Key Skill** boxes identify critical thinking skills that students need to acquire.

## Additional Resources to Critical Thinking: The Art of Argument

*Critical Thinking: The Art of Argument* is more than a textbook. It is a complete course-delivery package that includes:

- **MindTap Reader.** This new eBook combines thoughtful navigation ergonomics, advanced student annotation, note-taking, and search tools. Students can use the eBook as their primary text or as a multimedia companion to their printed book. The MindTap Reader eBook is available both on its own and within the Aplia online homework offerings found at [www.cengagebrain.com](http://www.cengagebrain.com).
- **Aplia.** This online solution helps students stay on top of their coursework with regularly scheduled homework assignments. Interactive tools and content further increase engagement and comprehension. The Aplia assignments match the language, style, and structure of the textbook, allowing students to apply what they learn in the text directly to their homework.
- **Instructor Companion Web Site.** The site includes PowerPoint presentations for each chapter; the Answer Key for all of the book’s exercises; PowerPoint presentations for each chapter; and a test bank of multiple-choice questions that can be used for quizzes and tests.





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GWR

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# Critical Thinking

