

JONATHAN C. SMITH

CRITICAL THINKING

PSEUDOSCIENCE AND THE PARANORMAL

SECOND EDITION



WILEY Blackwell

Praise for the first edition:

"An excellent, engaging, and highly readable introduction to the paranormal and to the distinction between science and pseudoscience. Should become a favorite in undergraduate psychology courses."

Scott O. Lilienfeld, Emory University

"A very entertaining yet critical examination of virtually the entire gamut of paranormal claims. I strongly recommend this book to everyone who values the pursuit of truth in all things."

James Alcock, York University

"Smith's work will certainly be of interest to psychologists interested in the consequences of cognitive errors, and it is no doubt the best textbook on the market for a course on the psychology of paranormal belief."

PsycCRITIQUES, April 2010

Comprehensive and engaging, this new edition of a popular textbook introduces the basics of critical thinking using the claims of pseudoscience and the paranormal. It has been extensively revised, enhanced, and streamlined throughout but retains the lively and dynamic style of the first edition (published as *Pseudoscience and Extraordinary Claims of the Paranormal: A Critical Thinker's Toolkit*).

The text guides readers through the critical thinking process by considering different types of support for claims (sources, logic, and scientific observation) and ruling out alternative explanations. It allows readers to practice and apply their new critical thinking skills on claims of extraordinary cures including energy treatments, complementary/alternative medicine and faith healing as well as four paranormal claims of consequence: astrology, spiritualism and the afterlife, parapsychology, and creationism. It provides clear and open-minded discussions of important issues related to the topic, including the paranormal spectrum, belief justification surveys, the placebo effect, and the relationship between religion and critical thinking. The text couples a conversational, nontechnical narrative with a wealth of student-friendly pedagogical tools, including critical thinking questions, and a study guide for each chapter. As fascinating as it is informative, *Critical Thinking* arms readers with innovative tools and techniques to evaluate any extraordinary claims that come their way.

JONATHAN C. SMITH is a Professor of Psychology at Roosevelt University, Founding Director of the Roosevelt University Stress Institute, and Head of the Pseudoscience and Paranormal Laboratory. He has published 23 books and has written numerous articles on critical thinking, advanced relaxation and mindfulness theory and practice, stress management, and spirituality and skepticism. In 1984 he founded the Roosevelt University Stress Institute primarily to combat pseudoscience in the field. He has created classroom and online classes specifically designed to teach critical thinking skills and evaluate extraordinary claims of the paranormal.

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SMITH
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SECOND EDITION

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Critical Thinking

Pseudoscience and the Paranormal

Second Edition

Jonathan C. Smith

Roosevelt University, USA

WILEY Blackwell

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Critical Thinking

Lovingly dedicated to

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Part I

Introduction

1

Critical Thinking: Your Survival Kit

OUTLINE

- 1) Critical Thinking Defined: *Critical thinking is the process of (1) evaluating a claim about objective reality and identifying support, and (2) considering alternative hypotheses.*
 - a) Stating a Claim, Identifying Types of Support
 - i) Appropriate sources
 - ii) Logic and clear language
 - iii) Science
 - b) Alternative Hypotheses: Going Beyond Immediate Personal Experience and Intuition
 - i) Oddities in nature and the world of statistics
 - ii) Perceptual error or trickery
 - iii) Memory error
 - iv) Placebo effect
 - v) Sensory phenomena, hallucinations, and psychiatric conditions
- 2) Bats, Balls, and Mind-Reading: Intuitive vs. Reflective Cognitive Thinking Styles
- 3) The Time and Place for Critical Thinking
- 4) Finding a Safe Practice Arena
- 5) The Four Challenges of the Open-Minded Critical Thinker
 - a) Have the Courage to Pause and Reflect
 - b) Question Fearlessly and Honestly
 - c) Recognize that There May Be More to the World than Meets the Eye
 - d) Admit You Might Be Totally Mistaken

Life can be a Pandora's box of problems and mysteries. This includes all things great and small. Everyday challenges like starting college, dating, and finding work. Threats to society, like war, poverty, disease, and environmental disaster. Yes, even frantic internet exposés of mind-controlling psychics, flesh-eating vampires, and invasions from other universes. In a world full of troubles, every student needs one important survival kit – a toolbox of powerful critical thinking skills.

Consider Alex, a college student who faces a rather complicated dating dilemma. The first few dates went well. What to do next? Please study this carefully:

I think I'm ready for sex. I'm dating Jesse, who is fun to be with. But I doubt Jesse has any interest in romance. I'm not quite sure what I want.

I want to take Jesse to an art museum this weekend. There are two exhibits. I've seen both. Which has the more beautiful art?

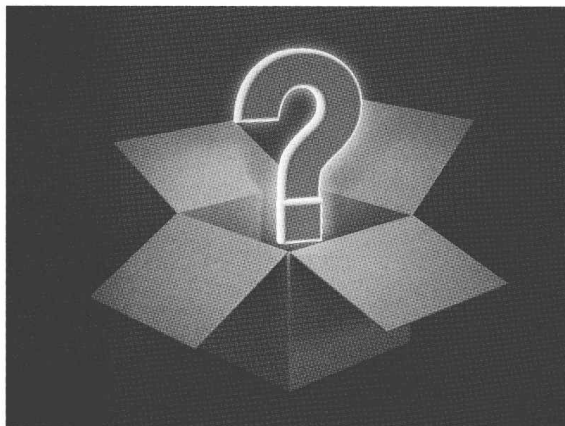


Figure 1.1 What's in your Pandora's Box?
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I'm getting closer to both Jesse and Riley. I've gone out with both. It almost feels like I'm dating two people. Is that OK? Should I drop one and date the other? And what about Jamie, someone interesting I just met?

What does God want me to do? How can I tell the difference between God's will and my wishes?

Julian, my roommate wants me to take a drink he obtained from a store that specializes in alternative medicine. Citing personal experience, Julian says it works and will help me make choices more decisively. Should I try it?

All these questions! Last night I had a dream that I dropped out of school and took a hike on a long mountain path to clear my head. Out of nowhere, a sage on a vintage Harley rumbled to a dramatic stop in front of me. I was struck by what this person was wearing – a glowing ruby eye earring, delicate flowered silk scarf, and steel-studded leather arm band. As the dust settled, my Biker Sage whispered: "Think clearly!" blew me a kiss, and roared away. Should I take this premonition seriously?

Critical Thinking Defined

Fortunately, Alex is taking a course in critical thinking and hopes he can find some answers. He begins with some popular definitions. For example, his very first Google hit (out of 53,100,000 results) is a very popular definition:

Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action. In its exemplary form, it is based on universal intellectual values that transcend subject matter divisions: clarity, accuracy, precision, consistency, relevance, sound evidence, good reasons, depth, breadth, and fairness.

(Scriven & Paul, 2014)

Such definitions are abstract and global and can be applied to a wide range of life's challenges. Think "clearly." Conceptualize "consistently." Evaluate "fairly." You could use these with just about any issue, whether it be one of romance, beauty, creativity, morality, God, science, the deeper mysteries of life, or even sex.

However, the majority of texts on critical thinking take a more focused approach. Put very simply, critical thinking boils down to two very simple questions:

What are the facts? How do we know they're true?

To elaborate:

Critical thinking is the process of (1) evaluating a claim about objective reality and identifying support, and (2) considering alternative hypotheses.

This needs a little unpacking. Let's examine each part of our definition.

Stating a Claim, Identifying Types of Support

First, critical thinking involves stating and testing reality claims against three types of support:

- *Appropriate sources such as other people, groups, or institutions (Chapter 4);*
- *Correct use of the tools of logic and clear language (Chapter 5, Chapter 6); and*
- *Science (Chapter 7).*

Alternative Hypotheses: Going Beyond Immediate Personal Experience and Intuition

Appropriate sources, logic and clear language, and scientific observation prompt us to be open to the possibility that there may be more than meets the eye, more to reality than what is apparent. They may suggest five alternative hypotheses. A mistaken conclusion that a paranormal claim is factual may be the result of:

- *Oddities in nature and the world of statistics (Chapter 8);*
- *Perceptual error or trickery (Chapter 9);*
- *Memory error (Chapter 10);*
- *Placebo effect (Chapter 11);*
- *Sensory phenomena, hallucinations, and psychiatric conditions (Chapter 12).*

This definition provides an outline of our text.

Critical thinking is reality checking. Thinking that masquerades as critical thinking, pretends to identify support, and fails to openly question personal experience and intuition is *pseudoscientific thinking*. A different way of looking at this is to consider the objectives. Is your goal to discover the facts (critical thinking) or protect your preconceived notions (pseudoscientific thinking)? Is your goal to put aside political, social, religious, or personal objectives in pursuit of the truth (critical thinking)? Or is it to "keep controversy alive" by sowing needless doubt and confusion in order to pursue another political, social, religious, or personal agenda (Oreskes & Conway, 2010)?

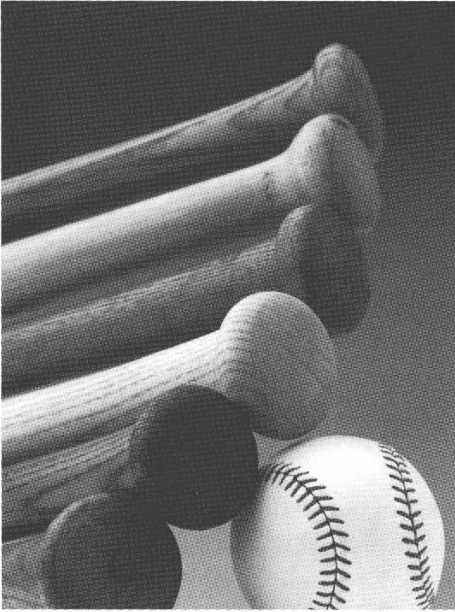


Figure 1.2 Bats and ball. Reproduced with kind permission of Gettyimages.

Bats, Balls, and Mind-Reading: Intuitive vs. Reflective Cognitive Thinking Styles

Stepping back, our definition is based on an important idea: the critical thinker takes pause and recognizes there may be more than *immediate personal experience and intuition*. First impressions and hunches, no how matter how vivid, may be misleading. One important area of cognitive research illustrates this idea. Consider these curious studies on the price of bats and balls.

An **intuitive thinking style** involves automatically going with one's first instinct. A **reflective thinking style** involves questioning such first instincts and considering other possibilities (Frederick, 2005; Stanovich & West, 1998). An intuitive thinker accepts what immediately seems to be true. A reflective thinker takes pause, questions first instincts, and considers other possibilities. As such, reflective thinking allows for counterintuitive conclusions. Importantly, a reflective thinker can suppress an intuitive and spontaneous wrong answer in pursuit of a less obvious answer that may be correct.

The Cognitive Reflection Test (CRT; Frederick, 2005) is a remarkably powerful and brief test that measures reflective and intuitive cognitive thinking styles. It consists of only three questions. Try this frequently cited example: "A bat and a ball cost \$1.10 in total. The bat costs \$1.00 more than the ball. How much does the ball cost?"

Is your answer \$0.10? This is the intuitive answer, but it is incorrect. Reflective thinkers tend to suppress this automatic and intuitive answer because they are suspicious of the first thing that comes to mind. As a result, they are more likely to come up with the right answer, \$0.05. (Ball = \$0.05. Bat = \$1.05. Bat + Ball total cost = \$1.10. The bat costs \$1.00 more than the ball; $\$1.05 - \$0.05 = \$1.00$. Put differently, if the ball costs \$0.10,

and the bat costs a full \$1.00 *more* than that, then the bat *alone* would have to cost \$1.10. So the cost in total would have to be \$1.10 + \$0.10 or \$1.20, not \$1.10.)

Those who think intuitively are more likely to apply an emotionally appealing and immediately tempting paranormal explanation to an apparently paranormal event. In contrast, reflective thinkers are more likely to use critical thinking and take pause and look for a more complete explanation. While exploring a supposedly haunted house at night you may see a shadowy figure in a corner. Your shivering gut tells you it is a ghost. Or you may put aside your intuition and reflect that there might be other explanations, such as drifting cobwebs, window shades blowing in the wind, or simply scurrying mice.

The effects of intuitive and reflective cognitive thinking styles have been demonstrated in research. Bouvet and Bonnefon (2014) had students participate in what was described as an experiment in “telepathic transfer of information from one person to another.” But the experiment was rigged to make it appear that extrasensory perception (ESP) was involved. Each student was paired with a “reader,” someone who could presumably read minds. A student was given a stack of ESP Zener cards, each with a different symbol (star, plus sign, circle, wavy lines, square). He or she would then view one card completely hidden from the reader. The reader would attempt to use mind-reading to identify the viewer’s card. Remarkably, the reader could do this successfully.

Actually the experiment was a trick. Unknown to the student, the reader was a plant working for the experimenter. During each session, the experimenter would secretly signal to the plant what card was being viewed.

Those who scored as intuitive (on the CRT) were more likely to say that ESP explained the odd results. This was true even if they did not particularly believe in ESP before the experiment. Reflective thinkers were more likely to explain the results as a statistical fluke. Both did find the results weird, suggesting that the reflective thinkers indeed could tell the results appeared to be paranormal.

In another experiment, Bouvet and Bonnefon gave students astrological horoscopes described as individualized personal descriptions. In fact, all were identical. Furthermore, all were actually fake horoscopes filled with meaningless generalities that could apply to nearly anyone (e.g., “You have a tendency to be critical of yourself”). Intuitive thinkers on the CRT were more likely to accept the “horoscopes” as personally accurate.

Yes, how people think (or fail to think) about bats and balls can tell us something important about open-minded critical thinking and the paranormal.

The Time and Place for Critical Thinking

There may be a time and place for intuitive and reflective thinking. Some situations may be so complex that reflective analysis is not practical, and an immediate intuitive action is required. Perhaps at times intuition enables us to process a large amount of information unconsciously and quickly. Intuition may be highly desirable in considering questions not particularly amenable to critical analysis, for example, questions of love, beauty, morality, and God. On the other hand, intuitive thinkers may be at greater risk