

The Thinker's Guide to
**ANALYTIC
THINKING**

How to Take Thinking Apart
and What to Look for When You Do

SECOND EDITION

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Why a Guide on Analytic Thinking?

Analysis and evaluation are recognized as crucial skills for all students to master. And for good reason. These skills are required in learning any significant body of content in a non-trivial way. Students are commonly asked to analyze poems, mathematical formulas, biological systems, chapters in textbooks, concepts and ideas, essays, novels, and articles—just to name a few. Yet how many students can explain what analysis requires? How many have a clear conception of how to think it through? Which of our graduates could complete the sentence: “Whenever I am asked to analyze something, I use the following framework: . . .”

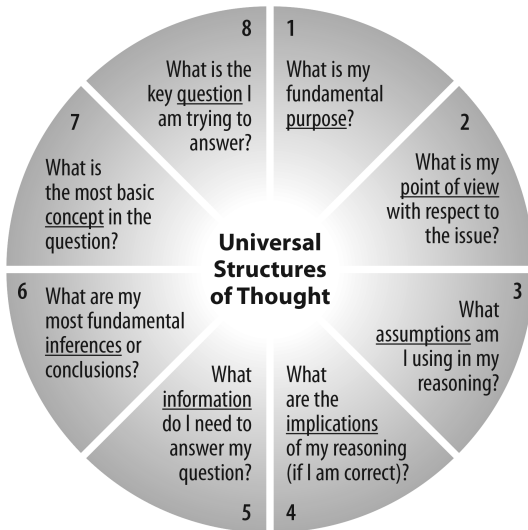
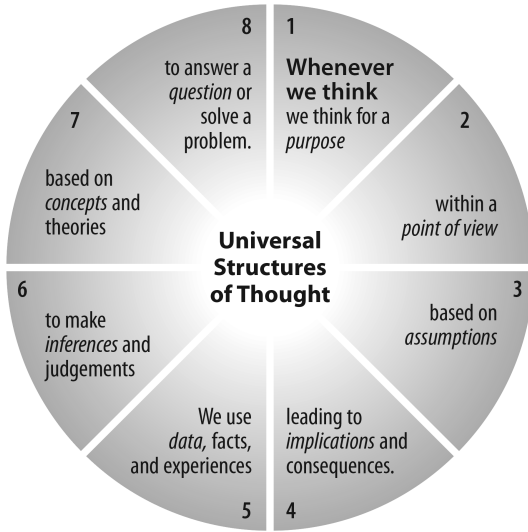
The painful fact is that few students have been taught how to analyze. Hence, when they are asked to analyze something scientific, historical, literary, or mathematical—let alone something ethical, political, or personal—they lack a framework to empower them in the task. They muddle through their assignment with only the vaguest sense of what analysis requires. They have no idea how sound analysis can lead the way to sound evaluation and assessment. Of course, students are not alone. Many adults are similarly confused about analysis and assessment as intellectual processes.

Yet what would we think of an auto mechanic who said, “I’ll do my best to fix your car, but frankly I’ve never understood the parts of the engine,” or of a grammarian who said, “Sorry, but I have always been confused about how to identify the parts of speech.” Clearly, students should not be asked to do analysis if they do not have a clear model, and the requisite foundations, for the doing of it. Similarly, we should not ask students to engage in assessment if they have no standards upon which to base their assessment. Subjective reaction should not be confused with objective evaluation.

To the extent that students internalize this framework through practice, they put themselves in a much better position to begin to think historically (in their history classes), mathematically (in their math classes), scientifically (in their science classes), and therefore more skillfully (in all of their classes). When this model is internalized, students become better students because they acquire a powerful “system-analyzing-system.”

This thinker’s guide is a companion to *The Miniature Guide to Critical Thinking Concepts and Tools*. It supports, and is supported by, all of the other miniature guides in the series. It exemplifies why thinking is best understood and improved when we are able to analyze and assess it **EXPLICITLY**. The intellectual skills it emphasizes are the same skills needed to reason through the decisions and problems inherent in any and every dimension of human life.

To Analyze Thinking We Must Learn to Identify and Question its Elemental Structures



Be aware: When we understand the structures of thought, we ask important questions implied by these structures.

Clarity

Could you elaborate further?
Could you give me an example?
Could you illustrate what you mean?

Accuracy

How could we check on that?
How could we find out if that is true?
How could we verify or test that?

Precision

Could you be more specific?
Could you give me more details?
Could you be more exact?

Relevance

How does that relate to the problem?
How does that bear on the question?
How does that help us with the issue?

Depth

What factors make this a difficult problem?
What are some of the complexities of this question?
What are some of the difficulties we need to deal with?

Breadth

Do we need to look at this from another perspective?
Do we need to consider another point of view?
Do we need to look at this in other ways?

Logic

Does all this make sense together?
Does your first paragraph fit in with your last?
Does what you say follow from the evidence?

Significance

Is this the most important problem to consider?
Is this the central idea to focus on?
Which of these facts are most important?

Fairness

Do I have any vested interest in this issue?
Am I sympathetically representing the viewpoints of others?

Think About *Purpose*

Your purpose is your goal, your objective, what you are trying to accomplish. We also use the term to include functions, motives, and intentions.

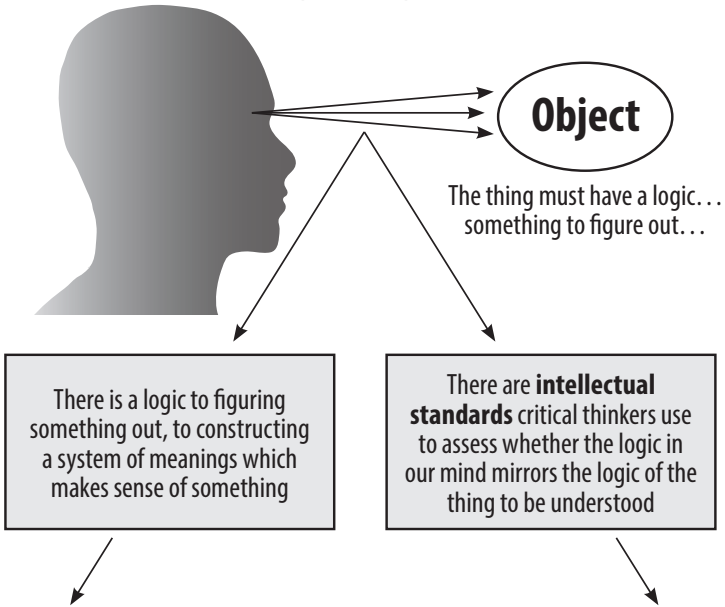
You should be clear about your purpose, and your purpose should be justifiable.

Questions which target purpose:

- What is your, my, their purpose in doing _____?
- What is the objective of this assignment (task, job, experiment, policy, strategy, etc.)?
- Should we question, refine, modify our purpose (goal, objective, etc.)?
- Why did you say...?
- What is your central aim in this line of thought?
- What is the purpose of this meeting (chapter, relationship, action)?
- What is the purpose of education?
- What is the function of this _____
(bodily system, machine, tool, economic policy, plant, ecosystem)?

Be aware: All of what we do is guided by our purposes or goals. We are aware of only some of our goals. When our goals reflect our greed or possessiveness, or such, we deny them as goals. We then describe our actions in such a way as to hide purposes to which we cannot admit.

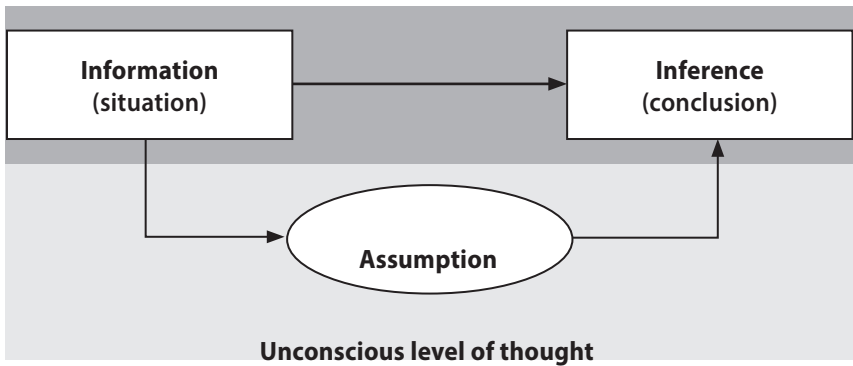
The Figuring Mind



The Elements of Thought reveal the logic:			Intellectual Standards include:
1	An object to be figured out	some data or information, some experience of it (the Empirical Dimension)	
2	Some reason for wanting to figure it out	our Purpose or Goal	
3	Some question or problem we want solved	our Question at Issue	
4	Some initial sense of the object (whatever we take for granted)	our Assumptions	
5	Some ideas by which we are making sense of the object	the Conceptual Dimension	
6	Some drawing of conclusions about the object	our Inferences or interpretations	
7	What follows from our interpretation of the object	the Implications and Consequences	
8	Some viewpoint from which we conceptualize the object	our Point of View or Frame of Reference	

Distinguishing Between Inferences and Assumptions

It is important to distinguish between an inference and an assumption. These two parts of thinking are easily confused with one another. An inference is a step of the mind, by which one concludes that something is true based on something else being true, or appearing true. Inferences can be justified or unjustified. All inferences are based on assumptions, beliefs we take for granted. Justifiable assumptions lead to reasonable inferences. Assumptions often operate at the unconscious level. When we uncover our assumptions, we often find the roots of prejudice, stereotyping, bias, and other forms of irrational thinking.



Consider these examples:

Situation: Your nation is in a conflict with another nation.

Inference: Your nation is justified in this conflict.

Assumption: Your nation is always justified in its conflicts with other nations.

Situation: I got an “A” in my composition class.

Inference: That proves I am a good writer.

Assumption: All students who get an “A” in composition class are good writers.

Be aware: Inferences follow from assumptions. If our assumptions are faulty, our inferences will be as well.