

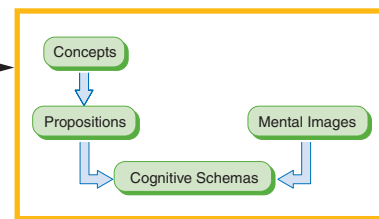
# Thought

## Elements of Cognition

- **Thinking** is the mental manipulation of information.
- A **concept** is a mental category that groups objects, relations, activities, abstractions, or qualities that share certain properties.
- **Prototypical** instances of a concept are more representative than others.
- The words and grammatical rules used to express concepts may influence how we think about them.
- **Propositions** are made up of concepts and express a unitary idea. They may be linked together to form **cognitive schemas**, which serve as mental models of aspects of the world.
- **Mental images** also play a role in thinking.

## How Conscious Is Thought?

- **Subconscious processes** lie outside of awareness but can be brought into consciousness when necessary.
- **Nonconscious processes** remain outside of awareness but are involved in what we call “intuition” and in **implicit learning**.
- **Mindlessness** keeps people from recognizing the need for a change in behavior.



# Reasoning Rationally

## Reasoning

**Reasoning** is purposeful mental activity that involves drawing inferences and conclusions from observations or propositions.

## Informal Reasoning Problems

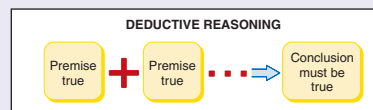
Informal reasoning problems often have no clearly correct solution.

- **Heuristics** are rules of thumb that suggest a course of action without guaranteeing an optimal solution.
- **Dialectical** reasoning is a process of comparing and evaluating opposing points of view.

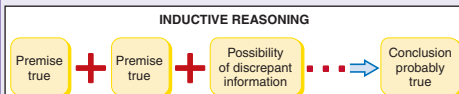
## Formal Reasoning Problems

Formal reasoning problems can often be solved by:

- Applying an **algorithm**, a set of procedures guaranteed to produce each solution
- Using logical processes
- **Deductive reasoning**



- **Inductive reasoning**



## Reflective Judgment

**Reflective judgment** is the ability to evaluate and integrate evidence, consider alternative interpretations, and reach a defensible conclusion.

# Barriers to Reasoning Rationally

Many cognitive biases are obstacles to rational thinking.

1. Exaggerating the probability of improbable events, in part because of the **affect** and **availability heuristics**.
2. Avoidance of loss
3. The **fairness bias**
4. The **hindsight bias**
5. The **confirmation bias**
6. Formation of **mental sets**
7. Avoidance of **cognitive dissonance**: people are motivated to reduce the tension created when two cognitions or a cognition and a behavior conflict.

