

## Mental Imagery as an Epiphenomena of Cognitive Processes

Why are we able to see pictures in our minds? Why don't these images always seem to match reality? Psychologists, neuroscientists, and philosophers all face these questions, and in this lesson we'll look at one theory designed to explain them.

Create an account

### Mental Imagery

Try to imagine an elephant standing on a table. Can you picture this in your head? You probably can. Maybe you have specific experiences that your memory can draw from to help create this image, or maybe you are simply mentally combining the image of an elephant with that of a table. Either way, you can probably see the image of an elephant standing on a table in your head.

This phenomenon is known as **mental imagery**, and it's something that psychologists have spent a lot of time debating. How do our minds form these pictures, and why don't the pictures in our heads ever quite seem to match reality? There are many theories about this, although to the opposing side, each theory sounds about as plausible as an elephant standing on a table. Imagine that.

Practice Quiz Course

1.3K views

### Phenomenon or Epiphenomenon

There are many nuances to the debate about mental imagery, but we're going to boil it down to two main perspectives. The first is that mental imagery is a cognitive phenomenon of its own. In this branch of theories, the mind stores some information in visual format and retrieves it in the same way. This means that you see a picture in your mind because that is the most efficient way for your mind to retrieve and process that information. It's a cognitive process, one that most researchers in this camp believe is directly connected to the same processes as perception. How your mind interprets the world around you is similar to how your mind creates mental images.



How does your mind form a mental image of something?

But that's not what this lesson is about; it's about the opposing view. This model, known as the **computational theory** or **propositional theory**, holds that mental imagery is an **epiphenomenon**, or a secondary effect of a more basic cognitive process. In this theory, your mind comprehends and retrieves information on a more basic level, and what you perceive (the mental image) is just a byproduct of this process. This theory is most associated with the work of Canadian philosopher and cognitive scientist Zenon Pylyshyn. The main foundations of this argument are found in his 1973 article "What the Mind's Eye Tells the Mind's Brain" (published in the *Psychological Bulletin*), and his 1984 book *Computation and Cognition: Toward a Foundation for Cognitive Science*.

## The Propositional Theory

So, how does mental imagery work according to Dr. Pylyshyn and propositional theory? The basis of this theory is a term in logic and philosophy known as the **proposition**, which declares the relationship between things as a truth statement. According to Pylyshyn, our minds store and process information using symbols that represent propositions as computational equations; they do not simply store visual information as images. So, comprehension begins by the basic cognitive process of translating these symbols into a code or formula that the mind can understand. This results in the production of the mental image, which is an epiphenomenon or byproduct of the structuring of a proposition formula.

Formula	Description
$[(p \supset q) \wedge p] \supset q$	if p then q; p; therefore q
$[(p \supset q) \wedge \neg q] \supset \neg p$	if p then q; not q; therefore not p.
$[(p \supset q) \wedge (q \supset r)] \supset (p \supset r)$	if p then q; if q then r; therefore, if p then r
$p \vee q; \neg p; \text{therefore } q$	Either p or q; not p; therefore, q
$p \wedge q; \text{therefore } p$	p and q are true; therefore p is true
$p, q; \text{therefore } p \wedge q$	p and q are true separately; therefore they are true conjointly
$p; \text{therefore, } p \vee q$	p is true; therefore the disjunction (p or q) is true
$[(p \supset q) \wedge (p \supset r)] \supset (p \supset q \wedge r)$	If p then q; and if p then r; therefore if p is true then q and r are true

Propositions are statements that can be reduced to formulas in philosophy



To unlock this lesson you must be a Study.com Member.

**Create your account**