

# Meditations: Cells, Humans, Nations, and the Planet

## Trans-disciplinary Thinking through Analogy

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### 1. Analogy

Analogy is a pair of wings to fly across apparently dissimilar terrains.

The above sentence is itself an example of analogy: what we have here is a metaphor. (For the concepts of ‘simile’ and ‘metaphor’ in literary studies as instances of analogy, see:

<http://examples.yourdictionary.com/examples-of-similes.html>

<http://examples.yourdictionary.com/metaphor-examples-for-kids.html>)

The first line of Robert Burns’ poem, “My love is like a red red rose,” is a classic example of a simile. (Had Burns wanted to put it as a metaphor, he would have said, “My love is a red red rose.”) Obviously a human being is not part of a plant, doesn’t have petals, and is not red. Yet Burns sees a similarity there. He doesn’t say what it is that his love and a red rose share; but we can hazard a guess that it is beauty: *My beloved is as beautiful as a red rose*.

Take the simile, “Time is like money,” and the metaphor, “Time is money.” Both are talking about time, which is being compared to money. What trait do time and money have in common?

When we ask that question, we are entering the domain of trans-disciplinary thinking.

### 2. The Analytic Geometry of Stories

When we talk of ‘shape’, we are talking about something that we can see with our eyes — the circular shape of a DVD, the rectangular shape of a piece of paper, the silhouette of a cat, or the shape of a bamboo leaf.

But when someone says, “shapes of stories”, he is not thinking of something that we can see with our eyes. Watch the five-minute video at:

<https://www.brainpickings.org/2012/11/26/kurt-vonnegut-on-the-shapes-of-stories/>

then read the text, and you’ll see what Vonnegut means. He is thinking of stories against a two-dimensional graph, with the trait of fortune (good and bad) as the vertical axis, and time (beginning and end) as the horizontal axis. He then places stories as lines along these two axes. The video connects two otherwise dissimilar things — STORIES and VISIBLE SHAPES — by identifying what they have in common: an ABSTRACT SHAPE not visible to the biological eye.

The study of shapes comes under geometry. The kind of geometry that Vonnegut appeals to here is analytic geometry, the study of geometric shapes using algebra, where we can ask questions like:

“What is the shape of the equation  $y = \sin x$ ,” or,

“What is the equation for a circle?”

An answer to the second question is available at

<https://www.mathsisfun.com/algebra/circle-equations.html>

For the first question, if your computer has an application called Grapher, click on it. On the prompt on the top left, type the equation:  $y = \sin x$ ; do a RETURN, and voila! you will see the shape of  $y = \sin x$ .

(If you have a Mac, you will find Grapher under Utilities, in Applications.)

Teaser: Pursue the analogy in this sentence:

*The wings of analogy empower us to rise into trans-disciplinary abstractions and fly across disciplinary boundaries.*

### 3. Cells, Humans, Nations, and the Planet

We study cells in Cellular Biology (Cell-Bio), humans in Human Biology (Hum-Bio), nations in Political Science (Poly-Sci), and the planet in Environmental Science (EVS). What do cells, humans, nations, and the planet have in common? What unifies inquiry in Cel-Bio, Hum-Bio, Poly-Sci, and EVS? What makes them distinct? In short, what makes them manifestations of a single unity?

The wings of analogy allow us to move from Hum-Bio to Poly-Sci:

*Analogy 1: A multicellular organism is a nation.*

Let us pursue that thought. If the body of a multicellular organism is a nation,  
what are its citizens?  
what are its national borders?  
what is its government?  
what is its defense system (its army, navy, and air force), its police force, its judiciary?  
what is its history?

Let us try that analogy in the reverse direction:

*Analogy 2: A nation is the body of a multicellular organism.*

If a nation is the body of a multicellular organism,  
does it reproduce? If yes, how?  
how does it develop? and how does it evolve?  
what is its anatomy and its physiology? What are its organs?  
does it have a mind? Does it have consciousness, free will, memory, and emotions?  
does it have different patterns of organization corresponding to prokaryotes (bacteria),  
eukaryotes (amoeba), fungi, plant, vertebrate, mammal ...  
is a nation like a plant or like an animal?

Let us try extending Analogy 2:

<i>Analogy 3: A society (e.g., human society, chimpanzee society ...)</i> <i>A biological colony (e.g., ant colony, bacterial colony)</i> <i>The planet</i>	} <i>is the body of a multicellular organism.</i>
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Okay, so that's the game. To continue, formulate the questions triggered by the analogies in 3.

And here are some more analogies:

*Analogy 5: The brain is a nation.*

*Analogy 6: An organ is an organism.*

*Analogy 7: A cell inside the body of a multicellular organism is an organism.*

What questions do these analogies trigger? What other analogies do they prompt?

You might enjoy watching Douglas Hoffstadter's Stanford talk on "Analogy as the Core of Cognition" at

<https://www.youtube.com/watch?v=n8m7IFQ3njk&t=14s>

*Question:*

Should analogical thinking, including analogical reasoning, be part of the school curriculum?