

What is systems thinking?

5 ANSWERS



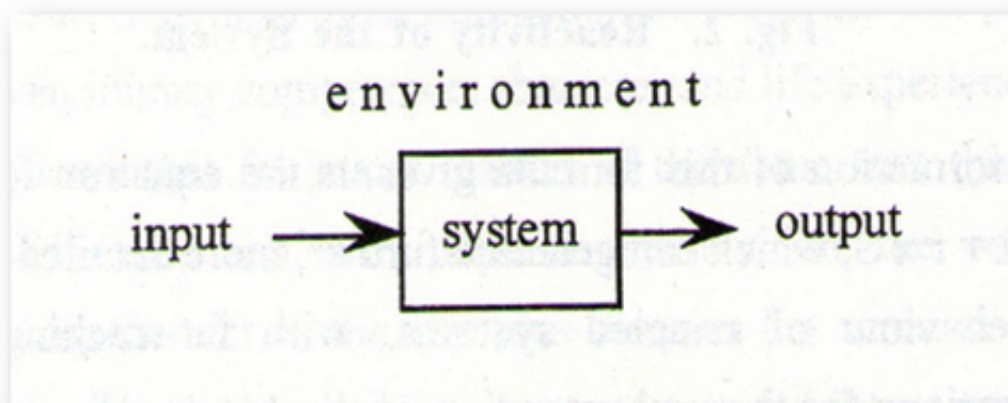
Joe Velikovsky, PhD candidate & Bio-Cultural Evolutionary Systems Theory Scholar

Written 15 Feb 2015

Here's my answer.

Systems thinking is when a person takes a Systems *view* of: everything.

Systems Theory



A system and its environment (Sadowski 1999, p. 19)

Sadowski, P (1999), *Systems Theory as an Approach to the Study of Literature: Origins and Functions of Literature*, E. Mellen Press, Lewiston, N.Y.

One explanation of the systems view is here: [A Taste of Systemics](#) ↗

(shame some of those images are broken...)

Systems Theory has also been called a 'Theory of Everything'.

Two great books on it all:

[StoryAlity #70B - The Systems View of Life: A Unifying Vision \(Capra and Luisi 2014\)](#) ↗

and

[Principles of Systems Science \(Understanding Complex Systems\): 9781493919192: Economics Books @ Amazon.com](#) ↗

It (systems thinking) can be seen as an answer to questions of ontology and epistemology.

(Where: **Ontology** = 'What exists? / What is real?')

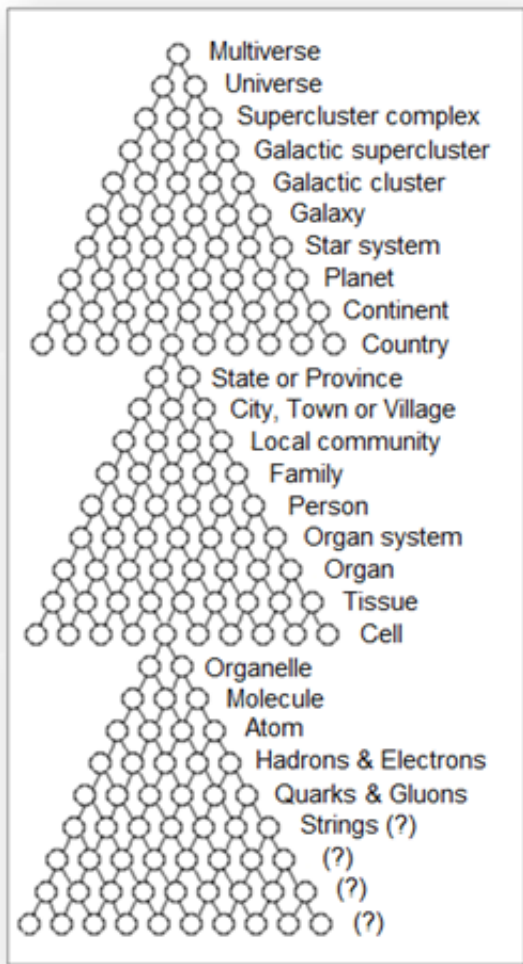
And where **Epistemology** = a theory of knowledge, i.e. 'How do we know, what we know?').

So, it's useful, when we come to ask questions like:

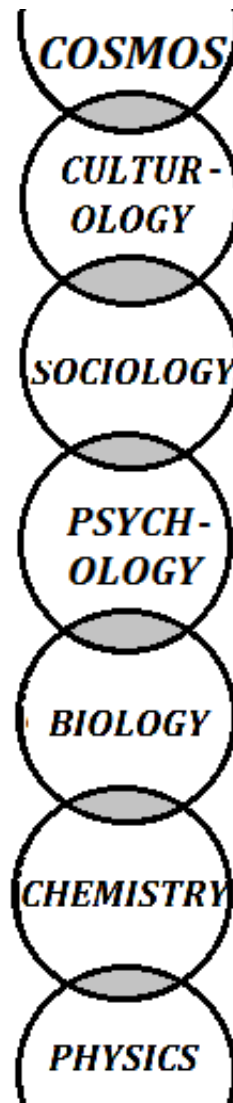
- *How does everything work?*
- *What causes stuff to happen?*
- *If you wanted to change something, what would you have to do?*
- *(etc)*

i.e. In the systems view, the universe is a system.

And it is a system which contains within it, lots of other systems:



Velikovsky 2014



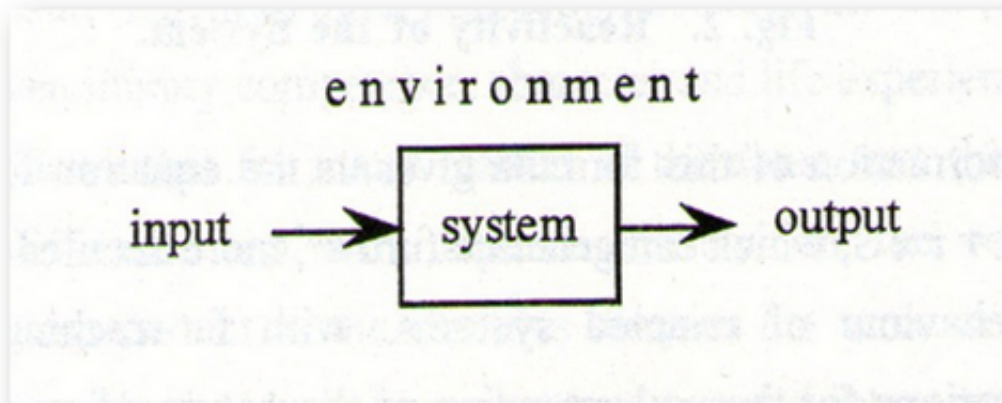
So - How do all these things work?

See: Systems Theory. (eg von Bertalanffy, Laszlo, Capra & Luisi, etc)

Key concepts in systems thinking, are:

(1) a system, (2) its environment, and (3) inputs and outputs.

Systems Theory



A system and its environment (Sadowski 1999, p. 19)

Sadowski, P (1999), *Systems Theory as an Approach to the Study of Literature: Origins and Functions of Literature*, E. Mellen Press, Lewiston, N.Y.

(There are a few other key concepts, as well. See the links below.)

On Systems Theory and Evolution

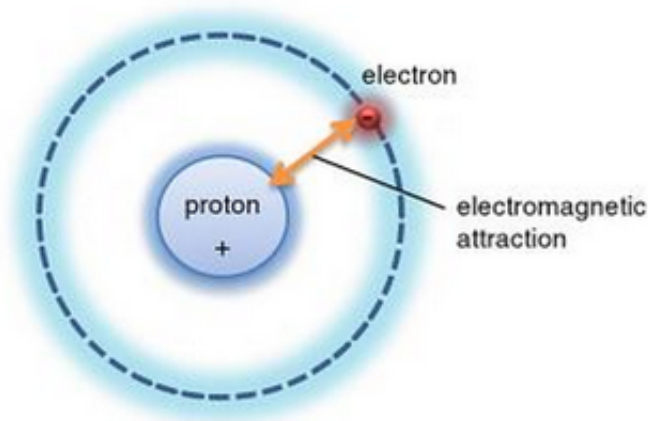
1. [StoryAlity #70 – Key Concepts in Systems Theory, Cybernetics & Evolution](#) ↗
2. [StoryAlity #70B – The Systems View of Life: A Unifying Vision \(Capra & Luisi 2014\)](#) ↗
3. [StoryAlity #70C – Systems Philosophy \(Laszlo 1972\)](#) ↗
4. [StoryAlity #70D – The Evolving Self \(Csikszentmihalyi 1993\)](#) ↗

People are systems. (And we each are composed of: systems. e.g. about 20 or so. e.g. skeletal system, circulatory system, immune system, nervous system, etc)

Also -

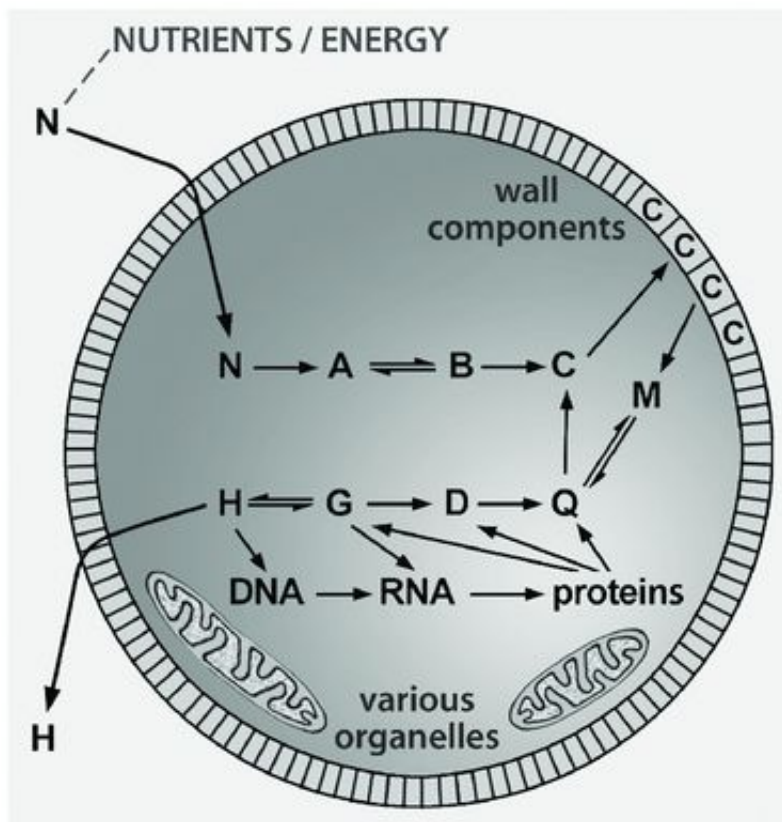
Atoms are systems...

Fig. 3.11 A hydrogen atom is perhaps one of the simplest systems in the cosmos. It is comprised of two components, one proton and one electron connected by the electromagnetic force. The proton carries a positive "charge" while the electron carries a negative one. In electromagnetic force fields, opposite charges attract whereas similarly charged particles repel one another



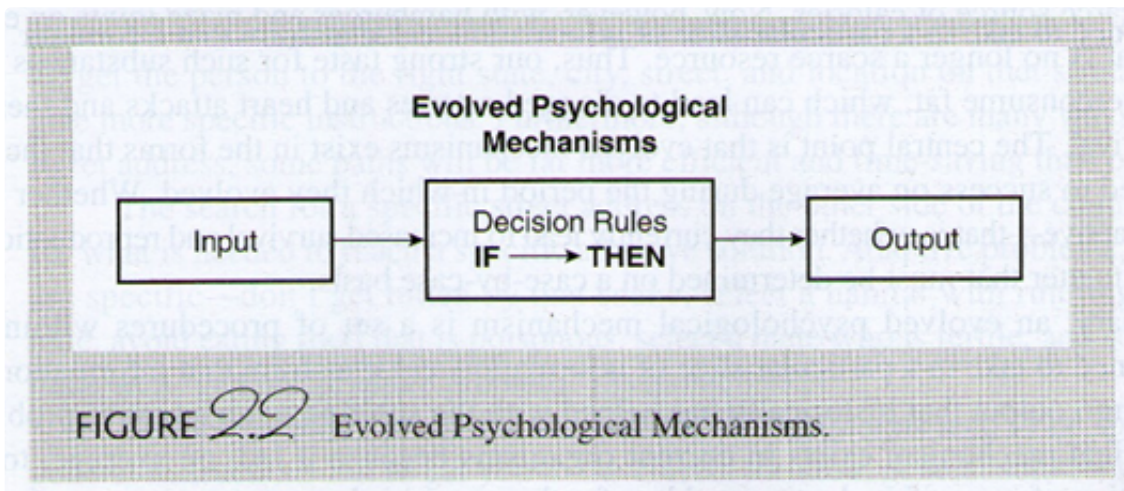
Mobus, GE & Kalton, MC 2014, *Principles of Systems Science*, Springer, New York. (p. 104)

A cell is also a system...



(from: [Capra & Luisi 2014, p. 130](#) ↗)

Our evolved human psychology (and also the psychology of all animals) is a system... (composed of smaller systems)



Evolutionary Psychology: The New Science of the Mind (Buss 2012, p.49)

Then - for culture, there is *the systems model of creativity*, which explains how new knowledge and cultural artifacts happen. (in both Science and the Arts and Language - and in anything in culture, really)

538

Mihaly Csikszentmihalyi

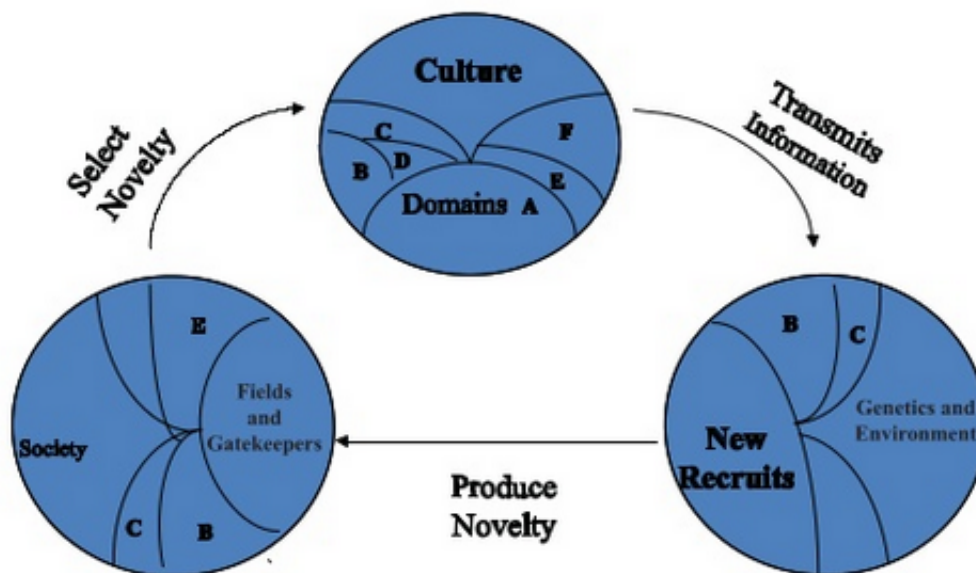


Figure 25.1 A general model of creativity.

General systems model of creativity (in the [Wiley Handbook of Genius](#) [↗], Csikszentmihalyi 2014 – in (Ed:) DK Simonton 2014, p. 538)

And so - everything works, via Systems Theory - and including, the 3 laws of holon/partons (which are 3 laws of physics and 3 laws of evolution.)

[StoryAlity #100 - The Holon-Parton Structure of the Meme - the Unit of Culture \(and Narreme\)](#) [↗]
ie - How does evolution work? See: Systems Theory.

1. [StoryAlity #70C – Systems Philosophy \(Laszlo 1972\)](#) [↗]

So, in this view (the systems view), when thinking about anything, we see how (or - *aim to see, how*) every action maybe has effects on, various multiple related and even component systems (of which - we as people, and families, and organizations, etc) are: a part.

One good thing about it is, in considering (say) Ecosystems, we also think a lot more, about how, pollution (and, say human-caused climate change) are probably: our own fault, and maybe, how we can possibly change (or fix, or solve) that.

i.e. Systems Thinking seems to be: a closer approximation of reality than any other way of thinking about: stuff. i.e. Everything. Or, any other ways of doing stuff. (There may be better ways, but, we just haven't found them yet.)

An 'opposite' (or 'alternate') view to Systems Thinking is - something like 'Cartesian Dualism' (from the renowned old dead French guy, Rene DesCartes) who seemed to mainly think in 'binary opposites' (eg, like: on/off, hot/cold, mind/matter, etc). But that (DesCartes) was a long, long time ago... and Science has had a lot better ideas since then, about how Reality really works. Everything seems to be: systems.

Thus: the systems view. And systems thinking.

Evolutionary Psychology (as a domain of knowledge) also shows why, most people simply tend to think in terms of, those old, simple 'binary opposites' (eg 'yes/no', 'on/off', etc). i.e. It's just: easy, and frankly a bit lazy, as we evolved to do it in that way. To survive and replicate, as a caveman (or: woman) back in the Pleistocene Era - you don't need to really understand 'systems' at all, you just need to: run away from a tiger, or, whatever.

But these days - the systems view of life (and culture - and - everything) is more and more necessary - or, who knows, maybe we'll all kill ourselves, accidentally. eg: Climate-change, pollution, etc!

Systems Thinking (ie systems theory) also has been integrated into Systems Biology, and into many other domains of knowledge - but it's taking a long while to get integrated into the Arts/Humanities/Social Science.

Mainly as, it's just easier to stand back and go: *"Whoa - gee whiz, everything (e.g. society, culture, technology, etc) is all so complex! What a mess! So - maybe, we should all just use Continental Philosophy (ie really old, outdated ideas, like say DesCartes, or Foucault, Derrida, etc) and 'postmodernism', where, you don't ever need to use Science, or any 'tricky stuff' like Systems Science, nor, generate any genuine usable effective knowledge, to actually fix stuff, and to solve problems?"*

But, thankfully - the consilience movement is trying to integrate systems thinking into the Arts/Humanities/Social Science.

[StoryAlity #71 - On Consilience and Creativity...](#) 

But - hey, maybe the 'Postmodernists' are right, and maybe it's not important, if we all live or die, or, whatever? Maybe, if we just ignore the world's problems, they'll all just 'go away by themselves', or, something. ;)

Anyway that's my take on Systems Thinking, Systems Theory, the Systems View, and also, Systems Science, and also, why it's all, probably, important or something.

- Also, as an aside - one important implication is: If the *systems view* is right, then, since Systems Theory explains Evolution (in both biology and culture) then it probably means that, Popper (and DT Campbell's) Evolutionary Epistemology (1974, etc) is also right. i.e. There are lots of epistemologies - but, if the systems view is right - then all epistemology is, in fact, just: Evolutionary Epistemology. And all else is just *shadows and dust*.

`...*SHADOWS AND DUST!!!!*` *

Cheers
JT

* as yelled by, Oliver Reed, in the movie, *Gladiator* (2000)

PS - Both shadows *and* dust can be explained by: Systems Theory. (Seriously.)

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748 Views



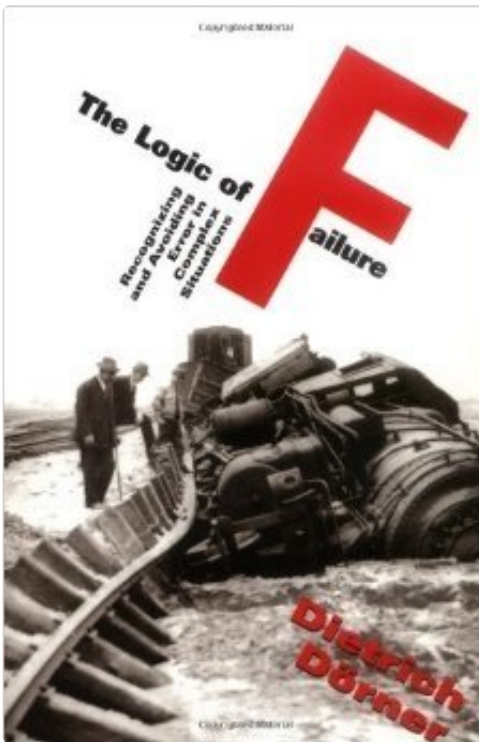
OTHER ANSWERS



Pete Ashly, Observer

Written 27 Feb 2015

Perhaps at some level it's the humbling realization that the complexity of a system reacting to even carefully considered design inputs may well backfire or produce greater negative consequences than benefits. Dorner ran experiments with people put in charge of 'sim city' type simulations and invariably their changes lead to negative impacts. For example, drilling wells leads to a population bubble and crash as limited groundwater supplies get used up. [What are the best examples of the law of unintended consequences in action?](#)



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Nathan Ketsdever, Etymology, Rhetoric, and Words are Fascinating

Written 30 Jan 2016

Here are three ways to think about systems thinking:

- Thinking about the inter-connectedness of life, issues or problems.
- Systems theory looks at context, relationships, and community.
- Its the opposite of reductionism.

168 Views

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Chetan Dhruve, Author of "Why Your Boss is Programmed to be a Dictator" - Systems Thinking meets Bad Bosses

Written 10 Jul 2015

First, I'd define the word "system":

A system is an entity created by the interaction of its constituent parts.
Without the interaction, the system doesn't exist.

In a world governed by reductionist thinking, systems thinking examines interactions rather than individual entities only. From this comes complexity, issues of causality, loops, open-ness, closed-

ness and so on.

93 Views

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Kendrick VanZant, existential consultant

Written 9 Feb 2015

Originally Answered: What are systems thinking?

"Systems thinking" is thinking of the whole and states of the whole. Individual elements of a system are considered in the context of the entire domain of interaction. "System" here could mean any collection of things that interact. It is holistic thinking. It is, for example, seeing how the state of the the affects the state of the trees, and how the states of the trees affect each other and the forest as a whole.

63 Views · Answer requested by Yue Yu

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[I think that everything is pointless because there is already a system in place to keep people in a designated role/class. How can I get over this?](#)

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[If the universe is a transitory system, like smoke, why do we bother to try and hold on? What do we think we are going to get out of resisting change?](#)



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How is one's "systems thinking" ability cognitively measured?

89 Views

What are good examples of systems thinking solutions to large-scale problems?

8,644 Views

When do you think is the right time to do system monitoring? What new technologies do you use?

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How can I learn systems thinking so that I can apply it in my life, and test it quickly?

595 Views

What is the meaning of structured thinking or system thinking and how do we practice it?

652 Views

How is systems thinking applied to organization?

275 Views

What are the uses of systems thinking?

396 Views

Why do people (including my family) think that sitting in front of a system and working for a full day is not hard work at all?

43 Views

Which majors are known for producing exceptional "systems thinking" ability among their graduates?

406 Views

xNTJs: what can you teach us about systems thinking?

2,948 Views

Would whatever we think Hinduism is, have prevailed, had it not got the caste system ? If yes, how ? If no, why?

1,198 Views

I watched a TED video recently. The guest speaker (who is an engineer and entrepreneur) was said to possess "an ability to think at a system level of design"? What does this mean?

2,003 Views



Do you think the current system of education kills 14-17 years of one's life and does not give him anything in return?

6,782 Views

