

MECHANISMS OF THE MIND

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About the author



Parag Jasani is a self-taught, multifaceted innovator with more than four decades of work experience in diverse fields, including the production of machine tools, creation of virtual 3D models and animations and creation and implementation of innovative tools for homogeneous networks. He has many firsts in the field of 3D Animation in India. A college dropout, he is interested in understanding what life is from a very young age.

Using the 'systems thinking' approach, he has developed the Dichotomized Operating System model (DOS model), which is the first ever causal account of mechanisms running in the human brain that form mind.

He lives with his wife Alpa and son Vihaan in Mumbai, India. *Mechanisms of the Mind* is his debut book.

**What is 'Systems Thinking?'*

Thanks to the progress in neuroscience, technology has advanced so much in the recent years that it has helped the mankind learn more about the human brain in the last two decades than in the entire human history.

Despite such progress, very little is known about mechanisms underlying phenomena such as thinking, memory, emotions, attention, consciousness, sleep, dreams, multitasking, etc. and how such mechanisms form the mind.

The core reason for the lack of such fundamental knowledge is that similar to other sciences of the mind and brain, neuroscience does not study the entire brain as one system.

A complex system like the brain is made up of a set of goal oriented elements that interact with each other, while interacting with external systems and their elements. Collectively, they form a unified whole.

Current neuroscience takes a step-by-step, linear approach of breaking down the brain by its structural elements and then studying them. Other than discovering correlational roles of its elements, very little attention is given to how the entire brain works as a single integrated system.

Systems thinking encourages one to take a holistic, causal and coherent approach by thinking in terms of relationships, connectedness and contexts of the elements of a system. Shifting focus from parts to the whole results in a better understanding of the system and its emergent phenomena by understanding functional roles of its elements.

Why did I write this book?

From a very young age, I have had a special interest in understanding what life is, especially fascinated by the phenomenon of consciousness, as that is what makes me feel I am alive.

I have four decades of work experience in diverse fields, including the manufacturing of machine tools, creating 3D models and animation and running homogeneous networks. As all of them deal with systems in one way or the other, my thoughts are ingrained with 'Systems Thinking.'*

Using 1) the systems thinking approach and cues from 2) split-brain experiments conducted by psychobiologist Roger Sperry, 3) empirical evidence, 4) experiments with my own subjective interactions and 5) causal logic that coherently connects them all, I constructed a hypothetical system of functional components that would result to the emergence of consciousness—as I understood it.

When I ran it through my mentor Dr. Kaila, he informed me that it was not only about consciousness, but the entire brain.

At first, I did not understand him, but delving deeper into the subject, I found the reasons for his feedback, which is based on the idea that as consciousness 1) emerges as a result of information processing and 2) is interconnected with several mind phenomena, it cannot be studied by observation and on a standalone basis respectively. One needs to understand its causal role, for which one needs to understand how the brain works as an integrated system. Anything else would be conjecture.

His feedback prompted me to work further and develop a comprehensive functional model of the mind. As the model suggests, most interactions are processed by the brain in a dichotomized manner (i.e., using direct logic and contextual logic), based on which, I called it Dichotomized Operating System model (DOS model).

As I was on the right track, it became easier to build the model with every step. In other words, as I went on building the model, things gradually started to fall into place more easily, like an almost finished game of Scrabble or a nearly solved jigsaw puzzle.

The model has made it possible for me to not only understand fundamental mind phenomena such as thinking, emotions, happiness, desire, music, humor, love, sex, art, multitasking, sleep, dreams, etc., but biggest mysteries such as consciousness, free will, selfhood, subjective experiences, etc. by understanding their underlying mechanisms (many of which are explained in this book).

In particular, the model shows how a simple mechanism in the brain - so simple, it can be easily understood by an 8-year-old - makes it capable of making its own decisions, when no other mechanism in the world can.

It also shows how your actions, personality, behaviour, character, etc. are controlled by something that you cannot hold in your hands, does not weigh anything, has no smell, is invisible and has no physical dimensions.

And the best part is that understanding of all such phenomena is not limited to me. With its workings simplified by the systems thinking approach, it is available to anyone who is prepared to

make the effort.

I believe that a fundamental understanding of mechanisms of the mind among the world population will revolutionize human life by offering unprecedented benefits to mankind. Hence, this book!

Parag Jasani
Mumbai, India

Introduction

In this book, I have introduced the Dichotomized Operating System model (DOS model), a model developed by me that explains how the mind develops and works in the brain. It is the first ever causal account of the human mind.

It is based on the system approach, that is, the idea that human brain is an integrated system comprising of multiple elements interacting with each other and with other external systems & their elements.

According to the model, to fulfill the goals of survival and reproduction, which are the in-process goals of the evolutionary process, the brain makes optimized decisions on how to deal with ongoing interactions based on their dynamically changing environments and conditions.

To process such decisions, the brain needs to encode information about its internal and external systems, their elements and other aspects connected to the ongoing interactions into concepts and store such concepts and their related information in memory, so that the next time same or similar interactions are encountered, they can be decoded and recalled in order to recognize them and understand their nature, purpose, status, significance and other aspects, which is the basis of human knowledge. Knowledge stored in this way helps the brain make optimized decisions. Using language, which is essentially a memory management tool, such stored concepts can also be recalled and processed using thought processes when required.

As environments and conditions keep changing dynamically, it

becomes difficult to decode concepts purely based on sensory information and points of view (which is one of the reasons why machines such as computers are inferior to human beings in recognizing human faces).

To make decisions more accurate, as required by the optimizing aspect of the evolutionary process, the brain processes each decision using one or more instances of 1) direct logic, without considering past interactions and 2) contextual logic (i.e., in the context of data stored from past interactions and future projections) as and when possible and then judges the best decision to execute out of them.

Following are examples of direct and contextual logic processing in decision-making:

- *Direct logic processing* of a person on a diet decides to eat the pastry kept in front of him - *Contextual logic processing* warns him to avoid it for health reasons
- *Direct logic processing* of a person meeting a friend, based on his sweet talk and body language, takes him as a good friend - *Contextual logic processing* warns him that he has cheated him in the past

As direct and contextual logic processing are different methods of processing information, they cannot be simultaneously processed using common resources.

To facilitate the same, the human brain has evolved into having two hemispheres.

In the majority of population, left hemisphere processes direct logic and right hemisphere processes contextual logic.

If you have understood the basic premise of the model explained above, i.e., why interaction processing in the brain is distributed in two sections, you have what it takes to understand the entire model.

The rest of the explanation contains cause-and-effect mechanisms based on such distribution, which simplifies the model to the level that can be understood by anyone prepared to make the effort. No prior knowledge of any subject is required to understand it.

Upon finishing this book, you will be familiar with the following topics, which are explained in a step-by-step manner:

- What is mind? ¹³ Why do you have it? ⁶⁷ How does it develop? ¹¹⁰
- What are thoughts? ³⁶ How do they get converted into language? ⁴²
- What makes you capable of making your own decisions? ¹³⁵
- How do you understand other people's minds? ¹¹⁵
- How do you interact with the world? ²⁷
- Why do you think in language? ⁵⁶
- Why only parts of your thoughts are processed in language? ⁵⁶
- How do you select thoughts to be communicated to others? ⁵⁹
- What is the basis of the inner voice you hear while thinking? ⁵⁵
- What are different kinds of thought processes & how do they work? ³⁶
- What is the reason behind chain of thoughts in a thought process? ⁵⁶
- How do you set your goal by judging and finalizing best decision for execution? ⁵⁸ How are they executed? ⁵⁹
- How do you gain sufficient information to make decisions? ⁵⁴
- What is the role of personality, skills, knowledge, genetic

- predispositions, habits, etc. in making decisions? ⁵⁴
- What is Intelligence? ⁶⁵
 - What is consciousness? ²⁰⁹ What is its nature? ²¹²
 - How, ⁶⁷ why, ²¹¹ when ⁶⁹ and where in the brain does consciousness emerge? ²¹¹
 - What are different types of conscious processes ⁸⁴ and how do they work together? ⁸⁵
 - When do you become conscious of the experience you are having? ⁵¹
 - How do subconscious and unconscious processes work? ⁵⁰
 - How subconscious and unconscious thoughts influence your decisions? ⁴⁷
 - What is the degree of control you have over conscious, subconscious and unconscious interactions? ⁵⁰
 - How is consciousness connected to sensations, perception, thoughts, awareness, attention, pain, etc.? ⁷⁰
 - What is the basis of your initial reflexes, intuitions, habitual behaviours, phobias, etc.? ⁵⁰
 - What is the basis of intuition, gut feelings, eureka moments, etc. that occur during your thought process? ⁵⁷
 - How do you become aware of ⁵¹ and evaluate various aspects of the experience you are having? ⁵²
 - What is perception? ⁷⁷
 - Why are perceptions not always reliable? ⁸
 - What is awareness? ⁹⁰
 - What is the difference between awareness and consciousness? ²²⁸
 - What is attention? How does it work? ⁷⁶
 - Why is attention limited to one task at a time? ¹³⁴
 - How is it possible for you to be aware of many things when you can pay attention to only one thing at a time? ⁵³

- How do you handle multiple tasks simultaneously? ¹³⁴
- How do you empathize? What is the mechanism behind it? ¹¹⁵
- What is 'self'? ³⁰
- How can the self be responsible for its actions? ³⁰
- Where is the self located? ³⁰
- How can something that does not weigh anything, is not visible and has no physical dimensions control your actions, behaviour, personality, etc.? ³¹
- How do you consider people involved with you to make your decisions more effective? ⁵⁷
- How do you process your day-to-day experiences? ²⁸
- How do you perform physical actions? ¹¹⁶
- Why do humans engage in sports and games? ⁶⁵
- Why does the brain have two hemispheres? ¹⁸²
- How does the mechanism of pain work? ⁷⁹
- How does the mechanism of hunger work? ¹⁰¹
- How do newborns get their instincts? ¹¹⁰
- How do growing children learn logic and reasoning? ¹¹⁰
- How do growing children learn from others? ¹¹³
- How and why are male and female brains different? ¹²⁷
- What is the basis of your personality? ¹²²
- What is the reason behind a person's feeling of being (or wanting to become) superior to others? ¹⁰¹
- What is the evolutionary reason behind the institution of marriage? ¹²⁸
- Why is the system of monogamous marriage followed by a majority of population? ¹²⁹
- Why has the evolutionary process awarded pregnancy to the female gender? ¹²⁹
- Why a majority of population is right handed? ³¹
- How do you recognize faces? ³⁸

- What is the basis of non-verbal communication like gestures, facial expressions, etc.? ⁵⁹
- How does the brain process different sensations simultaneously? ⁷¹
- Why some of your interactions are executed automatically? ⁵⁰
- What are various types of inter-generation mechanisms of the mind and how do they work? ⁹⁴
- How and why do different characteristics of the mind pass on to following generations? ⁹⁴
- What offers ever increasing intelligence to the mankind? ⁹⁴
- What are the inter-generation mechanisms behind epigenetic phenomena? ⁹⁷
- What is the basis of mirror neuron system? ¹¹⁷
- What is the basis of the phenomenon of Classical (Pavlovian) Conditioning? ¹¹⁹
- How physical processes in the brain give rise to subjective experiences (a.k.a. the hard problem of consciousness)? ²¹²
- Why are subjective experiences limited to the self? ²¹⁵
- What is the physical basis of 'qualia'? ²¹⁴
- How can minds have 'Intentional States'? ¹⁴⁵
- What is the mechanism underlying phobia? ⁹⁸
- And many more...

Never before so many diverse mind related topics have been explained using the same set of components on a single platform. It is your first chance to comprehensively understand how your mind works - a new way to introspect.

NOTES:

- *Numbers next to each topic point to the page number on which they are explained*
- *Do not seek to understand any topic in isolation. The reason:*

The brain is an integrated system with interdependent functional components. For the same reason, to understand a phenomenon or concept, one may need to understand its interdependent phenomena/concepts. E.g. to understand consciousness, it is important to understand how its interdependent phenomena like awareness, attention, sensations, perceptions, etc. work. Based on the same, you may need to refer to topics on pages other than the referenced page to understand them fully

- *Although mind and brain are a part of it, the topic of my research is the phenomenon of life, which is not as straightforwardly simple as the mechanisms explained in this book*
- *This book contains first of the total three parts of my research on the phenomenon of life and acts as a primer for the other two parts (forthcoming)*
- *To know more, visit www.mechanismsofthemind.com*