

Modelling the Real Universe (Reality)

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Abstract- The paper presents an axiomatic model of Universe. It suggests the minimum elements required to create the Universe and this model forms the necessary and sufficient condition for a Universe to exist. The Universe is perceived and viewed from the outside and its properties based on the model is enumerated. In this model one of the important element is an observer. This model takes care of both physical and metaphysical aspects of reality. It draws a parallel from the model of DataVerse (Gupta, 2020). The process of creation proposed in this paper is through emergence. The emergent structure of the universe is proposed. This model is in line with Indian oldest philosophy of Sankhya Yoga. Some interpretations based on the model are proposed.

Index Terms- Creation, DataVerse, Manifested, Observer, Physicalism, Purusha, Rajas, Sankhya Yoga, Satva, Tamas, Universe, Unmanifested.

I. INTRODUCTION

Real Universe or Reality is the universal set of all the things observed or unobserved, as they actually exist, as opposed to an idealistic or notional idea of them. (Reality - Wikipedia). Universe is one of the most sought after topic amongst the Scientists, Philosophers, Religious or Spiritual Leaders. Various people approach to know Universe from different paths. Scientists seek to know Universe by understanding through Matter and Energy. Spiritualists seek to know Universe by understanding the nature of Being. There is a need to arrive at the model which takes care of physical and the metaphysical aspects of reality. This model proposed is composed of physical attributes which form both mind and matter in alignment with the philosophy of Physicalism (Stoljar) and observer which is external to the Universe.

II. MODEL OF DATAVERSE

This model of Universe is derived from the model of DataVerse (Gupta, 2020) as given by Ashutosh Gupta in his paper Modelling the Universe of Data. Hence it is important to review the model of DataVerse. DataVerse is Universal set of all types of data. Data is the set of codes which represents physical or non-physical aspects of the Universe. The DataVerse is defined as an Interplay of Two elementary Codes acted upon by Motion for the purpose of Agent. The model of Data Verse is represented by the following figure

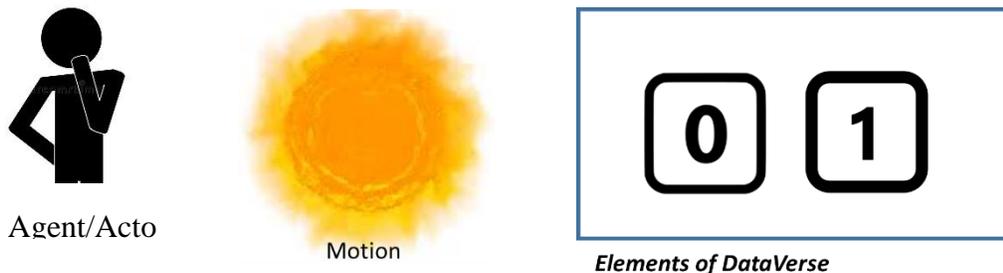


Figure 1 Model of Dataverse

DataVerse is composed of the two Elementary Codes (0,1). These elements acts as perfect source or sink i.e. any amount of symbols can be extracted from them and any amount of data can be absorbed into it. The data can be created or destroyed as per the need of the agent. The Motion element which is external to the DataVerse provides the dynamism and changes the state of the DataVerse. The Agent which is also external to the DataVerse is the Purpose of DataVerse. The entire DataVerse happens for the purpose of the Agent.

Derivation of Model of the Universe from the model of DataVerse

In agreement to the Axiomatic Model of the DataVerse, the model of the Universe is also similar with minor variation.

The following are the differences

1. The two abstract symbols (0,1) in the DataVerse are in this case are two Physical Elementary Attributes (Lightness and Heaviness).
2. The Elementary Attributes of Motion is now the component of the Universe.

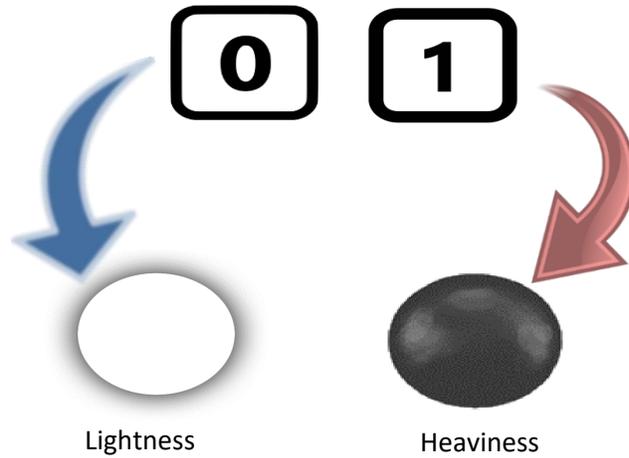
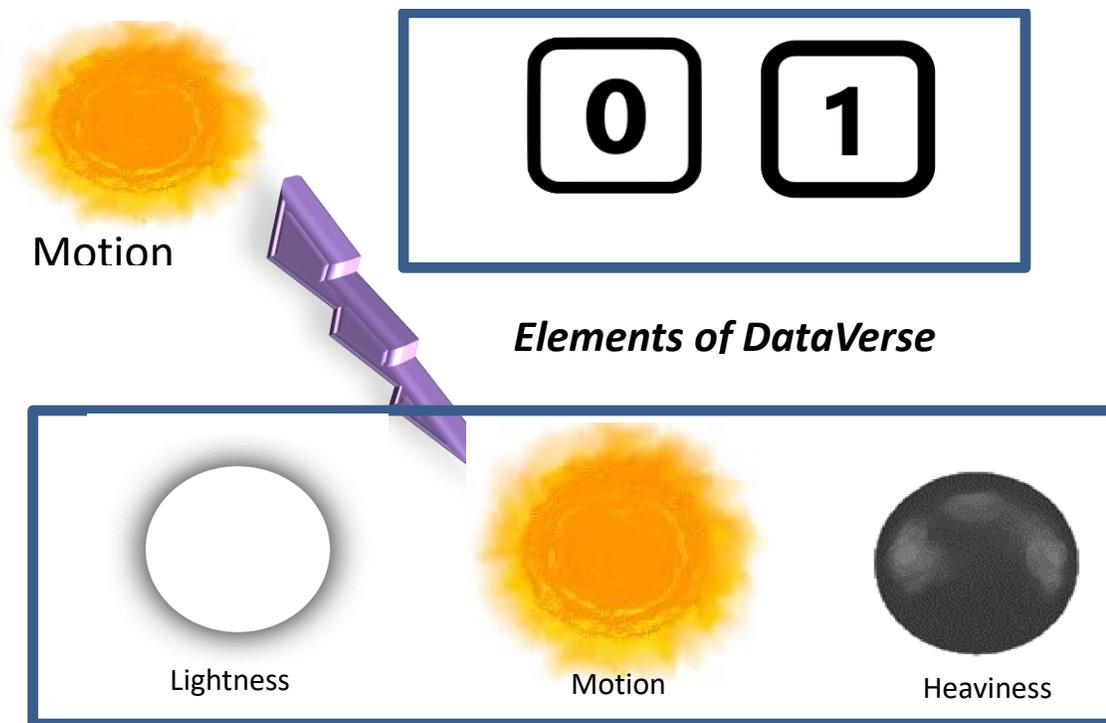


Figure 2 Equivalent of elementary symbols of DataVerse with Physical Attributes of Universe



Elementary Attributes of Universe

Figure 3 Incorporation of Physical Attribute of Motion into Universe

3. The Actor / Agent in the DataVerse is one of the Emergent element of the Universe. The same will be explained later in the section Creative Process of the Universe.

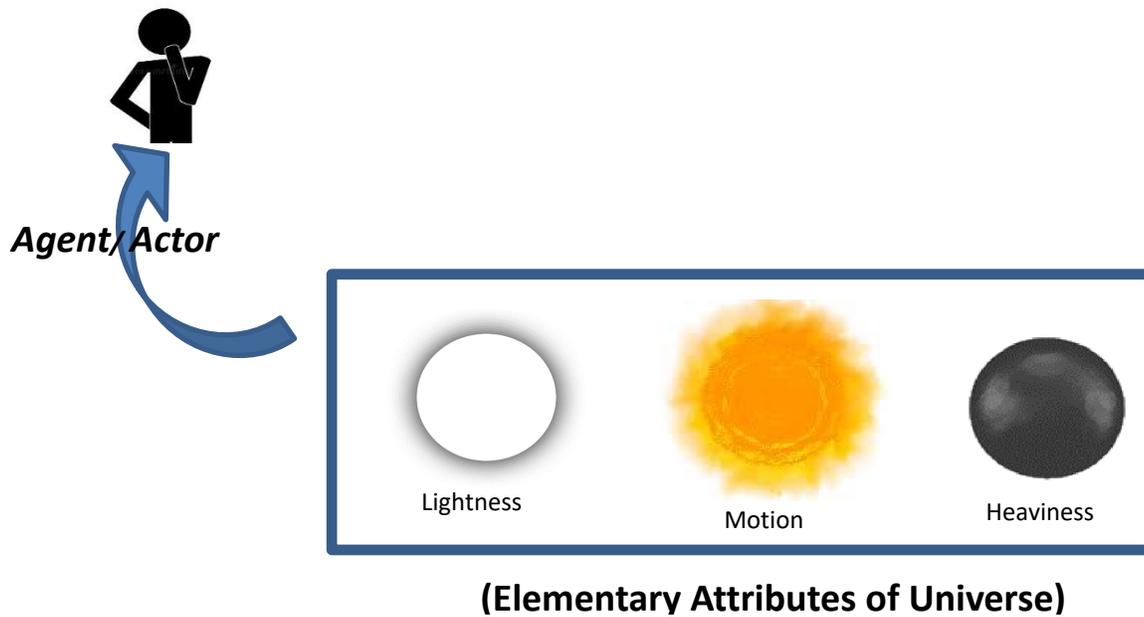


Figure 4 Agent in the DataVerse as Emergent component of Universe

4. A new element The Observer is external to the Universe.

Since the complete concept of Universe is from Samkhya Yoga by Rishi Kapil (Virupakshananda, 1995), every element has been

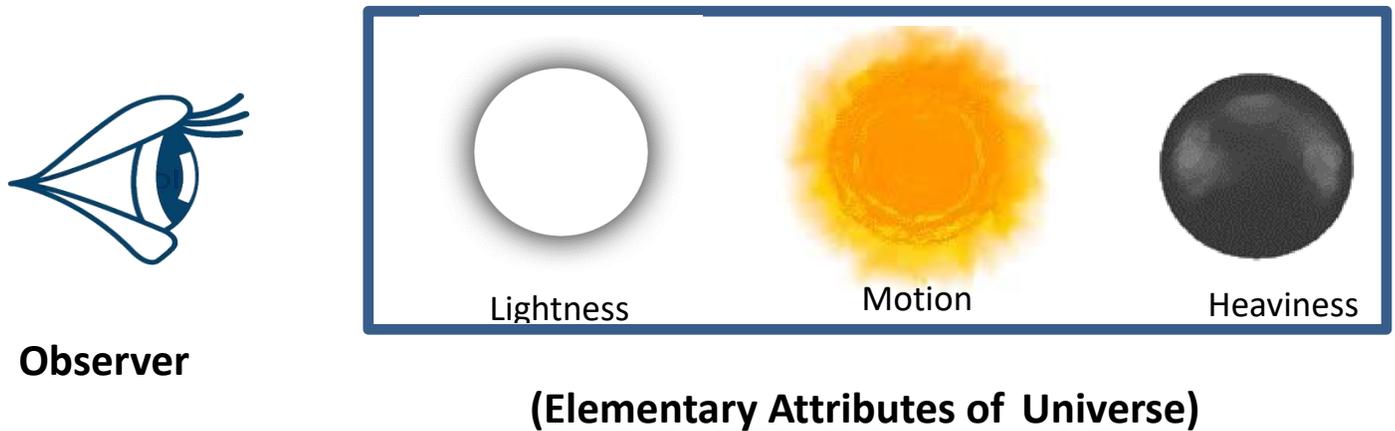


Figure 5 Axiomatic model of Universe

properly defined with the nomenclature in Sanskrit.

1. Purusha – The Observer which observes the universe from outside
2. Satva – The elementary physical attribute of Lightness.
3. Rajas – The elementary physical attribute of Motion.
4. Tamas – The elementary physical attribute of Heaviness/Inertia.
5. Prakriti – The three Physical Attributes together in equilibrium state.

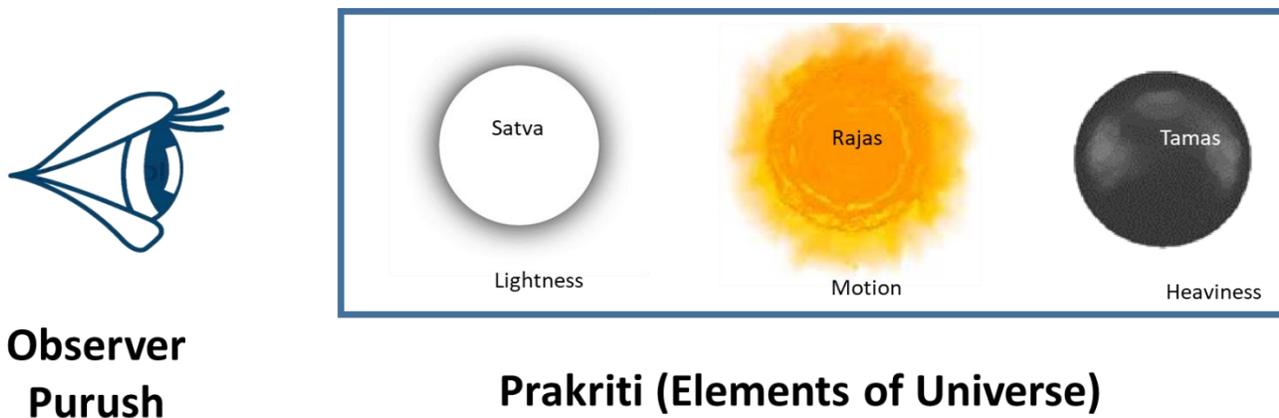


Figure 6: Axiomatic Model of Universe

Thus the model of the Universe and the model of DataVerse together is shown as below.

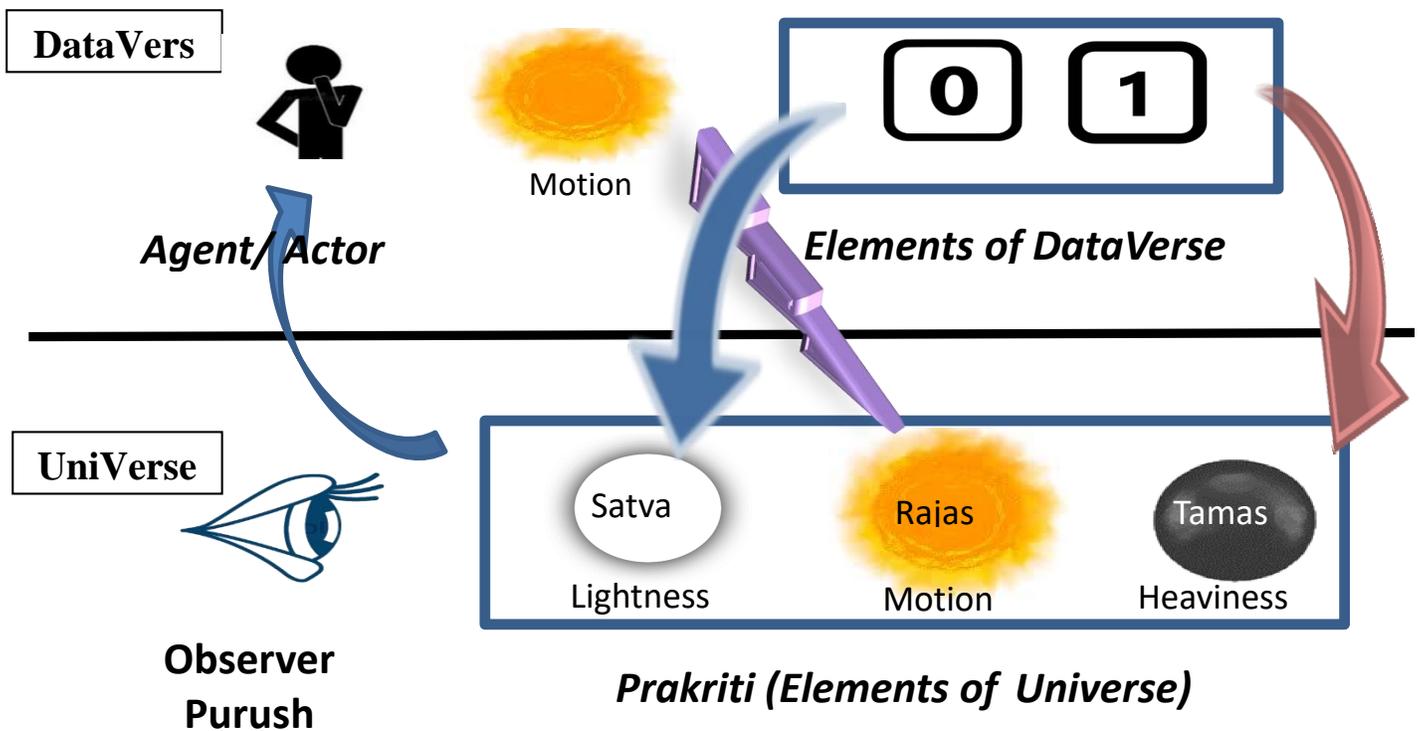


Figure 7 The Axiomatic model of DataVerse compared with Axiomatic model of Universe

Components of the model of Universe

1. Purusha (Observer) (Virupakshananda, 1995)

Purusha is referred as the Observer. As we have seen that Purusha is external to the three elements of Universe but it is one of the essential components for the Universe to exist, the following are the properties of Purusha.

- a. **Propertyless:** It is devoid of three Elementary Attributes.
- b. **Intelligent and Aware:** Purusha is sentient and has the awareness.
- c. **Observer, Witness:** The property of sentience and non-objective indicates the characteristic of Witness.
- d. **Solitary** – Purusha is solitary because of the absence of three Elementary Attributes.
- e. **Neutral** – Since Purusha is beyond three Elementary Attributes, it is not affected them and thus is neutral or indifferent.
- f. **Non Agent** – Since Purusha is only Witness, it does not act in the Universe thus becoming non agent. No action is done by the Purusha.
- g. **Nonprolific** – Purusha is non agent hence it is non prolific.

h. **Changeless and All pervasive:** Purusha is changeless and is present across the Universe as the Observer.

2. The three Elementary Attributes

The three Elementary attributes are basic elements for the entire Universe. These attributes act as Perfect Source or Perfect Sink i.e. the universe of any magnitude can be created from it or dissolved into it. The three attributes are independent and Elementary in Nature. These attributes are mutually dominating, supporting, cooperating and productive. These attributes are described as follows.

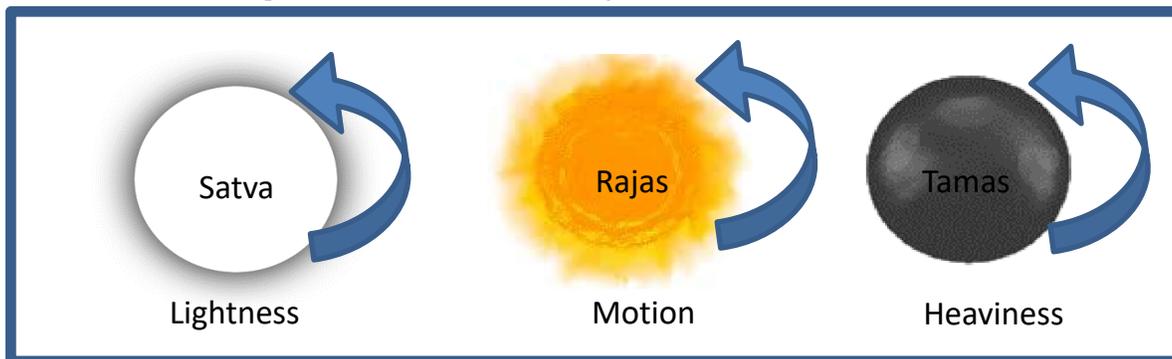
- The **Satva** is lightness as opposed to heaviness. It also represents an enlightened state full of knowledge, light, happiness, detachment, bliss etc. or everything that is good and positive at the psychological level and it represent lightness in physical world.
- The **Rajas** is Motion. It also represents sorrows because of desire at the psychological level and in physical world it represents activity, mobility, dynamism, instability, and is the main factor in generating action. Without its association, the Sattva and Tamas would remain what they are, without activity in them. As Rajas is Elementary Attribute of the Universe, nothing in this universe is stationary and everything is always in motion and changes state. Thus Change is an eternal truth of the Universe.
- The **Tamas** is heavy/Inertia. It also represents darkness, inertia, ignorance, delusion, attachment at the psychological level and in physical world it represents the heaviness opposing Satva and inertia opposing Rajas. Its tendency is to maintain status quo. It counters both Satva and Rajas.

3. The Unmanifested Universe (Prakriti)

Prakriti is the collection of three Elementary Attributes in its equilibrium state. These Attributes do not interact with each other. These Elementary Attributes are perfect **Source and Sink**.

The properties of Prakriti (The Unmanifested Universe) is given as

- Made up of three Attributes – Satva, Rajas and Tamas.



Prakriti (Equilibrium state of Three elementary Attributes)

- Non Intelligent – As it is devoid of Intelligence (Observer)
- Objective – Object for the observer to be observed
- Prolific

Figure 8 Prakriti - The three Elementary attributes in equilibrium state

- Non Perceivable – As there is no interaction between the attributes it cannot be perceived.

4. The Manifested Universe / Real Universe

When Rajas (motion) becomes active in presence of Purusha, the interplay of Sattva and Tamas (light and Heavy) starts resulting in the creation and manifestation. It goes through levels of emergence and evolution in the process or creation of the Universe.

Properties of the Manifested Universe

- Composition:** It is composed of three Elementary attributes (Satva, Rajas, Tamas) in its interplay state.
- Dynamic:** Since the motion is one of the component of the Universe, it is dynamic in nature.
- Continuous:** Since all the Elementary attributes are Infinite and continuous, the entire Universe is continuous. Any subset of the Universe is also infinite.
- It can be perceived and has the cause.
- It is probabilistic in nature.
- It is non intelligent, inert and dependent on Elementary Attributes.
- It is non eternal, non-pervasive, mobile or active.

Thus as given in Figure 7, the Real Universe is composed of the three Elementary Attributes. The Motion element which is a component provides the dynamism. The Observer which is external to the Universe is the Purpose of Universe. The entire

Universe happens for the purpose of the Observer. Thus the Universe can be defined as Dynamic interplay of Satva and Tamas for the purpose of the Observer.

Necessary and Sufficient conditions for the Universe to exist

The above Axiomatic model of the Universe is both necessary and sufficient for the Creation of the Universe. The Universe will cease to exist in the absence of any one of the component

1. In the absence of Rajas Attribute, there will be no dynamism and both Attributes Sattva and Tamas will remain as it is with no interplay. No change, no evolution, no creation, no destruction will happen.
2. In the absence of either Sattva or Tamas, creation cannot happen in the absence of contrasting attributes. Sattva with Rajas will remain only Sattva while Tamas with Rajas will remain Tamas.
3. In the absence of Purusha or Observer the entire Universe will be uniform mixture without any formation.

Hence the three attributes along with Purusha are necessary for the creation of the Universe.

As we will see that in the creation process, these four elements i.e. Purusha and three attributes are the sufficient condition for the Universe.

Thus the model with its four elements is both necessary and sufficient for the existence of the entire Universe.

III. PROCESS OF CREATION AND THE STRUCTURE OF THE UNIVERSE

The Manifested Universe:

When Purusha observes the Prakriti, the rajas gets activated and creates the interaction between Satva and Tamas. This interplay of three attributes in presence of Purusha is the process of the creation of Universe. The Universe is created in the evolutionary elements from simple to the most complex elements. The first evolute is dominated by Satva guna and then gradually dominated by Rajas and Tamas guna. The last element is the grossest of all. The Samkhya Yoga (Virupakshananda, 1995) envisages 25 components of Universe. Two of them are the part of Axiomatic Model, the Purusha (the Observer) and the Prakriti, the Unmanifested Universe, comprised of equilibrium state of three Elementary Attributes. The other 23 are the Evolute emerged from the Intelligent dynamic interplay of Sattva and Tamas. They described as follows

1. **Mahat**- Among all these, the first evolve is *Mahat*. This is also called Chitt in Patanjali Yoga (Patanjali). This is formed with mostly Satva with minimal Rajas to create the activity and Tamas to stop that activity. It is the medium through which Observer observes the Universe. It has the following functionality
 - a. **Medium for the Observer**: Observer observes the Universe through the Mahat. Impression of the Universe falls on the Mahat for the Observer to observe.
 - b. **Memory store House**: When the impression fall on Mahat, some components of it remains in it, depending upon the awareness and the extent of Tamas in Mahat. It is also the Storehouse of the Data from the DataVerse. Since the Rajas the elementary Attribute, the memory is also dynamic and different memory entangles with each other. The dynamism of the memory depends on the extent of Rajas. The sum total of all the memories forms the Landscape of Mahat also called Buddhi or Sub Conscious Mind. As the Observer sees through this landscape which keeps on adding memories, it observes the same thing differently if observed again.
 - c. **Reference Frame for the Observer**: Since Observer observes through Mahat, its landscape is also called the Reference frame of the Observer. Every observation changes the landscape so is the Reference Frame. Thus this reference frame always keeps on changing. Hence same object will be observed differently at different time.
 - d. Since Mahat is closest to the Intelligent Observer, it together with Observer is falsely considered as Consciousness. Many consider Observer with Mahat and Its Landscape as Consciousness and treat it as emergent phenomenon. But in truth, Mahat with its landscape is emergent but un intelligent while observer is intelligent or conscious.
2. **Ahamkara** - As Tamas and Rajas increases in the Mahat, the differentiation starts to happen and results in the evolution of Ahamkara. It is the Ego which can identify itself with others and is the seed for creation in Mahat. It is the second level of emergence. Ego is produced from Mahat and is the effect of Mahat. Some features of Ahamkara are
 - a. **Actor / Agent**: This Ahamkara is the same Actor or Agent as referred in the DataVerse (Gupta, 2020) It is concerned with the self-identity and it brings about awareness of "I" and "mine". It is responsible for the ACTION. It can set Goals. It is the THE FREE WILL. It is the master of the DataVerse. All the DataVerse exists for its purpose. It is the cause of the Emergence and cause complex systems.
 - b. **Creation** - Since it has free will and can make choices, it is at the center of all creations. As the complete DataVerse is at its disposal, it utilises it for the creation in the universe.
 - c. **System and Environment**- This agent identifies the objects of the universe as mine or not mine. The set of all the objects bounded by the imaginary boundary forms a system and the remaining universe becomes its environment.
 - d. The presence of Non Intelligent Ahamkara with Buddhi and Intelligent Observer projects Non Agent Observer as Intelligent Actor.
3. The evolution from Ahamkara splits into two branches one Satva Dominated and other Tamas dominated

- a. *Satva dominated*: the Satva dominated evolutes are subtle in nature and evolved into three groups Manas, Five Senses and five action senses. These ten senses are the bridge between mind(Conscious or Subconscious) and the external world.

4. Manas OR Conscious Mind

- a. This is the seat of thought. Thoughts can be defined as memory replayed. Since the memory can be played and replayed, it can be compared, labelled, modified, analysed, processed. Every time it is replayed the imagery of the thoughts in the Manas falls on the Mahat for the observer.
 - b. Discriminatory Power – Manas discriminates and labels the experience as seen through the senses into contrasts as good-bad, like-dislike, virtue-vice etc. This contrast along with the strength of the experience creates the good or bad feelings which are stored in the Mahat. These memory for the landscape in the Mahat.
 - c. It is just like RAM of a computer which receives the data from memory or input devices, converts into data, analyses or processes it and then stores it back into memory or creates the output through the output devices.
- 5. **Five (Senses)** – The five senses are hear, smell, taste, touch and vision. Through these senses, the external world or environment is perceived. These are input senses and are like input devices of the computer.
 - 6. **Five Action Senses** – The five action senses are Speech, Action, Locomotion, Excretion and Reproduction. Through these senses external world or the environment is affected. These are output senses and are like output devices of computer.
- b. *Tamas Dominated*: The tamas Ahamkara is much grosser than Satva Ahamkara. There are ten components from Tamas dominated evolution which form the physical Universe.
 - 7. **Five Subtle Objects(Tanmatras)** – The five Tanmatras are five subtle object which can only be perceived by senses as subtle hear, subtle taste, subtle touch, subtle smell and subtle sight. Since these objects are subtle, then are not visible in the physical world.
 - 8. **Five Gross Elements (Mahabhoot)**: This five gross element are produced from five subtle elements (Tanmatras). They form the Physical Visible Universe. They are Earth, Water, Fire, Air and Space. These are the elements which are visible in the real world. All the scientific enquiry is presently limited to these five elements. These can be treated as five states of matter as Solid, Liquid, Gas or Particles, Radiations and Space. The states are interchangeable into each other. We already know that solid liquid and gas are interchangeable. Radiations are produced from the accelerating charged particles. Mass and Radiations are interchangeable by $E=mc^2$. At the quantum level space and particle keep on changing states. The thing which is new is that here the space is also considered as physical entity. The space has inertia, elasticity, curvature, exerts force etc.

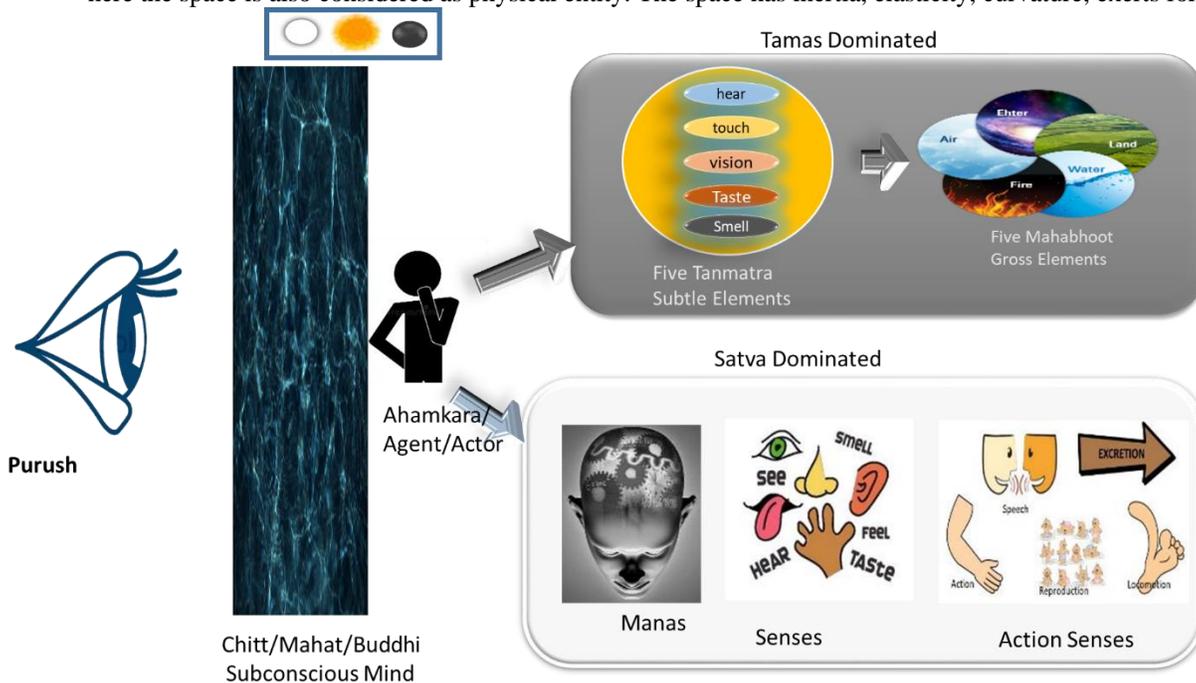


Figure 9 Twenty five components of Manifested Universe

Some Interpretations from the proposed model

- 1. Since Tamas and Rajas are perfect Source and Sink and they represent inertia/mass and Energy respectively, it can be inferred that Mass and Energy in the Universe are not conserved. Any amount of Mass and Energy can be created depending on the need for creation at the Universe level. Thus the First Law of Thermodynamics does not hold at the Universe level
- 2. Since the observer and agent are the component of the model and observer is intelligent, there is an order in the Universe. The presence of Actor/Agent makes the system more complex and emergent. The more emergent the more in order. Thus the

concept of increasing Entropy at the level of Universe. Thus the Second law of Thermodynamics at Universe level does not hold.

3. The present scientific seeking is limited to only last five gross physical elements which from the part of visible universe. This model expands the scope beyond the physical reality.
4. Since Purusha observes through Mahat and Mahat is emergent in nature, the Intelligent Purusha and emergent Mahat is considered as consciousness which is perceived as Emergent in nature.
5. Only four elements Purusha (Pure Intelligence/Consciousness) and three Attributes (Satva, Rajas and Tamas) are necessary and sufficient conditions for the Universe to exist.
6. As Space is the gross element, Space is a physical entity. It can expand, contract, vibrate and has inertia and elasticity. It can twist and curve.
7. This model contain both conscious and Sub conscious mind, hence all the study related to mind can be addressed by it.

IV. CONCLUSION

The paper has presented the model of Universe with only four elements (Three elementary attributes and one Observer), the observer being external to the Universe. These four elements forms necessary and sufficient condition for the universe to exist. This model not only takes care of physical universe but also metaphysical component of the universe. This paper proposes alternate process of creation of Universe through emergence and evolution instead of Big Bang. This paper also challenges the validity of First and Second Law of Thermodynamics. This model of Universe and model of Dataverse together can put Science and Spirituality on the same platform.

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Apart from his profession life, his interests are in studying recent development in Science and Technology, Complex Systems. In contrast, his interests are in studying ancient Indian Philosophy of Samkhya Yoga, Patanjali Yoga, Bhagwat Gita etc.

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