PLATO'S ALLEGORY OF THE CAVE, PROBABILITIES, POSSIBILITIES, MULTI-DIMENSIONAL UNIVERSE

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"There are decades when nothing happens,
and weeks when decades happen,"
Vladimir Lenin

INTRODUCTION

The Allegory of The Cave was initiated by Socrates but reported by Plato and became named after him. It is narrated in Book VII of Plato's book: "The Republic." It is one of the metaphors in Western philosophy. It illustrates Plato's views on human perception, knowledge, and the path to enlightenment. Plato describes the journey from ignorance to knowledge, from darkness to light, and from illusion to truth. The allegory has been interpreted in many ways, and its themes of reality, education, and liberation continue to resonate in philosophical thought.

It takes place during a dialogue between Plato's brother, Glaucon, and his mentor Socrates, where Socrates uses the metaphor of prisoners in a cave to explore the limitations of human perception and the nature of truth. The metaphor reveals Plato's Theory of Forms, which posits that the physical world is just an imperfect reflection of an unchanging higher dimensional reality.

Figure 1. Socrates/Plato Cave Geometry: Fire, Puppeteer 3D Higher-dimensional True Reality, Chained Observer, Cast shadows 2D Lower-dimensional Illusion/Perceived Reality.

PLATO'S THEORY OF FORMS

The theory of Forms, Theory of Ideas, Platonic Idealism, or Platonic Realism is a theory widely credited to the Greek philosopher Plato. The theory suggests that the physical world is not as real or true as "Forms". Forms, commonly translated as Ideas are the non-physical, timeless, absolute, and unchangeable essences of all things, which objects and matter in the physical world

merely imitate, resemble, or participate in. Plato speaks of these entities only through the characters, primarily Socrates, in his dialogues, which sometimes suggest that these Forms are the only objects worthy of study that can provide knowledge.

ALLEGORY OF THE CAVE [1]

Plato uses this metaphor to illustrate his philosophy of idealism and challenge our perception of reality. The allegory illustrates a world of ignorance in the cave. and how our perceptions can limit us; being shackled inside the cave from birth, so we can only look at a wall. Without philosophy or critical thinking, we resemble prisoners bound with chains and confined to a cave.

> "The allegory begins with a description of prisoners who have been chained inside a dark cave for their entire lives. These prisoners are bound in such a way that they can only see the shadows cast on the cave wall in front of them. They are unable to turn their heads and have never seen the source of the shadows. Behind the prisoners, there is a fire, and between the prisoners and the fire, puppeteers walk and hold various objects. The shadows cast by these objects are the only reality the prisoners know, and they take them to be the only truth." [1]
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> "As the prisoners have no knowledge of the outside world, they believe the shadows on the wall are real and that the cave is the entirety of existence. Since they have never seen anything else, they do not even conceive that there might be something beyond the shadows or the cave." [1].
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> "One day, one of the prisoners is freed from his chains and is allowed to turn around. At first, the light from the fire is blinding, and the prisoner struggles to comprehend what he is seeing. He then discovers the puppeteers and the objects casting the shadows. This newfound knowledge is disorienting, and the freed prisoner is reluctant to believe that the shadows are not the only reality. However, as he adjusts to the light, he begins to realize that the shadows are merely reflections of real objects." [1].
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> "The freed prisoner is then taken outside of the cave into the sunlight. At first, he is unable to see anything because of the brightness of the sun, but eventually, his eyes adjust, and he is able to see the world as it truly is. The sunlight symbolizes knowledge and enlightenment, and the prisoner comes to understand that the world outside the cave is the true reality, while the shadows were mere illusions."
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> "Having discovered the truth, the freed prisoner feels a deep responsibility to return to the cave to rescue the others. However, when he returns to the cave, he is met with resistance and disbelief. The remaining prisoners cannot comprehend his claims about the outside world and mock him for his attempts to enlighten them. They are so accustomed to their world of shadows that they cannot imagine a reality beyond it." [1].

"Socrates uses this allegory to explain the philosopher's role in society: just as the freed prisoner has seen the truth and seeks to help others understand it, philosophers, who have gained

knowledge of the Forms, must share that knowledge with the people, even if they are met with resistance and scorn." [1]

ISLAMIC CAVE; QURANIC SURAT AL KAHF, TIME TRAVEL PARABLE

Surat Al Kahf, meaning "The Cave," is the 18th Surah (Chapter) of the Holy Quran. It consists of 110 Ayats (verses) and primarily focuses on the themes of faith, trials, and the pursuit of knowledge. The Surah derives its name from the story of the People of the Cave (Ahl Al Kahf): three to eight in number and their dog. A Noah' Ark allegory uniting humans and animals in creation.

Figure 2. Hira (Arabic: حراء Ḥirāʾ) or the Cave of Hira (غار حراء Ġār Ḥirāʾ) is a cave about 2 miles or 3.2 km away from Mecca, on the mountain named Jabal Al-Nūr (Mountain of Light) in the Hejaz region of Saudi Arabia. The cave itself is about 12 ft or 3.7 m in length and 5 ft 3 in or 1.60 m in width. It is the location where Moslems believe that the Prophet Mohammed (pbuh) received his first revelations from God through the angel Jibreel, also known as the angel Gabriel in Christianity.

The idolatrists (mushrekuns) of Mecca tested the Prophet Mohammed (pbuh) by asking him three questions, and Surat Al Kahf was revealed in answer to them. They inquired about the identity of the Sleepers of the Cave, the story of Moses and his companion Al Khidr, and about Dhul Qarnayn, The double-horned personality.

Surat Al Kahf begins by highlighting the importance of faith and guidance from God Almighty. It emphasizes that true believers are those who rely on God and seek His guidance.

The Surah narrates the story of the People of the Cave, a group of righteous young men who sought refuge in a cave to escape religious persecution.

They fell into a deep sleep for 300 years in the solar calendar and slept 309 in the lunar calendar since the lunar calendar is 11 days shorter than the solar calendar, possibly hibernation, and God preserved them for a long period of time then brought them back to life. Does it touch on the concept of Relativistic Time Travel?

Surat Al Kahf discusses the concept of trials and tribulations. It highlights the story of the Prophet Moses (Musa) and his travel companion Al Khidr, emphasizing the importance of patience and trust in God's wisdom during difficult times.

The Surah addresses the arrogance and pride of disbelievers and warns of the consequences of rejecting the truth. It contrasts the fleeting nature of worldly possessions with the eternal rewards of the Hereafter.

Surat Al Kahf discusses the concept of knowledge and encourages seeking it as a means of guidance and understanding. It highlights the story of Dhul Qarnayn (The Double-horned), a possible reference to Alexander the Great as a righteous Greek ruler, and his journey to the ends of the Earth.

The Surah also touches upon the concept of wealth and its proper use. It warns against hoarding wealth and emphasizes the importance of using it in beneficial ways and for God's sake. Surat Al Kahf warns against following the footsteps of Satan and his deceptive tactics. It reminds believers to be vigilant against his whispers and to seek guidance from God against his influence. The Surah concludes by emphasizing the importance of gratitude and acknowledging that ultimate guidance comes from God alone. It encourages believers to uphold their faith and strive to do righteous deeds.

SEVEN SLEEPERS, COMPANIONS OF THE CAVE

The "Companions of the Cave" is a late Christian legend as well as an Islamic Allegory. The Christian legend speaks about a group of seven youths who hid inside a cave outside the city of Ephesus or modern-day Selcuk, Turkey, around AD 250 to escape Roman persecution of Christians and emerged many years later. The Islamic version of the story appears in Surah 18, 18:9-18-26 of the Holy Quran. During the period of the Crusades, bones from the sepulchers near Ephesus, identified as relics of the Seven Sleepers, were transported to Marseilles, France, in a large stone coffin, which remained a trophy of the Abbey of Saint Victor, Marseilles.

The Seven Sleepers were included in the Golden Legend compilation, the most popular book of the later Middle Ages, which fixed a precise date for their resurrection, AD 478, in the reign of Theodosius. Theodosius I, also known as Theodosius the Great, was a Roman emperor from 379 to 395. He won two civil wars and was instrumental in establishing the Nicene Creed as the orthodox doctrine for Nicene Christianity.

MULTIDIMENTIONAL UNIVERSE [2]

If we attempt reasoning beyond the Plato Cave's story about two dimensional shadows being cast by three dimensional objects, and extend the thought process behind the story, that the lower 2D dimension is a projection of something that exists at a higher 3D dimension, then we may be attempting an extended interpretation of Plato's Cave.

We may need to adopt three rules in such an interpretation:

1. Every dimension is an expansion of the dimension below it,
2. Every dimension has a new property that does not exist in the dimensions below it.
3. Every dimension is only observable from the dimension above it.

As an example, ley us consider a point, a line, a surface, and a volume in Euclidian Geometry space.

0D AND 1D, BINARY NONEXISTENCE AND EXISTENCE [2]

If dimension 1D, is a line, the "0D" dimension would be a point. The 0-dimension has only two binary states: existence, the point is there, or non-existence, there is no point. If a number of points of existence are lined up and connected, then a 1D line can exist.

Time, which is thought of as a single unidirectional line in physics, has only 1 dimension, and it only moves forward. This is the familiar concept of time known and accepted as the standard in physics.

2D, 3D GEOMETRIES

In a similar manner to the 0-dimensional 0D points connecting into a 1-dimensional 1D line, a collection of 1 dimensional lines can be connected into a 2-dimensional 2D plane.

That would make the 3-dimension 3D volume as a series of 2-dimensional 2D planes connected together in the same way 0-dimensional 0D points made a 1-dimensional 1D line, and 1-dimensional 1D lines combining together to form a 2-dimensional 2D plane.

4D, TIME, FATE, PROBABILITIES

Every dimension seems to be a collection of the elements contained in the dimension below it:

Dimension 0D represents existence or non-existence, a [0, 1] binary Boolean system, a [T, F] True or False, [B, W] Black or White system,
Dimension 1D represents lines or distance,
Dimension 2D represents areas or surfaces,
Dimension 3D represents volumes.

If every dimension is made up of a collection of the dimension below it, then the 4th dimension 4D must be a collection of the components of the 3rd 3D dimension.

This implies that "time" is a succession of 3D volumes which constitutes observable different Probabilities. In fact, time is the 4^{th} dimension in Physics. Probabilities being based on collections of observations or data collected in the form of frequency distributions and their associated Probability Distributions for discrete data and Probability Density Functions (pdfs) for continuous data.

5D, CAUSALITY, POSSIBILITIES

Attempting a move to a higher dimension, we bump into guesses and models within the realm of Possibilities rather than observable Probabilities,

The 5^{th} 5D dimension can now be considered as a collection of the 4th 4D dimension. If a collection of 3D dimensional objects stretching into the future and back to the past is a 4^{th} 4D dimension timeline, then a collection of 4th dimension timelines would be the possibilities of a 5th dimension. So, the 5th dimension appears as a collection of observable "probabilities" into guessed "possibilities".

If there are multiple timelines, in one of them a balloon is expanding, in another one of them it is contracting, and a third where it is staying the same, then that balloon's fate is no longer determinable. With multiple timelines, the balloon can have different "futures" or "possibilities".

If so, we have a new "property" in the 5th dimension that does not exist in the 4th dimension. That property is Causality. With only one timeline it would be impossible to prove that air going into the balloon is causing it to expand, because there is only one timeline. Everything caused by fate alone or has different possibilities.

6D, CONSCIOUSNESS

If the observer can see multiple timelines or possibilities on a 5-dimensional 5D time area, the observer must at the very least be on the 6th D6 dimension looking down upon the 5th 5D dimension. To move between timelines or possibilities requires a "conscious" choice.

7D, QUANTUM ENTANGLEMENT

Quantum entanglement implies the simultaneous existence of multiple states of consciousness.

8D, FREE CHOICE

Venturing into a higher dimension, what is the new property of a 8-dimension 8D if dimension 7 were quantum entanglement? Multiple states of entanglements may imply "free choice."

9D, MULTIPLE UNIVERSES

If the Greek concept of "anima" or soul is that which animates matter, then a series of animated matters would conceivably be a "Universe". Hence an 9D dimension would imply multiple Universes.

Figure 3. Visualization of Expanding bubble multiverses with galaxies on the bubbles' surfaces. One can even conceptualize of the containment of bubble universes contained inside other bubbles. That could interpret the suggestion of the two different dates measured for the inset of the postulated Big Bang.

DISCUSSION

Plato's Theory of Forms holds that there is an unchanging realm of perfect forms or ideas beyond our touchable world of flux. These forms provide the true nature of all things we experience; with physical objects being imperfect copies or participations of these ideal forms.

Plato's ideal ruler is known as the philosopher-king, who has escaped the cave and gained enlightenment from the forms. Due to understanding what reality is really like, such a person is best suited for leadership because their decisions are based on knowledge about what is good.

Expanding the reasoning beyond the Plato Cave's story about two dimensional shadows being cast by three dimensional objects, and extending the thought process behind the story, that the lower 2D dimension is a projection of something that exists at a higher 3D dimension, then we may be attempting an extended interpretation of Plato's Cave into higher dimensions up to the 9-th dimension. Three rules apply in such an interpretation. The first rule being that every dimension is an expansion of the dimension below it, the second rule being that every dimension has a new property that does not exist in the dimensions below it, and the third rule is that a postulated dimension is only observable from the dimension above it.

REFERENCES

1. Literopedia, "Essay Allegory Of The Cave By Plato Summary And Themes," https://literopedia.com/allegory-of-the-cave-by-plato-summary-and-themes
2. Daniel Nagase, "Time Travel - a fun sci-fi thought exercise," https://danielnagase.substack.com/p/time-travel-a-fun-sci-fi-thought, Logical Surprises | Daniel Nagase MD | Substack