

# The Identity, Conscience, Will and Mission Domains of Soul across Human, Noospheric and Cosmic Scales

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**How to cite this paper:** Ludvig, N. (2022). The Identity, Conscience, Will and Mission Domains of Soul across Human, Noospheric and Cosmic Scales. *Open Journal of Philosophy*, 12, 580-600.  
<https://doi.org/10.4236/ojpp.2022.124040>

**Received:** September 16, 2022

**Accepted:** November 8, 2022

**Published:** November 11, 2022

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## Abstract

The aim of this work was to elaborate on the author's previously published hypothesis of the Soul of Multiverse, a suggested cosmic phenomenon that also appears to imbue the human Soul across its individual and noospheric scales. Without alternatives, the method of analysis continued to rely on the approach of cosmological neuroscience, which integrates scientific facts, religious insights, philosophical suggestions, engineering rules and artistic tools to grasp the complexity of the multidimensional phenomenon of Soul. The result of this examination was the multilayered thought that just as the central medium of human Soul, the hypothesized prefrontal cortical supercircuitry of Self-Ken, seems to comprise domains representing Identity, Conscience, Will and Mission, analogous domains may also function in the noospheric and cosmic Souls. Regarding the human Soul, its four domains appear to be determined by both hereditary genetic and encountered environmental factors to present its host with a Mission enabling his or her mental engine and physical features to integrate into the surrounding society and space-time in the most meaningful and dignified way—if that way is undertaken. Regarding the noospheric Soul, it is made of individual human Souls interacting with the non-living system of interconnected computers to produce functions accessible to humans all over the world through uncontrolled communication across the Internet. Its most probable Mission is to let this global presence acquire its own Identity, develop its own Conscience and refine its own Will, so that their coherent, superior whole can be ready for sensing the cosmic Soul. Regarding the cosmic Soul, the hypothesized Soul of the Multiverse, its Identity appears to express the Laws of Mystery of Endlessness, Coexistence in Diversity, and Truth in Complexity. Further, its Conscience seems to be moved by the Law of Divine—Evil Asymmetry, its Will by the Law of Determination with Uncertainty, and its Mission by the Law of Lives to Transcend.

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## Keywords

Soul, Prefrontal Cortex, Noosphere, Multiverse, Identity, Conscience, Will, Mission

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## 1. Introduction

In a recent issue of this journal, the hypothesis was presented (Ludvig, 2022) that “*cosmological neuroscience*” might be ready for studying the “*nature of Soul across human and cosmic scales*” including the “*Soul of Multiverse*”. The core of the hypothesis was the idea that “*Soul can be defined as a product of matter and energy in special nodes of space-time where the guided structural and dynamic complexity of the involved substances reaches such a high level that a distinct presence is born, the presence of soul: neither matter nor energy yet inseparable from each while equips the meaning of both with purpose and the potential to transcend.*”

The referred paper emphasized that its thoughts were built on previous scientific and philosophical works (Wallace, 1889; Tagore, 1931; Teilhard de Chardin, 1959; Crick, 1994) of incomparably higher minds than the author’s own. Indeed, the paper, with its cosmological neuroscientific approach to the Soul of Multiverse, had been mishandled, rejected, unacknowledged or accepted without commitment to the publication from February 28 this year by 12 academic journals prior to its mentioned publication. Certainly, my preference for brevity left many aspects of the Soul of Multiverse hypothesis unexplained.

The objective of the present article is to provide more details on what my hypothesis specifically meant on the domains of Identity, Conscience, Will and Mission of Soul across human, noospheric and cosmic scales. To approach this problem, I continue to rely on the methodology of cosmological neuroscience that integrates scientific facts, religious insights, philosophical suggestions, engineering rules and artistic tools to grasp the complexity of the multidimensional phenomenon of Soul. My hope is that this effort will not be viewed as a product of arrogance or work without humbleness; rather it will be considered what it is: observations of an average though scientifically trained—mind looking into what may lie beyond the routinely detectable.

Section 2 takes a look at the mentioned 4 domains of Soul at the individual human scale. It is an attempt to contribute to “*the scientific search for the soul*” (Crick, 1994). Section 3 examines the same 4 domains in the increasingly obvious global mind, that is, the noospheric Soul. It is an attempt to contribute to the understanding of the Noosphere (Teilhard de Chardin, 1959). Finally, Section 4 undertakes the challenge of contemplation on the possible presence of a Soul at the cosmic scale. It is just a contemplation, but not necessarily an unreasonable one, since at least one serious scientist already pointed out that the “*stages of evolution*” on Earth “... *point clearly to an unseen universe, to a world of spirit...*” (Wallace, 1889). These sections are related to each other because

evolution on Earth led not just to the development of individual human Souls but also to their Internet-connected assembly, the noospheric Soul, under physical, chemical and biological laws more likely imbued with higher-order laws stemming from a cosmic Soul than acting without such orchestration.

## 2. Soul: Human Scale

The central medium of the human Soul seems to be a prefrontal cortical supercircuitry generating the function of Self-Ken with four domains representing the host's Identity, Conscience, Will and Mission. This is compatible with our knowledge of this brain area (Teffer & Semendefiri, 2012; Kolk & Rakic, 2022).

The term Self-Ken basically means self-awareness, self-understanding, and self-knowledge. Nevertheless, I combined the word "Self" with the word "Ken" to liberate the idea of the human Soul from the confines of ordinary expressions so that it can be seen as it is: an extraordinary presence in each of us. If Shakespeare's "*The Rape of Lucrecia*" didn't mind stating that "*Tis double death to drown in ken of shore*", we shouldn't mind using the term Self-Ken for referring to the neural representation of the human soul either.

My studies on the formation of memory in rats and monkeys (Ludvig, 1999; Ludvig et al., 2003, 2004; Fenton et al., 2008) taught me that the mammalian brain's long-term memory storage within the cognitive system probably consists of several emotionally and motivationally charged layers of memory-engrams selected from the chaos of short-term memory traces in such a way that the resulting long-term memories represent only significant traces connected in the temporal order and spatial relations of their original inducing stimuli. While reflecting an incomparably higher cognitive function than memory formation, the operation of Self-Ken, as also developed during evolution, is based on the prefrontal cortical neurobiological arrangements that started in non-human primates. Thus, the Self-Ken attracts the most significant long-term memory-engrams only and connects them in the temporal order and spatial relations of their original inducing stimuli. At the same time, the human Self-Ken has the unique abilities of 1) enriching the absolutely most significant long-term memory engrams with a creatively expanded spectrum of emotional and motivational inputs; 2) operating on these enriched engrams with the possibly highest reliability; while 3) elevating these chosen engrams' conscious and subconscious interactions to a complexity unreachable for other species in the Animal Kingdom. It took time to develop this neural system, as the evolution of Soul through pre-human brains might have started as early as in the Cambrian Period ~500 million years ago (Northcott, 2002; Feinberg & Mallatt, 2013).

### Identity

The human Soul's Identity can be defined as a both genetically and environmentally determined neural domain within the prefrontal cortical supercircuitry of Self-Ken to represent the cosmic uniqueness of that Soul's host, including the most essential—conscious and subconscious—data on his or her 1) bodily features, 2) mental capabilities, 3) family relations, 4) social belonging, 5) key life

events, 6) key beliefs, and 7) principal Conscience, Will and Mission characteristics that altogether compose the blueprint of his or her personality.

This definition is not in contradiction to Freud's historic analysis of the mind in *"The Ego and the Id"* published in 1923, agreeing with his recognition that *"...in each individual, there is a coherent organization of mental processes, and we call this his ego,"* where this *"ego is not sharply separated from the id"*, that is, from the subconscious layer of the mind. My definition merely specifies how this "coherent organization" may work in the brain as a prefrontal cortical supercircuitry processing the essence of the host's individuality and connecting it to his or her moral commands, sustaining willpower and a sense of fate.

That the Self-Ken domain of Identity is closely related to personality is supported by art and literature. In Shakespeare's *Richard II*, this is what Thomas Mowbray tells to the king: *"Mine honor is my life; both grow in one./ Take honor from me, and my life is done."* (Sure, Mowbray was banished and died in Italy...)

The opinion that individual human Identity "... represents the cosmic uniqueness of that Soul's host..." may sound exaggerated, but few things are more obvious about the cosmos than every one of its objects is different from all the others, indeed blessed with an Identity—whether they are aware of it or not—both in our living world and its surrounding, non-living expanse of space-time.

#### Conscience

The human Soul's Conscience can be defined as a both genetically and environmentally determined neural domain within the prefrontal cortical supercircuitry of Self-Ken where this domain develops during early childhood in response to the care experienced in this period to assure a lifelong drive to reciprocate these early experiences with the acts of social goodness and love instead of the acts of social harm and hate whenever the challenge of this choice is encountered and must be responded in harmony with Identity as guided by Mission and supported by the strength of Will.

That the quality of Conscience in each human being is determined by the interplay of hereditary genetic influences and childhood inputs from family relations, cultural standards and the encountered moment in history, this is proved by scientific studies, including genome-wide complex trait analyses, on criminals and people with antisocial personality disorder (Tehrani & Mednick, 2000; Tielbeek et al., 2012). Further, the interplay of hereditary and environmental factors is also evident in the lives of people at the other extreme: the men and women blessed with pure goodness like Rabindranath Tagore or Mother Teresa (Uma Das Gupta, 2004; Spink, 2011). The definition agrees with the often-quoted recognition by Patricia Churchland that *"caring begets conscience"* (Churchland, 2019) and is consistent with the data suggesting that a dysfunctional conscience leading to *"persistent adult violence ... originates... in early childhood... to be associated with impaired education, social, and occupational functioning,"* (Raine, 2019).

But the roles of Self-Ken domains Mission, Will and Identity in shaping Con-

science must also be seen.

If a man's or woman's Mission is to serve his or her people as their chosen and trusted leader, his or her Conscience must generate commands different from those of businessmen responsible only for their business interests and family needs or of manual workers responsible only to their employers' and family members' demands. Instead, Conscience associated with leadership Missions must respond to the challenge of sensing the right interests, right needs and right demands of every member of the led people and must be responsive to all of their right interests, right needs and right demands. As did—according to credible biographies, the Conscience of Mohandas K. Gandhi, John F. Kennedy or Nelson Mandela. At the same time, Mission can shape Conscience only if supported by a strong Will and harmonizing Identity.

### Will

The human Soul's Will can be defined as a both genetically and environmentally determined neural domain within the prefrontal cortical supercircuitry of Self-Ken that continuously strengthens the flow of neural commands from Conscience to the behavior-organizing executive network of the rest of the frontal lobe in such a way that this neural command-flow always recruits relevant neural representations from the other Self-Ken domains to assure that the behavior of the Soul's host is organized according to the dictates of Conscience, uniqueness of Identity and duties of Mission.

It is this neural function of Will strengthening the commands of Conscience to the brain's executive network that makes it possible for the human Soul's matter and energy to be equipped with "*purpose and the potential to transcend*" (Ludvig, 2022).

The *purpose* is to serve the existence of Identity—like letting Mick Jagger and Keith Richards perform as Rolling Stones on the stages of new and new generations over half a century, or letting one of the longest-living women in history, Lucile Randon of France, serving orphans, elders and sick people with love as a governess, teacher and nun from 1916 to the time of her retirement in 2009.

The *potential to transcend* is to serve the course of Mission—like Gagarin's to transcend from a trained foundryman to the first human to fly into outer space or Ella Fitzgerald's to transcend from an abused orphan and lookout for cops outside a brothel to one of the greatest singers of the world.

The nature of Will was thoroughly examined in the incomparable book of Schopenhauer, titled "*The World as Will and Representation*" and published in 1818. In one of its most memorable passages, the German philosopher admirably cites the Jewish philosopher Spinoza as follows: "... *Spinoza (Epist. 62) says that if a stone projected through the air had consciousness, it would imagine it was flying of its own will. I add merely that the stone would be right. The impulse is for it what the motive is for me, and what in the case of the stone appears as cohesion, gravitation, rigidity in the assumed condition is by its inner nature the same what I recognize in myself as will...*"

In a later work, "*Essay on the Freedom of the Will*" originally published in

1841, Schopenhauer summarized his opinion on human Will in this extraordinary sentence: “*In a word: man does at all times only what he wills, and yet he does this necessarily.*”

But where is the source of this necessity? This author believes it is in the prefrontal cortical supercircuitry of Self-Ken, central medium of the human Soul, where the influence of a set of inherited, mutated or unmutated, genetic networks combines with the influence of a set of relevant environmental—including noospheric and cosmic—effects to generate the domain of Will that strengthens the neural streams from Conscience to the behavior-organizing executive neural network of the rest of the frontal lobe. Aleister Crowley expressed this much more elegantly when observed that “*Love is the law, love under will*” (Crowley, 1922), meaning that the domain of Conscience, related to love, is cooperating with the domain of Will to serve one’s life, indeed fate.

#### Mission

The human Soul’s Mission can be defined as a both genetically and environmentally determined neural domain within the prefrontal cortical supercircuitry of Self-Ken that—in a still mysterious way—processes the uniqueness of Identity, quality of Conscience and strength of Will to present the Soul’s host with the purpose of his or her existence and potential to transcend so that his or her destiny, good or bad, can be accomplished if undertaken, whether or not its meaning is understood by him/her or by the surrounding society.

What does this mean?

First, it means that the course of human life, indeed the fate of every man and woman, is more determined by a genetically and environmentally engineered neural domain in his or her Self-Ken, the central medium of the individual Soul, than generally thought. But this determination is not to restrict the freedom of human beings, instead it is to present each with a Mission compatible with his or her mental engine, physical features, surrounding society and encountered space-time in the best way, which, if undertaken, makes the most sense and can integrate his or her life into its context with meaning and dignity.

Thus was Jack Dempsey’s Mission to become a decent boxing champion and thus was Andrei Tarkovsky’s to be a film director—but thus are the Missions of millions of less known yet equally important, though globally differently attracted, men and women who became, and are becoming, striving nurses and doctors, secretaries and lawyers, administrators and officers, coders and designers, artists and scientists, religious or atheist workers in hospitality, transportation, agriculture and thousands of other jobs, along with the garbage collectors glad to have their after-work-drinks with friends while perfectly aware of the importance of their job that greets the champions, directors and all the others with a good morning every day.

Second, the definition means that it is the domain of Mission that offers its host the potential to transcend. The need for this human transcendence was as much indicated in the Sermon of Benares which asked us to follow the “*noble Eightfold Way*” as in the Sermon on the Mount that taught: “*You are blessed*

*when you are content with just who you are, no more no less*". As the former asked us to strive for the Right Understanding, a key condition for realizing the highest potential of human life, while the latter justified the strive to be no less than who we are.

Thus transcended the late Argentinian soccer player Diego Maradona (see (Melville House, 2022)) from a shantytown child to a national hero by lifting his country's spirit up after its humiliation in a lost war. And then he transcended even higher when he dared to name the victors of that war as "noble people" because they played fairly against him in a decisive World Cup game. Thus transcended Princess Mako of Akishino to a woman showing to the world that being loyal to one's Conscience, even if it comes with working like everybody else, is not less noble than serving an exalted position. Even if such an exalted position can be chosen to be served by others with other Missions, as Queen Elizabeth II chose to serve hers. While millions of less known around them also transcended from ignored immigrants, trafficked sex slaves or children with disabilities to respected citizens.

And third, the definition also means that the Mission presented by the individual Soul to its host can lead to failure as much as to success, sometimes to triumph but sometimes to tragedy, understood rarely, and misunderstood often.

Thus caused a celebrated epilepsy surgeon's novel operation horrible memory deficit in his patients (Scoville & Milner, 1957); thus was a neurologist honored with a Nobel Prize for initiating the practice of a lobotomy that destroyed the lives of many (Faria, 2013). Still, it was their work that let humankind realize the functions of hippocampus and the frontal lobe in the human brain while inspiring the authors of the World Medical Association (WMA) Declaration of Helsinki to set ethical guidelines, including the absolute necessity of thorough pre-clinical tests (as also discussed by this author (Ludvig, 2010; Ludvig et al., 2012)), to assure the introduction of only safe methods into medicine.

The proposal that in the human brain a prefrontal cortical supercircuitry functioning as Self-Ken represents Identity, Conscience, Will and Mission that altogether compose the host's personality, is supported by psychiatry. For it is known that prefrontal cortical abnormalities can cause severe personality changes. These personality changes can involve: 1) a disturbing sense of Identity, as occurs in dissociative identity disorder (Blihar et al., 2020; Lebois et al., 2022); 2) dysfunctional Conscience and Will, as occur in the violent actions of some schizophrenic patients and in the apathy of others (Swanson et al., 2006; Bortolon et al, 2018); and 3) the loss of Mission in life, as in the famous case of Phineas Gage, whose prefrontal cortical traumatic damage made him a person who "was no longer Gage" (Harlow, 1868; Damasio et al., 1994).

Arts have often provided earlier and deeper insights into the human Soul than science and medicine. Didn't Hamlet's "to be or not to be" monologue on the mental conflict of life-drive and death-drive precede Freud's psychoanalytic examination of the same problem for more than 300 years? Didn't the love stories of "The Tale of Genji" by Murasaki Shikibu precede the books of modern

sexual psychology with more than 800 years? Here I show in **Figure 1** how sculpture, painting and photography can reveal the ability of the human Soul to empower its host to transcend.



**Figure 1.** Left: Michelangelo's *Moses*, completed in 1516 and placed in the Church of San Pietro in Vincoli, Rome. Center: The portrait of princess Adetutu Ademiluyi, as painted by the Nigerian artist Ben Enwonwu around 1974. Right: Photograph of Heba Asaad, an Egyptian flight attendant diagnosed with Down-syndrome, as tweeted by Dr. Sunita Kumar on January 28, 2021, and shared with the author's LinkedIn site by Mariane Karouta. Moses' Soul empowered him to fulfill his Mission of leading his enslaved people to freedom and give them laws with the divine mind Michelangelo symbolized with the horns on Moses' forehead. Adetutu's Soul empowered her to nurture a physical Identity destined to prove—via Enwonwu's creative Conscience—that beauty and grace permeate all people on all continents. Heba's Soul empowered her to convey the truth that misfortunes at birth can be overcome if uncompromising personal Will meets with social goodness.

### 3. Soul: Noospheric Scale

If the central medium of the individual human Soul is a “supercircuitry” generating the function of Self-Ken with four distinct, though interacting, domains representing the host's Identity, Conscience, Will and Mission”, the noospheric Soul's analogous system is also a “supercircuitry”—just one that generates a planet-wide Self-Ken with global Identity and global Will while it is still in the process of developing its Conscience and Mission.

Thus, the noospheric Soul is also a human Soul, being inseparable from human activity, but the two represent very different levels of complexity. Namely, unlike the individual human Soul made of interconnected living cells to produce functions inaccessible to other humans except via self-controlled communication, the noospheric Soul is made of individual human Souls interacting with the non-living system of interconnected computers to produce functions accessible to humans all over the world through uncontrolled communication across the Internet.

When recognized seven decades ago, the “Noosphere” (Teilhard de Chardin, 1959) was in its first evolutionary phase with interhuman communications limited to the slow and censored work of postal, telegraph, radio and television services. By 2020, this has changed to instant and mostly free textual, acoustic and visual messaging among more than 4 billion people across all countries on all conti-

nents. The evolution of Soul entered a new phase.

### Identity

While the Identity of each human Soul can be characterized by its difference from other Souls at the human scale, this is obviously not yet possible for the Noosphere. For it is the single known intelligence, even life-form, in the entire cosmos accessible to the humankind at the time of this writing. There is no way to compare the noospheric Soul to any other analogous products in the Universe or Multiverse, nor is it known whether this is due to our still primitive scientific and engineering methods to access the depth of cosmos or, instead, the common substance of matter and energy embedded in its space-time and imbued with its Soul indeed produced intelligent life only on Earth.

Still, the noospheric Soul has some characteristics clearly forming an Identity.

First, although its development took a mere few decades at the end of the 20<sup>th</sup> and beginning of the 21<sup>st</sup> century, this development is rooted in the 500-million-year evolution of the brain: an initially information-processing and life-regulating organ that slowly changed—indeed transcended—into a human-specific site of intelligence with creative abilities. The significance of this is that the Soul at noospheric level is inherently driven to use many mechanisms that once controlled the evolution of brain—including the alternating mechanisms of cooperation and competition. For example, while the Internet that inspired the creation of the World Wide Web could not have been developed without the cooperation of computer scientists in the US military and their academic counterparts, the World Wide Web itself progressed dramatically through competition among Netscape, Microsoft, Google, Apple and other companies.

Second, in contrast to the evolutionary design of the human brain, which limits the working of Soul at the human scale to a set of prefrontal cortical neurons with subcortical synaptic connections and support from glial, vascular and immunological cellular assistants, the noospheric Soul not only uses these living units, but combines their unique abilities with the entire non-living network of the Internet. In fact, this Internet will surely include users on the Moon and Mars before the end of this century, letting anyone on Earth to sense and process—first emotionally, then cognitively—the Soul of Multiverse examined in my preceding paper.

### Conscience

Presently, the noospheric Soul doesn't have the functionality of Conscience in the way the individual human Soul has its own.

Sir Tim Berners-Lee observed that the “*Web had failed instead of served humanity, as it was supposed to have done... ending up producing ... a large-scale emergent phenomenon which is anti-human*” (see (Brooker, 2018)). Edward Snowden warned us that “...*the Internet of today is unrecognizable... our attention, our activities, our locations, our desires—everything about us that we revealed, knowingly or not, was being surveilled and sold in secret...*” (Snowden, 2019). And a recent superb book concentrated on this message in its title: “*Don't Be Evil: How Big Tech Betrayed Its Founding Principles—and All of Us*” (Fo-

roohar, 2019). My own experiences have been consistent with these opinions. In 2019, my Gmail inbox was compromised to shock me with the complete disappearance of 14 years of email communications via this medium. In fact, when my preceding paper was published online on August 25 this year, a hacker inserted a senseless passage into its Introduction to confuse the readers until the correction of the problem a few days later.

But, as I argued (Ludvig, 2022), “the same Internet also embraces the divine” by empowering, for the first time in history, high-minded people like Greta Thunberg, Pope Francis, Martin Rees, Olivia Trinidad Harrison or Kazuo Ishiguro to communicate with millions of receptive minds across the globe. And for the first time in history, the Web allows access to anyone, anytime and anywhere on Earth, to the intellectual treasures of 10,000 years of civilization, from seeing the ancient architecture of Gobekli Tepe or Mohenjo-daro through learning about Zheng He’s incomparable expeditions and hearing Bach’s *Johannes Passion* as conducted by Harnoncourt to reading Simone Weil’s essays and examining the cosmic images of the Webb Space Telescope.

There is nothing surprising in the present digital chaos of the World Wide Web, in its lack of Conscience, in the inability of the Internet to separate right from wrong. The *Homo erectus*, an already speaking toolmaker species of the *Hominin* lineage, spent a million years with learning the way of living as humans—yet it was the first owner of the fully developed prefrontal cortex, the *Homo sapiens*, that about 78,000 years ago decided to follow the moral command of respecting the dead by burying his or her body in a grave (Martín-Torres, 2021). A further 50,000 years went until another moral command, respect for female fertility and motherhood, was expressed in a figurine to be named by its discoverers the *Venus of Willendorf*. But the first collection of laws to punish wrong behaviors was created by Hammurabi just 3800 years ago when human sacrifices were still common and slavery was the social norm. And further centuries were needed to understand what people like Siddhartha Gautama meant by recommending such laws for our Conscience as Right Intention, Right Speech, Right Action and Right Livelihood; or what Lao Tzu meant by recommending us to “*Love the whole world as if it were your whole self*”; or what a carpenter’s son from Nazareth meant by recommending these behaviors: “*Love your enemies, bless them who curse you, do good to them who hate you, do pray for them who spitefully use you...*”

In contrast, neither the Internet nor the World Wide Web had sufficient time, not even a full century, to learn how to direct the significant, useful and true data into a protected domain and process them as the individual human Conscience processes its own. The Conscience of Noosphere, within a sort of globally functioning digital system analogous to our prefrontal cortex, has yet to be evolved.

#### Will

The Will of Noosphere is operating at full power. The builders and gatekeepers of the planet’s computer network now control not just most of the Soul at noospheric scale but most of its surrounding political and economic systems.

The combined profit of Apple, Microsoft, Google and Facebook in 2021 alone was close to 300 billion dollars, which was more than the entire GDP of Greece, the birthplace of democracy, in the same year. Thus, while Greece is struggling, these companies do whatever they want, whatever direction their Will takes them.

The extent to which their Will does good or bad in the Noosphere depends on the qualities of global Identity, Conscience and Mission—just as the outcome of the individual human Will depends on the qualities of Identity, Conscience and Mission in Self-Ken.

When Leni Riefenstahl displayed in one of her films Hitler's "Triumph of the Will", she had no idea that a mere 4 years later, the same Will would lead to the killing of tens of millions of people and destroy the lives of even more, including her own. But around the same time, at the other side of the planet, a child named Carl Sagan encountered some books in a Brooklyn library about stars, and was immediately captivated: "*The scale of the universe suddenly opened up to me. It was a kind of religious experience. There was a magnificence to it, a grandeur, a scale which has never left me.*" (see (Davidson, 1999)). And this child's Will would lead 38 years later to launching the Voyager 1 and Voyager 2 spacecraft not just to explore our Solar System but also to carry humankind's messages beyond, to other intelligences if they exist. These two diametrically opposite Wills in two Self-Kens changed the Noosphere's Soul in their time not unlike the Wills of those who control the Internet and the World Wide Web changed that Soul today.

#### Mission

Does the Noosphere have a Mission?

Its Identity is obscure; its Conscience has yet to develop, its Will can't assist in separating right from wrong. How can it have a Mission?

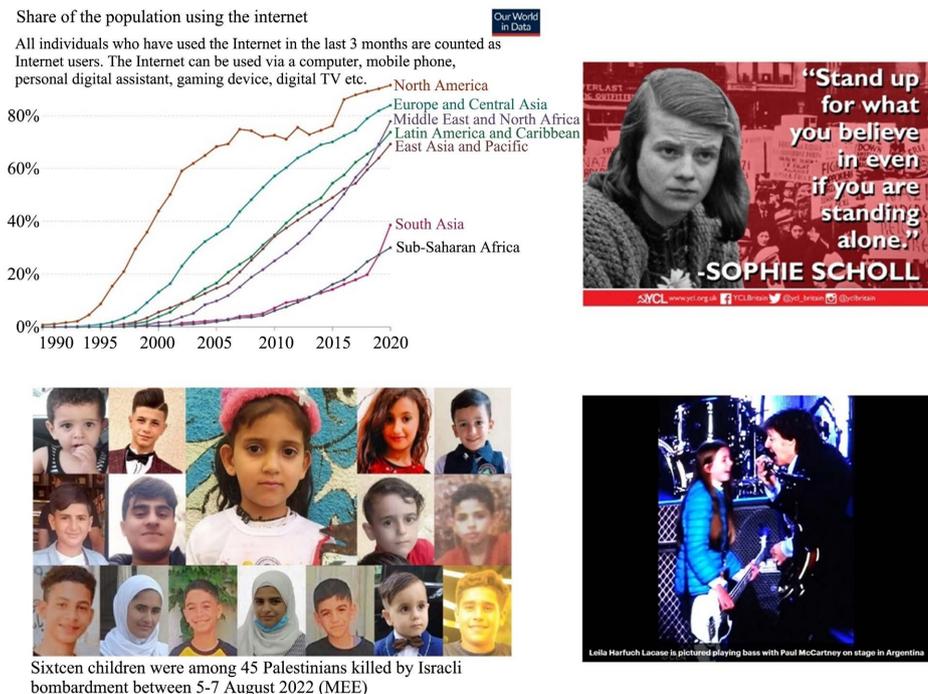
Perhaps the Noosphere's Mission is to let the global Soul acquire its Identity, develop its Conscience and refine its global Will so that their coherent, superior whole can be ready for sensing the Soul of the Multiverse and move human evolution a step closer to the divine.

The Noosphere's Identity is now intimately related to the human-machine interaction of humankind's currently ~4.5 billion Internet users and the computer networks they use (Figure 2). But this interaction can live up to its potential only when the Internet becomes available not only to 60% of men and women on Earth but to all—and when the new users along with the old ones become educated at the possible highest level because these are the prerequisites of having a noospheric Identity where the speed, memory and processing power of the digital machines can combine effectively with human morals, intelligence and creativity. When this happens, a global cognitive engine will be born of which blueprint includes, simply and naturally, Immanuel Kant's note for us written on his tombstone: "*Two things fill the mind with ever new and increasing admiration and awe, the more often and steadily we reflect upon them: the starry heavens above me and the moral law within me.*"

The Noosphere's Conscience is still searching for solutions to separate right

and wrong. But its speed and reach already let all the world know every atrocity, murder and aggression wherever and whenever it happens; let the world remember the morally blessed who rose against evil, and let the world be lifted by those who follow, knowingly or unknowingly, the divine (**Figure 2**). How this search for global Conscience will unfold will shape the very Identity of the noospheric Soul. In my science-fiction, “*The One-Millionth Report on Planet Earth*” self-published via Shakespeare & Co., New York, in 2017, I contemplated that the “*Noosphere, the digital collective mind of all humans who live or passed away with footprints, is destined to be governed: to suppress its abuse, to separate truth from untruth in its data flow and move them into different sub-spheres, to prevent war and aggression, to let the planet’s offered resources and Sun-born energies be available for all while overseeing this use with conscience...*”

Once the Will of the Noosphere is refined by the right parameters for human-machine interactions (Snowden, 2019; Foroohar, 2019; Haugen, 2021), then the global mind’s Self-Ken, worthy of its origin and purpose, can transcend.



**Figure 2.** Top left: The exponential growth of internet users since 1990, according to the *Our World in Data* website of *Global Change Data Lab*. Today, more than 60% of the global population can communicate with each other, and this determines humankind’s Identity. Bottom left: The Noosphere’s Conscience in operation: news of the 16 Palestinian children killed by Israeli forces between August 5-7, 2022, reached the ~1.5 million monthly readers of *Middle East Eye* news outlet within hours (MEE Staff, 2022). Top right: This webpage titled “International Women’s Day: Sophie Scholl”, honoring the anti-Nazi activist who accepted her death sentence rather than denying the truth she believed in, strengthens the right global Will <https://www.ycl.org.uk/>. Bottom right: When Paul McCartney gave a concert in Buenos Aires in 2016, he let a child admirer not just share the stage with him but join to play on the bass and sing with him the song “Get back”. The video clip on this duet—a few-minute experience of the divine, contributing to Noosphere’s evolution—was shared on YouTube and viewed by more than 2 million people.

## 4. Soul: Cosmic Scale

This section will surely be criticized. Scientist readers may say: “Just because according to Francis Crick the scientific search for the human Soul is justified, or according to Teilhard de Chardin studies on this Soul’s global extension are justified as well, nothing justifies the idea that some Soul works in the cosmos. Nobody recorded it, nobody has data on its existence.” The word “soul” is either absent (Gee, 2021) or referred to in discredited contexts (Hawking & Mlodinow, 2010) in the best 21<sup>st</sup> century cosmologists’ and life scientists’ books on the Universe and the origin of life. And religious readers may say: “Suggestion of a cosmic Soul without associating it with God is blasphemy”. Yet, throughout my 67 years, I have never met with a single man or woman who judged the starry sky ugly instead of beautiful. And I have never met with anyone, either man or woman, old or young, who wasn’t the most deeply affected by seeing how a baby, a combination of a sperm cell and an egg cell just nine months before, moves out of the mother’s womb and greets the world with crying.

There must be a system for this. Cosmological neuroscience suggests that this system is probably related to a Soul at cosmic scale—the scale of our Universe and its hosting Multiverse that also has an Identity, a Conscience, a Will and a Mission.

### Identity

One of the most incomprehensible attributes of the Soul at the cosmic scale is its LAW OF MYSTERY OF ENDLESSNESS.

It is a mystery because the nature of endlessness in both space and time is incomprehensible for the human mind. The best scientists tried to address this mystery, but even they knew it was beyond them. The cosmologists admitted: “...in cosmology one is interested in measurements that are made in a finite region, rather than infinity. We are on the inside of the universe, not looking in from the outside.” (Hawking & Penrose, 1996). Nobel laureate physicist Frank Wilczek offered this insight: “However large the universe really is, the presently visible universe is finite” (Wilczek, 2021). While just in this April, MIT’s Will Kinney (2022) published a book with its chapter 7 titled “Eternal Inflation and the Multiverse” arguing that “An analogy to the eternally inflating universe is bubbles in a glass of beer.” (Kinney, 2022). Though not a scientist or an engineer, Lao Tzu felt and recorded in his *Tao Te Ching* 2500 years ago that “the Way that can be described is not the eternal Way”, that “mystery and reality emerge from the same source,” and that the Way “is hidden but always present...older than God”.

On the other hand, the cosmic Soul allows us to see, absolutely clearly, its LAW OF COEXISTENCE IN DIVERSITY.

The matter is not composed of one type of natural atom but at least 92 different ones with each containing multiple quarks and leptons interacting with various bosons. When NASA’s James Webb Space Telescope delivered its infrared image of galaxy cluster SMACS 0723, the most striking feature of this cluster

about 4 billion light years from Earth was that no two galaxies looked the same. On the Earth itself, more than 8 million different species experience the majesty of life, as different as they look to each other. The figures of this article show 23 human faces, blacks and whites, light browns and dark browns, expressing no less diversity in their fates than those galaxies light years away. Yet all coexist or coexisted, either in harmony as the thousands at Paul McCartney's concert or in disharmony as those Palestinian children remembered here. But this tension between harmony and disharmony, obvious and mysterious, rise of lives and fall of lives, indeed the diversity of these tensions, belongs to the Identity of the Soul of Multiverse as much as the coexistence of these tensions in space and time.

But we shouldn't miss that from the mystery of endlessness and coexistence in diversity naturally comes the LAW OF TRUTH IN COMPLEXITY.

As a neuroscientist, I learned about this law very early. My first mentor, the Hungarian physiologist Kálmán Lissák, helped Harvard's Walter B. Cannon to demonstrate that besides acetylcholine—the only known neurotransmitter in the 1920s—adrenalin also mediates intercellular signaling in the nervous system (Cannon & Lissák, 1939). But today, it is known that more than 100 other chemicals, including amino acids, monoamines, peptides, proteins and gases like nitric oxide, mediate or modulate signaling among the ~80 billion neurons in the human brain. Because of this complexity, the human mind can sometimes be beaten in chess by supercomputers but never in creating artistic, philosophical and scientific masterpieces or the engineering ones inspired by them.

The cosmic laws behind the complexity of human brain are also behind the societies these brains produce. Indeed, it is the complexity of history (Christian, 2004), religions (Armstrong, 2019), economy (Piketty, 2020), structure (Westle & Segatti, 2016), science (Davidson, 1999), arts (Crowley, 1922) and engineering (Garrison, 1999) of societies that reflect the truth of human existence.

#### Conscience

If evolution lets us have Conscience, the Soul at cosmic scale must have its own: seemingly an expression of the LAW OF DIVINE—EVIL ASYMMETRY.

This agrees with almost all sacred religious texts, starting with the “*Zend-Avesta*” where Ahura Mazda, Lord of Wisdom, tells Zarathustra: “*I have made every land dear to its dwellers*”, though always opposed by evil “*who is all death*” (see (Muller, 1880)). Chapter 3 of *Bhagavad Gita* is clear about the cosmic origin of Conscience: “*At the beginning, mankind and the obligation of selfless service were created together*”. In the *Gospels*, Jesus taught his people to pray this way to God: *Our Father, who are in Heaven... lead us not into temptation and deliver us from evil*’.

Nevertheless, viewing cosmic Conscience as a product of “Divine—Evil Asymmetry” may allow us to see the dynamics of these opposing forces from a new angle. And from this angle, divine and evil are just two intertwined forces permeating the cosmos, yet with an asymmetry that shifts their eternal balance of power to the divine, just slightly—to let evil do its work—yet sufficiently for the divine to move the world forward in the right way instead of the wrong.

When does this asymmetry reveal its Nature to us? All the time.

The Solar System outside of Earth is a lifeless expanse, will hardly be a “*land dear to its dwellers*” when those dwellers come and explore it following Neil Armstrong’s footsteps and the rovers’ paths on Mars. Yet it was this cosmic touch of evil, “*who is all death*”, that let the human race grow in the womb of Earth undisturbed and spend her cosmic childhood in peace with no fear from extraterrestrial interference until ready for the call of the divine. An asteroid destroyed the world of dinosaurs 65 million years ago, yet it was the evil of this planet-wide destruction that let the divine of mammalian evolution move towards human intelligence. Genghis Khan and his sons and grandsons spread death and destruction across the entire Eurasian continent—yet this also bridged what was divine in the East to what was divine in the West, connecting diverse civilizations that learned to coexist; however, this learning took hundreds of years. And scientists in the fields of psychopathology (Minero et al., 2017) and social pathology (Keohane & Petersen, 2016) always confirm humankind’s overwhelming rejection of wrong behaviors and the desire to correct at least the most harmful ones across individual and social levels.

Thus, it is the working of two intertwined forces, divine and evil, with an asymmetry that slightly favors the divine, that seems to let Conscience prevail and keep the right separated from the wrong—across all scales of existence.

#### Will

That the cosmic Soul has its Will is obvious, though we also must see it obeying the LAW OF DETERMINATION WITH UNCERTAINTY.

This Will is obvious to anyone who appreciates that 1) the laws of physics didn’t rest for billions of years until they helped a planet like Earth to be formed, 2) the laws of chemistry didn’t rest for another three billion years until they helped cyanobacteria fill the atmosphere with oxygen, 3) the laws of biology didn’t rest for two billion more years until they helped evolution produce human consciousness and intelligence, and 4) the laws of sociology didn’t rest until they helped humankind to leave behind the rituals of human sacrifice, then the systems of slavery, then the politics of world wars, colonialism and racism.

Yet, with all of its determination, the cosmic Will also seems to embrace uncertainty, like the uncertainty of how far from Earth other civilizations develop, how extensively humans themselves change their planet’s surface, how long humankind keeps her superiority over android robots, or how the fascination of men and women with wars will end, if ends. Indeed, there is an uncertainty in whether humans will decide to adjust the Law of Divine—Evil Asymmetry on their own for their own world, to control the dragging impulses from their animal past and, freed from these impulses, serve justly both the strong and the weak, the fortunate and the unfortunate.

#### Mission

The Identity, Conscience and Will of the Soul of Multiverse may well serve a Mission, perhaps under the LAW OF LIVES TO TRANSCEND. This Mission is

as incomprehensible for us as the endlessness of its scene. But the presence of that Mission can be felt. Not known or recorded—just felt.

For example, this author feels that the Mission of Soul at the cosmic scale must have something to do with life. Yes, so far, the only known “Tree of Life”—mentioned, but kept unexplained in the *Book of Genesis*; drawn, but left its details to the scientists of the future by Darwin—is the tree of life on Earth.

It is a detail whether life exists elsewhere in the currently observable Universe or life is somehow unique to the conditions of our planet. It was raised (Crick & Orgel, 1973) that life can spread in the Universe via “Directed Panspermia”. Nevertheless, based on “a simplified Bayesian model that combines uninformative priors and the timing of evolution”, others cautioned us that “intelligent life is likely to be exceptionally rare” in the Universe (Snyder-Beattie et al., 2021). But life exists, alone or not. And on Earth, it transcended from those Last Universal Common Ancestors (LUCAs) to a species able to produce art, religion, philosophy, science and engineering, some of which are shown (Figures 1-3) or referenced here.



**Figure 3.** Top left: Gustave Doré’s illustration for the “Paradiso” section of Dante’s “*The Divine Comedy*”, faithful to the poet’s vision of his spiritually encountered God: a non-anthropomorphic “eternal light”. Top right: Photograph made by the Apollo 11 astronauts on July 20, 1969. The contrast of our planet known to be full of life and its lifeless moon is as striking as the beauty of both. Bottom: A key scene from the film “*Contact*” based on Carl Sagan’s novel (Sagan, 1985) where the astronomer/astronaut protagonist, played by Jodie Foster, meets with the real or unreal reincarnation of her beloved dad on a planet 25 light-years from Earth. By viewing these images, the potential of lives to transcend across space and time might be felt.

The Mission of Soul at the cosmic scale must also have something to do specifically with intelligent life, as we are constantly taught, guided, inspired by that Soul.

The incomparable Hungarian writer, Imre Madách, closed his 19<sup>th</sup> century masterpiece, *“The Tragedy of Man”*, with these words of God after Adam’s troubling dream about humankind’s history full of failures: *“I told you, man: trust, and never lose your faith.”* Wasn’t this a teaching by a cosmic Soul through a writer? Rabindranath Tagore observed that *“True enjoyment can never be through the satisfaction of greed, but only through the surrender of our individual self to the Universal Self.”* (Tagore, 1931). Wasn’t this guidance by a cosmic Soul through another writer, this time from India? Dante wrote about *“Love that moves the sun and the other stars”*; Aldrin saw the Moon as a place of *“magnificent desolation”*; Sagan’s *“Contact”* imagined a Universe permeated with culture (Figure 3). Weren’t these inspirations from a cosmic Soul, whether a poet, an engineer, or a scientist felt them?

The major finding of this cosmological neuroscientific analysis is that the physical and chemical laws of the Universe/Multiverse are more likely imbued with higher-order laws stemming from a cosmic Soul than acting without such orchestration.

## 5. Conclusion

Cosmological neuroscientific examination of the phenomenon of Soul suggests that this phenomenon is present across human, noospheric and cosmic scales. Further, just as the central medium of the human Soul, the hypothesized pre-frontal cortical supercircuitry of Self-Ken, seems to comprise such domains as Identity, Conscience, Will and Mission, analogous domains may also function in the Soul of Noosphere and in the cosmic Soul across our Universe and its possible hosting Multiverse. Regarding the individual human Soul, it was emphasized that its four domains are determined by both hereditary genetic and encountered environmental factors. This determination, however, does not restrict fate, rather provides each human being with a Mission compatible with his or her mental engine, physical features, surrounding society and encountered space-time in the best way, which, if undertaken, makes the most sense and can integrate his or her life into its social and cosmic contexts with meaning and dignity. Next, the Soul of Noosphere was examined. While the individual human Soul is made of interconnected living cells to produce functions inaccessible to other humans except via self-controlled communication, the noospheric Soul is made of individual human Souls interacting with the non-living system of interconnected computers to produce functions accessible to humans all over the world through uncontrolled communication across the Internet. This noospheric Soul’s most probable Mission is to acquire its Identity, develop its Conscience and refine its Will—so that their coherent, superior whole can be ready for sensing the Soul of the Multiverse and move human evolution a step closer to the divine. Finally, an

attempt was made to look into the cosmic Soul. Here, six possible laws of this all-encompassing presence were discussed. The Laws of Mystery of Endlessness, Coexistence in Diversity, and Truth in Complexity were considered attributes of that Soul's Identity. Its Conscience was proposed to be related to the Law of Divine—Evil Asymmetry, its Will to the Law of Determination with Uncertainty, and its Mission to the Law of Lives to Transcend. Admitting that the Mission served by these laws is not yet comprehensible to us, it was still suggested that this Mission must have something to do with life, especially with intelligent life, as our intelligence is constantly taught, guided and inspired by the Soul of cosmic realms.

### Acknowledgements

I thank Ms. Zoey Yang for asking me to complete this paper and send it to the *Open Journal of Philosophy*. Discussions with my daughter Krista were inspiring for this article. I was encouraged by Dr. Mária Szabó of Pécs to put my related thoughts into writing.

### Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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