

Contributions of Dr. Sirajul Husain in the Greatest Unsolved Problems in Cognitive Science

Ganesh Seshan

ABSTRACT

The most significant contribution of Dr. Sirajul Husain is a theory of consciousness that has offered solutions to the three major unsolved problems in Cognitive Science: How a conscious experience arises in a physical brain, how it acquires meaning, and how meaning is represented in the brain. His research marks a major paradigm shift by his introduction of a non-reductionist approach to the phenomenon of consciousness as the foundation of cognition. His insightful prediction of a novel society of non-coding genes as a non-reductive source for emergence of consciousness, (International Conference on "Toward a Science of Consciousness", University of Arizona, 2004) was based on his conviction that consciousness cannot be reduced to brain physiology, and that it emerges as a field, with neurobiology essentially acting as a neurocatalyst. His prediction was duly fulfilled by a monumental discovery of a set of forty nine non-coding genes, (University of California, Santa Cruz, 2006), in particular, RNA gene (HAR1F), which was found to be responsible for development of human cerebral cortex, the centre of cognitive process. These favorable circumstances led Dr. Husain to develop a unified cognitive field theory of consciousness, which mathematically describes the cognitive kinematics of how meaning arrives in a conscious experience and how it is represented, essentially independent of a language. In order to account for semantic relativistic effect that arises when conscious experiences are expressed using a natural languages, Dr. Husain propounded a non-Euclidean, four-dimensional curved space, termed sense-sound continuum, comprising of auditory, visual, somatosensory, and sound, for conserving semantic invariance of a conscious experience. Dr. Husain's interdisciplinary research in consciousness and cognitive science has a far reaching impact on several disciplines, from reconciliation of theory of relativity and quantum mechanics to a theory of everything, from psychiatry to mind-body medicine, and from cosmology to theology. However, by far the most significant aspect of his research is toward a theory of human mind, the most efficient, self-regulating system in nature that is known to function at negative entropy. One can say we are entering an Era of the Mind, vis-à-vis the "Decade of the Brain", of the nineties.

Key Words: consciousness, cognition, epistemic faculty of consciousness, sense-sound continuum, neurocatalysis, neurosonemic field

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Consciousness: Foundations of Cognitive Science

Remarkable advancements have been made in cognitive neuroscience in mapping various neurobiological substrates involved in

cognition, yet, the core issues in cognitive science as to how neurobiological processing as involved in integration of multisensory gives rise to meaning in a conscious experience; and how meaning is represented in the brain, have remained unsolved. As analyzed by Crick and Koch (1998), "An important problem neglected by neuroscientists is the problem of meaning. The problem of meaning and how it arises is more difficult, since there is, as yet, not

Corresponding author: Ganesh Seshan, Ph.D.

Address: Georgetown University, School of Foreign Service in Qatar, 3300 Whitehaven ST NW, Suite 2100, Washington DC, DC 20007.

✉ gks7@georgetown.edu

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even an outline formulation of this problem in neural terms.” The impasse in cognitive science was determined by Dr. Husain to be due to lack of a theory of consciousness, since consciousness is the ontological source of cognition. Researchers around the world concentrated on exploring consciousness mainly by reductively trying to find “neural correlates of consciousness.” Consequently, the modern research on consciousness has remained traditionally confined to reducing consciousness to brain physiology.

Dr. Husain realized that consciousness must be an emergent phenomenon, notably as a field, while neurobiology acting as an efficient processor must function, as a neurocatalyst. This vision is supported by the fact that no part of the brain is known to be conscious of what it is processing. Dr. Husain made a bold departure from the prevalent reductionist approach by formulating a hypothesis of existence of a novel society of non-coding genes, termed by him as ontic-genes, as a source of consciousness, (which he presented at the international conference on “Toward a Science of Consciousness” (University of Arizona, 2004). Dr. Husain’s non-reductionist hypothesis of Ontic-genes passed uncontested as it was deemed outlandish to the traditional reductionist minds.

However, in 2006, a monumental discovery of a non-coding RNA gene (HAR1F) was reported by Pollard and Salama *et al.* (2006). Importantly, as explained by Salama, “*Unlike most known genes, HAR1F does not encode instructions for making a protein to carry out its function. Researchers are discovering a growing number of such ‘noncoding’ genes, many of which produce functional RNA molecules. HAR1F appears to be a novel type of RNA gene,*” which is found to be active in special nerve cells, called Cajal-Retzius neurons, that appear early in embryonic development and play a critical role in the formation of the layered structure of the human cerebral cortex. With the unique capability of ontic-genes (collectively referring to the RNA gene HAR1F, and additionally forty eight more expected) for the development of cerebral cortex, Dr. Husain argued that the ontic-genes must be responsible to evolve neuropsychological resources out of neurobiological sources, non-reductively, in particular, for emergence of a potential

neuropsychological field on the cerebral cortex, on the analogy of emergence of magnetic field around a wire carrying electricity.

Dr. Husain with his zest for interdisciplinary research became engaged in yet another well-known mystery in quantum physics, called non-locality. A pair of photons produced from a single source is found to be joined together. However, if they are separated from each other and sent in opposite directions, they are known to remain connected, or “entangled”, over arbitrary distances. The incredible mystery is that the entangled photons appear to be ‘conscious’ of each other; if one is stopped, the companion photon stops instantaneously, no matter how far apart they may be from each other in the space. The instantaneous non-local behavior of entangled photons is, however, a universally confirmed fact of nature. Yet there has been no explanation of non-locality ever since its discovery in 1920s. The instantaneous non-local correlation between a pair of entangled photons obviously violated Einstein’s theory of special relativity, according to which nothing can travel faster than light. Einstein, one of the discoverers of non-locality in quantum mechanics, however, branded the theory as “Incomplete”, all his life. He did not reject it right away, rather, he hoped for a solution in future: “*I am quite convinced that someone will eventually come up with a theory whose objects, connected by laws, are not probabilities but considered facts*” (attributed to Einstein, Max Born, 1971; p.158).

The mystery of non-locality, however, far from being a distraction from his research on consciousness and cognition, was found to be a boon to the searching mind of Dr. Husain. He envisioned that the gap between the macroscopic and the microscopic phenomena is bridgeable, and farsightedly postulated a universal field of quantum-consciousness on the space-time, as a novel field of information pervaded by quantum-conscious signals, which he termed *nourons*, capable of faster than light communication. This vision turned out to be the foundation of solving the mystery of non-locality, on one hand, and the mystery in cognition of how meaning arises in a conscious experience from a physical brain and how it is represented, on the other (Husain, 2010; Husain, 2013).



Switching between obviously distant and dissimilar disciplines seemed to be a source of inspiration for Dr. Husain. Reverting back to the domain of consciousness and cognitive science, he envisioned that a central cognitive force is necessary to regulate neurobiology for integration of sensory information as a source of meaning, based on his postulate that each sensory modality carries a specific semantic potential. He propounded a novel field of epistemic faculty of consciousness emerging from an interaction between the potential neuropsychological field, as mentioned above, and the universal field of quantum-consciousness, on the analogy of emergence of electromagnetic field by the interaction of magnetic field and electric field acting at right angles to each other. He postulated that neurons imparted by universal field of quantum-consciousness to the epistemic faculty of consciousness in the interaction with the neuropsychological field, get transduced into nousons on entering the neurobiological environment, thereby, giving rise to a novel semiotic field, which he called neurosonemic field. It is the neurosonemic field that is postulated to be responsible for representation of emergent meaning in a conscious experience, in a semantically coextensive fashion. *Nouson* is derived from Greek, *nous*, for mind, and *son* from French for sound. *Nousons*, foresees Dr. Husain, constitute a fundamental basis of phonetics of script of any natural language, in general.

According to Dr. Husain, meaning that is generated by the integration of multisensory information, based on the postulate that each sensory modality carries its own specific semantic potential, spontaneously gets transduced into neurosonemic energy in a semantically coextensive fashion, resulting into a unified conscious experience, termed, a neurosonemic concept, essentially independent of a natural language. Dr. Husain calls the unified cognitive process as a point-syntax, in contrast to the familiar linear syntax that one uses when defining a neurosonemic concept employing a linguistic statement. Rationale for neurosonemic representation in a semantically coextensive fashion comes from Peirce's (1931; p.58) definition of semiotics as, "any form of activity, conduct, or process that involves signs, including the production of meaning. It includes the study of how meaning is constructed and understood." Here the meaning and symbol are identical.

The role of language is an ingenious means in the transition of alingual neurosonemic concepts into linguistic concepts for effective communication. However, when the invariant meaning in a neurosonemic concept is described linguistically in terms of one or more statements, the meaning may undergo a relativistic effect in its purport, as observed by Quine (1969) in his study on "ontological relativity". According to him, "We cannot require theories to be fully interpreted, except in a relative sense, if anything is to count as a theory. In specifying a theory indeed we must fully specify, in our own words, what sentences are to comprise the theory, and what things are to be taken as values of the variables, and what things are to be taken as satisfying the predicate letters; insofar we do fully interpret the theory, relative to our own words and relative to our overall home theory which lies behind them. But this fixes the objects of the described theory only relative to those of the home theory; and these can, at will, be questioned in turn." Dr. Husain calls 'ontological relativity' due to Quine as semantic relativity, as may cause ambiguity or inadequacy in conveying the meaning in a neurosonemic concept by means of linguistic communication.

Dr. Husain traced the source of semantic relativity to the linguistic communication, in particular, to arbitrary syntax and arbitrary phonetic scheme with respect to a given language. He characterizes a given system of syntax and phonetics pertaining to a specific language as an inertial system, because it is derived following what is known as Euclidean logic. For example, a neurosonemic concept tends to remain invariant, as a point-syntax, as opposed to a linguistic statement that is constructed to define meaning in a given neurosonemic concept in the form of a linear syntax of a natural language. Dr. Husain argues that it is the 'translation' of a point-syntax of an alingual neurosonemic concept into a linguistic linear syntax that may be the source of semantic relativity.

He maintains, in a linguistic communication, conveying of unified meaning in a neurosonemic concept in the form of arbitrary linear syntax constitutes "absolute sense" (sense is used here as meaning) with respect to a given language and its denotation



using an arbitrary phonological scheme of that language constitutes “absolute sound”. He postulated “absolute sense” and “absolute sound” together to constitute an inertial linguistic system since it is essentially based on Euclidean logic. Euclidean logic is referred to when conclusions are drawn directly from a logical extension of what is given in the immediate sense experience. Classical example of Euclidean logic is, Euclidean geometry was based on the conclusion drawn from an immediate sense experience of a pair of parallel lines which do not intersect if they are drawn on a plane surface, even if the lines are extended infinitely on either side. However, there is no plane surface in nature that can be extended infinitely. In fact, a plane surface is found to be a special case of the geometry of the universally curved space. The conclusion that parallel lines do not intersect is limited to a plane surface, and hence cannot be generalized.

Contrary to the point syntax pertaining to a semantically coextensive neurosonemic concept, a linear syntax of a language, expressed in terms of phonological representation of words in a sentence, is formed based on *sequential* auditory perception, as well as, on *sequential* vocalization, following an Euclidean logic. It is the Euclidean approach employed to express point syntax in terms of linear syntax based on sequential auditory perception as well as sequential vocalization that constitutes an inertial system in linguistic communication.

In order to account for semantic relativity, Dr. Husain replaced the inertial linguistic system with a non-Euclidean, four-dimensional curved space, termed, sensesound continuum, as a field, on the analogy of space-time as a field, in the theory of relativity. Dr. Husain defined the four-dimensional sensesound as comprising of auditory, visual, somatosensory modalities, and sound. The term, somatosensory combines tactile, taste, and smell senses into a single modality. Inclusion of sound in the sensesound seems to be supported by Eisenberg's findings (1976) that, “*Human responsiveness to sound begins in the third trimester of life and by birth reaches sophisticated levels, especially with respect to speech.*” Dr. Husain maintains that it is in this respect, the sense and sound escape semantic relativity, not only with respect to various linguistic frames of

reference, but also with respect to all observers from the standpoint of a single linguistic frame of reference.

According to Dr. Husain, the whole of cognitive reality, comprising description of physical and metaphysical aspects of human experience then could be represented as a field of phenomenal consciousness whose components depend on four sensesound parameters, the auditory, visual, somatosensory, and sound. A neurosonemic representation of a conscious experience when it is expressed phonologically is referred to as a phenomenal concept, in this study. According to relativity physics, Dr. Husain maintained that if the laws of phenomenal field are, in general, covariant, that is, are not dependent on a particular choice of coordinate system in linguistics, then introduction of an independent, arbitrary, absolute inertial linguistic frame, will no longer be necessary. That which constitutes the spatial character of cognitive reality is then simply the four dimensionality of the sensesound.

He postulated that the field of epistemic faculty of consciousness to be covariant with the sensesound continuum, such that the geometry of the eventual curvature of the sensesound denotes the semantic invariance of an emerging linguistically conveyed phenomenal concept. He denoted the curvature of sensesound by a Riemannian symmetrical tensor, g_{mn} , as an invariant metric existing independent of a specific linguistic frame of reference. A tensor is defined as a generalization of a vector which is a mathematical entity specified with respect to a given coordinate system and is able to undergo transformation to other coordinate systems.

In order to carry through a general relativity of all 'coordinate systems' as pertaining to all linguistic frames of reference, that is, a general application of relativity to kinematically equivalent linguistic descriptions of a neurosonemic concept, the field of epistemic faculty of consciousness must be correspondingly specified for every inertial linguistic system. Here, the inertial systems themselves are not equivalent, but every linguistic coordinate system together with its corresponding field of epistemic faculty of consciousness is equivalent to any other linguistic coordinate system together



with its corresponding field of epistemic faculty of consciousness. Each of these covariant descriptions is then an admissible description of a phenomenal concept emerging on the sensesound. He formulated a mathematical description of the cognitive kinematics involved in the emergence of a conscious experience, its spontaneous neurosonemic representation, and subsequently expressed as a phenomenal concept using a natural language.

Dr. Husain employed a novel Riemannian tensor, H_{mn} , denoting totality of phenomenal concepts on the sensesound, as a combination of the tensor of the epistemic faculty of consciousness, g_{mn} , and a neurosonemic tensor, S_{mn} , as follows. Here, S_{mn} tensor is related at every point of the sensesound continuum to the H_{mn} tensor, as formulated in the following unified cognitive field equation, describing the cognitive kinematics involved in the emergence of meaning in a noumenal concept, its spontaneous representation as a neurosonemic concept, and a corresponding phenomenal concept in its linguistic representation:

$$S_{mn} + S g_{mn} = kH_{mn} \quad (1)$$

Dr. Husain's unified cognitive field equation (1) describes the cognitive kinematics of human thought process about the spatiotemporal physical universe described by Einstein's field equation (1950) as,

$$R_{mn} - 1/2 R g_{mn} = -kT_{mn} \quad (2)$$

In equation (1), m and n are components, to be summed over 1 to 4; k is a universal linguistic constant, which may be assumed to be unity for English language, in this study. S represents the scalar of Riemannian curvature, given as $S = g^{mn}S_{mn}$. The tensor, H_{mn} describes distribution of cognitive-emotive energy of meaning in phenomenal concepts.

Significance of Dr. Husain Contributions in Cognitive Science

Nourons, pertaining to the universal field of quantum-consciousness, as well as their counterparts' nousons, pertaining to the field of epistemic faculty of consciousness, far from being idealized notions, are shown to bridge the perennial gaps in instantaneous nonlocal

correlation in quantum mechanics, and in spontaneity of thought process in cognitive science, respectively. The unified cognitive field equation of consciousness (1), by non-reductively establishing a causal interdependence between consciousness and cognition, with neurobiology playing essentially a neurocatalytic role, furnishes a foundation of cognitive science. Dr. Husain is actively engaged in experimental characterization of nousons in cognitive neuroscience, as a basis to characterize nousons in quantum mechanics.

Dr. Husain derives an important relation between neurosonemic energy, m , and the cognitive-emotive energy pertaining to the meaning in a concept, E , occurring at the spontaneous speed of thought, s , defined as:

$$E = ms^2 \quad (3)$$

In this respect, s is far greater than speed of light, c , in Einstein's equation between matter and energy, as $E = mc^2$.

The relation between s and c , $s > c$, may be illustrated by the fact that while light is known to travel from the sun to earth in eight minutes and nineteen seconds, conceptualization of the itinerary of light between sun and earth is practically spontaneous. If s is assigned the value of unity, (in which case, speed of light will be a fraction of unity on this scale), cognitive-emotive energy of meaning becomes truly equivalent to the corresponding neurosonemic energy, $E = m$.

Meaning-energy equivalence, as in equation (3), seems to explain the intriguing mystery of how higher level cognitive concepts are formed, from an initial neurosonemic concept emerging directly from integration of multisensory information. Based on the fact that human mind can not only think but also can reflectively think on what it is thinking, Dr. Husain deduced the epistemology involved in it. Based on the energy-meaning relation he postulated that an initial thought, termed primary concept, arising from on an actual sense experience, seems to act virtually as a "sensory information", to give rise to a higher cognitive concept virtually independent of sense-experience, so to speak, by "inventing", (to use Einstein's metaphor which he uses to signify the cognitive power to form concepts) independent of a sense-experience. Dr. Husain has shown that cognitive kinematics of



formation of noumenal concepts at higher cognitive-emotive energy levels is realizable by virtue of energy-meaning equivalence. That is, the interconvertibility between E and m, can occur recursively to create novel higher concepts, with each time E begins to act as a virtual “primary” concept, giving rise to secondary, tertiary concepts, until meaning in a higher cognitive level becomes epistemologically valid, which is a state in a cognitive exercise characterized by no further possibility for perceptual categorization. Dr. Husain’s research on cognitive kinematics seems to corroborate Einstein’s epistemology that concepts are not derived inductively from an immediate sense experience, but are invented as free creations independent of a sense experience (Lenzen, 1949).

The role of mind in human life, in general, and in psychiatry and medicine, in particular, is well-known, although as yet nothing can be said what mind is, how it evolves, and how it functions. With a formal theory of consciousness Dr. Husain is engaged in exploring the mystery of mind and free will.

Applications of Dr. Husain’s theories of Consciousness and Cognition

Dr. Sirajul Husain’s contributions in consciousness and cognition have made significant impact on a wide variety of disciplines.

Reconciliation between Theory of Relativity and Quantum Physics.

The unification of general relativity and quantum mechanics is arrived as follows. Dr. Husain postulated that Riemannian symmetrical tensor, g_{mn} , as a general invariant metric, can be employed both to represent gravitational field in Einstein’s field equation, as well as, (2), to represent the universal field of quantum-consciousness on the spacetime, in which case Einstein’s equations are found to remain unaffected. In the following equation (4), g_{mn} represents either universal field of quantum-consciousness or, gravitational field, depending on whether macroscopic or microscopic phenomena is implied, thus,

$$R_{mn} - 1/2Rg_{mn} = -kT_{mn} \quad (4)$$

The economic dual application of g_{mn} does not cause conflict in using a single unified equation for both the theory of relativity and quantum mechanics. This is because of the fact

that neither gravitation has any effect on quantum particles, nor the field of quantum-consciousness has any effect on macroscopic phenomena. Above all, the grand unification so obtained retains the exceptional aesthetic elegance that was so passionately valued by Einstein.

Relativity and Quantum Mechanics: Toward a Theory of Everything

The universal field of quantum-consciousness seems to constitute an important invisible boundary between the physical and the metaphysical realms. Dr. Husain was curious whether the universe is governed by five fundamental forces, by the inclusion of the force of quantum-consciousness? The difficulty in reconciling gravitation with the rest of the four forces can be explained by treating gravitation as distinct from the rest of the forces. Dr. Husain postulated that the proposed fifth fundamental force of quantum-consciousness together with gravitation may be treated as a group by itself, as distinct from the other three physical forces, forming another distinct group. The proposed grand unification, leading to a Theory of Everything, is sought based on the nature and behavior of the forces, and not by considering the forces in their general nomenclature.

Consciousness: Foundations of a Theory of Mind

Mind is the most mysterious phenomenon in nature. Although it is known to emerge in the neurobiological crucible of the brain, yet it is unknown how it emerges, how it functions, and where it resides. There is an inherent challenge in exploring the mystery of mind; the only avenue available to explore mind is the ‘mind’ itself. Dr. Husain’s non-reductive theory of consciousness as a foundation of cognition has enormously enhanced avenues for exploring the mind. In particular, based on how higher cognitive concepts are generated by the cognitive power of the relation $E=ms^2$, implying spontaneous interconvertibility between neurosonemic energy and cognitive-emotive energy of meaning in the emergence of concepts, on the sense-sound, Dr. Husain envisions evolution of the phenomenon of mind, as a field. He elaborates that it is the recursive and spontaneous cognitive kinematics of the above equation that renders the mind as the most efficient, self-organizing, and self-regulating metaphysical system in



nature. It is by virtue of these unparalleled attributes that the mind is known to function most efficiently, at the negative entropy level.

What Einstein said about mind, in the absence of a theory of consciousness that, “you cannot solve a problem with the mind that created it”, may now be said in the light of Husain’s theory of consciousness that, “you can solve a problem only with the mind that created it.”

Einstein: The most incomprehensible thing about the universe is that it is comprehensible (attributed to Einstein, Vallentin, 1954, p. 24).

Husain: The most incomprehensible thing about the mind is that it is comprehensible all by itself.

Dr. Husain’s research on mind seems to usher an Era of the Mind, vis-à-vis the “Decade of the Brain”, of the nineties.

Neuropsychological foundation of mind-body medicine

Metaphysics is a study of the ultimate nature of reality. There has been curiosity about a relation between the physical and the metaphysical. Human being is governed by an extremely complex, yet the most efficient metaphysical system, the mind. However, although mind is the outcome of the neurobiological processes in the brain, yet, paradoxically, it is, by far, the mind that governs the brain.

A therapeutic imagery applied in complementary medicine is as effective in healing as it is meaningful. The most formidable challenge in mind-body medicine is that the imagery of a higher power has remained unsubstantiated. A thought, in particular, its *meaning* is well known to influence immunoregulation through its action on neuropeptides, positively or negatively. Based on Dr. Husain’s research on how meaning arises in a conscious experience, in particular, how meaning gets enriched in higher cognitive concepts, one can maximize the cognitive-emotive energy in the positive direction to achieve higher levels of immunoregulation to combat the odds. Dr. Husain has determined that meditating on ordinary concepts may help one to experience a transient sense of relief, whereas it is epistemologically relevant to meditate on a meaningful imagery of a higher power, for

example, as an infinite source of benevolence. The spiritual imagery is consonant with the well-known definition of spirituality as, “anything that fosters or gives *meaning* to the *ultimate value*.” (Holland, 1998; p.1) By ultimate value that one understands is *life* itself, since the ultimate goal of both conventional and complementary medicine is to save and enrich life.

Dr. Husain has shown applicability of the imagery of infinite source of benevolence, in a clinical study using one hundred caregiver professionals, in continuing education seminars on “*Neuropsychology of Spiritual Healing*.” at the Cleveland State University. The rating was, on an average, nine, on a scale of one to ten.

Consciousness: Foundations of Psychiatry

In a comprehensive treatise on biological foundations of psychiatry, Nobel Laureate Eric Kandel raises two fundamental questions in psychotherapy: “We now need to ask, how the biological processes of the brain give rise to mental events, and how in turn do social factors modulate the biological structure of the brain?” (Kandel, 1998; p.464) Dr. Husain has shown that as a mental event is recognized in terms of its semantic content it is in turn gets transduced into its equivalent neurosonemic energy, by virtue of nousons, to serve as psychotherapeutic modality.

In response to Eric Kandel’s first question, Dr. Husain has offered a convincing theoretical justification for how a physical brain neurocatalytically forms mental events. However, with respect to the query how counseling words modulate the brain physiology of a patient, Dr. Husain explains that the counseling words are received by the patient in terms of its equivalent neurosonemic content which is independent of a given language. Psychotherapy may be offered in any language. As long as the patient gets the exact semantic input of the counseling words, it is transduced into equivalent neurosonemic content, which has the capability to modulate the brain structure accordingly.

Science of Religion

Traditionally religion and science are treated as two separate disciplines. However, Dr.



Husain has shown that a religious belief in an unseen creator constitutes a scientific hypothesis based on observation of nature by virtue of the capability of human mind to form concepts independent of what is given in the immediate sense experience.

In the formulation of a hypothesis, in general, the capability to form higher cognitive concepts is fundamental. A hypothesis may be formed based on a direct sensory input from the nature (primary concept) and stop there, or proceed to form a higher cognitive concept based on the primary concept. The higher cognitive concepts are known to be independent of the sense-experiences, following Einstein's epistemology that concepts are not formed inductively from extending what is available in the immediate sense-experience, but are constructed independent of what is given in immediate sense experience. Dr. Husain's theory of cognition seems to substantiate Einstein's epistemology.

Just as hypotheses of space-time continuum, and gravitational field to be covariant with the space-time, are concepts which are not derived by extending what is available to our sense-experience, Dr. Husain argues that in religion a creator that is also not derived by extending what is given in sense experience, must be a valid hypothesis.

A religious hypothesis of a creator as a higher cognitive concept can not be dismissed as unscientific. Rather, if someone cannot form the concept of creator as a higher cognitive concept, but seeks a "creator" as part and parcel of what is observed in nature, it would be indicative of a cognitive deficit as a category error. Therefore, a religious belief in a creator of nature being epistemologically independent of the creation itself is as scientific as the notion of infinity, although it has no physical correlate in the universe.

The first step in forming the concept of infinity is based on actual sense-experience of physical phenomena, leading to the higher concept of infinity, necessarily independent of the original sense-experience, following Einstein's epistemology, as above. The concept of an "uncaused", "unseen" creator of the universe is formed as a testable hypothesis based on normal cognitive habit of forming higher cognitive concepts. As in science, one

may set up a null-hypothesis that there is no creator of the universe, implying the phenomenon of the universe can come into existence all by itself, grow, flourish and self-annihilate. It is the scientific imperative to disprove the null hypothesis of atheism, in order to prove creationism.

Dr. Sirajul Husain

Dr. Sirajul Husain received his doctorate from Case Western Reserve University (1981). He received John Templeton Science and Religion award for his design of a course on "Science of Religion" in 1997, and a supplemental grant for "Integration of Spirituality in Medicine" in 2000. He is working on a book on, *Consciousness: Foundations of Mind*, and on a revised edition of his earlier book, "Creation of Man and Human Development".

His theories of consciousness and cognition have led to solutions to hitherto unsolved problems of non-locality in quantum mechanics, reconciliation of relativity and quantum mechanics, and a theory of everything. Dr. Husain's intellectual achievements based on interdisciplinary approach to consciousness and cognition is a testimony of, "*only a rolling stone gathers moss.*" The leap from cosmology to neuropsychology was indeed an extraordinary intellectual feat as he has shown an ontological nexus between the physical and the metaphysical aspects of reality, in general, and between theory of relativity and quantum mechanics, on one side, and between quantum mechanics and cognitive science, on the other. With Dr. Husain's visionary unification of diverse fields from quantum mechanics to relativity, from cognitive science to psychiatry, and from cosmology to theology, may be attributed to his independent, rebellious pursuit of science with unique insights to expand the narrow span of modern reductionist approach to reality. By reinstating metaphysics back into modern science, Dr. Husain can rightfully be credited for rendering science as *complete*.

Dr. Husain is the founding Research Director at the Interdisciplinary Research and Development Center, in Virginia, USA. He was born in Hyderabad, India, and lives in Virginia, with his wife and four children.



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