

## INTERNATIONAL SEMINAR ON **Mind, Brain and Consciousness** (MBC 2010)

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#### Venue

VPM's K.G. Joshi College of Arts & N.G. Bedekar College of Commerce, Thane

#### Organised by

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Vidya Prasarak Mandal was founded in the year 1935. Its founding fathers led by late Dr. V.N.Bedekar, a medical practitioner were men imbued with idealism and desire to serve the educational needs of the people of Thane.

Beginning with a primary school, Dr. Bedekar and his team, worked with missionary zeal. Today, the educational institutions established by Vidya Prasarak Mandal in Thane include:-

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In 2008-2009 Vidya Prasarak Mandal opened its doors to two international institutions of repute. An educational collaboration was signed with California University of Technology, USA, (CalUniversity) for conducting professional courses namely, Master of Business Administration and Doctoral Programme in Business Administration. A MOU was signed with the University of Skovde Hogskolevagen, Sweden for conducting Graduate and Post Graduate Courses in Medical Biotechnology, Molecular Biology and Physiology.

### K.G. JOSHI & N.G. BEDEKAR COLLEGE OF ARTS & COMMERCE

K.G. Joshi & N.G. Bedekar College of Arts & Commerce was the first institution of higher learning to be established in Thane City in 1969. Strategically located, the college is at walking distance from Thane Railway Station on the Central Railway line. It is well connected by bus services to every part of the city including Navi Mumbai.

The College received permanent affiliation, in January 1988 with effect from June 1982. It was awarded B++ by National Assessment and Accreditation Council (NAAC) set up by UGC in January 2004. The College had 5695 students registered on its rolls in 2008-2009.

• **National Seminars :** The college has been conducting workshops and seminars at National level. Expert from various fields / subjects are invited as resource persons.

#### Seminar Conducted :

2004	- National Seminar	-	'Water Management Scenario 2025'.
2005	- State Seminar	-	'Marathi and Computers'
2006	- National Seminar	-	'Bio-Ethics'
2007	- National Seminar	-	'Indian Philosophy – Its Relevance in the 21st Century'.
2008	- National Seminar	-	'Post Independence Literature'.
2009	- International Seminar	-	'Mind, Brain & Consciousness'.

This is the colletion of abstracts of papers which were presented in the first and second preparatory workshops and also those which will be presented in the international seminar on Mind, Brain and Consciousness.

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### A Journey into Chaos: Creativity and the Unconscious

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The capacity to be creative-to produce new concepts, ideas, inventions, objects, or art—is perhaps the most important attribute of the human brain. We know very little, however, about the nature of creativity or its neural basis. Some important questions include: how should we define creativity? How is it related (or unrelated) to high intelligence? What psychological processes or environmental circumstance cause creative insights to occur? How is it related to conscious and unconscious processes? What is happening at the neural level during moments of creativity? How is it related to health or illness, and especially mental illness? This presentation will review introspective accounts from highly creative individuals. These accounts suggest that unconscious processes play an important role in achieving creative insights. Neuroimaging studies of the brain during "REST" (random episodic silent thought, also referred to as the default state) suggest that the association cortices are the primary areas that are active during this state and that the brain is spontaneously reorganizing and acting as a self-organizing system. Neuroimaging studies also suggest that highly creative individuals have more intense activity in association cortices when performing tasks that challenge them to "make assocations." Studies of creative individuals also indicate that they have a higher rate of mental illness than a noncreative comparison group, as well as a higher rate of both creativity and mental illness in their first-degree relatives. This raises interesting questions about the relationship between the nature of the unconscious, the unconscious, and the predisposition to both creativity and mental illness.

Key words: Creativity; complexity; Self-organizing systems; Consciousness; The Unconscious

## A Higher-Order-Thought Theory of Qualitative Consciousness

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#### Abstract

I develop and defend a two-stage theory of qualitative consciousness - that is, of what it is for qualitative mental states to be conscious. I begin by discussing what the problem of explaining consciousness consists in. Against that background I then develop a theory of what it is for mental states of any sort to be conscious. This theory posits higher-order thoughts (HOTs) that accompany every mental state that is conscious. These HOTs suffice to make one aware of each conscious state, which is a necessary condition for any mental state to be conscious. Though HOTs are seldom themselves conscious, they still result in awareness of our conscious mental states.

I then briefly consider and rebut several arguments, due to Levine, Chalmers, and others, that no theory that appeals to such higher-order states can do justice to conscious qualitative character - what it's like for one to be in a conscious qualitative state. In the course of that discussion I outline a theory of mental qualities that is independent of whether the relevant qualitative states are themselves conscious states. That theory identifies mental qualities on the basis of their perceptual role, relying for each sensory modality on the quality space that defines the perceptible properties to which the modality in question enables perceptual access. I conclude by showing how combining the HOT theory of a mental state's being conscious with the quality-space theory of mental qualities results in a satisfactory theory of qualitative consciousness that does not succumb to standard objections.

Keywords: Mental qualities; Consciousness; Phenomenal consciousness, Phenomenology

## **Consciousness, Cognition and Cognitive Apparatus**

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#### Abstract

A human being is a complex entity consisting of the Self (also known as Consciousness), mind, senses, and the body. The Vedanta tradition holds that the mind, the senses and the body are essentially different from the Self or Consciousness. It is through consciousness that we are able to know the things of the world, making use of the medium of the mind and the senses. Further, the mind, though material, is able to reveal things, borrowing the light from consciousness. From the phenomenological point of view, we have to answer the following guestions: how does one know the mind/the mental operations/the cogitations of the mind? Does the mind know itself? Is it possible? There is, again, the problem of the intentionality of conspicuousness. Is consciousness intentional? According to Vedanta, consciousness by its very nature is not intentional; but it becomes intentional through the mind. The mind or the ego is not part of the consciousness; on the contrary, it is transcendent to consciousness. It is difficult to spell out the relation between consciousness and the mind. How is consciousness, which is totally different from the mind, get related to the mind in such a way that it makes the latter capable of comprehending the things of the world? The Vedanta tradition provides the answer to this question in terms of the knower-known relation. Consciousness is pure light, self-luminous by its very nature, i.e., while it reveals other objects, it is not revealed by anything else. When Sartre describes it as nothingness, bereft of even ego, it is to show that it is pure light revealing objects outside it.

Keywords : Consciousness, Self; Vedanta tradition; Mind; Self; Intentionality

## What Should be the Roles of Conscious States and Brain States in Theories of Mental Activity?

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#### Abstract

When a title resonates controversy, I should say that I bring a particular perspective. For theoretical analyses of mental activity, I will sketch a mentalistic metatheory that I have presented in various ways, e.g. Dulany (1997, 2004, 2009). On enduring influences of behaviorism in psychology, assignment of roles to conscious and brain states has been influenced by fears of ontological non-materialism and "free will" in the sense of indeterminism, fears based on a confusion of theoretical with metaphysical assertions. Other current metatheories—computational and information processing—provide a "cognitive unconscious" and common endorsement of a monistic version of epiphenomenalism. On the mentalistic metatheory, however, conscious states are the sole carriers of symbolic representation of a past, present, or future in a world out there or in our own mental states and mental episodes. It also provides a more analytic approach to mental episodes and the non-conscious but non-symbolic. With competitive support of mentalistic theory, there can be support for the causal efficacy of conscious states that entails no metaphysical commitments. What consciousness explains, then, provides an explanation of consciousness—its adaptive value.

Can brain states have comparable positions in those theories? In principle, yes—on working assumptions that conscious states are coordinate in some way with brain states. (a) For *specific* states, then, what is the relative usefulness of phenomenal reports and brain imaging at its present technological development? Confidence in validity must call on the same logic from the philosophy of science. (b) Does reported evidence for unconscious mental states in perception, learning, and volitional control challenge a mentalistic metatheory? It is commonly interpreted as consistent with computational views of a "cognitive unconscious" and consciousness as epiphenomenal. Or does this illustrate conceptually driven methodological biases (Dulany, 2003)—and more interesting dissociations *within* consciousness, as in blindsight and prosopagnosia?

Keywords : Mentalism; Consciousness; Symbols; Deliberative; Evocative; Neural networks; Phenomenal reports; Brain imaging

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## Neuroscience and Values: A case study illustrating developments in policy, training and research in the UK and internationally

#### Prof KWM (Bill) Fulford\*

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#### Abstract

In the current climate of dramatic advances in the neurosciences, it has been widely assumed that the diagnosis of mental disorder is a matter exclusively for value-free science. Using a detailed case history, this presentation will show how, to the contrary, values come into the diagnosis of mental disorders directly through the criteria at the heart of psychiatry's most scientifically–grounded classification, the American Psychiatric Associations DSM (Diagnostic and Statistical Manual). Various possible interpretations of the importance of values in psychiatric diagnosis will be outlined. Drawing on work in the Oxford analytic tradition of philosophy, it will be shown that, properly understood, diagnostic values in psychiatry are complementary to good science. This interpretation opens up psychiatric diagnostic assessment to the resources of a new skills-based approach to working with complex and conflicting values (also derived from philosophy) called "values-based practice". Developments in values based practice in policy, training and research in the UK, and internationally, will be outlined.

The paper will conclude with an indication of how these developments in values based practice complement evidence-based practice in an approach to diagnostic assessment that is both science-based and person-centred.

Key Words: Mental disorder; Value-free science; Values-based practice

## The neuro-endocrine system and stress, emotions, thoughts and feelings

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#### Abstract

The philosophy of mind is intimately connected with the philosophy of action. Therefore, concepts like free will, motivation, emotions (especially positive emotions), and also the ethical issues related to these concepts are of abiding interest. However, the concepts of consciousness and free will are usually discussed solely in linguistic, ideational, cognitive (i.e. "left brain") terms. Admittedly, consciousness requires language and the left brain, but the aphasic right brain is equally conscious, but what it "hears" are more likely to be music and emotions. Joy can be as conscious, as the conscious motivation produced by the left-brain reading a sign that says, "Danger mines!!"

However, look in the index of a Western textbook of psychology, psychiatry or philosophy for positive emotions located in the limbic system. Notice how discussion of positive spiritual/emotional issues in consciousness and motivation are scrupulously ignored. For example, the popular notions of "love" being either Eros (raw, amoral instinct) or agape (noble, nonspecific valuing of all other people) miss the motivational forest for the trees. Neither Eros (hypothalamic) nor agape (cortical) has a fraction of the power to relieve stress as attachment (limbic love), yet until the 1950s attachment was neither appreciated nor discussed by academic minds.

This paper will point out that the prosocial, "spiritual" positive emotions like hope, faith, forgiveness, joy, compassion and gratitude are extremely important in the relief of stress and in regulation of the neuroendocrine system protecting us against stress. The experimental work reviewed by Antonio Damasio and Barbara Fredrickson, and the clinical example of Alcoholics Anonymous, will be used to illustrate these points.

Key Words : Positive emotions; Limbic system; Spiritual; "Rightbrain"

## How Does the Brain Produce a Sense of Self? Contribution of Prefrontal Executive Processes to Creating a Sense of Self

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#### Abstract

Much of our non-routine cognition is accomplished with executive processes housed primarily in the brain's prefrontal lobes. According to several current theories, executive processes help achieve various mental actions such as remembering, planning, and decisionmaking, by executing various operations on representations held in consciousness. I plan to argue that these executive processes are partly responsible for our sense of self because of the way they produce the impression of an active, controlling presence in consciousness. If we examine what philosophers have said about the "ego" (Descartes), "the Self" (Locke and Hume), the "self of all selves" (William James), we will find that it fits what is now known about executive processes. Hume, for instance, famously argued that he could not detect the self in consciousness, and this would correspond to the claim (made by Crick and Koch, for instance) that we are not conscious of the executive processes themselves, but rather of their results. Given that there are several executive processes, the question of how and why they function to prevent the appearance of a single, unified self arises. This question in turn raises important questions about how the unity of this sense of self relates to the unity of consciousness-the way that the brain carefully prepares and edits representations so that what appears in consciousness is a coherent whole. We should concede, I will argue finally, the possibility that consciousness is unified in order to create unity among the executive processes and harmony in their operation.

Key Words : Executive processes; Frontal lobe; Consciousness; Self; Unity of self and consciousness

## Bridging the Gap between Philosophers of Mind and Brain Researchers

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#### Abstract

Philosophers and psychologists have long tried to understand people's irrational behavior, through concepts such as weakness of will, compulsion, and addiction. The scientific basis of the project has been greatly enhanced by advances in cognitive psychology and neuroscience. However, some philosophers have also been critical of the more general conclusions drawn by the scientists. This is especially true when scientific researchers start making claims that go to philosophical issues, such as free will and responsibility. Conversely, some scientists have been critical of philosophical approaches for not understanding the results of recent research. I examine some of the recent history of scientific claims about addiction, and the rise of the claims from scientists to have shown that addiction is a brain disease and that addictive behavior is compulsive. Given the well-confirmed evidence that addicts can modulate their behavior in response to rewards, punishments, and context, it is clear that according to normal definitions of compulsivity, the behavior of addicts is not typically compulsive, which suggests neuroscientists are making an error in their interpretation of data. Since philosophers have expertise in making distinctions between different kinds of action and categorizing them as free, weak-willed, and compulsive, we will achieve a better interpretation of the neuroscience of addiction when taking this philosophical work into account. Conversely, given the status of science in the modern world, philosophers have to grapple with the latest neuroscientific discoveries and to show the compatibility of their philosophical theories with the data for their approaches to maintain credibility.

Keywords : Neuroscience; Addiction; Philosophy; Action theory; Compulsion

## Recent Advances in Brain Physiology and Cognitive Processing

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#### Abstract:

The discovery of participation of astrocytes as active elements in glutamatergic tripartite synapses (composed by functional units of two neurons and one astrocyte) has led to the construction of models of cognitive functioning in the human brain, focusing on associative learning, sensory integration, conscious processing and memory formation/retrieval. We have modeled human cognitive functions by means of an ensemble of functional units (tripartite synapses) connected by gap junctions that link distributed astrocytes (forming a syncytium), allowing the formation of intercellular calcium waves that putatively mediate large-scale cognitive information processing. The model contains a diagram of molecular mechanisms present in tripartite synapses and contributes to explain the physiological bases of cognitive functions. It can be potentially expanded to explain emotional functions and psychiatric phenomena.

Key-Words : Astrocyte; Calcium Waves; Information Processing; Glutamate; Tripartite Synapse.

## The Relationship between Creativity and Mental Disorder in an African Setting

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Abstract

#### Background

There has for some time now been recognition in the Western world that there was a relationship between exceptional creative talent and mental disorder. The works of Andreasen (Andreasen, 2008) and others in this area have been very significant. However most of the research has been carried out in USA and Europe. There is very little that has come out of Africa on the subject.

#### Aims

1. To survey the beliefs of different groups within an African society – concerning the possibility of a relationship between creative talent and mental disorder.

2. To seek to establish or refute the existence of psychopathology within a community of creative individuals, and also to seek to measure creativity within a community of people with a formal diagnosis of mental disorder.

#### Methods

Some of the mythology of the Yoruba was examined for content concerning the behaviour of certain notable individuals and the existence of psychopathology based on modern-day criteria.

The beliefs of members of the general public and mental health professionals concerning the existence of a relationship between creative talent and psychopathology were surveyed using a questionnaire designed for the project.

A sample of patients with formal diagnoses of Affective Disorder or Schizophrenia drawn from two units – the Lagos State University Teaching Hospital and the Federal Neuropsychiatric Hospital Yaba were assessed for 'Creativity'.

#### Results

One in every two members of the public believe that talented people show 'eccentric' or 'abnormal' behaviour, though it often does not require formal 'diagnosis' or treatment as society is generally tolerant of them. Among mental health professionals surveyed, who were clinical psychologists and psychiatrists, three out of four believe that creatively talented people such as musicians and painters are more prone to displaying personality abnormalities and drug abuse than other people. There is less agreement about formal mental disorder, such as Affective Disorder and Schizophrenia.

The survey of patients is inconclusive, based on small sample size (20 patients with a diagnosis of Schizophrenia, 20 with Bipolar Affective Disorder.)

#### Conclusion

There is a fond cultural acceptance of creative and talented people despite the perception that they are disproportionately prone to drug abuse (cannabis) and 'eccentric' behaviour. The linkage with formal mental disorder is less clearly recognised.

More research is required into this important subject in Africa.

Key Words : Cultural beliefs; Creativity; Mental disorder; Personality; Drug abuse

#### **Reference:**

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## Understanding mind, brain and soul: What neurosurgery has to offer

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#### Abstract

Surgery on the brain necessitates an understanding of its structure and functions. The philosophical neurosurgeon soon encounters difficulties when localizing the abstract concepts of mind and soul within the tangible 1300-gram organ containing 100 billion neurones.

Hippocrates had focused attention on the brain as the seat of the mind. The *tabula rasa* postulated by Aristotle cannot be localized to a particular part of the brain with the confidence that we can localize spoken speech to Broca's area or the movement of limbs to the contralateral motor cortex. Galen localization of imagination, reasoning and judgement resided and memory in the cerebral ventricles collapsed once it was evident that the functional units – neurones – lay in the brain parenchyma.

Experiences gained from accidental injuries (Phineas Gage) or temporal lobe resection (William Beecher Scoville); studies on how we see and hear and more recent data from functional magnetic resonance studies have made us aware of the extensive network of neurones in the cerebral hemispheres that subserve the functions of the mind.

The soul or *atman*, credited with the ability to enliven the body, was located by ancient anatomists and philosophers in the lungs or heart and more recently in the pineal gland (Descartes) and generally in the brain. When the deeper parts of the brain came within the reach of neurosurgeons; the brainstem proved exceptionally delicate and vulnerable. The concept of brain death after irreversible damage to it has made all of us aware of 'the cocktail of brain soup and spark' in the brainstem so necessary for life. If there be a soul in each of us, surely, it is enshrined here.

# Alteration in free will and freedom of choice in patients with fronto temporal lobar degeneration (FTLD)

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#### Abstract

One of the essential components of free will is being able to voluntarily initiate actions (defined as any activity that results in a change in the external and internal universe) as well as modulate and choose among a number of potential responses to internally or externally generated stimuli. The neural substrate for goal oriented action generation, implementation, and retro-assessment appears to be located in specific areas of the brain, especially in the frontal, prefrontal and temporal lobe structures. These same areas are also involved in the response selection within the stimulus response paradigm. FTLD is a neurodegenerative disorder which can be caused by various neuropathological processes and involve frontal and temporal brain areas. Patients with FTLD frequently display lack of action generation and a fixed, predictable response to a particular stimulus. We discuss how FTLD provides a model of a neurological disorder that interferes with free will and freedom of choice; it also allows us to better understand the neural substrate for "free will".

Key words : Free will; Freedom of choice; FTLD;

## Neural Basis of Decision-Making and Assessment: Issues on Testability and Philosophical Relevance

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#### Abstract

Decision-Making is one the most intricate and misguided subjects in neuroscience. It is often argued that laboratorial research is not capable of dealing with the necessary complexity to study the issue. But I intend to cope with the relationship between will, self-control, emotion, inhibition and reasoning in a very systematic and clear manner. I will analyze neuroscientific experiments in both technical and philosophical ways. I will defend the thesis that self-control mechanisms can modulate more basic stimuli and I interpret that fact as an example of how higher-level properties can be related to lower-level properties, specially when we are integrating different levels of information processing. Assuming the over-cited standpoints, I aim to show the physiological mechanisms underlying some practical and ethical issues. While philosophers in general neglect the physiological features that constitute the main aspects of thought and behavior, I intend to advocate that cutting-edge neuroscientific experiments would offer us a guideline to explain human behavior in its relationship to will, self-control, inhibition, emotion and reasoning. I intend to establish a difference between veridical and adaptive decision-making that helps us to understand how is possible to create experimental designs that can better mimic the complexity of costs and values present in our day-by-day decisions in more ecologically relevant laboratorial research. I analyze some experiments moved by the intention to develop an epistemological reflection about the necessary neural mechanisms to social assessment and decision-making.

Keywords : Decision-making; Inhibition/self-control; Rational and social assessment; Ecological relevance.

## Early Evolution of Medicine and Early Evolution of Mind: Ontological and Epistemological Considerations

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#### Abstract

Disease represents a principal tentacle of natural selection and a staple theme of evolutionary medicine. However, it is through a small portal of entry and a very long lineage that disease as sickness entered behavioral spaces and human consciousness. This has a long evolutionary history. Anyone interested in the origins of medicine and psychiatry as social institution has to start with analysis of how mind and body were conceptualized and played out behaviorally following the pongid/hominin split and thereafter. The early evolution of medicine provides a template for clarifying elemental characteristics of mind and minding. Sickness and healing in chimpanzees represents an early manifestation of (ethno) medicine, termed a behavioral tradition, which is found played out in routines of helping, caring, and healing as well as other social behaviors. Chimpanzees seem to know they are sick since they resort to self-medication when exhibiting signs and symptoms of disease. And they help those exhibiting physical and cognitive disability. Among hominins awareness of consequences and implications of sickness and coping with them represented an important feature of human consciousness and major factor in the origins of vaunted human abilities involving language, cognition, and culture as we know them. A philosophical examination of the early evolution of sickness and healing provides a window into an understanding of evolving human capacities such as self awareness, awareness and implications of suffering, theory of mind, altruism, and morality.

Key words: Disease; Evolutionary medicine; Pongid/hominin split; Human consciousness

## Meditation and The Brain: Attention, Control and Emotion

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#### Abstract

I intend to cope with the relationship between will, self-control, emotion, inhibition and reasoning. I will analyze neuroscientific experiments in both technical and philosophical ways. I will defend the thesis that self-control mechanisms can modulate more basic stimuli and I interpret that fact as an example of how higher-level properties can be related to lower-level properties. Assuming the over-cited standpoints, I aim to show the physiological mechanisms underlying some practical and ethical issues. While philosophers in general neglect the physiological features that constitute the main aspects of thought and behavior, I intend to advocate that cutting-edge neuroscientific experiments would offer us a guideline to explain human behavior in its relationship to will, self-control, inhibition, emotion and reasoning. I intend to establish a difference between veridical and adaptive decision-making that helps us to understand how it is possible to create experimental designs that can better mimic the complexity of costs and values present in our day-by-day decisions in more ecologically relevant laboratorial research. I analyze some experiments moved by the intention to develop an epistemological reflection about the necessary neural mechanisms to social assessment and decision-making.

Keywords: Attention; Concentration; Emotion; Compassion; Neural correlates of meditative states.

## The Concept of Thinking: A Reappraisal of Ryle's Work

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#### Abstract

In The Concept of Mind, Ryle's official position seems to be that mental acts cannot be intrinsically private. However, some portions of The Concept of Mind as well as Ryle's later work on thinking present a different picture. In a paper entitled 'Thinking', Ryle points out that most acts of thinking are goal-directed. An act of thinking ideally terminates in a thought, which (as Ryle suggests in the chapter 'The Intellect' of The Concept of Mind) is a state of being prepared for a verbal or non-verbal performance. Thinking is characterized by what Ryle calls intention-parasitism; for it is, insofar as the underlying motive is concerned, parasitic on the final performance which shall take place later. In a symposium on 'Thinking and Language', Ryle shows that every act of thinking, owing to its intention-parasitism, has to be described in a tactical idiom, with reference to the final performance for which it was intended. However, in the same paper, Ryle considers a case where a person fails to narrate what he is thinking. Presumably, in that instance, the act of thinking does not culminate in a thought which could be translated into verbal or any other kind of performance. Such an act of thinking would turn out to be tactically insignificant, and hence non-narratable: an inevitable privacy is thrust upon it. Can such privacy be accommodated into the theoretical framework of The Concept of Mind?

In this paper, I seek to reevaluate Ryle's work in the light of this question.

Key words : Thinking; Thought; Intention-parasitism; Narrative; Privacy

## THe Neurobiology of Dissociative Disorders (The mind – body – brain disunity and consciousness)

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#### Abstract

This article reviews studies on the neural correlates of dissociative processes and their contributions to the understanding of consciousness. Various studies using latest neuroimaging modalities like positron emission tomography, magnetic resonance imaging and functional magnetic imaging resonance are synthesized along with key cortical structures like the medial prefrontal cortex, anterior cingulate cortex, somatosensory cortex and insula. The role of the thalamus and cerebellum in dissociation and consciousness are examined. Distinctive neural correlates of primary and secondary dissociative experiences are examined in the light of psychiatric problems like post traumatic stress disorder. Disconnection of various neural pathways linking self awareness with body state perception occurring as a result of childhood trauma and its implications on dissociative states and consciousness are examined. We also examine a self that is divided, multiplied or perforated by trauma and a self that dissociates turning attention away from external threat and trauma.

Key Words: Dissociative Disorders; Consciousness; Post traumatic stress disorder

## Two Approaches to Test Cognitive Linguistics as a Tool to Study Mind

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#### Abstract

Mind is said to not only offer facilitation to but also be the determinant of several capacities that are uniquely human, and the capacity to create and exercise highly evolved language systems is one such. Cognitive linguistics advocates a systematic and principled structural correspondence between mind's cognitive system and language – and in the process of developing accounts of language promises to *also* shed significant light on the nature and conceptual framework of mind.

This paper proposes two novel approaches with which to test the above claim of cognitive linguistics as regards relation between language and mind.

<u>Study 1:</u> First study involves neuro-feedback technique. This study first involves finding neural correlates of the mental experience of free will and those associated with brain information processing of linguistic entities *free will* and the metaphor *Freewill*. In a neuro-feedback setup, if subjects are not able to significantly increase the signal amplitudes (above brain data), then this would be indicative of close structural relation between mind's cognitive apparatus and the structure of language, and greatly legitimize the approach of *cognitive linguistics as an important new tool to study mind*.

<u>Study 2:</u> The second approach takes its cue from Schmidt et al. (2007) regarding gross brain correlates for information processing of metaphors. This study involves studying finegrained neural correlates of variegated predefined sets of linguistics entities, for principled similarities and/or differences in their patterns. Presence of similarities and patterned differences would support the enterprise of cognitive linguistics as a tool to study mind.

Key Words : Mind; Cognitive Linguistics; Neuro-feedback; Information processing; Language

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## An Interdisciplinary approach to Mind

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#### Abstract

Human brain is a highly evolved coordinating mechanism in the species *homo sapiens*. It is only in the last 100 years that extensive knowledge of the intricate structure and complex functioning of the human brain has been acquired though a lot is yet to be known. However, from the beginning of civilization, people have been conscious of a 'mind' which has been considered the origin of all scientific and cultural development. Philosophers have discussed at length the various attributes of consciousness. At the same time most of the philosophical or scientific frameworks have directly or indirectly implied mind-body duality. It is now imperative that we develop an integrated approach to understand the interconnection between mind and consciousness on one hand and brain on the other.

This paper begins with the proposition that the structure of the brain is analogous, at least to certain extent, to that of the computer system. Of course, it is much more sophisticated and complex. The second proposition is that the Chomskyean concept of 'mental organs' is a good working hypothesis that tries to characterise this complexity in terms of an innate cognitive framework. By following this dual approach – brain as a data processing system and brain as a superstructure of intricately linked mental organs – we can move towards a better understanding of 'mind' within the framework of empirical science. The one 'mental organ' studied extensively in Chomskyean terms is 'language faculty' which is unique in its relation to brain, mind and consciousness.

Key Words: Human brain; Mind; Computer system; Chomsky; Mental Organs; Language faculty

## Mind-Body Dualism: A Critique from a Health Perspective

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#### Abstract

Philosophical theory about the nature of human beings has far reaching consequences on our understanding of various issues faced by them. Once taken as self-evident, it becomes the foundation on which knowledge gets built. It then gradually becomes implicit, but continues to determine the way things are looked at, understood and acted upon without conscious awareness on the part of the viewer/knower/actor. The cause of concern is that this theoretical framework rarely gets questioned despite its inherent limitations and selfdefeating consequences, leading to crisis in the concerned field.

The field which is facing crisis today is that of medicine and the paradigmatic stance that is responsible for the crisis is Cartesian dualism - a view that mind and body are essentially separate entities. This dualism proved to be extremely useful in the period of religious embargo on the study of body. Subsequently reinforced by various discoveries and inventions in natural sciences, this metaphysical viewpoint has been eventually reified to the status of truth. In the process, paradoxically, it had impaired our understanding of the real health concerns of human beings.

This paper will discuss Cartesian mind-body dualism in the context of the practice of medicine. Focusing more closely on how disease, health and treatment are defined through this position, the paper proposes to build up its critique by throwing light on its accomplishments, limitations and self-defeating consequences. The paper will also seek to understand why this dualism is still alive despite its disavowal by philosophers, health practitioners and lay people.

Key words : Mind-Body Dualism; Cartesian Dualism; Cartesian Dualism and Medicine

## **Freudian Theory and Consciousness**

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#### Abstract

This paper aims at taking at fresh look at Freudian psychoanalytical theory from a modern perspective. Freudian psychology is a science based on the unconscious (id) and the conscious (ego). Various aspects of Freudian thinking are examined from a modern perspective and the relevance of the psychoanalytical theory of consciousness is projected. Does psychoanalysis and the unconscious have something to teach us about consciousness? Approaching Freud from a historical, psychoanalytical, anthropological and sociological perspective, we look at how Freudian theory may contribute to a better understanding of consciousness. We also look at psychoanalytical psychotherapy and its contribution to a better understanding of body mind dualism and consciousness as a whole. Ego psychology is considered in the present day context and it is synthesized with various psychological studies to give us a better understanding of consciousness.

Key Words: Freud; Psychoanalysis; Consciousness; Ego psychology

## Concept of Citta in Patanjala Yoga

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#### Abstract

Patanjali was a great philosopher and psychologist from ancient India. He wrote a 'Magnum Opus' on the science of Yoga in the form of aphorisms or *sutras*. And therefore, it is known as *Yoga Sutras*. This is the most systematic work on the philosophy of *Citta*. Yoga is one of the six schools of Indian philosophy. It is a '*Darsana*'which literally means both 'vision' and 'mirror'.

Patanjali Yoga is the most scientific process of controlling the *Citta* in order to rise higher and higher on the scale of consciousness and attain the state of super consciousness (*Samadhi*). This process consists of eight stages and therefore it is known as '*Astanga Yoga*'.

The concept of *Citta* is central in Patanjali Yoga. The Sage Patanjali defines Yoga as the restraint of fluctuations in the *Citta* (*Yogascittavrttinirodhah*). The *Citta* is consciousness that gets manifested in the seven sheaths (*Kosas*) of consciousness such as physical, physiological, psychological, intellectual, joy, consciousness, and soul.

Fluctuations of *Citta* are termed as *Vrttis*. It is necessary to control these fluctuations in order to develop the most matured or ripe *Citta* from the emerging *Citta* through the states like restrained, sprouted, calm, attentive and fissured *Citta*.

Fluctuations of the *Citta* are controlled through repeated practice and asceticism. Ultimately, the seeker attains the state of *Samaadhi*. Thus, Patanjala Yoga is the most systematic process of restraining the fluctuations of *Citta* that leads to the state of *Samadhi* and finally *Kaivalya*, a state of fullness of soul.

Keywords – Patanjali Yoga; Citta, Vrtti, Nirodhah; Ashtanga; Yama; Niyama; Asana; Pranayama; Pratyahara; Dharana; Dhyana; Samadhi; Kosa; Mana; Buddhi; Ahankara; Atma; Kaivalya.

## Myth of Consciousness

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Consciousness is a widely debated issue in philosophy. There are innumerable theories which purport to explain consciousness, or which try to deny any such phenomenon called consciousness. My task here is to examine the concept called "consciousness" and try to come to grips with it. Firstly, I will try to show the ordinary usages of the term we call consciousness. I will propose that the term consciousness is elusive, it cannot be defined without circularity.

Secondly, I will examine the concept called Qualia, and give my reasons why I particularly would like to target it.

Thirdly, I will give summary of Dennett's arguments by which he tries to prove that there is no such thing as Qualia.

Fourthly, I will try to show how far Dennett is successful in denying Qualia.

Lastly, I will conclude that there is no such phenomenon called consciousness apart from the body. To insist upon such a phenomenon is to invest in some myth. I will propose that the whole structure of consciousness, and the human sense of self-control and purposefulness, is a user illusion. We do not have conscious control over ourselves at all.

Keywords : Consciousness; Qualia; The knowledge argument

# Neuro Linguistic Programming (NLP): A Gate Way to the Mind

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#### Abstract

Neuro Linguistic Programming (NLP) works by changing the way we perceive and make meaning of the world we live in and how we understand our experiences. It explores the relationship between how we think (Neuro), how we communicate (Linguistic) and how our patterns of behaviour and emotions (programming) are. By studying these inter relationships, we essentially can, to an extent, predict the functioning of the mind. Through my paper I will try to explore how NLP works as a reprogrammer for the mind and thereby understand the functioning of the mind. In an attempt to explain the functioning of NLP, I will try to integrate it with brain functioning. For that I will consider certain implications from recent advancements in Cognitive Neurosciences such as mirror neurons. Finally I will consider the relevance and importance of conducting new researches to uncover the unexplored possibilities of NLP which may prove to be a potential tool in understanding brain-mind relationship.

Keywords : NLP; Cognitive Neuroscience; Mirror neurons; Mind.

# Efficacy of various Psychotherapies in altering Brain and Consciousness

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#### Abstract

In this paper I will try to analyze various therapy systems on the basis of their effectiveness in bringing about changes in structure (brain) and function (consciousness) of mind in the desired way. As neuropsychology claims I also believe there should be some changes (either at structural or functional) at the neuronal level in order to establish a change. This study will critically evaluate the prominent and well-established psychotherapies like psychodynamic, behaviouristic, cognitive, and gestalt approaches. This study will be done on the basis of an in-depth analysis of the principles governing each theory as well as on the basis of relevant researches in the field. As a result, I will be able to assess the comparative efficacy of each systems of psychotherapy in bringing about alteration in brain and consciousness.

Keywords: Consciousness; Brain; Neuropsychology; Psychotherapies, Psychodynamic, Behaviouristic, Cognitive, Gestalt.

## What is mind? : A neuropsychological perspective

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#### Abstract

This paper explains the neuropsychological aspect of the concept of mind. We commonly understand mind as a range of functions carried out by the brain. The action of the brain underlie all behavior not only relatively simple motor behavior such as walking, and eating but, all the complex cognitive actions that we associate with specifically human behavior such as thinking, speaking and creating work of art. This paper describes ancient and modern philosophical approaches of mind, including the views of Aristotle, Rene Descartes, John Locke, George Berkeley, Gottfried Wilhelm Leibniz, Julian Offray DeLa Mettrie, Auguste Comte, John Stuart Mill, William James etc. The neuropsychological aspect of mind begins with brain-behavior relationship. Charles Darwin put forward the Materialistic theory of behavior. The development of language is an example. Language is a cognitive behavior which can be explained on the basis of neural science. Different theories explain how language has been developed in animals including human beings. The need for effective communication between the same species and the search for food led to non-verbal language which later led to verbal language. Verbal communication made life easier. Certain areas in the brain are responsible for the language process. This means that the cognitive behavior (language) is a product of brain. Hence we can say that the mind is a product of brain activity.

Keywords: Mind; Dualism; Materialism; Neuropsychology; Cognitive behavior; Language

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