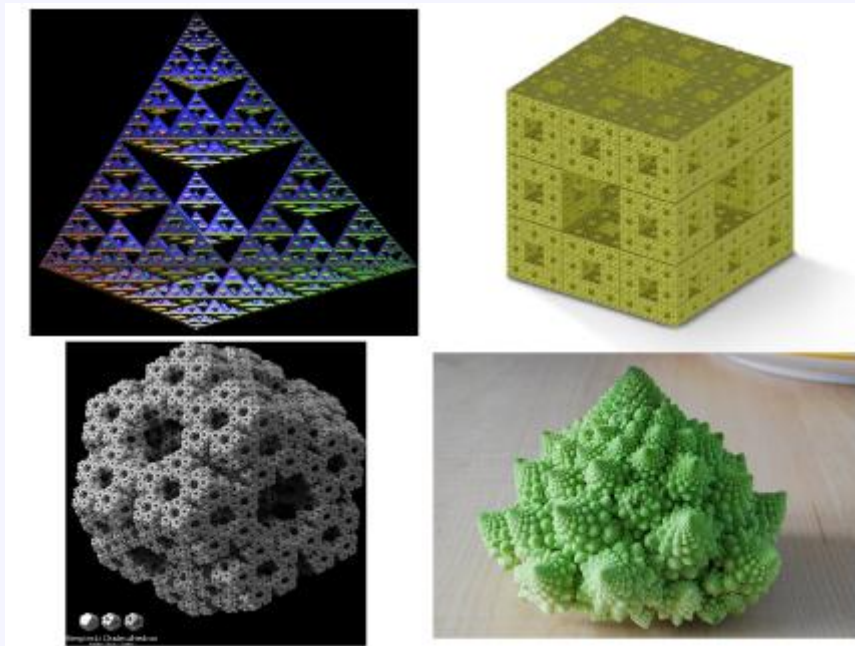


The Fractal Brain Theory

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An object is Fractal when it has the property that the structure of its constituent parts reflect the structure of the whole and at various scales. The classic example would be a tree, where a branch of the tree held upright is as the whole tree, and even a leaf of a tree has in its veins a tree like branching structure. Thus a Fractal object is said to be self similar. Another property of Fractal objects is Nesting, i.e. the smaller constituents that make up the whole object and that reflect the structure of the whole object, are themselves contained within it. But then these smaller copies of the whole, themselves contain even smaller copies reflecting itself and the whole; and so on and so forth potentially ad infinitum.

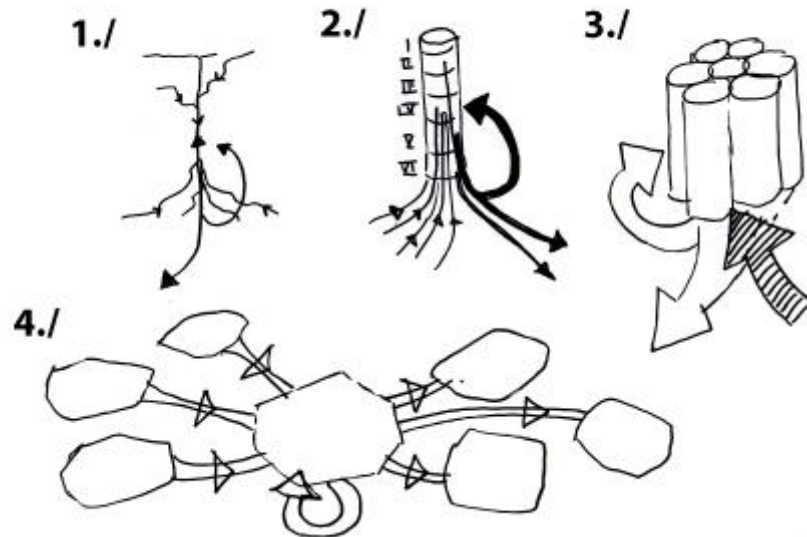


We have in the above diagram 4 examples of Fractal objects that have the property of self similarity, in that the organization of the constituents parts that make up the object reflect that of the whole and overall object. The two in the top row and one in the bottom left of the diagram are idealized mathematical fractal objects derived from the perfect solids i.e. Tetrahedron, Cube and Dodecahedron. The fractal object at the bottom right of the diagram is an actual existent vegetable that is the genetic cross between the Cauliflower and Broccoli called Romanesco Broccoli or Roman Cauliflower.

We propose that the organization of the brain is also Fractal not just in structure but also in process. So that what we conceptualize for the whole brain in terms of structure and functioning, we may likewise infer and conceptualize the same with regard to the brains constituent parts. That is there should be a way of looking at the brain which shows that the Neuron(i.e. brain cell) is as the Neuron complex(i.e. Cortical Cell Column), is as the Neuron Macrocomplex(e.g. Cortical Patch); and so on for the entire brain. And just in terms of arrangement but also in terms of functioning.

And we find that this is so. For these levels of brain description we find tree like structure of branching inwards towards a nexes and a corresponding branching outwards from it. Just like the roots, trunk and branches of the sort tree you'd find in a forest. And at all levels of description we find a looping back process of recurrent connection where the branching outwards from the nexus feeds back unto the branching inwards to the same. But also in terms of process and functioning we discover self similarity. So for instance, at all levels of description we discover in the brain a process of competition, i.e. synapses compete, neurons compete, cortical columns compete with one another, and then ideas, perceptions and moods also compete. Another Fractal process of the brain is one of linking up and coming togetherness. Synapses link up along a stretch of dendrite, neurons link up through Synaptic connections, Cortical columns links up and then ideas and representations also link up in space and are chained together in time.

The Fractal Structure of the Brain



The above diagram shows the fractal structure of the cerebral cortex which along with its wiring, makes up most of the mass the human brain. Diagram 1 depicts a pyramidal neuron, the main neuron type of the cerebral cortex and shows its tree like branching structure and a recurrent feedback projection. Diagram 2 depicts a cortical column into which several thousand pyramidal neurons are clustered to form the basic representational unit of the cerebral cortex. Diagram 3 depicts a Columnar Complex made up of many Cortical Columns and diagram 4 depicts 7 interconnected cortical patches, which are themselves sheet like structures consisting of a flat arrangement of many Columnar Complexes densely packed side by side. At all these levels of description we see a basic pattern of branching in, branching out and looping back. So that in this way the brain is organized fractally. This line of reasoning and way of looking at things can also be used with regard the entire brain and all its main information processing constituent structures.

We further propose that this Fractal structuring of the brain and self similar way of conceptualizing its organization and functioning, derives from a recursive generative process which is a property of many Fractal structures. This recursive process starts from a seed or atom of recursion, and through it all brain structure emerges. Furthermore we also propose that all brain functioning and the process of mind is really a continuation of this same recursive process. So that the process by which brains come into being i.e. Ontogenesis or Neurogenesis on the one hand and the process of brain functioning or mechanics of mind on the other; are really expressions of a common underlying process and really exist on a continuum. We have had for years a reason to suspect that this Atom of Recursion or Seed of Brain and Mind may potentially exist, because all biological forms derive from the recursive bifurcating process of cell division starting from the fertilized egg. We believe that the process of the brain and process of thought can be conceptualized as a continuation of this process of ontogenesis and also neurogenesis, i.e. the production of physical substrate of mind.

Taking things further, it is the belief of the Author that there is something quite fundamental about what is happening in the brain and the process of mind. For we believe the Fractal of Brain Structure and Brain Process is perfectly reflected in the Fractal of the Organization of the Universe and the Fractal of Cosmic process. So therefore we should be able to perfect extrapolate from the brain into Society, the World, the Galaxy and on to the entire Universe. And likewise we should be able to interpolate from the Universe, the World and Society into the structure and process of the brain. In fact this correspondence between what is happening in a brains and minds on the one hand and what is happening externally in the world and Universe on the other is something that is suggesting but a lot of existing ideas about the brain, artificial intelligence and cosmology. For instance a way in which contemporary research into brain functioning and Artificial Intelligence is correct is in the idea that evolutionary processes are happening in the brain. This is reflected in approaches such as Genetic Algorithms, Neural Darwinism, Memes etc. Also it has been suggested by one physicist that perhaps there should exist a connection between Epistemology i.e. the study of knowledge and Cosmology.

We believe that by understanding the brain we also understand the Universe and vice versa. So that indeed 'As is the Macrocosm so is the Microcosm' and 'As is the Human Mind so is the Cosmic Mind.' Modern Science has started to find very appealing the idea that the Universe exists as information. What the understanding we are proposing allows us to see is that this information of the Universe is structured as knowledge and that this knowledge is structured as a Cosmic Tree.

All of this understanding ultimately allows us to answer conclusively the question concerning the Nature of Consciousness. And show that the reason why contemporary Philosophers and Neuroscientists haven't been able to find the answer to the problem of Consciousness, is that they've been asking the wrong question all along. For the working assumption has been Materialism or the Ontology position in Philosophy that existence is physical and consists of matter. And that therefore Consciousness reduces to the physical brain and the material Universe. The Truth is that it doesn't. It's the other way round. i.e. that it is the Ontological position in Philosophy called Idealism or the idea that existence is really Consciousness that is the truth. What the Fractal Brain architecture and the reducing of Cosmic Structure to this same Fractal conception allows us to do is to reduce all existence to a Single Consciousness. This approach works together with the idea that the physical Universe is illusory and that what is behind the illusion is mathematical or platonic existence. So for example the Universe can thought to exist in the same way that the mathematical fractal object called the Mandelbrot set 'exists' i.e. platonic and transcendentally. But what is actually manifest and 'real' is subjective experience or Consciousness of being in the illusory physical Universe. Because the Universe is a Fractal structure that is of the same nature as the brain and are continuous with each other, then the Consciousness of our brains can be reasonably supposed to be of the same nature as the Consciousness that would correspond to equivalent structures of the Universe at various scales i.e. Planetary, Galactic and Cosmic. And so we can therefore put forth the truly astonishing hypothesis that a single Unitary, Undivided and Indivisible Consciousness passes through all these equivalent Fractal structures in a single chain of transmigration. Thereby living out all experiences of the lives of all the living entities existing within the Universe from its beginning to end. One subjective experience at a time, one day at a time, one life at a time. And that this singular all encompassing consciousness may be called God. So the Fractal Brain idea takes us to the truly stunning revelation that the Mystery of Consciousness and the Mystery of God are one and the same. That is the idea that everyone is God, the common belief that is found in all the Esoteric traditions of all the worlds major religions, i.e. Gnosticism in Christianity, Kabbalah in Judaism, Sufism in Islam, Tantra in Hinduism etc.

In the theory of the brain that is to come is the key not just to Artificial Intelligence and the Technological Singularity, but also the means by which Science will be reconciled with Spirituality and the true Religion will be resurrected. The revelation of this theory and beginning of this process will occur in London 2012.

Brain Theory	Science	Spiritual
Recurrent Loops & Time	Everything in Universe a Wave	God is Sound & Time Cycles
Lateral Competition	Evolution & Survival of Fittest	Cosmic Battle Good & Evil
Connecting Up & Linking Up	Science of Complexity	Mystical Coming togetherness of God or GodHead
Fractal Computing Architecture	Fractal Universe	Correspondence or Image of God
Sensing/Doing or Inflow/Outflow	Divergence i.e. Ontogeny, Big Bang, Tree of Life	Cosmic Tree, Emanations of God Return to the Source

The above diagram is meant to show the correspondences between on the one hand various aspects of the Brain Theory, listed in the left most column, and on the other hand, related Scientific and Mystical/Spiritual ideas. It shows that key mystical/spiritual ideas found especially in Esoteric Religion are also inherent aspects of the brain theory, so that the brain theory is the means by which these ancient ideas

can make a return and be accepted by mainstream society. This interesting correspondence makes perfect sense when we understand that the mystery of Consciousness and the mystery of God are one and the same. Then we should expect the brain, its structures and processes, to reflect something of the Divine. This diagram tabulates some of the ways that this is indeed the case. Even more controversially, by including various ideas or facets from Science in this table, we are trying to suggest and give support for the idea that the structure and workings of the Brain are very special and fundamental, in that they contain the microcosmic representation of the structure and workings of the Universe. That is, the brain theory is also a theory of everything outside of the brain, i.e. society, the World, and the entire Universe. So that not only can we interpolate aspects of the world into the brain, for example some prominent neuroscientists suggest that the process of evolution is happening in the dynamics of the brain; but also that we can fully extrapolate from the brain to gain an understanding of the processes, structure and purpose of the Universe i.e. life. The brain is therefore like a Rosetta Stone which fully reflects the overall structure and process of the Universe. To understand the brain is also to understand the Universe. In recent years, Scientist have started to see the fabric of the Universe in terms of information. The next step is to understand that the informational universe is structured as knowledge and that the structure of this knowledge of the Universe is the Cosmic Tree. The process of the Universe i.e. Life, is also Epistemology or the process of knowledge, the brain theory will show how this is the case. Indeed the Microcosm reflects the Macrocosm, and the microcosm of brain reflects the macrocosm of the entire Universe.