

# A Fractal Model of Consciousness

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## Abstract

Rather than trying to build a mathematical model of consciousness on the ground of differential geometry or algebraic topology, I shall rely tentatively on traditional symbolism and representations, such as found in Sufism, Taoism, Hinduism and the hebrew Qabalah, all of them fitting nicely together.

Nonetheless, in the course of this analysis will emerge situations where fractal schemes, albeit implicit, are very pertinent. At the end of the process, we will meet a hierarchy of scales reminiscent of the evolution of groups of cells in a cancerous tumor, suggesting that a space-time fractality could be at work in the mechanism of consciousness.

**Keywords :** Consciousness, mathematical models, traditional symbols

## 1. Introduction

« Your mind is a tree deeply rooted in the ground of Tradition, of which branches grow in the might of continuity ».

Khalil Gibran.

Why should we add still another model of consciousness to an already crowded list ?

To satisfy the addicts of “spiritual Meccano” or to attempt a crossbreed of old sapiences with clinical psychology ? whatever the means used for the description, differential equations, algebraic topology, neuromimetic schemes, it is obvious that Nature is a few billions years ahead of human mind, so that we can hardly decipher the arcana of its work...for Jean Carteret ( French philosopher), Mother Nature is scanty of its structures, but lavish of its masks !

For all these reasons, I will look for my inspiration in traditional symbolic representations rather than in modern theories with limited outscope and difficult access for untrained readers.

We will see altogether that it is not easy, even in these traditional models, to cut in parts human consciousness, though we show the crosways between subconsciousness and selfconsciousness on one hand, selfconsciousness and super consciousness on the other. In Sufism, spiritual knightshood is called Tassawuf, in Arabic language, and comprises of two essential parts:

-Tassarruf, or esoteric management of manifestation

-Suluk, or personal endeavour of spiritual ascent

If the first chapter is the static side of Sufism, the second is its dynamic aspect, and entitles us to consider consciousness as a functional complex.

## 2. A fractal Model From the 8<sup>th</sup> Century

This subject of reflection has been for me the opportunity to explore some “fractal” aspects of consciousness, starting with a chinese engraving of the 8<sup>th</sup> century (“The Center amidst the conditions”), where the adept’s consciousness spreads through mental space, so to speak, and gets ramified. (Fig. 1).



**Figure 1 :** A chinese engraving of the 8<sup>th</sup> century: “The Center amidst the conditions”, where the adept’s consciousness gets ramified.



I have thought then of an iterative scheme (thus fractal):

- Self-consciousness (a few months old baby)
- The consciousness of consciousness (age of reason, circa 7 years)
- The consciousness of consciousness of consciousness...
- etc, etc

All this is more static than dynamical, descriptive rather than incitative. In order to step further, I will attempt to rely upon the essential contradiction inside our mind, I mean the opposition between heart and reason; the heart has its reasons that reason does not know, wrote the french philosopher Blaise Pascal (1623 / 1662).

If one tries to pursue this idea beyond schooltime twaddling, it proves to be fruitful.

### 3. An Indian Point of View

In India, where people ignore Pascal, and have not in their religious tenets the equivalent of the original sin, we can find interesting and workable concepts. There, intellect encompasses two distinct modalities:

MANAS, or lower intellect, the ordinary mind, seated in the brain.

BUDDHI, the upper mind, seated in the heart.

For those familiar with Castaneda's books, Manas can be compared with his "tonal", and Buddhi with his "nagual". We may proceed one step further and attempt a comparison with the point of view of quantum mechanics:

Manas pertains to the corpuscular side of quantum mechanics, with quantifiable and measurable properties (spin, charge, mass, energy,...)

Buddhi can be related, on the other hand, to the "wave" aspect. Material properties are replaced by mathematical abstractions, of which the more conspicuous is the "probability of presence", which spreads out over the whole of space-time.

This description entails conceptual paradoxes (Einstein-Podolsky-Rosen, for instance), related to the non-local representation of the particle. Oddly enough, these causal paradoxes find their counterpart in psychology, with C.G.Jung's "synchronicity" effects, among others.

Going from Buddhi to Manas corresponds to the operation of "wave packet reduction" in quantum mechanics, with a breaking of symmetry, a delving into matter (in theology, this event would be labelled a "fall").

The next step in our analysis could be the analogy between consciousness and a force field. The indian word Chit labels not a drug, but the "strength-consciousness", and this comparison gives room to many interesting remarks. I am well aware that some could say: "But you are just reinventing transcendental meditation, and you are playing the clone of Maharishi Mahesh !"...this is not altogether true, for quantum mechanics has progressed happily since the sixties, and the concept of unified field has been applied to several domains of biology and psychology.

Spiritual evolution looks more like a soldier drill than like a long quiet river...according to the vedantic model of the Purusha (The Upper Self, or Son of God) and its five

concentric shells, one could think as well of onion-plucking ... This view implies a theoretical aspect, pertinent to the use of a traditional culture, but also a practical aspect, since it is my own consciousness (and yours as well !) that is used as a laboratory tool.

The second step of our analysis process led us to overcome the opposition *Buddhi / Manas*, i.e. intuitive mind against sensory mind, or heart against reason.

In the shell model of the *Purusha*, after *Jnanamaya Kosha* (Intuitive mind) comes out *Anandamaya Kosha*, "body of delight". This is an important and difficult step, since it pertains to pleasure, *Ananda* for the indians, of which social, sentimental and sexual implications have been always a problem for the messiahs, gurus, avatars and spiritual masters. For *Shri Aurobindo* (1872 / 1950), sexual ecstasy is a glimpse, weakened and banalized, of the genuine *Ananda*. For the french novelist *L.F. Céline*, carnal love is the absolute made accessible for poodles...

Nevertheless, *Mahalakshmi* (also known as *Venus*, *Aphrodite*, *Ishtar*, ...) is a major actress of creation, and should not be vexed, maimed or impeded, for fear of seeing a rich crop of nevroses, psychoses and other phantasms invade the oppressors. It is a very commonplace idea in religious teachings that man should "compress" his sentimental and libidinal pulses to access by his merits the immaculate shores of mystical ecstasy. Another problem is to decide whether so complacent and limpid is reality. In the *Qabalistic* scheme of the *Tree of Life*, the present step corresponds graphically to the transverse line *Gueburah-H'essed* (*Rigor / mercy* in english) . See Fig.2

From an anatomical point of view, the corresponding region in human body is the thyroid gland level in the throat, linked to to the *Vishuddha chakra* of *Yoga*. There is the seat of "transpersonal consciousness" of *S. Grof*, which allows us to contact, among others, the cells of our body.

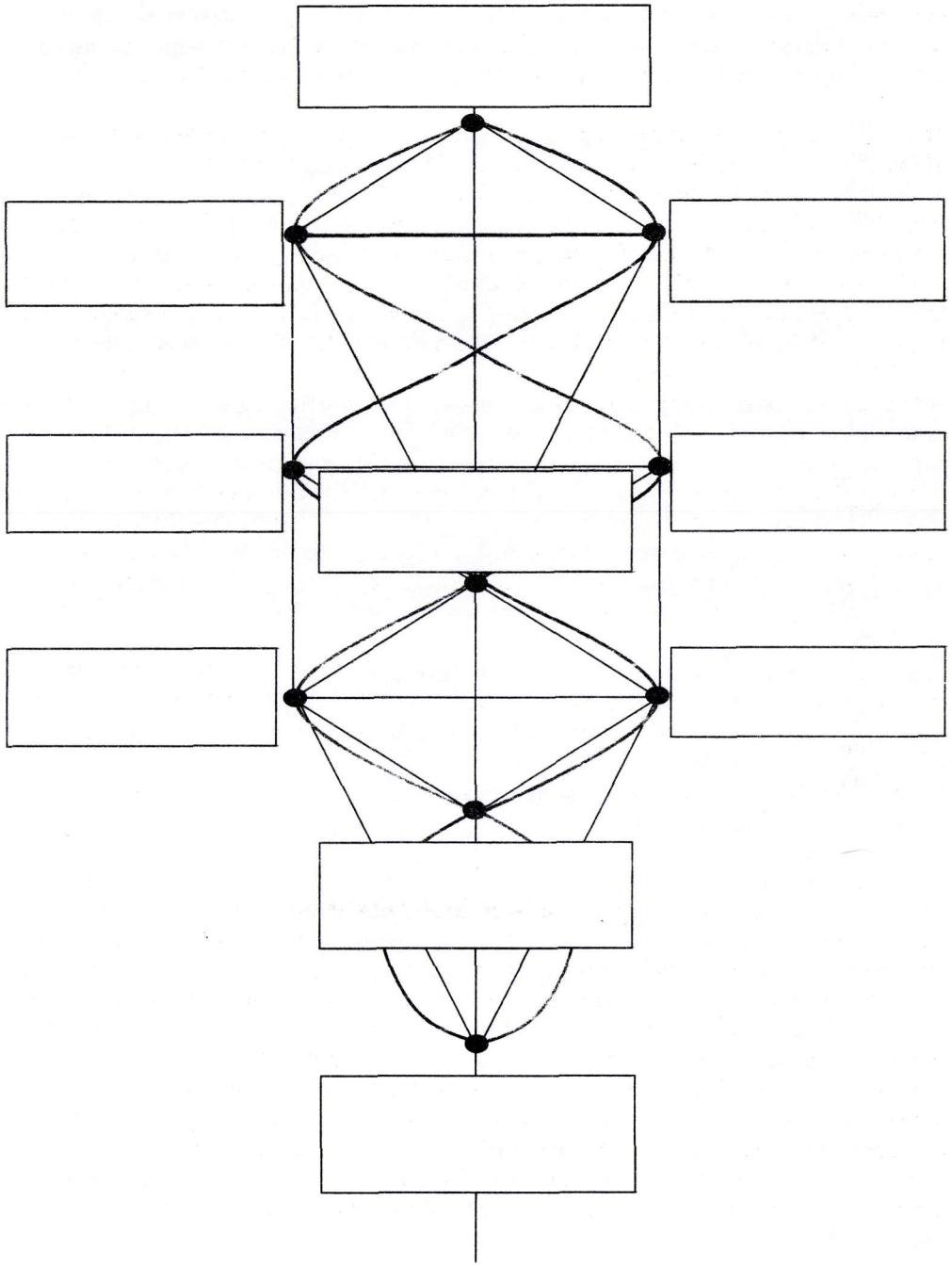
In *Qabalah*, the relevant spiritual experiences are:

- for *Geburah*, a vision of might
- for *H'essed*, a vision of love

One can find good descriptions of these mystical states in the "Book of Dwellings" of *Saint Theresa of Avila*. These states are accessible to those who have stocked a sufficient amount of sexual energy ("*Ojas*" in sanskrit language). One can find an allusion to this fact in the parable of the wise and the foolish virgins; *ojas* is here the oil needed to fuel the lamp to welcome the bridegroom, i.e. the *Purusha*. Incidentally, we understand that sexual restriction injunctions are of yogic rather than peccable order.

Let us remark also that some mystics access often, through the natural slope of their temper, to visions of love. Is it a good thing for them ? not obviously, for the abuse of effusions might lead one to what some call "spiritual drunkenness", if the sentimental slope is not tempered by a strong intellectual mastery. Let us note that *Saint Theresa*, conscious of this threat, would take great care of consulting the best theologers of her time.





**Figure 2:** Sephiroth of the Tree of Life.

#### 4. A Sufist and Kabalistic Point of View

Here I catch at flight an expression of professor Michéa in his book (in french):” A social process at work”, i.e. imaginative exaltation ( concretised on an outward projection). It is indeed the hardly concealed spring of publicity, politics, of the moralizing and religious speech, of which we are given everyday gorgeous samples by our political and military leaders.

The faculty of imaginative exaltation fits rather nicely with what Abd el Karim Jili calls “Al Wahm” in his book “The universal Man” (Al Insan al Kamil). Al Wahm, the obscure root of the mind, means altogether conjecture, opinion, suggestion, suspicion, thus mental illusion. It is the obverse of the speculative freedom of the mind; its illusion-making power is somehow fascinated by the abyss, it is attired by all the unexhausted negative possibilities. We may tentatively compare it to the so-called “dark side of the force” described in the Stars War saga. When this power prevails over imagination (Al Khiyal), it becomes the greatest hindrance for spiritual evolution, individual or collective.

The antagonistic faculty (and complementary, thanks to Heraclites) is Al Himmah, faculty of spiritual ascension, force of decision, aspiration towards the essential (the will without desire), which plays a major role in the sufism of Ibn ‘Arabi.

Jili describes thus consciousness as a complex of five faculties ruled by a “central sun”, Al Qalb (the spiritual heart).

These are:

- Al Aql al Awwal (or Ar Ruh’), prime intellect, reason (with a saturnian connotation)
- Al Himmah (cf.supra), with a jovian connotation.
- Al Wahm (cf.supra), with a martian connotation.
- Al Khiyal (formal imagination), with a venusian connotation.
- Al Fikr (discursive thought), with a mercurian connotation.

This astrological symbolism allows us to locate graphically these six “faculties” of the soul upon the relevant Sephiroth of the Tree of Life, starting from Binah (3<sup>rd</sup>. Sefhira) down to Hod (8<sup>th</sup> Sefhira). See fig.2.

We may then exploit a resource of Qabalah, which postulates a “teaming” or “mating” of the Sephiroth into “functional pairs”:

- Kether (1) and Malkuth (10): the Principle and the Manifestation
- H’okmah (2) and Yesod (9) : superconsciousness (Ar Ruh’) and subconsciousness ( An Nafs)
- Binah (3) and Hod (8) : the Prime intellect (Al Aql al Awwal) and the usual mind (Al Fikr)
- H’esed (4) and Netzah (7) : creative (upper) imagination (Al Himmah) and ordinary imagination (Al Khiyal)
- Gueburah (5) and Tiphareth (6) : exaltation (Al Wahm) an spiritual heart (Al Qalb), the “Sun”.



## 5. Conclusion: a Fractal Behaviour

I shall attempt now to explain the fractal behaviour of this model;

1) A first sketch is given by a Qabalistic adage stating that any Sephira on the Tree may be viewed as containing in its turn a whole copy of the Tree, and so on. At each "generation", the global number of Sephiroth is increased tenfold. If we start from a "signal", i.e. a copy of the Tree, we get:

$10^3$ copies at the 3 <sup>rd</sup> generation	
$10^6$	6 <sup>th</sup>
$10^9$	9 <sup>th</sup>
$10^{12}$	12 <sup>th</sup>

It may be meaningful to compare these figures with some data drawn from the study of cancerous tumor evolution (communication from Professor Bernard Herzog, cancerologist):

1 cell infected (signal)	
$10^3$ cells:	fixation
$10^6$ cells:	irreversibility
$10^9$ cells:	emergence of physiological effects
$10^{12}$ cells:	transformation of the organism

In this scheme, we may see a possible mechanism of information from consciousness to the "flesh". It suggests, incidentally, that a fractal scheme could be at work in the mechanism of consciousness.

2) We may also consider the 10<sup>th</sup> Sephira, Malkuth, of a Tree of rank N as the 1<sup>st</sup> Sephira (Kether) of a Tree of rank N+1, and so on, featuring a descending hierarchy binding the Principle to the Manifestation through successive steps, fulfilling to some extent the arborescent scheme proposed by Khalil Gibran.

Though consciousness has the character of a dynamical whole, one may somewhat arbitrarily disjoint its components in a "taxonomic" way for purposes of analysis and classification.

We see the frontier between self-consciousness and sub-consciousness at the level of Sephira Yesod (the Foundation), and the frontier between self-consciousness and super-consciousness at the level of Binah (Understanding), the prime intellect.

We reach then the upper (or "supernal") triangle of the Tree, temple of higher initiations, the so-called third order of the rosicrucian terminology. But this is another story, which will be accounted for when the time has come.

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