



TRANSDISCIPLINARITY IN SCIENCE AND RELIGION

4/2008

Eric Weislogel, Guest Editor

*Curtea
veche*

SCIENCE AND RELIGION
Series coordinated by
Basarab Nicolescu and Magda Stavinschi

This volume is issued with the generous support
of the John Templeton Foundation
within the framework of the Program
“Science and Orthodoxy. Research and Education”

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ISSN 1843 – 3200

Published by Curtea Veche Publishing House
Bucharest, Romania

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Editorial

In this issue of *Transdisciplinarity in Science and Religion*, we are pleased to present you with a sampling of the fruit of an ongoing collaboration between representatives of the Metanexus Institute, le Centre International de Recherches et Études Transdisciplinaires (CIRET), Sophia Europa, and many other individuals from around the world, who are committed to promoting the transdisciplinary approach to research and teaching.

On July 13 to 17, 2008, the 9th annual Metanexus Institute conference was held in Madrid, Spain. Hundreds of attendees from the four corners of the world — philosophers, biologists, physicists, cosmologists, neuroscientists, cognitive scientists, theologians, religious scholars and community leaders, historians, and educators — came to present their research under the title: “Subject, Self, and Soul: Transdisciplinary Approaches to Personhood”. Deep in the hearts of all people — academics included! — stir the timeless questions: Who are we? Why are we here? In our age, it is science that purports to answer these ancient questions, while technology promises to make us even “more than human”. But, despite our amazing scientific discoveries and technological powers, we find we still are, as St. Augustine put it, “a question to ourselves”. Our contention is that, if we are truly to understand ourselves, our place in the cosmos, and our relation to each other and to the divine, we must adopt rich transdisciplinary approaches that cut across fields of knowledge, institutional boundaries, cultural borders, and religious traditions.

The papers in this volume are good examples of transdisciplinary thinking at work. The essays from the conference were selected by Gregory Hansell, Managing Director of *Global Spiral*, the Metanexus Institute’s online journal, with an eye towards presenting the rich diversity of perspectives needed to try to address the questions of personhood and fundamental reality.

The essay by the team of Judith Toronchuk and George F.R. Ellis, as well as the paper by John Teske, were presented at the Metanexus Conference as part of a session on “relationality and the self”. The papers by Metanexus Founder William Grassie and psychiatrist Michael Wong

are both informed by the work of philosopher Paul Ricoeur, while the paper of Howard Baker and Scott Jones bears the stamp of thinkers such as Gabriel Marcel and Martin Buber. Papers by Ron Cole-Turner, on technology and eschatology, and William Chittick, on human nature from an Islamic perspective were also presented at the conference.

Concurrent with the main program of the Metanexus Conference, a “mini-conference” was held that centered on the exploration of non-reductionism and levels of reality. The mini-conference was organized by an international team of scholars: Roberto Poli (Italy), Basarab Nicolescu (France and Romania), and Roy Clouser (USA), and a separate call for papers was conducted. In addition to a featured session, there were seven sessions consisting of 21 presentations by individuals and teams, capped off by a general session for discussion and planning future collaborations.

Session themes included: “Non-reduction and the human sciences”, “Non-reduction, levels, and transdisciplinarity”, “Neuroscience, self, and spirituality”, “Understanding levels”, “Matter and life”, and “Mind and spirit”.

The papers by Basarab Nicolescu and Roy Clouser were delivered in the featured session in the main conference. The papers by John van Breda, Cecilia Dockendorff, and Renata Lemos & Lucia Santaella were given in the session entitled “Non-reduction, levels, and transdisciplinarity”, presented here in its entirety. The paper presented by the team of Fabio Caporali, A. Cordelli, Lodovico Galleni, Silvana Procacci, and Aurelio Rizzacasa was given in the session “Mind and spirit”.

You will also find three additional papers in this volume, that were not presented in Madrid, essays by Alexei Nesteruk and Christopher Knight that deal with Eastern Orthodoxy and modern science, and a paper by Ioan Chirilă on Revelation and the limits of reason.

In all, we believe you will find this selection representative of the ground-breaking transdisciplinary work being done by an international, inter-cultural, inter-institutional, and inter-disciplinary group of scholars and scientists.

Eric Weislogel

Research Works



Recherches

The Idea of Levels of Reality

Its Relevance for Non-Reduction and Personhood*

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Introduction — Terminology Issues

The words *reduction* and *reductionism* are extremely ambiguous. Different authors use different meanings and definitions; therefore, extremely unproductive polemics could be generated.

For example, philosophers understand by *reduction* replacing one theory by a newer, more encompassing theory, while scientists understand by the same word exactly the opposite operation. In other words, philosophers reduce the simpler to the more complex, while scientists reduce the more complex to the simpler, understood as “more fundamental”. In physics, for example, one reduces everything to superstrings or membranes, hoping to arrive at a “Theory of Everything”.

In fact, there are many other meanings given to the word *reduction*: in chemistry, linguistics, cooking, physiology, orthopedic surgery etc.

In order to avoid any confusion, we will adopt here the general scientific meaning: one reduces A to B, B to C, C to D etc., until one arrives at what is believed to be the most fundamental level. Human thought follows, in fact, the same process of reduction. Reduction is, in many ways, a natural process for thought and there is nothing wrong about it. The only problem is to understand what we find at the end of the reduction chain: is the chain circular and, if not, how do we justify the concept of an “end” at the end of the chain? In any case, we have to distinguish between *reduction* and *reductionism*. There are many types of reductionisms and there is a real danger of confusing them.

* Originally presented at the 2008 Metanexus Conference, “Subject, Self, and Soul: Transdisciplinary Approaches to Personhood”, Madrid, July 13-17, 2008; published in electronic form on the Metanexus Global Spiral, www.globalspiral.com.

Sometimes, *reductionism* is defined by stating that a complex system is nothing but the sum of its parts. One has to distinguish between:

- *methodological reductionism*, reducing the explanation to the simplest entities possible;
- *theoretical reductionism*, reducing all theories to a single, unified one;
- *ontological reductionism*, reducing all reality to a minimum number of entities.

In the expert literature, one finds other kinds of reductionisms: for example, Daniel Dennett defines a *greedy reductionism* (Dennett [1995] — the belief that every scientific explanation has to be reduced to superstrings or membranes), while Richard Dawkins defines a *hierarchical reductionism* (Dawkins [1976] — there exists an hierarchy of complex organizational systems, every entity on one level being reducible to one level down in the hierarchy). The appearance of both these types of reductionisms serves as a criticism of the extreme forms of reductionism. However, the very fact that there are so many varieties of reductionisms signals a situation of crisis of reductionism itself.

To avoid any confusion, in this presentation we will accept *scientific reductionism* as meaning the explanation of complex spiritual processes in terms of psychic processes, which in turn are explained through biological processes, which in their turn are explained in terms of physical processes. In other words, a typical scientist reduces spirituality to materiality. *Philosophical reductionism* will correspond to the inverse chain: reducing materiality to spirituality. Both types belong to what can be called *mono-reductionism*. Certain philosophers accept a dualistic approach: materiality as radically distinct from spirituality. The dualistic approach is a variant of “philosophical reductionism”: it corresponds to a *multi-reductionism*. One can even see, especially in the New-Age type of literature, forms of what can be called an *inter-reductionism*, *i.e.*, transferring some material aspects *to* spiritual entities or, *vice versa*, transferring some spiritual features *to* physical entities.

Non-reductionism is expressed through “holism” (meaning that the whole is more than the sum of its parts and determines how the parts behave) and “emergentism” (meaning that new structures, patterns, or properties arise from relatively simple interactions, resulting in layers arranged in terms of an increased complexity). Holism and emergentism have their own difficulties: they have to explain from where novelty comes, without giving *ad hoc* explanations.

As we will see, the notion of *levels of reality* is crucial in reconciling reductionism (so useful in scientific explanations) and anti-reductionism (so clearly needed in complex systems). But, before looking at that, we have to acknowledge the extreme ambiguity of the phrase *level of reality*.

A fast search on Google gives more than 1,400,000 entries — a true Babel Tower! This simply means that the words *reality* and *level* are not well defined and everybody uses them in a non-rigorous way. In the philosophical literature, one finds many types of levels: levels of organization, levels of integration, levels of abstraction, levels of language, levels of representation, levels of interpretation, levels of complexity, levels of organization, levels of knowledge, and even levels of being. Why do we need a new concept — “levels of Reality”?

Dictionaries (<http://dictionary.reference.com/browse/reality>) tell us that *reality* means: (1) the state or quality of being real; (2) resemblance to what is real; (3) a real thing or fact; (4) something that constitutes a real or actual thing, as distinguished from something that is merely apparent. These are clearly not definitions, but descriptions in a vicious circle: *reality* is defined in terms of what is “real”. In a more restricted sense, one can define *reality* as “everything that has effects on something else” (Poli [2008]). This definition lays stress on causality, but one has to define what type of causality is involved here.

In order to avoid any ambiguity, I will define *reality* in a sense which is used by scientists, namely in terms of “resistance” (Nicolescu [1985] and [2000]).

By *reality*, we intend to designate, first of all, that which *resists* our experiences, representations, descriptions, images, or even mathematical formulations. It lays stress on a relational view of what *reality* could mean.

Insofar as reality participates in the being of the world, one has to assign also an ontological dimension to this concept. Reality is not merely a social construction, the consensus of a collectivity, or some inter-subjective agreement. It also has a trans-subjective dimension: for example, experimental data can ruin the most beautiful scientific theory.

The meaning we give to the word *reality* is therefore pragmatic and ontological at the same time. I will consequently spell this word with a capital first letter.

Of course, not everything is resistance. For example, the notion of angels is certainly connected with *non-resistance*, as are the powers of God. They do not resist our experiences, representations, descriptions, images, and mathematical formulations.

We have to distinguish, in order to avoid further ambiguities, between the words *Real* and *Reality*. *Real* designates that which *is*, while *Reality* is connected to resistance in our human experience. The “Real” is, by definition, veiled for ever (it does not tolerate any further qualifications) while “Reality” is accessible to our knowledge. The Real involves non-resistance, while Reality involves resistance.

I will now describe several historical aspects concerning the concept of “level of Reality”.

Levels of Reality — Historical Aspects: John-of-the-Ladder, Nicolai Hartmann, Werner Heisenberg

The idea of “levels of reality” is not new, in fact. The human being has felt, from the very beginnings of its existence, that there are at least two realms of reality — one visible, the other invisible.

In a more elaborate way, the theological literature expressed the idea of a “scale of being”, which corresponds, of course, to a scale of Reality. Jacob’s ladder (*Genesis*, 28, 10-12) is one famous example, so nicely illustrated in the Christian Orthodox iconography. There are several variants of the ladder of being. The most famous one is found in the book *Climax, or Ladder of Divine Ascent* of Saint John Climacus (c. A.D. 525-606). The author, also known as John-of-the-Ladder, was a monk at the monastery on Mount Sinai. There are thirty steps to the ladder, describing the process of *theosis*. Resistance and non-resistance are nicely illustrated on John’s ladder: the human being climbs the steps, which implies its effort to evolve from a spiritual point of view through the resistance to its habits and thoughts, but the angels, these messengers of God, helps him or her jump through the intervals of non-resistance between the steps of the ladder. This ladder is, of course, the opposite of the Babel Tower.

The advent of Darwin’s theory of evolution stimulated, of course, the thinking about a scale of Reality. The human being feels as being in some sense radically different from his or her brothers and sisters, the animals. In particular, consciousness is seen, mainly by religious people, as an emergent and mysterious phenomenon. However, wishful thinking cannot replace a scientific argument. Are we on a different level of reality than animals? Here, all the problems of reductionism and non-reductionism find their sentimental root.

In the second part of the 20th century, there were two major thinkers on the problem of levels of reality: Nicolai Hartmann and Werner Heisenberg.

Nicolai Hartmann (1882-1950) is a somewhat forgotten philosopher nowadays, who had Hans-Georg Gadamer as a student and Martin Heidegger as his successor at the University of Marburg, in Germany. He elaborated an ontology based on the theory of categories. He distinguishes four levels of Reality: inorganic, organic, emotional, and intellectual. In 1940, he postulated four laws of the levels of Reality: the law of recurrence, the law of modification, the law of the *novum*, and the law of

distance between levels (Hartmann [1940]). The last law, postulating that the different levels do not develop continuously, but in leaps, is particularly interesting in the context of our discussion. Roberto Poli, who wrote two nice review articles (Poli [2001] and [2007]) on the contemporary developments of Hartmann's theory, will certainly speak more about these aspects in his closing presentation of our mini-conference.

Almost simultaneously with Hartmann, in 1942, the Nobel Prize winning physicist Werner Heisenberg elaborated a very important model of levels of reality in his *Manuscript of 1942* (Heisenberg [1998]), which was published only in 1984.

Heisenberg's philosophical thinking is structured by "two directory principles: the first one is that of the division in levels of Reality, corresponding to different objectivity modes depending on the incidence of the knowledge process; the second one is that of the progressive erasure of the roles played by the ordinary concepts of space and time" ([1998], p. 240).

To Heisenberg, reality is "the continuous fluctuation of the experience as gathered by the conscience. In this respect, it is never wholly identifiable to an isolated system" ([1998], p. 166). Reality could not be reduced to substance. For today's physicists, this fact is obvious: matter is the *complexus* substance-energy-space-time-information.

According to Catherine Chevalley, who wrote the *Introduction* to the French translation of Heisenberg's book, "the semantic field of the word reality included for him everything given to us by the experience taken in its largest meaning, from the experience of the world to that of the souls' modifications or of the autonomous signification of the symbols" ([1998], p. 145).

Heisenberg does not speak in an explicit manner about "resistance" in relationship with reality, but its meaning is fully present: "The reality we can talk about is never the reality 'in itself', but only a reality about which we may have knowledge, in many cases a reality to which we have given form" ([1998], p. 277). Reality being in constant fluctuation, all we can do is understand partial aspects of it, thanks to our thinking, extracting processes, phenomena, and laws. In this context, it is clear that completeness is absent: "We never can arrive at an exact and complete portrait of reality" — Heisenberg wrote ([1998], p. 258). The incompleteness of the laws of physics is hereby present in Heisenberg, even if he does not make any reference to Gödel's theorems. To him, the reality is given as "textures of different kind connections", as an "infinite abundance", without any ultimate fundament. Heisenberg states incessantly, in agreement with Husserl, Heidegger, Gadamer, and Cassirer (whom he knew personally), that one has to suppress any rigid distinction between Subject and Object.

He also states that one has to end with the privileged reference on the outer material world and that the only manner approach the sense of reality is to accept its division in regions and levels.

Heisenberg distinguishes the “regions of reality” (*der Bereich der Wirklichkeit*) from the “levels of reality” (*die Schicht der Wirklichkeit*).

“We understand by ‘regions of reality’ — Heisenberg wrote — [...] an ensemble of nomological connections. These regions are generated by groups of relations. They overlap, adjust, cross, always respecting the principle of non-contradiction.” The regions of reality are, in fact, strictly equivalent to the levels of organization of the systemic thinking.

Heisenberg was conscious that the simple consideration of the existence of regions of reality is not satisfactory, because they put on the same plane classical and quantum mechanics. It is for this essential reason that he was regrouping these reality regions into different levels of Reality.

Heisenberg regrouped the numerous regions of reality in three distinct levels: “It is clear — he wrote — that the ordering of the regions has to substitute the gross division of the world into a subjective reality and an objective one and to stretch itself between these poles of subject and object in such a manner, that at its inferior limit are the regions where we can completely objectify. In continuation, one has to join regions where the states of things could not be completely separated from the knowledge process during which we identify them. Finally, on the top have to be the levels of Reality where the states of things are created only in connexion with the knowledge process” ([1998], p. 372).

Catherine Chevalley underlines that Heisenberg suppresses the rigid distinction between “exact sciences of the objective real world and the inexact sciences of the subjective world” and he refuses “any hierarchy founded on the privilege of certain nomological connexion forms, or on a region of the real considered more objective than the others” ([1998], p. 152).

The first level of Reality, in the Heisenberg model, corresponds to the states of things which are objectified independently of the knowledge process. At this first level, he places classical mechanics, electromagnetism, and Einstein’s theories of relativity — in other words, classical physics.

The second level of Reality corresponds to the states of things that are inseparable from the knowledge process. He situates here quantum mechanics, biology, and the consciousness sciences.

Finally, the third level of Reality corresponds to the states of things created in connexion with the knowledge process. He situates on this level of Reality philosophy, art, politics, the “God” metaphors, religious experience, and the inspiration experience.

One has to note that the religious experience and the inspiration experience are difficult to assimilate to a level of Reality. They rather correspond to the passage between different levels of Reality in the non-resistance zone.

We have to underline, in this context, that Heisenberg proves a high respect for religion. As to the problem of God's existence, he wrote: "This belief is not at all an illusion, but is only the conscious acceptance of a tension never realized in reality, a tension which is objective and which advances in an independent way of the humans, that we are, and which is yet, at its turn, nothing but the content of our soul, transformed by our soul" ([1998], p. 235). Heisenberg's phrase "a tension never realized in reality" is particularly significant in the context of our discussion. It evokes what we called "Real" as distinct from "Reality".

For Heisenberg, world and God are indissolubly linked: "This opening to the world, which is at the same time the 'world of God', finally also remains the highest happiness that the world could offer us: the conscience of being home" ([1998], p. 387). He remarks that the Middle Ages chose religion and the 17th century chose science, but today any choice or criteria for values have vanished.

"The concepts are, so to say, the privileged points where the different levels of Reality are interweaving" — Heisenberg writes. He specifies as follows: "When one questions the nomological connexions of reality, these last ones are found every time inserted into a determined reality level; it could not at all be interpreted differently from the concept of reality 'level' (it is possible to speak about the effect of a level onto another one only by using very generally the concept of 'effect')".

Heisenberg also insists on the role of intuition: "Only the intuitive thinking can pass over the abyss that exists between the concept system already known and the new concept system; formal deduction is helpless on throwing a bridge over this abyss" ([1998], p. 261). But Heisenberg does not draw the logical conclusion that is imposed by the helplessness of formal thinking: only the non-resistance of our experiences, representations, descriptions, images, or mathematical formalizations could throw a bridge over the abyss between two zones of resistance. Non-resistance is, in fact, the key of understanding the discontinuity between two immediately neighboring levels of Reality.

Towards a Unified Theory of the Levels of Reality — The Transdisciplinary Approach

Transdisciplinarity is founded upon three axioms (Nicolescu [1996]):

- i. *The ontological axiom*: there are different levels of Reality of the Object and, correspondingly, different levels of Reality of the Subject;
- ii. *The logical axiom*: the passage from one level of Reality to another is insured by the logic of the included middle;
- iii. *The epistemological axiom*: the structure of the totality of levels of Reality appears, in our knowledge of nature, of society, and of ourselves, as a complex structure: every level is what it is because all the levels exist at the same time.

The key concept of transdisciplinarity is that of the *levels of Reality*, that I introduced in 1982 (Nicolescu [1982]), independently of Heisenberg.

By “level of Reality”, we designate a set of systems that are invariant under certain general laws: for example, quantum entities are subordinate to quantum laws, which depart radically from the laws of the macro-physical world. That is to say that two levels of Reality are different if, while passing from one to the other, there is a break in the applicable laws and a break in fundamental concepts (for example, causality). Therefore, there is a *discontinuity* in the structure of the levels of Reality. Every level of Reality is associated with its own space-time.

The introduction of the levels of Reality induces a multidimensional and multireferential structure of Reality. Both the notions of the “Real” and the “levels of Reality” relate to what is considered to be the “natural” and the “social”; it is therefore applicable to the study of nature and society.

Our approach is not hierarchical. *There is no fundamental level*. But its absence does not mean an anarchical dynamics, but a coherent one, of all levels of Reality, that are already discovered or will be in the future.

Every level is characterized by its *incompleteness*: the laws governing this level are just a part of the totality of laws governing all levels. And even the totality of laws do not exhaust the entirety of Reality: we also have to consider the Subject and its interaction with the Object. *Knowledge is forever open*.

The zone between two different levels and beyond all levels is a zone of *non-resistance* to our experiences, representations, descriptions, images, and mathematical formulations. Quite simply, the transparency of this zone is due to the limitations of our bodies and of our sense organs, limitations which apply regardless of what measuring tools — internal

or external — are used to extend these sense organs. We therefore have to conclude that the topological distance between the levels is finite. Yet this finite distance does not mean finite knowledge as well. Take, as an image, a segment of a straight line — it contains an infinite number of points. In a similar manner, a finite topological distance could contain an infinite number of levels of Reality.

The unity of the levels of Reality of the Object and its complementary zone of non-resistance constitutes the so-called *transdisciplinary Object*.

Inspired by Edmund Husserl's phenomenology (Husserl [1966]), we assert that the different levels of Reality of the Object are accessible to our knowledge thanks to the different levels of perception potentially present in our being. These levels of perception allow for an increasingly general, unifying, encompassing vision of Reality, without ever entirely exhausting it. In a rigorous way, these levels of perception are, in fact, *levels of Reality of the Subject*.

As in the case of the levels of Reality of the Object, the coherence of the levels of Reality of the Subject presupposes a zone of non-resistance to perception.

The unity of levels of the levels of Reality of the Subject and this complementary zone of non-resistance constitutes what we call the *transdisciplinary Subject*.

The two zones of non-resistance of the transdisciplinary Object and transdisciplinary Subject must be identical for the transdisciplinary Subject to communicate with the transdisciplinary Object. A flow of consciousness that coherently cuts across the different levels of Reality of the Subject must correspond to the flow of information coherently cutting across the different levels of Reality of the Object. The two flows are interrelated because they share the same zone of non-resistance.

Knowledge is neither exterior, nor interior: it is simultaneously exterior and interior. The studies of the universe and of the human being sustain one another.

The zone of non-resistance plays the role of a *third* between the Subject and the Object, an Interaction term which allows for the unification of the transdisciplinary Subject and the transdisciplinary Object, while preserving their difference. In the following, we will call this Interaction term the *Hidden Third*.

Our ternary partition { Subject, Object, Hidden Third } is, of course, different from the binary partition { Subject vs. Object } of classical metaphysics.

The transdisciplinary Object and its levels, the transdisciplinary Subject and its levels and the Hidden Third define the transdisciplinary Reality or *trans-Reality* (see Fig. 1).

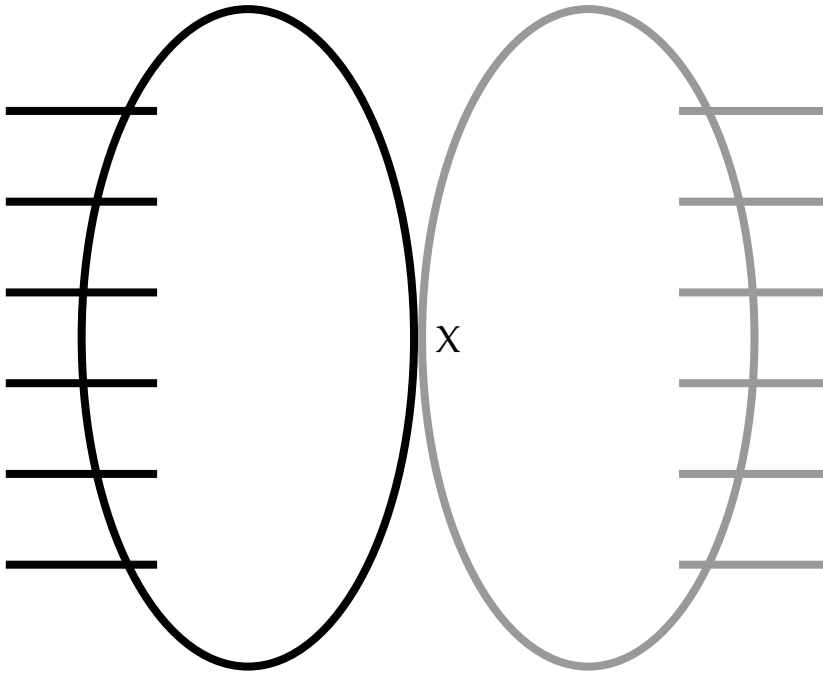


Figure 1 — Transdisciplinary Reality

The incompleteness of the general laws which govern a given level of Reality signifies that, at a given moment, one necessarily discovers contradictions in the theory describing that given level: one has to assert A and non-A at the same time.

It is the logic of the included middle (Lupasco [1951]; Bădescu and Nicolescu [1999]; Brenner [2008]), which allows us to jump from one level of Reality to another.

Our understanding of the axiom of the included middle — there is a third term T which is at the same time A and non-A — is completely clarified once the notion of “levels of Reality” is introduced.

To obtain a clear image of the meaning of the included middle, let us represent the three terms of the new logic — A, non-A, and T — and the dynamics associated with them by a triangle in which one vertex is situated at one level of Reality and the two other vertices at another level of Reality (see Figure 2). The included middle is in fact an *included third*. If one remains on a single level of Reality, all manifestation appears as a struggle between two contradictory elements. The third dynamic, that of the T-state, is exercised on another level of Reality, where that which appears to be disunited is in fact united, and that which appears to be

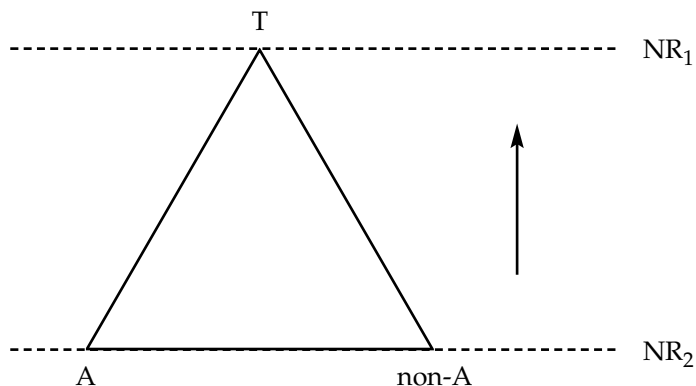


Figure 2 — Symbolic representation of the action of the included middle logic

contradictory is perceived as non-contradictory. In other words, the action of the logic of the included middle on the different levels of Reality is able to explore the open structure of the unity of levels of Reality.

All levels of Reality are interconnected through complexity. From a transdisciplinary point of view, complexity is a modern form of the very ancient principle of universal interdependence. The principle of universal interdependence entails the maximum simplicity that is possible and the human mind could imagine, the simplicity of the interaction of all the levels of Reality. This simplicity cannot be captured by mathematical language, only by symbolic language.

The transdisciplinary theory of the levels of Reality appears as reconciling reductionism and non-reductionism (Nicolescu [2008]). It is, in some aspects, a multireductionist theory *via* the existence of multiple, discontinuous levels of Reality. However, it is also a non-reductionist theory *via* the Hidden Third, which restores the continuous interconnect-edness of Reality. The opposition between reductionism and non-reductionism is, in fact, a result of binary thinking, based upon the logic of the excluded middle. The transdisciplinary theory of the levels of Reality allows us to define, in this way, a new view on Reality, that can be called *trans-reductionism*.

The transdisciplinary notion of levels of Reality is incompatible with the reduction of the spiritual level to the psychological level, of the psychological level to the biological level, and of the biological level to the physical level. Still, the four levels are united through the Hidden Third. However, this unification cannot be described by a scientific theory. By definition, science excludes non-resistance. Science, as it is defined today, is limited by its own methodology.

The transdisciplinary notion of levels of Reality also leads to a new vision of Personhood, based upon the inclusion of the Hidden Third. In the transdisciplinary approach, we are confronted with a *multiple Subject*, which is able to know a *multiple Object*. Unification of the Subject is performed by the action of the Hidden Third, which transforms knowledge into *understanding*. "Understanding" means fusion of knowledge and being. In a certain sense, the Hidden Third appears as the source of knowledge, but, in its turn, it needs the Subject in order to know the world: the Subject, the Object, and the Hidden Third are inter-related. The human person appears as an interface between the Hidden Third and the world. The human being has therefore two natures: an animal nature and a divine nature, which are inter-related and inseparable. The erasing of the Hidden Third in knowledge signifies a one-dimensional human being, reduced to its cells, neurons, quarks, and elementary particles.

Opening Remarks

It is inappropriate for an opening talk to present "concluding" remarks. The event of our mini-conference is in front of us, full of expectations, but unpredictable. Hence, I will present just a few short opening remarks.

It is obvious that a huge work remains to be performed in order to formulate a unified theory of the levels of Reality, valid in all fields of knowledge, which involve, at the beginning of the 21st century, more than 8,000 academic disciplines, every discipline claiming its own truths and having its laws, norms, and terminology.

I believe that the transdisciplinary theory of the levels of Reality is a good starting point in erasing the fragmentation of knowledge, hence the fragmentation of the human being. We badly need a transdisciplinary hermeneutics (Van Breda [2007]). This is really a big question.

In this context, the dialogue of transdisciplinarity with the patristic thinking and, in particular, with the apophatic thinking, will be very useful, of course. The Hidden Third is a basic apophatic feature of the future unified knowledge (Nicolescu [2006]).

The theory of categories will also be certainly helpful. But one must not fear metaphysics and clarify how *trans-categorical* properties could be described. It is very difficult, if not impossible, to conceive such a subtle notion as "personhood" without doing metaphysics.

Quantum physics is also very precious because it leads to a good understanding of the role of discontinuity in philosophical thinking. Heisenberg's approach to the levels of Reality is just one magnificent example in this sense.

I am very hopeful as to the potential contribution to a unified theory of the levels of Reality of a new branch of knowledge — biosemiotics, as presented, for example, in Jesper Hoffmeyer's stimulating book *Signs of Meaning in the Universe* (Hoffmeyer [1996]). Biosemiotics is transdisciplinary by its very nature (Witzany [2007]). We live in the *semiosphere*, as much as we live in the atmosphere, hydrosphere, and biosphere. The human being is the one and only being in the universe capable to conceive of an infinite wealth of possible worlds. These certainly correspond to different levels of Reality. Powerful concepts elaborated by biosemioticians, like the *semiotic freedom*, could lead us to understand what *personhood* could mean. "The human being is the most perfect sign", says Peirce.

Biosemiotics is based upon the philosophy of Charles Sanders Peirce (1839-1914), a great philosopher, logician, and mathematician of the early 20th century (Peirce [1931-1958] & [1966]). Peirce sees Reality as a ternary structure. All our ideas about Reality belong to three classes: Firstness, Secondness, and Thirdness. These classes have trans-categorical properties, through the way in which Peirce defines what Firstness is. There is a powerful theorem in the graph theory established by Peirce, stating that each polyad superior to a triad can be analyzed in terms of triads, but triads could not be analyzed in terms of dyads. This leads him to think about three modes of being, manifestations of three universes of experience. The correspondence of Peirce's ternary dynamics with the transdisciplinary ternary dynamics of Reality { Subject, Object, Hidden Third } is striking and has to be further explored. "*What is Reality?*" — Peirce asks (1976], vol. IV, pp. 383-384). He tells us that maybe there is nothing at all which corresponds to Reality. It may be just a working assumption in our desperate tentative of knowing. But if there is a Reality — so Peirce has it — it has to consist in that *the world lives, moves, and has in itself a logic of events, which corresponds to our reason*. Peirce's view of Reality totally corresponds to the transdisciplinary view of Reality.

Let me finally say that a unified theory of the levels of Reality is crucial in building sustainable development and sustainable futures. The present considerations in these matters are based upon reductionist and binary thinking: everything is reduced to society, economy, and environment. The individual level of Reality, the spiritual level of Reality, and the cosmic level of Reality are completely ignored. Sustainable futures, that are so necessary for our survival, can only be based on a unified theory of the levels of Reality. We are part of the ordered movement of Reality. Our freedom consists in entering the movement or perturbing it. Reality depends on us. *Reality is plastic*. We can respond to the movement or impose our will of power and domination. Our responsibility is to build sustainable futures in agreement with the overall movement of reality.

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A Blueprint for a Non-Reductionist Theory of Reality*

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Introduction

Since we must get straight from the outset the sort of reduction to be avoided, I will begin with some senses of the term that are *not* objectionable. First, I do not mean restricting attention to a particular aspect of data to be explained. Nor do I mean eliminating a hypothesis that is unnecessary or has been displaced by a better one.¹ Nor do I mean merely identifying the nature of any whole with the nature of its smallest parts. This sense of reduction is often objectionable, but can at times be true.

What I have in mind getting rid of is the overarching global claim which is *ontological* reduction, and which is never true. It comes in two flavors. The first is the claim that everything in the cosmos has only X kind of properties and is governed by only X kind of laws. This reduces the content and variety of the cosmos by eliminating all non-X properties and laws from it.² The second is a weaker claim that is sometimes misleadingly called “non-reductionist”, because it does not eliminate every non-X kind of properties-and-laws from the cosmos. Instead, the weaker

* Originally presented at the 2008 Metanexus Conference, “Subject, Self, and Soul: Transdisciplinary Approaches to Personhood”, Madrid, July 13-17, 2008; published in electronic form on the Metanexus Global Spiral, www.globalspiral.com.

1. For example, the kinetic of heat “reduced” heat to the kinetic energy of molecules by eliminating the caloric hypothesis.
2. There are two versions of the eliminative claim. One argues that pre-theoretical experience is largely illusory with respect to the existence of non-X realities, the other argues that all that appears non-X is actually identical with Xs. No matter which mode of argument is employed, the upshot is that all distinctly non-X realities are eliminated.

claim allows that there are non-X properties, laws, or things in the cosmos, but insists they are all produced by the (allegedly) purely X realities.³ This claim seems initially more plausible just because it does not eliminate everything non-X from reality. But it still makes an exclusivist claim on behalf of the entities it says produce all else; *they* are exclusively X even if not everything is. And this claim is still reductionist, because it diminishes the ontological status of all non-X realities by making them depend on purely X realities that are themselves non-dependent. Let us consider a few sample theories to illustrate these two reduction claims.

The Pythagoreans held to the second sort of reduction. For them, all the rich diversity of the cosmos is produced by numbers. The producing entities were supposed to be purely *quantitative*, and the theory was that every property, law, or thing that is not quantitative consists of, or is produced by, combinations of numbers. By contrast, materialism comes in both versions of reduction. There are materialisms that hold everything to be purely physical (the strong claim) and materialisms that claim that there are exclusively physical entities which combine or interact so as to produce everything that is not physical (the weaker claim).⁴

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3. This is a closer, summarized delineation of the objectionable types of reduction theories:
- *Meaning Replacement*: the nature of all reality is to have properties of X kind exclusively, and to be governed only by the X kind of laws. This is defended by arguing that all terms with allegedly non-X meaning can be entirely replaced by X terms with no loss of meaning, while not all X terms can be replaced by non-X terms. (Berkeley, Hume, and Ayer defended phenomenalism in this way.)
 - *Factual Identity*: the terms of non-X vocabularies cannot be entirely replaced by X terms, but non-X terms refer to only X properties and laws all the same. The selection of X is defended by arguing that the only or best explanations of anything whatsoever always have X terms as their primitive terms and X laws as their basic laws. (J.J.C. Smart defended materialism in this way.)
 - *Metaphysical Causal Dependency*: the nature of reality is basically (not exclusively) made up of X (or X & Y) kind(s) of things. This is defended by arguing that there is a one-way dependency between properties and laws of the non-X kinds upon entities whose nature is exclusively of the X (or X & Y) kind. (Aristotle and Descartes each defended their ideas of “substance” in this way.)
 - *Epiphenomenalism*: it is similar to causal dependency reduction except that the caused properties are less real in that there are no laws of their kind. Therefore, no genuine explanation can be given for anything in terms of epiphenomenal properties. (Huxley and Skinner argued that the states of consciousness are epiphenomenal on purely physical bodily processes or behavior.)
4. Quantitative and physical are not the only kinds of properties-and-laws to have been distinguished over the past 2,700 years, of course. Other kinds include the spatial, biotic, sensory, logical, linguistic, social, economic, ethical, and more. It should be kept in mind that although quantitative properties represented by numerals are being used in geometry, physics, and other sciences, they are not themselves spatial or physical properties. Spatial properties include, *e.g.*, distance, shape, area, size; while physical properties include, *e.g.*, mass, weight, momentum, charge, specific gravity.

Dualistic theories of reality almost always employ the second sort of reduction, in that they propose purely X and purely Y realities, whose interaction produces all else. For example, Plato and Aristotle viewed the cosmos as the product of the interaction between changeless rational forms and changeable matter. And Kant held that the world of our experience is produced by purely *sensory* forms of perception and purely *logical* categories of understanding imposed by our minds upon an utterly chaotic raw material. These views of reality, and more, have endured for centuries among the conflicting “-isms” of philosophy. Each of them has, in turn, undergirded contrary theories of knowledge, ethics, politics, and law, as well as contrary interpretations of hypotheses in every natural science.

But no matter which reduction claim an ontology uses and no matter how it identifies its favored X, every reduction theory — whether monistic or dualistic, exclusivist or non-exclusivist — depends on taking *something* as being exclusively X (or exclusively X and exclusively Y). According to such theories, everything is either identical with, or produced by, purely X realities, or by an interaction between purely X and purely Y realities. From now on, I am going to refer to the stronger version of reduction as an “exclusivist” claim, and the non-exclusivist version as a “causal” claim, since it says that the purely Xs (or Xs plus Ys) produce all else. But it is important to notice right away that the sort of causality employed in the weaker reduction claims is not the same as the causality sought in the sciences. Rather, it is a stronger sense I will call “metaphysical causality”. That is to say, it is not merely the sort of causality that we speak of when, *e.g.*, we say that heating a copper wire causes it to glow green. In that case, the heat is a cause of the glow in the sense of being sufficient for its *occasion*; it is not intended as an answer to the metaphysical question: “Why are there such things as green glows in the cosmos?” Any answer to the latter question would be proffering a metaphysical cause.

Since exclusivist claims take X realities to be all that exist, and causal claims purport to identify what produces all else, it should be clear why another important feature of both types of theories is that their favored candidates for that-to-which-everything-reduces are being granted independent reality: X (or X and Y) realities do not depend for their existence on anything, while all that is non-X (or neither X, nor Y) depend on them. In sum, then, there are two common factors to both the exclusivist and the causal versions of reduction theories: 1) both propose things that are exclusively X or exclusively X and exclusively Y as producer(s)-of-all-else⁵;

5. Exclusivist theories also allow for realities that are produced. For example, exclusivist materialism admits there are many realities which, while purely physical, nevertheless come into being and pass away. They are, therefore, caused by the purely physical realities that are the independent metaphysical causes.

and 2) the producer(s) of all else are taken to have an independent existence.

In what follows, it will matter little whether a theory of reality posits one or two candidates for the kind(s) of things that have independent existence and produce all else. Nor will it matter whether a theory is strongly reductive and asserts everything to be of the same kind as the producing realities, or is the weaker claim that allows that there exist properties or things which are qualitatively different from the producers-of-all-else. The reason these differences will not matter is that I will be attacking all the versions of reduction at once by exposing their basic idea as unjustifiable: *I will argue that there can be no discursive justification for the belief that anything can be exclusively of one qualitative kind existing independently of all other kinds.*

This is important, since virtually every theory of reality in the history of western philosophy has made such a claim so far. For over twenty-five centuries, there has been a long parade of one-sided reductions provoking contrary one-sided reductions. Their claims have attempted to enthrone not only (allegedly) purely quantitative, or physical entities as the independently existing producers-of-all-else, but have also been made on behalf of supposedly purely spatial, logical, sensory, historical, or linguistic things or processes (and mix-and-match combinations of them) said to comprise or produce the cosmos we experience. So let me reiterate that my critique of reductionist theories will rule out the possibility of justifying *any claim to have found in the cosmos any reality that is exclusively X in nature and which produces everything else.* I will do this by showing that all claims of having identified a purely X reality have no sense whatsoever. Like talk about square circles, such claims can be asserted, but *we cannot so much as frame the idea of anything as having one exclusive kind of nature.* It follows, then, that neither can we frame any idea of anything with one exclusive kind of nature *existing independently of all else.* Thus, I will be mounting a wholesale attack on reduction as a *strategy* for explanation, rather than just on particular versions of it. It will, for example, show why we cannot so much as frame any idea of such things as purely physical objects, purely sensory percepts, or purely logical concepts. On this basis, I will advocate that we bend every effort to construct a non-reductionist theory of reality, and allow it to guide our theorizing in the sciences. But I will not merely call for such a theory. This paper will close by sketching one example of what such an ontology could look like, the one proposed by the Dutch philosopher Herman Dooyeweerd.⁶

6. *A New Critique of Theoretical Thought*, 4 vols, Philadelphia, Presbyterian and Reformed Pub. Co., 1955. The work was republished by Mellen Press, Lewiston, NY, in 1997.

The Role of Religious Belief in Theories

Before proceeding to give the non-reductionist argument, however, we should pause to notice that there are only two options open to us for constructing a non-reductionist theory. If we reject the idea that any reality found in the cosmos could be the independent producer-of-all-else, then we must either drop all consideration of ultimate metaphysical cause from our theory of reality, or take that cause to transcend the cosmos. I will return to comment on the first option at the end of the paper and for now speak only about the second option, namely that of a transcendent producer-of-all-else. This option, in turn, has two possible versions. One is to regard the transcendent reality as all there is and reject all reductionist explanations for that reason. On this view, everything in the cosmos is metaphysically equal, because everything is in fact unreal. This is the sense of transcendence taken by the Hindu and Buddhist traditions. No individual entity, no type of entities or events, no property, law, or kind of them, is the producer of the rest of them, because *none whatsoever is real*. They are instead “Maya” — an illusion. Such a view gets rid of reduction by holding not only that there is no ultimate explanation of the cosmos within the cosmos, but also that there is simply no cosmos to explain. The other possibility is that of Theism: belief in a transcendent producer-of-all-else (Creator) that is distinct from the cosmos. On this view, the cosmos is real but nothing in it — no thing, event, state of affairs, relation, property, or law — has an independent existence. This is true not in the sense that is tautological for Theism (that nothing can be independent of a Creator), but, as my argument will show, in the extended sense that no kind of entity in the cosmos can be thought of as independent from all other kinds and, thus, as their cause.⁷ On this version of a non-reductionist program for theories, they would be free to trace out causal pathways in the world, discover patterns, conceive of hypothetical entities etc., without ever supposing that any one (or two) kind(s) of things must always be the ultimate (or even penultimate) explanation of all else.

Reviewing these options makes it possible for us to see why, in the final analysis, the issue of reductionist *vs.* non-reductionist views of reality

7. This is important, because so many theists have proposed or supported reductionist theories of reality, thinking they can be baptized by a simple ploy: grant that everything in the cosmos reduces to X and then insist that X depends on God. The anti-reductionist argument shows why this too is unacceptable, for no basic kind of properties-and-laws in the cosmos can be conceived as independent of the other kinds. That is, nothing is purely physical, or spatial, or sensory, or logical etc. Therefore, none of these kinds can qualify as the nature of a substance that metaphysically causes the others.

is a *religious* one. Simply put: every belief that anything is the independently existing producer-of-all-else is a *religious* belief for two reasons:⁸

1) Independent reality is the essential characteristic of divinity. For over 3,000 years, a multitude of thinkers with very diverse points of view have discovered and rediscovered that an idea of what has independent reality and produces all else is at the core of all religions.⁹ There are, of course, many conflicting views as to exactly *who* or *what* has the status of divinity, but all alike regard the divine to be the non-dependent producer of all else. This is the only common characteristic that all religions share. It remains a constant, no matter how else they describe the divine: whether they have one, two, or many divine realities, whether their divinity is personal or not, whether it is worshipped or not, and whether their belief in it generates an ethic or not. Without exception, *all religions take the divine to be the unconditional, non-dependent reality that produces all else.*

2) Divinity beliefs are grounded in experience and cannot be justified in the way theories are. No evidence or argument can establish a particular idea of divinity as true without begging the question, because no argument or interpretation of evidence can fail to presuppose some divinity belief or other. Divinity beliefs are held on grounds of experience, not argument.¹⁰ This explains the persistence of beliefs that some aspect of the cosmos has divine status, although no one can frame the idea of any purely X reality independent of all that is experienced as non-X.

It is worth mentioning that while there are different terms for what I am calling "divine" among religions, some do not have any special term for it at all. Some myths simply trace everything back to an original source without specifically calling it self-existent. But tracing everything else back to a source and ending the story there is the same as conferring self-exis-

8. Compare Calvin's remark: "...that from which all other things derive their origin must necessarily be self-existent and eternal" (*Inst.*, I, v, 7). For a fuller defense of this definition of divinity, see chapter 2 of my book *The Myth of Religious Neutrality*, Notre Dame, University of Notre Dame Press, 2005.

9. For example, see Plato, *Timaeus*, 37, 55; Aristotle *Metaphysics*, 1064a33; William James, *The Varieties of Religious Experience*, New York, Longmans, Green & Co., 1929, pp. 31-34; Mircea Eliade, *Patterns in Comparative Religion*, New York, Sheed & Ward, 1958, pp. 23-25; C.S. Lewis, *Miracles*, New York, MacMillan, 1948, pp. 15-22; Robert Neville, *The Tao and the Daimon*, Albany, State University of New York Press, 1982, p. 117; Paul Tillich, *The Dynamics of Faith*, Harper & Bros., 1957, p. 12; N.K. Smith, *The Credibility of Divine Existence*, New York, St Martin's, 1967, p. 396; H. Kung, *Christianity and the World Religions*, Garden City, NY, Doubleday, 1986, p. xvi; Pierre Chaunu, "Revelation and the Sacred in Christianity", in P. Chaunu (ed.), *The Reformation*, Gloucester, UK, Alan Sutton Pub., 1986, p. 18; and many more, including F. Schleiermacher, Immanuel Swedenborg, Joachim Wach, Herman Dooyeweerd, and A.C. Bouquet *inter alii*.

10. This is defended at length in R. Clouser, *Knowing with the Heart: Religious Experience and Belief in God*, Eugene, Oregon, Wipf and Stock, 2007.

tence on it by default. For if all else depends on X and that is the end of the story, then X must be divine. Most traditions do have special terms to designate the divine status, however. For example: “God”, “Brahman-Atman”, “absolute”, “self-existent”, “ultimate reality”, “metaphysically ultimate”, the “sacred”, “Dharmakaya”, “Nirvana”, and the “Tao”. All are names for different ideas of what is divine; specific notions of what it is that has unconditional reality and generates everything else.

Moreover, not only are all religions centered on a divinity belief, but also all beliefs ascribing self-existence to anything whatsoever are thereby religious.¹¹ They all ascribe to something the defining status of divinity, they are all incapable of proof and are based on experience instead, and they all yield ideas of human nature, happiness, and destiny. When they occur within a religious tradition, their primary purpose is to aid humans to stand in proper relation to the divine and when they occur in theories, their primary purpose is to explain. But as far as their *religious* character is concerned, it matters not whether an ascription of independent reality occurs within a cultic tradition, or within a theory. In both cases, it is accepted by its advocates because they irresistibly experience it to be that on which all else depends and in both cases it delimits a range of acceptable ideas of human nature, happiness, and destiny. This point explains the persistence of the “-isms” in metaphysics, as well as the imperviousness of differing divinity beliefs to counter-arguments. And it is why, as I have already commented, deifications of aspects of the cosmos brought into philosophy or science persist, despite the fact that their advocates cannot (as I will show) conceive of their candidate for divinity as having an independent existence.¹²

11. It is crucial here to recognize that not all religions include worship, rites, or the sanctioning of ethics, so these cannot be essential to what makes a belief religious. The only thing they all have in common is the belief in something or other as divine, as I have defined divinity. See R. Clouser, *Myth...*, pp. 35-41.

12. The scriptures of every cultic religious tradition teach that its central doctrines are to be known by the direct experience of their truth. The experience, like the divine itself, also has many names: enlightenment, conversion, Moksha, Prajna, Zen, intuition etc. This contrasts with the misunderstandings advanced by thinkers such as R. Dawkins, E.O. Wilson, and D. Dennett, to the effect that divinity beliefs are all hypotheses taken on blind trust. But the fact is that no religion’s scriptures ask anyone to believe in the reality of its divinity on blind trust. The role of faith arises in a religion concerning its promises for the future, the fulfillment of which is not yet experienced, rather than the reality of its divinity. Compare this point about experience as the basis of divinity beliefs with the candid comments of Paul Ziff and Richard Lewontin about their materialism. In a lecture at the University of Pennsylvania, Ziff said: “If you ask me why I am a materialist, I am not sure what to say. It is not because of the arguments. I guess I would just have to say that reality looks irresistibly physical to me.” And Lewontin wrote: “It is not that the methods of science somehow compel us to accept a material

The remainder of this paper will be in two parts. The first will present an anti-reductionist argument; the second will sketch a non-reductionist theory of reality based on Theism. And while the anti-reductionist argument is my own, the impressive theory of reality I will introduce here is, as I have already mentioned, the work of Herman Dooyeweerd of the Free University of Amsterdam, who first published it in 1935.¹³

Reduction Is Seduction

A. An anti-reductionist argument

The argument I am about to give is not deductive, so it does not require from you to accept that I have found privileged premises no rational person could reject. But neither is it inductive. It does not argue for any probability, and so needs no assumption as to whether to take a frequentist or Bayesian, subjectivist or objectivist, view of probability. Instead, it is an experiment in thought so simple, that you can perform it for yourself right now — which is exactly what I am asking you to do. Its results will be confirmed in your own self-reflection. If you try it and get a different result from what I get, it will fall flat and have no force for you. And I agree in advance to accept as rebuttal any differing results you get when you try it (provided you tell me what they are). The experiment is simple: let us try to conceive of *anything* as having only one exclusive kind of nature. This is what reduction arguments claim on behalf of their candidates, so let us try to frame an idea of something as being utterly monochromatic in kind and existing in utter independence from all else.

As a first example, let us try this on materialism. Contemporary versions of this theory are less than forthcoming about naming the exact realities that are the exclusively physical producers of all else, but are quite confident that whatever has independent existence is exclusively physical. So let us see what our experiment yields when we try to think of *anything* as exclusively physical. Let us take as our first example a concrete object such as a book. Can a book really be conceived of as a “purely physical object”? That would mean, to quote a famous materialist, that “no irreducibly ‘emergent’ laws or properties” can be true of the book,

explanation of the world, but on the contrary, we are forced by our *prior* adherence to material causes to create... a set of concepts that produce material explanations no matter how counter-intuitive...” (*New York Review of Books*, January 7th, 1997, p. 37). Amazingly, these remarks express the same ground that was offered by Calvin and Pascal for belief in God. See R. Clouser, *Myth...*, pp. 95-96.

13. The 1935 work was entitled *Het Wijsbegeerte de Wetsidee* and was later expanded into the larger work cited in note 6, *A New Critique of Theoretical Thought*.

because “in the world there are [no] non-physical entities [or] non-physical laws”.¹⁴ The proposal, then, is that a book has only physical properties and is governed only by physical laws. So let us begin to strip from our concept of a book every kind of property we experience as non-physical. Start by taking from it all quantitative and spatial properties, so that it has no “how much” and no location or shape. Next strip away every sensory property such as its color and tactile feel. Next take from it every logical property, so that it lacks being logically distinguishable from anything else, and also remove its linguistic property of being able to be referred to in language.¹⁵ I could go on to ask that you now divest it of further kinds of properties such as social, economic, aesthetical etc., but I think I have made my point. Removing only the few kinds of properties-and-laws that I have just named already wipes out any idea of a book whatsoever.

So did you get the same result? If not, I have no further argument and you have an intellectual right to claim that materialism makes sense — provided, of course, that you can specify what is left of your concept of a book! On the other hand, if you got the same result I got, you have seen the concept of a book disappear before your mind. And the reason the concept of a book dissipates like the morning dew is that while we have a clear idea of what *exclusively* means and what *physical* means, we quite literally have no idea whatsoever of what *exclusively physical* means. In this respect, the main claim of materialism is strongly analogous to the claim that there are square circles; we know what *square* means and we know what *circle* means, but we have no idea whatsoever of what *square circle* means.¹⁶

This experiment does not only succeed when we attempt it with the concept of a concrete object such as a book, however. To see that this is so, let us try it again — this time with the concept of an abstracted physical property, say the property of weight. Strip from the idea of weight all numerable quantity, spatial location, all connection to sensory properties, the logical property of being distinguishable, and the property of being

14. J.J.C. Smart, *Materialism*, in A. Flew (ed.), *The Mind/Brain Identity Theory*, London, MacMillan, 1970, p. 160.

15. Of course, being distinguishable and able to be spoken of are *passive* properties as opposed to active ones, but they are no less really properties of a book for that reason. If a book itself lacked the property of being logically distinguishable, we could form no concept of it, and if it did not possess the property of being able to be referred to, we could not speak of it. The active and passive senses in which properties can be possessed will shortly be explained in more detail.

16. The two are analogous rather than precisely the same, because, in the case of “square circle”, there are laws that make such things *impossible*, whereas we simply cannot form any idea of “*exclusively physical*”. For this reason, *impossible* and *not possible* need to be distinguished. Compare R. Clouser, *Myth...*, p. 360, n. 11 and note 28 below.

able to be referred to in language. Once again, I ask you to tell me: What do you have left? What is weight that cannot be quantified, is nowhere, cannot (in principle) be sensorily perceived, is not logically distinguishable from all that is not weight, and cannot be referred to in language? I get nothing whatsoever. What do you get?

Again, I would not have you suspect that while this works with concrete objects and abstract properties, it fails if we consider the entire *kind* of properties and laws we call physical. It is not that materialism does not work for everyday individual things or for particular properties physics deals with, but succeeds on the more global scale. Rather, the same thing happens when we take *physical* in its widest scope. What idea is left of the entire physical *kind* of properties-and-laws when we try to think of it aside from time and space, every quantity, and without being logically distinguishable from all that is non-physical? The conclusion yielded by this experiment is that despite all the ingenuity and ink that have been spent in time defending materialism or trying to find exceptions to its all-encompassing claims, its central claim never had any sense at all. *We cannot so much as frame the idea of anything exclusively physical.*

Please notice that this thought experiment does not work only for materialism. All the other “-isms” making similar exclusivist claims on behalf of other kinds of properties-and-laws fall victim to it as well. Are there sense data made up of purely sensory properties? Are there purely logical concepts or categories? If so, why cannot we so much as frame the idea of them? What is a sensation (either the subjective act or the object of the act) that takes no time, is not denumerable, is nowhere in space, involves no physical energy or conditions, is not logically distinguishable, and not able to be referred to in language? Ditto for the logical kind of properties-and-laws. Even the fundamental axiom of non-contradiction includes a necessary reference both to time and the more-than-logical “sense” of any proposition to which it is applied, for it says that no statement can be both true and false at the same *time* and in the same *sense*. It therefore explicitly concedes the existence of other-than-logical properties and tacitly concedes the existence of other-than-logical laws. For, if a property is insufficiently ordered in a non-logical sense, it would not be definite enough for logical laws to guarantee it cannot be true and false at the same time.¹⁷ And what is left of logic if we try to conceive of it in

17. There are properties corresponding to complex states of affairs that are like this, such as being bald or being a forest. How many hairs have to be missing from someone’s head for him to be bald? How many trees have to be growing in a specified area for it to be a forest? Since no rules govern baldness or being-a-forest in such a way as to make their concepts definite, logic is helpless to tell us that, if we assert one of them, its denial is false — even though one or the other would have to be true if we had a definition and employed it unequivocally.

isolation from quantity (no domain for quantifiers or extension for terms), kinematics (no movement from premises to conclusion), perception (no notational representation), and language (no terms for an argument)?

Moreover, this experiment does not only undermine trying to conceive of entities or properties as purely X, but also the causal laws called “bridge laws”, that are often postulated to account for how the purely X produces all that is not-X. What *kind* of laws would they be? For example, if the claim is that solely X entities combine so as to bring into existence things with distinctly Y properties, then the causal laws would have to be of kind X. But we cannot conceive of a purely X law any more than we can conceive of a purely X object. As it is with properties, so it is with laws: we can say the words *purely X laws*, but have no idea of what they mean. Moreover, if a causal theory insists on assuming that we are dealing with things that are purely X (or purely X plus Y) despite not being able to conceive of them, then it is left with no way to frame any idea of interaction between them. This is the old problem of the homogeneity of cause and effect; it is why Descartes, *e.g.*, had to admit that he had no idea of how purely non-physical mental acts could occasion physical responses and vice versa. Non-homogeneity undermines even the scientific senses of cause, and utterly destroys the metaphysical sense. The upshot is that for both one-way causal reduction theories and for dualist theories, taking an exclusivist view of any two kinds of realities to be related results in no idea of either and no idea of any interaction that could hold between them.

Rejecting all reductionist views has many ramifications. It destroys, *e.g.*, the grounds for believing that any specific kind of thing can exist “in itself”. It also utterly undermines the notion that our experience consists of purely (internal), *sensory* perceptions that can never be identified with purely (external) *physical* objects. Since we cannot think of either our acts of perception, or the objects of perception except as sharing a multiplicity of kinds of properties and being governed by a multiplicity of kinds of laws, there is no reason for thinking that the sensory and the physical are isolated from one another. Perception is perception *of* things themselves, not an internal copy which has an utterly different nature from its external causes. Or take Plato’s theory that there are Forms each of which exists “in itself” (αυτο το’).¹⁸ The thought experiment shows why it is just as meaningless to speak of justice itself or beauty itself, and of their real independence from all other qualities, as it is to make those claims on behalf of the physical. What is left of our ideas of beauty or justice if we isolate them from every property and law of time and space, quantity, sensation, logic; and from every linguistic, social, and economic factor?

18. *E.g.*, *Hippias Major* (286d8); *Symposium* (211a10).

The experiment also becomes an impure reason's critique of Immanuel Kant. Since there are no purely sensory or purely logical anythings, there is no need to postulate a "transcendental ego" that combines those spurious "purities" into the virtual reality show that supposedly replaces pre-theoretical experience.

Ontological dualisms run afoul of this thought experiment twice instead of only once. Moreover — as I mentioned above — they are then unable to explain how their two supposedly independent realities relate to produce everything else. Take, for example, the idea of form-matter substance. What is meant by *form* in this theory? Surely it refers to the principles of order that account for the observed *orderliness* of things. But what *kind* of order are we talking about? Is it quantitative, spatial, kinematic, logical, or what? If you say: "None of these", then the term is devoid of meaning. If you pick any one, then I have already shown you why it cannot be thought of as independent. If you say: "It is all the kinds of order taken together", then I reply that there is no reason to think they are individually dependent, but collectively independent. Besides, there would then be no way the idea of substance could explain what is accidental in a thing, for there would then be nothing left of it to be accidental. That is, every kind of properties true of it would be ordered by laws that would be equally ultimate and independent. The same sorts of impasses result on the other side of the dualism, where *matter* means the stuff that gets formed. What *kind* of material are we talking about? No matter how this is answered, the thought experiment shows that no candidate-kind can be thought of as having independent existence: not numbers, or atoms, or energy. And the same insurmountable difficulties beset the reply that *matter* merely means "potentiality". What *kind* of potentiality? Once again, every kind of potentiality is of a kind that cannot be thought of in isolation from all the other kinds, so "pure potentiality" is as empty of meaning as are all the other allegedly pure ideas.

I will not go on to apply my argument further to the history of philosophy, though it is tempting to do so. It has devastating consequences for every theory that assumes any kind of thing in the cosmos to have independent existence. It leaves such proposals, if taken as theories, to bite the dust and there is no recovery for them. But that is not all that can be said against them. In addition to this argument, there is also the matter of how badly reduction theories fail by comparison to a non-reductionist approach. Before I proceed to sketch an example of such a non-reductionist ontology, however, I must first deal with an objection to my thought experiment. The objection suggests that perhaps the thought experiment only works for the specific list of kinds of properties-and-laws I have been working with, but would fail for alternative lists. In that case, using my

list begs the question, so I need to explain why the case against reduction does not depend on any particular listing of basic kinds of properties-and-laws being exactly right.

B. Aspects of Experience

In order to make this discussion less wordy, I am going to press into special service the English term *aspect* to refer to a basic kind of properties-and-laws. (An aspect is “basic” when it cannot be subsumed under any other aspect without resulting in antinomies, contradictions, or other serious incoherencies.¹⁹) To call a kind of properties and laws an aspect of reality, then, is to say that it is true of both our subjective acts of experiencing and of their objects. It also intends to say that these kinds are abstracted from our pre-theoretical experience of things, events, relations, states of affairs, persons etc. It is the objects of ordinary experience that exhibit both the properties and the conformity to laws that, in turn, exhibit the meta-properties (quantitative, spatial, physical, logical etc.) that qualify each aspect. It is their basis in experience that has resulted in so many thinkers in the history of philosophy and the sciences working with roughly this same list of aspects. In fact, most of these aspects have been more than just recognized; many have been declared by one or more influential schools of thought to be the one that qualifies the nature of the self-existent producer-of-all-else. This is not to say that there is universal agreement about a list of genuine aspects, of course, and even if there were, that would not settle the issue. Moreover, the issue is an important one for any ontology. But since there is not the room to do that job here, I will simply refer you to Dooyeweerd’s work, in which he spent hundreds of pages arguing for the right list of aspects. What I do instead is explain why I think that neither my non-reductionist argument, nor the broad outline of his non-reductionist ontology depend on first establishing any particular listing of aspects as the exactly correct list.

First, there is the general point that *any kind that is experienced as qualitatively distinct enough to be regarded as an aspect cannot then be reduced to another in any of the senses I have defined as objectionable*. A person may be mistaken to see a particular candidate as qualitatively different, but if a specific candidate-kind *is* seen that way, it cannot then also be identical to any other or eliminated in favor of any other. Neither could it be (metaphysically) caused by any other, since for one aspect to be the cause of another it would have to exist independently of the other, and we have already seen that such independence is literally inconceivable. (This point

19. In *Myth...*, I distinguish three sorts of incoherencies besides antinomies and logical contradictions, and strong and weak senses of each of them. See pp. 80- 87.

does assume that at least *some* of the traditionally recognized aspects are genuine, even if not all are. It assumes that the quantitative, spatial, physical, sensory, and logical are the least doubtful.)

Second, agreement on the exact list of aspects is not necessary to their inability to be reduced to one another, because the thought experiment applies not only to entire aspects and concrete objects, but also to every specific *property* we can frame an idea of. So it is not merely the great plausibility of the brief list I have called the “least doubtful” aspects that comes into play here. It is also the reality of specific properties regardless of which aspects they are taken to fall under. We cannot, I pointed out, form any idea of weight that has no quantity, is not located in space, could have no sensory representation, is not logically distinct from other properties, and is not referable to in language. The same remains true for instances of any other property we care to consider: what is blue, moribund, consistent, or expensive, that cannot be counted, located, distinguished, or spoken of? But if every *property* is such that we have no idea of it apart from other properties, *then it will not matter whether we agree in seeing those properties as falling under the same overarching aspectual kinds or not*. Since we cannot think of any of them as existing independently of one another, whatever aspects we think they fall under will be equally inconceivable apart from all others.²⁰

The only way to deny this last point would be to insist that, *e.g.*, say, two, square, weight, red, distinct from, and evil are all of the same qualitative *kind*. That, however, is patently not what we experience. If it were what we experience, there would be no need to make reduction claims. But, on the contrary, reductive theories are attempts to correct our pre-theoretical experience — which is a tacit admission that what they propose runs counter to it. What is more, reduction claims themselves get their list of candidate-aspects from that same experience: it is from some such list that they select the one (or two) aspect(s) they favor as basic to reality. Hence my point that *everyone* works with some list or other.

For these reasons, I do not think it necessary to try to establish here and now the exactly right list of aspects. In what follows, I will make use of Dooyeweerd’s list and the main ideas of his theory will remain unchanged for anyone wishing to advocate a somewhat different list. So far as that theory of reality is concerned, then, its primary question will be how to understand the relations of properties and laws of different kinds so as to explain the natures of things. And insofar as this theory is a *non-*

20. In this connection, it is significant that a number of thinkers who work with Dooyeweerd’s ontology do in fact use a slightly different list of aspects or a different account of their order, and such variations have made no difference to the ontology as a whole.

reductionist account, the project will be to explain the natures of things without regarding any one or two aspects of the cosmos as the nature of that which produces all else.

The Law Framework Theory

A. Aspectual Laws

In this non-reductionist ontology, several sorts of laws will be distinguished, and together they will be recognized as comprising a distinct side to created reality, where *law* means the source of the order which accounts for the orderliness we observe in the cosmos. The laws governing the cosmos will not be understood to precede or cause the existence of things subject to them, nor will the things be seen to precede or cause the laws. Instead, both the laws and the entities subject to them will be taken to have been created simultaneously by God and to exist in unbreakable correlation. The theory then elaborates this idea of a framework of laws, under which all created things exist and function, by distinguishing aspectual laws, from type laws, from causal laws. Aspectual laws are those that hold among the properties of each aspect. Type laws hold across aspects and determine which properties of different aspectual kinds can combine so as to form things of a particular type. But neither of these should be confused with the causal relations we observe to hold between events. Those relations are themselves multi-aspectual, and are not to be thought of as having only one kind of properties.

Here is the list of aspects Dooyeweerd uses to develop his non-reductionist theory of reality. The order of the list is, of course, not causal and will be explained shortly.

fiduciary	social	biotic
ethical	linguistic	physical
justitial	historical	kinematic
aesthetic	logical	spatial
economic	sensory	quantitative

I have tried to avoid nouns to designate the members of the list, so as not to give the impression that these are classes or groups of *things*. Instead, I have used adjectives to help convey that they are kinds of properties and laws exhibited by things. This has resulted in some odd terms and some special meanings for familiar terms, so I need to comment succinctly on a few of them.

The term *quantitative* is used to designate the “how much” of things, and should not be taken to refer to a distinct realm of numbers or to abstract systems of mathematics devised for calculating quantity. There is evidence that even animals have a sense of quantity, although they cannot count, and humans have an even stronger intuitive awareness of quantity.²¹ It is the experienced quantity of things that mathematics abstracts as its field of inquiry and within which it further abstracts the property of discrete quantity. This then becomes the basis for the natural number series from which more abstract and complex concepts are built up.

Kinetic is used to designate the “movement” of things, their motion in space. Many scientists include kinetic properties and laws within the physical aspect, although Galileo seems to have disagreed with that, as have a number of contemporary thinkers.²²

The term *sensory* is used to cover the qualities of both perception and feelings; it designates the properties and laws of animal and human *sensitivity*.

The term *historical* is familiar, but needs clarification anyway. It does not refer to everything that has happened in the past, because that is not what historians are interested in. What does interest them is whatever in the past is *culturally* important. So what this term picks out is the activity and transmission of culture-forming power. Other thinkers have preferred to use *formative* for this aspect, since it centers on the human ability to make new things from natural materials. This includes, of course, forming such artifacts as language, theories, music, as well as what we usually think of as artifacts, such as houses, clothes, and tools. I also include many social groups as artifacts since they, too, are freely planned and formed.

Likewise, the term *ethical* frequently refers to right and wrong, but is also often used in different senses that need to be distinguished. For example, there is right and wrong according to justice and right and wrong according to morality. The justicial aspect has to do with right and wrong judged by the norms of *fairness*, while the ethical is concerned with right and wrong according to what is *loving* or beneficent. Though importantly related, these are not identical. So I will use *ethics* for the aspect that is qualified by human love relationships over the entire spectrum of life: love of self, spouse, children, parents, friends, work, country, nature, art, learning, food etc. For the aspect that covers fairness, I will use the term *justicial*.

21. T. Dantzig, *Number: The Language of Science*, Garden City, NY, Doubleday, 1954, pp. 2-3.

22. Not only Dooyeweerd, *A New Critique*, vol. 1, pp. 93-106; and M.D. Stafleu, *Time and Again*, Toronto, Wedge, 1980, pp. 80 ff., but also Planck and Einstein. See Einstein's remarks in “Autobiographical Notes”, in P.A. Schilpp (ed.), *Albert Einstein, Philosopher-Scientist*, New York, Harper Torchbooks, p. 43.

Finally, I have used *fiduciary* to refer to the *reliability* or trustworthiness that people, things, beliefs, theories etc. have.

Even at this early stage, it is possible to see how a non-reductionist view of these aspects can free theory of reality from one old dilemma, that of objectivism *vs.* subjectivism. This controversy can best be understood as the result of contrary answers to the question: what is the source of the orderliness of creation? Whereas the objectivist locates the source of order in the objects of experience, the subjectivist locates it in the mind of the knowing subject. So the objectivist view is that what we call laws of nature is actually our generalizations over the behavioral regularities of things as caused by their fixed natures. There really is no distinct law side to the cosmos on this view, because there are no such things as laws; there are just the regularities in the actions and re-actions of things, according to their fixed natures. The subjectivist position is that the orderliness we experience is the product of the organizing activity of our own minds. It holds that we impose the temporal, spatial, conceptual, and other kinds of order on experience — whether consciously or unconsciously. But our theory objects to both these “-isms”. If all aspects are equally real, and if the producer-of-all-else is not any part of the cosmos, why should we buy into either of these dead-ends or try to work out some combination of them? Neither can be right. Contra objectivism, there would have to be aspectual and type laws among properties for there to be things with fixed natures. And, contra subjectivism, there would have to be laws ordering minds for them to be capable of perceiving and conceiving objects — let alone of forming them. So why not accept that the same laws govern both knowing subjects and known objects? This makes sense, provided we distinguish two different senses in which that happens.

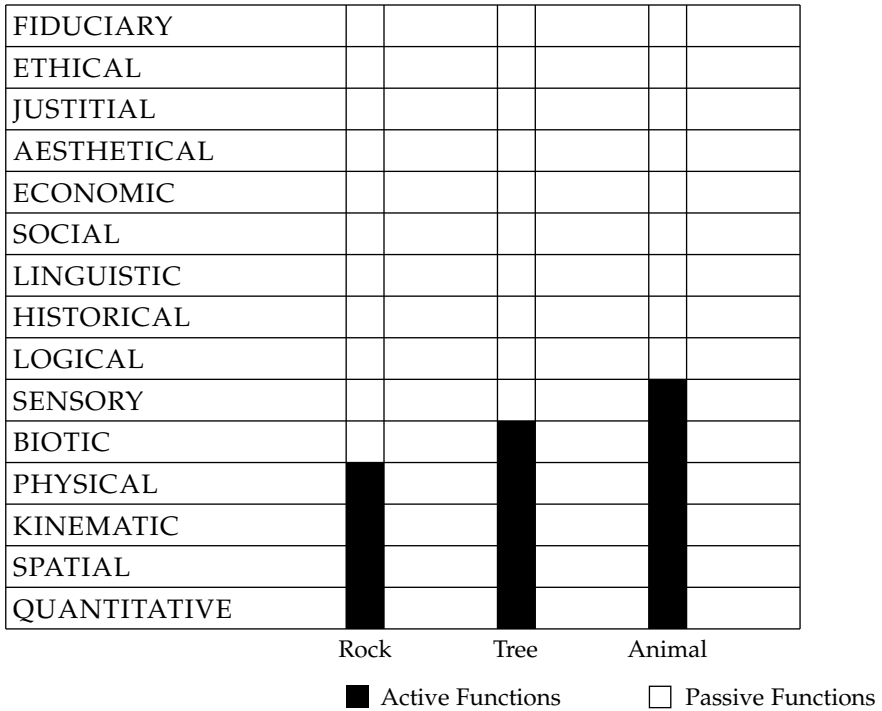
The two senses correspond to two ways in which an object may have a property: actively or passively (this distinction has already been introduced in note 15). These will be spoken of as ways a thing exists and functions “under” the governance of the laws of an aspect. The two functions are not mutually exclusive, however. For the theory sees all things functioning passively in all aspects all the time, so that it is only active functions that a thing may lack in certain aspects. It is the appearance of active functions in things, in fact, that exhibit the sequential order reflected in the list of aspects given above, where an aspect’s being higher on the list indicates that it appears in some types of things but not in others. Consider the example of a rock. According to the distinction being proposed, a rock functions actively in the quantitative, spatial, kinematic, and physical aspects. It possesses properties in each of those aspects, and is subject to the laws of each, in ways that can actively impinge on other things and do not depend on the rock’s relations to them. The rock does

not, however, function actively in the aspects higher on the list. Nevertheless, there is a real sense in which it has properties in them, because there are respects in which it is subject to their laws. These respects depend, however, on the rock's being acted on by other things that do function actively in those aspects. These are what I am calling the rock's passive properties. That it does not function actively in the biotic aspect means that the rock is not alive. It carries on no metabolic processes, does not ingest, digest, or reproduce. But it can have biotic properties in a passive way, a way in which it is acted upon by living things. It may, for instance, be the object on which a gull drops clams so as to eat them; it may be the wall of an animal's den; a small rock may be swallowed into a bird's gizzard and help grind its food. In other words, a rock can be passively appropriated by living things in a *biotic* way. Such passive properties are merely potential, of course, until actualized by contact with something that is biotically active. But they are real properties all the same, properties made possible by the fact that the rock is governed by biotic — as well as all the other — laws. (Be sure not to confuse *active* with *actual* here. Passive properties can be either potential or actual, while active properties are always actual.)

A rock does not function actively in the sensory aspect either, as it neither perceives nor feels. But were it not subject to sensory laws and in possession of passive sensory properties, we (and other perceiving beings) could not perceive it. In relation to perceiving beings, however, its passive sensory potentialities are actualized and it is seen, felt etc. Ditto for its logical function: a rock does not think, but, were it not subject to logical laws, it could not have the passive property of being distinguishable and we could not form a concept of it. In a similar way, the rock also has passive properties in the linguistic, social, economic, and remaining aspects. By contrast, a plant would have an active function in an additional aspect to that of a rock, namely in the biotic aspect. A plant is alive and actively carries on metabolic functions, while having only passive functions in all the other aspects. Likewise, an animal exhibits an additional active function to that of a plant by being active in the sensory aspect. It perceives and feels in ways plants cannot.²³ So far as we know, only humans have an active function in every aspect.

23. This is not to deny that some animals have proto-logical or proto-linguistic abilities. These are not fully formed as in humans, but are nevertheless undeniable (see Francine Patterson's "Conversations with a Gorilla", in *National Geographic*, October, 1978). This, I think, is what we would expect from an evolutionary point of view and is not inconsistent with the idea of a qualifying function. It only needs to be acknowledged that in the aspects from the biotic upward things can have partial active functions as well as fully formed ones.

The following diagram may help clarify this point:



As I pointed out earlier, it is the appearance of active functions that is represented by the sequential order of aspects in the list given above, so it should be clear why that order is not causal. It is not that properties lower on the list produce properties higher on it, nor is it the case that as we go up the list the aspects are “higher” in the sense of having greater importance or dignity. The order is simply our observation that a thing must have active properties in the numerical, spatial, kinematic, and physical aspects in order to have active properties in aspects higher on the list. Put this another way: possessing properties actively in aspects lower on the list is a pre-condition for having active functions in aspects higher on the list.

Even though this passive-active distinction has now merely been introduced and not developed in detail, I think we can already see some of its benefits. Let us for a moment consider a few of its consequences for theories about sensory perception. A stick, we would say, has the passive dispositional property of appearing brown to normal perception in normal light. This disposition becomes actualized (manifest) when actually perceived. But, by the same token, the stick also has the disposition to appear bent in water. Thus there is no need to resort to the theory that

what is bent is one *thing* while the “real” stick is another *thing*. No need, in other words, to be led into the dead-end of postulating that what we really experience are “sense data” wholly internal to ourselves, so that the nature of the stick “itself” (or even whether there is a stick independent of us) is forever unknowable. This same point explains the fact that every object of perception appears smaller the further it is from us, and that railroad tracks appear to converge at the horizon. These are all passive potential properties of the objects in question. Thus the passive/active distinction avoids the considerable mess (generated by Descartes and all who came after him) of supposing we are insurmountably isolated from the world “in itself”. At the same time, however, the active/passive distinction also allows us to appropriate elements of truth from both objectivism and subjectivism, while avoiding the extremes of each. For example, on this theory we agree that, apart from being perceived, things are not actually brown or smooth or sour. But that does not justify the subjectivist inference that such qualities are created by us wholesale or exist only in our minds. Thus, we can agree with the subjectivist denial that sensory qualities are fully inherent in the perceived objects, without thereby being committed to a wholly subjectivist view. For objects of perception do possess — independently of us — passive dispositions to be perceived in the ways they are.

The distinction also serves to dispel other examples of a false objectivist/subjectivist dilemma. For example, we can agree with the objectivist in denying that “beauty is in the eye of the beholder” or that economic worth is solely our own invention. Were not economic and aesthetic norms embedded in the law-side of creation, and had objects not passive properties of those kinds, we could not experience anything in those ways; there would be no economic or aesthetic potentialities for us to actualize. For instance, were a rock not subject to the laws of supply and demand and diminishing returns, we could not actualize any economic value for it. And this remains true although economic properties are not already actual in it, independently of our actualizing them.²⁴

The distinction further shows why it is not plausible to suppose that entire aspects emerge into existence, even though there is a sense in which it is plausible to say that active functions in them “emerge”. But active functions in an aspect arise only in relation to both the passive properties a thing already possesses in that aspect, and to the aspect’s laws which

24. The norms of these aspects are also parts of what I earlier called the distinct law-side of the cosmos. The difference between a norm and the laws found in the aspects lower on our list is that we have no power to violate the natural laws, while we can violate norms. Norms, then, are related to human freedom; it is our choice whether to act in conformity to them, or not, and we are responsible for our choices.

order the emergent properties. What sense would it make, for example, to suggest that the cosmos originally had only physical properties and laws, while later on logical properties and laws emerged? In that case the “emergence” would not have been *logically possible*. Or what could such a world *look* like, if it had no passive sensory properties? It could have no “look” at all! Nor can there be a plausible account of how living beings could have arisen, if biotic passive properties and biotic laws were not already true of non-living things. It is in this way the passive-active distinction removes the most widespread reason for denying that all aspects are equally real.

Here is a summary of some of the main points made so far: 1) The sequence of aspects in the list given above should not be confused with a *causal* one. We have already seen why it is not possible to think of any aspect as independent of all the rest, in which case none can be conceived as the metaphysical cause of any other; 2) Since no specific property can be thought of apart from properties of other kinds, all aspectual kinds are equally real; and 3) every concrete thing possesses some properties in every aspect. Thus our denial, *e.g.*, that everything is exclusively physical is not by way of saying that there are things that are utterly non-physical. Rather, the argument has shown why it is incoherent to deny that all things, events, states of affairs, relations, persons etc. have some properties in every aspect.

B. The Natures of Things

Despite being true of everything in the cosmos at all times, aspects do not all play an equal role in the specific natures of different types of things. The properties and laws of certain aspects characterize the nature of a thing more centrally than do the rest. Traditionally, those aspects were said to be the “substance” of a thing, and in one sense that seems right: they are the properties that a thing must have to be the type of thing it is. Nevertheless, there is also an objectionable side to the notion of substance if it is taken to be inaccessible to our experience or knowledge, to have independent existence, or to be the cause of the other (non-essential) properties of a thing. These claims have already been shown to be literally unthinkable and unjustifiable. So rather than be drawn into the supposition that any aspect(s) more central to a thing’s nature comprise its “substance” that produces the rest of its properties, we will speak of the aspect central to the nature of a thing as “qualifying” it. On this view, saying that a concrete thing is qualified by a particular aspect has three parts: 1) the qualifying aspect is central to its nature; 2) the laws of the qualifying aspect govern the internal relations of the thing taken as a whole; and 3) in the case of natural things, it is the highest aspect in which they function

actively (there is a slightly different account for the nature of artifacts, which will be sketched shortly).

Several points serve to recommend this idea of qualifying function. First, it is open to empirical confirmation and disconfirmation and is not offered as a rule for classifying things that must be followed whether or not we find things that fail to fit it. Its value can only be determined by investigating what we actually find in the world in order to discover whether it holds up. Second, the idea can do justice to our ordinary way of speaking of things as “physical”, for example. We call a thing “physical” to mean either that it is real as opposed to imaginary, or to mean that it is physically *qualified*. Ordinary speech, reflecting our pre-theoretical experience, never means that a thing is exclusively physical, since nothing is ever experienced as exclusively physical. But the physical can be the highest aspect in which a thing has properties actively and be the aspect whose laws govern its internal organization (think of the rock in our earlier example). So an act of perception can be sensorily qualified. Any such act is also actively countable, locatable in space, moveable, and physical, of course. And passively it can be conceptualized, trained, named, respectful, worth money, just, loving, or trustworthy. But it is qualified by its sensory properties and internally governed by sensory laws (nothing can appear red and green all over at the same time, *e.g.*). In the same way, acts of human behavior can have differing qualifications: acts of buying and selling have an economic qualification, acts of eating have a biotic qualification, acts of dancing have an aesthetic qualification, while acts of deciding court cases have a justicial qualification. Yet they all occur under the governance of the laws of every aspect and have passive properties in them all; this is why they can be studied from the viewpoint of any aspect.

Also recommending the idea of a qualifying function is the benefit it supplies to distinguishing numerous levels among entities in creation. A few such levels are intuitively recognized in ordinary speech when we speak of something as being animal, vegetable, or mineral. The Law Framework theory understands these levels as corresponding to types of things as qualified by the physical, biotic, and sensory aspects; and, it adds, there are many more than just those three. The human active-functions of being perceptually conscious, thinking rationally, and forming natural materials into artifacts make possible still further levels; and there are yet others comprised of artifacts that are qualified by their linguistic, social, economic, aesthetic, juridical, ethical, or fiduciary aspects. These levels among *things* can now be seen to be as mutually irreducible as are the *aspects* that qualify them, and for the same reasons: none can be thought of as independent of any other or as the (metaphysical) cause of any other.

Moreover, this same point applies not only to things, but to events and relations as well. Events, too, are multi-aspectual and have a qualifying function. So this ontology does not need to decide (as Aristotle and Whitehead, respectively, thought necessary) whether things are basic to events, or events are basic to things. On this theory, neither creates the other, since each is a correlate of the other and both were produced simultaneously by God. (We call an entity a “thing” when its constancy is more prominent to our identifying it than any sort of change it is undergoing; we call an entity an “event” when its change is foremost to identifying it rather than its constancy.)²⁵ Among the most important events that need to be seen in this non-reductive way are the causal relations we experience. These instances of orderliness result from what I have called the law-side of the cosmos, since they reflect part of the cosmic order. These, too, we say are multi-aspectual relations that also have various qualifying functions, although there do not appear to be causal relations that are qualified by the first three aspects: there are no cause-effect relations that are qualified by the quantitative, spatial, and kinematic aspects. Rather, causal relations first arise in, and so are founded upon, the physical aspect. Nevertheless, even though they are all founded on the physical, they are not all physically qualified. In addition to physically qualified causal relations, there are also those that are qualified by their biotic, sensory, logical, linguistic, social, and economic etc. aspects. For example, reproduction is a biotically qualified causal relation, the entailment of a conclusion by premises is a logically qualified cause, and the increased scarcity of a commodity is an economically qualified cause.²⁶ On this theory, then, there is a distinct sense of causality that holds for every level of reality that exhibits a distinct aspectual qualification.²⁷

25. *E.g.*, a plant cell is in continuous energy exchange and other interactions with its surroundings, yet it is experienced as a thing because it maintains its identity throughout those changes. So I propose that it is the predominance of its constancy over its change that accounts for this. It cannot be accounted for by saying that things endure longer than events, as some events take centuries (a glacier’s movement to the sea) or even billions of years (the expansion of the universe).

26. Strictly speaking, it is the *agents* of these causal relations that are qualified by higher aspects; the relations themselves take on such qualifications in a secondary sense. In this respect, they are like artifacts in being qualified by an aspect in which they do not have an active function.

27. On this account of causal relations, it would be improper to use any concept of causality to speak of the dependency of the cosmos on God as causal. Rather, God is the creator of all the kinds of causality that exist in creation. To be sure, we can properly use the limiting *idea* of cause in this connection which is only that for anything other than God; God can exist without it, while it cannot exist without God. But that sense can have no aspectual qualification, and so is not further specifiable. This includes its not being formal, final, material, or efficient, as well as its not being physical, biotic, social, economic etc., because all such relations have properties with aspectual qualifications.

Yet another point that recommends the idea of qualifying function is the way it enables us to draw the very important distinction between wholes comprised of parts and wholes comprised of sub-wholes (as well as parts). As is well-known, Aristotle held that something is a part of a whole provided it: 1) participates in the internal organization and functioning of a whole and is 2) unable either to come into existence, or to continue to function apart from that whole. This, however, is not an adequate definition. Human beings surely function in the internal organization of social communities and cannot come into existence apart from the community of their parents. Nevertheless, humans are not merely *parts* of families, businesses, schools, or states. What is needed to define something as a part of a whole is the added point that it must *share the same aspectual qualification* as the whole. So our definition is that a part must: 1) function in the internal organization of a whole; 2) be unable to come into existence or function apart from the whole; and 3) must have the same qualifying function as the whole. This exposes the fact that in ordinary speech we often call one thing a "part" of another when it is not. We say, for example, that a rock is "part" of our garden. The traditional definition would have to reject that use of *part*, since the rock can come into existence and function actively in the physical aspect apart from the garden. But we now add that the rock is physically qualified, while the garden is an aesthetically qualified whole. The rock is included in the garden, of course. But it is included as a sub-whole in a larger whole, not as a part.

C. Capsulate Wholes

Thus, the idea of a qualifying function now enables us to draw the distinction between part/whole relations and sub-whole/larger-whole relations. So we will speak of a larger whole as "encapsulating" a sub-whole, and of the larger whole as a "capsulate" whole. This turns out to be a very valuable distinction, and is thus an additional recommendation of the idea of a qualifying function. Take, for instance, the example of a marble sculpture of a human body. How are we to understand the relation of the marble to the statue as a whole? It cannot possibly be that of part to whole; the *parts* of the statue are its head, torso, arms etc. (Even in the traditional view, the marble cannot be part of the statue, because it can exist without the statue.) Besides, it makes no sense to speak of the marble as functioning in the internal organization of the statue! But our idea of capsulate relations can do much better. According to it, the marble is a sub-whole included in the aesthetically qualified capsulate whole that is the sculpture. Moreover, the relation of the marble to the sculpture shows a characteristic typical of whole to sub-whole relations: no amount of knowledge of the nature of its sub-wholes can ever yield knowledge of

the nature of the capsulate whole. This is precisely because they have different natures owing to their qualifying functions being different. Here is another example of the same point. Atoms of every chemical element existed before life arose on earth, although they surely function in the internal organization of a plant. So they are not parts of a plant — even on the traditional definition. And we add that they do not have the same qualifying function. But, if they are not parts of a plant, what are they to it? Answer: sub-wholes encapsulated within it, since a sub-whole may have the same or a different qualification as the larger whole it is included in. And, as is usual, the nature of those sub-wholes is no clue to the nature of the capsulate whole. (No one has ever suggested, *e.g.*, a way in which even an exhaustive knowledge of atoms could yield the nature of plants, although some reductionists have longed for it.) Here, the idea of capsulate wholes fits perfectly with the notion of irreducible levels of reality.

By contrast, the cells of a plant are really parts of it. They cannot come into existence or function without the plant, they do function in its internal organization, and have the same biotic qualification as the plant. The relation of the atoms to a molecule, however, would be a capsulate relation. The atoms of hydrogen and oxygen, for example, do function internally to a water molecule and have the same physical qualification. But they can exist and function independently of that molecule, so this is another case of a capsulate relation. And it is also another case of not being able to deduce the nature of the whole from the natures of its sub-wholes: no amount of knowledge of the two atoms could ever allow anyone to deduce that water would expand when it freezes or feel wet. In any case we can think of, sub-wholes bound into a capsulate relation retain their own identity since, apart from their encapsulation, their nature remains the same. Nevertheless, when they are included in a larger capsulate whole, their own qualifying functions can be subsumed so as to contribute to the qualifying function of the capsulate whole (think of a tree encapsulated in an aesthetically qualified garden, or of the stone in a bird's gizzard). So, while every capsulate whole will have specific properties none of its sub-wholes possesses, some may also have a qualifying function all its sub-wholes lack. This is an additional reason why sub-wholes cannot be taken as *causes* of the capsulate wholes in which they are bound. They are necessary conditions for such wholes, but are never sufficient for them.

This last point raises the question as to what accounts for the ways properties of different aspectual kinds, and sub-wholes with different qualifying functions, combine in the things we find in the world? Why is it that some combinations of properties or sub-wholes are conceivable, but not actually possible in the world? The answer, says the Law Framework theory, is yet another kind of laws — laws that range across aspects.

D. Type Laws

What has been said so far about the concept of a qualifying function and the distinction between active and passive functions is, however, only a start at a non-reductionist account of the natures of things. These ideas all by themselves are not specific enough. To say, for example, that a tree is biotically qualified does single out the highest kind of properties it possesses actively and the kind of laws that govern its internal organization. But that does nothing to distinguish a tree from other things sharing the same biotic qualification. So the theory also postulates the existence of laws which make possible the inter-aspectual combinations of parts and properties we find exhibited in things and events, the combinations that demark a particular *type* of entity. The structural combination of parts and properties that is peculiar to a tree, and distinguishes it from an Akebia vine or a daisy, is thus explained by formulating its type law. (Of course, we do not know what types of things such laws make possible in advance of investigating the world empirically; type laws are discovered by analyzing what is given in experience.²⁸)

Thus, the Law Framework theory proposes a complex, cross-hatching network of laws. In addition to the causal relations we observe, the network consists of (at least) aspectual laws and type laws. And it is the latter two sorts of laws that allow us to be more specific about the nature of a type of things or events. That is, understanding a thing's qualifying function together with an analysis of its structural type comprises the account this theory gives of our pre-theoretical idea of the nature of a thing. It also supplies a fuller reason for rejecting any notion of substance that regards one (or two) aspects of a thing as independent causes of the others, or postulates an unknown X to do the same job. In keeping with the Theistic answer to the question "What is the producer-of-all-else?," the Law Framework theory insists that it is God who is the creator/sustainer of everything in the cosmos *and not anything found within the cosmos*.²⁹ Every concrete individual thing or event in the cosmos is therefore

28. Type laws also explain why entities that can be thought of with no contradiction are nevertheless not really possible. There are no flying carpets or talking trees, because there is no type law for such things. Thus, we are led to distinguish between something's being impossible because it would violate a law (a square circle) and a thing's not being possible because there is no type law for it. For an impressive defense of the difference between impossible and not possible, see J. Ross, "God, Creator of Kinds and Possibilities", in Audi and Wainwright (eds.), *Rationality, Religious Belief, & Moral Commitment*, Ithaca, Cornell University Press, 1986, pp. 315-335.

29. What St. Gregory Palamas said of Christians in this connection applies equally to all Theists: "Christians cannot tolerate any intermediate substance between Creator and creatures, not any mediating hypostasis" (John Meyendorf, *A Study of Gregory Palamas*, London, Faith Press, 1964, p. 130).

to be understood as *an individual structural assemblage of properties, parts, or sub-wholes determined by a type law and qualified by the aspectual laws that regulate its internal organization*. An individual thing is thus neither merely a bundle, nor a heap of parts and properties, while at the same time it is nothing over and above an individual law-structured combination of all the properties, parts, or sub-wholes comprising it.

E. Artifacts

I have so far applied the concepts introduced only to natural things, because the various natures of artifacts are more complex. They need more than a specification of the qualifying function of their natural material and their type law, if we are to account for what the natural material of an artifact has *become*. For example, the stones used to build a house would, by themselves, have no more than a physical qualification. Once they have undergone transformation into a house, the new whole that encapsulates them as sub-wholes acquires an additional social qualification, despite the fact that all its parts and sub-wholes have only a passive function in that aspect. Unless we recognized that such a transformation has occurred, however, we would not recognize the stones *as formed into a house*, and so would miss what they have become.³⁰

In this way, the Law Framework theory adds two new components to identifying the nature of an artifact. First, it recognizes that artifacts, unlike natural things, may be qualified by an aspect in which they function only passively. Second, it expands the idea of the qualifying function of an artifact to include two aspects: the aspect qualifying the *process of transformation* by which the artifact is produced, and the aspect qualifying the kind of plan by which its production was guided. The aspect qualifying the process by which an artifact is formed will be called *foundational function*, and the aspect qualifying the kind of plan which guided its formation will be called its *leading function*. It is this correlation of the foundational and leading functions that give a fuller account of what qualifies the nature of an artifact. So, with respect to the example of stones formed into a house, the theory would say that the foundational function of a house is historical (or cultural), because the process of its formation is qualified by the human ability to transform natural materials. But what then is its leading function? One plausible candidate would be to say it is biological. And, no doubt, a house serves our biotic needs. We would form houses very differently were our bodies significantly different from what they are. But a house is more than a bare biological shelter — which

30. Animals also form artifacts, and the account of these is somewhat different. I explain this difference in *Myth...*, pp. 263 ff. For brevity, I speak here only of human artifacts.

is why it differs from a mere lean-to or hut. It provides a place for social exchange and accommodates our need for privacy, and the varying sizes and shapes of its rooms usually indicate a difference in social status among those who occupy or use them. In fact, were a building to lack these features, we would not call it a house. For these reasons, I would say that the leading function of a house is *social*.³¹ As this example shows, foundational and leading functions are correlates whose significance in qualifying an artifact cannot be understood without each other. The example also shows what I meant when I said that the qualifying functions of things cannot be predicted by the theory, but only discovered by an analysis of empirically given reality.

There is not the space here to give many further examples of how these concepts help us focus the nature of artifacts, but here are a few. A book would be said to have a historical foundational function and a linguistic leading function. The poetry in the book, on the other hand, would have a historical foundation and an aesthetical leading function. Likewise, a painting, sculpture, or piece of music would also have an aesthetic leading function. By contrast, a warehouse, with its loading platforms and storage areas, shows an historical foundation and an economic leading function. Of course, a bank has the same leading function. What distinguishes a warehouse from a bank is the type law for each; the law that determines the internal relation of its parts and sub-wholes such that it conforms to its type. So the full account of an artifact's nature must include its type law as well as its foundational plus leading function.

Now at this point you may feel like asking whether it would not have to be the case that all artifacts have a historical foundation. After all, they are all formed by humans, right? While there is a sense in which that is true, there are nevertheless humanly formed artifacts that have their foundation at a lower level than the historical. To explain this, I must first make the point that social communities are also artifacts, formed when humans give specific organization to aspectually differentiated inter-human relations. These differ from non-social artifacts in that their "natural materials" are other human beings rather than non-human things. That said, there appear to be (at least) two communities that should not be taken to have a cultural foundational function, namely marriage and family.

31. Since the aspect characterizing a leading function is the one that qualifies the plan that guided an artifact's formation, this function cannot be divorced from the idea of purpose. But it is purpose that is embedded in the nature of the artifact, not merely the subjective purpose(s) for which people may use the artifact. For example, the leading function of a teacup is social even though someone may use it as a planter, and the leading purpose of a marriage is qualified by love even if someone marries for money or social prestige. Therefore, I have called the sort of purpose involved here the "structural purpose" of the artifact. See *Myth...*, pp. 267, 272, 278, 290-291, 372 n. 4.

These are not free, cultural creations in that they are rooted in our biotic, sexual nature. Humans give them varied specific forms, to be sure. But it is our biotic make-up that drives the process of their formation and assures these institutions will be given some form or other.

F. Social Irreducibility: Sphere Sovereignty

Earlier we saw why many wholes cannot be analyzed only by distinguishing their parts, since they are capsule wholes that also include sub-wholes. This is especially true of social communities, since they include humans who are never merely their *parts*. Humans do not have the same qualifying function as any community, since humans have no qualifying function at all.³² In keeping with the Theistic view we have been pursuing, a human's existence is centered in his or her "heart" or "soul", which is the unity and identity of each person. The human heart is not, therefore, identical with any of its functions; it is not essentially rational, or emotional, or volitional, but is the source of all of them and of all else that makes up human life. That is why we deny that any aspect qualifies human nature. Humans are never *parts* of a marriage, family, state, school, business, church, or what have you. They are sub-wholes who include themselves in greater, capsule wholes.

Now this same point can also be made about the major various social communities: none of them are parts of any another as most have distinct leading functions and all display a distinct type law. For example, a family cannot be part of a state as is shown by the fact that its members can be citizens of different states. But what is more important is that *nor can any of the major communities of society be encapsulated within another*.³³ Recall that when a sub-whole is included in a capsule whole, the leading function of the capsule whole overrides the qualifying functions of the sub-wholes (think of the stone in a bird's gizzard, which serves a biotic purpose). In the case of the major social institutions, subsuming one under another would mean the one(s) subsumed would serve the leading function of the capsule whole. Thus, subsuming a business, school, or church under the state, for instance, would have the effect of stunting, debilitating, or outright cancelling the leading functions of the subsumed communities in favor of the state's leading function, which is justice.

32. In keeping with the Theistic view, human existence is taken as centered in the "heart" or "soul", the basic nature of which is to be *religious*: oriented to the divine. Thus, human nature cannot be located in any of its aspectually qualified functions, since all such functions — intellect, will, emotion etc. — have the heart as their source.

33. There are examples of communities being sub-wholes within others, but this is never true of the major institutions of society. The examples are all of auxiliary organizations formed to serve another community: a Parent-Teacher Association formed to serve a school, or a fund-raising group formed to support a hospital or orchestra, for instance.

Let us look at the same point from another angle, that of authority in human social life. Is there a single supreme source of authority? If so, what *kind* of authority is it? There have been many attempts to answer this question reductionistically. Theories have claimed that the source of authority is power, reason (or reason plus virtue), wealth, or superior will. But a genuinely theistic view must reject all these proposals. Authority comes from God, who has built it into human life in plural forms: the authority of parents in a family, of owners in a business, of elected officials in the state, of teachers in a school, of clergy in a church, temple, or mosque, of doctors in a hospital, and so on. Such organizations are formed to promote and preserve aspectually distinct facets of life: ethical love (family), economic life (business), public justice (state), religious belief (church, synagogue, mosque), biotic health (hospital) etc. And each has its own distinct type of authority.

This idea of many kinds of authority, each with its own proper sphere or domain, was called “sphere sovereignty” by its great champion, Abraham Kuyper.³⁴ It stresses that no one kind of authority — and thus no single social institution — is the source of all authority in life or the supreme authority over all other kinds. Rather, social institutions have a sphere of competence which corresponds to their leading function, so that each has a relative immunity from interference by authorities of different types or which arise in organizations with different leading functions. In practice, this means, for example, that parents set children’s bedtimes, not judges; churches set requirements for their membership, not governments; courts render verdicts, not churches; schools set educational requirements, not parents; and businesses decide what products to produce, not courts etc.

One of the most important results of this social norm is that its idea of distinct and limited authorities is the only one that can honor the integrity of all types of social communities. It alone can restrain the power of the state by setting limits to the authority of government. Democracy alone cannot do that. Simply allowing citizens to elect those who exercise governmental power will not ensure the preservation of human rights and freedoms as long as the state is believed to have totalitarian authority. If the state is viewed as having such an authority, then democratic elections will only produce a tyranny of the majority. And notice that our theory yields its non-totalitarian result not only with respect to the rights and freedoms of individuals vis-à-vis the state, but also with respect to all non-governmental communities and institutions relative to one another

34. One of the most famous expositions of this idea was in his “Lectures on Calvinism”, the Stone Lectures at the Princeton Seminary for 1898.

as well as to the state. Sphere sovereignty is therefore the principle that embodies a non-reductionist view of society and leads to a non-hierarchical view of the institutions that exercise those differing kinds of authority.³⁵

G. Divinity Redux

I have mentioned above that there are only a few basic possibilities for locating the divine producer-of-all-else. I have spoken of religious naturalism as regarding some aspect of the cosmos as divine and contrasted naturalism to the belief that all is divine (pantheism) and to theism. I have then added that one of these would have to be right, unless it is possible to have a view of reality in which nothing whatsoever is divine, and I have promised to return to that option at the end of this paper. So let us now take up the question as to whether it is possible to have a view of reality in which nothing whatsoever is divine — that is, a view in which nothing has independent reality and is the producer-of-all-else. Can this be done? My answer is “no” and here is why.

Try as we may, *we cannot conceive of any cosmological scenario that does not leave something in the status of having non-dependent reality*. For example, the claim that nothing is divine because all that exists is the natural world is self-contradictory. If the universe is all there is, then there is nothing for it to depend on, and it must itself have an independent (divine) existence. The most promising attempt to escape this point is the proposal that the universe is wholly contingent and the product of an infinite number of previous universes. According to this idea, nothing in this universe has independent existence, and neither does the universe as a whole. And since there never was a first universe for all the rest to depend on, no universe is self-existent. Does this work? Has it gotten rid of the last vestiges of every divinity belief? Clearly not. For whether or not our universe was produced by an infinite series of them and thus lacks independent existence, *the infinite series itself is still being regarded as independent, hence divine*. That series, taken as a whole, is still an answer to the question “Why is there something rather than nothing?” And that answer — like every other answer — is that something just *is*, making that something divine. It will not do to object that the infinite series is also dependent because it depends on its member universes. Not so. The series does not *depend* on its member universes; it just *is* the member universes taken collectively. So, once again, it appears that it is not possible to conceive of

35. It is thus the compliment of the principle of subsidiarity. The latter specifies how internal levels of hierarchy are to function *within* any social organization, while sphere sovereignty specifies the non-hierarchical external relations that are proper *between* all organizations of a society. See *Myth...*, p. 373, n. 10.

any overview of reality in which nothing is left in the position of having non-dependent reality. The issue, then, is not whether something is divine, but what that is.

Conclusion

The non-reductionist theory of social institutions will not usher in a utopian paradise, any more than a non-reductionist view of the natural and social sciences will hand us only true hypotheses or the next great scientific advances. Getting reductionist assumptions out of theories is not, therefore, a panacea for theories or for practical life. But it can eliminate one of the most grievous banes besetting both the theoretical enterprise and social praxis which has ruled western thought and action for over 2,500 years. During that reign, it has required thinkers to skew the interpretation of data, laws, and hypotheses; it has induced a long series of one-sided exaggerations each of which has provoked and been replaced by another one-sided exaggeration. And this is besides the horrific results it has wreaked in politics and international affairs via nationalist, Nazi, Marxist, racist, and other reductive ideologies!

I conclude that it is high time metaphysical reduction as a strategy for explanation had its bluff called; its come-uppance is overdue. It needs to be seen as based upon a deification of one or another of the aspects of the cosmos, and not allowed to pass for "pure science". Moreover, its deifications need to be exposed as claims that are empty words signifying no idea whatsoever, so that no science can actually employ them. Instead, the vaunted claims of the success of metaphysical reduction are one and all based on equivocations. They not only shift the senses of "cause" they employ, but first speak of purely X explainers and then employ multi-aspectual processes, properties, and laws to do their explaining. Finally, the experienced divinity of the various candidates of naturalism turns out to generate the blindest of faiths, since none of their advocates can form any idea of them as having divine status.

Exploring Non-Reductionism and the Levels of Reality*

On the Importance of the Non-Separability of
Discontinuity and *Continuity* on the Different Levels of Reality

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"We are now, admittedly, the masters of the Earth and the world, but our very mastery seems to escape our mastery. We have all things in hand, but do not control our actions. Everything happens as though our powers escape our powers. Our consequences out-strip our deliberate intentions. So, it no longer depends on us that everything depends on us. We have resolved the Cartesian question: 'How can we dominate the world?' We will now have to resolve the next one: 'How can we dominate our domination; or how can we master our own mastery?'" (Serres [1995], pp. 171-172)

Introduction

Through our domination of the world, we have irrevocably changed it. We no longer face the Cartesian question of whether it is possible to master the world. That we have certainly achieved. By separating the subject *from* the object, the world of ideas and the mind *from* the material world of things and objects, the *res cogitans* *from* the *res extensa*, we have trans-formed the world into a radically different ontological reality. What was once regarded as "natural" boundaries, upon which our existence was dependent, is no longer that. Through our mastery of the world, a fusion of the "social" into the "natural" and, vice versa, the "natural" into the "social" has been affected. Therefore, it is no longer possible, nor is it

* Originally presented at the 2008 Metanexus Conference, "Subject, Self, and Soul: Transdisciplinary Approaches to Personhood", Madrid, July 13-17, 2008; published in electronic form on the Metanexus Global Spiral, www.globalspiral.com.

desirable to imagine ourselves as being fundamentally separate/distinct from the world. Not only have we crossed what was once considered to be “natural” boundaries, but we have, as it were, invaded the space on the other side of these boundaries. This has happened to such an extent, that our being-in-the-world has taken on the dimensions, rhythms, and conditions of nature itself. It is, therefore, rather difficult to find the right metaphors or analogies to capture this new reality. What language do we use to depict the planetary scale at which the consequences of our physical and spatial presence in the world have manifested itself over the last few decades? Attempts to do so have ranged from referring to this new epoch as the *Anthropocene* era (Crutzen [2002], pp. 415-423), the equivalent of a human tectonic plate (Serres [1995], p. 10), or a planetary polycrisis (Morin [1999], p. 25). Whatever scientific or descriptive words and expressions we choose to denote the planetary scale of the problem facing us today, they all seem to depict the anthropogenic nature of this crisis.

Our being-in-the-world is no longer an existential question only. Through our domination, it has taken geophysical proportions. Change in the Earth’s climate is no longer a purely “natural” phenomenon. Through our daily pumping of excessive amounts of CO₂ into the atmosphere, the human contribution to climate change has reached a scale similar to that produced by the Earth itself. Peak oil, the point at which the global oil production reaches its maximum, serves as another example of the magnitude and implications of our human-made economic interventions into planetary processes which took over 4 billion years to evolve. Depending on one’s viewpoint, peak oil has either already been reached, or will be reached in the next couple of years.¹ Many more such examples can be added to this list to illustrate that the old boundaries between the “natural” and the “social” have become so porous, that it no longer makes sense to separate them. Therefore, it no longer depends on us that everything depends on us and the intriguing question arising from this insight is whether we are up to mastering our own mastery.

This shift in reality in which the “social” and the “natural” have become increasingly inseparable and merged has immediate moral consequences. Ontological and moral considerations and questions have also become fused. This is so because we are no longer dealing with the actual domination of the world, but rather with the irreversible consequences of our domination. Being confronted by the latter, the schism between practical and moral reasoning becomes superficial. The repeated insistence on separating what we are *capable* of doing from what we *must* do becomes

1. According to the German-based Energy Watch Group, the world oil production already peaked in 2006; according to the British Energy Institute, it will peak in 2010.

untenable when we grasp the implications of the new reality we are facing. What we *can* do and what *must* do can and should no longer be seen as two distinguishable, separate questions. Failing to see this, to understand that we *must* find ways of mastering our own mastery implies a repetition of our domination of the world, thereby deepening the already existing planetary crises that threaten our continued stay on Earth.

Our domination of the world and, in particular, the geophysical magnitude of the consequences of this domination mean that we can no longer look to our future on the planet with absolute certainty and predictability. We can no longer merely assume a safe and secure continued stay on Earth. The future has indeed become uncertain. This uncertainty, however, does not imply inertia or an impossibility to act. Our call for action stems from an understanding that the consequences of our mastery of the world imply that what we *can* do and what we *must* do have become two sides of the same stick which cannot be separated.³ In Serres' words: "Being masters imposes crushing responsibilities, suddenly driving us far from the *independence* we so recently believed would henceforth be the bed of roses of our new powers. In dominating the planet, we become accountable for it. In manipulating life, death, reproduction, the normal and the pathological, we become responsible for them. We are going to have to decide about every *thing*, and even about *Everything* — about the physical and thermodynamic future, about Darwinian evolution, about life, about the Earth and about time — a process Leibniz described as characterizing the work of God the creator, in the secret of his infinite understanding" (Serres [1995], p. 173).

It is then in this context of a fused social-natural⁴ reality and of the challenge to master our own mastery of the world that we should see and understand our investigation into the irreducibility of reality. As a starting point, what this impossibility of separating the social-natural reality into two distinct domains means is that we can no longer approach reality *within* the disciplinary divide — in particular, the divide between the natural and social sciences. In other words, the complexity of the world we are facing today resists all our reductionist and fragmentary ideas, notions, and representations of reality. We are compelled to think *beyond*, *across*, and *between* the disciplinary boundaries (Nicolescu [2002], p. 44). In fact, reverting back to the reductionist and fragmentary way of thinking

3. Nicolescu [2002], p. 23. This metaphor means that if you break a stick in half, you just end up with two sticks having the same two ends.

4. Also referred to as "nature-culture" (Latour [1993], p. 7).

5. Of course, we are being reminded by thinkers such as Derrida, Lyotard, and Deleuze that it is in this repetition of ideas that we run the risk of producing a meta-physics — in this case, a meta-physics of reductionism and fragmentism.

offered by mono-disciplinarity implies a dangerous repetition⁵ of the very same assumptions, concepts, and logic that produced our knowledge for gaining control over both nature and society. Trying to imagine how to master our mastery with the very same concepts, logic, and language that informed our domination of the world poses both a logical and a moral conundrum, at the same time. Repeating the Cartesian belief that absolute certainty is only possible through a method of separation of the subject and the object runs the risk of imposing the same worldview, instrumental reasoning and techno-scientific “solutions” that have brought about the current polycrisis in the first place.

Therefore, if we are to find ways and means of mastering our own mastery, it means that we can — and should — no longer hope to discover how to do this *in terms of* the “divide-and-rule” thinking that gave us control over the world. To put it differently: how do we learn what it means to dominate our own domination outside of the prevailing reductionist/fragmentary paradigm? Is it indeed possible not only to *think* about the complex world in relational terms, but also to start *acting, doing,* and *re-constructing* the world relationally? If we accept the thesis of a non-separable social-natural reality, how do we approach this complex reality in non-reductionist terms? How are we to understand the relationality of this complex, radically new ontological reality? For example, if we accept that the currently growing levels of poverty⁶ are a consequence of our domination of the world, then it implies that such poverty is not only “caused” by our neoliberal political-economic policies and practices, but equally by our changing and exacerbating the biophysical living conditions on Earth. In other words, if poverty is both a “social” and a “natural” problem, at the same time, how are we to understand the negative and positive feedback loops oscillating between these two inseparable sides of the problem? From the perspective of having to dominate our domination, solving the problem of poverty is, therefore, not something we can avoid, pretending that it is an “external” problem happening only in some remote places on the planet. The rising levels of poverty all over the world are a stark reminder of the fallacy of the modernist story we have been telling ourselves, that we have progressed towards, and, indeed, have attained, our “freedom” from nature and others. The more we become aware of the magnitude of the problems of poverty and of our systematic destruction of the life-supporting ecosystems, the more we realize the extent of the “crushing responsibilities” imposed upon us by our own mastery — linking us back not only to our fellow human beings, but, simultaneously, to the Earth.

6. I am merely referring to poverty as an example, here, of the planetary crisis induced by our domination of the world. I will return to this problem of poverty towards the end.

The Conceptual Challenge

To be sure, the challenge before us is to understand the consequences of the complex social-natural reality we are facing today. In order to avoid both reductionism and the simplistic notions of the “social” and the “natural” having become “one-and-the-same-reality”, we should not let ourselves become confused by the imagery of “fusion” or “merging”. This can quite easily evoke images and concepts such as “inter-dependence”, which implies a two-way form of dependence: that we are dependent on the Earth and that the Earth is dependent on us. The latter is clearly not the case. Even if we accept that we are no longer dealing with our actual domination of the world, but with the consequences hereof, it does not mean that the Earth is dependent on us. This anthropocentric illusion of Modernity that everything depended on us is a belief that can no longer be upheld. This myth could only be sustained while caught up *in* the frenzy of a mindset that is busy conquering the world. However, learning that we are not necessarily in control of the consequences of our conquering the world, we are, paradoxically, re-discovering our dependence on the Earth. But, of course, the truth is that we have never *not* been dependent on the Earth. Ideas and perceptions of “independence” are just products of Modernity, with its bold promises of absolute certainty and control. Needless to say, such false ideas have been resisted and rudely exposed by the sheer magnitude and scale of the polycrisis facing us today.

The conceptual challenge before us is, therefore, a formidable one. We have to employ thinking and concepts that will capture the relationality of the “social” and the “natural” in a way that not only steers clear from reductionism (the hallmark of Modernity), but also avoids oversimplistic notions of immediacy or identity between subject and object (the hallmark of Romanticism and *Identitätsphilosophie*). Both these philosophical positions make the fatal error of mistaking our ideas with reality itself. It leaves no room for *difference*, for *resistance* and for *re-construction*. If we fail to see any difference between our ideas and reality, we cannot allow that the former be resisted by the latter and, consequently, that our ideas be re-constructed. This means, fundamentally, failing to see the dialogic construction of our own ideas, which, in turn, holds some serious implications for how we view our relationship to the world. If our ideas somehow directly represent reality itself and, therefore, cannot be resisted and re-constructed, it means that we have laid the foundation for dominating the world. Conversely, the extent to which we allow for *difference* and *resistance* between our ideas and reality makes it possible to recognize the dialogic construction and re-construction of our ideas. For as long as

we mistake our ideas as direct replicas of reality itself, we have created a barrier/chasm between ourselves and the world. Our ideas come to stand between ourselves and the world and make us believe in our "separation" and "independence" from the world. Our impotence to see the social-dialogic character of our being-in-the-world leads to putting ourselves at the center of things, erroneously believing that the world depends on us. It is, therefore, possible to see a link between being able to recognize the social-dialogic character of our ideas and being able to understand our relationship to the world. In order to "see" that our dependence on the Earth is the result or consequence of our domination, we need to be able to grasp our own social construction of the world and for this to happen, as mentioned, it is critically important not to equate our ideas with reality itself, but allow for *difference* and *resistance* between our ideas and reality.

With this bigger picture of the relationality of the social-natural world and the re-affirmation of our fundamental dependence on the Earth in mind, we can now proceed to explore other important aspects of the concepts, ideas, notions, and models we use to represent our relationship to the world. In this regard, the notion of different and irreducible "levels of reality" plays a crucial role in presenting to us an image of the multi-dimensional and irreducible structure of reality. This image of a complex structure of reality, of fundamentally different and irreducible levels of reality co-existing, is particularly important as we have to think through the consequences of the simultaneity of these different levels. While we think and work at the macro-physical level, where the atomic structure of matter appears to be thing-like, where wave and particle *are* separate entities, where the linearity and the irreversibility of the arrow of time *is* present, we cannot reduce all of reality to these concepts only. Becoming aware of the fundamentally different micro-physical level of reality, where matter itself loses its thing-like structure and behavior, where the photon resolves the wave *vs.* particle conundrum, where reversibility comes into play, means that our ideas, concepts, and notions formed to represent the macro-physical level of reality can no longer be regarded as the only "true" representations of reality. In other words, the totally new worldview and completely different concepts at work at the micro-physical level mean that, however "true" and accurate they may seem to appear, our macro-physical ideas and concepts cannot ever be taken as direct representations of reality. In view of the notion of the multi-dimensional structure of reality, there can never be "one" reality which can be completely captured by our concepts.

However, having posited the fundamental differences in the multi-levelled structure of reality, we need to immediately begin investigating the other side of coin, as it were. It is submitted that, to better understand

the complexity of the social-natural world, we cannot and should not associate our notions of the irreducibility of reality with the fundamental differences between the different levels of reality only. This may indeed (re)introduce another form of reductionism. This can happen if we assign a certain ontological status to the *discontinuities/dissimilarities* between the different levels of reality without a simultaneous conceptualization of their *continuities/similarities*. The difficulty we face here is how to conceptualize the continuities between the different levels the moment we have defined the irreducibility of reality *in terms of* the fundamental *differences* between the different levels. To be sure, the differences are indeed radical: “By ‘level of Reality’, we intend to designate an ensemble of systems that are *invariant* under certain laws: for example, quantum entities are subordinate to quantum laws, which *depart* radically from the laws of the physical world. That is to say that two levels of Reality are *different* if, while passing from one to the other, there is a break in the laws and a break in fundamental concepts (such as, *e.g.*, causality)” (Nicolescu [2002], p. 21).

However, although the fundamental discontinuity between the different levels of reality is what guarantees the non-collapsibility of the complex structure of reality, “discontinuity” is not the final word that can or should be said about this complex structure. If there were *only* discontinuity between the different levels, there would be no coherence, only chaos. This, notwithstanding the above mentioned invariance and radical departure in the laws of the physical world, is explicitly acknowledged in the following words: “Quantum physics and quantum cosmologies show us that the complexity of the universe is not the complexity of a garbage can, without any order. A stunning *coherence* exists in the relationship between the infinitely small and the infinitely large” (Nicolescu [2002], p. 37), as well as in the following words: “There is certainly *coherence among* the different levels of Reality, at least in the natural world. In fact, an immense self-consistency — a cosmic bootstrap — seems to govern the evolution of the universe, from the infinitely small to the infinitely large, from the infinitely brief to the infinitely long.”⁷

7. Nicolescu [2002], p. 50. Also: “The new principle of relativity has to do with the fact that every level of reality of the Subject and of the Object is what it is because all the other levels exist at the same time. What this means is there is *coherence*. You see reality in the transdisciplinary approach, and reality is not schizophrenic. It is not putting together different levels, but *connecting* them. This is based on scientific knowledge, because in pure science we saw an incredible *coherence* between the universe and the infinitely small, the quantum world. It is how quantum cosmology appeared. *Big Bang* is a theory uniting the infinitely small with the infinitely large. Because at the beginning our universe was a small, small thing in which only quantum processes were there, it means that clearly there is a *relation*, a link between the infinitely small and the infinitely large. *This means that if you cut a level by itself, you lose information.* In order to keep all

In other words, grappling with the complexity of the natural world once again points to the impossibility of associating our ideas and notions of the radical differences in the structure with reality as being a direct representation of this structure. As mentioned, the moment we posit their *discontinuity*, we have to point, at the same time, to their *continuity* so as not to overlook the ultimate *coherence* in the natural world. In so doing, we once again confirm that the heart of reductionism is situated in the attitude of wanting to associate our ideas with reality itself — of having absolutely and finally captured reality. However, Reality is always more complex than our ideas and will always resist such attempts to reduce it to this or that notion, irrespective of how fundamentally important it may seem. Therefore, in order to overcome any reductionist inclinations, it becomes imperative to conceptualize the *opposite* of the differences or discontinuities between the levels, namely to imagine their *continuities* and *similarities*. Otherwise, the coherence remains unaccounted for and we are left with having conceptualized just one side of the non-separable stick.

In order to proceed with this undertaking, it becomes imperative from the onset not to think of *discontinuity* and *continuity* as binary oppositions to each other. To demonstrate our ability to *think the complex* of the multi-dimensional structure of reality, it becomes critical to conceive of the continuity (A) and discontinuity (non-A) between the different levels of reality at the same time. In other words, it is important that we conceptualize the *simultaneity* or *non-separability* of discontinuity and continuity between the levels. Failure to see both at the same time can only result in the repetition of a reductionist position either *for* or *against* discontinuity or continuity, which, in the end, may result in the repetition of our ideas of “independence” and “detachment” from the world. To avoid temptations, we need to accept the challenge of *thinking the complex*, of thinking through the simultaneity of the ruptures and continuities between the different levels — rather than wanting to assume and defend either side of a possible dialectic of mutually exclusive or binary opposites here. Avoiding such reductionist pitfalls enables us to approach the difficult question of how to conceive of the coherent universe if there are *only* radical raptures or discontinuities between the levels of reality with the right attitude. To be sure, trying to drive the Cartesian wedge *between* the

information together, the *identity* of a level of reality is *connected* with the identity of all other levels and that has great implications. From the point of view of transdisciplinarity, what we need is *complexity*, understood as the fact that every level of reality is what it is because it is *connected* with all the other levels of reality. Reality has a complex structure. Complexity, in this form, is no more or no less than the very old Principle of Universal Interdependence” (R. Volckmann: “Transdisciplinarity: Basarab Nicolescu”, *Integral Review*, 4, 2007).

discontinuity and the continuity of the levels of reality does not get rid of the complexity of reality, but rather confirms it. It is rather like — to use metaphorical language and images — trying to separate two ends of a stick (Nicolescu [2002], pp. 23-31). Attempts to do this normally end up in a situation of having two different sticks, each with its own two ends. In other words, the complexity of the two-ended stick does not disappear.

However, when looking beyond the metaphorical language, we can immediately see at least three challenges awaiting us. In the first place, in order to develop this notion of the simultaneity/non-separability of the continuity and discontinuity between the different levels of reality, it is important that it is done in a way that does not lead to a contradiction of the irreducibility of reality. To put it differently, the non-separability needs to affirm, not negate, the irreducibility of the complex structure of reality. Consequently, for this to be achieved, it becomes essential that our conceptions of the *continuity* between the different levels of reality do not allow for any possibility of their *reducibility*. Therefore, if our conceptions of the *continuity* between the different levels were to imply the *collapsibility* of one level into another level, in the sense that the *collapsed* level becomes subordinate in its ontological and explanatory status to the level “into” which it has been collapsed, then it would mean that the *irreducibility* of the fundamentally different levels would be sacrificed. Going this route would set up *discontinuity* (A) and *continuity* (non-A) as binary opposites and, in so doing, render impossible any attempt to imagine their non-separability. Hence, positing the non-separability between the different levels of reality implies the ability to think the complex on both the ontological and epistemological levels of inquiry — *i.e.*, employing ideas, concepts, images, and representations that will allow us to imagine the complex unity between the different levels of reality of the object and corresponding levels of perception of the subject.

Flowing from this first challenge, namely to conceive of the relationality/interconnectedness between the different levels in a non-reductionist way, we meet our second challenge — namely undertaking this task without having access to any mathematical concepts and language to describe the passage from one level to another level: “No one has succeeded in finding a mathematical formalism that permits the difficult passage from one world to another. Semantic glosses, tautological definitions, or approximations are unable to replace a difficult mathematical formalism. There are even strong mathematical indications that the passage from the quantum world to the macro-physical world would never be possible” (Nicolescu [2002], p. 21). However, this should not deter us from imagining how the different levels could be interconnected in a non-reductionist and coherent way. This is indeed the challenge before us

as we seek to replace reductionism with complex thinking. Theorizing, imagining, and even speculating on how the different levels of reality can be both discontinuous and continuous at the same time — *i.e.*, both fundamentally different and yet interconnected — is what is required of us. Not having access to mathematical formulations which can describe the way for us should not become a deterrent. We do, however, have access to an alternative, non-reductionist or non-binary logic. This is the logic of the *included middle*, a formal logic which enables us to understand how something can be itself (A) and not itself (non-A) at the same time, if conceived of at a level of reality different from the one where this apparent contradiction was observed in the first place.

Third, by focussing exclusively on the discontinuities between the different levels, we create more problems than those we can solve. For example, once we have assigned ontological status to the fundamental differences⁸ between the different levels, to the extent that one level *cannot* be understood in terms of the laws and concepts of another level, then what becomes a real question is how are we to imagine the emergence and conceptualization of another, third level? The relationship between the macro-physical and the micro-physical levels is a case in point here. In terms of the already established principle, namely that each level must be approached, interpreted, and explained in terms of its own concepts and logic, the question that arises is how the emergence and identification of another fundamentally different level can be imagined. For example, if cyber-space-time is presented as another level of reality, radically different from the micro- and macro-physical levels, how do we conceptualize this level, if we cannot conceive of it in terms of the concepts and laws already

8. "The first axiom is the existence of levels of reality. We have to define what levels of reality means. Let us say, in first approximation, that the laws of quantum physics correspond to a new level of reality in total *discontinuity* with the laws of nature we have known at the level of our own scale, where Newtonian physics is valid. Newtonian, or classical, physics is applied essentially at our scale of centimeters, seconds, and so on, with extension to planets and cosmic things, towards the infinitely long and infinitely great, as we say. Quantum physics goes the other direction: towards the infinitely small and the infinitely short — extremely small distances and extremely short intervals of time. And there, to our surprise, we discover laws that cannot reduce to classical physics. That is the core of all understanding of this revolution. It is the fact that one *cannot reduce* the quantum laws to the classical laws. *We cannot have continuous passage from one to the other.* That is the reason why, in fact, quantum physics and the theory of relativity are, in logical terms, a contradiction. It does not mean they contradict facts — they are all perfect for their realm of reality. But it is a very well-defined realm — that is the point. In a given region of reality, classical physics is perfect. But, if you extend this region, classical physics works no more and you discover new laws, in *discontinuity* with the laws of our own scale. That is, more or less, how I define levels of reality" (R. Volckmann: "Transdisciplinarity: Basarab Nicolescu", *Integral Review*, 4, 2007).

applicable to the micro- and macro-physical levels? If cyber-space-time is to remain a fundamentally different level, in other words, it means that it cannot be understood either in terms of linearity, or non-linearity, local causality or global causality, reversibility or non-reversibility etc. Should we use any of these concepts and laws, we would contradict the earlier definition of "level of reality" and, in the process, commit the fatal error of confusing *explanans* with *explanandum*.

Therefore, it would appear that our attempt at understanding the complex structure of reality may be subverted by focussing on the fundamental differences between the different levels only and this only stresses the need to expand our notion of a multi-dimensional structure of reality (ontology) with concepts and ideas (epistemology) that can facilitate our understanding of how the different levels are *connected*, not just separated, in a non-reductionist way. To meet this challenge of conceptualizing the simultaneity between discontinuities/ruptures *and* continuities/connections in nature is indeed an ambitious undertaking which certainly goes beyond the confines of this paper. In this regard, suffice it to say that the ideas developed by people such as David Bohm and Lisa Randall⁹ are considered to be of great importance and should form part of future transdisciplinary research project(s) to explore matters further.

Poverty: A Complex Social-Natural Problem

In the remainder of the paper, I wish to return to the notion of the planetary crises facing us as the consequence of our domination of the world. In this regard, I will focus on the already mentioned problem of poverty as a global social-natural phenomenon and on how this problem may be approached from a non-reductionist, relational approach as we become aware that the only way to approach our uncertain future is to abandon distinguishing between practical and moral reasoning, between what we are capable of doing and what we must do. As already mentioned, poverty can no longer be seen as a socio-economic issue only. Through our domination of the world, we have already modified and are still modifying the biophysical conditions necessary for human existence on Earth. Such domination of the world and using of the Earth's natural resources at a rate faster than what can be "naturally" replenished happens in the rich North and affects those poor people in the South already

9. I am merely referring briefly here to the thoughts of Lisa Randall on the string theory, as well as to David Bohm's ideas on the implicate/explicate order. For a more in-depth read of their ideas, please refer to the bibliography for their references.

caught up in endemic poverty circumstances and cycles. However, since poverty can no longer be reduced to a “purely” socio-economic level, we can no longer detach ourselves from this problem, pretending that it is restricted to certain remote areas in the world only. The entanglement of the “social” and the “natural” in the problem of poverty means that being compelled to act has to happen at both the social and the natural levels simultaneously. Thinking that we can only act on the preservation of nature alone (the logic of conservationism), without attending to the problems of the poor whose already fragile lives have been given a further lethal blow through the systematic destruction of the Earth’s biophysical life conditions is the equivalent of treating the symptoms of a cancerous growth in the human body. Conversely, focussing exclusively on the socio-economic conditions of the poor (the logic of welfarism) is to commit the same error of treating the symptoms of a terminal disease. The social-natural character of the problem of poverty is too complex to be approached with old reductionist ideas and strategies.

Our call for a non-reductionist approach to poverty has been confirmed by research the world over, namely that reductionist approaches not only fail to eradicate poverty, but can actually result in the creation of other social and environmental problems. The complexity of poverty resides in the fact that it has become inextricably intertwined with other planetary crises such as energy, food security, water, waste, biodiversity loss, violence and conflict etc., affecting each and every individual, irrespective of his or her place, status, origin, race, gender, position, or location in the world today. The quantitative growth and development ideas and strategies spawned by neoliberalism reducing the satisfaction of human needs to the materialistic level of consumerism only, is a typical case in point of a reductionist approach that has failed to address the complexity of the poverty problem. By arguing that poverty will be overcome by letting the poor become or behave like the rich is not only fallacious, but will almost certainly lead to a generation of new social and environmental problems or possibly deepening some of the already existing problems. It has therefore become critically important to replace reductionist thinking with complex thinking when approaching a complex problem such as poverty and it therefore seems appropriate that we explore the implications of following the same logic as developed and applied to our understanding of the complex structure of reality. This means that, at both the ontological and the epistemological levels of inquiry, poverty needs to be understood as a multi-dimensional problem consisting of a sufficient number of different “levels” that cannot be collapsed into one another. Furthermore, it is important to conceptualize both the differences and the similarities of the problem of poverty.

In order to illustrate how such an approach on the complexity of poverty can be affected, I propose that we turn our attention to the theory of *Human Scale Development* (Manfred Max-Neef *et al.*). The conceptual distinction between fundamental human “needs”, “satisfiers”, and economic “goods” is of key importance to avoid reductionist thinking and confusion over *what* needs should be satisfied, *how* they should be satisfied and *how* to think of the role and function of economic goods in our quest to eradicate poverty. Following on from these initial distinctions, HSD suggests that we classify our *fundamental human needs* broadly into the axiological categories of the need for *subsistence, freedom, participation, creation, idleness, understanding, affection, identity, and protection*. Not only do these fundamental human needs signify what is *similar* or *shared* by all people around the world, irrespective of their status, income, race, sex, belief, education, culture, or geographical position, but they also indicate that our needs are not to be equated with, and reduced to, materialistic goods only as per the logic of neoliberal thinking.

While the notion of “fundamental human needs” signifies what is universally shared by all people on Earth, the notion of “satisfiers” points towards those areas where *differences* or *dissimilarities* might be found. Satisfiers, not to be confused with economic “goods”, are the processes, ways, and means we choose to employ and deploy in order to satisfy any one or combination of our fundamental needs according to our current circumstances or cultural situations. Satisfiers are therefore context-specific and for this very reason it is impossible to give an exhaustive list of possible satisfiers to our fundamental needs. Satisfiers can only be identified in a particular setting or context, where the real-life conditions of the individuals or groups of people will determine what they consider to be important ways and means of pursuing the satisfaction of their fundamental needs. So, for example, seeking the satisfaction of the need for *understanding*, a particular group of people might decide to mobilize themselves to raise capital to build a public library well-stocked with relevant books. Another group, however, might decide to invest their capital in the further training and education of the teachers teaching their children in school. Both groups have identified a certain “poverty” or “deficiency” among themselves, but have also decided on two different courses of action to satisfy their shared essential need for *understanding*. As this simple example illustrates, it is possible to think the complexity of what is simultaneously similar/shared *and* dissimilar/different between people when using concepts such as *fundamental human needs* and *satisfiers*. Hence, the ability to *think the complexity* of poverty along these lines is thought to be an important prerequisite, if we are to replace the current

dominant reductionist neoliberal conception of poverty and to avoid falling into the trap of other forms of reductionist thinking while replacing the latter.

However, seeing poverty exclusively as satisfying *human* needs could amount to another form of reductionism, commonly referred to as *anthropocentrism*. The implication of reducing poverty to the “level” of *human* needs only is that the satisfaction of such needs may be at the cost or destruction of the biophysical life conditions ultimately responsible for supporting human life on Earth. It is, therefore, important to note that, in the theory of HSD, three distinct “levels” have been made to indicate the importance of needs satisfaction having to take place on all three levels. These levels are: of the *individual/self* (*Eigenwelt*), the *social/collective* (*Mittwelt*), and the *environment/nature* (*Umwelt*). If the satisfaction of needs is reduced to the levels of the *self* and the *social* only, it will clearly lead to the following implementation of satisfiers that may result in the destruction of nature. Such reductionism may result in the generation of biophysical conditions spawning new forms of poverty or strengthening existing forms of poverty. It is therefore critical in our thinking of the complexity of poverty that we do not omit any of these “levels”. The way in which this has been conceptualized in the theory of HSD is in the formulation of the notion of “synergic satisfiers”. *Synergic satisfiers* signify those inclusive processes which allow us to satisfy our fundamental needs at all three above-mentioned levels simultaneously. “Destructive satisfiers”, on the other hand, are associated with those processes which may result in the satisfaction of needs at the individual and social levels, but at the expense of nature. Conversely, destructive satisfiers may opt for processes which would preserve nature at the expense of the poor.

Thinking through the complexity of the poverty problem at both the ontological and the epistemological levels of inquiry in this way has the added advantage of avoiding some other forms of reductionist thinking and approaches. First, we can avoid the popular neoliberal belief in the equation of poverty reduction with the provision of consumer goods to “the poor” by the “rich” in the typical top-down, paternalistic fashion that normally characterizes such reductionist poverty reduction programmes. Second, and more important, poverty is not only a problem of income-poor people only. “Poverty” may also be found to exist among the “rich” and well-off. It is precisely because of our lavish consumerist life-styles that our planet is confronted with the unprecedented scale of planetary crises mentioned earlier. The reification and equation of human needs satisfaction with consumer goods, which can be mathematically monitored and measured (in terms of “scientific” economic concepts such

as GDP, GNP, CPI etc.) and used to “eradicate” poverty, may contain in itself the ideas and logic responsible for the generation of “destructive satisfiers” as solutions. In other words, when thinking about “poverty” and hoping to come up with sustainable solutions, it is critically important that the “poverty” *in* the thinking, ideas, concepts, logic, and representations of the *haves* and the *powerful* be identified and recognized when strategies and action plans are being put forward as “solutions”. The complexity of poverty implies that no-one, irrespective of status, income, privilege, education, position etc. can claim to be untouched by it. It is therefore more correct to speak of *poverties*, not just *poverty* as if it exists among the materially deprived only.

Conclusion

We have become the masters of the Earth and the world. We seem to have all things under our control, and yet we do not control our actions or, rather, the consequences of our actions. In our domination of the world, what used to be distinguished by us as the “natural” and the “social”, as a method of gaining control, has become inseparably merged with very serious implications for our stay on Earth. We have systematically been altering the biophysical conditions necessary for human life. The Earth itself is robust enough to withstand what we are busy doing to it. However, the question is whether we, the human species, will be able to survive the consequences of our own actions as the Earth responds to the human intervention into *its* “natural” processes. Our future is therefore at stake and has become a source of uncertainty. In order to respond to these challenges, we can no longer think and act within the paradigm of Modernity, with its reductionist logic and concepts. The world with its polycrisis facing us today has become too complex to repeat the “divide-and-rule” approach. Complex problems demand complex thinking and the transdisciplinary ideas around the irreducibility of fundamentally different levels of reality forms a very important part in this respect. This is an approach not only important for understanding the multi-dimensional structure of the natural world, but equally to look at social issues and problems. Poverty is one such example of a complex social-natural problem which cannot be approached by first separating the “social” from the “natural” and then reducing it to the level of the social only. The repetition of such outdated thinking and action will not only fail to solve the polycrisis we are facing, but will, in all likelihood, exacerbate these problems or produce new ones. However, although the future looks uncertain and is full of immense challenges, it is not all doom and gloom.

We have seen that, for example, a transdisciplinary response to the vexing problem of poverty is in fact possible. However, coming together, crossing disciplinary boundaries, thinking and acting together will depend on the extent to which we come to terms with, and respond to, the fact that we are no longer dealing with our actual domination of the world, but with the consequences of our actions, and that the distinction between what we can do and what we must do has become a matter of inseparability.

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The Long Way from Non-Reductionism to Transdisciplinarity*

Critical Questions about the Levels of Reality
and the Constitution of the Human Beings

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Reductionism: From Science to Culture and Everyday Life

"The vision of Nature in any given era depends on the imagination prevailing in that era which, in turn, depends on a multitude of parameters... Once formed, the image of Nature acts on all fields of knowledge."

(Manifesto of Transdisciplinarity)

Why are we concerned about reductionism? *We*, in this case, means social scientists hoping to contribute with knowledge to the social change brought about by public and private actors. Thus, from a social science perspective, besides a purely theoretical motivation, we are concerned with reductionism because it implies particular ideas in our everyday approach to reality, including our own human reality as a key presupposition that orients our action toward nature, our fellow human beings, and to what we broadly call "transcendental or spiritual reality".

How does a very scientific and abstract problem such as reductionism relate to culture and everyday life? If we agree that scientific knowledge precedes common sense, the problem of reductionism should arise in culture and everyday life as it has in science and philosophy. Throughout history, there has been a legitimate source of knowledge in every society.

* Originally presented at the 2008 Metanexus Conference, "Subject, Self, and Soul: Transdisciplinary Approaches to Personhood", Madrid, July 13-17, 2008; published in electronic form on the Metanexus Global Spiral, www.globalspiral.com.

In our Western Middle Ages, this legitimate source was revelation, and therefore religion and its institutionalization: the Church. With the advent of Modernity, this legitimate source of knowledge changed to science. In modern Western societies, what science discovers and states as truthful becomes what common knowledge accepts and adopts. Of course, this is not linear and there are other sources of knowledge which sometimes oppose science or, in a more constructive way, attempt to dialogue with it.

Thus, if we blame reductionism for not being an accurate way of bringing about knowledge in science, we should expect problems in our daily life to come precisely from reductionistic ideas of understanding and relating to our natural and human world. This, unfortunately, has not received sufficient attention from the social sciences, on the one hand, while, on the other hand, the hard sciences are less concerned with the repercussions of their findings on society. This leaves us a field of inquiry open to research and reflections, and this will be our starting point for proposing our views.

The social sciences have looked at the problems confronting contemporary societies from different perspectives. Issues have been viewed as consequences of the globalization process (Beck [1998]), as unexpected consequences of Modernity (Giddens [1995]), as the colonization of the "lifeworld" by differentiated systems (Habermas [1992]), or as consequences of the functional differentiation of communicational systems (Luhmann [2007]). But the complexity of our contemporary society is such that none of these approaches has gained consensus among either researchers, or professionals. This invites us to continue developing new approaches and programs to observe social complexity and provide other points of view that can help explain contemporary social phenomena.

Reductionism in Culture

"Paradoxically, everything is ready for our self-destruction, but, at the same time, everything is also in place for a positive mutation, comparable to the great shifts in History." (Manifesto of Transdisciplinarity)

In this context, I have developed a socio-cultural perspective that draws from the theory of society offered by Niklas Luhmann, a contemporary German sociologist. He has constructed his social theory considering society as an emerging autonomous level of communications that organize themselves into functional systems. Society does not consist of an aggregate of human beings, but rather of communications. This leaves us humans as psychic systems in the environment of society, who relate to it through communications. My perspective identifies those communications

(semantics) that remain presupposed in social communication and have a direct, though not easily identified, relationship with the social problems that affect people in contemporary society.

It seems to me that at least some of our problems in modern society can be observed as extreme developments of the evolution of the social communications maintaining these presupposed modern semantics. Also, to the existing strategies for bringing about social change, we could add a specific socio-cultural intervention strategy based on the proposed observation.

My reading of Modernity is that of an epoch, a historical period characterized by a particular culture and by an institutionalization in accordance with that way of interpreting reality, society, and the meaning of human life. As Jorge Larraín, a Chilean sociologist once stated: "All modernization is an interpretative field... a struggle to institutionalize the imaginary significations of Modernity in a particular way" (Larraín [2005], p. 26). This perspective gives priority to the idea over the structural institutionalization that results from the intention to give concretion to the idea. Of course, this is one of the two possible ways of ending the circle of the recursive process that goes from the idea, the semantics, to the structure and from this to a new idea. Luhmann skips the problem of giving priority to one or the other part by using the hen-and-egg (which comes first) metaphor, but his analyses always start from the structure. On the contrary, my starting point and the focus of my interest is semantics and, therefore, culture becomes important.

Thus, I propose a particular program to observe Modernity from a perspective that focuses on certain modern semantics that have undergone sedimentation and turned into presuppositions about the basic dimensions of social life: a general and abstract preconception of what it is to be a human being, a preconception of nature, of the meaning of life, of truth, and transcendence.

Such presuppositions can be heuristically treated and organized into what I have called a *socio-cultural matrix*. My hypothesis is that such sedimented semantics that underlie our modern culture influence social communications by remaining tacit, but included as presuppositions. Inasmuch as these presuppositions are always a reduction of the possibilities of interpreting human and social complexity, their persistence over time ends up producing problems that are not recognized at the individual level as effects of these presuppositions, so their influencing power over social communications remains unchanged.

In relating modern semantics with problems that arise at the level of the individuals in everyday life, I am posing a hypothesis that expresses itself at two levels. The more general one supposes that the predomi-

nant semantics in any given society throughout history favors unilaterally, or reductionistically, one or another interpretation of the complexity of the world and therefore end up, over time, bringing about individual and social discomfort which, in turn, gives rise to social change.

The second level of the hypothesis applies particularly to the modern age, and it supposes that a non-correspondence between modern semantics, for instance about individuality, and the complexity that human development has reached in this period could be an important source of problems that affect our present society.

If society is not conscious of the operating power of the socio-cultural matrix of sedimented semantics, it not only restricts its liberty to critically confront its present, but it may end up in reifications of certain social phenomena. Capitalism, colonialism, or Eurocentrism will have a different weight as explicative causes if they are treated as historic-economic phenomena detached from the modern socio-cultural matrix, than if they are observed as logical developments of a — temporary — way of understanding the world.

On the other hand, the contemporary social crisis, the *polycrisis* in Morin's words, is not perceived as an "erratic phenomenon... full of uncertainties and insecurities... completely out of control", as Wallerstein (1996) asserts. On the contrary, the perspective that takes into account the socio-cultural matrix recognizes in the crisis the incapacity of the old interpretations of the sedimented semantics to deal with the new complex phenomena that have developed in society. This perspective views the crisis as part of a larger process and is thus theoretically prepared to offer a better diagnosis of our critical present. For us, the crisis is the visible face of a historical moment that expresses the limits and problems of the modern presuppositions and, thus, allows us to go beyond perplexity upon the crisis to identifying new semantics that will eventually replace those in crisis.

A Systemic Concept of Culture: The Semantic Domain and the Socio-Cultural Matrix

"...often unconsciously, a certain logic and even a certain worldview hide behind each action, whatever it may be: the action of an individual, of a collectivity, of a nation, of a State." (Manifesto of Transdisciplinarity)

As far as I believe that the functionally differentiated systems of Luhmann's social theory are not sufficient to address the symbolic context in which the lives of concrete individuals moves, I have used the

concept of culture to observe the level of semantic contents that participate in social communications.

Integrated into the theoretical context of the social systems theory, I propose a concept that views culture as an order emerging from communication. It consists of semantics that achieve different levels of sedimentation in relation to the expression of everyday language. These semantics play a role in reducing complexity by orienting social communications, making some of them more likely to be selected than others (Dockendorff [2006]). It is precisely this role of the implicit over society, particularly over the level of the daily living of concrete individuals, that justifies giving the sedimented semantics a theoretical importance, in addition to its relevance in designing initiatives for social change (Dockendorff [2007]).

I have expressed this concept of culture in a model that establishes a semantic domain and, as a specific part of this domain, a socio-cultural matrix. The semantic domain is the result of a gradual, graduated sedimentation process of semantics that ranges from the selections that are still used explicitly in communication to those having reached a maximum degree of sedimentation and, while the latter do not appear in communication, there is coherence in meaning between the two.

Within the semantic domain model, we want to highlight particularly the segment that contains those semantics that are very general and of maximum sedimentation. In the maximum sedimentation extreme, we can distinguish a constellation of semantics that are sedimented to a maximum degree, which function as assumptions or presuppositions with respect to the basic categories of the entire observed world. This constellation of distinction schemes is deeply sedimented and their content is not, therefore, required by those participating in social communication. However, to the extent that they sensitize society toward certain contents of communication rather than others, they influence society through the coherence in meaning that they maintain with the selections used in social communication. Obviously, this coherence is not normative, so that new semantics can modify what has been sedimented. We call this constellation of structuring semantics, which constitute a limited number of assumptions the content of which reaches maximum degrees of topical generality about the world, the *socio-cultural matrix*.

The structuring function of the prevailing socio-cultural matrix implies that social communications will develop through logical steps as they reach objectives or arrive at stages that become points of departure for new communications which, while no other communications that might set them aside become sedimented, will continue under the same matrix that directs them. Thus, the implicit semantics, regardless of how

general and abstract their content may be, are present in each new instance of social communication and, in the case of the modern socio-cultural matrix, which has prevailed for approximately four hundred years, its developments have reached such extreme levels that they are recognized today as critical.

From this perspective, the socio-cultural matrix is that set of presuppositions on reality and the human being that underlie and guide the activities of all spheres of a society for a period of time. A socio-cultural matrix prevails for several centuries while human activity takes place under this way of viewing the world until there is an accumulation of ideas, perspectives, events, processes, and social movements that question this way of living and lead the socio-cultural matrix into a crisis. We hold that the flow of social communication, a process that is the foundation on which society evolves (Luhmann [1991] and [2007]), is always based on what we call a socio-cultural matrix, which, as a result of the evolution itself of society, will eventually be replaced by a new one.

Overcoming the Reductionist Subject in Philosophy and the Social Sciences: The Crisis of Modern Epistemology

“...the ‘death of man’ is a phase of History that is, after all, necessary; it portends his rebirth” (Manifesto of Transdisciplinarity)

A key element through the evolution of Modernity, and about which there is a general consensus, is the presupposition of the rational identity of human beings, considering them “subjects”. After nearly four hundred years of this prevailing assumption, today it is stated that, just as this modern subject emerged historically, it can also die, eventually (Hall, Held, and McGrew [1992]).

The questioning of the concept of subject converges with what has been called the crisis of epistemology in modern philosophy. The episteme that has come to be discussed as being in crisis is the philosophical concept of the foundations of knowledge, based on the idea of a transcendental subject whose rationality, using logic, enables him to reach certainties and, thus, to distinguish between truth and falsehood.

The crisis of the modern episteme implies a genuine revolution within contemporary philosophy. Rorty (1995) presents himself as the spokesperson for this revolution, that he considers to be paradigmatic, in the Kuhnian sense, within philosophy. He identifies the true heroes of this revolution as being Wittgenstein, Heidegger, and Dewey, who rule out the notion of a foundation of knowledge and dispense with the idea,

shared by Descartes and Kant, of the mind as endowed with the elements and processes that make knowledge possible. Without proposing any alternate theories of knowledge or philosophies of the mind, the revolutionary authors are inclined simply to leave epistemology and metaphysics aside, just as 17th-century philosophers turned away from scholasticism.

Following the development of modern epistemology, according to Foucault (1993), the modern age began when human beings started existing inside their heads. The idea of man being at the same time both empirical and transcendental has been instrumental in the philosophical thinking from Kant to the present. According to Rorty, after Descartes invented the mind, Kant invented the conditions for the possibility of scientific knowledge. They had imposed on themselves the task of finding a place in human consciousness, where the activity of knowing took place. This could answer the question that arose after the war between science and theology was won by science: How is knowledge possible? This question could only arise after religion no longer prevailed over science, and it started the special philosophical concern called epistemology.

Following Rorty (1995), we can see that the Kantian assumption of the transcendental subject is located in the invisible place of subjectivity and that, in the act of learning, it distinguishes itself from whatever it is that it experiences. The invisible place of subjectivity implies that this subject is decontextualized; that is, not situated socially, culturally, or historically. Rorty (1995) held that the Kantian assumption of the transcendental subject in the invisible place of subjectivity has become untenable. Hence, the idea of subject as the predominant semantics on the human being has been considered to be in crisis in communications of both the philosophical and the social sciences. The notion of subject had become the semantic equivalent of the human being; it had turned into a reductionist concept of the human being, reduced to just some of his faculties, cut off from his social relationships, and only poorly integrating his nonmental faculties.

Hall, Held, and McGrew (1992) follow the concept of subject through its evolution. They suggest an evolution from the enlightened subject as an immutable substance to a sociological subject that is constructed socially, arriving at the post-modern subject that shows itself to be divided and fragmented. The authors speak of the birth and death of the modern subject. They hold that rational identity has been presupposed in modern thought, but, just as the modern subject emerged historically and has changed, so it may come to be replaced by some other concept of being human. They recognize five conceptual ruptures of the idea of subject, brought about by the Marxist thought and that of Freud, Saussure, Foucault, and feminism. They state that these ideas have brought down both the Cartesian and the sociological subject in late Modernity.

Foucault (1993) offers a criticism of the concept of Man, understood as subject, from a historical perspective. He holds that before the end of the 18th century, Man did not exist. Before that, Man was a topic of discussion for the natural sciences as a species and kind, but — so Foucault adds — there was no epistemological awareness of man as such ([1993], p. 300). Man did not have a place in the episteme, either as a subject, or as an object: “We are so blinded by the recent evidence of man” — Foucault tells us —, “that we no longer have even the memory of the time, though not so long ago, when the world, its order, and human beings existed, but not Man” ([1993], p. 313). Reminding us that the modern idea of Man is historical and contingent, Foucault invites us to wonder if this Man still exists, or if he will necessarily continue to exist as a sedimented semantic presupposition in contemporary social communications.

For his part, Wittgenstein ([1998], [2004]) criticizes the Cartesian epistemological positions because they view the human being as a mere spectator of the world. Wittgenstein’s contribution to the crisis in traditional epistemology is crucial. His greatest conceptual contribution is that of the language game, a concept very near that of culture suggested earlier, and certainly near the idea of language as an action woven into culture. From Wittgenstein, language and culture constitute a world, which is always a world interpreted collectively in a certain way. In this perspective, there is no room for the Kantian subject closed off in the isolated place of subjectivity and not situated socially, culturally, or historically.

From the very start of his *Philosophical Investigations*, Wittgenstein shows how, through language games, people learn from childhood not only a language, but a form of social activity, a way of life. Language games, belonging to a specific linguistic community, are fundamentally social. Wittgenstein’s ideas that one can only “know” from within a language game seem to us to be similar to those of Luhmann (1991) and even Maturana (1990), except that, instead of a language game, they speak of communications systems or of “worlds brought in by the hand”.

Thus it is that the evolution of the semantics of individuality, dealt with by several authors, has been particularly viewed as a crisis of the semantics of the subject, arising from what has been called the crisis of modern epistemology.

In sociology, Habermas and Luhmann both made significant attempts to overcome the Kantian epistemology because, in their respective views, it had affected critical theory (the former) and sociological tradition in general (the latter).

Habermas (1992) attempts to endow sociology, and the critical theory in particular, with a new epistemological foundation. He proposes substituting the paradigm of consciousness dominated by the subject-object

relationship with one of linguistic and hermeneutic origin in accord with the perspectives of Wittgenstein and Gadamer. According to Habermas, the consciousness paradigm does not include the relationships that the subjects establish with each other, that is, the intersubjective dimension of knowledge in which the subjects recognize themselves as equals, generating a shared consciousness of the world. For his part, Luhmann (1991) diagnoses sociology as being affected by epistemological obstacles that his systemic paradigm would overcome. His theory of a second-order observation arises as a critical alternative to the Kantian subject. The image of the circular recursiveness in the systems theory (Luhmann [1991]) is complemented with the ideas of complexity and emergence, which surface as alternatives to the idea of a primary fundament.

In sum, the philosophical literature leaves no doubt as to the crisis that the modern episteme has reached, a crisis that becomes more evident as the Kantian subject, an observer of the world, disconnected from his historical-social context, with the privileged capacity to access the truth, becomes the equivalent of the human being. The result is a simplified human being, diminished not only by being cut off from his social relationships, but also by not integrating his non-mental dimensions. And that human being has reached a crisis point in human sciences and, progressively, in common sense.

Overcoming the Reductionistic Notion of Subject: What Is Proposed in Its Stead?

"A mysterious factor of interaction, not reducible to the properties of the different individuals, is always present in human collectivities, but we always discard it into the hell of subjectivity." (Manifesto of Transdisciplinarity)

Where do these proposals for questioning more radically the notion of subject leave us? Ricoeur, for example, (*apud* Eymar [2005]) holds that the "I" cannot be reduced to being a mere subject of knowledge, but is rather a real being that cannot apprehend himself directly. His being-in-the-world is prior to the reflection and the establishment of an "I" confronted, as subject, with a world of objects. What new category or concept do we recognize this "being-in-the-world" with?

The problem is not solved, as we feel Wittgenstein attempts to do, by simply declaring that there is no cognitional subject. Just eliminating it does not solve the problem, since it does not offer an alternative to the perception process that is compatible with the theory that knowledge comes about in association with language games. If there is no cognitional

subject, what is there? Can there be a speaking, participating, acting, playing subject if there is not a cognitional one? Not answering this from the philosophical perspective that has brought down the epistemology has ended up by passing the problem on to the social sciences.

Luhmann, whose interest is in the observation of society and not particularly of individuals, takes it for granted that all human dimensions from the organic and psychic systems converge in the individual, but that for the reproduction of communication itself, which is what constitutes sociological observation, the “black box” concept can be used with respect to the individual. This is so because, for the study of communication, knowledge of what is happening inside the individual is not necessary, nor is it to know the “essence” of things (Luhmann [1999], p. 121).

From my observation of sedimented semantics captured in a concept of culture as a semantic domain and a socio-cultural matrix, the communicative implications of accepting, even for theoretical reasons, the definition of the human being as a psychic system is unsettling, since that evokes the Kantian subject. Accepting the definition of human beings as systems of consciousness whose thought-based operations allow them to couple with communication systems, since both thoughts and communications operate on the basis of meaning, once again places the emphasis on something like “the mind” and thoughts.

The concern for reductionism allows us to make a general criticism of sociology — or any other social science — inasmuch as, in a search for theoretical clarity, it simplifies the human being in order to focus on the social or language aspect, or whatever the “object of study” is. If we truly want to overcome reductionism, how can we observe concrete individuals in their complexity, not yet grouped into classes, strata, roles, or collective identities; that is, in their subjectivity? The specific problem we are faced with is: how can we observe subjectivity, which is, by definition, personal, non-transferable, unique? Is it possible to access, even on an abstract level, shared elements of subjectivities? In short, how is it possible to address the problems suffered by individuals in contemporary society?

Our hypothesis is that, at the level of semantics sedimented in communication, it is possible to identify a gradient of these assumed semantics, moving from the unique specificity of the subjectivity of each concrete individual through the shared presuppositions at the level of interactional systems, groups, institutions, territorial contexts, and on to the broadest level, that of modern Western society. As we move from more specific to more general contexts, the shared presuppositions become ever more abstract, retaining a coherent unit of meaning among them.

Culturally, it is possible to conceive of a continuum in which the individual is on one level of reality and has a constellation of unique pre-

suppositions; the interactional systems are on another level with shared presuppositions, and so on, until global society is reached.

This perspective allows us to broaden the reductionist concept of the individual. In effect, from the cultural perspective as a reduction of the complexity of social communication that we have proposed, we find unique presuppositions at the subjectivity level, the level that would correspond strictly to the individual (the psychic system in the theory of social systems); but, in a relationship of dialogue (an interactional system), they cease to be individual and move on to another emergent communicational level, continuing thus until reaching the macro-social level.

We can wonder, then: does the individual continue to be an “individual” inserted into the social situation, that is, in communication? The theory of social systems helps us to determine the fact that at the social level, the individual level (the psychic system) gives way to an emergent communication level, and it is that level that communicates rather than the individual. For the theory of social systems, communication constitutes an emergent system in which the individual (the psychic system) belongs to the environment. According to the social systems theory, the psychic or awareness systems do not communicate; they only think, and it is through their thoughts that they couple with social communication.

The theory of social systems — which we could venture to say is prey to an (understandable) disciplinary reductionism — no longer asks about the individual. But it offers us the possibility of observing it in the social gradient of levels of presuppositions belonging to an emergent level which transcends it. However, if we adopt the viewpoint of the individual himself, he does not “remain” in the environment; he is still in some way (coupled with) communication in society, but no longer as an individual. As what, then? If he is not an individual, does he stop “being” (the quotation marks attempt to skirt the ontological issue, as it is an observation)? Or does he continue “being” in an expanded concept of the individual to which “individual” semantics no longer apply, with all of their reductionistic burden that has been dragged along for nearly four hundred years? How can we break away from these semantics, so deeply sedimented in our modern socio-cultural matrix? Do we not need a new term for us humans? What shall we call ourselves, if we do not want to end up in a new reductionism? We will move from this point to Transdisciplinarity, in search for possible answers. Why TD? Because it offers the possibility of addressing the continuum in which to be an individual happens just on one level of Reality, while on other levels we humans cease to be individuals, but still “are”.

Challenges for TD: Legitimization in the Scientific Context

"We are but beginning the exploration of the different levels of Reality joined with the different levels of perceptions. This exploration marks the beginning of a new stage of our history based on the knowledge of the outer universe in harmony with the self-knowledge of the human being." (Manifesto of Transdisciplinarity)

In addressing TD, searching for propositions to overcome reductionism, I will focus on the levels of reality and the constitution of the human being.

I have stated that the flow of social communications as the process that constitutes the evolution of society (Luhmann [1991] and [2007]) is sustained by what I have called a socio-cultural matrix, which, in turn, as a result of the same process of evolution, will eventually be replaced. As we have seen when discussing the crisis of modern epistemology, the concept of subject is in the process of losing its long-term centrality and there is room for new visions of the human being to become predominant.

From the cultural point of view I have proposed, the semantics of individuality, born out of the Cartesian-Kantian concept of subject, that has been solidly sedimented in our modern socio-cultural matrix, is on its way toward being replaced by semantics more in accord with the evolution of society in these last three to four centuries. There is now the possibility for a less reductionist concept of human being to become adopted. As the emergent level of communications, society will eventually select new semantics that will undergo a sedimentation process and end up replacing the presuppositions in our modern socio-cultural matrix and thus start orienting social communications in a new direction. But it is up to us humans in the environment of society to irritate the social systems with our new semantics, aiming at their being selected and restabilized.

So will the new semantics that will sediment into a new presupposition about the human being come from a TD perspective? Will it come from a postmodern one? Or a neo-fundamentalist one? Evolution and our ability to get our ideas through the functional communicational systems have the final say. There are two major social systems that are crucial. The first one is science and, through it, education; the second is mass communications. So here lie the two mayor challenges for TD: how to get its quite radical ideas not only to be accepted, but taken as the most promising perspective for meeting scientific complexity and responding to the social problems and challenges ahead.

Each of these functional systems has its own requirements, therefore it puts forth different demands. I am not the one to analyze the status

that TD has or should have in the scientific system, or what should be done for it to be fully legitimized and included. However, I will take the liberty to express some of the concerns that assail me.

Legitimization in the scientific context seems crucial for TD; this also implies legitimization within philosophy, since TD is both an epistemological approach and an ontological one. It is not enough that it be proposed as an alternative to scientific reductionism, as there are already non-reductionist views of reality in philosophy and the sciences, as we have seen when speaking of the crisis in modern epistemology. The issue of legitimization within the scientific world is an insuperable prerequisite for it to exist in the world of education and of common sense, that is, in culture. This is because, in modern society, it is the scientific system that has the privilege (the function) of distinguishing knowledge that is valid from that which is not.

TD itself recognizes this in its acknowledgement of the scientific disciplines. However, the scientific system has rigorous demands. This brings to mind Philip Clayton's cautionary statements in his opening lecture of last year, in which he wondered if TD would be "destined to be forever an amateur sport, with no shared standards, rigor, or criteria for success?... Will the field ever win respect or exert a broader influence?" (Clayton [2007]).

The challenge of legitimization within science is so great because it takes aim at the validation criteria themselves of a scientific proposal. Can scientific criteria today accept, for example, the assertion that TD has its origins in the same scientific spirit which includes the rejection of all *a priori* answers and, at the same time, that it revalues the role of deeply rooted intuition, of the imagination, of the sensitivity, and of the body in the transmission of knowledge (Nicolescu, *The Transdisciplinary Evolution of Learning*); or that TD entails both a new vision and a lived experience? Or that it is a way of self-transformation oriented towards knowledge of the self, the unity of knowledge, and the creation of a new art of living in society (Nicolescu [1996])?

The very definition of TD can seem to be a puzzle in the face of the criteria of scientificity when one states at the same time that disciplinary research concerns, at most, one and the same level of Reality; on the contrary, Transdisciplinarity concerns the dynamics engendered by the action of several levels of Reality at once. While not a new discipline or a new superdiscipline, Transdisciplinarity is nourished by disciplinary research. Although we recognize the radically distinct character of Transdisciplinarity in relation to disciplinarity, multidisciplinary, and interdisciplinarity, it would be extremely dangerous to absolutize this distinction. Transdisciplinarity is often confused with inter- and multidisciplinary.

This confusion is very harmful to the extent that it functions to hide the different goals of these three new approaches (Nicolescu [1996]). The confusion arises because not even those who are interested can accept the novelty of TD's proposals in its entirety, much less those of a strictly scientific thinking.

In effect, TD cannot be evaluated from the scientific criteria of today precisely because it attempts to overcome them. And this implies not only transcending reductionism; it also implies a new concept of science. Just as the crisis of the modern episteme has implied a revolution within contemporary philosophy and the revolutionary authors propose to simply leave epistemology aside, as the 17th century philosophers turned away from scholasticism, science seems to need a revolution as well. Perhaps this is what Nicolescu is aiming at when he states that science by itself could never respond to some basic questions, because its own methodology limits the field of its questions; therefore, a new Philosophy of Nature, attuned to the considerable attainments of modern science, is cruelly lacking (Nicolescu [1991], p. 39). I venture here to propose that a task such as this, which calls on the leading contemporary scientists more than on TD interpreters from different scientific subspecialties and related fields, should take precedence over the dissemination of TD, given the risks that Philip Clayton pointed out in 2007.

As an example, I will mention the risk of falling into the migration of concepts from one field to another, against the illegitimacy of which Professor Nicolescu warned us in his lecture at last year's conference. This appears crucial when dealing with the levels of reality. The author clearly differentiates what he defines as levels of Reality from, for example, the levels of emergency in systemic theories.

In Niklas Luhmann's sociological theory, the levels of emergency are defined as follows: "...emergent orders are spoken of in this context; this refers to the irruption of phenomena that cannot be derived from the properties of their components" (Luhmann [2007], p. 100). Indeed, psychic systems give rise to communicational systems the properties of which cannot be reduced to the systems of consciousness from which they emerge. But this does not authorize us to speak of different levels of Reality as TD understands them.

Let us hear what Professor Nicolescu says about reality and levels. He defines reality from the perspective of a physicist in his daily work: the physicist encounters "something" which resists theories and experiments, and it is this resistance that gives that "something" the attribute of "reality" (Nicolescu [1991], p. 97). This way, the "reality" of which he speaks is not simply a creation of the human mind, but "neither is it something in itself, for we intervene... with our interpretation" ([1991], p. 97). There

is no room here to discuss the differences and similarities between this “realistic” concept of reality and the more “constructivistic” one sustained by the social systems theory. What concerns us here is the fact that TD has a very specific conceptualization of the levels of reality, as well as the fact that it is not rigorous to use these in another context or in metaphoric language. The same is valid for the concept of level.

Nicolescu defines the levels of reality as a group of systems which remain unchanged under the action of certain transformations. For a truly different level of reality to be seen, he states, there must be a breakdown of language, of logic, and of fundamental concepts. This applies to the quantum level and the macroscopic level in physics. This rigorously defined concept shall not be illegitimately “exported” to levels, dimensions, domains, or orders used in other theoretical contexts, nor shall it be talked about loosely.

If this occurs, the central concepts of TD will be undermined and the possibility of their influencing the scientific system will be diminished. If we do so, who share the TD perspective, we are digging our own graves.

Challenges for TD: Culture and a New Notion of the Human Being

“The homo sui transcendentalis is being born. He is not any ‘new man’, but a man that is being reborn. This new birth is a potentiality etched on our very being.” (Manifesto of Transdisciplinarity)

I will now address the challenges TD faces in offering a better, non-reductionistic notion of the human being that can eventually replace the sedimented semantics of the “individual”, that is still at the heart of our socio-cultural matrix. I will do this from the cultural point of view I have proposed. From there, I will ask TD if the concepts it is using to express what it means to be a human being really overcome the semantics of individuality born out of the Cartesian-Kantian notion of subject that has been solidly sedimented into our modern socio-cultural matrix.

We have said that TD offers the possibility to address the continuum in which being an individual happens on just one level of Reality, while on other levels we humans cease to be individuals, but still “are”. If we humans are individuals only on one level of our “being”, what shall we call ourselves, then? Is it not as if we were to address our entire body and call it “hands”? Or “stomach”? Just as there is a cruelly needed philosophy of Nature, indeed a scientific revolution, there is also a desperate need for a new, non-reductionistic term to call ourselves as human beings.

Let us first look at the view TD holds of the human being. A first statement is that our bodies have both a macrophysical and a quantum structure (Nicolescu [1996], p. 9). From the material, physical point of view, it is clear that we human beings are made up of at least two levels of reality, the two levels of reality recognized by science based on the discoveries of quantum physics. But TD goes further and asserts that: "The different levels of Reality are accessible to human knowledge thanks to the existence of different *levels of perception*, which are in biunivocal correspondence with the levels of Reality... *To the flows of information that pass coherently through the different levels of Reality, there corresponds a flow of consciousness that passes coherently through the different levels of perception*" (Nicolescu [1996], p. 23). Physics has undoubtedly already accepted different, irreversible levels of reality, but is there any scientific proof that for each one there is a corresponding level of human perception? Is it not thanks to sophisticated instruments that physicists have been able to access the subatomic level of reality? What level of perception corresponds biunivocally to the subatomic level of reality? Additionally, what evidence has been presented in Husserl's or his followers' proposal of "the existence of different levels of perception of Reality on the part of the subject-observer?" (Nicolescu [1996], p. 10) We have here a theoretical tangle that constitutes a challenge worthy of being further developed by TD as it dialogues with sciences that study perception and related processes.

But TD penetrates territories that are still a mystery to the sciences and touch what is "sacred". It asserts that "the set of Reality levels stretches through a zone of non-resistance to our experiences, representations, descriptions, images, or mathematic formulations. And this "non-resistance zone corresponds to what is sacred" (Nicolescu [1996], p. 22). What is the human being's relationship with this zone of the sacred? TD holds that, just as the coherence among the levels of reality presupposes its non-resistance zone, what constitutes the "transdisciplinary object", isomorphically the coherence of the levels of perception, presupposes a zone of non-resistance to perception. Thus, the set of levels of perception and its non-resistance zone make up the "transdisciplinary subject". To TD, then, we human beings are transdisciplinary subjects who have a flow of consciousness in an isomorphic relationship with the flow of information that moves through the levels of Reality; the two flows are associated thanks to the same non-resistance zone, that is, that which is sacred. The transdisciplinary subject, then, would be the set of levels of perception and their zone of non-resistance through which consciousness flows, a flow that unites with the information of the levels of Reality, producing an (open) unity between subject and object thanks to the non-resistance zone which acts as an included third, that which is sacred.

Expressed in this way, we human beings, who have described ourselves until today as individuals, where do we start and where do we end? Do we have, or are we, levels of perception? Do we have a consciousness, or are we the flow of consciousness? Are we in the non-resistance zone, are we part of it, or are we the zone itself? Do we have access to what is sacred, or are we sacred? In each being there is a sacred, intangible core, asserts TD (Nicolescu, *The Transdisciplinary Evolution of Learning*).

This beautiful description of our human constitution has the monumental task of making its way into the scientific system, which would require nothing less than the revolution in scientific thought of which we have already spoken. But even more important is that it make its way into our culture, that is, into the social communications that struggle to become legitimate, be selected, and one day become the semantics sedimented into the socio-cultural matrix. How do we move away from a conception of ourselves, inherited from the Kantian subject, that makes us perceive ourselves as individuals, isolated, material, superior beings, and masters of Nature, living on a single level of reality, as subjects confronted with a world of inert objects placed there for our exploitation or our sensorial pleasure?

We create a new term (we leave concepts to science), a term so new and so strong, that it can set aside the old ideas about ourselves. A term not for describing, but rather for evoking all that we are, the sacred included. A new term, free from religious connotations, even though it expresses what all religions have been saying for millennia. Is TD using its best expression when speaking of “transdisciplinary human beings”? Was the poet using his best expression when he created the term *transdisciplinary attitude*? (Roberto Juarroz, *apud* Nicolescu [1996], p. 36). The concept is beautiful; I could even add that there is no way of understanding TD unless we are in a transdisciplinary attitude. But this open, loving attitude, which is innate to us humans, just as in each of us there is a sacred core, what does it have to do with disciplines? Of course it was a gift from the poet to a promising new way of looking at the world, but, when it comes to naming ourselves, to overcoming the reductionistic expression of “individual” we want to do away with, shall we call ourselves transdisciplinary human beings? Is it not a bit... long?

It would be less appropriate and even dangerous to use the term transdisciplinary “subject”. From a view of culture as a semantic domain and a socio-cultural matrix, the communicative implications of using the term “subject”, inasmuch as it evokes the Kantian subject, make the phrase “transdisciplinary subject” a poor choice. Of course, in a scientific context the concept is probably less at risk than in a cultural one, and it could go on being used in a dialogue with disciplines to which it would cause no

problems. In the context of the philosophical revolution that overcame epistemology, in most social sciences, and, especially, in social communications, the educational system included, there is a need for a renovated term for us human beings.

These are some of the challenges TD faces in overcoming the reductionistic notion of human being. From the cultural point of view I have proposed, there is no doubt that evolution will eventually replace the sedimented semantics of "individual" that is still at the heart of our socio-cultural matrix. We human beings are much too uneasy with the social problems that the semantics of the "individual", with all the reductionist burden that it has dragged along for almost four hundred years, is inflicting on the final stages of our Modernity.

Responding to these challenges is what has seemed to me to be the long way from non-reductionism to Transdisciplinarity. TD is our final goal, but it will not be an easy road to take. It can be crossed only with a TD attitude, optimistic, at once guileless and obstinate, unwavering yet flexible, in order to adapt our discourse and strategies to the demands imposed by today's social complexity. How could it be otherwise, if TD, as we can read it in the Manifiesto, "is a generalized transgression that opens an unlimited space of freedom, of knowledge, of tolerance, and of love"?

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Levels of Convergence*

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Introduction

We are living a unique time in the history of humanity. This moment, this turning point, is unprecedented. In order to face the new possibilities of our future, it is of utmost importance to be prepared to make wise choices about how we will shape our future as a new, technologically enhanced and driven species. Science has taken us this far, but complexity has shown that science alone will not take us much further. Technology has pervaded each and every aspect of our lives, to a point in which it has gotten literally beneath our skins. Many edifices are falling apart.

It is not only about a paradigm shift. It is about a much deeper kind of shift, one that alters dramatically our ideas, our values, our bodies, our perceptions, everything and every aspect of human life. In these times of transition, we must try to bridge the gap between disciplines, find a common language that fosters cooperation, and, most importantly, open our minds to fresh and daring perspectives. As we do so, trying to catch up with the overwhelming speed of the winds of change, hopefully we will contribute to a better understanding of the challenges that lie ahead.

Recent advances in nanotechnology and its subsequent application in a variety of academic fields, have given rise to an unprecedented phe-

* Originally presented at the 2008 Metanexus Conference, "Subject, Self, and Soul: Transdisciplinary Approaches to Personhood", Madrid, July 13-17, 2008; published in electronic form on the Metanexus Global Spiral, www.globalspiral.com.

nomenon of technological convergence. The importance of NBIC (Nano-Bio-Info-Cogno) convergence comes from the fact that “all matter, living and non-living, originates at the nanoscale. The impact of technologies controlling this realm cannot be overestimated: the control of nanoscale matter is the control of nature’s elements” (ETC Group [2003], p. 6). NBIC convergence integrates three main levels of material reality through nanotechnology, namely: biology, computing, and neuroscience.

The distinction between the different levels of reality can be done according to various types of criteria. Poli (1998) has skillfully drawn on Chwistek, Brouwer, Husserl, Hartmann, and Luhmann to arrive at the classification of three main strata of reality, each originating different levels: social (history ↔ art ↔ law etc.), psychological, and material (biology, chemistry, physics). In the light of NBIC convergence, however, a more fundamental dichotomy between levels starts to emerge around the dimensions of mind and matter. For the first time in the history of science, there is a technology-mediated convergence between the material levels of reality and the cognitive levels of human experience. The “unity of nature at the nanoscale” provides brand new grounds for this new kind of interface: “NBIC convergence requires, and is made possible by, the radically new capabilities to understand and to manipulate matter that are associated with nanoscience and nanotechnology. The integration of technology will be based on the unity of nature at the nanoscale, as well as on an information system that would cross disciplines and fields of relevance” (Bainbridge & Roco [2006], p. 2).

The unity of matter through NBIC makes possible the integration of biological and neural systems to artificial systems, including systems of Artificial Intelligence (AI). The unity of matter at the nanoscale makes possible the systemic integration between biological and non-biological entities; in order to perform a task or to enhance a human capacity, for example. Future prospects are overwhelming. These prospects are not solely related to enhancing the human species biologically. They include the enhancement of human cognitive states as well. Organism becomes artifact and artifact becomes organism: “Nanotechnology enables one to engineer at the nanoscale and thereby perhaps to reconfigure everything molecular. From the point of view of nanotechnology, what used to be separate domains of biomedicine, information technology, chemistry, photonics, electronics, robotics, and materials science come together in a single engineering paradigm” (Nordmann [2004], p. 12).

The main concept behind NBIC convergence is the universal dimension of information. Such an accelerating rate of human-machine hybridization brings about serious ethical and philosophical implications.

New ontological questions arise from the radical concept of the technological unity of matter, such as questions regarding the very meaning of what is the essence of being human. Understanding biological processes as codes, as sign systems, scientists are now codifying and programming their artificial replications. Decodification of micro bio-systems serves as a road map for the codification of artificial agents that will mirror and interact with them. Since it is now possible to understand matter in terms of information, scientists have become able to re-configure and re-engineer all kinds of matter through nanotechnology.

Nanotechnology enables the integration between all material structures, be they biological or non-biological. The ways in which such total integration becomes possible are similar to the ways in which information flows through all kinds of systems. Much in the same way in which information pervades everything, nanotechnologies could also pervade every level of material reality. Converging technologies share four main characteristics:

Embeddedness: an invisible infrastructure which could be implemented anywhere
Unlimited Reach: unrestricted access to all levels of material structures
Engineering of Body and Mind: new interferences bridging physical and cognitive processes are enabled
Specificity: high precision and control

Table 1 (adapted from Nordmann [2004], pp. 14-15)

From the four characteristics named above, the third is perhaps the most complex and interesting one. The greatest achievement of converging technologies is the advancement being done in the development of new kinds of interface between body and mind or between intelligence and its material platform, the brain. Matter and mind are two levels of reality that are inextricably linked together, still their interface remains largely uncharted.

So far, there have been many attempts made on the conquest of AI, all of which fall short of coming close to replicating consciousness. However, when it comes to NBIC convergence, the question is a bit different. It is not about creating independent artificial minds, but about enhancing human minds artificially to an extent in which the categories of human intelligence and artificial intelligence could blend in. Converging technologies are making possible the emergence of hybrid forms of intelligence through the technological enhancement of our own.

Levels of convergence among different realities begin to emerge. These levels of convergence occur at the interfaces between physical and mental states. Where one reality touches another, interacts with another — and therefore transforms another — we find convergence taking place.

Neurotechnology and Artificial Intelligence

By engineering and programming nanorobots which possess certain amounts of AI, scientists are becoming able to introduce intelligent agents into all types of material and molecular structures. When the nano-intelligent artifacts enter the neural networks of a brain, they become part of the conscious experience of that brain. This is the new field of neurotechnology (Khushf [2006]). Intelligent nano-agents have now come close to being able to interfere directly within the consciousness experiences of a brain.

An example of this kind of matter/mind hybrid interface which is emerging as a result of NBIC convergence is the research currently being done on Biologically-Inspired Robotic Cellular Architectures (Bernstein *et al.* [2006], pp. 134-135). Through the mapping of the neural circuits within the brain, nano-artifacts are being produced that simulate the behavior of a neuron, being able to interact with, and be integrated to, systems of cells. In this case, the neurons are those on the visual cortex, specifically those responsible for image-formation. Nano-devices are being developed that could interfere directly with the image-formation within the brain.

Our understanding of brain functioning begins to transcend biology when nano-robotic neurons have been taught how to speak the language of biological neurons. Cognitive processes are then understood as natural language processes. If these nano-agents can successfully interact with, and perform the functions of, biological cognitive agents on a physical level, could they also perform mental activities? This is a question that no one has yet answered satisfactorily.

Brain-scanning technologies are being developed which render feasible what is being called the reverse engineering of the human brain (Bostrom [2000]; Kurzweil [2006]). The human brain is the result of thousands of years of adaptive processes of biological evolution. On the other hand, AI has been developed over less than fifty years. Brain scanning is even more recent.

The pace of the biological evolution of intelligence lags far behind that of the technological evolution of intelligence. This exponential increase in the velocity of technological evolution is explained by the law of accelerating returns, which represents “the inherent acceleration of the

rate of evolution, with technological evolution as a continuation of biological evolution" (Kurzweil [2005], p. 7). Ray Kurzweil has achieved his notoriety due to his incredible skill at making accurate predictions of future technologies. What he is saying now is that "biological intelligence, while it could be better educated and organized, is not going to change significantly. Non-biological intelligence, however, is multiplying by over 1,000 per decade in less than a decade. So once we can achieve the software of intelligence, which we will achieve through reverse-engineering the human brain, non-biological intelligence will soar past biological intelligence. But this is not an alien invasion, it is something that will literally be deeply integrated in our bodies and brains" (Kurzweil [2006]).

Converging technologies are indeed getting inside the human brain in applications that are deeply integrated to cognitive systems. However, this does not mean that any significant change in the inner levels of human consciousness is likely to occur. The terms and expressions used by Ray Kurzweil are packed with metaphors comparing the human mind to a computer. Software of intelligence. Reverse-engineering the human brain. It is clear, given Kurzweil's terminology, that his approach is based on materialism and reductionism. Intelligence is some kind of biological software that will be replicated once we reverse-engineer the human brain. According to this view, the human brain is a biological computer. It follows that, if consciousness seems to be a property of a biological computer, then any other kind of computer able to fully replicate the functioning of the brain would be capable of consciousness.

Those who believe in this possibility are defenders of a technology-based new era of evolution: machines will not only be able to replicate all human qualities, but will merge with humans and generate a new species of super-intelligent beings. This merger, together with the exponential speed of technological advancement, will eventually alter the very nature of reality, resulting in a technological Singularity (Kurzweil [2005]).

There are many advocates of Strong AI. Marvin Minsky (1990) and Ray Kurzweil (1999, 2005, 2006) stand as two of its major representatives. According to John Searle (1980), Strong AI refers to "the claim that the appropriately programmed computer literally has cognitive states and that the programs thereby explain human cognition" (Searle [1980], p. 417). There are two main ways in which AI could achieve this goal. The first is based on programming that tries to represent the symbolic structures of human minds; the second is based on the study and artificial replication of neural networks within the brain.

Minsky (1990) refers to the effort of trying to achieve Strong AI through symbolic research — the "top-down approach", and of trying to achieve Strong AI through connectionist research — the "bottom-up" ap-

proach. The first strategy would depend highly on interpretation, context, and self. The second depends on nothing but decoding the functions of neural networks and programming artificial ones. Therefore, the symbolic approach in AI has been vanishing, while the connectionist approach has continued to prosper.

Bringing attention to the symbolic limitations of AI, Searle (2002) has compared the Chinese Room Argument to what happened with Deep Blue. When beating Kasparov, Deep Blue was not playing chess, because the concept of chess has symbolic layers of meaning attached to it. The computer could not possibly have access to the symbolic level of a chess game, given that "the symbols in the computer mean nothing at all to the computer" (Searle [2002]). So, while Kasparov had an understanding of chess based on its symbolic meaning, Deep Blue was merely performing a function which was programmed to arrive at decisions based on calculations regarding possibilities.

Searle's view represents the Weak AI approach, which relies on the uniqueness of our aesthetic, religious, philosophical, and deep symbolic/archetypical levels to rebuke the possibility of all-mighty programming and nano-engineering. Roger Penrose (1989, 1994) and William Dembsky (2002a, 2002b, 2007) are also defenders of Weak AI, although in different manners.

The controversy surrounding this debate is so wide, that even within the same approach there are important epistemological differences. Searle and Penrose are both connectionists and would represent the equivalent, in neuroscience, to proponents of the "bottom-up" approach in AI. So, while Searle and Penrose both stand up against the possibility that machines could fully replicate mind, they seem to believe that consciousness is an emergent property of the biological neural networks within the brain.

According to this view, the mind is a biological system's property. The main argument against Strong AI would then be that only biological systems can possess emergent properties of consciousness. Connectionists understand that consciousness is a property of a certain level of biological complexity. Strong AI proponents understand that once computation achieves this certain level of complexity, artificial consciousness will emerge. There are similarities in both approaches.

Dembsky, on the other hand, believes that reducing consciousness to a complex property of a biological neural network would be equivalent to the reductionism practiced by proponents of Strong AI. He states that "...nothing I have seen to date leads me to believe that intelligence can properly be subsumed under complexity or computation" (Dembsky [2002b]). In Dembsky's perspective, wherever there is a first person, there

is a non-reducible entity. The uniqueness of this subjective first person cannot be artificially replicated. Mind cannot be a property of matter according to Dembsky (2007), because all properties of matter would have to be material, since they come from matter in the first place. David Jakobsen (2005) commented on the differences between the approaches of Kurzweil, Searle, and Dembsky: "Ray Kurzweil's strongest argument... is to point out the arbitrariness present in the distinctions of John Searle between silicon and biology. Thus, the question is thrown back into another domain: the old mind/matter debate. A debate where the physicalist has the upper hand these days and views like the one of William Dembsky can be defeated by calling it old fashioned" (Jakobsen [2005]).

The main difference between symbolists (such as Dembsky) and connectionists (such as Kurzweil and Minsky) is that the first approach is centered on levels of meaning, while the second is centered on levels of information. NBIC convergence adds something to this debate. Converging technologies might change the grounds of this debate by enabling direct interference from artificial intelligent agents within the systems underlying the conscious states of a first person, in Dembsky's sense.

The main focus of the debate might change from determining the possibility of Strong AI to establishing the possibility of hybrid forms of intelligence, whose sense of self-awareness is either established through, or mediated by, artificial agents. AI is a product of the biological evolution of human intelligence; however, through NBIC convergence, it will most certainly enhance human intelligence in a new sort of hybrid biological evolutionary process.

Consciousness remains grounded as well as limited to a biological platform; however, cognitive nano-applications have the potential to artificially enhance and alter conscious states. Given the fact that these nano-agents are endowed with artificial degrees of intelligence, a principle of hybridization is directly established between mental processes and artificial intelligence. This hybrid interface would simultaneously pervade mind and matter.

The ways in which the nano-artifacts and neural cells interact are informational. A shared continuum of information and meaning thus represents the framework in which structures of hybrid systems of intelligence could be formed. All cognitive and mental processes have to do with the processing of information and the attribution of meaning. Consciousness is always about perception, perception is always about interpretation, and interpretation always refers to information. Matter is not only a vehicle of information, but embodies, in itself, physical patterns of information. In the context of NBIC convergence, the informational nature of reality becomes evident (Floridi [2007a]).

The fact that we have been experiencing recently the rise of soft-materialism (Dembsky [2007]) is explained by the emergence of a revised materialism based on information. According to the soft-materialist view, if we can decode reality, we can recode ourselves. And, since mind has an informational relation to matter, it thereby follows that, if we decode matter, it will eventually lead us into mind. NBIC convergence is being heralded as the knight-in-shining-armor that will lead us in the conquest of mind by unlocking all “programming” secrets of matter. This is the “bottom-up” approach to AI.

Aside from all differences between the approaches stands the relationship between mind and matter as being informational at its core. In this context, symbolists such as Dembsky and connectionists such as Searle, Penrose, and even Kurzweil and Minsky find a common ground. Biological evolution could possibly be converging with technological evolution because, if all matter is informational in its essence, and if information determines the structural designs of matter in all its forms, biology and technology are therefore information-based processes which share a common semiotic nature. A level of convergence seems to exist between the symbolic and the material levels of reality, based on intersemiosis.

Digital Levels

There are other levels of convergence between the biological and digital realities. AI is behind the development of Floridi’s philosophy of information (Floridi [2002]), which interprets NBIC technologies as forming elements of an information-based, all-encompassing environment — the infosphere. Within such an environment, permeated by intelligent processes, all beings and things acquire an informational ITentity. The philosophy of information interprets the ontological impact of AI and the “intelligitification” of external reality (Floridi [2007b]).

Advances in RFID (radio-frequency identification) technologies allow any physical object to acquire an informational identity, that Floridi calls ITentity(2007b). These very small RFID tags are microchips that can be incorporated into living and non-living beings and objects, and provide Wi-Fi access to the Internet. This type of technology makes possible a new expanded hybrid network of digital and biological informational entities, one that is not restricted to any computational platform, but expands into the surrounding environment, configuring an infosphere. In this infospheric network, human consciousness relates and interacts with AI agents, forming new hybrid networks of collective intelligence. This combination between human intelligence and AI is expressed by the concept of inforg — informational organism(Floridi [2007b]).

Assuming that, by applying RFID technologies to objects, it is then possible to confer to each object an ITentity (and that this digital inforg possesses a certain degree of AI, being able to communicate and interact over the Net), then an “intelligentification” of things occurs. Beings acquire properties of electronic devices (digital expansion of human cognition) and electronic devices acquire properties of living creatures (intelligence and communication). NBIC developments are making the boundaries between on-line and off-line, digital and non-digital, become less and less clear. Floridi’s ideas point to a convergence between the multiple levels of reality in terms of the convergence between online and offline: be it digital or genetic, everything is code, everything is information — and, if everything is information, everything communicates. Multiple levels of reality are being digitally connected and expanded.

The development of information technologies literally creates new levels of reality, when modifying and expanding the cognitive reach of human consciousness. Cyberspace and Virtual Reality (VR) are digital immersion environments which can also be interpreted as parallel realities in the expression and flow of human consciousness. The complex interactions connecting AI agents and human agents modify the structure of reality itself, which seems to be constituted more and more by a technological mix between ever more integrated levels of reality. Digital becomes the common language uniting organic to non-organic.

The digital expansion of human cognition is analyzed by Floridi (2007b) in its external aspects, such as the establishment of an infosphere. Ascott (2003) also addresses this issue; however, his analysis is centered on the internal realm of human experience, by placing consciousness at the core of his research. He presents the idea of convergence between the levels of reality through the concept of Moist Reality: an inorganic, digital, Dry Reality *vs.* an organic, biological, Wet Reality. He grants cyberspace the status of a level of reality of its own. In this cyber level of reality, human cognition is augmented digitally. This electronically enhanced cognition he calls cyberception. Cyberception is about the convergence of new conceptual and cognitive aspects of human consciousness, triggered by the hyper-connectivity of cyberspace (Ascott [1994]). The concept of Moist Reality, formed by the coupling of the “wet” dimension of biology to the “dry” dimension of digital technologies, is very close to the concept of infosphere. Ascott identifies new forms of “artificial consciousness” emerging from these new forms of interaction between man and machine.

Another important point of contact between Floridi and Ascott is that it becomes more and more difficult to distinguish man from non-man in the universe as a whole. Hybrid cognitive interfaces between human and artificial intelligence are simultaneously internal and individual

(neural) and external and collective (infosphere). The basic differences in the essence of organic and inorganic attributes start to be effaced by NBIC convergence, giving rise to a new ontological perspective of unity in diversity. This perspective is transdisciplinary and portrays converging technologies as the main element of a new philosophical ontology based on dynamics of information and meaning.

Information vs. Meaning

Information pervades every level of reality, be it material, mental or emotional. It can be considered as embodied in any type of pattern that could be perceived by, interpreted and transformed in, other patterns (LIP [2005]). Patterns are only patterns in relation to an observer. While symbolists focus on the observer and on interpretation, connectionists focus on information structures, processes, and dynamics. The cognitive hybrid interface between the neuron and the nano-artifact is informational at its core. When it comes to hybrid systems of intelligence, the focus shifts toward the interface connecting the symbolic level of the very first person to the material level of information processes, be they biological, cognitive, or digital.

Informational Realism and the theory of LoA (Levels of Abstraction) inform us that reality might be understood in terms of information structures (Floridi [2007a]). The Epistemic Structural Realism (ESR) and Ontic Structural Realism (OSR) both refer to informational structures as being the main instruments of knowledge acquisition. ESR implies that only through observing the informational interfaces between structures and systems can we understand reality. OSR, by the same token, states that we can only reach the essence of a given object via its informational structure. According to OSR, all structures are informational. Therefore, reality is about structure and structure is about information.

Still, Informational Realism does not account for either meaning, or interpretation. The analysis made by the philosophy of information is strictly constructionist and could be aligned with the connectionist approach to mind. It is centered on the material aspects of reality: matter is information, so all information is material. According to the philosophy of information, mind is an (informational) property of an (informational) system. It follows that, if matter is information and all information is material, then the mind would also be material. This approach seems to fall into Dembsky's category of soft-materialism, representing a new kind of soft-reductionism based on Informational Realism. Meaning is left out of this equation because it cannot be reduced to an object with an external

independent existence. Meaning is always formulated by a first person. Meaning is always relative to a first person.

The interface between matter and mind has data, information and meaning as its main elements. The mind only achieves knowledge (*i.e.*, meaning) through the processing of information, information only gets to the mind through perception, and perception interprets data in order to deliver information to the mind. As we can observe in Nitecki's (1993) elucidative representation in Figure 1, what connects matter to mind is a continuous flow of data, information, and knowledge (meaning):

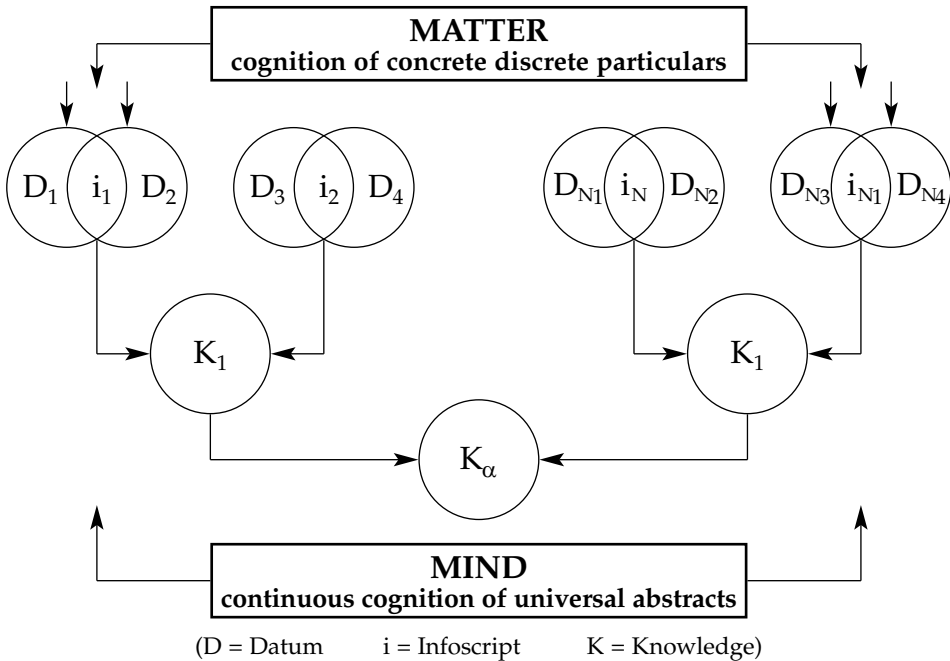


Figure 1 — Continuity between Matter and Mind (Nitecki [1993]).

The flow of information, being intrinsically connected to the flow of knowledge, is still not responsible for it. So, while it is intrinsic to intelligence, information it does not account for intelligence. While meaning is always achieved through information, it is not reducible to information. The concept of infosphere does not encompass the dimension of meaning. Theories of information, however useful to the study of information processes, are not sufficient to the study of meaning. Having thus recognized the limitations of the mathematical theories of information such as Shannon's, and also of the philosophy of information in the analysis of hybrid cognitive interfaces between mind and matter, we move on to exploring wider theoretical perspectives.

Semiosis & Meaning

The concept of semiosis was developed by C.S. Peirce in the context of his semiotics, the general theory of signs, where it was defined like this: "All dynamical action, or action of brute force, physical or psychical, either takes place between two subjects (whether they react equally upon each other, or one is agent and the other patient, entirely or partially) or at any rate is a resultant of such actions between pairs. But by 'semiosis' I mean, on the contrary, an action, or influence, which is, or involves, a co-operation of three subjects, such as a sign, its object, and its interpretant, this tri-relative influence not being in any way resolvable into actions between pairs" (CSP, vol. 5, § 484).

Semiosis, the action of the sign, is the action of being interpreted in another sign. Perception is the door through which signs reach mind, being transformed into meaning by means of the translation of one sign into another. This movement of sign as it goes from perception to interpretation is implied in semiosis. Although it is possible to visualize the mechanisms of perception, it is not so easy to visualize semiosis. While perception is about recognizing patterns of information, semiosis is about the symbolic meaning which will be attributed to them. Without transformation, there is no semiosis. Pattern recognition is transformed into meaning through semiosis — but exactly where and how does it happen? Santaella ([1998], p. 22) calls this question "the problem of perception", which goes beyond the mere reproducing and copying of patterns of information; it is mainly about continuous interpretation.

As the interpreting process does not necessarily imply its embodiment in a human mind, but may be performed by any subject with the capability of translating one sign or any signal into another, the concept of semiosis was incorporated by biologists. For these, semiosis can help us answer several questions in biology, especially those concerning interpretation and meaning, with which the quantitatively-oriented mathematical theory of information cannot cope (Emmeche [1991]), Emmeche and Hoffmeyer [1991], Hoffmeyer and Emmeche [1991], [1999]). Hence, semiosis fills the gap between information and meaning by encompassing the first person and also intentionality. Brier (2006) describes the semiosis in living systems in the following manner: "Molecules are composed of sequences of atoms and make three-dimensional shapes. They interact informationally through formal causality. Macromolecules are composed of minor molecules often put in sequences. Cells interpret the molecules as coded signs and interact with them through final causation in semiosis" (Brier [2006], p. 35).

Concerned with the relationships between life and meaning and the symbolic structures of living semiotic systems, biosemiotics considers that “the evolution of life is not only based on physical, chemical, and even informational processes, but on the development of semiotic possibilities” (Brier [2006], p.35). Kull (1998) states that semiosis: “...could be defined as the appearance of a connection between things, which do not have a priori anything in common, in the sense that they do not interact or convert each other through direct physical or chemical processes. However, as far as the relation between them, once established (by a subject), is nevertheless intermediated by physical or chemical processes, this infers that the relation is semiotic as long as it is established through learning” (Kull [1998], p. 6).

In sum: semiosis is the general technical term to cover the semantic field of terms such as intelligence, mind, thought — which can no longer be considered as privileges of the human kind. Whenever there may be a tendency to learn, toward self-correction processes, changes of habit, wherever there may be goal-directed actions, there will be intelligence, wherever it may occur: in the pollen-grain which fertilizes the ovule of a plant, in the flight of a bird, in the immunological system, or in human reason. Hence, semiosis has to be understood side by side with concepts such as morphogenesis, teleonomy, autopoiesis, dissipative structures, self-organizing systems, as well as with the contemporary cybernetic concepts that have been studied by the new discipline of cybersemiotics.

In that context, hybrid mind-matter interfaces denote a progressive convergence between biosemiotics and cybersemiotics, given that biological decoding engenders AI's binary coding. Whenever biology is the object of research, then we must decode. Living structures must be decoded in order to be understood, manipulated, and replicated. Whenever digital technology is the object at hand, then we must codify. Digital structures must be codified so they may come to existence as functional systems. The deeper we decode biology and the better we codify digital technology, the closer we move to a single underlying code, which gives rise to new levels of semiosis. It is possible to infer that biology is also digital in its essence: “Information technologies have been considered... as extensions of man. However, the transformation of the human body has consequences also on the cultural human environment. Under these premises, human beings are seen as part of a complex system of natural and artificial messages that function on a digital basis. In this sense, the human body can be seen as data” (EGE [2005], p. 27).

It is therefore possible to understand hybrid interfaces in terms of the interplay between data, text, and messages. An organism would be a genetic message composed of a DNA text, which is translated into a body.

A digital artifact would be a technological message composed of a software text, which is translated into a functional structure. Digital or not, semiosis is a continuous translation that travels across multiple levels of reality. Semiosis is material and symbolic at the same time. It encompasses simultaneously a material vehicle and a symbolic meaning. Semiosis carries the force of evolution, the force of movement and change. On many different levels of reality, one can find semiosis at work: it is through semiosis that trees experience growth, concepts experience development, systems experience evolution. There are layers of sign action permeating the material systems.

According to Kull, semiosis is "a process of translation, which makes a copy of a text, suitable to replace the original text in some situations, but which is also so different from the original text, that the original cannot be used (either spatially, or temporally, or due to the differences in text-carrier or language) for the same functions" ([1998], p. 4).

Semiosis is what happens at hybrid cognitive interfaces between matter and mind: a back-and-forth dynamics of digital translation and symbolic interpretation from one level to another.

Peirce was the first to develop the notion of a naturalist semiotics, which considers the universe to be perfused with signs. This universal nature of semiosis has a lot to say about the merger between the fields of biology, cognition, and artificial intelligence (Santaella [2004]). This semiotic merger occurs around the concept of effete mind, a concept to be understood in the context of Peirce's synechism.

Peirce: Continuity & Effete Mind

Synechism is defined as "that tendency of philosophical thought which insists upon the idea of continuity as of prime importance in philosophy". The continuum, on its turn, is defined as "something whose possibilities of determination no multitude of individuals can exhaust" (CSP, vol. 6, § 169-170). A rudimentary form of continuity is generality, since continuity is nothing but the perfect generality of a law of relationship (CSP, vol. 6, § 172). Besides the development of his synechistic ideas, Peirce also gave ample thought to tychism or absolute chance. The latter was proposed because he considered the mechanistic and deterministic explanation to be insufficient in the light of his doctrine of categories (Santaella [2001]).

For Peirce, if given a choice between Cartesian dualism and some variety of monism, philosophy must adopt the latter. There are three possible directions in which monism can be developed: (a) neutralism, which

takes physical and psychical laws as independent of each other and stemming from some third *Urstoff*; (b) materialism, which takes the psychical laws to be derived from the physical, and (c) idealism, which takes the physical as derived from the psychical. Occam's razor guided Peirce against neutralism and the first principle of scientific thought — *i.e.*, do not resort to the ultimate and inexplicable as an explanation (CSP, vol. 6, § 24) — guided him against materialism. Objective idealism is the only rational alternative: matter is effete mind. The main interpretation of the concept of effete mind associates it to living matter (Mladenov [2003]). Still, Peirce never restricted this notion to a particular kind of matter. Universal semiosis is implicit in his principle of continuity (Rosa [2003]), which is the basis of his doctrine of synechism.

If matter is effete mind and the physical laws are derived from the psychical, there is only one kind of stuff in the universe and that is mind; the great law of the universe is that of the mind. What is the law of mind? It is the tendency to generalize and to form associations which is also the tendency to form habits, itself a habit (CSP, vol. 6, § 612). What Peirce found out in nature and in thought is a general tendency of possibilities or chance events to turn into sequences of events that coalesce by taking habits. This is relational generality from which dynamism and growth generate. The prototype of this tendency is in the human mind, in the way ideas are associated in our minds which is analogous to the probabilistic laws of nature (Hulswit [2000], p. 7).

Thus, his monism on mind or objective idealism is not just an inversion of the physicalist conception of mind according to which mental states are simply physical states. What Peirce asserted is that all of reality, in an infinite series of differentiations, is governed by the law of mind. He did not mean that matter has the substance of mind, neither "substance" in the old sense of a thing, nor in the modern, chemical sense.

Objective idealism transcends Plato's duality between matter and form, by interpreting matter as a product of an all-encompassing Mind (Hegel, Schelling, Fichte). The greatest objective idealist was Hegel, who saw reality as an expression of a continuous Absolute, in which there can be no true separation between levels. Hegel described the Absolute in terms of an underlying unity made of continuous movement and change. Hegel's concept of the Absolute is implied in the contemporary idea of a semiosphere: "All semiotic space may be regarded as a unified mechanism (if not organism). In this case, primacy does not lie in one or another sign, but in the 'greater system', namely the semiosphere. The semiosphere is that same semiotic space, outside of which semiosis itself cannot exist (Lotman [2005], p. 208).

Lotman's "greater system" — semiosphere — is absolute continuity from one level of reality to another. There is a certain correspondence between Peirce's principle of continuity and the continuous state of change characterizing the Hegelian (Absolute) unity of matter and mind within a semiosphere. Peirce's law of mind, being based on synechism (continuity) and tychism (absolute chance), also shows a clear resemblance to contemporary scientific quantum theories.

Nicolescu (2005) has pointed to striking correspondences between the Peircean concepts and quantum physics: Peirce's concept of Primacy relates to quantum events; tychism relates to non-determinism and quantum mechanics; the idea of continuity relates to the bootstrap theory; Peirce's atomic theory relates to the string theory. Also, according to Nicolescu (2005), there are yet other correspondences between classical physics and the Peircean concepts, such as the time-space continuum corresponding to Peirce's category of Secondness, and cosmic evolution corresponding to Peirce's concepts of Thirdness and Final Causation.

Other correspondences are to be found in Nicolescu's *Logic of the Included Middle* (Nicolescu [2001]), which unites the physical levels of reality (in this context seen as data, as information) to the ideal levels of abstraction (symbolic meaning). According to the *Logic of the Included Middle*, in every relationship involving two separate levels of experience, there is a hidden third that belongs simultaneously to both. In accordance with the *Logic of the Included Middle*, if there is a converging point T between A and Non-A (Nicolescu [2001]), the point connecting the info- to the semio-sphere, digital to non digital; human intelligence to AI seems to be hidden in the third realm of continuous semiosis. Complexity is the context in which continuous semiosis takes place, enabling convergence among levels.

The *Logic of Included Middle* points to a principle of continuity between multiple levels of reality and to the underlying level of convergence between them. The digital fluidity of virtual worlds, where information configures multiple sensory realities through one same binary code, is a powerful metaphor to the physical fluidity of the material world, where one same dynamic polarity of quantum wave to particle configures multiple bodies, shapes, and environments.

Complexity can be found in all these levels and inter-relations. Information technologies act as a platform and a pertinent metaphor to the *Logic of the Included Middle*: the perceptual dematerialization of reality is not only physical, but digital as well. The perception of multiple levels of reality occurs in the quantum space as much as it does in the cyberspace and nanospace. Peirce's idea of a continuous semiosis deeply resonates to Nicolescu's of continuity among the multiple levels of reality, especially concerning the continuity between mind and matter.

Quantum Approaches

Hybrid cognitive interfaces are complex and function as non-linear systems, given that they are mediated by converging technologies. In fact, hybrid interfaces bring about a conceptual revolution (Thagard [1992]) which is very similar to complexity, because both portray matter as a flow of information. The unity of matter in NBIC is made possible by nanotechnology's mapping of informational flux, which is then re-configured by nanodevices. The flow of quanta can also be interpreted as a type of information flow. This is not only a metaphor, because, if a flow of information is always material in its embodiment, and if there is a quantum level in all forms of matter, then we might deduce that information lies at the very quantum heart of matter. NBIC convergence only makes it more evident.

Hybrid interfaces connecting nano-artifacts to neural networks are open gates between mind and matter, as they are platforms of complex digital interaction within the biological (neural) informational processing networks. Artificial intelligence within converging technologies is mostly based on non-linear computation (Bernstein *et al.* [2006]). Complexity is omnipresent in the semiotic integration of hybrid interfaces. Complex properties such as uncertainty are found in all levels of matter. Connectionists believe that the mind is an emergent property of biological complexity (Searle [2002]; Penrose [1994]), and that all processes of evolution are a consequence of the increase of complexity among the various layers of information (Kurzweil [2005]; Minsky [1990]).

The non-linear principles of computation bring about yet another approach to the mind-matter relationship. We have described in this paper the perspectives of pan-informationalism (an all-encompassing infosphere) and of pan-semioticism (an all-encompassing semiosphere). Both represent new ontologies. There is yet another perspective, however, that quantum scientists like David Deutsch (2003) and Seth Lloyd (2006) are currently developing, which is the view of pan-computationalism (Dodig-Crnkovic [2006]) — an all-encompassing universal matrix. According to this view, reality is established by the continuous and complex universal processing of information.

David Deutsch states that “the world is made of qubits” (Deutsch [2003], p. 13). Deutsch's hypothesis “It from the Qubit” (Deutsch [2003]) is a quantum computational version of Wheeler's hypothesis “It from the Bit” (Wheeler [1990]). Wheeler is a pan-informationalist; Deutsch is a pan-computationalist. Seth Lloyd (2006) is another. His approach is similar to Kurzweil's (2005), in that he stands in favor of Strong AI and believes that, in theory, anything already is, or may become, a quantum computer.

Quantum computation would make hybrid interfaces between mind and matter even more pervasive and porous than what any kind of nanotechnology could make. In the context of hybrid cognitive interfaces, the evolution in quantum computation would represent a shift from a mediated non-linear dynamics within nano-artifacts to a direct quantum programming within hybrid cognitive structures.

Conclusion

The essence of reality lies hidden in the intersection of life and its material platform, of intelligence and its vehicle; of mind and its material embodiment. NBIC convergence begins to approach this complex interface. We are witnessing the emergence of a technontology (Lemos *et al.* [2007]), that operates, within the context of transdisciplinarity (Nicolescu [2001]), a new kind of ontic convergence.

We are unveiling the hidden codes and structures of matter; penetrating underneath the surface of what seems solid and finding out how fluid matter really is. Nature seems more and more to operate according to an ensemble of codes, much like the codes that enable computer technologies. Nature is literally a “system of systems”, so we find ourselves as “systems within systems” (Bunge [2003]). We can only approach levels in relation to systems, be they material or conceptual. It is the nature of the code which gives structure to all systems and determines the boundaries of each level of reality.

Previous boundaries between the levels of reality become permeable; thus, the lines separating the levels of reality begin to blur. The only line of separation which seems to remain is found in the juxtaposition of mind and matter. Mapping the interface between mind and matter is probably the greatest scientific challenge of our times. However, even the distance between the cognitive and the material levels of reality becomes shorter in the context of converging technologies.

Hybrid cognitive interfaces represent a possible new level of convergence between matter and mind. Converging technologies act as a bridge between natural and artificial systems of information processing. Such cognitive integration is technological and is happening on many levels simultaneously, as can be seen, for example, in the interactive behavioral patterns of populations in digital virtual worlds (Ascott [2003]); in the “intelligentification” of objects through RFID technologies (Floridi [2002]); in the biologically-inspired nano-robotic cognitive architectures (Bernstein *et al.* [2006]); finally, in the possibility of direct quantum computation and programming within all kinds of material structures (Lloyd [2006]).

Technological convergence is taking place at an accelerating speed (Kurzweil [2005]) and it is changing our inner and outer landscapes. The concepts of information and meaning are omnipresent in this process. Convergence happens through a process of simultaneous coding and decoding. The evolution of AI is of particular importance in this context, because through the engineering of artificial systems that can act according to rational principles, a new kind of reductionism appears. Intelligence could a priori be reduced to a computational capacity, resulting in the controversy around the possibility of Strong AI. Introducing AI elements into nano neural applications is the seed of hybrid forms of intelligence, which would be mediated or established through NBIC integration.

Intelligent artificial interference within the biological systems establishes a principle of trans-interoperability between the organic and the digital levels of reality. In order to perform a common task or function, trans-interoperability between the biological and the non-biological systems allows communication and therefore enables active interference across levels. Trans-interoperability expresses technologically what Peirce's principle of continuity expressed ontologically through universal semiosis.

Peirce's universal semiotics, together with Nicolescu's Logic of the Included Middle, emerge as crucial theoretical standpoints in the study about the new hybrid interfaces between mind and matter. Peirce's law of the mind represents, to the study of mind, what quantum theories represent to the study of matter: a dramatic upheaval and a serious challenge to the materialistic conceptions which are the basis of reductionism.

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Is There a Hierarchical Consciousness? Individual, Social, and Cosmic Consciousness*

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Introduction

In this contribution, the authors do not aim to give a positive or negative answer to the question whether there is a hierarchical consciousness or not; instead, they want to suggest a methodology that can help in the process of assessing it. The methodology they suggest is the systems methodology, which is a methodology of enquiry with both scientific and philosophical foundations. The systems methodology provides general knowledge outcomes that can be applied for representing consciousness as an input/output process. With this model of representation, consciousness can be investigated as an ongoing process where both the external and the internal contexts are part of the process and determine the outcome. At the level of human organization, consciousness can be represented as a decision-making process at both individual and institutional level. Within a reductionist view of reality, a model of secularized consciousness can be provided. Instead, within a systems view of reality, a model of sapiential consciousness can be constructed, where wisdom components can be added and a more integrated and transdisciplinary system consti-

* Originally presented at the 2008 Metanexus Conference, "Subject, Self, and Soul: Transdisciplinary Approaches to Personhood", Madrid, July 13-17, 2008; published in electronic form on the Metanexus Global Spiral, www.globalspiral.com.

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tuted involving science, philosophy, and theology. With this model of sapiential consciousness in mind, it is easier to conceive of a hierarchical consciousness as a continuum pervading all levels of reality organization.

Systems Methodology

The systems paradigm as an epistemology can help in representing a model of consciousness that is useful for yielding insights on its own very nature. The systems paradigm recognizes four principles that explain reality in its essence (both material and immaterial): hierarchy, emergence, communication, and control. Hierarchy is able to explain reality as a system of systems, whose main characteristics are openness and connectedness. Emergence denotes an evolutionary state of reality which manifests itself as creativity, *i.e.*, the occurrence of novelty (emergence) in its becoming. There are many levels of organization. Each level produces (causes) a kind of realities that cannot be broken down into more basic elements. In conclusion, there is a pluralism of realities and properties, corresponding to regional ontologies.

Communication is the principle that confirms the ontological need of connecting components in the unity of the system. Control is the principle that sets constraints by a system against its sub-system components. The general framework for explaining reality according to a systems paradigm is to represent it as an unfolding, evolutionary, self-organizing universe.

Reality appears as a continuing development process characterized by a series of nested levels of organization of increasing complexity and autonomy. Autonomy manifests itself as the capacity to last in a state of dissipative structure governed by an autopoietic regime. A dissipative structure depends on its environment for “food” in the form of free energy and nutrients. According to Jantsch (1980), if consciousness is defined as a degree of autonomy that a system gains in the dynamic relationships with its environment, even the simplest autopoietic system such as the chemical dissipative structure is a primitive form of consciousness.

Human Consciousness According to Biology

In biological terms, human consciousness is a product of evolution — a nested hierarchy of primary and higher-order consciousness. These two types of nested consciousness correspond to kinds of nervous system organization that are important to understanding how consciousness

evolved (Edelman [1942]). Primary consciousness has evolved to take care of the bodily functions in such a way as to establish correct performances of the physiological processes in the living environment. Primary consciousness is unconscious action and it is also typical of the animal world. Higher-order consciousness was later developed through social and linguistic interactions on the basis of primary consciousness.

As sustained by many philosophers and scientists nowadays (Searle [1992]; Sperry [1995]), we can explain the mental phenomena (especially consciousness) that reject both the reductionist and the dualistic approach. We can better explain mind and its properties by adopting an holistic epistemology in which the mind “emerges” out of the neurons and cannot in principle be found or predicted by analyzing each neuron or the interactions of their individual properties at any level. In other words: there are more levels of organization than are at work beyond the subatomic parts: mental phenomena — like consciousness — are caused by the neurophysiological processes of the brain, but they are a higher-level feature of the entire neural system.

In the opinion of J. Searle, consciousness is caused by the lower-level elements and is simply a higher-level feature of the entire neural system. This system has both intentional and non-intentional mental features, and they express an ordinary biological function of the brain, exactly like other biological features, such as photosynthesis or digestion. In this sense, the mental is just another physical property. But consciousness is nevertheless an irreducible feature of the physical system. Although consciousness is a biological process caused by lower-level, neural patterns in the brain, it has a characteristic irreducible to anything other than the mental: it has subjectivity, the first-person experience, that cannot be explained by the third-person phenomena. For Sperry (1976), consciousness acts downwardly in regulating brain events. In this sense, mental forces exert a regulative control in brain physiology. Mental events are causes of the neural process and not mere products of the brain process. They are real and causal as subjective qualities and are of different qualities than the material components they are built of. Thus, they are not reducible to their physiochemical components. Subjective mental phenomena are united with objective cerebral events in a single unified continuum in the brain.

Consciousness, according to non-reductionists, is as real as the neurons are; it is an irreducible feature of reality. We assume that the mental is not a problem at all since it is merely another emergent feature of the brain. The mental, the biological, and the physical are all simply parts of one natural order, not a separate category of reality.

There exists an interdependence between the parts and the whole: the brain physiology causes mental effects and the mental phenomena

in turn influence the physiology causally. In this perspective, whole and parts are both real; the properties of the parts are themselves in turn holistic properties of subsystems at a different level. The hierarchy of increasingly complex physical systems exhibits a diversity of emergent properties at different levels that include the mental properties of the brain-mind system as part of a monistic natural order. In this perspective, lower levels cannot capture the higher-level activity, while the higher levels can affect the lower ones.

At this point, we can ask several questions: are human values (aesthetic, religious, ethical) a non-eliminable causal factor? Have subjective values real consequences in the brain? With an holistic perspective of mind, the question whether subjective experiences have real power over the organic world has a positive answer. In other words: the brain causes mental effects and the mental phenomena, in turn, influence the brain physiology causally.

This holism implies a degree of independence of the mental phenomena from the brain and its physiology. Self-consciousness represents the core of subjectivity which is suspended between the past and the future and manifests intentionality. Intentionality is an attitude of openness towards the external world and the base for inter-subjectivity. In this framework, consciousness represents a microcosmos as a product of complexity. But *why consciousness* actually emerges at all remains as unexplainable as *why the being* exists at all. This question of the existence of consciousness as the ultimate reality concerns the philosophical and theological domain: why does man have a self-consciousness? What is its significance and place in the universe? These are problems that overlap the field of science and concern the philosophical and theological domain.

Consciousness According to a Systems View

The human consciousness of both the individuals and the institutions generally provides the ability to draw information from the context, to elaborate knowledge, to organize understanding, to make judgments and to decide to act for modifying the context of life. Consciousness is a relational function that could also be named “a decision-making process”, which begins with the learning from the environment and ends up with acting upon the environment. Consciousness is life and action is its driving force. The context of life is continuously modified by human action. The human beings intentionally construct their world through action and, in doing so, they construct their consciousness. The meanings transferred to the environment with the newly constructed things and the

new changes produce new information and consciousness. The new experiential knowledge to feed consciousness is gained from the outcome of our action.

Consciousness as a decision-making process at different hierarchical levels

As human beings, we show an existential need to know the context we live in, so we may understand the role to play in it. While the former necessity is a common task of all living organisms, the latter is unique to man, because he is free to choose his role through an act of volition in compliance with his cultural background. The relationship between the act of volition and the cultural background is a matter of internal moral coherence or responsibility for the actual consequences involved in the action after the decision is made.

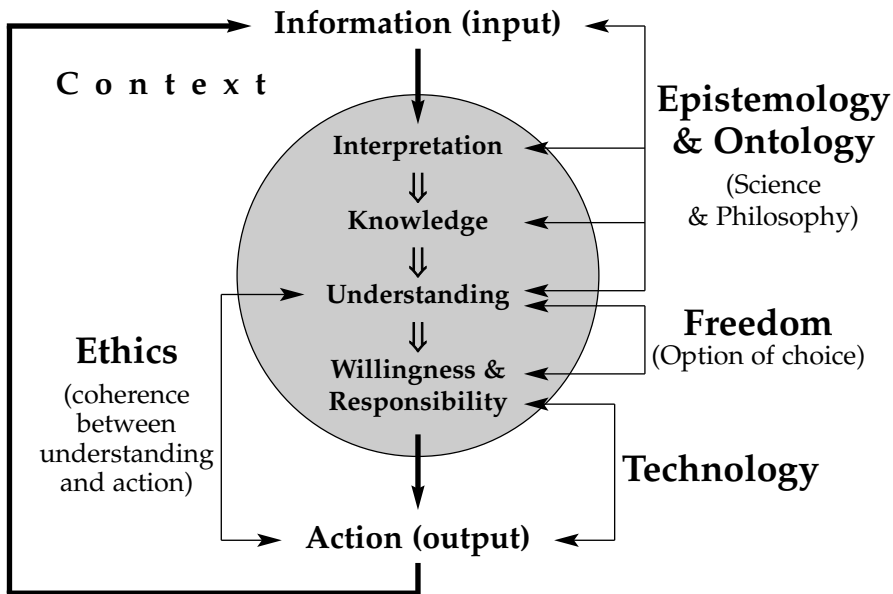


Figure 1 — The conceptualization of consciousness as a human decision-making process (components and properties)

In Figure 1, a representation is made of consciousness as a human decision-making process, where the most important components are included in a recursive cycle linking the information and action of an individual or an institution in their context of occurrence. There is a strict analogy of behavior between the individuals and the institutions and it may be said that the process of consciousness is the same at both levels of organization, that of the single individual and that of the institution as a

society of individuals. Information and knowledge flow between and within the two levels and *inform* each other, although different channels of communication and control are involved (e.g., the nervous system at the individual level and the mass-media channels at the institutional one). At the individual level, knowledge is the step in the process that moves from sensorial information and leads to meaningful understanding and informed action, thanks to the integrated functions of the brain, which elaborates the high-order consciousness typical of human beings (Edelmann [1992]). In human society, institutions make decisions and manifest consciousness through a nested hierarchy of complex tools such as laws, involving natural and legal rights, and duties stratified along the human history of civilisations. Conscious thought leads to deliberate choices and ethical behavior. This ethical behavior clearly depends on the capacity to foresee the results of activities and on the willingness to accept responsibility for the results (Mayr, [1997]). The most powerful concepts that provide the pillars for elaborating knowledge and understanding are derived as input by social institutional activities, like science and philosophy, that are transmitted through specialized institutions (school, university, church) and the ongoing mass-media. It is obvious that these institutions have a direct involvement and a responsibility in training for citizenship and professionalism that inevitably mark the cultural character of a whole society and eventually make up a civilisation.

Consciousness as a process of adaptation

The process of life with its indeterminate series of interconnected events or organismic phases requires, as a general rule, that each single organism (and species) be adapted to its context of occurrence. The relationship between organisms and environments results in a process of mutual harmonization. Every form of life is a micro-process occurring in a context of life or an environment where it manifests itself as an individual, *i.e.*, a single entity endowed with peculiar structural and functional traits. Adaptation is, therefore, a necessary condition for each organism (and species) to exist. Adaptation could be considered an *ontological learning process* or the process of conscious existence. From an organismic perspective, adaptations may be seen as organismic inventions (Sara [1989]) that improve evolutionary fitness, *i.e.*, the possibility of survival and reproduction. From a system perspective, adaptations mean more specialization, more integrated use of native resources, more coexistence, and, eventually, more biodiversity and sustainability (Aarsen *et al.* [2006]).

Consciousness as a learning process — The essence of a process of adaptation is to produce the knowledge useful for assuring survival as an

individual and a species. From this viewpoint, knowledge is an ontological property that assures a successful relationship between a living being and its context of life. In the case of human beings, where cultural evolution is nested upon and much faster than biological evolution, knowledge is produced through a self-conscious act that is known as the learning process. In his seminal account of experiential learning based on the work of Dewey, Lewin, and Piaget, Kolb defines learning as the process whereby knowledge and meaning is created through the transformation of experience. He describes the characteristics of experiential learning in five points:

- learning is best conceived as a process, not in terms of outcomes;
- learning is a continuous process grounded on experience;
- learning is an holistic process of adaptation to the world;
- learning involves transactions between the person and the environment;
- learning is the process of creating knowledge.

The first point states that learning is best conceived as a process or as a cycle of interactions between the individual and the environment. A four-stage cycle is proposed involving four *adaptive* learning modes — concrete experience, reflective observation, abstract conceptualization and active experimentation. The structural foundations of the learning process is reported in *Figure 2*, where knowledge results from the combination of grasping experience and transforming it. In Kolb's terms: "The key to learning lies in the mutual interaction of the process of accommodation of concepts or schemas to experience in the world and the process of assimilation of events and experiences from the world into existing concepts and schemas... Learning or intelligent adaptation results from a balanced tension between these two processes."

The central idea is that learning and, therefore, knowing requires both a grasp or figurative representation of experience and some transformation of that representation.

The second point states that knowledge is continuously derived and tested out in the experiences of the learner. It is just in the interplay between expectations and experience that learning occurs. Learning is a recursive process, whereby it is re-learning.

The third point stresses that experiential learning is the central process of human adaptation to the social and physical environment: "To learn involves the integrated functioning of the total organism — thinking, feeling, perceiving, and behaving. It occurs in all human settings, from school to the workplace, from the research laboratory to the management board room... It encompasses all life-stages, from childhood to adolescence, to middle and old age."

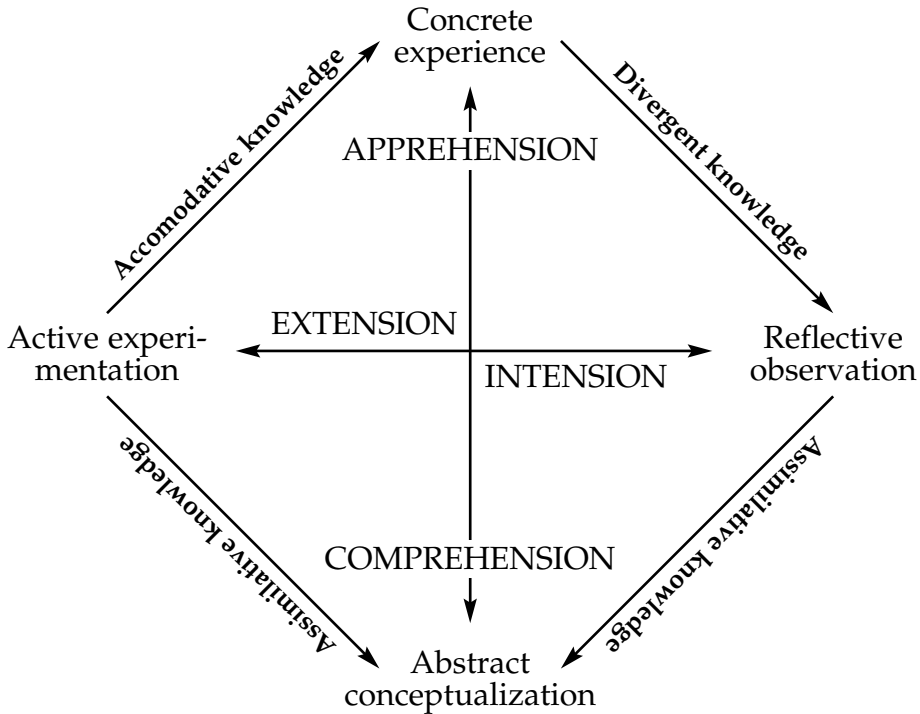


Figure 2 — Structural foundations of the learning process
(modified after Kolb [1984])

The fourth point unveils that behavior is a function of the person and the environment: $B = f(P,E)$. Behavior results from the interplay between personal characteristics and the environmental influences.

Finally, the fifth point presents the statement that *learning is the process whereby knowledge is created* through the transformation of experience. Knowledge is a transformation process, being continuously created and recreated: “Knowledge is the result of the transaction between social knowledge and personal knowledge. The former, as Dewey noted, is the civilized objective accumulation of previous human cultural experiences, whereas the latter is the accumulation of the individual person’s subjective life experiences. Knowledge results from the transaction between these objective and subjective experiences in a process called learning.

Consciousness as action — To develop and use knowledge in order to modify the context of life for better conditions of human health is what we conceive of a meaningful trait of both cultural evolution and human identity. As a consequence of human activity, the context of life acquires

new artifacts and underlies reconstructions in such a way, that a process of co-evolution between man and nature is always being developed. The notion of environmental impact just refers to the human capacity to modify the context of life with positive or negative consequences for the whole context or for some of its parts. Our context of life, or ecosystem, is a process underway, that provides all ecological services that are necessary for its habitability. Therefore, it is crucial to maintain ecological integrity, *i.e.*, the autopoietic quality of the ecosystems, in order to maintain life sustainability.

Cultural evolution or consciousness development can be regarded as the most significant characteristics of human identity. A group ethics based on decision-making is regarded as one of the most important adaptive shifts in humanization (Mayr [1997]). According to Ramel (1992), the spectacular human development over the last ten thousand years can be entirely ascribed to a cultural, not a genetic evolution. Findings on the genomic rate of adaptive evolution show that there is little evidence of widespread adaptive evolution in our own species (Eyre-Walker [2006]). In cultural evolution, acquired experiences can be cumulative and transmitted orally or in symbolic forms from one generation to the next, thus constituting an evolutionary system infinitely faster, more selective, and more efficient than genetic evolution. The storage and transmission of information has gone through a dramatic development that has resulted in practically unlimited possibilities to store and sort information by means of telematic networks and computer techniques. In general, the social learning of culture is a continuous intraspecific thread that transcends individual death and enables the cultural transfer through generations without any solution of continuity. The cultural transfer of information is therefore to be regarded as an emergent property of a structured population. Recently, research on whether the transmission of genes and the cultural traits may interact has produced a new gene-culture co-evolutionary theory (Feldman and Laland [1996]). This theory is based on the evidence that archaeological records document the fact that, for at least the past two million years, the hominid species has reliably inherited two kinds of information, one kind encoded by genes, the other by culture. The two transmission systems should not be treated independently, both because what an individual learns may depend on his genotype, and also because selection acting on the genetic system may be generated or modified by the spread of a cultural trait. Indeed, with the expansion of a cultural trait as knowledge about genetic information structure and functioning, humanity has now reached the point where it can potentially affect all kinds of genotypes, including the human one. Through the technology of the recombinant DNA, which enables the interspecific transfer

of genes, the evolutionary trends of any species can be affected. All life-planning is potentially dependent on man's decisions. In this context, man's responsibility as co-creator is fully recognized. The cultural evolution reveals itself more powerfully than expected as an adaptive process and poses a challenge to the present human generations in terms of both the ecological integrity of all the biosphere and human identity (Palumbi [2001]). It is really paradoxical that the cultural evolution or the development of consciousness, as the most striking character of human identity, reveals itself as the most risky driving force to the future of human kind and all the biosphere, whereby man must be afraid of himself.

Consciousness in the Past vs. Today's Consciousness

In modern Western society, a *secularized consciousness* is currently being constructed, with a dominant contribution of science and technology, promoting knowledge and action instrumentally oriented towards a business-driven world. In this kind of secularized consciousness, a nested level of consciousness already present in medieval times, *i.e.*, *sapiential consciousness*, is almost completely dropped. From this point of view, the evolutionary process of human consciousness has undergone a profound phase of rearrangement, if not a regression. The civic sense of the holy and the sacred is not more present in human action, as we can judge from the behavior of most public and private institutions. Connectedness with the sacred and the divine was instead the main driving force of sapiential consciousness in medieval times.

Cosmic consciousness

As Capra (2002) states, the identification of mind, or cognition, or consciousness, with the process of life is a novel idea in science, but it is one of the deepest and most archaic intuitions of humanity: "In ancient times, the rational human mind was seen as merely an aspect of the immaterial soul, or spirit. The basic distinction was not between body and mind, but between body and soul, or body and spirit. In the languages of ancient times, both soul and spirit are described with the metaphor of the breath of life."

Similarly, the concept of consciousness, as a special kind of cognitive process that emerges when cognition reaches a certain level of complexity on the scale of evolution, includes the entire process of life, therefore describing cognition as the breath of life seems to be a perfect metaphor.

If consciousness is life's awareness, and life is a cosmic event, consciousness is also cosmic awareness. This simple sillogism can be viewed

as in *Figure 3*, where the nested development of the species (phylogenesis) and of each single individual life (ontogenesis) emerge from within the cosmic background on a spatial and temporal scale. At the same time, each single cycle of individual life includes the basic patterns of process and material organization already selected and established in the past steps of evolution. In each ontogenetic process, not only phylogenesis is subsumed, but also cosmogenesis.

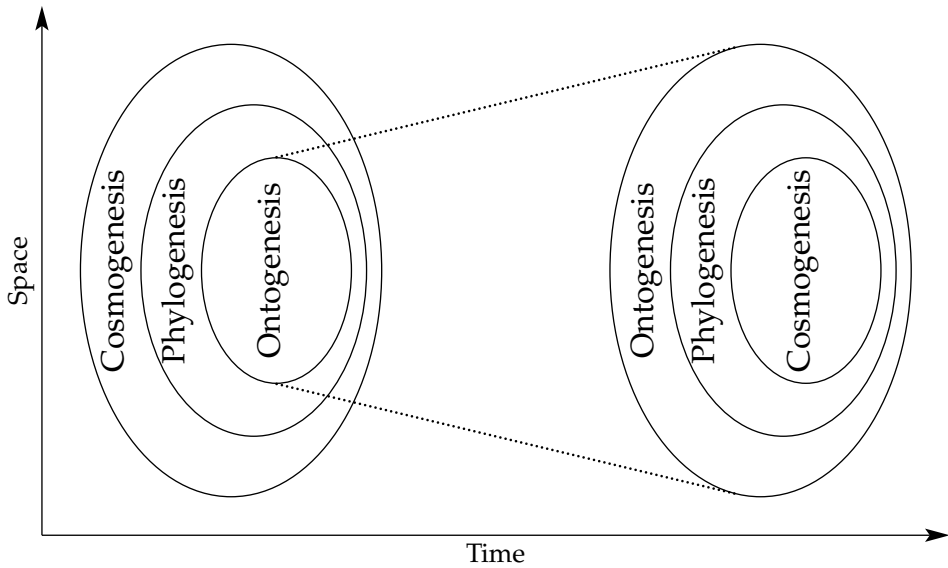


Figure 3 — The contextualization of life development and consciousness

With the modern separation of knowledge into different disciplinary fields, the final and formal causes of knowledge as defined by Aristotle have been excluded from conventional scientific enquiry. As a consequence, objective knowledge based only on the search for efficient and material causes has produced a secularized consciousness and an attitude towards conferring values and meaning only with respect to the material aspects of reality. In a systems view, recovering formal and final causes in an attempt to construct a coherent view of reality as a whole, becomes an inherent need of epistemological enquiry.

In a systems view, all things (material and immaterial) are connected from the very beginning of existence. If you want to make an account of reality as a whole, it is not allowed to “isolate” a thing from its context, *i.e.*, to “de-contextualize” it. If you do that, you operate in a “virtual” dimension, without any connection with reality as a whole. You do an act of “abstraction” or “mental apartheid”.

The systems map of the universe (*Figure 4*) as constructed by Checkland (1993), one of the most authoritative leaders of the contemporary systems paradigm, provides a picture of the universe where transcendental systems (beyond knowledge) are basic components and call for a search for relationship and meaning.

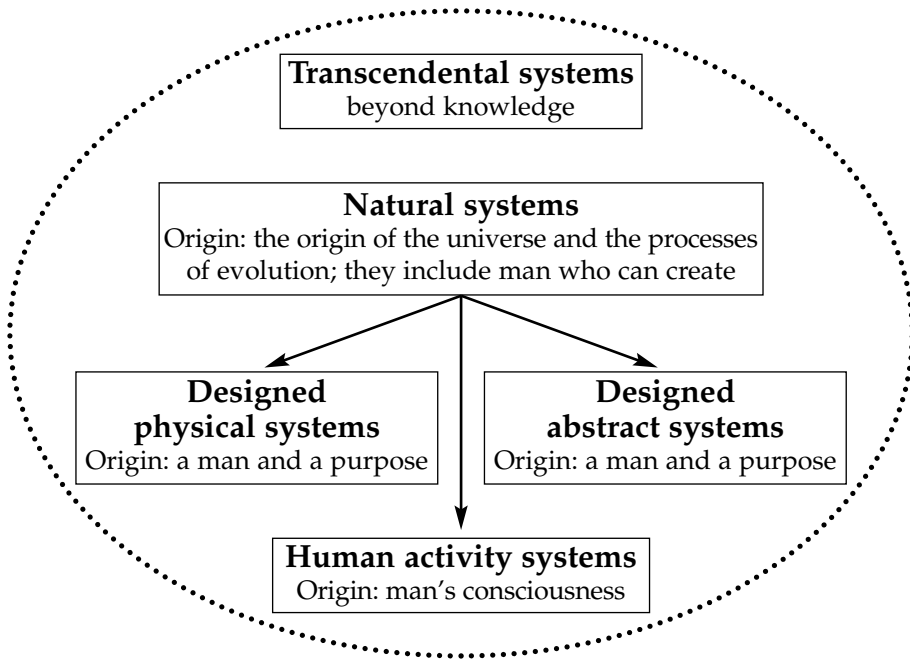


Figure 4 — The systems map of the universe (modified after Checkland [1993])

In medieval times, before the splitting of human knowledge into disciplinary fields brought about by the Enlightenment, the traditional epistemology based on the four causes of knowledge drawn by Aristotle had been more appropriate for providing a coherent frame of reference for the meaning of the universe and the role of man in it. Bonaventure's doctrine of holiness is an outstanding example of the wholeness theology, universal meaning, and hierarchical consciousness. With the inclusion of God as origin and end of the universe, human consciousness could proceed to its fulfillment through three ascending steps: *scientia* (science), *sanctitas* (holiness), and *sapientia* (wisdom). Sapiential theology is not an alternative to scientific theology, but its fulfillment (La Nave [2005]). In Bonaventure's masterpiece of theological reasoning, *Itinerarium mentis in Deum*, the process of the mind's ascent to God is articulated with the holiness as a medium between science and wisdom and with the progressive transformation of understanding through philosophical, theological, and

mystical wisdom towards a final step of consciousness evolution, which is actually union with God. Bonaventure speaks of the gift of wisdom precisely in terms of the move from knowledge to love. The main division of the *Itinerarium* involves an ascent to God through a consideration of his vestiges that are outside us, his vestige that is in us, and those things that are above us. These ways of investigation correspond, respectively, to philosophical, theological, and mystical wisdom and represent the steps of consciousness evolution leading to the final stage of experiential cognition of God. The whole itinerary of the ascent of human consciousness towards God is regarded as a “hierarchy of regress” or the ability to be led back to God starting by the contemplation of anything in creation (La Nave [2005]).

Teilhard de Chardin's contribution to the concept of cosmic consciousness

Another philosopher who conceives the natural reality as a stepping from simple to complex is Pierre Teilhard de Chardin. Teilhard is known worldwide for his synthesis of science and theology applied to evolutionary topics (Teilhard de Chardin [1955]). He was a scientist and a mystic, but his books about the consequences of the evolutionary vision of the cosmos were start-points for researches in theology and they were a source of inspiration for the constitution *Gaudium et Spes* of the Vatican II Council. The first result was the definition of a general law, that of complexity and consciousness, which is the general law describing the cosmic evolution. Cosmic evolution shows a continuing increase in psychic aspects which, purged of some ambiguities, could be a useful tool to describe the *moving towards* of evolution. On the other side, it also shows threshold effects and emergence of proprieties. In this way, new qualities come out during evolution, which cannot be deduced by a reductionistic investigation alone, *i.e.*, cannot be deduced by the investigations of its components (Galleni [2005]). Nowadays, the concept of finalism in the cosmic evolution — the Teilhardian *moving towards* — is strictly criticized by atheist thinkers (Dawkins [1986]), who see in the Darwinian mechanism of random mutations filtered by environmental interactions the cause of the (apparent) path of physical systems towards increasing complexity, in particular for living beings. Are they right? Is the last of Thomas Aquinas' *quinque viae* definitely ruled out by some present-day interpretation of Darwinian evolution and the ladder of complexity observed in the universe only an illusion due to an anthropomorphic view?

It seems that at the very fundamental level of physical laws a kind of finalism in the universe can be recognized. It is in fact a phase transition such as the one from inorganic world and life as a probability so low

that it cannot be explained only in terms of a random fluctuation. So, the Darwinian mechanism is indeed effective, but not capable to fully explain the observed situation. On the other hand, both numerical simulations and theoretical biology studies strongly suggest that there must be some very general physical laws driving the systems towards a generation of information and increasing complexity (Kauffman [1995]).

Again, we have apparently contrasting visions which could be integrated in a new synthesis.

Teilhard goes further in the investigation about complexity, giving a definition of complexity, proposing a way to measure complexity itself and, finally, considering the Biosphere as the final complex object to be investigated. These approaches open many perspectives: the application of the system theory to the Biosphere, the concept of symbiosis related to the interaction among the Biosphere components (Leonardi [1950]), and the concept of stability of the Biosphere system inside the general movement of evolution (Salmon [2005]).

This is the first synthesis which could be ruled out by Teilhard de Chardin's works and by the integration developed by later authors: evolution could be studied by using the technique of complexity, if we develop a theory related to the Biosphere considered as a whole evolving object. The result of this way of investigation is the discovery of a general movement towards complexity and consciousness. Evolution is characterized by a *moving towards*, which takes place inside a general mechanism allowing the Biosphere to maintain its stability.

Stability and instability (Benci-Galleni [1998]), continuity and discontinuity, tangential and radial energy count among the many forces working on evolution at a larger level than that of the population biology, where natural selection acts. They are responsible for the general *moving towards* of matter towards life and of life towards cerebralization and consciousness in animals. There is a progressive increase of meaning and complexity which could be measured (Cordelli-Galleni [2003]). Finally, this *moving towards* passes a new threshold, that of thinking; the thinking creature is now present on the stage of evolution and a new system emerges: that of the Noosphere (Galleni [2001]), another step towards the realm of the communality of spirituality.

The connections among the parts of the Noosphere must be done not by the diffusion of a unique model, but, using Teilhard words, thanks to a connection between different cultures (Procacci – Galleni [2005]): Léopold Sedar Senghor was an example of politician who developed Teilhard's ideas. He suggested that the evolution of the Noosphere would take place as a progressive integration of many and different centers of cultural evolution. Cultural differences are the forms of speciation or,

better, of diversification of the human species. They must cooperate and integrate, but not be eliminated by the survival of the fittest! (Galleni-Scalfari [2006]).

This asks for a different model of evolution of the Noosphere, not based on the diffusion of a single cultural model, but on the integration of several models interacting inside a general common basic chart of values which must be the Universal Declaration of Human Rights of 1948 (Ristori, Galleni [2005]).

The passage from understanding to wisdom — even if wisdom is an obsolete term in today's society — should be regarded as a hierarchical step in the process of consciousness construction for a world of peace — Peace with God the Creator, peace with all creation (John Paul II [1990]).

Conclusion: Some Considerations for Reflection

Considering the mental phenomena as an emergent property of the brain is a compromise between the monism and dualism, materialism and spiritualism, determinism and indeterminism of the free will. In fact, the experience of subjectivity is included as a real causal agent among the brain functions that allow for a degree of freedom in the physical actions. Human values are treated as non-eliminable causal factors. In this sense, subjective values have objective consequences in the brain. This holism implies an emergent evolution of the human person, that is not governed merely by the lower level of the genes, but by a purpose, values, and meaning. In this way, it is possible to restore human dignity, the freedom of choice, the inner creativity against the reductionistic, dualistic, and materialistic approaches (LaRock [2008]).

Reductionists do not offer explanations as to how the only level — the physical level — they admit exists can produce the process of upward emergence. Subatomic particles have the ability to “self-organize”, but why reality should be constructed in this way or why this process should lead to more and more levels of complexity is irrelevant to the reductionists' scheme of explanation. In conclusion, the reductionistic approach does not answer to the final question of reality. But emergence shows that there is more to the nature of reality than the reductionists' philosophy admits.

Thus, life, mind, and the physical level are equally fundamental categories of reality, they are regional ontologies, none of which can be reduced to another. Probably, it is more profitable to consider the primacy of human living and of the person than the only physical level, as does the reductionistic approach. Life and consciousness have a central role in

the universe, as the Anthropic Principle states, *i.e.*, the laws and conditions of the universe must be such as to make the universe observable at some stage of its history. Similarly, one must take into consideration the religious issues regarding the value and the central cosmic role of the human mind and of the spiritual level in the very purpose of the universe. As Teilhard de Chardin said, the human brain is the most complex expression in the universe, not by chance, but because the convergence of the different levels of structure are necessary for consciousness to appear. But to dismiss the reality of consciousness as an epiphenomenon is difficult to maintain: why would it evolve in nature or exist, if it did not have real effects and causal power in the world?

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Adding a Spiritual Dimension to the Bio-Psychosocial Model*

Psychoanalysis, Heinz Kohut, Friedrich Schleiermacher, Martin Buber, and Gabriel Marcel

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“All men have need of the gods” (Homer)

In *Lapsed Agnostic*, the Irish writer John Walters (Walters [2007]) shows how his increasingly obvious alcoholism made him realize that rock-and-roll, modernity, and agnosticism had actually not given him the good life he sought. As those certain truths he thought he had found faded, he realized that “the primary difficulty with the alleged rationality of our age is not that it denies God the belief and loyalty of humanity, but that it denies humanity the knowledge and protection of God” (McGann [2008]).

It would be the very definition of understatement to say that throughout much of recorded history, many people have claimed they had found great comfort, strength, and protection through an experience with the sacred. Nevertheless, the fields of psychoanalysis, psychology, and psychiatry have acted as though this is not salient or, if it is, it should and can be understood in a reductive way that dismisses an actual relationship between humanity and the divine.

* Originally presented at the 2008 Metanexus Conference, “Subject, Self, and Soul: Transdisciplinary Approaches to Personhood”, Madrid, July 13-17, 2008; published in electronic form on the Metanexus Global Spiral, www.globalspiral.com.

Psychoanalysis has a history of disregarding the knowledge and protection of God and even of understanding religion as merely a defense mechanism. It seems to us that, at least in the United States, there may be an increasing openness amongst psychotherapists to a quest for spiritual development, but this would be hard to measure adequately. Nevertheless, we think that many members of the profession continue to dismiss religion in a way that is far too facile, thereby shortchanging both their patients and themselves.

Certainly, Freud resoundingly dismissed religion as both intellectually indefensible and emotionally unhealthy. He declared that religion was comparable to a childhood neurosis and being freed from it would give people a better chance to have a normal and wholesome life (Freud [1930], [2005]).

Our concern is this: there are ways to experience God that can be understood through a theological framework that is rigorous and entirely different from what Freud, Dawkins and others denounce. The tragedy is that many (including much of the general public and the psychotherapy community) reject belief as if it were defined by only the most conservative dogma. This can lead to dismissing religion altogether with little careful thought (since none seems merited) and with almost no awareness that other theologies exist. We think that efforts to address this problem have not succeeded.

Our effort here will describe some ideas of Friedrich Schleiermacher, Martin Buber, and Gabriel Marcel in relationship to psychoanalytic self psychology. We do not contend that the work of these men provides the only theology to support our effort to show a way to integrate psychoanalytic and religious thinking. Moreover, we do not agree with them completely. Rather, they offer a point of departure that has some therapeutic value; and we have found aspects of their thinking useful in our personal spiritual journeys.

As this subject is open to misunderstanding, we wish to be clear. We are Christians and one of us (Jones) is an ordained, practicing minister working on his doctorate in theology. Our perspective, however, is not that of "Christian psychotherapists" who bring specific Christian beliefs and practices into the consulting room. With the right clients (whom Dr. Baker rarely, if ever, encounters), this may be appropriate; but we think that an overt, religious stance that follows a *specific* doctrine may provide an impediment for many psychologists, psychiatrists, psychoanalysts, and patients. We will try to present a theological perspective that is rooted in a broad and generous understanding of the Judeo-Christian tradition, but does not require subscription to narrowly conceived confessional commitments. Of course, we consider it entirely inappropriate to use the consulting room as a place for religious proselytizing.

We will begin with a brief outline of salient elements of self psychology, and follow with a discussion of Schleiermacher, Buber, and Marcel that integrates them into the psychoanalytic perspective. We conclude with some clinical material that illustrates some points of contact between the two disciplines.

Self Psychology

The founder of the psychoanalytic self psychology, Heinz Kohut (1913-1981), held a quite positive attitude toward religion. He was an active member of the First Unitarian Church of Chicago. Although he was born into an extremely assimilated Jewish family in Vienna and fled to Chicago in 1939, his son Thomas believes Kohut came to think of himself as a Christian (T. Kohut [2006]). In his professional writing, Kohut has offered a more nuanced perspective on religion than most of his predecessors.

Because we necessarily offer a brief summary of a great deal of literature, what follows is largely referenced in Baker and Baker (1987); but the reader is also referred to Kohut's three books [H. Kohut [1971], [1977], [1984]], to Kohut and Wolf's earlier overview paper (Kohut and Wolf [1978]), and to Siegel's more recent text (Siegel, [1996]).

Kohut was a pivotal person in the revolution in psychoanalysis that began in the late 1960s and has increasingly recognized the relational dimension of mental life. Whereas it had been assumed that the analyst must remain a blank screen so as not to disrupt the patient's unfolding of conflicts and defenses, it became obvious to Kohut that, in principle, this was not possible. The so-called neutrality was not neutral; and he came to think that it was often not therapeutic. If Kohut failed to understand his patients' experiences from their unique perspective, when he failed to be sufficiently empathic, they became more withdrawn or chaotic. *E.g.*, a woman he called Miss F. would shriek: "You are ruining my analysis with your interpretations" — and her symptoms would increase. Unlike many of his colleagues who heard similar complaints, Kohut eventually thought that it was possible that this was not resistance, that *she* might be right and *he* might be wrong. When he was able to grasp her experience as she knew it to be and make that clear to her, she reconstituted. Generally, when his patients felt he really understood them, they became calmer, more alive, less agitated etc. Better yet, they seemed to begin to understand that they might be inaccurate about meaning they habitually attributed to their and other people's emotions and behavior. Moreover, they realized that how they understood things sometimes affected how they and other people felt and behaved. In other words, the self-states of

the patients often changed as a consequence of the relational matrix in the transference and in their outside lives. The extent to which this happened in the transference varied from patient to patient, but it clearly happened in relationship to important others in their current lives. Very vulnerable patients were exquisitely sensitive to the responses of many people, sometimes falling into frightening states of depression and anxiety and recovering only with great difficulty.

In psychoanalytic terms, the other is called an "object" (thus one may speak of object relations). Since the object affects the self, Kohut coined the term *selfobject*. Someone else (the object) provides self-regulating functions. The usage of the term became increasingly confusing and current parlance is that *selfobject experiences* enable the maintenance, restoration, or reorganization of the self. As humans, we use selfobject experiences to regulate self-esteem (called *mirroring*, since the response of the other reflects worth back very much like a mirror reflects an image) and affect regulation (*idealizing*, since the idealized parent calms, soothes, delights, and invigorates). An intensely critical parent may be compared to a fun-house mirror, since the image he or she reflects cannot be positive or realistic. An intensely anxious parent may become more anxious if his or her child is hurt. The child grasps this, so that the parent's responses compound anxiety rather than soothing it. As well, depression may prevent a parent from being able to respond appropriately to his or her child; and the child must find a way to understand this and is likely to come to beliefs that will be structured by his or her cognitive capacities and is likely to place him- or herself at fault. All of these problems are subject to revision as the child matures and gains in cognitive capacities, but this usually requires accurate and appropriate empathic responsiveness from another, often a therapist.

The nature of parent-child relationship must be understood as an emergent property of the interactions. There may be mismatches in temperament between them that account for the relational failure and that make it impossible for either child, or parent to generate selfobject experiences (parents do have legitimate needs that their children meet, albeit the parent is the adult). There are always empathic failures and these are part of the motivation for developing internal self-regulatory capabilities.

There is a developmental thrust to appropriate selfobject experiences. For example, a very young child "violinist" might be praised for merely making screeching sounds, but older children get praise only when the music sounds pretty good and, eventually, real applause is reserved for the genuinely skilled. The developing child begins to internalize these self-regulatory functions, becoming less dependent on others to actually provide them.

Selfobject experiences are usually generated in interpersonal relationships, but they may occur when a person enjoys playing or listening to music, playing a sport and getting into “the zone”, or engaging in a variety of activities. Van Gogh’s letters reveal that the act of painting provided him selfobject experiences as did his relationships with his brother and disruptions in his relationship with Theo precipitated Vincent’s psychotic episodes and caused the quality of his brushwork to deteriorate (H. Baker [1990]).

We may also encounter people who seem to assault our being and, depending on the intensity and importance of the insult, the availability of other selfobject experiences and on our intrapsychic strengths and vulnerabilities, the internal experience of the self may become depleted, disorganized, disintegrated, or depressed to some variable extent. In those circumstances, people do what they need to do to restore the self. Often, those efforts are symptomatic thinking or behaviors, understood as the person’s best efforts to restore their self-integrity (albeit ones that may be very short-sighted, limiting, or even lead to worse circumstances).

Everyone, Kohut realized, needs selfobject experiences. Health does not consist in outgrowing that need any more than respiratory health means outgoing the need for oxygen. Healthy people usually tolerate all but the most egregious misunderstanding, rarely become seriously hurt, and usually recover without too much difficulty. Whether an interaction allows a selfobject experience depends both on the quality of the interaction and on whether or not the participants are able to actually experience empathic responsiveness. People might be so pessimistic about others, that they cannot recognize even the most sensitive efforts as sufficient.

Although the self psychologists do interpret conflicts and defenses related to sexual and aggressive feelings, there is a crucial recognition that nothing happens in a vacuum. There is always a matrix of interpersonal relationships that contextualize everything we think and feel. No self psychologist questions the fact that children have sexual and aggressive feelings directed toward their parents. These Oedipal *feelings* are probably universal; but whether they become problematic, *i.e.*, an Oedipus *complex* that is part of psychopathology, will depend on the way parents respond to the child. Kohut thought that the complex usually does not develop in healthy families, where the parents greet the child’s Oedipal amours and competitions appropriately, and where the parents’ relationship facilitates healthy parent-child interactions.

There are parameters that limit how easily we experience hurt and how profoundly we respond to the perceived insult. These include how important the other person is, our basic level of emotional health, and our biological vulnerabilities. If we are stressed by something at work, most

of us benefit from the reassurance of a spouse or partner. If *they* are also stressed or exhausted, they may be in greater need than we are. When multiple stressors come together, even minor slights can unravel us most and we can become quite demanding and difficult. Someone like Miss F. would undergo severe decompensation as a consequence of what most people would ignore as a trivial slight. It often took weeks of empathic effort on Kohut's part for her to be able again to use him to generate a selfobject experience in the transference.

What is crucial is not the objective intensity of the hurt, but the experience of it that a person has. Although he was certainly a sensitive and caring man, Freud believed he could usually assess his patients objectively. A 19th-century scientist, he lived in world in which a realist epistemology made sense. He believed that he could understand others as they were; that is, unless his own emotions misled him, his mental representation of his patients corresponded quite accurately to how they actually were. At least in theory, it was only in egregious circumstances that his personal behavior would affect his patients' self-experience. Of course, he thought that he could offer interpretations that would enable his patients to rethink matters and change. I should note, however, that it is likely that, in practice, he was often far more human with his patients than his theory implied, and that the practice of that theory seemed to become particularly severe in some schools of American psychoanalysis. At the time Kohut was treating Miss F., analysts often considered it mere resistance when patients rejected their interpretations and that the patient's anger was evidence that the interpretation was indeed accurate.

Kohut did not live in a world so dominated by realist epistemology. Developments in philosophy and small-particle physics have made clear (1) that the way we interact with something alters that thing (or person) itself; and (2) that our mental representations do not correspond to the thing itself, but are limited by the unique perspective that cannot be avoided in any observation or interaction. This is, of course, an extension of Kant's Copernican revolution and has antecedents in long-standing nominalist/realist controversies. Constructivist and perspectivalist epistemology has become a given for most practitioners, and it makes for a world-view that is very different from our more traditional forbearers (Stolorow, Atwood, and Orange [2002]).

One might think of an infant as a constructivist epistemologist who is working hard to make sense of its world. It is learning the interaction patterns that are its life. It and its mother affect each other, as do it and father, mother and father, and so on. It develops a web of constructed interaction patterns that shapes self-experience and the way it interacts with others. Soon enough, it develops organizing principles that become

the template that it uses to guide how it understands and interacts with others and with its entire world. (We will show how Buber independently came to a virtually identical belief.)

Our infant is constructing a subjective rather than a realist perspective of its world and the same is true of the others around it. It exists in an intersubjective world where interactions occur at the intersections of the subjective fields that it and all the others around it construct (Buirski [2005]). Although we live as if we knew reality as it is and although we may resolutely insist that we *know* what someone else *really* thinks, we do not. What counts is whether or not organizing principles serve us well in the present and whether they pass the tests of common sense and pragmatic effectiveness; and it helps if we hold our beliefs open to change.

If a child's early life is good enough, it is likely to create a self that is resilient and not unduly prone to states of severe depletion and fragmentation and it will be able to find relationships that offer the sorts of selfobject experiences it will inevitably need. On the other hand, if (for example) its mother is severely depressed or if she is subjected to emotional chaos or even violence, it may prove difficult or even impossible for the infant to develop a healthy psychological organization.

This developmental process begins very early in life. In fact, there are data suggesting that interactional salience may begin *in utero* (De Caspaer and Spence [1986])! There are strong data showing that mothers and their four-month-old infants track each other's vocal rhythms and facial expressions at 0.1-second intervals. Importantly, it is not possible to tell who initiates the behavior. Moreover, when these interactions are precise enough, but not too exact, they predict a healthy attachment at two years, which then predicts healthy relationships into adulthood (Beebe *et al.*, [2005]). Since this process begins so early, the initial representations are necessarily limited by the child's cognitive capability and will need to be revised again and again on the basis of further learning (Bucci [1997]). However, clinical experience shows that very early representations may not be forgotten, even if they are not accessible to verbal representation, and they may be recruited in later life as part of the way lived experiences are constructed. Self psychology focuses on this intrapsychic experience of self, recognizing that it is not static, that it changes, sometimes substantially, that symptoms are an effort to restore it to a better level, and that the relational matrix is a critical part of this process.

We use the diagram below (*Figure 1*) to explain how people actively generate their intrapsychic, lived experience through a bio-psychosocial process. This meaning-making process is constant; to do it, we must (at least while we are alive), use our brain, specifically the working memory function (as used in the broad definition of the term by Edelman [1993]).

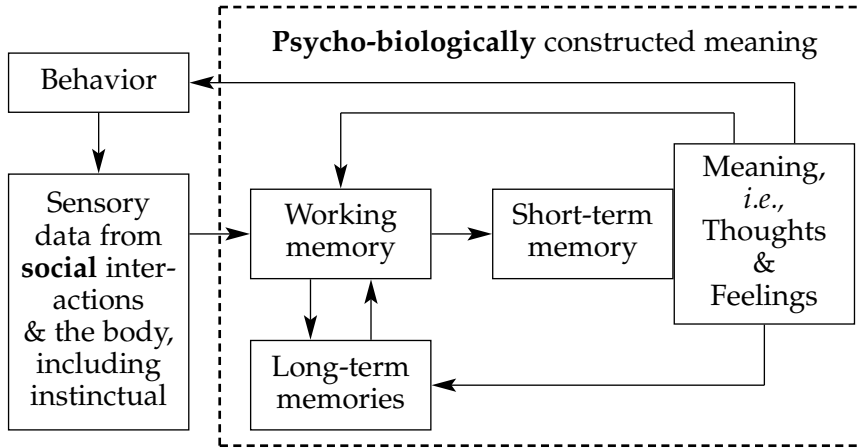


Figure 1 — The bio-psychosocial construction of self-experience

Sensory data from the environment and from inside our bodies are held briefly while the learned organizing principles represented in long-term memory are recruited to create the lived experience in our short-term memory. This, in turn, leads both to new learning (that may alter the long-term memory) and to our behavior, which affects what will happen next. As well, short-term memory feeds back into working memory. We use this function of our brain to continuously join (1) what happens to us, (2) what we have learned and (3) whatever meaning we made a moment ago. (There are circumstances when the working memory function is bypassed in the service of rapid self-protective reactions, such as when we hike in the woods and startle at something that might be a bear.) Perhaps amazingly, there is no single anatomical locus for this organizing function. Instead, working memory is rather widely distributed in the brain.

The bio-psychosocial model is at least the putative standard for American psychiatry, meaning that a theoretical recognition that psychopathology can result when (1) our *biology*, especially our brain, is not working properly, (2) our *psychology* is ineffective (when the organizing principles we use to understand our relationships and affects are dysfunctional), or (3) our *social* circumstance cannot meet our needs. What is particularly crucial is that there is a continual interaction between these three elements, so that they each affect each other. For example, medication may help relieve a person's depression because it alters the brain, which in turn affects cognition and affect, which affects interpersonal relationships. Experienced clinicians have dealt with situations in which Prozac taken by a husband relieves a wife's depression. Interventions should consider the ramifications throughout all three systems and usually focus on what is thought to be the most salient or malleable element.

In self psychological terminology, the self-experience that is biopsychosocially constructed may be coherent, vigorous, cohesive, and appropriately emotional; or it may be poorly integrated, depleted, agitated, fragmented, or chaotically emotional; or it may be somewhere in between. While there are parameters that limit the variability, it is obvious that our self state changes and that it is powerfully impacted by our relationships — not merely in childhood, but also on a day-to-day (sometimes even moment-by-moment) basis throughout the life cycle. Whether significant others are empathic, partially empathic, or non-empathic plays a role in our ongoing self-experience. It is also limited by the organizing patterns (that is, transferences) we have come to learn and by whether or not our brain is fully functional.

The goals of self psychologically-oriented treatment are to clarify the ways in which people habitually and problematically organize their environment, facilitate changes in those patterns, and enable patients to modify relationships so that they avoid interactions that inevitably result in self-disintegration and find ones that yield at least the opportunity for selfobject experiences. We understand that treatment should happen in the context of the analyst's consistent empathic immersion in the patient's experience. There will be inevitable failures on the part of the analyst, rather often generated by his or her own personal limitations. If these are recognized and dealt with appropriately, which is to say with empathic recognition of the impasse, this creates a form of corrective emotional experience that the patient may genuinely understand and apply not only to the treatment situation, but also to relationships in general.

We presume that, in this context, as one reads this abbreviated account of self psychology, one has been wondering about the effect of our relationship with God. The consequence of how we construct this relationship will vary and that effect may be irrelevant, salutary, or debilitating for the analyst, the patient, and the relationship between them. Will a God of wrath and punishment or a God of compassion and grace enter the consulting room? Will the therapist even know?

We argue that the bio-psychosocial model is incomplete: there is a ground in which the entire process is embedded. For Tillich (1967), of course, this ground of our being is God. Consciously acknowledged or not, Risutto (1979) believes that, essentially, all people have a God representation. Perhaps there are those who have lived in such a secularized world, that there is virtually no God representation, but most people do have some sort of personal theology that may indeed be a source of great strength and growth — or the cause of the sort of deep, destructive terror that the younger Luther described when he was locked into a hateful relationship with a judgmental, wrathful God (Jones [1993]).

We argue that there is not only a place, but a requirement to recognize that theology is present, whether it is recognized or not. Indeed, "Freud's God" can be understood as a projection of childhood wishes and fears and an unrealistic, even symptomatic defense mechanism to protect us from the terrifying recognition of death. Not only is there no valid argument that this perspective is wrong, but many of us know people for whom this adequately describes their religious experience — and some whose lives have been ruined by it. Still, despite his denials, Freud was preoccupied with religion. Nicholi argues that "throughout Freud's letters [to Oskar Phister, the Swiss pastor and analyst] are statements such as: 'if someday we meet above', '[my] one, quite secret prayer', and statements about God's grace" (Nicholi [1997]).

Certainly, not all analysts hold reductionistic or dismissive attitudes toward religion. Marie Hoffmann convincingly shows that both W.R.D. Fairbarin and Donald W. Winnicott were influenced by their religious backgrounds and the differences in their theory are consistent with the differences in their religious perspectives (Hoffman [2004]).

It is not certain whether Kohut's religion importantly shaped his theory; but his biographer, Charles Strozier, is unambiguous that Kohut was interested in, and valued religion and that he thought that Freud had a "profound misperception of the true purpose of religion, which is simply in another realm from science. [In fact, Kohut thought that] for many in the twentieth century psychoanalysis robbed religion of [its legitimate functions] and became a substitute religion" (Strozier [2001], p. 328).

Kohut's theory, of course, lends itself to a very different concept of God than Freud posited. Holliman (2002) has argued that a person's relationship with God can be understood partly as a selfobject experience. In this construction of God, we find an empathic and understanding God who seeks to be with us as we live our lives. The function of a relationship with this sort of god is "to shore up, to hold together, to sustain, to make harmonious, to strengthen man's self... [Kohut does not offer a] simplistic causal relation between God and mother. We do not merely seek uplift from God because our mothers once picked us up to hold and feel, and sooth us. Religion is not, as it was basically for Freud, a rather mundane human institution, but rather a complex interplay of human psychological needs and the deeper workings of the Divine. Unlike Freud, one might say, Kohut grants a God and then tries to understand our psychological relationship to him (Strozier [1997], *apud* Jacobs and Capps [1997], p. 169).

We think that it may be helpful to go on with the effort of describing a theology of the self-in-relationship to God that can be useful within the professions of psychoanalysis, psychology, and psychiatry. It must be

intellectually defensible and applicable beyond a particular religious confession. We have chosen to start with an exploration of the work of Friedrich Schleiermacher, Martin Buber, and Gabriel Marcel. Certainly, we will not complete this task and we neither specifically endorse what they believe, nor claim that the thoughts of others will not prove to be equally or even more valuable.

Because we are not aware of any specific references by Kohut to them, and because Kohut was notoriously careless in referencing the work of others, we have asked Thomas Kohut if he knew whether his father had read Schleiermacher, Buber, or Marcel. He did not know, but he but assumed his father had read Buber and might well have read the others. He was certainly able to see the connection between their and his father's thinking.

Friedrich Schleiermacher

Friedrich Daniel Ernst Schleiermacher (1768-1834) was a German theologian and philosopher known for his impressive attempt to reconcile the criticisms of the Enlightenment with traditional Protestant orthodoxy. Because of his profound influence on subsequent Christian thought, he is often called the "Father of Modern Protestant Theology". He also made important contributions to hermeneutics (the theory of interpretation) and was an accomplished translator, too. He and Friedrich Schlegel began a project of translating Plato's dialogues between 1799 and 1804, but Schlegel eventually left this work to Schleiermacher, who published them between 1804 and 1828. Although not all the dialogues were translated, they are still widely used and admired today (Forster [2002]).

Schleiermacher ranks among the most prolific Christian thinkers in any period, let alone his own. He published numerous works in philosophy, hermeneutics, ethics, biblical criticism, and, of course, in theology, which in his day was often referred to as *dogmatics*. He also delivered sermons at least weekly for most of his life and was highly regarded as a preacher. His *magnum opus*, *Der christliche Glaube (The Christian Faith — Schleiermacher [1928])*, is by any standard one of the finest and most important works in systematic theology (the branch of Christian thought that seeks to "offer a vision of the whole, a sense of how to bring together all the elements of Christian involvement into unity around an organizing center or centers" — Tanner [2001], p. xiii).

Schleiermacher is rightly regarded as a modern, if not *the* modern, theologian. The term *modern* goes beyond chronological description, of course. Modernity and historical criticism (1) challenge belief in absolutes

and (2) lead to an awareness of cultural relativism. This makes difficult to hold infallible metaphysical propositions about the natural and historical world. This is to say that modernity questions whether or not we can ever actually know the absolute, complete Truth. Rather, we must content ourselves with entering a process of seeking Truth in the full awareness that it will always lie beyond our grasp. This has undercut the notion that one could do a theology that would “once and for all” pronounce the final word or words on any given topic that concerns Christians and the Church. Theology must be done again and again for each age and era, since it is always bound by cultural and historical assumptions. It must always be ready to start afresh at the beginning for two reasons: (1) old assumptions may no longer seem tenable and (2) it must adapt in order to be relevant to the current context (Sherman [2005]). As a result, rather than offering Truths about God, human nature, sin etc. that hold now and forever more, modern theology has tended to see itself as offering symbol systems and language to clarify the meaning of human existence as we know it in our time.

We contend that Schleiermacher’s deep involvement with translating Plato profoundly influenced his thinking. The way he approached translation bears a close parallel to how Kohut came to think that the analyst must meet his patient, that is, through as complete an empathic emersion into the analysand’s or author’s experience, as possible. Quoting Schleiermacher, Richard Neibuhr underscores this: the translator must come “to understand the text just as well as and then better than the author himself understood it” (Neibuhr [1960], p. 160). Neibuhr continues that “Schleiermacher preferred to define hermeneutics as an art rather than a science, because ultimately its success rests upon the ability of the interpreter to re-construct the individuality of the author, a process for which no technical rules can suffice... it rests upon the personal talents, specifically, the talent for the understanding language from within, as a living reality, and the talent for knowing individual men” (Neibuhr [1960], p. 150). Schleiermacher did not, and could not use the word *empathy*, since no form of it had entered the modern lexicon until 1858, when Rudolf Lotze used the word *Einfühlung* in relationship to architectural theory. In 1903, the American psychologist Edward Titchener translated *Einfühlung* into English as *empathy*. *Empathize* was coined in 1924 (*Online Etymology Dictionary*, 2007).

We focus on this for two reasons: (1) because it may be related to Schleiermacher’s modernity, since translating demanded an awareness of historical criticism and cultural relevance, and (2) because it is so close to Kohut’s thinking. The parallel comes closer. Neibuhr continues that, for Schleiermacher, hermeneutics “is nothing but the special application

of the dialectic that is the hall-mark of self-hood... in which each member of the dialogue is called upon to construct the self-hood of the other member(s)... and in so doing to become himself" (Neibuhr [1960], p. 154). Thus Neibuhr contends that it is necessary to understand the roots of Schleiermacher's theology "in his vision of man as a being essentially determined by his living relationship to others as well as to the Other" (Neibuhr [1960], p. 150). As we will see, it is but a small step between this and Martin Buber's *I-Thou*.

Although Schleiermacher is indeed modern, he is also deeply traditional. He does not seek to overturn every stone of the Christian tradition in light of modern thought and culture, eviscerating it of any and all connections with its premodern past. He constantly references the Bible, the Apostles' Creed and various 16th- and 17th-century confessions as he offers his own constructive and coherent vision of the Christian faith. Schleiermacher seeks to offer an understanding of the Christian tradition that can make its way meaningfully and coherently into the modern situation. These two characteristics, namely Schleiermacher's modernity and his traditionalism, make him a fitting example of a theologian salient for our purpose. His modernity ought to make him at least intellectually credible to any thoughtful clinician. His traditionalism roots him enough in the generally accepted piety in which most of the faithful are raised, so he can deepen their own understanding of God, of themselves and of their world without forcing them to jettison all or most of their core convictions.

Schleiermacher was influenced by Kant, who showed that the constants of what we can know are not in the phenomena (the thing-in-itself), but in our *a priori* categories of experiencing the phenomena. A more contemporary way to state this is that the nature of our mind and sensory apparatus limit what we can observe and understand. The great physicist of the 20th century, Werner Heisenberg put it this way: "What we observe is not nature itself, but nature exposed to our method of questioning" (Heisenberg — Brainy Quote). This, of course, assumes that there are phenomena, such as trees, cells, or even atoms that we are capable of perceiving (even if assisted by specialized tools such as a microscope). God, however, does not fit in this category. God is not a "phenomenon", so we are in principle incapable of directly experiencing God. However, Schleiermacher insists that "God-consciousness" is possible and believes that this happens in a community.

Schleiermacher's Christian Faith begins with his own philosophical anthropology. According to him, all human being is spent in alteration between a state of *Insichbleiben* (translated as *abiding-in-self*), that involves knowing, and a state of *Aussichheraustreiben* (translated as *passing-beyond-*

self), which involves doing. Knowing, or thinking, is verbal and can be communicated on that basis. To knowing and doing, Schleiermacher adds a third category, *Gefühl* (rather misleadingly and unhelpfully translated as *feeling*, since it is more complex than what we usually mean by feeling). Unlike knowing or doing, feeling is a form of immediate self-consciousness. It is to be distinguished from personal self-awareness. That understanding is mediated by contemplation and self-reflection results from my defining what I am like, according to various categories and descriptors (e.g., I am wise, thoughtful etc.), as well as by my preoccupation with my lived concerns. The process of knowing involves some objectification of self. It is done using language, and can be communicated through typical verbal expressions. By contrast, Schleiermacher thinks that feeling (*Gefühl*) is how we experience the immediate consciousness of self. It is prior to our categorization of what we are like; and it induces in us an awareness that we all share in *kind-consciousness* (that is, an awareness that we are all much more human than otherwise). It is possible precisely because it is free from objectifying influences, but it is not to be confused with irrationality. It cannot be articulated, but this does not mean that it cannot be communicated. Sometimes, we can complete the thoughts of someone we are close to, but it is not possible to similarly share the feelings of another. If my hand hurts, it is not sensible to extend it toward you and say: "Here, feel how this hurts". This does not, however, mean that we cannot participate in the feelings of another. But doing this requires that we disclose or reveal feeling through gesture, through non-verbal communication on the basis of our own immediate self-consciousness, often through a mutual sharing of self-consciousness. It will become clear that the distinction between whether we join together on the basis of knowing/thinking or feeling is related to Buber's *I-It* and *I-Thou*. Both men have similar struggles conveying *I-Thou* and *feeling*.

What is critical for our purposes is that "Schleiermacher places the individual in the community of uttered thought not as a monad that stands in either an external or a predetermined relationship to all other individuals, but as a particular rational life in which consciousness of self and community or kind nourish each other organically" (Neibuhr [1960], p. 154). In contrast to many subsequent existentialists, Schleiermacher seems optimistic about the possibility for genuine human communication. He thinks of hermeneutics as correctly understanding the speech of another—and he is well aware of the difficulties that are imposed by the fact that our language spiritually modifies us. As our internal language is, to some extent, unique, particularly if we are trying to communicate across era, culture, or class, the interaction is genuine, but destined to be incomplete.

He is modern, not post-modern. His epistemology seems to be constructivist rather than realist, but he is not a subjectivist (*i.e.*, one who thinks that there is *no* fixed meaning of text). He recognizes that he could not *duplicate* the world-view of Plato, but he thinks that, with careful effort, he could (in today's terminology) empathize with Plato. This would enable him to gain a better understanding of what Plato meant and thus to create a *more* accurate (albeit not completely accurate) translation of the ancient text.

The subject-matter of dogmatics is piety, which belongs to the realm of feeling, not the realm of knowing or doing. The subject-matter of dogmatics, while involving a kind of knowledge, is not essentially knowledge. If it were, the most knowledgeable theologians would be the most pious Christians, which was patently not the case in Schleiermacher's day, nor is it in our own. Likewise, the essence of faith and, thus, the subject of dogmatics, cannot be doing or morality. To religiously evaluate the morality of an action is not the same as evaluating it ethically. Ethical evaluation requires that one look at its *telos* (the intended consequence or ultimate goal). Rather, dogmatics is concerned with the motive and starting point, which is the feeling Schleiermacher calls piety. He notes that "not only the most admirable, but also the most abominable, not only the most useful, but also the most inane and meaningless things are done as pious and out of piety" (Schleiermacher [1928], p. 10). While there is both a knowing and a doing which pertain to piety, "neither of these constitutes the essence of piety itself: they only pertain to it inasmuch as the stirred-up feeling sometimes comes to rest in a thinking which fixes it, sometimes discharges itself in an action which expresses it" (Schleiermacher [1928], p. 18). The problem here is that the stirred-up feeling of piety can be very similar to, and easily confused with, motivations that lead to acts that are inane or worse. Some have argued that when conflated with German Romanticism and our fellow humans' capacity to do evil, "feeling" led to Nazism.

A detailed exposition of Kant's relationship to the Enlightenment is beyond the scope of our essay, but a momentary reflection is certainly in order. Schleiermacher once described himself as a Moravian (a form of pietism) of a higher order. He was able to accept Kant's thesis that knowledge is limited to our perception of phenomena. Phenomena are the "stuff" that we can intuit and then organize into meaningful knowledge. The knowledge we can intuit and then organize by using our categories of understanding is limited by our *a priori* categories of understanding (*i.e.*, our human capacities for knowing). Those categories constrain what we can know. Let us think, for example, of a bat that flies and uses a type of radar. We cannot do that, so our ability to know what it is like to be a

bat is limited. Since God is not an object, we cannot intuit him in the phenomenal realm of reality, that is to say that God is beyond our categories of understanding, Schleiermacher concluded that humans (including theologians) cannot offer a description of God, so theology cannot offer a description of God in himself (*Education for Ministry Test*, 2006, p. 76).

Despite the limitations imposed because God is not a phenomenon that we can know, Schleiermacher was convinced that we can have an immediate feeling within our consciousness of the infinite and eternal within the finite and temporal. He called this *God-consciousness* and described it as a feeling of *absolute* dependence. This absolute dependence contrasts with the feelings of *relative* dependence and *relative* freedom co-existing in our consciousness all the time as we interact with the world. The “whence” from which our feeling of absolute dependence flows is our God-consciousness, the essence of piety. Some find Schleiermacher’s idea of absolute dependence problematic. As we will see, Buber is among them, and he seems to offer help with this. Schleiermacher’s critical point is that we can have some sort of experience of our relationship to God. This is the cornerstone of faith rather than the sort of metaphysical contentions of eternal and unchanging Truth (such as the Trinity) laid out in our creeds.

Schleiermacher concedes to the Kantians the point that theology cannot provide metaphysical knowledge about God. But he will not trod the path of Enlightenment reductionism that would transform religion into ethics, nor would he accept that we have no access to the consciousness of God. Theology is a proper science in the Enlightenment sense of the word. It has a phenomenal object of study, but only if its foundation is the feeling of absolute dependence, or piety. Theology is a discipline in its own right, with its own unique subject-matter and its own unique methodology.

Theology is also a particular and confessional exercise. There is no form of piety or absolute dependence in the abstract. One can only speak of piety as it is found in particular instantiations within particular communities. Thus, one can speak of and study Buddhist piety, or Islamic piety, or Jewish piety, but never piety in general, because piety is always mediated through historical expressions that constitute it. There may be shared elements; but since our consciousness of God is necessarily a part of the community in which we have that experience, that community will both open and limit what the nature of that consciousness will be. The Jewish (and other) religious experiences undoubtedly enriches Christianity, yet it is not the same.

Schleiermacher being a Christian theologian, his conception of piety is rooted in the consciousness of blessedness and redemption that comes

from the Redeemer, Jesus of Nazareth. It is only in the consciousness of Jesus that the feeling of absolute dependence exists in reality in its pure form: "In every other individual, it only exists in modified form; that is, in combination with modifications that have been introduced into it through stimuli that have come to the individual from without, entering by way of the 'sensible self-consciousness'" (McCormack [2002], p. 155). It is important to note that for Schleiermacher the "essence" of any religion "consists in the modifications which take place in the feeling of absolute dependence and not in that feeling *per se*, which means that various religions cannot be regarded as 'just so many species of a common genus'. Although all genuine religions have feelings of piety, each religion has an irreducible uniqueness that is not set aside by formal similarities on the level of doctrines or ethics" (McCormack [2002], p. 156).

Schleiermacher is rightly described as being a theologian with little tolerance for the "speculative". While some may hold that all theology is speculation and remain perplexed by the aforementioned description, we hold it to be defensible. In § 30 of *The Christian Faith*, Schleiermacher describes three sorts of propositions which Christian doctrine deals with. The first sort are descriptions of human states, or states of mind or consciousness. The second are conceptions of divine attributes or modes of action. The third have to do with the constitution of the world. The priority for Schleiermacher clearly rests with propositions of the first sort, for "it is clear that descriptions of the human states of mind with this content can only be taken from the realm of inner experience and that therefore in this form nothing alien can creep into the system of Christian doctrine" (Schleiermacher [1928], p. 126). This is not the case with the other two sorts of propositions, "whereas... utterances regarding the constitution of the world may belong to natural science and conceptions of divine modes of action may be purely metaphysical; in which case both are engendered on the soil of science, and so belong to the objective consciousness and its conditions, and are independent of the inner experience and the facts of the higher-self consciousness" (Schleiermacher [1928], p. 126). What Schleiermacher is in effect saying is that theology deals with the realm of immediate feeling wherein God-consciousness resides. It must stay concretely related to that subject-matter or run the risk of being a theology that has nothing to do with the piety that is the essence of religion. For example, Schleiermacher thinks that the doctrine of providence is important. No Christian could live without the idea that God sustains the world that is absolutely dependent on him. But whether or not creation eternally existed or was brought into existence *ex nihilo*, as Christian orthodoxy has insisted, is simply not a theological question for Schleiermacher, because it affects no one's sense of piety. The question may be an interesting one

intellectually, but it does not concern the theologian as such. It is a metaphysical issue best left to philosophers and now, perhaps, to cosmologists.

Likewise, while the divinity of Jesus is essential for Schleiermacher, the doctrine of the Trinity is not, at least not in its classic form. Ultimately, the telos of the Christian project is that the powerful God-consciousness, as revealed through the person and teaching of Jesus, is to be implanted as a vital principle within us and between us within our community, which is to say within all of creation. This is because without the concept of Christ's divinity, which flows from the realization that his God-consciousness is perfectly potent, the Christian feeling of redemption falls apart. Not so with the doctrine of the Trinity. It is for Schleiermacher classic speculation. Not so with the confession that the God on whom we absolutely depend meets us in, and perhaps as, Jesus of Nazareth or with the belief that Christ's Holy Spirit is still present with us in the fellowship of the Redeemed. These are all concrete statements flowing from the realm of immediate self-consciousness. But no one "feels" the doctrine of the Trinity. It is an abstraction and thus speculative, coming solely from the realm of objective self-consciousness. It is important to remember that the feeling of absolute dependence as immediate feeling lies beyond the grasp of the theologian. All theologians have to work with is a representation of that feeling, constructed by the objective consciousness through words, symbols, stories, and the like (McCormack [2002], p. 161). Thus theology is always a provisional and fragmented exercise. It is "systematic" in that its contents ought to be organically related and logically coherent. But given that the theologian's subject matter, *i.e.*, an immediate feeling, cannot be communicated directly, it is accessible to him only in mediated forms. Therefore, for Schleiermacher, an emphasis on the limits of human knowing in this realm is always in order (McCormack [2002], p. 162).

Schleiermacher is reticent to speaking of the divine attributes as "realistically" referring to God in some sort of propositional fashion. The traditional talk of divine attributes really describes modifications of our God-consciousness as it interacts with sensible stimuli. To speak of God as omnipotent is simply to express the feeling we have of a power that is the source of the web of causes that we experience as the world. To speak of God as eternal is to speak of our feeling that God is the source of the nature-system which we interact with temporally. But Schleiermacher is not so reticent when he describes the being of God as love. Nowhere in the Scripture do we find a proposition asserting that God is omnipotence or eternity. Not so with love. *I John*, 4, 16 clearly states that "God is love". Love alone and "no other attribute can be equated with God", Schleiermacher says ([1928], p. 730). For him, the sense of divine love is present "directly in the consciousness of redemption and, as this is the basis on

which all our God-consciousness is built up, it of course represents to us the essence of God" (Schleiermacher [1928], p. 732).

At the heart of the divine love is God's desire to unite with the other, namely the human race. All of creation is bound up with actualizing the divine love in the world. All things, says Schleiermacher, "were created for the Redeemer... disposed with a view to the revelation of God in the flesh, and so as to secure the completest possible impartation to the whole of the human nature, and thus to form the Kingdom of God" (Schleiermacher [1928], p. 723). Everything in the world would be "disposed otherwise, and the entire course of human and natural events, therefore, would have been different, if the divine purpose had not been set on the union of the Divine Essence with human nature in the Person of Christ and, as a result therefore, the union of the Divine Essence with the fellowship of believers through the Holy Spirit" (Schleiermacher [1928], p. 724). Deeply related to the divine love is the divine wisdom that orders all things in accordance with the elective purposes of the divine love: "The divine wisdom, as the unfolding of the divine love... [confronts us] with the task of more and more securing recognition for the world as a good world, as also of forming things into an organ of the divine Spirit in harmony with the divine idea originally underlying the world-order, thus bringing all into unity with the system of redemption" (Schleiermacher [1928], p. 736). When individuals experience "salvation", they come into communion with the God-consciousness of the Redeemer through the fellowship that shares His Spirit.

The sinner who was once caught up in the web of God-forgetfulness now comes more and more to see the world as the theater of God's redemptive love and comes more and more to see in every time, every place and every relationship the manifestation of that love. The world is to the redeemed almost literally a divine love letter attesting to God's desire for union with his children through Christ, in whom and for whom all things were made (*Colossians*, 1-16).

The essence of sin is not moral failure or transgressing rules, it is relational in character. Sin is literally God-forgetfulness, which leads to the sense of God-forsakenness. It is not that God forsakes the sinner, but the sinner, in succumbing to the basest form of the sensible self-consciousness, forsakes God. In so doing, the sinner comes to experience a world where there is alienation and brokenness between God, self, others, and environment. To be a sinner is literally to forget the most important thing one could ever know — that one is the object of the divine love.

Schleiermacher retains a sense of original sin, but not as some metaphysical transaction based on inherited guilt over the primeval transgression of Adam in the Garden. Rather, our metaphorical first parents entered

into the primeval act of God-forgetfulness, succumbing to the lie that the baser drives of the lower self-consciousness could yield greater happiness and wholeness than that of the higher self-consciousness that finds its rest in God and God alone. If the family that prays together stays together, all the more the family that sins together will be shaped by the alienation and brokenness that comes with God-forgetfulness. To use a baseball metaphor, we come to the plate behind in the count. Because we are raised by God-forgetters in a society of God-forgetters, we will have an inevitable tendency to forget and forsake the divine in lieu of lesser things. We will be taught to value the banal, to often place it above the genuine and to deny that we are alienated in these futile pursuits. To quote Schleiermacher: "All activities of the flesh are good when subservient to the Spirit and all are evil when severed from it" (Schleiermacher [1928], p. 307). Essentially, sin is to want the gifts without the Giver. The tragic effect of sin is that the sinner loses both the ultimate source of good, *i.e.*, God who gives us the good, and also the relative good that comes in, and through, the gifts, which become lifeless idols. Wanton sexuality, relentless materialism and other "lusts of the flesh" are sinful not because of their ontological baseness or because of their relationship to a puritanical moral code, but because such pursuits ultimately make the world that the God of heaven has fashioned for our good into a living hell that isolates us from God, others, and even from ourselves. There is a fine line between Schleiermacher's "sinner" and Kohut's patient who has become a depleted self, engaging (for example) in frenzied substance abuse hoping to restore a sense of self. In the short run, it seems to work. In the long run, it only causes further destruction of the self and it almost certainly disrupts relationships — including the relationship to God. The lives of both are characterized by a frantic and isolated pursuit of sensual things in a quest for wholeness that is destined to fail.

We think that the core of Schleiermacher's thought is this: Jesus was both divine and fully human, in both cases because his God-consciousness was perfectly constant. He was, in fact, more human than all others precisely because of the continuous presence of God that motivated and directed the completeness of his being. We are *less* human than Jesus. Moreover, as redeemer, Jesus calls us to participate in a relationship to him and our community and to join his consciousness of God, to the end that we may be more completely human. In some sense, this is analogous to remembering a relationship with a parent, dear friend, or mentor who has died. Although they are no longer with us, we can recall their presence in a very real way and, at times, even experience their guidance. Likewise, through scripture and the presence of the Holy Spirit in the community of believers, in a sense we may actively find and recall Jesus' immediate

presence in our lives. Nonetheless, the allure of “contaminated” relationships sets the condition of original sin, so we repeatedly fall into God-forgetfulness and then must find our way back into a relationship with God through the redeemer who welcomes us if we seek him. The goal of the community of believers must be to facilitate this reconciliation and help us avoid further lapses into sin.

For Kohut, relationship is also critical. When it is empathic, complete, and appropriate, it allows us to generate selfobject experiences that consolidate, strengthen and enhance our self-experience, making us more fully human. This may happen as we seriously remember a relationship to an important other. Schleiermacher’s thinking offers a way to understand that relationship to the divine that also consolidates our sense of self, bringing us into more complete health. Moreover, for Kohut, symptomatic behavior is an effort to restore a depleted or disintegrated self that may, and often does, disrupt relationships that actually might restore the self. Still, it is because of limitations within the personality of others that we need, we turn to symptoms for self-restoration. Again, Schleiermacher’s understanding of original sin adds a dimension to the symptomatic behavior, showing that the decisive aspect of sin is the individual God-forgetfulness that happens in a community that has also abandoned God-consciousness, being consumed instead with materialism and sensuality and abandoning the real, responsible engagement with our fellow humans.

Martin Buber

For the great Hassidic rabbi Martin Buber (1897-1965), life is essentially and always relational: we really can only think of ourselves in relationship, whether to others, nature, our work, ideas, and so forth. I must relate to another in one of two broad ways. One (*I-Thou*) is direct, engaged, mutual, present, and open to the other. The second (*I-It*) is detached, objective, not mutual, objective, and sometimes even marked by using the other to meet some personal need (that the other may well agree to meet, such as a surgeon I might consult). Both are a part of healthy life. While the most vicious, dehumanizing behavior can only be done in the *I-It* relationship, it is also in those relationships that we get the vast majority of the business of life done, including buying groceries, doing research, or learning in class. But it is in the *I-Thou* relationship that life attains its full meaning — in fact, for Buber, the presence of God may be encountered in the most complete *I-Thou* moments, emerging, as it were, in the space between and embracing the participants. The “I” participating in

I-Thou is different *in essence* from the “I” engaged in the I-It (Buber [1970]). This perception is so critical, that “Karl Heim has been moved to describe it as a ‘Copernican Revolution’ in philosophy” (Sweetman [2001], p. 145).

Buber was concerned that we participate in a relationship of I-Thou as consistently as possible with our daily life, right here, right now, with the persons right next to us. To the extent that we can do this in all aspects of life, we “emerge from [our] entanglement in busy-ness” (Buber [1970], p. 60). Through everything that becomes present to us in this way, “we gaze toward the train [hem or edge] of the eternal You” (Buber [1970], p. 57; Kaufmann translates *Du* as *You* rather than *Thou*).

Empathy is a part of I-Thou encounters; but, for Kohut, empathy is only the ability to accurately enter into the affective and cognitive experience of someone else. Buber used the term somewhat differently, “to glide with one’s own feeling into the dynamic structure of an object... it means to ‘transpose’ oneself over there and in there” (Buber [1967]). For Buber, empathy seems closer to what I would feel in the other’s shoes, whereas for Kohut it is my awareness of what they feel in their shoes. Using Kohut’s understanding, empathy is a critical, value-neutral technique to gather information. What we do with the empathically gathered information is up to us. Clearly, there is an empathic resonance between two people engaged in an I-Thou relationship — whether lovers, friends, or members of a meaningful community. If understood as Kohut does, it is a *sine qua non* of I-Thou, a part of knowing and being known. However, empathy is a tool that can be used to motivate others, perhaps to sensible ends, or to manipulate them, sometimes (as we will see), to genuinely evil ends. Thus, empathy can be part of both I-Thou and I-It relationships.

It seems to us that, despite all of his genuine concern for his patient, the dialogue between Kohut and Miss F. was confined to I-It until he finally heard the legitimacy of her complaints. She knew he treated her as an object, as someone whom he studied carefully but mechanically, that is, in a way that meant he did not actually listen to, or relate to, *her*. Rather, he was relating to his mental construct of her; and that construct was more determined by his pre-existing theory than by her personhood. Moreover, he was locked into a role that was determined by psychoanalytic “correctness”. Eventually, Kohut realized that what she demanded was legitimate and necessary; and he had to reconsider their interaction. At this point, there was a shift into the realm of I-Thou. This enabled *both* of them to change and for healthier selves to emerge, although it is the patient whose self is entitled to primary attention in the psychoanalytic situation.

Anyone who provides psychotherapy knows that the process is not an unbroken chain of I-Thou moments. Indeed, there are times when we

must disengage from our patients to some extent, to think about what they are doing, their interactions, and even whether they are suffering from a biological process such as depression, that would benefit from medication. In the treatment hour as in life in general, there is a vacillation between I-Thou and I-It in the very best of treatment relationships.

Buber understood God to be the ultimate Thou, entirely other, yet deeply engaged in relationship with us, both transcendent and immanent throughout his creation. He was aware that there may be very special moments when God emerges in the I-Thou encounter between man and man. (He used the gendered term, but we do not think he implied that this did not happen between man and woman or woman and woman.)

While he did acknowledge that these invaluable moments of God's immanence are related to what Schleiermacher called "God-consciousness", Buber was unwilling to limit this to the intuition or feeling of absolute dependence. He believed that "[w]hile the insistence on this element [the feeling of absolute dependence] and its definition are right, the one-sided emphasis on this factor leads to a misunderstanding of the character of the perfect relationship... [F]eelings merely accompany the fact of the relationship which after all is established not in the soul, but between an I and a [Thou]" (Buber [1970], p. 129). Since Schleiermacher, deeply influenced by Kant, thought God was in principle ineffable, he would think it impossible to experience a direct relationship to God. By contrast, "it is one of Buber's central insights that, though inexpressible, the I-Thou relation... is possible in the context of life with others, life with nature, and life with God, [and] can be fully revealed and therefore 'known' in the actual experience of the relationship by the human subject" (Sweetman [2001], p. 147). Here the internal experience is a part of the relationship and cannot be decontextualized from the relationship in which it occurs. In fact, Buber seems to argue that the absolute dependence and the other intuitions that are a part of God-consciousness are the consequence, *i.e.*, secondary to our awareness of the relationship between God and God's creation, including us.

Although I-Thou could not have been a part of Schleiermacher's vocabulary, it seems to us that he might have accepted that Jesus was and is in constant I-Thou relationship to both the Father and those he encounters, whether during his life on Earth, or in his presence through the Holy Spirit to those in the community of believers. He might even argue that those who find an immanent awareness of Jesus' Thou to their I in day-to-day life have indeed become true Christians.

The centrality of relationship becomes particularly clear when Buber considers the childhood origins of I-Thou. His thoughts here are entirely consistent with the child development research: "It is not as if a child first

saw an object and then entered into some relationship with that. Rather, the longing for relation is primary, the cupped hand into which the being that confronts us nestles; and the relationship to that, which a wordless anticipation of saying You, comes second... In the beginning is the relation — as the category of being, as readiness, as a form that reaches out to be filled, as a model of the soul: the *a priori* of relation; *the innate You*" (Buber [1970], p. 78).

For Kohut, the first cause of much, if not most, psychopathology is a failure in the relationship between infant/child and caretakers to succeed in the longing for relationship in which the partners can find self-object experiences, that is, in I-Thou. The reasons why the primary relationships fail are legion and beyond the scope of this paper, but for Kohut repair of the consequences requires creation in the transference of what we think is I-Thou. We cannot help but notice, when writing this, the different quality of "selfobject relationship" and "I-Thou". The latter seems so much more complete, but the former has a place as well.

Sweetman discusses the difference between I-Thou and I-It and argues that Buber thinks that the "information" derived in both I-Thou, and I-It is "objectively real". The latter is subject to objective verification, while the former is not. Objective verification, however, does not necessarily determine the truth-value of what we know. Rather, "Buber cannot describe fully what the I-Thou relationship involves, because this realm must ultimately be experienced to be truly known. Nevertheless, he can *to some extent* describe the structure of human experience philosophically so as to reveal that I-Thou relationships are possible, valuable, and ontologically superior to I-It relationships. It is then up to us to recover or retrieve this experience for ourselves... It is possible, that is, to describe or conceptualize certain experiences (albeit inadequately) which must ultimately be experienced in order to be fully known" (Sweetman [2001], pp. 155-156) — even though they cannot be abstracted into objectively verifiable data.

Still, as therapists, we are required to struggle with the difficult task of moving back and forth between these two perspectives in order to meet the complex needs of our patients. Failure can come in many forms, but biological reductionism is one. The claims of Nobel laureate Francis Crick show us where this leads: "[Y]ou, your joys, your sorrows, your memories, and your ambitions, your sense of personal free will, are in fact no more than the behavior of a vast assembly of nerve cells and their associated molecules" (Buber [2000], online text).

Crick certainly would have no place for Schleiermacher's concept of "sin" (that which removes us from the possibility of God-consciousness), but we think it is useful. When we act in a way that annihilates the poten-

tial for I-Thou, might that appropriately be considered “sin”? We do not refer here to that normal, inevitable, even necessary and useful vacillation between I-Thou and I-It that daily life requires. Rather, we refer to the deliberate (as opposed to unintended) treatment of the other in such a way that we descend into a pit of “I-It-ness”, in which we and others become mere objects and where there is no potential to experience God’s immanence. At its most extreme, we might think of the moment in *Sophie’s Choice* (Styron [1981]) in which the Nazi officer exercises extraordinary empathic skills to deeply sinful ends. He demands that Sophie choose which of her two children will live and which will be exterminated, her son or her daughter. The incalculable evil of the officer destroys the potential for Sophie to be a Thou as she looks into the eyes of the daughter she chooses to sacrifice. Here we see the officer’s misuse of his impressive empathic skills to commit soul-murder. Buber’s central insight that the I of I-It is different than the I of I-Thou reminds us that the officer destroys his own soul as well. Whether redemption of their souls could occur is a matter for another discussion.

Let us make a rather dramatic shift back to Kohut and Miss F. Certainly, nothing like Sophie’s choice was involved. However, did Kohut needlessly do things early on that prevented the potential for an I-Thou encounter? Eventually, he came to believe something like this — and he considered this shift from what we think can be understood as a movement from I-It to I-Thou to be important enough that he devoted the rest of his professional life to understanding (1) how this happened in particular analytic situations and (2) how he and others might undertake their psychoanalytic work in a way that was more consistent with the I-Thou stance. He did not use Buber’s terminology, however.

Gabriel Marcel

Gabriel Marcel (1889-1973) is generally labeled a Christian existentialist philosopher. He built upon Buber’s thinking; but to us his language sometimes seems more accessible than Buber’s and some of his ideas offer specific value for psychotherapists.

Marcel emphasizes two general ways of behaving towards others: *disponibilité* and *indisponibilité*. These are related to the I-Thou and I-It and are generally translated as *availability* and *unavailability*. *Disponibilité* means that I am available to someone, that my resources are at hand to offer; and *indisponibilité* means that I am not available, that there is some measure of alienation — that the other is not a Thou, but a He, She or even It (Treanor [2004]).

Marcel could not have known Kohut's work, but he describes the two ways that Kohut interacted with Miss F.: "The other, insofar as he is other, only exists for me insofar as I am open to him, insofar as he is a Thou. But I am only open to him insofar as I cease to form a circle with myself, inside which I somehow place the other, or rather his idea; for inside this circle, the other becomes the idea of the other, and the idea of the other is no longer the other *qua* other, but the other *qua* related to me" (Marcel [1949], pp. 106-107).

Treanor (2004, online) even states: "If I treat the other person as purely external to me, as a 'Her', a generic Ms. X. [rather than F.], I encounter her 'in fragments' as it were." He continues: The person who is *disponible*, who is available or disposable to others, has an entirely different experience of her place in the world: she acknowledges her interdependence with other people. Relationships of *disponibilité* are characterized by presence and communication between persons *qua* other, *qua* freedom — a communication and communication between persons who transcend their separation without merging into a unity, that is, while remaining separate to some degree. "It should be obvious at once that a being of this sort is not an autonomous whole, is not in [the] expressive English phrase, self-contained; on the contrary, such a being is open and exposed, as unlike as can be to a compact impenetrable mass" (quoted from Marcel).

Here Marcel underscores the futility of pride (*hubris*), an illusion that it is possible to exist and draw one's strength and capabilities solely from oneself. This parallels Schleiermacher's concept of sin, in that isolation is not only separation from others, but also from God. We regularly hear our patients tell us that they grew up with the admonition they continue to believe, that they are not to rely on others, that they are to be independent and manage for themselves. Of course, it does not work, because it really means to try to live without selfobject experiences, which (as Kohut has shown) is as possible as living without relying on oxygen. Again, this is similar to Schleiermacher's concept of the community setting the stage for sin, that is that "God-forgetters" cannot help but raise "God-forgetters".

Borderline patients frantically seek to possess the other, like someone gasping for air, to control the other's behavior much as they expect to control the movement of their hand. They cannot tolerate setting the others at a distance, recognizing their autonomy and freedom, as Buber tells us is required for an I-Thou relationship. At least when these patients are in states of self-fragmentation, no reciprocity is possible, because it cannot be demanded. Reciprocity of *disponibilité* is analogous to "a being awaiting a gift or favor from another being, but only on the grounds of his liberality; then he is the first to protest that the favor he is asking is a grace, that is to say the exact opposite of an obligation" (Marcel [1951], p. 179).

Of course, patients will endeavor to extract responsiveness from their therapists and we have an obligation to them. Anyone who has treated a borderline patient is well aware of the dehumanizing misery sometimes inflicted upon us by these patients — and the rage that it can evoke in us. According to Treanor, Marcel does not shy away from the affective elements that accompany being “with” the other in a relationship of reciprocal *disponibilité*, in particular love, hope, and fidelity. He recognizes that we are bound to one another through “fraternity”, a sense of sharing the joys and sorrows common to the human family, through what we suggest is an empathic grasp that we all struggle through the human condition together.

While those affects enhance and deepen our core self experience, the ones that are problematic come when interactions leave us aware that the other has totally denied our personhood and successfully left us feeling that we are nothing other than an “It”. There are times when our patients attack us without mercy, completely failing to realize that we too struggle to understand — although sometimes without success. We know that somehow our empathy has been insufficient, that we have failed in some way, and we feel completely reduced to objects. They can push us to the point where we wish to be free of them; and it can get so bad that, when they threaten us with suicide, we can think: “Go ahead”. We have been turned into someone filled with hurt and rage and we may wish to isolate ourselves within a protective cocoon. This, however, is a moment of greatest opportunity. Our task is to recenter, to regain our *disponibilité* and find a way back into recreating the I-Thou in the transference. If we can do this, the patient has been offered a genuine corrective emotional experience, a moment of grace.

It seems to us that Marcel and Buber do not emphasize the horrendous affects that we can feel when thrown from any sense of I-Thou. These affects can create a barrier to recapturing our humanity. They are dark moments that happen to all of us, in all manner of relationships, and they can be most intense with those we love most dearly. Then we are in particular need of “the person who is at my disposal... who is capable of being with me with the whole of himself when I am in need; [and I do not merely need] the one who is not at my disposal [and] seems merely to offer me a temporary loan raised on his resources. For the one I am a presence; for the other I am an object” (Marcel [1995], p. 40). If I find that the memory of a loved one, a friend, a supervisor, my hard-won training, or even an awareness that God is *disponible* to me in the therapeutic moment, if I open myself to that possibility, I become restored enough so I can again become *disponible* to the other and myself. Again I am able to do what Buber recommends (Buber [1999]) in his comments about psychotherapy.

The therapist “sets the other at a distance”, recognizing the integrity of the other, while opening himself to the I-Thou/*disponible* encounter. In Kohut’s terms, this enables the patient to find a selfobject experience in the transference that contains their self so that they may reorganize it into being more flexible, coherent, and vital.

We may find in the best encounters with others, those marked by complete, mutual recognition, that we may be aware of God’s presence; and we may also find such complete denial of this I-Thou mutuality that our experience is that our self has been annihilated, precipitating the worst of human emotions. It is at these horrible moments that we are in the greatest need of grace. If we have recognized God-consciousness in the best I-Thou moments, it can give us an awareness that in the darkest moments God’s grace is present for us to recognize and accept that we are located within a ground of being that can hold, restore, and redirect us.

This recognition is not a part of usual psychoanalytic discussion and dialogue.

Clinical Implications and Illustrations

We have tried to show that the thinking of Schleiermacher, Buber, and Marcel integrates with, and adds to, Kohut’s self psychology. The implication is that there is a central guiding principle for all human interaction, of which psychotherapy is but one example: how shall this particular relationship be conducted so that there is a possibility of an I-Thou encounter, perhaps even a moment of God-consciousness? When this idea guides our way of listening, a great deal changes. What we are likely to understand from the same material will be different and then our interpretations and other interventions will change, with the inevitable result that treatment will follow a different path. Of course, there are times when *disponibilité* is sufficient if I interact in the realm of I-It — while not precluding the potential for deeper interaction. The etiology of psychopathology that Kohut describes using the concepts and intersubjectivity are entirely consistent with what we have just outlined, but the language offered by Schleiermacher, Buber, and Marcel can enrich our understanding of the same data.

While it is beyond the scope of this essay to discuss therapeutic technique in detail, the clinical material that follows briefly considers what is required for *disponibilité*, some thoughts on etiology, how what is heard and said changes, and whether actual God-consciousness can ever become an overt part of treatment.

One of us (HB) treats many adults with Attention Deficit/Hyperactivity Disorder. Throughout their lives, these patients have had periods

of inattention at inopportune times. Throughout their life cycles, this has complicated their interpersonal relationships and their academic and vocational success. Some of them have had understanding and effectively supportive families and social networks, so they have been able to find ways to navigate quite effectively through how their biology affected them. Some have even turned their scattered thought process to very creative ends. Those around them have been *disponible*, have made self-object experiences possible, and enabled them to develop healthy self structures, though they still may need medication. In this case, *disponibilité* requires only careful evaluation, prescribing medication, and an appropriate follow-up monitoring.

More commonly, many of the interactions these patients have had were not successful. Teachers did not understand why Johnny did not listen or why he got an A on one test and a D on another. An explanation was required and it might have been that he was lazy or perversely rebellious — and that is the way Johnny was treated. This mirror provided by the teacher can begin a pattern of poor self-esteem and anger at authorities. Some parents may be capable of dealing with this and helping Johnny to alter these interactions, but others complicate the problem with comments like: “Can’t you ever do anything right?” The result may be a pattern in which others, because they do not understand that Johnny is inattentive because his brain does not filter information in the usual way, will create a concept of Johnny that is not accurate. Their idea of Johnny is placed in the circle that Marcel describes, but Johnny himself remains outside it; and Kohut has shown us that this makes it impossible for Johnny to find selfobject experiences and his core self can be damaged. Medication is only part of the psychiatrist’s job. *Disponibilité* requires a struggle to find ways to open the circle of the therapeutic relationship, so that Johnny can find selfobject experiences, and this means that the I-Thou must remain a central focus and be sufficiently understood and explained that he can carry this into other aspects of his life.

Not infrequently, people like Johnny have been so damaged, that they do not even conceive of the possibility of I-Thou. It is not the therapist’s right to determine the goals for Johnny’s treatment, but it is also not possible to operate without our own values being a part of the calculus as to where the treatment will go. Even the most troubled patients usually have a longing to be welcomed into I-Thou, even when this is deeply defended against. It is all too easy for therapists to disregard this and focus merely on what can be accomplished purely within the realm of I-It. Sometimes practicality and the limits of available resources and time cause this. However, many times it is unwillingness on the part of *both* the patient, *and* the therapist to risk entering I-Thou, particularly when it is rebuffed again and again until the right path is found.

Examples from Clinical Interactions

The following case vignettes from HB's practice illustrate how awareness of the above may shift what is heard and said, that moments of profound and therapeutic God-consciousness may happen in the therapy hour, and that some form of God-consciousness may contain the therapist in a useful way.

Mrs. V. is a senior executive at a major manufacturing corporation. She returned to treatment because of the turmoil she felt in relationship to her sister, Dr. L., who is a successful academic at a prestigious small college. Dr. L. had been having difficulty completing a book and had started to drink so heavily that it came to the attention of her colleagues. Despite tenure, her job was in jeopardy. Mrs. V., her brother, and Dr. L.'s son intervened, and Dr. L. was admitted to an alcohol treatment center. She did well following discharge, completed her book, and then started to drink again. Mrs. V. was distraught and her efforts to help were met with fury. Dr. L. had even refused to speak to their brother when he tried to intervene again.

Alanon wisdom was that nothing Mrs. V. could do would stop her sister's drinking, that she did not cause her sister's drinking, could not change it, and could not cure it. Here it might be possible to think about "appropriate boundaries" and that these would require separating oneself from the alcoholic. Nevertheless, we thought about her wish to be available (*disponible*) to her sister and how this was humanly appropriate. I suggested that she was being excluded from the circle of her sister's being, and only a misrepresentation of her as an interfering younger sister was admitted. This left Dr. L. isolated and alienated, which was the state that she seemed to be trying to self-medicate with alcohol. We realized that what was troubling Mrs. V. was that she was an It in her interactions with her sister, meaning that there was no possibility for her to be the I of I-Thou, only the I of I-It. We realized that while she certainly could not stop her sister's drinking, it was fair to point out the alienation that her sister was provoking for both of them, for the others in her sister's life, and even for the important work that her sister was doing. We also thought about how she might deal with the pain of the "It-ness" she felt and the anger that it provoked. I literally used Buber's and Marcel's language with Mrs. V.; and she thought these actual words would be useful as she again tried to approach her sister, particularly since the nature of her sister's work was such that she certainly had some familiarity with both Buber and Marcel.

The importance of responding with *disponibilité* remains a part of the human condition, even if it is rebuffed. The hurt and anger that occurs

because the "I" cannot be fulfilled is inevitable, and it can provoke one to abandon the other. Determining how one proceeds in the circumstance that Mrs. V. faces is secondary.

Mr. L. is a forty-year old single man who has been preoccupied with, and masturbates to, sadomasochistic sexual fantasies. In these a woman, dressed entirely in black rubber and wearing a gas mask strangles him; and he ejaculates at the point in the fantasy when he is about to expire.

His father taught at a college with a very strong religious outlook and the family was active in an evangelical church. He described how sin was a major focus in his family. I asked him what that meant. He said: "Disobeying the rules". He was taught that these were God-given rules. He currently realizes that the rules were actually interpretations of the Biblical text determined by his parents, his minister, and church elders; and he thinks that the point of the rules was to control his behavior so that he would bend to their will. He sees this as different than being a part of how parents guide children so that they develop into healthy people. Accomplishing endless tasks took precedent over any shared fun and sensuality seemed entirely off limits. For his family, fun was not fun. Instead it was frightening over-stimulation.

As we talked about this, I said: "Is it possible that some things are actually wrong, not because they break any abstract rule, but because they interfere with developing happy and wholesome relationships?" He was stunned at this idea, but soon began to think about how the "sinfulness" of his sexuality was actually "sinful" since it was the epitome of denying relationship in what should be a loving act that, at least in some circumstances, could actually even be sacred.

I cannot imagine that I would have offered either patient the interpretations without grounding it in the understanding described in this paper. There can be no question that these ideas were helpful for them.

I will describe an extraordinary treatment hour when a patient and I had a profound, entirely unanticipated experience of God's presence with us. This was a shared experience that was overwhelming in its intensity. We discussed it many times, agreed about what had happened, explored its ramifications, and realized that it had valuable, lasting effects on us both. This has been followed by further experiences of immanent God-consciousness when treating other people. Some were nearly as intense, shared, and discussed in treatment hours. Most were merely my awareness of the immanence of God's presence as a quiet, settling, guiding force during some of the inevitable difficult moments and impasses that all therapists encounter; and they were not shared with the patients. I was alarmed by the first experience, initially wondering if I was having some sort of psychotic episode, but it proved to be an unwarranted fear.

Shared mystical experiences are supposed to be rare, so this one has stayed with me in a way that has required me to explore it again and again. One way I did this was to attend a continued education conference on Spirituality and Healing at Harvard. There was a point when it was appropriate to share it with the group and, at my request, the course director asked the roughly 300 other participants if any of them had had similar experiences. Over one hundred of them raised their hands! This furthered a developing conclusion that I was forming, that, as the Delphic is alleged to have said to the Spartans, "Bidden or not bidden, God is present". Perhaps it is up to us to open ourselves to guidance, protection, and strength offered to us.

Rev. B. was a thirty-year-old minister in a liberal, protestant denomination. He had graduated from a college and a divinity school that are both rigorous and undeniably respected. He had begun his first job as assistant pastor at an important church. Although his family was responsible, warmth and empathy often were lacking. He had expected to marry a classmate from the divinity school, but her dedication to her career and other factors related to their individual psychodynamics led them to end those plans.

He sought treatment because he was feeling depressed and overburdened, even to the point of questioning his vocation or at least wondering whether working in his particular parish was adequately serving the needs of the poor and disenfranchised. Exploring these issues and their psychodynamics had been the major focus of our work together.

In the session I will describe, Rev. B. came in feeling quite upset. His grandfather had died, and the family had asked him to preside at the funeral. He was not close to that grandfather, who had had a lingering and painful illness that made his passing a blessing. His upset was not about his loss. Rather, it was because he realized how his family had remained aloof from the funeral service. His parents regularly attended religious services, but Rev. B. felt that religion had little daily impact on their lives. Sometimes, they would trivialize theology and he thought they neither really participated in the community spirit of their religion, nor considered that their interactions with others there had any spiritual import. He was angry at their disengagement and the way they trivialized the funeral service. He was upset that, even at this time of grief, he was unable to reach them.

I said: "You mean that, even during the service, when God could have been experienced as a real presence, you could not help that to happen within your own family?"

"Yes."

I thought of a passage in Anne LaMont's *Traveling Mercies* (Lamont [2000]). She was in the throws of a horrendous addiction and wrote about

one very low point in which she felt that Jesus was in the corner of the room, saying nothing, just being there. I think that what she described was a mystical, not a psychotic experience. I referred to that, suggesting that he hoped to achieve that sort of divine presence within his family, at least from time to time. I added that he hoped he could help his family have an experience “as if Jesus were sitting in that chair (pointing to one in my office)”.

At that point, neither of us spoke, or even could speak. Eventually I said: “You know, Jesus is in the room now”. He nodded in agreement. We tried to talk about what was happening, but we could say very little.

It is difficult to describe just what this was like. It was not visual, but certainly powerful and remains so as I write this. It did not feel merely like extreme, mutual empathy — although this may have set the condition for what happened. It was highly charged, and there was an intense reality of a divine, transcendent presence that made it difficult to breathe, and left the hairs on my arms standing on end. I wondered if I had had a psychotic episode, since nothing like this had ever happened to me before, but I was reasonably sure that something valuable had happened — that together we had tapped into a profound source of comfort and power that we both believed was God.

The following session, I asked him if he thought that it was metaphorical that Jesus was in the room. “No. He was here”, was the reply.

It is important to insert here that although we used a specifically Christian imagery, we did so because of his vocation and our shared background. We (and Rev. B.) are convinced that the sacred is available to persons of all religious persuasions. It certainly is not confined to people who share a Christian faith.

Shortly after the session I have just described, Rev. B. encountered an extremely difficult interpersonal situation that he handled beautifully. Initially, he felt overwhelmed and could barely work that day. During the afternoon, he prayed that he could not deal with this alone and asked God to be with him and the other person when they met that evening. He described this to me at length the following day. I pointed out how well they had dealt with this and we thought about what had made him so effective. Again, we stopped talking. Jesus was back in the room.

He concluded what can only be considered a successful treatment and was convinced that it was greatly facilitated by these encounters.

Similar, though not quite as intensely shared experiences have happened in treatment hours with two other patients. One was a physician, a non-practicing Jew, married to a woman whose religious background was Christian. Following this, she converted, and they found great value in the synagogue they had joined. The other was a Roman Catholic college student, who also thought the experience had extremely salutary effects.

Conclusion

We have shown that, despite some real differences, there is a basic consistency in the thinking of Schleiermacher, Buber, Marcel, and Kohut. This offers a philosophical and theological ground for psychoanalysis. It is becoming a given that the psychoanalytic theory consistently considers relationships and their consequences. We suggest that all human relationships are embedded in a greater relationship to the transcendent and that mindfulness of this possibility may change the way we encounter others, including our patients, and how we think about their clinical material.

Although few would argue that the existence of God can be proved, God-consciousness is something that is available and very real to those who experience it. It has been attested to for millennia and we have described such experiences in clinical practice.

We are concerned that, because religion is so widely understood according to ancient theologies, it seems absurd to many in our era. Certainly there is no shortage of preachers who define faith in terms that many find impossible, even repulsive. The consequence is that people with a more modernist world-view reject religion without considering the sorts of theological perspectives we have outlined. As a result, in Walter's terms, they are denied "the knowledge and protection of God". They may do this in a way that can only be considered intellectually careless. Homer's admonition that "All men have need of the gods" may be treated as though uttered by someone who should be dismissed as a thinker of little merit.

Consistent with the goals of Metanexus, we hope this outline can help the process of recapturing an intellectually respectable theological/philosophical perspective that we believe is essential if psychoanalysis, psychology, and psychiatry are ever to ground their theory and practice in an awareness of the transcendent. Should this happen, it will be helpful not only to patients, but also to practitioners in their professional and personal lives.

Perhaps we will broaden our understanding and will come to share Paul Tillich's tragic understanding that "neurosis is a way of avoiding non-being by avoiding being" (Tillich, *Brainy Quote*).

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Hermeneutics, Neuroscience, and Theological Anthropology — First Step of Talking about the Subject*

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Introduction

Confronted by the various advances in science and technology in the 21st century, which shed new insights into the genetics, physiology, psychology, and behaviour of man, one cannot but reflect on our understanding of the nature of human experience in light of these new breakthroughs. Tracing the journey of the quest of the understanding of the nature of human experience over the centuries, our society has indeed travelled a long way from the pre-modern notion of soul, the early-modern notion of mind, the late-modern notion of brain, and the postmodern notion of self. While these various attempts through theology, philosophy, and science to elucidate the nature of human experience have provided profound insights into our very own existence and experience, they continue to represent contradictory and mutually exclusive discourses on the human experience.

This paper attempts to demonstrate the usefulness of the notion of multi-layered personal narrative as a new way of talking about human experience. It originates from the reading of the Changeux-Ricoeur Dialogue, *What makes us think?*, which explores where and how science and

* Originally presented at the 2008 Metanexus Conference, "Subject, Self, and Soul: Transdisciplinary Approaches to Personhood", Madrid, July 13-17, 2008; published in electronic form on the Metanexus Global Spiral, www.globalspiral.com.

philosophy meet and what the contemporary role of religion is. It is argued that the notion of a multi-layered personal narrative is a candidate for the “third discourse” suggested in the Changeux-Ricoeur Dialogue, that may bridge science and philosophy and embrace “the religious”. It involves dialoguing with the theological methodology outlined in Alister McGrath’s *Scientific Theology* in such formulation.

The Journey from Soul to Self

Philosophical anthropology is a specific discipline that explores issues of the human nature. It has been argued that a concept with the depth and breadth such as “consciousness” is required for addressing the complex and paradoxical issues of human nature and experience (Wong [2001]) and there is a contemporary revival and convergence of interest across the various disciplines in “consciousness”, which has been hailed as the “basic question” of theology (Pannenberg [1991]), the “hard problem” of philosophy (Chalmers [1996]), and the “final frontier” of neuroscience (Andreason [2001]).

The philosophical anthropology discussed in this essay on ways of talking about human experience is more focused than those usually or previously understood. Four broader meanings are generally accepted: (1) the account of man that is contained in any comprehensive philosophy; (2) the particular philosophical orientation of humanism, in which the study of man provides the foundation for all else — a position that has been prominent since the Renaissance; (3) the distinctive 20th-century form of humanism that takes the human condition, the personal being-in-the-world, as its starting point; and (4) the anti-humanist reference to any pre-scientific or non-scientific study of man. These meanings were seen at different stages of recorded history, where the philosophy of man varies according to the prevailing philosophy, theology, and science.¹

For the ancient Greeks, metaphysics was the first philosophy. According to Plato’s dualism, the identity of man derives not from the material body, but from the immaterial soul. Aristotle rejected Plato’s dualism and saw the soul as the form of the body that gives life and structure to the specific matter of a human being.

During the medieval period, theology was given primacy and the creation story, the fall, redemption, and eternal life after death formed the basis for the doctrine of man. Philosophy was assimilated into Christian

1. See “Philosophical anthropology” at *Encyclopaedia Britannica Online*, <http://search.ed.com/eb/article?eu=115088>.

thought. The works of Augustine gave prominence to the Platonic views and regarded the body as a prison of the soul and a mark of man's fallen state. Drawing from Aristotle, Aquinas rejected the Platonic tendency to devalue the body and insisted that body and soul made a psychosomatic unity.

In the cultural context of the Renaissance, the rise of humanism witnessed the themes of the dignity and excellence of man expressed in works such as Pico della Mirandola's influential *De hominis dignitate oratio* (*Oration on the Dignity of Man*), which broke with Greek and Christian traditions by insisting that man distinguish himself from the rest of creation in that he has been created without form and with the ability of making of himself what he will. This optimism was essentially the product of Neoplatonic thought which views man as at least potentially a non-natural, godlike being. However, there was also a more skeptical and Aristotelian view that stressed the limitations of man's intellectual capacities.

These two anthropological perspectives became more clearly articulated through the rise of scientific thought during the 16th and 17th centuries. Michel de Montaigne, the 16th-century French skeptical author of the *Essais*, was probably the first to adopt the empirical approach in anthropological reflection, arguing that one could only rely on senses and satisfy with appearances rather than metaphysical certainty or church dogma. By contrast, Descartes continued the theme of optimism about man's capacities for knowledge for himself by the proper use of his reason. During this period, one also witnessed the development of physical anthropology stimulated by European encounters with the great anthropoid apes of Africa and Asia, and the rise of cultural anthropology made necessary by the encounter with people in the rest of the world during the great discovery voyages, which provided further impetus to the study of man in regard to his nature, abilities, earthly condition, and relationships to the material environment.

While the Enlightenment in the 18th century was characterized by continual optimism in the ability of man to develop progressively, morally, and materially by using reason to know both oneself and the natural world better, a divergence between rationalist and empiricist traditions persisted. By insisting that studies of the knowing and moral subject must be founded in philosophical study through the critical use of reason (*i.e.*, man studied as a finite and rational subject, limited by the constraint that the content of its knowledge is given in the form of sense experience rather than pure intellectual intuition), Kant defined the scope of philosophical anthropology in the stricter sense adopted in this thesis. This is also the way philosophical anthropology is understood by Paul Ricoeur (1986).

Ricoeur basically argues against dualism in his *Freedom and Nature* (1966). He understands human nature as basically fragile because of the disproportional tension of the infinite and finitude in the human being, resulting in its fallibility. The notion of fallibility, rather than fallen-ness, is further elaborated in his *Symbolism of Evil* (1967), in which he criticizes Augustine's doctrine of original sin though he acknowledged the Augustinian insight into the matter. This constructive and positive stance of critique is characteristic of Ricoeur. As developed in *Freud and Philosophy* (1970), he describes this stance as a dialectic between the hermeneutics of renewal and the hermeneutics of suspicion. He aims at the recognition of the plurality of meanings or interpretations without running into relativism in *The Conflict of Interpretations* (1974). He is not satisfied with a positivist, existentialist, or purely phenomenologist understanding of man and argues for a narrative selfhood in his *Time and Narratives* (1984). His idea of self was further developed in *Oneself as Another* (1990), which addressed personal identity in terms of *idem* and *ipse*. This work provides a link between his ethics and philosophical anthropology, that he defines as "living well, with and for others, in just institutions". This work also provides the basis for his dialogue with Changeux in *What Makes Us Think?*

The above historical sketch of various attempts of formulating an anthropological discourse highlights how these attempts have been influenced by tradition-bound concepts, languages, and choice of words and oscillate between one extreme of substance dualism (in order to preserve the primacy of the religious notion of divine revelation and soul) and the other extreme of secular humanism in philosophy and eliminative reductionism in science.

The Need for a "Third Discourse"

This never-ending tension between the scientific, philosophical, and theological formulations has been explored by Ricoeur and various scientists, philosophers, and theologians.² The notion of a multi-layered

2. Paul Ricoeur, *Toward a Hermeneutic of the Idea of Revelation*, in Paul Ricoeur, *Essays on Biblical Interpretation* (Philadelphia, Fortress Press, 1980), pp. 73-118; Emmanuel Levinas, *God and Philosophy*, in Sean Hand (ed.), *The Levinas Reader* (Oxford, Blackwell, 1989), pp. 166-189; James Faulconer (ed.), *Transcendence in Philosophy and Religion*, Indianapolis, Indiana U.P., 2003; Linda Woodhead, "Theology and the fragmentation of the self", in *International Journal of Systematic Theology*, 1, 1999, pp. 53-72; John Webster, "Eschatology, anthropology, and postmodernity", in *International Journal of Systematic Theology*, 2, 2000, pp. 13-28; Thomas Smail, "In the image of the Triune God", in *International Journal of Systematic Theology*, 2003, pp. 526-32; Edward Russell, "Reconsidering relational anthropology: A critical assessment of John Zizioulas's theological anthro-

personal narrative this thesis explores develops from an attempt to formulate a “third discourse” suggested in the Changeux-Ricoeur Dialogue, which they think may bridge science and philosophy and clarify the contemporary role of religion. To facilitate further discussion of the notion of a multi-layered personal narrative, a quick review of the Changeux-Ricoeur Dialogue is in order here.

Ricoeur’s dialogue with Jean-Pierre Changeux, Professor of Neurobiology at the Collège de France, can be seen as an attempt to bridge the gap between the forward focus on discoveries and advances of science, on the one hand, and the “narcissism” of philosophy, on the other hand, which is preoccupied by an immense textual heritage, one that is uninterested for the most part in recent developments in the sciences (Changeux & Ricoeur [2000], p. ix) On the one hand, Ricoeur’s synthesis of “reflective philosophy”, “phenomenology”, and “hermeneutics” and his emphasis on the integrative power of “acting, thinking, and feeling” (Changeux & Ricoeur [2000], pp. 4-5) provides a promising approach to integrating ontology, epistemology, and moral theology in the understanding of the notions of brain, mind, soul, self, person, and human nature. On the other hand, Changeux, as the author of *Neuronal Man* (2000) is also well-qualified for the dialogue, drawing our attention to the fact that since the decisive event of a talk he gave on the neurosciences, shortly after *Neuronal Man* appeared, to a working group of the *Comité Consultatif National d’Éthique dans les Sciences de la Vie et de la Santé*, the advisory committee of the French government on issues in bioethics, he has not ceased to reflect upon the question: How can neuronal man be a moral subject? (Changeux & Ricoeur [2000], p. 8).

Their choice of the genre of dialogue for discussing is significant. The genre is well-established in the history of philosophical enquiry and can be traced back to the time of Socrates. The term *dialogue* is derived from the Greek *dialektike* (“dialectic”), meaning “to converse” or “to discourse” and the dialectic that is ascribed to Socrates is close to this sense. It refers to his conversational method of argument, involving question and answer (Flew & Priest [2002], p. 105). While in the Middle Ages the term was often used to mean simple logic, Kant applied it to arguments showing that the principles of science have contradictory aspects. Hegel thought that all logic and world history itself followed a dialectical path, in which internal contradictions were transcended, but gave rise to new contradictions that required resolution as well (Honderich [1995], p. 44).

pology”, in *International Journal of Systematic Theology*, 5, 2003, pp. 168-186; R LeRon Shults, *Reforming Theological Anthropology. After the Philosophical Turn to Relationality*, Grand Rapids, William B. Eerdmans, 2003.

Dialectic is therefore a sort of philosophical dialogue — a back-and-forth process between two or more points of view. There are various ways one might formulate this process. According to Baggini and Fosl, the dialogue takes the following form:

- (1) One party advances a claim;
- (2) Some other party advances a contrary claim or the other launches into a critical analysis of the claim, looking for incoherencies, or logical inconsistencies, or absurd implications in the claim;
- (3) The first party attempts to defend, refine, or modify the original claim in the light of the challenge brought by the other;
- (4) The other responds to the first party's defence, refinement, or modification.
- (5) Ultimately, a more sophisticated and/or accurate understanding of the issue at hand emerges (Baggini and Fosl [2003], p. 43).

Baggini and Fosl further elaborate: "Dialectic thinking or dialogue therefore involves some sort of opposition or contrariety between the various thinkers engaged in the process. This sort of opposition is often thought of as the 'negative moment' of the first claim... This dialogue process is often thought of as a sort of engine for philosophical progress... By struggling through a series of negative moments and resolutions to them, dialecticians believe that understanding of the truth emerges... Typically, dialecticians hold that thinking begins in a murky, incoherent morass of many, different, other opinions — some having a glimmer or partial grasp on the truth. Through confrontations with these others and their negativity, a more complete and comprehensive grasp of the one or oneness that is truth emerges" (Baggini and Fosl [2003], p. 44).

However, dialogue does not always work. The historical and famous encounter and dialogue between Karl Popper and Ludwig Wittgenstein, on 25 October 1946, in King's College, Cambridge, lasted only ten minutes or so (Edmonds and Eidinow [2001]). Changeux's earlier dialogue with mathematician Alain Connes saw that "two debaters proceeded from such different premises and were sufficiently dismissive of one another that they resembled two French tankers passing one another at midnight"³. On this occasion, both Changeux and Ricoeur were fully aware of these potential pitfalls. In the *Prelude* which they co-write, they acknowledge their encounter as a dialogue in two voices which they see as a "candid and honest discussion of ideas seldom found in the world today and that this wholly free and open dialogue proved to be an exceptional experience"

3. See <http://pzweb.harvard.edu/shatsnew/changeux.htm>.

for each of them. (Changeux & Ricoeur [2000], pp. ix-x). It is indeed in the context of mutual recognition and admiration that they embarked unto this dialogue between neuroscience and philosophy, with Changeux addressing Ricoeur as “a well-known and admired philosopher” (Changeux & Ricoeur [2000], p. 3) and Ricoeur responding to Changeux’s “words of welcome with an equally warm greeting addressed to a renowned man of science and the author of *Neuronal Man*, a work worthy of the closest and most respectful attention” (Changeux & Ricoeur [2000], p. 4).

The Changeux-Ricoeur Dialogue is in two parts. The first part consists of a series of conversations focusing on the mind-body and related problems, while the second part discusses various issues related to ethics. This paper attempts to show how the mind-body dualism addressed in the first part and “the religious” discussed in the second part is relevant to the discourse about the subject. The following quotations summarize the first part of the dialogue:

To begin, Changeux states: “As a molecular biologist, I find myself confronted with a formidable problem: how to discover the relationship between these elementary molecular building blocks and highly integrated functions such as the perception of beauty and scientific creativity?” (Changeux & Ricoeur [2000], p. 3).

As in his previous book, *Neuronal Man*, Changeux asks: “How can neuronal man be a moral subject?” (Changeux & Ricoeur [2000], p. 8)

Ricoeur responds: “I will restrict myself, modestly but firmly, to considering the semantics of two distinct discourses — one concerning the body and the brain, the other what I will call the mental (Changeux & Ricoeur [2000], p. 14).

Ricoeur explains further: “My initial thesis is that these discourses represent heterogenous perspectives, which is to say that they cannot be reduced to each other or derived from each other” (Changeux & Ricoeur [2000], p. 14).

Ricoeur admits that: “My first problem is therefore epistemological: do neurosciences allow us to correct the linguistic dualism...?” (Changeux & Ricoeur [2000], p. 21)

In other words, Changeux and Ricoeur acknowledge the multiple aspects or dimensions of the human being — molecules, beauty, creativity, and morality and the fact that we humans have two rather distinct ways of talking about the human condition. What they want to find out is whether neuroscience can help us deal with this dualism or not.

The contemporary dualistic understanding of the human being originates with Descartes. He sees mind and brain as two different substances — one immaterial and the other material. The challenge of this substance dualism for Descartes is to explain how these two totally distinct

substances interact. His solution that the pineal gland is the site of interaction has long been demonstrated by the advances of neuroscience as incorrect. However, the influence of substance dualism continues. A major attempt on tackling the issue of substance dualism was the dialogue that took place three decades ago, between Sir John Eccles, a Noble Laureate and at one time a neurophysiologist at the Howard Florey Institute in Melbourne, Australia, and philosopher Karl Popper, who spent some years in New Zealand (Popper and Eccles [1977]). While both entertain a dualism, Popper is more cautious than Eccles who actually argues for a top-down interactionism, *i.e.*, mind influences brain, using theories from quantum mechanics and locating the site of influence to microtubules in the cell. Eccles is probably the last neuroscientist to hold a dualist position.

The Changeux-Ricoeur Dialogue, similar to this dialogue between philosopher Karl Popper and neuroscientist John Eccles in the 1970s, highlights both the fruitfulness and the hermeneutic difficulties in the synthesis of knowledge derived from different academic disciplines. However, unlike the earlier dialogue, the Changeux-Ricoeur Dialogue attempts at going beyond substance dualism in order to advance our understanding of the mind-body problem. The significance of the dialogue is that Ricoeur argues that the real issue is that of semantic dualism and not substance dualism:

Mental is not equivalent to the term immaterial in the sense of something non-corporeal. Mental experience implies the corporeal, but in a sense that is irreducible to the objective bodies studied by the natural science. Semantically opposed to the body-as-object of these sciences is the experienced body (Changeux & Ricoeur [2000], p. 15).

Ricoeur disagrees with the notion of eliminative reductionism that has been popularized by Francis Crick, of the double-helix fame, in his book on consciousness *The Astonishing Hypothesis*, which argues that mental events — sensation, emotion, cognition, volition, are nothing but brain activities.

Changeux concurs with Ricoeur: “I find myself in agreement with you once again. The discourse about the body-as-subject, as distinguished from the discourse about the objective body, or brain, comes under the head of the subject’s processes of mental states, knowledge, emotions, and even intuitions. [...] At first sight it may seem impossible to pass from one discourse to the other, as you suggest. This is an issue of great importance, we will certainly come back to it at length (Changeux & Ricoeur [2000], p. 18).

Ricoeur is impressed by such insights especially when coming from a hardcore molecular biologist: “The way in which you present the research program of the neurosciences, incorporating conscious processes

in it, makes it clear that you are not a reductionist (Changeux & Ricoeur [2000], p. 19).

And we are sure that Changeux accepted Ricoeur's assessment of his position as non-reductionist, because Changeux responds: "Thank you very much — I am very frequently accused of being one! (Changeux & Ricoeur [2000], p. 19).

Ricoeur then moves on to highlight the common mistake of many neuroscientists and how neuroscientists should practise their trade: "The philosopher has a duty in reading scientific texts, to combine semantic tolerance with semantic criticism — to accept in practice what he denounces as a matter of principle, namely confusions that result from illegitimately converting correlations into identification" (Changeux & Ricoeur [2000], p. 40); "The discourse of neuroscience is littered with such shorthand expressions — semantic short-circuits, in effect. They would be innocent enough if they were recognized, and in particular if they were improperly used to support "eliminativist" arguments made by philosophers such as Patricia and Paul Churchland and related claims for a material ontological monism, which I find naïve" (Changeux & Ricoeur [2000], p. 41).

In other words, Ricoeur and Changeux agree that we can exercise methodological reductionism (as semantic short-circuits) as long as we recognize the nature and limitation of such methodology and do not confuse that with eliminative or ontological reductionism.

The second part of the dialogue focuses on the subject of ethics and related issues and the urgent need for an ethics that is acceptable to both the secular and the religious.

Changeux argues that a natural and universal ethics is extremely difficult because of "differences of religious opinion" and longs for a secular ethics beyond culture and religion (Changeux & Ricoeur [2000], pp. 259-266).

Ricoeur acknowledges Changeux's concern, but is not as optimistic as Changeux about a universal ethics that does without the "the religious". His reason is that to belong to a religious tradition (or, as a matter of fact, not belonging to a religious tradition) is "to belong to a language" and one's language is one's "limit of the world and experience". Therefore, instead of eliminating "the religious", one should try to dig deeply enough into one's own religious or non-religious tradition in order to move beyond the limit of one's language and move towards what he calls the fundamental and what others reach by other route. In other words, one can shorten the distance between oneself and others along the dimension of depth. He says: "on the surface, the distance separating us is immense, but if I dig down, I draw nearer to the other, who travels the same path" (Changeux & Ricoeur [2000], p. 270).

Changeux instead prefers to travel the same path without religion, as it would be more effective.

Ricoeur, however, insists on the reality of fragmentation of humanity and the multiplicity of discourses and religions (Changeux & Ricoeur [2000], p. 275). He prefers correctives rather than dismissal of the religious discourses that he sees as fundamental to the human experience. He reckons that one has to challenge the dogmatic claim of the religious person to have sources of truth that are denied to others (Changeux & Ricoeur [2000], p. 296). He says that he will achieve this with three correctives — first, the religious sphere exists outside my religion; second, there is the non-religion of my contemporaries; and third, ethics should not be theologico-political, but instead a set of procedural rules for living together in a society where there are religious persons and non-religious persons (Changeux & Ricoeur [2000], p. 297).

In response, Changeux suggests that the aesthetic dimension (art and music) offers a simple way to bring us together — *religare*, the Latin root of our word *religion* — without running the risks that dogmatic discourses involve (Changeux & Ricoeur [2000], p. 303).

Ricoeur responds by referring back to the medieval philosophers who link together the true, the good, and the beautiful under the system of “transcendental”, which means production of the subjective or the capacity beyond the empirical.

Following the above discussion, one can see at least three major issues raised in the Changeux-Ricoeur Dialogue. First, neither substance dualism, nor eliminative materialism is a valid option for the mind-body issue. Second, there is, however, a “semantic dualism” between neuroscience and phenomenology, that is irreducible to either of these and a need to overcome this semantic gap with a “third discourse”. Third, to have a universal ethics that is acceptable to all, one has to address the fundamental or transcendental that brings both the secular and the religious people together.

Both Changeux, and Ricoeur are receptive of the relevance of Spinoza’s discourse of “unity of substance” and his notion of *conatus* to the above three issues. However, Changeux shows a tendency to see that as a purely ontological discourse and to fall into the trap of substance monism and reductionism, based on his optimistic interpretation of *conatus* as the drive towards advances in neuroscience (Changeux & Ricoeur [2000], p. 101). Ricoeur instead highlights that Spinoza calls his ontology ethics and that *conatus* is about the effort to live and to make full sense of life rather than to try to impoverish human experience with the scientific discourse (Changeux & Ricoeur [2000], p. 294). The dialogue demonstrates that the plurality of discourses or polysemy of languages provides

the hermeneutic insight that different discourses reveal different aspects of the total human experience. Furthermore, the focus of this dialogue on ethics, culture, religion, art, and music draws our attention to the relational and transcendental aspects of humanity. This definitely creates a legitimate opportunity for the non-scientific discourses (religious, aesthetic, or creative) to inform, contribute to and enrich our understanding of anthropology. Furthermore, the focus of this dialogue on ethics, culture, religion, art, and music draws our attention to the relational and transcendental aspects of humanity in the form of a multi-layered personal narrative.

The Possibility of a Multi-Layered Personal Narrative

It is clear by now that the major challenge for the notion of a multi-layered personal narrative is how to put the different discourses together without committing the errors of substance dualism, eliminative reductionism, and “semantic amalgamation” (an oxymoronic formulation) of the subjective and the objective, while at the same time it exercises “semantic tolerance” to methodological reductionism for the pragmatic necessity in the real world to use scientific “semantic shorthand” without the mistake of equating correlation with identity.

The following discussion provides a review of recent impacts of the neuroscience of consciousness on psychiatry and a summary of conceptual and methodological issues encountered in the practice of clinical and research psychiatry to demonstrate that semantic dualism, linguistic pluralism, or a multi-layered personal narrative is a valid, realistic, and feasible alternative to substance dualism and eliminative reductionism.

Psychiatry is the branch of medicine which studies the dysfunctions of human feelings, thoughts, and behaviours. This task of psychiatry has always been challenging and we have witnessed throughout history the use of a variety of approaches in this endeavour — from psychoanalysis to neuro-imaging. This reflects the fact that the being or nature of humanity is complex, paradoxical, and multi-dimensional (ontology) and that this dictates that the method of studying psychiatry has been eclectic and multidisciplinary (epistemology). To be human is to be physical, psychological, social or some may say spiritual, or, in other words, being human is being able to sense, think, feel, will, and act; some argue that a comprehensive study of the human psyche can be achieved through a creative integration of observation (empirical), speculation (rational), experience (lived, observed, analyzed, understood), will (action, decision, desire, competence), faith (keeping trust, assent), and participation (praxis/practice).

However, throughout the history of psychiatry, one repeatedly witnesses the fact that practitioners in the field tend to favour or privilege particular methodologies or to over-emphasize particular aspects of a subject, risking over-simplification of issues, misrepresentation of facts, or a compartmentalization of interpretation. We have all witnessed the unfortunate swing of psychiatry between “brainlessness” and “mindlessness”, though the majority of practitioners struggle to maintain a bio-psychosocial or multi-axial approach in their diagnostic and therapeutic exercise.

The last decade of the 20th century was known as the Decade of the Brain. Advances in neurosciences have had a great impact on psychiatry with new insights into the human mind and behaviours. The readiness of researchers to apply these new advances into areas of interest to psychiatrists can be seen in the comment of one of the leading world experts in psychiatry and neuroimaging. Andreason calls consciousness “the last frontier” for the neurosciences. Jeeves, in his *Human Nature at the Millennium*, highlights how advances in neuroscience have caused a resurgence of interest in issues of interest to psychiatry: “One hundred years ago, discussion of the ‘stream of consciousness’ took center stage in William James’s *Principles of Psychology*. Fifty years later, psychologists had relegated consciousness to the wings. Today, a further fifty years on, once again it is moving to occupy centre stage. This change is not due solely, or even primarily, to the efforts of psychologists, but rather to the curiosity and widespread interest shown by physicists, mathematicians, neurologists, and neuroscientists. For psychologists, this renewed interest is one aspect of cognitive revolution in psychology that began four decades ago. Today, psychologists take mental events seriously and have no doubts that their careful study, using diverse experimental techniques, can yield insights into how the human mind works” (Jeeves [1997], p. 174).

One can see how neuroscience has impact on psychiatry by looking further at the study of consciousness. The most significant developments have been the capability of studying consciousness quantitatively, expanding the understanding of consciousness from cognition to emotion, further characterization, and localization of specific aspects of consciousness, increasing awareness of the limitation of naïve reductionism, and the role of *personal* and *subjective* philosophical presupposition in influencing the *objective* interpretation of the data of consciousness.

Finger, in his study of the pioneers in physiology and neurosciences, argued that Roger Sperry’s split-brain experiment and his demonstration of the hemispheric difference were a breakthrough in the study of consciousness: “As a result of Sperry’s discoveries, the subject of consciousness took on a whole new look. He showed that consciousness can, in fact, be studied in the laboratory under controlled conditions. Once shunned

by most experimental psychologists and neuroscientists, his work helped stimulate the 'cognitive revolution' — a movement to study thinking, problem solving, and other higher mental process with the tools of modern science" (Finger [2000], pp. 299-300).

The fact that the consciousness being studied in a laboratory is of ground-breaking significance is also echoed by another historian of science who reminds us of A.N. Whitehead's famous saying: "The effect of physiology was to put mind back into nature" (Harrington [1987], pp. 3-10).

Studying patients with neurological lesions, Damasio shows how the absence of emotions in these patients can break down rationality. He argues, in *Descartes' Error*, that rational decisions are not the product of logic alone, but require the support of emotion and feeling and offer emotion as the scientific basis for ending the division between mind and body (Damasio [1994]). In *The Feeling of What Happens*, Damasio further argues that human consciousness is consciousness of the feeling, experiencing self, the "very thought of" oneself (Damasio [2000], pp. 8-12).

Joseph LeDoux, in his *Emotional Brain*, also gives primacy to feeling in consciousness (LeDoux [1998]). He further summarizes his neurobiology of fear and consciousness in *The Power of Emotion*: "Feelings enter the picture at the level of consciousness... when a basic system such as a system for detecting danger arises in a brain that also has consciousness (that is, a brain that is aware of itself and of its relationship to the rest of the world), a new phenomenon occurs: subjective feelings. Feelings of fear, then, are what happens in consciousness when the activity generated by the subcortical neural system involved in detecting danger is perceived by certain systems in the cortex, especially the working memory system (Ledoux [1999], pp. 143-145).

Neuro-imaging allows us to see brain and mind in action (Posner and Raichle [1994]) Brain activation studies using PET, SPECT, and fMRI have given us a fairly detailed picture of the specific functions of the individual structures of the brain (Frackowiak *et al.* [1997], pp. 3-9, 356-359). We can determine which brain regions are associated with each of the five senses, which regions are activated by motor behaviours, from whole-body movements to the wiggle of a little finger. We can watch various parts of the brain turn on and off as subjects do addition and subtraction, write a letter, experience pain, or gaze upon the face of a friend (Carter [1998], pp. 180-207). Experts in the field talk about "the complete map of brain" (Toga and Mazziotta [1996], pp. 3-23, 445-457) and "imaging of the mind" (Raichle [1998], pp. 278-289). The explosion of data in this field leads to some enthusiastic comments: "The conclusion to be drawn from this growing fund of knowledge is that every event that happens to us or any action we take can be associated with activity in one or more specific

regions of the brain. This includes, necessarily, all religious and spiritual experiences. The evidence further compels us to believe that if God does indeed exist, the only place he can manifest his existence would be in the tangled neural pathways and physiological structures of the brain (Newberg, D'Aquili and Rause [2001], p. 53).

In contrast to Newberg's confidence, Fenwick is more cautious in the interpretation of neuroimaging findings. In *Meditation and the EEG*, he explains that EEG is a gross measure of the summed electrical activity of the brain and that phenomena such as EEG coherence and symmetry do not in themselves imply anything dramatic about the nature of consciousness during meditation. At the same time, he presents a powerful and simple argument against equating meditation with rest and sleep. Even though physiologically they appear indistinct, people are doing different things when they meditate, rest, and sleep (Gottesmann [1999]). Moreover, they say these activities feel different from each other. Therefore, he queries the validity of a strict one-to-one brain-consciousness correlation and also of the feasibility to use purely physical measurements to represent the psychological distinctiveness of various states of consciousness (Fenwick [1987]).

Graham Cairns-Smith, a molecular biologist, notes that there are two outstanding problems of science — the origin of life and the origin of consciousness. He summarizes the unambiguous reductionist view of his discipline on consciousness: "The root phenomena of consciousness are feelings and sensations, for example feelings of hunger or pain, the sensation of the colour blue, and so on. And I take it that the means to produce all such forms of consciousness evolved: that the ability to make sensations such as pain and hunger was perfected by natural selection, because these sensations were useful... Now the ultimate means of production of any evolved function lies in material genes, in messages written in DNA molecules, and the only thing that DNA molecules can do is to organize other molecules. Therefore consciousness comes from an organization of molecules. It is part of the material world, the world of molecular machinery, quite as much as the ability to contract a muscle or convert the energy of sunlight into fuel... Brains are made of standard types of biochemical molecules, essentially the same materials as are found in all living things today. And very much of what goes on in brains can be well understood in terms (ultimately) of the activities of these kinds of molecules" (Cairns-Smith [1996], p. vii).

However, he thinks that molecular biology falls short of explaining the origin of consciousness and acknowledges the inadequacy of reductionism: "Most of what goes on is unconscious. Consciousness remains a mystery. What today's molecular biology fails to provide is an under-

standing of the origin of consciousness as a phenomenon, a proper understanding of what consciousness is in physical terms... Molecular mechanics may explain how muscles contract, but how can it ever explain the sensation of a colour, or the nature and quality of a pang of guilt? Molecular mechanics and conscious experience seem to be worlds apart, as Descartes had insisted they were. But that is not what the theory of evolution says... William James gave us a general resolution of this dilemma more than a hundred years ago. In a nutshell: matter is not what it seems. Or, as we should say now, there must be more to biological material than is summarized in the models of molecular biology. To make any sense of this, we will come to dig a bit deeper: science is not what it seems..." (Cairns-Smith [1996], p. viii).

This caution is also shared by Andreason who asks: If mind is the brain, then where is the soul or sense of self? While she says that PET studies from her centre have linked some of these concepts to neural circuits, especially the inferior frontal-cerebellar-thalamic-frontal circuit, such links are "trivially reductionist". She reckons that: "Mother Teresa will teach us more about the soul than a PET scan can... The recognition that each of us has an individual identity that we call a 'self' or 'soul', that our 'self' is guided by a moral imperative, and that the moral imperative also transcends our individual 'self' and links us to other human beings exists with indelible certainty across cultures and continents. It is no coincidence that Jesus and Confucius independently came up with the Golden Rule" (Andreason [2001], pp. 341-342).

While the reductionist understanding is the most established and published approach in the study of consciousness in neurosciences⁴, the fact that the material reductionist view does not have the final say on the science of consciousness is best illustrated by the comparison of the different interpretations by four Nobel Laureates: "For Jeeves, Francis Crick, in following the reductionist approach, believes that one is nothing but a pack of neurones, no more than the behaviour of a vast assembly of nerve cells and their associated molecules. For him, consciousness depends crucially on thalamic connections with the cortex. It exists only if certain cortical areas have reverberatory circuits that project strongly enough to produce significant reverberations. Together with Christof Koch, they suggest that consciousness may arise from certain oscillations in the cerebral

4. A quick look at some recent published articles in the field reflects a predominantly reductionist approach: Valerie E. Stone *et al.*, "Frontal lobe contribution to theory of mind", in *Journal of Cognitive Neuroscience*, Vol 10, No. 5, 1998, pp. 640-656; Elaine Perry *et al.*, "Acetylcholine in mind: A neurotransmitter correlate of consciousness?", in *Trends in Neurosciences*, 22, 1999, pp. 273-280; Christian Perring, "The neuron doctrine in psychiatry", in *Behavioural and Brain Sciences*, 22 (5), 1999, pp. 846-847. And the list goes on.

cortex, which becomes synchronized as neurons for 40 times a second (Crick [1994], pp. 13-22).

By contrast, Jeeves sees Sir John Eccles advocating a dualism of substance. Consciousness is dependent on the existence of a sufficient number of such critically poised neurones and, consequently, only in such conditions are willing and perceiving possible. However, it is not necessary for the whole cortex to be in this special dynamic state. As far as he is concerned, this provides a basis for the interaction of brain and conscious mind in that brain, receiving from conscious mind a willed action, transmits to mind a conscious experience. However, he gives the consciousness a primary order and everything else is derivative (Eccles [1989], p. 327).

As for Gerald Edelman, his neural Darwinism suggests to Jeeves that consciousness is something that we know what it is for ourselves, but can only judge its existence in others by inductive inference. He refers to *qualia*, as an experience that cannot be derived from any theory. He reckons consciousness is mysterious in the sense that each consciousness depends on its *unique history* and *embodiment*; and, given that a human conscious self is constructed somewhat paradoxically by *social* interactions, yet has been selected during evolution to realize mainly the aims and satisfactions of each biological *individual*, it is perhaps that, as individuals, we want an explanation that science cannot give (Edelmann and Tononi [2000], pp. 157-192).

Finally, in Jeeves's view Roger Sperry believes that consciousness is conceived to be a dynamic emergent property of brain activity, neither identical with, nor reducible to, the neural events of which it is mainly composed. Moreover, while consciousness exerts potent causal effects in the interplay of cerebral operations in the position of top command at the highest levels on the hierarchy of brain organization, the subjective properties are seen as exerting control over the biophysical and chemical activities at subordinate levels (Trevarthen [1990], pp. 282-285).

The *diverse* interpretations of these four scientists of the *same* data set that supports a neural substrate of consciousness remind us of the importance of the *philosophical presupposition* of the interpreter who will accordingly exclude certain explanations and give primacy to others. This highlights the fact of multiple discourses of human nature and experience and the realistic potential of a multi-layered personal narrative that applies semantic dualism and methodological reductionism.

The following example of how psychiatrists talk about depression helps illustrate how semantic dualism and methodological reductionism is being applied in the practice of psychiatry. According to neuroscientific discourse, an underactivity of the monoamine neurotransmitter pathway

causes depression, which can be normalized by the use of Serotonin Specific Reuptake Inhibitor (SSRI) antidepressant medications. According to phenomenological discourse, depression is a process related to loss and grief. The two discourses are irreducible to one another, but are both meaningful to the depressed patient and relevant to the treatment of depression. Moreover, it is clear that the two discourses together (or, in this instance, a bi-layered personal narrative) provide a fuller insight to the understanding and experience of depression, though it is unclear how the two discourses correlate to each other.

Three examples from the author's own research work will further highlight the problems related to philosophical presupposition in the practice of psychiatry and in particular to what methodological reductionism means in research.

The first example refers to the study of brain structure and function of violent mentally disordered offenders.⁵ It is methodological reductionism in action. While not believing that the violence rating scale that I have developed fully represents and describes the violence history and profile of my subjects — mentally disordered patients at Broadmoor Hospital, a maximum security hospital in Berkshire, England —, all the same I rated the whole patient population, 192 of them, and performed EEG on them, some having the post-temporal slow first described by Sir Dennis Hill. I looked for abnormalities at the amygdala hippocampal complex, qualitatively and volumetrically using magnetic resonance imaging (MRI). I measured the brain metabolic rate using positron emission tomography (PET) and performed co-registration between the MRI data and the PET data to look out for any localized changes. The results suggest that the non-repetitively mentally disordered violent offenders as a group have recorded glucose uptake at the right anterior inferior temporal (RAIT) region where the amygdala is situated, but this is not the case for the repetitive offenders. However, I cannot overlook the discordance of findings between each modality of neuro-imaging, *i.e.*, that not every patient

5. M.T.H. Wong, J. Lumsden, G. Fenton, P. Fenwick, "Violence ratings of special hospital patients", in *Journal of Forensic Psychiatry*, 4, 1993, pp. 471-480; M.T.H. Wong, J. Lumsden, G.W. Fenton, P.B.C. Fenwick, "Electroencephalography, computed tomography and violence ratings in a maximum security mental hospital", in *Acta Psychiatrica Scandinavica*, 90, 1994, pp. 97-101; M.T.H. Wong, P.B.C. Fenwick, G.W. Fenton, J. Lumsden, M.N. Maisey, J. Stevens, "Repetitive and non-repetitive violent offending behaviour in male patients in a maximum security mental hospital", in *Medicine Science and the Law*, 37, 1997, pp. 150-160; M.T.H. Wong, P.B.C. Fenwick, J. Lumsden, G.W. Fenton, M.N. Maisey, P. Lewis, R. Badawi, "Positron Emission Tomography in male violent offenders with schizophrenia", in *Psychiatry Research. Neuroimaging*, 68, 1997, pp. 111-123; M. Wong, *Neuro-Imaging in Human Aggression*, in Manuela Martinez (ed.), *Prevention and Control of Aggression and the Impact on Its Victims*, New York, Kluwer Academic, 2001, pp. 83-94.

has abnormalities present in all types of scan, and, if present, some of them are not on the same side of the brain. As a methodological reductionist, I report the correlation, but do not argue that the correlation is the cause of violent offending behaviour. Also as a methodological reductionist, as opposed to eliminative reductionists, one would be open to the possibility that these changes may be non-specific to the clinical variables and that the localized changes may be the artefact of the experimental design, which, while being well-defined, is not good enough to represent the complexity of the nervous system.

Indeed, many researchers realize that it is not just “nothing but the brain”. Instead, they hold that both psychosocial and biological factors are involved in a complex way in aggression and violence and that to ignore either is to invite error (Elliot [1992]). A violent act can also be seen as resulting from the additive effects of several variables which include demographic and constitutional profile, developmental antecedents, personality characteristics, neurobiological factors, facilitating circumstances (alcohol and drug use, active psychopathology, availability of means of violence), and precipitating events (insult, abuse, threat — Kazogerakis [1974]). In elucidating the relative contribution of each factor in this equation, findings in animal aggressions have provided valuable neurochemical, neuro-anatomical and neurophysiological models for human violence research through experimental paradigms that are not feasible and ethical in human research, such as neurochemical manipulation, brain lesions, and electrical stimulations (Eichelman [1992], pp. 488-492). The development of these neurobiological models has improved our understanding of the mechanisms through which psychosocial factors influence the development and maintenance of aggressions in human.

However, three issues are repeatedly encountered in reading the literature on aggression and violence: causality, specificity, and complexity. Most research designs are correlational and even in cases when a causal relationship can be inferred, the direction of the relationship is frequently obscure. Longitudinal studies, particularly those starting in childhood, are therefore preferred for their strength in discriminating between antecedents and consequences. Together with transactional models and path analysis, these prospective studies have shed new lights in inter-generational transmission of aggression and the continuity of violence from childhood to adulthood. The specificity of findings is another cause for concern and is usually a consequence of unclear definition, the lack of control, and biased selection. Many studies on EEG and epilepsy in violent subjects have that limitation. The notion of a “centre of aggression” would simplify matters, but the evidence to support such a notion does not exist in current literature. The amygdala comes close to be such a can-

didate (Aggleton [1993]), as suggested by the convergence of findings in animal studies and recent human research on serotonin and the structural and functional changes at anterior temporal structures now accurately measurable in a living brain with MRI and PET (Raine and Scerbo [1991], pp. 1-25; Fenwick [1993]). However, most brain dysfunctions described in violent population are diffuse (or multi-site) as demonstrated by neuropsychological test batteries, neurological examination and surface EEG. This cautions against any simplistic model and highlights the complex nature of the neurobiological substrates of aggression and violence in humans. These diffuse or multi-site brain dysfunctions may elevate aggressiveness via cognitive impairment, which may lead to aggression through several mechanisms, including the inability to anticipate adverse future consequences of aggression, inability to resolve conflicts verbally, or, in a more complex, indirect way, inability to cope with academic demands at schools and social tasks associated with growing up eventually lead to delinquency and violence. In other words, researchers have moved on from a simplistic, localized model to a complex, connectionist paradigm. Both the frontal-temporal-limbic model (Yeudall [1978]) and the hypothalamus-amygdala-orbitofrontal hierarchy (Weiger and Bear [1988]) provide a paradigm of multi-site constructs for the study of brain function and structure in violent mentally abnormal offenders.

The second example is a PET study of auditory hallucinations, in which the author participated as one of the principal investigators. The variability of the brain activation pattern associated with auditory hallucinations (religious and non-religious) among eight patients and the subjective dimension of the report of hearing voices again highlights the challenges of causality, specificity, and complexity (Copolov *et al.* [2003]). In other words, not only are the patterns of correlation between the subjective and the objective discourse complicated and variable, but there are also problems with determining whether the correlations bear any causal relationship and how specific they are. Instead, one may argue a multi-layered personal narrative, while not providing any specific correlations of causality between the discourses, and provide a richer and more meaningful narrative of the hallucinatory experience to the patients.

The third example is an MRI study of the volumes of hippocampus and amygdala in various stages of psychosis. It is found that there is an increase of amygdala volume in patients with affective symptoms and reduction in hippocampal volume in those with schizophrenic symptoms and that the volume changes are more prominent in the chronically unwell patients than in those with a first episode of psychosis. Here one witnesses another example of complex patterns of correlation between a subjective discourse (different types of psychiatric symptoms), an objec-

tive discourse (the volume of brain structures) and a third discourse of neuro-psychosocial development over time. A multi-layered personal narrative is arguably a more attractive option to a reductionist formulation here in addressing the various issues of causality, specificity and complexity (Velakoulis *et al.* [2006]).

The Relevance of Critical Realism

The above examples from psychiatry show that multiple discourses are very often irreducible to each other and have complex, non-specific, and unclear causal relationships. Moreover, these examples highlight the presence of religious themes in some of the discourses. An eliminative reductionist approach will simply attempt to correlate “the religious” to variables of brain structure or function. However, one can argue that the notion of a multi-layered personal narrative may be more useful or of more pragmatic relevance as it allows the incorporation of the religious or theological discourse. According to Alister McGrath, in his *Scientific Theology*, science and theology are looking at the same nature and reality and operating *a posteriori* and both science, and theology involve provisional modelling (theory) subject to ongoing modifications informed by other advances in other academic disciplines, shifts of traditional paradigm, and changes of the focus of their own community. For McGrath, it is therefore feasible to align different discourses together in stratification to provide a richer and broader modelling of reality. However, following the notion of critical realism, such a multi-layered discourse is only a model or correlate of reality, rather than identical to it. This critical realistic approach to the theological discourse definitely meets the demand from the Changeux-Ricoeur Dialogue for a non-dogmatic and non-exclusive religious discourse. Moreover, it provides an opportunity for a dialogue with Ricoeur’s notion of “the religious”.

In other words, the provisional modelling and *a posteriori* approach of critical realism has the potential of facilitating the juxtaposition of scientific, philosophical, and theological discourses into a meaningful whole without committing the errors of substance dualism, eliminative reductionism, and semantic amalgamation. One potential promising option of such juxtaposition of various discourses is to follow the way of understanding the self through emplotment and mimesis, as proposed by Ricoeur’s narrative theory (Ricoeur [1984]). A narrative is a story of life lived and expressed in and through language. In the case of the notion of multi-layered personal narrative, the language used involves not only the theological and philosophical, but also the scientific discourses and these

apparent discordant discourses and the supposedly scattered events, experience, and memories of human life become a meaningful story through the activity of emplotment which gives human life its temporal unity and its narrative identity. The notion of a multi-layered personal narrative, through its inclusion of the scientific discourse, as well as of the philosophical and theological discourses, provides a substantial, meaningful, and legitimate integration of the “*idem-identity*” and “*ipse-identity*” as discussed in Ricoeur’s *Oneself as Another* (Ricoeur [1992]). Moreover, the notion of a multi-layered personal narrative operates through an understanding of time that incorporates both the Aristotelian idea of linear time and episodic succession, and the Augustinian concept of the triple present — the present of the past (memory), of the present (attention) and of the future (expectation) — and therefore allows for the interpretation of complex correlations between the theological, philosophical, and scientific discourses in ways other than the reductionist notion of specificity and causality (Ricoeur [2004]).

Conclusion

In summary, the notion of a multi-layered personal narrative acknowledges Changeux’s optimism on scientific advances and breakthrough, follows the dialectic between the hermeneutics of renewal and the hermeneutics of suspicion as proposed by Ricoeur, and applies McGrath’s theological method of stratification as informed by critical realism. It provides the first step in talking about the subject, that is informed by the never-ending advances in neuroscience, facilitated by the ongoing dialogue between various discourses through the mediation of philosophical hermeneutics of renewal and suspicion and the continuing engagement with a theological anthropology that observes facts and reason.

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Human Becoming: Phylogeny and Ontogeny of Affective Social Behaviour*

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Human consciousness and the uniquely human behavioural distinctives are the end-products of a phylogenetic history that we share with other hominids, plus a lengthy and uniquely human ontogenetic development. Human behavioural distinctions include the ability to infer abstract causality, abstract theory construction, language embodied in culture, morality, artistic endeavour, and spirituality. Our basic thesis is that human distinctives are a result of emotion-based relationships with other persons. A vast literature exists on the necessity of a social setting for the development of language, but other cognitive abilities are also clearly dependent upon early learning which in a human infant necessitates relationship with a caregiver. The development of an embodied spirituality is a human distinctive that can only emerge through nurturant interaction with other persons, both human, and divine. We believe emotion plays a major role in the emergence of these human attributes by providing the valenced states that motivate development of neural circuitry; this role is especially prominent during early development, when the brain is most plastic. The cognitive evolution of the human infant occurred in parallel with the evolution of a uniquely human brain, characterized by an expanded neocortex, extensive lateralization, and proliferation of a unique neuron type (Von Economo or spindle cells);

* Originally presented at the 2008 Metanexus Conference, "Subject, Self, and Soul: Transdisciplinary Approaches to Personhood", Madrid, July 13-17, 2008; published in electronic form on the Metanexus Global Spiral, www.globalspiral.com.

nevertheless, even these specific developments were built on adaptations that humans share with other mammals.

Long-term genetic selection has resulted in the existence in vertebrates of basic neural programs providing valenced affective states that prepare and guide responses to appropriate stimuli. In an earlier proposal, we suggested (Ellis and Toronchuk [2005]) that primary emotions provide the core nature of the value system guiding the refinement of synaptic connections in interaction with the physical and social environment, hence primary emotions provide the emotional palette that guides brain development. This idea is an elaboration of Panksepp's formulation of affective neuroscience¹, which describes how neurobiological systems mediate the basic emotions. We stated that affective neuroscience should be considered a compliment to Edelman's theory of neural Darwinism² dealing with how the development and function of the brain can be well understood in terms of a process of natural selection acting on the neural connections. In the case of "neural Darwinism", the time-course of the selection process referred to is not that of the millennia of phylogeny, but rather the developmental course of an individual brain. The term "neural Darwinism" is used in this context to stress the idea of survival during the development of synaptic connections of the strongest, most effective, and repeatedly used circuits. Extensive synaptic pruning and apoptosis occur during the early development of each individual brain as excess neural circuits are initially formed and then as individual behaviours are tuned by the environmental influence that the neurons and synapses which are not of utility do not survive. This means that the basic neural patterns are "hard-wired" into the developing early brain with the caveat that extensive fine-tuning of neural circuitry takes place predominantly during the early stages, but continues throughout life at a declining rate.

Primary Emotional Circuits

Primary emotional pathways are laid down early and at subcortical limbic and brainstem levels they tend to be more "hard-wired" than later-forming neocortical pathways and less accessible to conscious awareness. This means that the primary emotions, although subject to some fine-tuning by environmental and social stimulation, will tend to be more influenced by genetic control and less plastic than the cognitive abilities.

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1. Jaak Panksepp, *Affective Neuroscience: The Foundations of Human and Animal Emotions*, Oxford (UK), Oxford University Press, 1998.
 2. G.M. Edelman, *Neural Darwinism: The Theory of Group Neuronal Selection*, Oxford (UK), Oxford University Press, 1989.

The primary emotional systems thus come to underlie the later development of intellectual capacities in the individual.³ Primary emotions also underlie the more behaviourally flexible secondary emotions that arise from the blending of primary emotions or interaction with learning. Basic sensory-motor modules involved in pattern-recognition, motor output, and problem solving have access to both the emotional, and the cognitive systems and are also necessary to enable the development of neural circuitry. Through the actions of the neurotransmitter, neuromodulator, and neurotrophin levels, the wiring of the brain circuitry and, thereby, of the intellect and self-awareness is widely influenced by the nature, timing, and amount of activation in the emotional circuits during early life. Dopamine release in the ventral tegmental pathway is one specific example of how this occurs. Another example is how the release of brain-derived neurotrophic factors [BDNF] as pathways is exercised. According to our synthesis, higher brain functions are sculpted based on these primary emotions providing the valenced states that select which neurons, synapses, and pathways will survive during the subsequent maturation of the brain. It follows that the elucidation of the specific nature of these systems is crucial to understanding the way the brain functions and structures itself.

Which Emotions Are Primary?

In a work that virtually inaugurated the discipline of affective neuroscience, Jaak Panksepp described seven “primitive emotional operating systems that exist in limbic and reptilian areas of the brain” (Panksepp [1998], p. 52). He designated these as the SEEKING, RAGE, FEAR, LUST, PANIC (separation distress), CARE, and PLAY systems.⁴ These are hierarchically organized executive operating systems, which give rise to valenced affective states during interaction with several layers of non-specific perceptual, attentional, and cognitive processes. In this view, primary emotions are action-promoting valenced states with distinct neural circuitry and neurochemistry, the consequences of which outlast the precipitating conditions. In contrast, reflexive affects such as hunger and pain, and sensory affects such as taste or smell are closely time-locked to their triggering stimuli and are not primary emotions. Panksepp stresses that the differences between primary or prototypical emotions and secondary

3. J.A. Toronchuk and G.F.R. Ellis, “Affective Neuronal Darwinism: The Nature of the Primary Emotional Systems”, *in preparation*.

4. We follow Panksepp’s use of capital letters to differentiate these as operating systems rather than emotional feelings *per se*.

emotions, such as shame and guilt, include the instantiation in more ancient medial and ventral brainstem pathways, which are richer in innervation from the viscera and utilize a variety of visceral neuropeptides.

In our view, the primary emotional systems are those with a long phylogenetic history and they organize complex, but flexible reactions by activating or inhibiting autonomic, hormonal, and/or somatic changes that were adaptive during the evolutionary history. An emotion is a *superordinate program* that orchestrates and integrates the activities of various functional subprograms, which include reflexive affects, and also subprograms governing perception, cognitive appraisals, and feeling states.⁵ The specific combination of behavioural components will depend on context and eliciting stimuli.

Basic functioning and survival of the individual

Panksepp's SEEKING System is the primary task-oriented pathway by which affective goals are met. It is activated, on the one hand, by primary biological needs characterized by homeostatic signals, but also by signals from other primary and secondary emotional systems and by conscious volitional desires. The SEEKING system energizes the activity based on perception, perhaps unconscious of need or dissatisfaction. It is based in the mesolimbic dopamine pathway, and extends to the orbito-frontal cortex in humans. It is generalized in its goals, able to be activated by any specific need, but can also function in a non-specific manner. We propose a small modification to Panksepp's view of the SEEKING system, based on studies by Berridge and others that suggest there are two quite distinct generalized mechanisms involved in reward.⁶ The motivational, appetitive system (corresponding to SEEKING/expectancy) should be considered distinct from hedonic appraisal components for the two components can be dissociated behaviourally and function independently. This distinction, however, does not affect the larger issues we address here.

All organisms must defend themselves against both external, and internal threat. In previous papers (Toronchuk and Ellis [2007 a, b]), we provide evidence for the inclusion in the primary emotional systems of

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5. L. Cosmides and J. Tooby, in M. Lewis and J.M. Haviland-Jones (eds.), *Handbook of Emotions*, 2nd edition, New York, Guilford Press, 2000, pp. 91-115.
 6. E.g., K.C. Berridge and M.L. Kringelbach, "Affective neuroscience of pleasure: Reward in humans and animals", in *Psychopharmacology*, 199 (2008), pp. 457-480. Experimental dissociation was shown in rats by C.M. Cannon and M.R. Bseikri, "Is dopamine required for natural reward?", in *Physiology & Behavior*, 81 (2004), pp. 741-748 and, in humans, by B. Knutson *et al.*, "Dissociation of reward anticipation and outcome with event-related fMRI", in *Neuroreport*, 12 (2001), pp. 3683-3687.

a DISGUST system adapted to protect the internal milieu from parasites, pathogens, and toxins before any damage is done. This system would have been phylogenetically one of the first affective systems, developing together with the SEEKING system and in conjunction with the development of the immune system's interaction with the nervous system (*cf.* Ellis and Toronchuk [2005]). The insula, a primitive cortical area that includes the primary taste area, is essential for the disgust response. The wiring of the insula in primates is unique and it has been suggested that the more direct input of the primates allowed for the later development of an increasing conscious self-awareness of the body.⁷ A later adaptation with protective advantages using emotional contagion or "resonance" might have promoted the production of the disgust response in individuals following the observation of the same response in conspecifics.⁸ A distinct survival advantage would be conveyed on an individual that avoided a new food after observing a conspecific's disgust response to that food. The children's learned acquisition of disgust to certain categories of substances may involve a preparedness similar to the way in which fear conditioning is easily elicited to spiders, snakes, and angry faces.⁹ As discussed below, this ability to resonate with the emotional reactions of others probably gave rise to the development of further emotional and cognitive skills that became important in human consciousness and behaviour.

In addition to internal threat, organisms must respond to dangers created by external threats. In this case, safety is facilitated by the "fight/flight" pair of defence systems: the RAGE system and the FEAR System, engaged when the individual perceives a serious threat. Which of the two solutions to threat is implemented in any particular situation is the outcome of an evaluative process based on memories of previous experience and perceptual assessment of the present circumstances. As with DISGUST, some of the same structures activated during the production of fear and anger are also activated during the recognition of fear and anger in others through a neural simulation circuitry (discussed further below), which probably contributed later in phylogeny to the development of a theory of mind in others.

7. A.D. Craig, "Interoception: The sense of the physiological condition of the body", in *Current Opinion in Neurobiology*, 13 (2003), pp. 500-505.

8. B. Wicker *et al.*, "Both of us disgusted in my insula: The common neural basis of seeing and feeling disgust", in *Neuron*, 40 (2003), pp. 655-664.

9. P. Rozin and A. Fallon, "A perspective on disgust", in *Psychological Review*, 94 (1987), pp. 23-41. See A. Ohman and S. Mineka, "Fears, phobias, and preparedness: Toward an evolved module of fear and fear learning", in *Psychological Review*, 108 (2001), pp. 483-522, for a discussion of preparedness to fear stimuli.

The primary emotions of social bonding

The emotional systems promoting social bonding are LUST, PLAY, CARE, NEED/PANIC, and we suggest the addition of a POWER or RANK system to Panksepp's original list. Sexual reproduction, essential for the long-term survival of the species, is the outcome of the sexual LUST system, clearly an ancient adaptation found in all vertebrates. With the development of mammals, there were significant additions to the basic vertebrate social repertoire. Social bonding is, however, supported by the sexual attraction system and vasopressin and/or oxytocin, two hormones involved in sexual behaviour, facilitate pair bonding and are involved in other social behaviours.

According to the pioneering neuroscientist Paul MacLean, the basic differences between reptiles and the later evolving mammals are: (1) lactation and maternal care, (2) vocal communication to maintain mother-infant contact, and (3) playful behaviour facilitating social learning.¹⁰ By definition, lactation and maternal care are essential for the survival of mammals, so these would have been subject to significant selection pressure. Compared to other mammals, hominid infants have a relatively long period of helplessness, combined with the subsequent need for training in foraging techniques and social behaviours.¹¹ This is true of all hominids, but two additional factors may have contributed to the extended helpless period of human infants. The first was the trend toward a narrow pelvis associated with bipedalism, and the second was the expansion of the human brain (Falk [2004]). Together, these factors would have selected for human infants to be delivered at an increasingly immature stage of development. Because nurture is essential for the survival of immature infants and the infancy of hominids became increasingly extended, there must have been selection pressure for the establishment of neural circuitry for the emotional attachment between mother and infant. This circuitry would be expected to be most highly developed in humans.

In higher animals, social bonding and group cohesion is initially effected in the young primarily by the NEED/PANIC or separation distress system, which triggers panic if there is separation distress, but which also provides satisfaction during closeness. A complementary CARE system, through which parents tend their young, necessarily evolves in tandem.

10. P. MacLean, *The Triune Brain in Evolution: Role in Paleocerebral Functions*, New York, Plenum, 1990.

11. The discussion of chimp behaviour is based on D. Falk's "Prelinguistic evolution in early hominins: Whence motherese?", in *Behavioral and Brain Sciences*, 27 (2004), pp. 491-503; see also discussion *ibidem*, pp. 503-583, and J. Goodall, *The Chimpanzees of Gombe: Patterns of Behavior*, Cambridge (MA), Belknap, 1986.

Panksepp has shown that the biological origins of human sadness are rooted in the extended brain system involving the cingulate gyrus that mediates this sense of panic and separation distress in infant animals. The cingulate actually has an even longer evolutionary history, as it was used early in phylogeny for the perception of physical pain. This is perhaps the reason why humans perceive social loss and separation from loved ones as so very similar to pain.¹²

Infant chimps lack the ability to cling to their mothers' fur in the first two months, so the mother must support the infant on her ventral surface. The mother of an older infant uses body language and gestural signals to encourage the baby's climbing on her back when it is time to move on. The mothers' use of gestures and facial expressions plays a key role in the communication with their infants; in turn, the infants develop an intense interest in their mothers' faces. Chimp mothers also teach which foods are edible and, perhaps, even the use of tools. Chimp infants signal distress to their mothers through various vocalizations. Hominid evolution, therefore, involved the tandem evolution of emotional circuitry in adults to provide food, emotional nurturance, and instruction; and the parallel circuitry in the young to seek and respond to caring adults. This entailed the increasing use of gesture, facial expression, tactile and vocal communication. The increasingly extended period of dependence in young hominins necessitated the development in adults of further caretaking skills and of the ability to provide instruction. Although the role of these emotions in producing adult human emotional and social behaviour has been well studied, the role of emotion as a selection factor in cognitive development has been less well researched. According to the theory we suggest, mother-infant communication is likely to have provided the emotional motivation for the initial development of language, and its use in adult coalitions was likely to have been a secondary development.

Learning in human infants has been shown in numerous studies to be critically enabled by the reciprocal interaction with the primary caregiver in the early stages of life.¹³ The ability for shared attention between infant and mother is critical for the development of a theory of other minds and influences the development of language. Conversely, childhood neglect or separation from the caretaker leads to developmental stunting, as, for example, in the hospitalization syndrome, and appears to be correlated with intellectual and/or social impairment in later life. This phe-

12. Jaak Panksepp, "Neuroscience: Feeling the pain of social loss", in *Science*, 302 (2003), pp. 237-239.

13. A. Schore, *Affect Regulation and the Origin of Self: The Neurobiology of Emotional Development*, Hillsdale, NJ, Lawrence Erlbaum, 1994.

nomenon has been observed in other mammals, too, but is particularly striking in primates. Thus, social emotions provide the valenced state necessary for infant learning, initially taking place in relationship to predicting and responding to the actions and emotions of the primary carer.

These systems give rise to the adult's need to be part of a social group and tendencies to respond with care to others. Oxytocin is implicated in both maternal, and adult pair-bonding.¹⁴ Social bonding thus seems to be supported in part by the ancient circuitry of the LUST system, as both vasopressin, and oxytocin, hormones involved in sexual behaviour, facilitate other forms of social bonding. The CARE and NEED/PANIC systems enable certain altruistic behaviours in animals, especially in social animals such as cetaceans, canids, and primates, which have relatively well-developed memories for social interactions.

Learning, the crucial basis of all higher development, is enabled by the SEEKING system, but in young organisms strongly facilitated by the CARE and NEED systems in tandem with the PLAY system. The tendency for young mammals to be involved in play as part of their preparation for both food procurement, and adult social roles suggests that play may also be considered a basic emotional program in the human ancestral lineage and necessary for the normal cognitive development of children. The PLAY system develops significant cortical components in higher mammals parallel with its importance in learning. Chimp and bonobo mothers in particular engage in extensive nuzzling, tickling, play-biting, and chasing and other forms of play with their infants and play periods are accompanied by facial gestures and vocalizations, often including laughter. Panksepp limits PLAY to "rough and tumble play"; we believe that in humans the nature of this system has been extended to include a more intellectual, imaginative play, including, for example, play-acting; it ultimately allows for the development of many aspects of human culture. Both captive, and wild apes may engage in representational play, in which one object comes to stand for another.¹⁵

14. T.R. Insel and L.J. Young, "The neurobiology of attachment", in *Nature Reviews Neuroscience*, 2 (2001), pp. 129-136; M.M. Lim and L.J. Young, "Neuropeptidergic regulation of affiliative behavior and social bonding in animals", *Hormones and Behavior*, 50 (2006), pp. 506-517.

15. On play, see: M. Bekoff and J.A. Byers, *Animal Play: Evolutionary, Comparative, and Ecological Perspectives*, Cambridge (UK), Cambridge University Press, 1998; Falk [2004]; J.L. Frost, S.C. Wortham, and S. Reifel, *Play and Child Development*, Upper Saddle River (NJ), Pearson Merrill Prentice Hall, 2001; Goodall [1986]; D. Keltner *et al.*, "Emotional intuitions and moral play", in *Social Justice Research*, 19 (2006), pp. 208-217; H. Lyn *et al.*, "The development of representational play in chimpanzees and bonobos: Evolutionary implications, pretense, and the role of interspecies communication", in *Cognitive Development*, 21 (2006), pp. 199-213.

In mammals, play involves learning social roles and behaviours. It is facilitated evolutionarily by the enlargement of the cerebral cortex and the prolonged infant/maternal interaction necessitated by lactation (MacLean [1990]). During play, social commitment may be revealed involuntarily and assessed by others. Playful teasing allows the exploring of boundaries. These social aspects may provide one basis for the evolution of altruistic behaviour and they also enable enhanced learning. There is a real possibility that optimal cortical plasticity may depend on the activation of play, affection, and other rewards of close attachment. Allowing juvenile rats thirty minutes of rough and tumble play results in increased BDNF transcription in the amygdala and dorsolateral frontal cortex.¹⁶ Although much anecdotal information suggests that this may also be true in humans, the underlying neurophysiological mechanisms are still poorly defined. Play is particularly important in language development.¹⁷ It is also an essential component of performing arts, ceremonial, and celebratory behaviour and an important source of creativity. We speculate that the phylogenetic transition from rough and tumble play alone to the capacity for imaginative play facilitated the development of language through the necessity of understanding and empathizing with others, that is a critical part of imaginative play.

For many species, group living is crucial for gaining survival advantage in terms of finding food and protection against predators, as well as in enabling learning. However, this inevitably entails a competition for resources that needs regulation to minimize damage to individuals as well as group cohesion. Allocation of rank occurs in animals and humans alike by various competitive processes leading to agonistic behaviour that regulates competition in a socially non-destructive way.¹⁸ Competition takes place in relationship to the control of "territory" regarded in the widest sense, relating not merely to material resources (such as food, material possessions, and geographical areas), but also to social control, sexual mates, status symbols, and intellectual turf. Identity is closely related to territory regarded in this sense. In humans, this becomes embodied in social roles and associated status, and underlies many social

16. N.S. Gordon, *et al.*, "Socially-induced brain 'fertilization': play promotes brain derived neurotrophic factor transcription in the amygdala and dorsolateral frontal cortex in juvenile rats", in *Neuroscience Letters*, 341 (2003), pp. 17-20.

17. V.G. Paley, *A Child's Work: The Importance of Fantasy Play*, Chicago, University of Chicago Press, 2004; E. Zigler, D.G. Singer, and S.J. Bishop-Josef, *Children's Play: The Roots of Reading*, Herndon (VA), Zero to Three Press, 2004.

18. E.g., F. De Waal, *Good Natured: The Origins of Right and Wrong in Humans and Other Animals*, Cambridge (MA), Harvard University Press, 1996, pp. 89-132; A. Stevens and J. Price, *Evolutionary Psychiatry: A New Beginning*, London, Routledge, 2002, pp. 49-52.

activities such as competitive sport, and is fundamental in many social arrangements. It thus becomes a central part of cultural systems. Swards and Swards¹⁹ describe a "power dominance" neural system in mammals, that probably gives rise in humans to subjective feelings of self-esteem, the need to excel, to succeed, and to overcome obstacles.

Although Panksepp suggests that social dominance arises during childhood from interactions between the PLAY, FEAR, and RAGE systems, we have proposed instead that a genetically determined emotional system concerned with territoriality, dominance, and subordination should be added to the list of basic emotions. While the ontogenetic development of the individual certainly involves play, we argue for the existence in vertebrate phylogeny of a system more ancient than play, on the ground that dominance displays, related to territory and access to mates, are found in all vertebrate orders and are therefore likely to have predated the PLAY system. This very old vertebrate system functioned to allow competition for mates, territories, and other material gains; it later gave rise to competition for status and social approval. The striatal complex, including basal ganglia, constitutes a major portion of the "reptilian brain" which is deemed by MacLean to control instinctive, phylogenetically older behavioural patterns. The striatal system referred to by MacLean as a "reptilian" component has continued to evolve in mammals and plays a major role in motor behaviours. Additional limbic structures including the anterior cingulate gyrus, which plays a role in so many social behaviours, were recruited in mammals for this system. Dominance thus came to involve well-developed strategies in hominids who had the intellectual ability for planning and the memory to keep track of subtle interactions and alliances.

The POWER/dominance System is the affective means employed by the evolutionary process to regulate potentially destructive competition for resources by enabling the social dominance of some individuals, while allowing others to survive and wait for better opportunities to come. It involves a desire in humans for higher rank, but also an acceptance, under normal conditions, of the assigned status. The associated feelings are pride/high self-esteem in satisfactory circumstances, and shame/low self-esteem when they are unsatisfactory. We propose that this ancient system is the precursor to competition for status, need to excel and have social approval in humans, and relates to Nietzsche's will to power and Winter's²⁰ implicit power motive.

19. T.V. Swards and M.A. Swards, "Fear and power-dominance drive motivation: Neural representations and pathways mediating sensory and mnemonic inputs and outputs to premotor structures", in *Neuroscience & Biobehavioral Reviews*, 26 (2002), pp. 553-579.

20. D.G. Winter, *The Power Motive*, New York, Free Press, 1973.

The POWER system as we propose it involves the anterior cingulate cortex (ACC) plus lower subcortical areas; vasopressin and testosterone are likely to be involved in its regulation, consistent with an origin in competition for mates and territory.²¹ Furthermore, alterations in both vasopressin levels and ACC activity are involved in depression, a disorder that evolutionary psychiatrists see as the human counterpart of social defeat.²² The development of the neocortex in humans allowed for complex integration with cognition, resulting in the emergence of secondary emotions such as guilt, shame, and jealousy. Its malfunctioning can lead to psychiatric disorders, the existence of which shed light on the normal functioning of the system and on its evolutionary origins. Low status is a major risk factor for depressive-like behaviour in mammals (and even in reptiles, according to MacLean), as this probably indexes low probability that a host of needs will be met. We believe that the psychiatric data, together with observations of animal behaviour, provide evidence that the POWER/dominance system must be recognized as a hardwired system of very ancient origins. Indeed, this system involving dominance and submission precedes the evolution of mammals and, therefore, of the PLAY, NEED/PANIC, and CARING systems, which only reach widespread development in mammals.

Human Distinctives

We expect that the human distinctives of theory of mind, language, extensive and creative culture, morality, and spirituality all developed in parallel, but language evolution is likely to have played a central role in enabling the emergence of the other attributes. From the following discussion, we infer that these complex developments in humans depend on the existence of several primary emotional systems, that we share with the higher primates and indeed with most mammals. Beings endowed with a single emotional system — merely a feeling of well-being or unhappiness — would not be capable of developing the same range of higher-level repertoires, including moral behaviour. One result of this is that

21. Swards and Swards [2002]; R.R. Thompson *et al.*, "Sex-specific influences of vasopressin on human social communication", in *Proceedings of the National Academy of Sciences of the USA*, 103 (2006), pp. 7889-7894.

22. R.A. Kroes *et al.*, "Modeling depression: Social dominance-submission gene expression patterns in rat neocortex", in *Neuroscience*, 137 (2006), pp. 37-49; L. Sloman *et al.*, "Evolved mechanisms in depression: The role and interaction of attachment and social rank in depression", in *Journal of Affective Disorders*, 74 (2003), pp. 107-121; Stevens and Price [2002].

specific psychological or psychiatric problems are likely to arise if specific primary emotional systems are dysfunctional, for whatever reason (as discussed above for depression and POWER). Recognizing this feature may be useful in terms of social and medical care. Another result is that the emergence of the full range of human potential depended on the phylogenetic development of emotion-based values.

Theory-of-mind

We believe that the evolutionary development of a theory of other minds was linked specifically to the evolution of the ability to recognize emotions in the self and others. Chimps and bonobos and, perhaps, some other apes may possess the rudiments of a theory-of-mind as they are able to anticipate the needs and intentions of others and modify their own behaviours accordingly. This has been well documented in the literature for dominance interactions among adults and it is clearly a part of mother-infant interaction. More significantly, enculturated apes such as bonobo Kanzi are able to pass linguistically mediated theory-of-mind tests²³, showing that the neurological prerequisites for theory-of-mind are available to bonobos. Perhaps the ontological development of theory-of-mind requires involvement with caring others who also possess this ability, for example through joint attention, which forms during mother-infant interactions and then becomes socially mediated through linguistic interaction. At any rate, the ability to be aware of self and others paralleled the development, not of the sensory cortex, but of the emotionally salient frontal and limbic cortex.

The interoceptive functions and the subjective experience of disgust (reviewed in Toronchuk and Ellis [2007 a, b]), are based on the anterior insula (AI) which in primates possesses an input pathway allowing it (rather than lower structures, such as the amygdala) to become the major focus for the valuation of stimuli. The AI and ACC are, on the one hand, architecturally and phylogenetically more primitive than the sensory neocortex, but, on the other hand, in humans, chimps, bonobos, and dolphins they contain a unique, recently evolved cellular type, *i.e.*, Von Economo (VEN) or spindle neurons.²⁴ VENs are thought to be involved in the expectancy of behavioural outcomes, human social intuition, and formation

23. S. Savage-Rumbaugh *et al.*, "Culture prefigures cognition in Pan/Homo bonobos", in *Theoria: An International Journal for Theory, History, and Foundations of Science*, 54 (2005), pp. 311-328.

24. E.A. Nimchinsky *et al.*, "A neuronal morphologic type unique to humans and great apes", in *Proceedings of the National Academy of Sciences of the USA*, 96 (1999), pp. 5268-5273.

of a theory-of-mind. Interestingly, self-awareness only arises in humans, great apes, and perhaps in some cetaceans, *i.e.*, in those animals with Von Economo neurons. The number of these cells in each species is correlated with both the species, and the age of the individuals with a certain degree of self-awareness. Consistent with a proposed role in self-awareness for VENs, humans attain their full complement of VENs only at about four years of age.

Core representations of the body arising from structures such as the insula may play a role not only in self-awareness, but also in an “as-if” loop system that allows for the evaluation and anticipation of events without their actual occurrence. Damasio’s somatic marker hypothesis proposes that the insula provides a sensory representation of the state of the body as part of this “as-if” loop mechanism.²⁵ Building on this idea, Goldman and Sripada suggest that the reading of basic emotions in the faces of others might use specialized neural programs that evaluate the emotions of others based on a simulation of that state in oneself.²⁶ During memorization, this may be accomplished by a reverse simulation that would require the type of “as-if” loop proposed by Damasio. The same “as if” circuitry might function in mirroring the bodily and emotional states of others in the manner in which actions are mirrored by motor neurons in primate brains. As noted above, the experience of disgust and its recognition in others activate the AI and ACC. The experience of pain in self and others also activates these areas and response to pain in others is modulated by, for example, the perceived fairness of the other suggesting a neural substrate for empathy.²⁷ Activation of this region in response to the facial expressions of others has recently been shown to correlate with the self-reported ability to empathize with others.²⁸ The functional role of VENs is yet unknown, but it would be consistent if they were involved in the neural simulations, which make empathy and theory-of-mind possible.

Damage to the insula and adjacent frontal area produces deficits in moral behaviour, which exist in spite of the normal intellectual processing

25. A.R. Damasio, “The somatic marker hypothesis and the possible functions of the prefrontal cortex”, in *Philosophical Transactions of the Royal Society B: Biological Sciences*, 351 (1996), pp. 1413-1420; A. Bechara and A.R. Damasio, “The somatic marker hypothesis: A neural theory of economic decision”, in *Games & Economic Behavior*, 52 (2005), pp. 336-372.

26. A.I. Goldman and C.S. Sripada, “Simulationist models of face-based emotion recognition”, in *Cognition*, 94 (2005), pp. 193-213.

27. T. Singer *et al.*, “Empathic neural responses are modulated by the perceived fairness of others”, in *Nature*, 439 (2006), pp. 466-467.

28. M. Jabbi *et al.*, “Empathy for positive and negative emotions in the gustatory cortex”, in *Neuroimage*, 34 (2007), pp. 1744-1753.

VENs in the fronto-insular and ACC areas; these are specifically damaged in fronto-temporal dementia, a disorder in which emotional and social awareness, empathy, and theory-of-mind are disrupted. Additionally, some autistic individuals who have deficits in the theory-of-mind have been shown to have dysfunction in these same cells.²⁹

Thus, the phylogenetic appearance of VENs is associated with the development of empathy, theory-of-mind, and the ability for moral reasoning. This development might be considered to be a preadaptation influenced by the role of the insula in the awareness of bodily state in self and others — a role originally arising from the need to evaluate and avoid contact with, and contamination by, noxious substances. The brain area originally involved in visceral sensations and evaluating “good taste” and “bad taste” became a necessary component of the neural circuitry for empathy, judging fairness, and making moral decisions. The ACC, which also contains VENs, plays a clear role in the social behaviours of caring, attachment, and dominance, *i.e.*, emotional behaviours that may also contribute to the evolution of human moral behaviour. The proliferation of VENs in humans and the expansion of the prefrontal and cingulate cortices is likely to have enabled the progressive development of these features, hence enabling human morality and culture.

Language

The evolution of language ability required not only the evolution of complex conceptual structures and systems of rules to encode them, but, as many have noted, of some motivation to represent and communicate concepts. Why did language develop only in one species? Most hypotheses regarding the initial selection pressure for language have stressed adult social interactions, *e.g.*, a Machiavellian motive to outwit group members, gossip as a substitute for grooming, the need for males to provide social displays to attract females, or the need to regroup after scavenging.³⁰ One perplexing question raised by each of these social theories is why there seems to have been no selection pressure for other primates,

29. Effects of insular damage are described in: Damasio [1996]; M. Koenigs *et al.*, “Damage to the prefrontal cortex increases utilitarian moral judgments”, in *Nature*, 446 (2007), pp. 908-911; M. Dapretto *et al.*, “Understanding emotions in others: Mirror neuron dysfunction in children with autism spectrum disorders”, in *Nature Neuroscience*, 9 (2006), pp. 28-30; W.W. Seeley *et al.*, “Early frontotemporal dementia targets neurons unique to apes and humans”, in *Annals of Neurology*, 60 (2006), pp. 660-667.

30. T. Deacon, *The Symbolic Species: The Co-Evolution of Language and the Brain*, New York, W.W. Norton, 1997; R.I.M. Dunbar, *Grooming, Gossip, and the Evolution of Language*, London, Faber and Faber, 1996; W.T. Fitch, “The evolution of speech: a comparative review”, in *Trends in Cognitive Sciences*, 4 (2000), pp. 258-267.

e.g., for baboons living in large and complex troops to develop anything approaching protolanguage.³¹ While all theories above propose selection pressures based on adult activities, our thesis, in contrast, is that the emotional relationship between infant and carer provides the initial impetus, both in phylogeny, and in ontogeny, of the social motivation for language development. This is because of the primary importance of infant care in the lives of hominids coupled with the incredible post-natal growth that the brain of infants, especially human infants, undergoes. Cortical circuits are primarily organized in the post-natal period. Play relationships with other juveniles during the increasingly long period of hominin childhood provide increasing opportunities for learning to communicate with others during the period when the brain is still undergoing maturation. It is significant that the prefrontal area of humans requires twenty years to reach full maturation.

The relative ease with which children develop language suggests a relationship between the structure of language and its acquisition. This led to Chomsky's proposal of an innate Universal Grammar. One explanation for the existence of a universal grammar is that adaptation gradually selected special brain mechanisms to support the language ability.³² Alternatively, language may rely on exaptations of abilities that were the products of unrelated evolutionary pressures, but were co-opted by the human brain to enable language as a unique human ability. Additionally specialized brain mechanisms supporting language may have appeared relatively suddenly, due to a small number of mutations. The discovery of a role for the FOXP2 gene in language initially suggested the latter possibility.³³ The problem might best be rephrased to suggest that a universal grammar arose not because the brain evolved to support language, but because language itself was subject to selection pressure.³⁴ Language

31. D. Bickerton, "Language evolution: A brief guide for linguists", in *Lingua*, 117 (2007), pp. 510-526.

32. Gradualist theories are proposed by M.C. Corballis in "From mouth to hand: gesture, speech, and the evolution of right-handedness", in *Behavioral and Brain Sciences*, 26 (2003), pp. 199-208; see also discussion on pp. 208-260; Dunbar [1996]; Falk [2004]; S. Pinker and P. Bloom, "Natural language and natural selection", in *Behavioral and Brain Sciences*, 13 (1990), pp. 707-727; see also discussion on pp. 728-765. Forms of the "discontinuity" theory are held by Bickerton [2007] and M.D. Hauser *et al.*, "The faculty of language: What is it, who has it, and how did it evolve?", in *Science*, 298 (2002), pp. 1569-1579.

33. C.S. Lai *et al.*, "FOXP2 expression during brain development coincides with adult sites of pathology in a severe speech and language disorder", in *Brain*, 126 (2003), pp. 2455-2462.

34. M.H. Christiansen and N. Chater, "Language as shaped by the brain", *Behavioral and Brain Sciences*, 31 (2008), pp. 489-508; see also discussion on pp. 509-558.

could have been selected for the ease of its learning by hominins who already had certain more general-purpose neural substrates. Because language adaptation is culturally based, changes in language due to cultural evolution occur much faster than biological changes in the brain. One might expect that any so-called “language genes” that appeared in a population would diverge especially rapidly, as early humans spread out geographically, leaving the question of how an originally universal grammar remained universal. Therefore, it may be more likely, as Christiansen and Chater suggest, that language evolved to fit pre-existing structures in the brain, rather than the other way around, and was adapted to serve a general purpose rather than a specialized modular strategy.

The structures that were available for the use of language were the limbic ones used by primates in vocalization, in particular the ACC, as well as the motor structures used in gesturing. It has been suggested that because the analogue of Broca’s area in the monkey contains mirror neurons responsive to gestures in other individuals, language arose through gradual adaptation of the gestural system.³⁵ Bonobos use gestures in a flexible manner in communication with conspecifics, adjusting for the attentional state of the recipient.³⁶ Subadults are the most common users of gestures and social learning appears to be responsible for the acquisition of at least some specific gestures. In connection with the gestural theory, we think it is interesting to note that VENs, probably involved in mirroring emotions, are predominantly on the right side of the brain — the side activated by emotion in other people. Prosody and, presumably, early motherese also activate the right side. Broca’s area, which contains mirror neurons in both monkeys, and humans, overlaps this area, but is on the left side. This suggests that brain lateralization proceeded such that the right frontal lobe came to mirror emotions and the same area on the left to mirror gesture and voluntary vocalizations.

It is usually asserted that non-human primate vocalizations are involuntary because they arise from limbic rather than neocortical areas, whereas human speech is under the voluntary control of a motor area, namely Broca’s.³⁷ Captive chimpanzees, however, may use vocalization

35. M.A. Arbib, “From monkey-like action recognition to human language: An evolutionary framework for neurolinguistics”, in *Behavioral and Brain Sciences*, 28 (2005), pp. 105-24; see also discussion on pp. 125-167; Corballis [2003].

36. S. Pika *et al.*, “Gestural communication in subadult bonobos (*Pan paniscus*): Repertoire and use”, *American Journal of Primatology*, 65 (2005), pp. 39-61.

37. D. Ploog, *Is the Neural Basis of Vocalization Different in Nonhuman Primates and Homo Sapiens?*, in T.J. Crow (ed.), *The Speciation of Modern Homo Sapiens*, Oxford (UK), Oxford University Press, pp. 121-135. For a different view, see J.P. Tagliatela *et al.*, “Communicative signaling activates ‘Broca’s’ homolog in chimpanzees”, in *Current Biology*, 18 (2008), pp. 343-348.

in a voluntary manner, not associated with emotional outburst, to gain the attention of onlookers.³⁸ In chimps, therefore, gaining attention from others is both voluntary, and a socially motivated behaviour. The reported attempts of the enculturated bonobo Kanzi at using vocal speech³⁹ at least indicate that it is neurologically possible for bonobos to vocalize voluntarily. Perhaps the cingulate gyrus, which initiates vocalization in monkeys, provides the emotional flavour in bonobos for voluntary vocalization through its known connections with motor areas.

Even chimp mothers and infants take turns during play, perhaps providing a basis for the development in proto-motherese of a more voluntary action than that assumed for typical primate vocalizations (Falk [2004]). Kanzi engages in the type of communicative turn-taking that suggests a pattern of human discourse even though the individual segments of discourse are short and devoid of a complex syntax.⁴⁰ Analysis of his discourse with trusted caretakers suggests that he is indeed well-aware of the communicative uses of discourse with vocal and gestural components. The way in which Kanzi and his kin learned language, however, was quite different from previous attempts at teaching language to apes. These bonobos were exposed to language early in life in a manner approximating that of human children within a family setting. They have clear emotional ties to their human caregivers and exist as part of a unique Pan/Homo culture⁴¹ in which relationships with humans are not *merely social*; they are social with strong *emotional* ties, attachment, and nurture. Some of the videos of caregivers interacting with Kanzi⁴² suggest that the former use language with inflections and vocal stress similar to motherese. The nurturing atmosphere and “family”-like upbringing may in fact be the key to ape language learning.

Modern human motherese uses exaggerated vowels, hyperarticulation, heightened prosody, and exaggerated facial expressions, all of which contribute to the regulation of emotion in infants. Human infants, in turn, are predisposed to respond to motherese, which then prepares the infant to be attuned to the phonetic and semantic aspects of their native language.

38. W.D. Hopkins *et al.*, “Chimpanzees differentially produce novel vocalizations to capture the attention of a human”, in *Animal Behaviour*, 73 (2007), pp. 281-286.

39. J.P. Tagliatela *et al.*, “Vocal production by a language-competent *Pan paniscus*”, in the *International Journal of Primatology*, 24 (2003), pp. 1-17.

40. J. Benson and W. Greaves, *Functional Dimensions of Ape-Human Discourse*, London, Equinox, 2005.

41. S. Savage-Rumbaugh *et al.*, “The emergence of knapping and vocal expression embedded in a *Pan/Homo* culture”, in *Biology and Philosophy*, 19 (2004), pp. 541-575.

42. We thank James Benson and William Greaves of York University for the video footage of Kanzi and a helpful discussion.

Motherese also maintains joint attention and encourages infants to learn the turn-taking aspects of dialogue.⁴³ The emotional aspects of motherese cause it to be so attractive to infants, but the end-result is that the emotional motivation leads to the ontological process of learning phonological and semantic aspects of the language. Other modern hominids do not vocalize nearly as much with their infants, but the evolutionary trend toward lengthened childhood, immature infants and the increasing brain size were likely to be coupled with an increased selection pressure for a more complex nurturing of infants, which in turn led to increasing joint attention, understanding of other minds, and use of communicative gestures and sounds.

Non-vocal sounds such as lip smacking, used by chimps, were likely to be abundant in early motherese. Neither clicks, nor whispers require descent of the larynx into the position necessary for human speech. Even though we do not know when the larynx of hominins descended (Fitch [2000]), clicks and whispers could have been used at the earliest stages. Indeed, some linguists think that the first human language might have been the proto click-language, from which the Khoisan family originated.⁴⁴ The production of clicks was physiologically possible for early hominins.

The voluntary use of nonsense sounds in mother-infant play would be motivated by the social emotion of CARE and PLAY, but freed from the more immediate and reflexive nature of, *e.g.*, alarm calls. Representational play and chasing may have been extended at that point to include actions feigning intentions, such as "I'm going to get you", but these were freed from any aggressive intent. As sounds also came to be used in play, siblings might have begun to use in common some of the same sounds used by their mother and also use these sounds in play with other unrelated juveniles. In this manner, local cultures of sound use might have developed. Rather than the development of a universal protolanguage, it may have been enough for a further evolution of language that some individuals learned to use sounds or gestures generally to represent concepts. Over long periods of time, local cultures of juveniles may then have developed their own proto-dialects through cultural learning, but motivated by social play. The concept that one thing can stand for another would have been the necessary development that emerged in part from representational and feigning play.

Our view is similar to that of Falk in that we stress mother-infant interaction and the use of motherese, except we are less convinced that the original selection pressure for motherese was for soothing infants,

43. Reviewed in Falk [2004].

44. E. Pennisi, "The first language?", in *Science*, 303 (2004), pp. 1319-1320.

because foraging hominin mothers began to engage in “putting the baby down” (Falk’s term) to free their hands for foraging tasks. Rather, we think that the selection pressure over the increasingly long period of infant-and-juvenile dependency was more general and included mutual attraction, play, and instruction and did not necessarily depend on any particular baby-carrying strategy. Proto-motherese and proto-language are likely to have had multimodal origins in a structureless combination of gesture, facial expression, gaze, vocal and non-vocal sounds. In addition, other emotional needs such as those involved in mating and social grooming probably worked concurrently to provide multiple-selection pressures on the use of protolanguage. It is probably significant that Broca’s area and its primate analogue contain mirror neurons for both hand, and facial movements and this probably led to the use of both types of signals concurrently. Over time, protolanguage would come to rely more heavily on the vocal mode, although modern speech is still strongly connected to gesture.

Admittedly, there remain some problems with any continualist theory, including ours. If protolanguage was holistic with strings of utterance rather than employing short discrete units, a mechanism is needed to segment longer utterances into meaningful individual units (words). The fractionation of longer holistic strings into short segments might be an more difficult task intellectually than learning individual words as symbols.⁴⁵ This presents a problem for the theory that language evolved from holistic protolanguage. However, even the use of a very few short sounds may have led to the realization that sounds may be representational. The evidence of representational play in chimps, and preteens in captive bonobos, indicates that this ability was available to early hominins as well. We believe the holistic (top-down) approach to language development (based on its use to convey meaningful statements as a whole to the recipients) is likely to be the right one⁴⁶, even if the details of how it works out are still obscure.

Another problem that might be raised is how a fully developed syntax could emerge from a protolanguage consisting of something like the telegraphic speech used by modern two-year olds. The evolution of the ability to represent recursion is viewed by most as a necessary component of the evolution of language.⁴⁷ Recent experiments in which starlings

45. M. Tallerman, “Did our ancestors speak a holistic protolanguage?”, in *Lingua*, 117 (2007), pp. 579-604.

46. See, e.g., S.D. Krashen and T.D. Terrell, *The Natural Approach: Language Acquisition in the Classroom*, San Francisco, The Alemany Press, 1983.

47. W.T. Fitch *et al.*, “The evolution of the language faculty: clarifications and implications”, in *Cognition*, 97 (2005), pp. 179-210; see also discussion on pp. 211-225.

were able to discriminate syntactic patterns, however, suggest that maybe rudimentary recursion is not an exclusively human ability.⁴⁸ In addition, there is perhaps one modern language, Piraha, which may lack the use of recursion, as well as colour names, numeracy, and past and future tenses and this case has been used to challenge Chomsky's model of a universal grammar.⁴⁹ Of course, the Pirahas' case does not tell us whether recursion is necessary for language to evolve, as its loss in this group may be a secondary development. A recent hypothesis put forward by Okanoya⁵⁰ is that the unique components necessary for language, in particular recursion, emerged from interactions among more general preadaptations for emotion, sensory motor-integration, and a mirror system of imitation. Further considerations of the evolution of syntax are beyond the scope of this paper.⁵¹ Our hypothesis is that language emerged along with culture from pre-adaptations of the emotional systems, with childhood socialization playing a major role.

Morality

At present, an extensive debate exists around the extent to which innate mental modules influence the human moral behaviour. Some biologists propose the existence of dedicated moral modules similar to Chomsky's language modules.⁵² However, in light of the fact that it is now agreed that several emotions seem to contribute to moral behaviour, the idea of a dedicated moral module is questionable. As with the evolution of language, it is difficult to see how all the various preadaptations would come together into one genetically controlled module. Jonathan Haidt has, in contrast, proposed the existence of several evolutionarily prepared moral domains, each of which offers survival benefits in a social setting and acts somewhat independently. These include: (1) altruism and kinship ties; (2) reciprocity and concern for fairness; (3) authority and

48. T.Q. Gentner *et al.*, "Recursive syntactic pattern learning by songbirds", in *Nature*, 440 (2006), pp.1204-1207.

49. D.L. Everett, "Cultural constraints on grammar and cognition in Piraha: Another look at the design features of human language", in *Current Anthropology*, 46 (2005), pp. 621-646; "Challenging Chomskyan linguistics: The case of Piraha", in *Human Development*, 50 (2007), pp. 297-299.

50. K. Okanoya, "Language evolution and an emergent property", in *Current Opinion in Neurobiology*, 17 (2007), pp. 271-276.

51. For a possible solution, see M. Tomassello, *Constructing a Language: A Usage-Based Theory of Language Acquisition*, Boston, Harvard University Press, 2003.

52. M.D. Hauser, *Moral Minds: How Nature Designed Our Universal Sense of Right and Wrong*, New York, HarperCollins, 2006.

rank; (4) in-group loyalty, and (5) moral purity and avoidance of contamination.⁵³

According to our view (Toronchuk and Ellis [2007c]), each emotional operating system has the potential to either overtly, or subliminally influence behaviour, thereby providing motivational force for Haidt's suggested moral domains. These emotional operating systems are part of the human biological heritage and influence the content of our moral behaviours. Because each emotional system has been moulded by unique selection pressures and uses distinctive neural circuitry, the influence each has on moral intuition remains separate and independent of the influence of other emotions. *E.g.*, one recent study suggests that attitudes of anger and disgust influence moral decision-making separately.⁵⁴

The emotional systems that have been adapted to function during social encounters play obvious roles. We expect that the primary emotional POWER system influences both the authority/subordination domain described by Haidt, and the domain giving rise to reciprocity/fairness/concern for justice. In addition, the CARE nurturance system of adults plays an obvious role in moral intuitions and together with the separation distress (PANIC) system has been adapted to support various forms of altruistic behaviour. Haidt's reciprocity and fairness domain may derive in part from the PLAY system, which promotes learning of appropriate social behaviours in juveniles (Bekoff & Byers [1998]; Keltner *et al.* [2006]). Chimpanzee mothers and infants engage in turn-taking during play (Falk [2004]). The RAGE system probably also influences reciprocity by rousing the desire to punish cheaters who violate the conditions of reciprocity.

In our proposal of DISGUST as a primary emotional system, we suggested that while disgust originally regulated ingestive and tactile behaviours, these mechanisms were then further developed to form a primary emotional system allowing the evaluation of reinforcers and motivating avoidance. Haidt and his colleagues argue that disgust is more than avoiding bad taste; it hinges on the avoidance of contamination.⁵⁵ However, they see only *human* disgust as contamination-related, whereas we suggest that the theme of disease avoidance has ancient origins (Toronchuk and Ellis [2007a, b]). The contamination-avoidance origin is

53. J. Haidt and C. Joseph, *The Moral Mind: How Five Sets of Innate Moral Intuitions Guide the Development of Many Culture-Specific Virtues, and Perhaps Even Modules*. in P. Carruthers *et al.* (eds), *The Innate Mind: Foundations and the Future*, Vol. 3, Oxford (UK), Oxford University Press, pp. 367-392.

54. G. Sherman *et al.*, "Nazis really are disgusting: Psychophysiological evidence for socio-moral disgust". *under review*.

55. J. Haidt *et al.* "Body, psyche, and culture: The relationship between disgust and morality". *Psychology and Developing Societies* 9,(1997) pp. 107-131.

supported by Curtis' survey showing that disease-salient contact stimuli such as bodily secretions, viscous substances, vermin, and sick or dirty people universally elicit disgust.⁵⁶ Our proposal is that there is an evolutionary trajectory from illness-related reactions, through learned aversions and avoidance responses, to human core disgust and, eventually, to a secondary emotion encompassing socio-moral attributes. Nutritional-, sexual-, and socially-related stimuli plus ideational components are all able to activate the SEEKING (approach) or DISGUST (avoidance) systems in analogous ways. Not only do animals avoid foods which have been paired in the past with illness, but it has been shown that rats will even avoid copulation after it has been paired with illness (reviewed in Toronchuk and Ellis [2007a]). This suggests an underlying similarity between conditioned taste disgusts and social disgust.

Schaller has proposed what he calls an "emotional immune system" based on an evolutionary bias to avoid others who might be diseased, but which may extend to other areas of social avoidance, cultural attitudes, and religious rituals.⁵⁷ Humans avoid others obviously diseased, but also any difference from the norm — including asymmetries, disabilities, and obesity — because such a difference may signal an underlying ill health or poor genetic potential. Foreigners are more likely to carry pathogens for which we do not possess any immunity. Schaller's theory thus bridges the disease-avoidance function of disgust with emotional prohibitions concerning touch and sexual contact with others. Morals are biologically biased to consist of rules for sexual contact and social proximity, to avoid biological contamination. The main point is that both moral purity and in-group loyalty have a phylogenetic history in a basic emotional system, which comes to influence human culture in dramatic ways.

Human culture

Although culture has been shown to exist in animals, the explosion of human creativity that seemed to occur only within the last 100,000 years was presumably linked to the evolution of language. Human imagination, artistic endeavours, and various aspects of culture, we suggest, have roots in the emotional programming of young mammals, primates in particular, to engage in play behaviours with conspecifics, a behaviour which functions to underpin learning and preparation for adult life.

56. V. Curtis *et al.*, "Evidence that disgust evolved to protect from risk of disease", in *Proceedings. Biological sciences*, 271, Suppl. 4 (2004), pp. S131-133.

57. M. Schaller, L.A. Duncan, *The Behavioral Immune System: Its Evolution and Social Psychological Implications*, in J.P. Forgas *et al.* (eds.), *The Evolution of the Social Mind: Evolutionary Psychology and Social Cognition*, New York, Psychology Press, 2007, pp. 293-307.

The expanded human brain, extended childhood, and cultural scaffolding provided during childhood by older individuals are all necessary for the development of human nature. Kanzi and other enculturated apes are high achievers precisely because they have been provided with the cognitive scaffolding of their human caretakers.⁵⁸ Their unique language, imitation of intentional actions, and tool-making abilities would not have emerged without the emotional involvement and shared attention with humans, which enabled the learning of behaviours they did not invent themselves. Furthermore, culture is a progressive process; as those who have lived and worked with these apes note, the young born to already enculturated bonobos “gaze, think, gesture, and behave in non-verbal ways that increasingly diverge” from non-enculturated bonobos (Savage-Rumbaugh *et al.* [2005]). Although even wild apes engage in representational play, only those bonobos with an acquired linguistic ability engage in play which involves true pretence (Lyn *et al.* [2006]), showing that not only does cultural scaffolding further language use, but language also furthers cultural development: “We are forced to acknowledge that skills we have assumed to be fundamental to all aspects of human cognition [*i.e.*, language, imitation, and ‘theory-of-mind’] are not innate. They emerge within a cultural environment that has been constructed of whole cloth across millennia of social weaving. Whether we approve or not, we are products of the very cultures we ourselves have, in co-constructed dialogic exchanges, brought into being” (Savage-Rumbaugh *et al.* [2005], p. 325).

We believe the peculiar inabilities of feral children suggest that it is difficult even for human children to participate in human culture if a pre-existing social and emotional framework is not available to them from a very early age. Another suggestion for the importance of pre-existing culture may spring from the curious inabilities of the Piraha people of the Amazon jungle to learn numeracy, as well as their lack of colour terms, recursive language, and relative tenses. If anthropologist Everett, who lived with the Piraha for many years, is correct in placing these verbal abilities within cultural processes, it suggests that the type of scaffolding necessary to develop grammar entails certain kinds of social interactions. In Everett’s words ([2005], p. 621), “Piraha culture constrains communication to non-abstract subjects which fall within the immediate experience of interlocutors”. They have no myths, fiction, drawing, or art. This suggests to us that in this case there may exist a culture which provides no emotional motivation to develop a more complex language or other

58. *E.g.*, Savage-Rumbaugh *et al.* [2004]; Savage-Rumbaugh *et al.* [2005]; P. Segerdahl *et al.*, *Kanzi’s Primal Language: The Cultural Initiation of Primates into Language*, New York, Palgrave MacMillan, 2006.

cultural endeavours and nothing on which to scaffold the development of such in its children.

We think the scaffolding necessary for the phylogenetic and ontogenetic emergence of human language, culture, morality, and spirituality necessarily entails identification with enculturated others; this identification has an emotional basis fostered in early childhood. It is enabled by the mirror neuron system and the development of empathy and theory of other minds. Only through interaction with other humans, a process that necessarily engages affective systems, can these human distinctives develop in the maturing human child. Thus, human minds cannot be understood on their own; they develop to be what they are through social interaction during the developmental process. This emergence is a form of top-down action from society to the individuals who compose it.⁵⁹

Spirituality

The complex awareness of self and others as fostered by normal society allows the emergence in human consciousness of the apprehension of transcendent reality. In spite of our highly developed emotional and cognitive capacities, however, there are no assured mechanisms for either moral behaviour, or self-transcendence. The human condition seems to entail an inevitable internal conflict, as indeed many religious traditions suggest. Given our conflicting tendencies for both dominance, and nurturance, it is unclear how universal morality and kenotic love can come about without some form of self-transcendence assisted by religious or spiritual experience. Nancey Murphy (1998) states that "The person is a physical organism whose complex functioning both in society and in relation to God gives rise to 'higher' human capacities such as morality and spirituality"⁶⁰. Indeed, it is through interaction with others that personhood is called forth in human infants and developed in adults. It follows, therefore, that the development of an embodied spirituality accompanied by *telos* and meaning is a human distinctive that can only emerge through openness and nurturant interaction with others, as well as with a transcendent reality. Human others provide a scaffold upon which openness to the immanence of the divine Other may build.

59. G.F.R. Ellis, "On the nature of causation in complex systems", in *Transactions of the Royal Society of South Africa*, 6 (2008), pp. 69-84.

60. Nancey Murphy, *Non-Reductive Physicalism: Philosophical Issues*, in W.S. Brown et al., *Whatever Happened to the Soul? Scientific and Theological Portraits of Human Nature*, Philadelphia, Fortress, 1998, pp. 127-148.

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Studies



Études

Eastern Orthodox Theological Commitment in the Modern Science-Religion Debate*

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The underlying objective of this paper is to radicalize the quest for mediation between theology and science in the perspective of the Eastern Orthodox *theological commitment*, understood as an expression of immediate existential concerns of humanity. Seen in the context of contemporary intellectual movements, the dialogue with science can be characterized as a further synthesis of the Church Fathers' premodern ideas and their ecclesial theology with the contemporary philosophical phenomenology within the "radical theological sensibility" necessitated by the challenges of postmodernity. The aim of this synthesis is to reassert the importance and values of Christian civilization in these times when the extreme secularization of life, as well as dehumanization of nature and life itself threaten the stability of human existence and fulfilment of its infinite tasks.

It is a sheer fact of history that the dialogue between theology and science became a common topic for academic discussions within the last twenty to thirty years. One can ask a naïve question on whether this dialogue has succeeded so far, *i.e.*, has it achieved certain results which have had impact on both science and theology? What is definite, is that, regardless of any cautions from theology, scientific advance (in particular that of the exact natural sciences) continues with the same intensity and

* Originally presented at the international congress "The Dialogue Between Science and Religion in the Orthodox World" (Romanian Academy, Bucharest, Sept. 24-27, 2008).

impetus as in the 20th century. The dialogue with theology has an impact in the bio-ethical issues of the medical sciences and, to some extent, in ecology. However, in a wider context, one must admit that all discussions about whether science and theology are in conflict or in a sort of “peaceful coexistence” do not have serious existential implications: the problem remains and its ongoing presence points to something which is basic and unavoidable in the overall human condition.

Consideration of this issue of the existential implications of the dialogue becomes vitally important for the theologians of the Eastern Orthodox faith who confess theology not as an academic and abstract discipline, but as a mode of life and an experience of God. Theology implemented in human life aims at changing this life, at transfiguring it in a sense of *metanoia* (change of mind), so that any involvement in theology, be it personal or conciliar, within the problem of science and religion must raise this problem to the experiential and spiritual level. If this does not happen, then the whole “dialogue” degenerates toward an empty intellectual game of reshuffling theology and science on the plane of mundane consciousness. Unlike science, which always progresses through its explorations and discoveries toward practical results, and unlike theology which intends to transform human beings to the good, the dialogue between science and theology, if it does not have a priori aims implied in its initial intentions or originating outside it, in socio-cultural and existential objectives, remains an infertile activity unrelated to praxis and to the immediate concern of humanity. The symptomatic lack of aims in the dialogue has its reason in ignoring the question of its essence as based in the disintegration of the human spirit (which happened historically in many stages and manifests itself on the personal and conciliar level). It is this disintegration that, from our point of view, is the essential feature and problem of the present human condition, so that the dialogue between theology and science must be approached on the grounds of investigating this disintegration. Seen philosophically and theologically, the investigation of the disintegration of the human spirit will contribute to one of humanity’s infinite tasks to comprehend and fulfill the sense of existence through reintegrating its spirit. But this infinite task originates not from academic, but rather from existential objectives, dictated by a special position of humanity in being and related to its transcending aspirations. These existential objectives are best formulated theologically thus forming the framework of the science-religion dialogue: the symmetry between theology and science is broken from the very inception of this dialogue if it is to address existential questions. This asymmetry constitutes the dimension of the dialogue that we describe in terms of *theological commitment*. This paper outlines briefly three major aspects of this commitment.

Theological Commitment and a Critique of Secular Thinking

Contemporary science is historically rooted in the so-called modernity, which has been responsible for dualisms — such as the opposition between faith and reason — which have provided the grounds for excluding the divine and transcendent. Modernity is responsible for the claim that truth is based on universal reason, which tells us what reality is like. In this historical setting, theology is forced to follow the rules of modernity in its dialogue with science, not its own intrinsic logic of the communion with God. These rules effectively dictate that theology enter the dialogue on faith and reason along the lines of the adopted secular standards of scientific truth or normative rationality, assuming a particular notion of the knowing subject (as an impersonal and disembodied collective subjectivity), which is sharply opposed to the premodern theological way of asserting truth through the existential events of the incarnate hypostatic lives of humanity inherent in the divine image. Seen theologically, the secular standards of stating the truth have subjective aspirations in the sense that they themselves are based on certain ill-articulated myths and beliefs, so they can state objective values and divine transcendence only precariously. The dialogue between science and theology, as it takes place in the West, manifests a simple truth that theology, as its counterpart, has to adapt to the implied liberal forms of thought, thus deviating from its apostolic and patristic understanding as experience of God in communion.

The present postmodern condition puts modernity's claim for the universality of truth under a big question mark (at least in what concerns the human sciences, including philosophy and theology), claiming that modernity's ways of appropriation of truth were in a certain deviation from the unified vision of the world which pertained to what is called the medieval view. This unified vision was based on the characteristic alliance between faith and knowledge, both originating in the communion with God. It is for this reason that the Christian theology, in its Eastern Orthodox form, being dogmatically and liturgically faithful to the tradition, thus transcending all historical divisions, feels empowered to question the foundational premises of modern science and the ways in which its dialogue with theology is organized.¹ Since the Eastern Orthodox see modernity as a certain deviation from the view that any knowledge con-

1. This is an answer to A. Walker's question of twenty years ago: "Given that modernism by definition wants to scrutinize and criticize all traditional ways of thinking and expression (and modernism is no respect of confessions, for all historic and traditional commitments are grist to its critical mill), is there any way we can critically evaluate modernist thought from the perspective of historic Christianity?" (Walker [1988], p. 4).

tains a deposit of faith (be it simple existential faith), Christian theology is given the right to use the language and critical methods developed within modern and postmodern philosophy, and other human sciences, in order to explain those “faith-like commitments” that underlie modern science with its claims for truth and, hence, the imposed form of its dialogue with theology. If scientific claims for truth are seen as endowed with the certainty of beliefs, the dialogue between theology and science will rise to a different level, namely that the distinction between theology and science will be seen as the differentiation of intentionalities and constituents of one and the same human subjectivity. *Thus, the dialogue between theology and science begins to acquire features of a phenomenological project.* However, phenomenology is employed here within an explicit theological commitment, so that one has here a new *theologico-phenomenological project.*

The natural employment of phenomenology within a theological discourse confirms an intrinsic truth: that theology, as a mode of thinking, is critical thinking. The sphere of operation of this critical thinking is in all realms where the Church (ecclesial humanity) meets the historical and cultural reality. Theology creatively and critically thinks of any emerging historical problem or theme, while remaining in the immutable state of the spiritual life of the Church, because this life is experience of God — that is, of eternity.² This is the context where the Church uses the notion of tradition. Since theology operates in the conditions of faith, it acts as a critical form of thought in that situation when a faithful has to react to a problem arising in the world at large. Here, since theology as a spiritual and intellectual activity is rooted in the experience of the Church (that is, that of eternity)³, it always functions from above mass-religious consciousness, as well as “secular” consciousness, which claims its freedom from any faith commitments; the unceasing task of theology is to provide a constant and constructive critique of these modes of consciousness (Philaret [2004], p. 29).

In so doing, the above critical theology asserts itself as a *meta-discourse*, that is, as that form of critical thinking about the different modes of social activity which expresses the word of God the Creator and is not

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2. In the words of Father D. Stăniloae: “The very existence of the Church is an effect, continually renewed, of the action of the Holy Spirit in creating communion”; “The door of the infinite riches of the personal or interpersonal divine being has opened up before the reflections of Orthodox theology, and with it the prospects of an endless progress of the human spirit within the divine” (Stăniloae [1980], p. 218).
 3. “The paradox of the Church mission in ‘this world’ is just in that the power of the ecclesial influence of the world directly depends on the ability of the Church to be ‘bigger than the world’, to transcend the world and to see it through the ‘Divine vision’” (Philaret [2004], p. 53 — in Russian).

being bounded or exploited by some particular human activities as their “prophetic” voice, be it the socio-historical sciences or else some kind of all-encompassing transcendental philosophy. The critical function of theology with respect to other discourses never allows it to slip into such a position, that its scope and place are determined by other discourses, for example by the science-religion dialogue with its demands to deal with some particular issues such as, for example, the question of the origin of the universe in cosmology or the origin of life in biology. In this sense, theology can never be defined and positioned by secular reason and thus it does not accept the idea of a complete autonomy of that sphere of the worldly reality which is asserted through rational understanding.

One must not forget that the theology we are talking about assumes its ecclesial setting, that is, its inseparability from the experience of God through liturgy and mystical communion. This entails that by being critical with respect to various forms of thought theology represents the voice of the Church. This implies, in turn, that in order to remain critical and encompassing with respect to other discourses the Church must remain independent in its voice and not adapted easily to the requirements of the secular reason and, in particular, to the demands of the dialogue with science.⁴ If this were not to be the case and secular reason uncritically claimed its right for neutrality, objectivity, and independence from any faith commitments, faith and reason would remain parallel and non-intersecting in this age.⁵ But, as we mentioned before, the separation of faith and reason is the consequence of many other divisions in one and the same subjectivity; this separation in turn divides, in this subjectivity, God and reality. It is this very division (Gr. *diairesis*) that St. Maximus the Confessor described as the moral tension between Creator and created, the overcoming of which is the ultimate goal of the human ascent to God.⁶

4. This makes Christian theology flexible to any scientific developments without being assimilated by them. According to V. Lossky, Christian theology “...is able to accommodate itself very easily to any scientific theory of the universe, provided that this does not attempt to go beyond its own boundaries and begins impertinently to deny things which are outside its own field of vision” (Lossky [1957], p. 106.). This accommodation means to remain critical to all scientific claims for monopoly of truth, that is, to remain a “meta-discourse”.

5. This thought was discussed by Archbishop John of San-Francisco (Shakhovskoy) in the context of physicist Max Planck’s views on science and religion. Planck compared the growth of scientific knowledge and of religious experience with two parallel lines. They have a common point of intersection, infinitely distant from ourselves, that is, distant from the present age and being in the age to come (*On the Mystery of Human Life*, Moscow, Lodiya, 2003, p. 15 — in Russian).

6. On the deification of man, see L. Thunberg, *Microcosm and Mediator: The Theological Anthropology of Maximus the Confessor*, Chicago, Open Court, 1995; J.-C. Larchet, *La Divinisation de l’homme selon Saint Maxime le Confesseur*, Paris, Les Éditions du Cerf, 1996.

If the tension between faith and reason is sought to be overcome along the lines of this patristic ideal, it is clear that it can be done only within a strong *faith-commitment*; secular reason alone is incapable of attempting this mediation in a non-totalitarian and non-reductive way. However, if theology submits itself to the logic of the secular (for example, assuming a sort of scientific form), it will become one particular, although very special, mode of activity separated from other modalities of human reality which do not fit in the rubrics of the secular demands.⁷ As an example, following the logic of the secular, theology has to deal with the issue of biological evolution and the origin of man which, in the perspective of science, stresses the physical and biological. But any theory of evolution can literally say nothing about the origin of the hypostatic human subjectivity, that is, of the persons who articulate the evolution as such. These are persons who have empathy and love, who can rejoice and suffer, but whose accounting for is impossible in science. In this sense, theology is an existential enterprise never abstracting itself from the concreteness of the human hypostatic embodiment. Theology as an experience of communion is life in that it encompasses all reality in which humanity is present; thus, it is intrinsically present in all disclosures and manifestations of reality by human beings, so that all articulations are referred to, and judged by, the theological mode of life.

The theological commitment in the dialogue with science means that the radical stance on science follows from the objective requirement that the Church and its theology draw a clear borderline between the dispassionate contemplation of what happens in modern science and the involvement of the Church's in it.⁸ The criteria of delimitation can be seen in the words of Jesus Christ: "What does anyone gain by winning the whole world at the cost of destroying himself?" (*Luke*, 9, 25; cf. *Matthew*, 16, 26). In modern terms, it would sound like this: "What does humanity gain by exploring and subjecting the world to its utilitarian needs at the cost of losing the sense of existence and the vision of humanity's infinite tasks and spiritual goals as linked to the transcendent?" Here not

7. Such a "secular" theology, for example, would not be able to take into account the monastic experience, an indispensable component of the mystical experience of the Church.

8. In a general context, this implies the possibility of the critical evaluation of modern thought from the perspective of historic Christianity. In the words of A. Walker, this means to "demonstrate our commitment to go beyond rational critiques of our culture and modern thought forms... and confront modernity (our advanced societies) with the gospel" (Walker [1988], p. 4); "In the light of the gospel, we have sometimes been called to stand firm against prevailing philosophies and intellectual movements that are not only against the Christian Church, but also against humanity" (*ibidem*, p. 1).

only a dispassionate critique of a scientific, secular mode of thinking is implied.⁹ The Christian imperative calls into question the ethical value of purely secular science with its pretence of objectivity and neutrality, with its claim for the totalitarian truth of being, as if it were devoid of any religious connotations, faith assumptions, and possibility of transcendence. It calls into question some *gnostic* ambitions of modern science to be the power helping people to solve problems of this and other worlds. In these pretences modern science denies not only theology's right to predicate reality, but also philosophy (as love of wisdom) for the uncertainty of its judgments. The scientific, secular mind aspires not to philosophy, but to *gnosis*, that is, to precise and demonstrable knowledge. Its aim is to justify the thesis that one must keep silent about that which cannot be spoken in terms of the clear rubrics of reason. Theological commitment advocates the opposite in a sophisticated apophatic sense: one has no right to keep silent about things of which we cannot speak (using pure reason), for in this case we pass over in silence the essence of our existence. Yet one can talk about ultimate existential things only through metaphors and aberrations in being, which makes it clear that the fullness of the essential questions cannot be exhausted by the faculties of reason. When the precision of judgment becomes an absolute value, so that all questions beyond this "precise gnosis" are abandoned, the human being feels lost and deprived of its own existential anxieties. In this sense, the faith implied in the theological commitment never threatens science and philosophy: on the contrary, it protects them from the all-pervasive pretences of gnosis. Faith needs both philosophy, and science because faith operates in the condition of incarnate humanity which seeks truth and asks for it. Faith is critical to the same extent that philosophy and science are supposed to be. But faith is universal and encompasses all phenomena of human existence.

9. In fact, not only scientific, but also Christian thinking. In the words of T. Torrance: "[I]f you detach Christianity from Christ, then it becomes attached to society; then it is immediately engulfed in the whole socio-political world, so that then you have got a radical secularization of Christianity" (Walker [1988], p. 52). This is the reason why the approach of Christianity to science must take place within the basic doctrinal issues such as Creation, the Incarnation, Resurrection etc. Any loose adaptation of Christianity to the impostures and demands of modern scientific culture threatens to dissolve Christianity and, as was said above, to make it one particular modality of the activity which excludes all of humanity that does not fit the vision of this particularity. Father D. Stăniloae expresses a similar thought: "...we do not think it necessary to give up our stress upon the spiritual content of dogma when we are faced with the argument that such content can say nothing to the man of today, and therefore we must insist only on the conformity of dogmas with the results of the natural sciences. We believe that dogmas can only be preserved by emphasizing the spiritual meanings they contain" (Stăniloae [1980], pp. 216-217).

In its intrinsic critical function upon all social undertakings, theology manifests itself in a phenomenological modality, that modality which studies, analyzes and qualifies states of human consciousness by referring them to their ultimate source in the Divine. Theology deals with phenomena of the presence of God, so that in this sense theology is the domain of phenomenology. However, unlike the classical philosophical phenomenology which fights against transcendence, ecclesial theology, being phenomenological with respect to all mundane forms of consciousness, assumes transcendence as its sheer facticity and possibility. Thus, the phenomenological approach to the critique of scientific consciousness and the dualism between knowledge and faith, exercised within *theological commitment*, assumes that transcendence is possible as a premise of their reconciliation.

One sees that the statement above entails that any synthesis of theology with phenomenology (as a methodological tool in engaging with science) assumes the extension of the latter beyond its "classical" domain. From a philosophical point of view, this "theological turn" in phenomenology is not unproblematic¹⁰, but, seen from within a faith-commitment, it can be considered an inevitable involvement of philosophy and science into the theological discourse, which corresponds exactly to the general aim of the dialogue between theology and science in the perspective of Eastern Orthodoxy. Hence one can see that one particular dimension of this dialogue is to express the theological commitment of the Orthodox faith in its dialogue with science in contemporary language by using the philosophical phenomenology and critical thinking developed in Europe. In the words of Metropolitan Philaret of Minsk and Slutsk, who confirms this thought by referring to the patristic period in the Church history: "The theologians of Christian antiquity were in a constant dialogue with the philosophy of their age. While appealing to the Fathers, we should learn from them how to conduct such a dialogue. It is necessary for contemporary theologians to enter a similar dialogue with contemporary philosophical thought. *Perhaps one should develop a new theological language and this, certainly, does not mean to become unfaithful to the Church's dogmatic teaching; on the contrary, this new language will facilitate such an expression of this teaching, which allow for this dialogue to take place*" (Philaret [2004], pp. 44-45 — my italics). The creation of a new mediating language in the dialogue between theology and science thus becomes another dimension of a theological commitment, in particular with reference to the Fathers.

10. See D. Janicaud, *Le tournant théologique de la phénoménologie française*, Combas, Éditions de l'Éclat, 1990. See the English translation of this work in Janicaud *et al.* [2000].

This reference forms a neo-patristic dimension of the dialogue between theology and science.¹¹

However, the theological commitment implies not only a new appropriation of some ideas and language. In other words, the matter is not only in theology as a certain language for expressing faith. The matter is in faith itself. To be more precise, the matter is in faith in the Church, as that human space created by God for the fulfillment of mankind. Theological commitment as the movement “beyond secular reason” implies the deepening and acquiring of a new ecclesial experience of God, because theology cannot exist without this experience. If this experience is absent or distorted, human thinking as such can become distorted and theology can become a variety of secular reason expressing the dominating cultural ideas. Science, by losing its commitment to existential faith, that is to life, can become a demonic tool, where the boundary facing the inhuman can be trespassed.

Theological Commitment and the Human Person

Some aspects of modern science, on being critically assessed, reveal the presence of contradictions arising from the pretension of science for independence and freedom of research. The idea of freedom to explore turns against humanity because it becomes the freedom for futility. Humanity, exercising its freedom of exploiting and subjugating nature to its utilitarian needs, thus forgetting about the sacramental and thanksgiving attitude toward nature, becomes a tragic hostage of this freedom to “explore” expressed in the ecological crisis and political instabilities resulting from possible abuses of the technological achievements. The alleged freedom of the exploration of nature as being devoid of theological and teleological grounds and reflection leads to its own self-negation by reducing humanity to mere hermeneutics of biological survival and depriving it of its dignity and theo-centredness. The freedom of the person from spiritual authority effectively eliminates personhood as the issue reducing humanity to no more than a futile consubstantiality of the material, and thus disintegrating, community into dispersed biological applications endowed with the function of indefinite consumption. Contrary to this, Christianity states freedom by placing human beings in the

11. On the dimensions of a neo-Patristic synthesis in the dialogue between theology and science, see my book: A. Nesteruk, *The Universe as Communion. Towards a Neo-Patristic Synthesis of Theology and Science*, London, T. & T. Clark, 2008.

centre of all questioning and articulations of the world, by implying that the human dignity does not simply follow the impersonal logic of science which positions humanity in the world as a thing among other things, but refers to that invisible origin by whose will humanity strives to fulfill its destiny.

The radical theological commitment in the dialogue with science implies a certain stance on anthropology, or the vision of personhood, which precedes and exceeds the scope of modern science. It sees the split between faith and reason, or the split of intentionalities in one and the same human subjectivity, as the loss of sensibility on the centrality of the human person in the dialogue: therefore, the dialogue with science must follow the Orthodox Theology which “has to do with the existential needs of the human person. Owing to the advance of technology and science, there is growing concern about the respect of human dignity and freedom in our time. Theology must treat as a priority the meaning of the Person”¹². In other words, “Theological personalism, or the theology of the person is one of the most important trends in Orthodox anthropology today” (Philaret [2006], p. 47). Thus, the theological commitment is an existential commitment.¹³

The alleged secularity of science is seen as rooted in forgetting about the human person as the centre of disclosure and manifestation of the universe. But since the immediate existence of humanity with all the immensities of its emotional and psychic world is imbued with the sense of anxiety and mystery of its own contingent facticity which directs humanity toward God, humanity, as a sheer fact of hypostatic self-existence, manifests the living transcendence and the possibility of reaching out for the transcendent. Thus, to reinstate transcendence in the scientific discourse, one must rediscover the person. The issue of the personhood

12. Metropolitan John of Pergamon (Zizioulas), “The contribution of western orthodox theology”, in *THE MESSENGER, Journal of the Episcopal Vicariate of Great Britain and Ireland*, No. 6, May 2008, pp. 42-43. In agreement with this, Father D. Stăniloae writes: “Man today is not content to be just a consumer of the products and distractions provided by technology; he demands to be a man of ever closer relationship with his fellow men and, consequently, a man who, in a manner much more acute than before, lives out his obligation to find those ways and means which will assure that these relationships do not become painful and inimical, but instead remain friendly and responsible. These ways and means can only be discovered, however, by experience, by coming into contact with those higher realities that man thirsts for in order to escape the deadly monotony of purely material distractions” (Stăniloae [1980], p. 217.)

13. On an Orthodox Christian concept of existentialism, see Archbishop Lazar Puhalo, *Freedom to Believe. Personhood and Freedom in Orthodox Christian Ontology*, Dewdney, B.C., Synaxis Press, 2001, pp. 48-59.

addressed within a contemporary setting forms another dimension of the theological commitment.¹⁴

The dialogue between theology and science in the Eastern Orthodox perspective then becomes a radical form of the intellectual, cultural, and spiritual ecumenical mediation among all splits and disintegrations in human life, assuming that theology, unlike science, forms the metadiscourse transcending all encompassing spheres of human life and activity. This position confirms an old Patristic view that theology is a mode of life and the essence of the human condition is the communion with the Divine. In this perspective, the dialogue between theology and science rejects the dominance of both pure faith, and pure reason, for it considers both within the integrity of hypostatic humanity as two modes of participation in the Divine.¹⁵ At the same time, it does not want to consider theology as a dialect enclosed in itself and unrelated to other spheres of human reason, although it never adapts to any unquestioned norms of secular reason.¹⁶

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14. This dimension can be given a neo-patristic dimension by appropriating both the ideas of the Fathers on the person, and the ideas of modern philosophy. Indeed, on the one hand, according to Bishop Basil of Amphipolis, "In order to present the case for Christianity convincingly in the modern world, we need to return quite consciously to the anthropology of the Fathers, to their understanding of what it means to be human, to their understandings of our capabilities and our goal" (Basil [2008], p. 189); on the other hand, Metropolitan Philaret of Minsk and Slutsk advocates that "theology is interested in that knowledge about man which is accumulated by contemporary science. First of all, theology is interested in the dialogue with those anthropological concepts which have been developed by philosophers during the last century; this is because, in contradiction to special sciences such as biology, psychology, sociology, and linguistics, philosophical anthropology aspires to reveal some essential characteristics of man, to understand his nature and his special place in the system of the world (Philaret [2006], p. 15; see also Philaret [2004], p. 89.)
15. This implies, according to Father D. Stăniloae, that "any progress in understanding dogma depends in part on the progressive understanding that science has of the world", however, and here he stresses the theological commitment: "Theological thinking cannot be separated from spirituality"; this is the reason why Orthodox theology "takes scientific progress into account only insofar as science makes a contribution to the progress of the human spirit, and only insofar as it deepens in man the experience of his own spiritual reality and of the supreme spiritual reality" (Stăniloae [1980], p. 216).
16. Our position resembles here some stances of the so-called "Radical Orthodoxy" theological movement. However, one must insist on a cardinal difference between our Eastern Orthodox Christian advocacy of theological commitment within the ecclesial setting from the vague reference to the Church in "Radical Orthodoxy". To have some survey of the "Radical Orthodoxy" ideas, see, for example, J.K. Smith's book, *Radical Orthodoxy. Mapping a Postsecular Theology*, Michigan, Baker Academic, 2004.

Transcendence as a Theological Commitment

Modernity and secularism are often judged for binding human thought to the realities of this world and depriving it of searching its sources in the Divine. The theological critique of secularism thus implies the reinstatement of transcendence not only as a mode of thought, but as a mode of life. If transcendence was admitted, in patristic theology and its appropriation of knowledge, as a fact of life in communion with God, contemporary science and even philosophical theology experience difficulties with this transcendence because, being seen phenomenologically, they stop transcendence by a simple operation of the mind, through the immanent constitution of the field of consciousness. Theological commitment, exercised through employing and renewing the language of the Fathers, brings some novelty into the phenomenological language, thus providing the basis for describing the experience of transcendence and overcoming the phenomenological neutralization of transcendence by its famous reduction.¹⁷ In this sense, the slogan of a neo-patristic synthesis “back to the Fathers”, or “to acquire the mind of the Fathers” (Florovsky [1975], p. 21) implies the critique of not only modern theological thinking¹⁸, but of all forms of thought, including philosophy and science, which disregard transcendence and communion. By reinstating the philosophical and scientific forms of thought to their proper status in transcendence and communion, the theological commitment incorporates them into ecclesial fullness, thus advancing both theology and existential phenomenology on the grounds of their mutual reintegration in the same human spirit. In so doing, the implied ideas of the Patristic theological epistemology and anthropology advance existential phenomenology in the direction of the so-called “theological turn”.¹⁹ Reciprocally, employing phenomenological achievements advances theology by bringing it to a constructive engagement with modern culture.

17. The resource to this philosophical extension can be found in the works of J.-L. Marion, such as *Being Given. Toward a Phenomenology of Givenness*, Stanford, Stanford U.P., 2002, and *In Excess. Studies of Saturated Phenomena*, New York, Fordham U.P., 2002.

18. This point was stressed by Father G. Florovsky and rearticulated in my book (Nesteruk [2008]).

19. I mean here a particular modern French version of existential phenomenology which has been developed by such thinkers as Paul Ricoeur, Michel Henry, Jean-Luc Marion, Jean-Lois Crétien and others. Contemporary phenomenology progresses implicitly towards theology taking on board the achievements of the Fathers of the Church, but is considered by some philosophers as problematic. See, for example, the debate between the mentioned philosophers and Dominique Janicaud, who contends this “theological” development of phenomenology (Janicaud *et al.* [2000]).

From a phenomenological perspective, the problem of mediation between theology and science can be formulated in a characteristic way as the reconciliation of two types of experience in one and the same human subjectivity (we have already mentioned, however, that there is an intrinsic asymmetry in these experiences if the theological experience is identified with the facticity of the functioning consciousness itself). On the one hand, in science, this experience is empirical and theoretical, delivering to human subjectivity the knowledge of things “present in their presence”. This is achieved by the fact that all phenomena related to the outside world are constituted within the immanence of the *ego*. Regardless of whether one means empirical observations and controllable measurements, or mathematical statements, what is obvious is that in all these cases the “reality of the outer world” is stated through the definiteness and structures of the constituting subjectivity. It is interiorized by this subjectivity and made immanent to it. If the phenomena in the scientific discourse can be presented discursively, that is, acquired by the immanent subjectivity in a way in which either empirical triviality, or logical simplicity dominates, they manifest themselves as being relatively poor in terms of their intuitive content which forms an invisible and silent context of that reduced reality which appears through the procedures of science. In this sense, while studying scientific phenomena, the enquiring intellect does not even venture to guess about a reality beyond the phenomena. The situation in science demonstrates, with strong evidence, that by the mode of its function science avoids transcendence as being fundamentally inconceivable. To transcend in science would mean either to admit that there is something retained beyond the sphere of immanence, while the enhypostasization of reality by subjectivity takes place, or, alternatively, to assume that there are some extra-factors in subjectivity itself which are not exhausted by the discursive reason. Science, based on a standard realistic methodology, thus manifests, in a certain way, a radical fight against transcendence which has been an endeavour from classical phenomenology onwards. Science represents a certain accomplishment of this fight: the reality of the world is interlinked to the constituting ego and there is nothing beyond the grasp of this subjectivity.²⁰ Stated even more strongly, the way of science stops transcendence at the very beginning of scientific enquiry. Here we see a clear difference with theology: theology (understood since Patristic times as the expression of an experience of God) claims that it is possible to accept the phenomena of the Divine as absolute,

20. One should point out, however, that our usage of the term subjectivity, in particular, in its discursive mode, does not exhaust the scope of experience: there is something in the human capacity to commune with the world which cannot be subjected to the logical faculty of apprehension.

unconditioned by thought or speech, that is, to retain as “present in absence” that which is beyond the expression of what is given or revealed. It retains transcendence in immanence. Here classical phenomenology, with its philosophical respect for immanence, enters an unsolvable conflict with theology. The problem here is that, according to classical phenomenology, the phenomenality of God, as well as the underlying facticity of science, would be forbidden, insofar as they re-establish transcendence as opposed to the reduction which attempts to neutralize it. Science is not subjected to this problem to the same extent, because the scientific discourse does not attempt to see the other, hidden, side of the physical phenomena, that side which is responsible for their contingent facticity. In science, human subjectivity operates in the natural attitude by stating objects of the universe as existing outside and independently of this subjectivity. However, the facticity of that givenness of the objects of physics, that is, their articulated phenomenality lies in that same subjectivity which attempts to be abstracted from them. If in theology the problem of the phenomenalization of the Divine coincides with the problem of facticity of theology, in science the obvious phenomenalization of finite things and events does not naturally bring human subjectivity to an enquiry about the facticity of these phenomena (the perceptible experience and rules of correspondence claim their self-sufficiency). Science can effectively function within the sphere of immanence of that subjectivity which generates it, remaining merely an efficient tool, the very possibility of which remains obscure (Gurwitsch [1966], pp. 399-400).

A reasonable question arises with respect to the dialogue between theology and science: what is really meant by the dialogue between theology, which makes a claim for transcendence each and every time God is mentioned, and science whose monism as immanentism is implanted in all reasonable scientific methodology and transcendence is precluded? The situation is aggravated by the fact that transcendence is not self-evident even in theology, if it is taken in a purely philosophical mode. This can be illustrated by mentioning that in theology understood as the experience of God, that is, in the ecclesial context of worship, invocation and communion, one deals with phenomena which are pre-theoretical by default. There is a general problem in philosophical theology (which aims at expressing in philosophical terms the experience of faith) of how to express theoretically the pre-theoretical experience; for example, how to employ thought and speech in order to express that which, by intuition, cannot be thought and spoken of, that is, that which exceeds the limits of the constituting ego. To put it in other words, how is it possible to retain the transcendence of God while speaking and thinking of him within the immanence of human subjectivity?

Christian theology has been advocating apophaticism, since patristic times, in approaching the mystery of God by adopting a simple truth: that the knowledge of God cannot be exhausted by reason and its linguistic means. In this sense, theology operates with metaphors and allegories which, however, reflect existential, pre-categorical and pre-theoretical truth. The challenge to philosophical theology, that appropriates the existential truth of God within the limits of the *ego*, is to overcome the phenomenalization of the transcendent and thus preserve transcendence in immanence. In different words, theology has to deal with the intrinsic ambivalence of the givenness of the Divine, that is, with its “presence, but in absence”. If theology, being scrutinized by philosophical thought, is in need of justification of its own ability to retain transcendence within the sphere of the phenomenality of consciousness, science, if it intends to engage religion, needs a similar sort of justification, but to a much wider extent. This implies that the problem of the mediation between theology and science requires one to deal with a generic issue of the possibility of transcendence in science. In more specific words: in what sense does the intrinsic immanence of scientific assertions about reality retain in itself the element of transcendence; or how does the theoretical speech of the scientific discourse retain the signs of that otherworldly ground of the overall facticity, which is fundamentally pre-theoretical? One anticipates that the difference between science and theology can be described in terms of the difference between experience and transcendence. To a great extent, the question of mediation between science and theology is not only about the reconciliation of experience with transcendence, but about the very possibility of transcendence.

In spite of the fact that the articulation of the issue of transcendence in immanence recreates the problematics of apophaticism, which has been well-known in Christian theology since Patristic times, one must not think that we just advocate a sort of repetition of that which has already been understood by ancient and modern theologians. The present-day understanding of the apophatic stance is relevant not only in the context of the knowledge of God, but also in other situations where the excess of intuition shields phenomena from objective constitution. These situations are called “saturated phenomena”²¹. In theology, these phenomena are well-known not only through revelatory experience, but also in the ordinary

21. The terminology of saturated events was introduced by Jean-Luc Marion in his original paper *Le Phénomène saturé*, in J.-F. Courtine (ed.), *Phénoménologie et théologie*, Paris, Criterion, 1992, pp. 79-128 (English translation: *The Saturated Phenomenon*, in Janicaud et al. [2000], pp. 176-216) and later developed in his book *Du surcroît. Études sur les phénomènes saturés*, Paris, Presses Universitaires de France, 2001 (English translation: *In Excess. Studies of Saturated Phenomena*).

life of the faithful, when they express the presence of God in works of art (icons), music (liturgy), poetry (religious hymns) etc. Theological apophaticism implies the freedom of expression of the experience of God without any pretence that this expression exhausts the inexpressible intuition of the Divine. However, the modern wave of apophaticism in religious philosophy and theology wants to go beyond a simple old claim: that no conceptual image will ever exhaust the sense of the Divine. The phenomenological approach to theology articulates with a new force the difference between theology understood philosophically (ontotheology) as a system of ideas about God in front of whom one cannot sing and dance (Heidegger [2002, p. 72]), and the theology of experience and communion. That philosophical theology which considers God in terms of existence and real transcendence, causality and substance, is subject to a phenomenological critique. A philosophical approach to God whose existence is posed as transcendent disqualifies such a God from a phenomenological status. In counter-distinction to philosophical theology, the theology of experience, revelational theology, or theology of the given, is based on facts and manifestations linked to the Scriptures and Eucharistic communion. Here we deal with phenomena that, while phenomenizing themselves, render a sort of concealment, not being fully disclosed through those aspects of intuition which cascade towards expression.

The new phenomenological turn in the dialogue between theology and science, which presupposes that it does not deal anymore with the questions of God's existence in abstract theorizing at the level of meta-science, involves scientific *discourse* in dialogue with religious *experience*.²² This post-modern turn to experiential theology has some clear pre-modern features: it appeals to that understanding of theology which was typical of the Fathers of the Church. Thus Patristics, explained and reinterpreted phenomenologically, enters the sphere of the dialogue with science as an explicit theological commitment to the discourse.²³ Here one must stress once again that we see the real issue of the dialogue between theology and science not in the comparison of scientific views about the universe with religious ones, as if they are made in abstract forms of thought, but in dealing with the differentiation of experience and intentionalities in one and the same human subjectivity. The explanation of this difference and of the ways of their reintegration will have to be made within the rubric

22. This will introduce a correction to the alleged objectivity and neutrality of scientific claims, because science will now be seen from within a certain theological commitment. In this sense, as we have mentioned before, our neo-patristic stance on the dialogue between theology and science can be paralleled with the theological sensibility of the so called "Radical Orthodoxy" movement.

23. This is the main point of my book mentioned above (Nesteruk [2008]).

of transcendence in immanence, that is on the level of those borderline situations where the excess of intuition of a phenomenon effectively blocks its discursive exhaustion and renders in it something which has not been intended and conditioned by experience.

One can point out two issues relevant to science and its dialogue with theology where the excess of intuition blocks discursive description and simple logical interpretation: the cosmology of the origination of the universe as a single and unrepeatable *event*, and the issue of the position of humanity in the universe in the perspective of an unrepeatable and incommunicable act (*event*) of embodiment (incarnation) of every human person. The universe appears to humanity as given in its contingent facticity, but its sense and origin are not understood by humanity. Humanity, on the contrary, is understood on the basis of the event of communion with the universe (through embodiment) in the very measure that this I itself does not understand this event. Similarly, the event of birth as contingent incarnation (the event of hypostasis in Levinas' terminology — [1987], pp. 42-43), is not understood by the I (it does not show itself to the I) but the I is understood on the basis of this event that occurs to it in the very measure that the I itself does not understand the event.²⁴ It is the inability to comprehend the sense of embodiment in general, as well as in its hypostatic facticity that makes the problem of the origin of the universe, as well as the problem of the origin of the I, one and the same unsolvable metaphysical mystery (Marel [2008], p. 24). One can speak about the incommensurability of the universe, as well as of the facticity of the I to all forms of conceptual thinking. It is the inability to comprehend the pre-theoretical and pre-conceptual in the givenness of the universe to the I, as well as of the givenness of the I to itself, that indicates that we deal here with the problem of transcendence in immanence: the universe shows itself in rubrics of immanent consciousness, while remaining incomprehensible and, thus, retaining its inexhaustibility in terms of conceptual thinking and, hence, exhibiting transcendence.

24. A hypostatic human being appears to itself without controlling the conditions of its contingent appearance, but attempting to phenomenalyze it through the flow of life as directed to the future. In other words, subjectivity is extended here towards a non-intentional immanence, or reversed intentionality, where the *ego* finds itself subject to, not subject of, a givenness. The I no longer precedes the phenomena that it constitutes, but is instead called into being as the one who receives this intentionality. The sense of the I is driven not by preconceived forms of subjectivity, but by events whose sense is not immediately accessible to subjectivity, but unfolds in time as the accumulation of the gaze: the more we progress in time in seeing the universe, the more we comprehend the sense of its past; the more we grow in our lives, the more sense we draw out of the fact of our coming into being.

Theological Commitment and Ecclesial Wisdom

The fundamental feature of all modern discussions in theology, philosophy, and science is the absence of the *ecclesial dimension* of theology as a relevant form of statement of the truth. The uniqueness of this proposed project is to achieve a synthesis which will assign ecclesial and eucharistic meaning to the mediation between theology, philosophy, and science, thus explaining all modes of the human spirit in the perspective of the universal "Cosmic Liturgy" as the major vocation of the incarnate humanity made in the Divine image. In order to justify the importance of this ecclesial dimension, let us look carefully at what we have achieved so far. We have outlined the distinction between theology and science as originating in differing intentionalities of one and the same human subjectivity which articulate differently parts of the overall experience of being. Thus, the preliminary step in overcoming the tension between theology and science is to refer them both to the source of their manifestation and disclosure in human persons. There will be a temptation to pronounce that the problem of the dialogue between religion and science is solved at least theoretically. However, the question remains about the implications of their differences in life, so that the whole problem is lifted up to the level of ethics.

While rediscovering personhood as the uniting mode of articulation and exploration of the world and God, one must not be naïve in order to understand how different this personal knowledge of the world and God can be in the physical or social realities. Personhood, or the personal mode of existence, implies not only radical *otherness* with respect to the substance of the world, but also radical *communion* with this substance, which, in particular, is realized in human communities as the living chain of interpersonal relationships which make a person out of an individual. Communion here incorporates much more than a simple sharing of living space and exercising love, empathy, and compassion with respect to fellow neighbours. It implies an element of corporate responsibility for the persons as a community in a particular environment which is conditioned not only by simple social norms, economic interests of a particular group, or purely by the instinct of survival. The communion of persons, as we have seen before, assumes a certain reference of the source of their otherness, beyond creation, in the Divine which is the source of their existence. It is through this reference that the collective responsibility is linked to the concept of *wisdom*, as distinct from that of *knowledge*. It is important to stress, however, that the presence of *wisdom* in human communities was secured not through particular visionaries and spiritually advanced per-

sons, but on the level of corporate participation in it which originated in the charismatic nature of the Church and its Councils. This is what is described in Eastern theology either by using such words as *catholicity* (universality) or, in a particular Slavonic Orthodox usage, *sobornost* (conciliarity). One of the features of catholicity is to establish decisions about what is good and right for men not on the grounds of what is good for this or that individual, but what is good for all humanity in its entirety including past, present, and future generations: thus, catholicity in its essence refers to the fullness of humanity understood eschatologically.²⁵

Epistemological and, hence, ethical individualism is inevitable in case the picture of the world is presented as a correlate of impersonal and anonymous subjectivity, so that the atomization of humanity takes place on the ground of their differentiation as corporeal units in space and time. This atomization results in that every human person is free to achieve its own goals by using their potential and capacity to the ultimate limit. It is this feature of modern society which leads to incredible scientific discoveries and advances in technology: human scientists feel free to explore and study whatever they want and how they want, and, while discovering this or that potential in nature, to develop it to its extreme use and exploitation without correlating the results of this usage with other aspect of human life. The scientific exploration of the world devoid of the perception that it unfolds within the communion events represents no more than the desire to dominate the other (be it simply the nature of a person) which cascades down to the loss of the modes of love and heart-centredness in comprehending nature and, thus, making it a fictional sentiment. In this sense, all concrete localities (be it the whole planet in the Cosmos or a particular group of people) are denied their primary existential status either at the expense of some abstract and universal (the universe as a reality ultimately true), or purely mental identities (society as a global economic mechanism). Scientific activity without love and *telos* then seems to be a pointless change just serving the biological survival of humanity.

What happens is that the ethical individualism in knowledge, as freedom from the corporate morality of humanity as the whole, leads to the individualization and atomization of the potentialities of nature, when every newly discovered phenomenon is brought by free human will to its limitless use as a source of power, that is, to its humanly-seen teleological end. One can see examples of such an approach to the exploration of new physical forces in the construction of nuclear weapons, where the potential

25. The intuition of fullness encompasses all possible generations of human beings who will ever live in the idea of fulfillment of the *pleroma* of humanity, that is, of the fullness of the "body" of humanity in Christ. See Gregory of Nyssa, *On the Making of Man*, p. 17.

of atomic energy is lifted up to its extreme when its intrinsic, probably inhuman, *telos* is capable of overruling and annihilating the very humanity which unleashed the power. One can see the same in a contemporary ecological crisis, when the unlimited use of energy-consuming capacities discovered in the 20th century, applied to some particular individualistic goals, can threaten the existence of the entire planet, thus potentially annihilating those agencies who, in virtue of their freedom, unleashed *knowledge* forgetting about *wisdom* which always teaches that knowledge assumes faith and a loving relationship with what is known, and does not consider it as the source of power.

The gift of finding the ultimate common background for human intelligence in the sphere of abstract transcendentalism was granted to many visionaries and deep thinkers. However, belonging to this anonymous sphere did not prevent the atomizing tendencies in human communities, remaining thus no more than a philosophical pointer towards the truth of some common spirit of humanity, but not reaching the truth of its unity in full. What was missing in all such findings was the charismatic and eucharistic dimension of this truth, as present and manifest in the Church. It is only through being in the Church, that is, being in council with all people, and being under the veil of the Holy Spirit, that it is possible to live and know truly. One can thus conclude that the reality of the Church, its tradition as the continuity of the historical revelation of God in the World, as well as the constant presence of the Holy Spirit in the liturgy of the Church, forms the conditions for the ultimate *transcendental and multi-hypostatic* "subject" to show its presence in the conditions of its empirical absence. It is through the wisdom of this "subject" that all outward articulations of the world possess truth, understood in its ecclesial and, hence, eucharistic sense, as truth of life.

If humanity is brought into existence in order to achieve its ecclesial function by building the picture of the universe together with the universal Church, its destiny is to take care of the universe being the priest of creation by bringing creation through mediations between its divisions back to the union with God. The whole history of the universe, seen previously only through secular eyes and displayed as a natural process, will transform consequently (as a renewed articulation — *metanoia* — in the renewed hypostasis of humanity) towards its ecclesial mode.²⁶

26. Maximus the Confessor gave a metaphorical expression of this transformation in his *Mystagogy*. In analogy with Maximus, for Gregory of Nyssa the fulfillment of *pleroma* of humanity will be accompanied by a cessation of that time which we experience as a temporal flow of physical events and by a cessation of procreation, that is, effectively, by a cessation of the biological function of human beings as we understand it today (Gregory of Nyssa, *On the Making of Man*, p. 22).

One can now pose a question about the history of the universe: what was the meaning of the universe before man, if nobody could articulate it and make it existing in a sense of an intentional correlate of human subjectivity? By relating humanity to Christ, whose hypostasis, after Pentecost, was transmitted to the Church, theology implicitly states that the Christ event as being central for our comprehension of the possibility of knowledge of the entire universe (see discussion above) has some cosmological significance. Then, one can conjecture that the development of the universe has, theologically speaking, a drastically different meaning before the Incarnation of the Logos on Earth, and after it. It was necessary for the universe to be in a state of constructive development in order to sustain life on Earth and to allow God to condescend to us and to assume human flesh in order to initiate the new stage of salvation history. This development contained the possibility of explaining the universe by human beings from within the mystery of the Incarnation. This means that nature as it was seen before the Incarnation (being lost in a sense, that man did not realize its purpose and end) was enlightened through the knowledge of its meaning and destiny, that it received from man who learned it from Christ. Thus, after the Incarnation, having realized its ecclesial standing, man became fully responsible for the fate of the universe. Humanity then could only be understood in the context of the promise of God for its salvation as constituting the locus point of the meeting of God and His creation, as the mediating agency, which is supposed to bring the whole universe through its genuine knowledge to new creation. The wisdom of what he have just discussed is formed by what the Church is left with after the resurrection and ascension of Christ, the wisdom that we know through the Church tradition and its ever-experienced liturgical epiclesis. In the same way in which, through Liturgy, Christians experience an eschatological presence of Christ, the ecclesial wisdom in the knowledge of the universe through science discloses to man the presence of the hypostasis of Christ (although in its empirical absence). This wisdom reinstates the existing split between the ecclesial and the scientific intentionality in studying the universe to their eucharistic unity, that is, unity in communion with God, revealing thus the work of scientists as a *para-eucharistic work* (Zizioulas [1997], p. 120).

Here the wisdom of Christian Church makes itself clearly distinct from all sorts of philosophical and scientific wisdom as being natural predispositions of the human reason since ancient times. The ancient Hellenistic world, as well as all philosophies and sciences which followed its intellectual pattern, did not feel the modes of gratitude and thanksgiving as a beginning of thought. If, for the ancient thought, there was nobody who had to be thanked, for the modern thought it has always been a fight

against the transcendent which might be thanked. In other words, for the modern thought in its desire to realize its freedom of suspending all ego-centric intentionalities, the result was also a suspension of the thanksgiving, eucharistic, intentionality of that trend of Christian thought which followed the conciliatory ecclesial wisdom. The lack and loss of the eucharistic intentionality in the philosophical and scientific vision of the world results in a desire for unlimited and unconstrained possession of knowledge of things in order to use them for some particular utilitarian goals. Because the possession of things, even in their abstract knowledge, destroys a loving relationship to them, the intentionality of thanksgiving ceases to function as the gratitude for the every fact of existence of those things in creation which are supposed to be loved. To acquire back that eucharistic intentionality in knowledge, one has to exercise a certain *metanoia* when abstract knowledge and ideas become manifestations of the *image* that is supposed to disclose that One who stands in communion with the human spirit and who makes it possible to see behind scientific proofs a certain witness of the One. This *metanoia* represents a mode of ecclesial reality: "Thus, it is the Church as eucharistic mystery which gives us knowledge of a universe which was created to become a eucharist" (Ignatius IV [1989], p. 2). The universe acquires the sense of sacrament, thus being a correlate of the eucharistic intentionality of humanity. The Christian Church, as carrying and sustaining this intentionality, reveals itself as that ultimate multi-hypostatic subject which unfolds the universe in the state of communion and loving relationship. It is in the wisdom of the Christian Church that all atomizing and individualistic tendencies of human reason are subjected to a certain restraint and regulation for the welfare of the whole world.

It is not difficult to realize that that wisdom, exercised through communion, can deal either with the question of the usage of knowledge, or, more radically, with the question of whether this or that particular knowledge must be obtained at all. A certain person can be "wise" in using new knowledge, but the freedom of scientific research and information cannot guarantee that another one will use this knowledge with caution. One can anticipate an obvious objection to this thesis from those who defend the freedom of reason from any delimiters which do not follow the pattern of free thinking itself. Ecclesial and conciliatory wisdom sees in this unrestrained freedom a certain danger of not being conform to demands of other people, nature, and God himself. In its potential freedom to perform free thinking, the human being is prone to lose any moral guidance based on understanding of the sheer givenness of life by God. When free thinking in its technological implications threatens the very fact of life, one definitely sees here a certain contradiction between the freedom thus realized and the moral obligations to preserve this life as a gift.

Finally one can see that the recovery of the lost personhood in the dialogue between theology and science forms only a necessary condition for this dialogue to be justified. Since the presence of persons behind scientific knowledge does not preclude its misuse, theology enters the relationship with science at a different, ethical level, bringing knowledge under the guidance of wisdom embedded in the human condition, but realized in eucharistic communities. Thus, the ecclesial dimension of the dialogue receives its further specification as the articulation of a thanksgiving intentionality in scientific research, the intentionality which once again positions humanity in the centre of this dialogue.

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The “Difficulties” of Revelation and “Limits” of Reason*

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I have let myself captured in this great subject of the dialogue between Science and Religion out of the desire of exercising, in a useful way, the “dia-logue”, the art of meeting and co-living in the Logos. I looked and I still look with great seriousness at this continuous symposium and I notice that there still are, in a lot of university environments, obvious parallel structures of discourse, even if, apparently, the antinomic aspect has been diminished. This situation reminds me of Plutarch and his *Lives*. I invoke this emblematic figure because I would like to underline the fact that, in itself, the concept of “life” has no plural, and its genitive structures do not make it a plural, but, at the most, reveal it in its profound and eternal splendor. If, on the contrary, we remain in the sphere of grammatical morphologies, my assertion is stupid, ridiculous, not according to the discursive reality of grammatical analysis. Let it be! But I ask myself: In the discursive logics of grammar, where is transcendence to be found? Or should we intuit and create a grammar of eternity? This is hard to believe, especially in a world in which revelation is placed under the mark of the impossible and in which there is an effort to replace it with demonstration.

This is why my purpose here is to talk about the difficulties of revelation and the limits of reason, in order to see that both are consumed inside the human being, either as limitations/denials, or as acceptances/embodiments/experiences. To us, the act of knowing is not a dichotomic act, having a profane component and a theological one, it is a unique and unitary act, the means of entering into the sphere of communication/

* Originally presented at the international congress “The Dialogue Between Science and Religion in the Orthodox World” (Romanian Academy, Bucharest, Sept. 24-27, 2008).

communion with the truth in the suppleness and the complexity of transcendence and its everywhere uniqueness. This is why I propose to you a short recollection of what revelation meant, means and will mean and of what reason is, as a structure of *anthropos* and of all the hypostases of creation, as well as a point of realizing the dia-logue.

Revelation, Miracle, Wonder: the Mysterious/Transcendent Aspect of Revelation and Its Everlasting Dialogical Aspect

The divine revelation is the action through which God, in different ways and step by step, reveals Himself and the meaning of creation (or as the Meaning of creation), so that man and, through him, the whole creation, may reach the purpose for which everything has been brought into existence.

Due to the fact that the entire world has been based on divine reasons (paradigms, thoughts) and is created through Logos, and because man was made according to the image of God, neither man, nor the world can define and fulfill themselves, except in the Logos of God. We strongly assert the necessity of divine revelation, because their existence and their meaning come from God, and the knowledge of this meaning, which is indispensable to the ontological and personal fulfillment of the human being, is acquired by receiving the revelation. Therefore, we perceive that God does not speak to man about Himself for no reason, but reveals Himself as the meaning of the human being. In other words, the revelation is about God, but not for Him; it is for man. In the end, the revelation is about man or, to be more precise, about God, man, and the world.

Without the divine revelation, man and the world would exist irrationally. If the ordinary logic tries to give a meaning to life and to the universe — J.-P. Sartre says that man is condemned to meaning, and Mircea Eliade that the meaning of man's life is that of giving a meaning to life — in the light of revelation, all receives the genuine and original meaning. Omitting the divine revelation, man confines himself to his own subjective image about the world and life, losing contact with reality. Only in Christ — the Truth is man freed of all the illusions he is used to having; only in Christ are man and the world "exorcized" (*John*, 8, 31-32).

In the light of revelation, which identifies itself with Christ, man and the world find themselves again, fulfilling themselves reciprocally through their common ascent to God. The revelation of God is the permanent calling to communion, and in this communion, meaning is found and achieved. The classical terms Lat. *revelatio* and Gr. *apokalypsis* express very well the revelation of the meaning of creation by God (the former

term), and the exhortation to the fulfillment of this meaning through communion with God (the latter — Popescu – Costache [1997], pp. 16-17).

Speaking of revelation, Father Dumitru Stăniloae expresses in these words a content amply clarified by these two ways of fulfillment: the whole universe and man endowed with reason, conscience, and freedom represent the content of revelation (Stăniloae [2003], p. 10). He understands the human being as part of the natural revelation and from the point of view of knowledge. The entire universe is organized in a way corresponding to our faculty of knowledge. Having the mark of rationality, the universe gives testimony about the existence of a Person endowed with reason, who created it — God — as well as about the existence of a rational person, having the purpose of perceiving and understanding this rationality. Thus, the universe becomes the way through which the dialogue between God, the Creator of all things, and man, the one created by His hands, is achieved. This is, in Father Stăniloae's opinion ([2003], p. 11), the content of the natural revelation.

Man is not only an object to be known of the natural revelation, he is also the subject of its knowing. But both man, and the cosmos are products of an act of creation above nature, made by God, and they are kept in existence by God through an act of preservation that has a supernatural character. But this act of preserving and governing the world to its proper meaning is answered, in return, by a power and a tendency of self-preservation and development of the cosmos and of the human being. From this point of view, the cosmos and man may be regarded, in themselves, as a natural revelation (Stăniloae [2003], p. 10).

Speaking of the rational-affirmative knowledge of God, through the things of the world, St. Gregory of Nazianz says: "That God exists and that He is the cause that makes and preserves everything, teach us the sight and the natural law: the first one by looking at the visible and well-ordained and wonderful things and, so to speak, moved and carried on in an immobile way; the second one by inferring their Ruler from the visible and well-ordained. For how it was possible for this universe to come into being without God, Who brings everything into being and sustains them all? One who looks at a well-done guitar and at its harmony or hears its performances could not neglect its maker or its player, but thinks of him, even if he does not know him personally. Therefore, the One, who created all creatures, who moves them and preserves them, is well-known to us, even if we *do not comprehend Him with our understanding*. And the one, who does not go on with the reasoning until the end, following the natural proofs, is very ungrateful".¹

1. *Oratio XXVIII, Theologica, II, P.Q. 36, col. 33.*

Whereas by natural revelation each person may know God with the help of things and events (but, in this situation, *the communication is not perfect*, because things are interposed between man and God and the achievement of the genuine communion is jeopardized), through supernatural revelation God makes Himself known as a Person, dissolving every doubt and revealing His will to a person or a human community. The climax of supernatural revelation is achieved in our Savior, Jesus Christ, who makes the perfect communion with God possible. According to Father Stăniloae, the impossibility of understanding the inseparability of these two types of revelation comes from the idea that, in the case of natural revelation, man is the only one who is active, neglecting the fact that “through all the things created, God leads us, as in an everlasting dialogue, towards fulfillment and opens to us the perspective of achieving the purpose of our existence, in communion with God” (Stăniloae [2005], p. 21). Obviously, there is a qualitative distinction between natural and supernatural revelation: the latter, having its climax in Jesus Christ, is superior to the former, but this superiority asserts the continuity existing between these two. The common content of these two types of revelation is the one which determines its continuity. *The discontinuity brought by sin makes supernatural revelation necessary*, which makes, in its turn, natural revelation complete. Father Dumitru Stăniloae says: “God may be known through creatures, but it is possible that we may never know God through creatures” (Stăniloae [2005], p. 205).

Other definitions of Revelation rule out what we call in the Orthodox tradition “natural revelation”, focusing instead on the events and the ways of supernatural communication between God and man: “Revelation is the act of revealing or, in the theological perception, of making something obvious and clearly understood through active or passive communication with the divine, which could not be known apart from the unveiling”.² In monotheistic religions, revelation is the unveiling and the transmission of the divine will, which would otherwise remain out of reach to the human being. Revelation is preserved in texts which are considered to be holy and are revealed by the Divinity, the monotheistic religions calling them the “Word of God”. Through these sacred texts, Revelation is accessible to man, but its correct perception depends on the right interpretation, with the help of *different hermeneutical systems which are applied to them*.

Another possible definition of Revelation is “the communication of some truth by God through a rational creature through means which are

2. See the Wikipedia article “Revelation” at <http://en.wikipedia.org/wiki/Revelation> (verified September 15th, 2008).

beyond the ordinary course of nature"³. The truths revealed in this way are inaccessible to the human being in other ways, they are mysteries which, even when revealed, transcend the power of understanding of the human intellect. But Revelation is not restricted to these. God may see fit to employ supernatural means to state truths, the discovery of which is not *per se* beyond the powers of reason. The essence of Revelation lies in the fact that it is the direct speech of God to man. The mode of communication, however, may be mediated. Revelation does not cease to be such if God's message is delivered to us by a prophet, who alone is the recipient of the immediate communication.⁴ The advantage of this definition is that it renders obvious the relationship between Revelation and the receiver of it, a rational being for whom it is meant: man, the responsible reason of creation, the point of the dialogical fulfillment of creation.

Revelation has, implicitly, a punctual addressing and an immediate historical effect, but, at the same time, it reflects a universal and transcendent dimension. Therefore, we may assert about the constitutive acts of Revelation that they are historical and, at the same time, they are miracles/mysteries. For this reason, they request a certain hermeneutical act, which must not empty out the act of revelation of its symbolic/transcendent dimension. It can be interpreted by the historical-critical method, but in this hermeneutical act, its universal and perennial aspects cannot be exhausted. The theological dimension belongs to the range of achieving the "knowledge of God" and it will remain a mysterious and wonderful event, perceived and understood by the responsible reason of creation, but not exhausted, because it has the mark of divine incomprehensibility.

From thence spring the "difficulties" of Revelation: God cannot be comprehended by our understanding; due to the human capacity of comprehending and expressing, the communication is not perfect; the discontinuity brought up by sin determines the necessity of the supernatural revelation, which is marked and dominated by the most sublime divine attributes and, through this, it preserves a mysterious character and an adequate interpretation: both historical, and spiritual; this interpretation generates different hermeneutical systems which, in their turn, generate

3. See George Joyce's article, "Revelation", in *The Catholic Encyclopedia*, Vol. 13. New York, Robert Appleton Company, 1912, at <http://www.newadvent.org/cathen/13001a.htm>, (verified September 15th, 2008).

4. Such in brief is the account of Revelation given in the Constitution *De Fide Catholica* of the Vatican Council. The Decree *Lamentabili* (3 July, 1907), by its condemnation of a contrary proposition, declares that the dogmas proposed by the Church as revealed are "truths which have come down to us from heaven" (*veritates e coelo delapsos*) and not "an interpretation of religious facts which the human mind has acquired by its own strenuous efforts" (prop., 22).

formal differences; the acts of Revelation are mysteries which go beyond the power of understanding of the human intellect, challenging the latter rather to embodiment than to theorization.

The Difficulties of Revelation

In time, the insignificant differences of interpreting dogma, that characterized the schools of Alexandria and Antioch, were taken over by the Latin or the Greek Church Writers — later known as Western or Eastern Writers — and developed in separate doctrines which eventually led to the well-known Schism of A.D. 1054. The differences pertain mostly not to the substance of the dogma — as it was defined by the Ecumenical Councils — but to its adjustment to the historical and ethnical style of the different communities. What remained over centuries is not only a difference of nuance between the Western and the Eastern dogmatism, but also a relative in-adequation between the institutional structures, the ways of interpreting the exoteric-esoteric relationship, the characteristics of the cult, between mystics, askesis, the mysteries and, especially, the impact between theology and society. “The sacred is never submitted in a pure state to the analysis of man, but through a network of relations, more or less connected, and of different categories, which unite man with the sacred” (Meslin [1993], p. 155).

But, as we will see further, there is also an in-adequation between the structures of the dogma proclaimed by the hierarchical church instances and its understanding by the common people, inclined to that mixture of faith, pragmatism, reverie, and plasticity of the meanings, ready at any time to overthrow, as the people of Moses, the official image of Divinity. In spite of the mysterious transfiguration of antinomy, the dogma remains an arid, cold, profound mystery, proper to the theological-philosophical thinking, but inadequate to an authentic experience of the divine. The truths which pertain to the relationship between man and God as persons are, in a fundamental way, existential and not doctrinal ones (Corbin [1997], p. 210).

At the same time, it is true that, as a consequence of the definitive and irreversible obsession of Christianity of delimitating itself from the old teophanic patterns, the doctrinal theologians of the Church sometimes tried to find categorial formulas and expressions in the exoteric language, more appropriate to the letter than to the spirit of the Gospels, and allotted to the Holy Spirit, with or without justification, ideoglosical manifestations. A confused synthesis was thus created between supernatural

revelation (that is, the self-revelation of divinity) and the one assumed by the receiver through the submission of the individual spirit to a mnemotechnical mechanism organized according to the mental picture preexistent at the level of expectations. Sometimes, one hears what one wants to hear, by transgressing the symbol or the parable in a text made of exoteric linguistic elements. And this is generated and sustained by the style and cultural level of those in question. The need to know, of understand, and, by way of consequence, of conforming to the mystery which every faith implies may lead to conceptual structures excessively formalized which, instead of favoring the intuition of that mystery (in order to preserve its apophatic character), generate a phenomenological mutation due to which the mystery dissolves itself and takes shape again in structures which are foreign to its genuine religious nature.

The fundamental and repeated way of this mistake is the "premature identification", as it is stressed by Paul Evdokimov. To penetrate the mystery of God, says he, the human intellect must be "united with the heart and, thus, replaced in its pre-conceptual purity", which may surpass the discursive reason (*dianoia*), leave the "harmonies of judgments" (the scholastic method), and, thus, "lift itself to levels deeper than itself, until it becomes the place of God" (Evdokimov [2003], p. 192). Divinity is, in its essence, impenetrable, therefore "every human assertion is, at the same time, its negation, because it never reaches the ultimate reality" (*ibidem*, p. 190). In other words, "human thoughts are inappropriate, because every human word is contradictory by the fact that it always surpasses what it expresses. The coincidence of the opposites is achieved only in God" (*ibidem*, p. 191). The intentionality of formulating a dogma can be a failure, even if the one who formulated it thinks of himself as being inspired by the Holy Spirit. The concept of "inspiration" is in itself ambiguous and "difficult to understand", says Evdokimov. "The mechanical imagery of a dictation, the divine insufflating of each letter would make the authors of the Holy Scripture nothing but passive scribes" (*ibidem*, p. 209); on the other side, a karger freedom of expression would distort the revelation and it would lose its credibility in the eyes of the believers. From this aspect emerges the difficulty of selecting the writings which are truly significant for the biblical corpus, the ones which are free from intentionality or spiritual passivity.

This is why some human spirits react, especially those which cannot adjust themselves to the mechanism of the antinomic theological formula, and the rationalist philosophers who, animated by the same need of knowledge and understanding of the Supreme Being, hardly give up the logical analysis required by the mind. Revelation may be a way of knowledge (sometimes richer and more certain than the knowledge of reason),

but also a way of madness for the one who receives it in a way inadequate to the mysterious conduct of the divine. "After all — says Kant — this revelation reached us through the people and it was interpreted also by the people; even when it seems to be coming straight from God (as in the case of Abraham, when he was ordered to sacrifice his son), he may very well be mistaken upon this. In this case, he would expose himself to a totally unjust act and would act without conscience" (Kant [1993], p. 68). It is sufficient that a more or less competent thinker, urged by the pride of distinguishing himself on a theological level, forces the frames of revelation in a way of a mental pattern too much shaped by his cultural style or, on the contrary, too much conceptually generalized, in order that the open and the living spirit, specific to the relationship man – cosmos – divinity may suffer a new limitation.

Thus, we may come to a series of mono-dialogues which communicate with each other only at the abstract level of gnoseological reduction and encapsulate themselves in formulas of dead letters, as was the case with some texts of the Torah, sharply criticized by Jesus and afterwards by Apostle Paul. "The message of the Gospel told the people that precisely the living spirit is the one which is always above any mummified precept in the Scripture" (Morreta [1994], p. 165). The living spirit implies dialogue, communication, transmission of meanings, in the context of a permanent humanization of the message. If Christianity loses its specificity when it does not feed on the Gospel, it remains in return fruitless if it does not maintain the dialogue with the "humanisms", that it "with that thinking through which man tries, in every epoch, to express his identity" (Neusch [1995], p. 42). We are not talking here of a dialogue permanently willing to re-define the dogma in order to satisfy the need of compromise (which, in the sphere of the Absolute, is unacceptable), or a sociological adjustment of faith, but of an hermeneutical dialogue which may facilitate the access to the Original, to that ineffable point where knowledge and being converge to the possibility of man of returning to his proper Self, lost in the disorder of history. The Gospels are "a doctrine of salvation, therefore a religion" (Gilson [1995], p. 9), not a philosophy, not even a philosophy of language. It is well-known that any communication placed under the horizon of the sacred — as well as any communion in general — implies, beyond the denotative language which transmits the information necessary to daily relationships, a connection of the spirit with the "original phenomenon", a recollection (and a reiteration) of a symbolical permanence which facilitates the transfer of thinking and, implicitly, of the being from the profane to the sacred space, from immanence to transcendence.

Dogmas are not pure philosophy either, they are not even a religious philosophy, because they are not founded on ideas, but on transfigured antinomies, hinting at the quality of divinity to transform the oppositions into coincidences (*coincidentia oppositorum*), of dissolving the logical paradoxes and of annihilating the principle of identity and contradiction. They are, in fact, a "meta-logical language", aiming at circumscribing the mysteries of the Word: "In comparison with logic and with thinking, any dogma is symbolic: the sum of the dogmas is the symbol of faith, the synthesis of the anti-types of the existent realities" (Evdokimov [2003], p. 190). Through them, we may reach the meaning — the ultimate meaning of the Divine Reason —, which transcends, by ways of apophatism, the denotative linguistic expression. Or, using the words of St. Maximus the Confessor: "Better we discover through negation that which is hidden and better we pass in an unspoken way, through the power of spirit, from letter and phenomena to the Reason itself, than to hide, by means of assertion, that which is revealed" (St. Maximus [1983], p. 129).

The Definition and Meanings of Reason

"Reason, as a philosophical concept, means the capacity of the human spirit to understand universal relations and their meaning and to act according to them, including regarding the proper situation in life. Reason is the most important epistemological faculty, which controls the understanding and establishes its limits. Thus, reason is the most important instrument of the spiritual reflection."⁵ The concept of "reason"⁶ is used with a lot of meanings, the above-mentioned quotation being probably the most ordinary of all. It designates the way or the act of thinking, but it may also express the meaning of the existence of a thing or being.⁷

Already in Aristotle we have a clear-cut distinction between intellect (*noûs*), as the intuitive faculty, and reason (*lógos*), as the discursive or

5. See the Wikipedia article "Rațiune" at <http://ro.wikipedia.org/wiki/Ratiune>, (verified September 11th, 2008).

6. Etymologically, the word comes to us, through French, from Lat. *ratio*, which is originally the functional noun of the verb *reor*, "I think" (i.e., "I propose a *res* to my mind"). According to Donaldson, *res*=*h-ra-is*, a derivative from *hir*=*cheír* ("hand"); hence *res* is "that which is handled", and means an object of thought, in accordance with that practical tendency of the Roman mind which treated all realities as palpable, See Alfred Rahilly's article, "Reason", in *The Catholic Encyclopedia*, Vol. 12. New York, Robert Appleton Company, 1911 at <http://www.newadvent.org/cathen/12673b.htm> (verified September 15th, 2008).

7. See the article "Rațiune", at www.dexonline.ro/search.php?cuv=ratiune, (verified September 15th, 2008).

inferential faculty. This distinction was maintained by the Schoolmen. Yet since Kant, the word *reason* has been used to shelter a bewildering chaos of notions. Besides viewing reason (*Vernunft*) as distinguished from the faculties of conception (*Verstand*) and judgment (*Urteilkraft*), Kant used the word in a transcendental sense as the function of subsuming under the unity of the ideas the concepts and rules of understanding. Subsequent German philosophers, as Schopenhauer complained, "tried, with shameless audacity, to smuggle in under this name an entirely spurious faculty of immediate, metaphysical so-called super-sensuous knowledge".

In its general sense, therefore, reason may be attributed to God, and an angel may be called rational. But, in its narrower meaning, reason is man's *differentia*, at once his necessity and his privilege; that by which he is "a little less than the angels", and that by which he excels the brutes. Reasoning, as St. Thomas says, is a defect of the intellect. True, in certain acts our mind functions as intellect; there are immediate truths (*âmesa*) and first principles (*archai*) that we intuit or grasp with our intellect; and in such verities there can be no deception or error. On this point the Scholastic system may be said to be absolutely intellectualist or noocentric. The meanest intellect is, to use an expression of St. Augustine, *capax Dei*. Within a certain region our cognitive faculties are absolutely infallible. Yet the Scholastics also unanimously held that man's specific mark is ratiocination or *discursus*. Some indeed, like St. Augustine (who was intent on his analogy between the logos in man and in the Holy Trinity), insisted on the intuitional aspect of our mental operations, and passed over the actual process as a whole. Yet none denied that in this life our knowledge is a thing of shreds and patches, laboriously woven from the threads of sense. It is only in *patria*, for instance, that God's existence will be to us as self-evident as the principle of contradiction is now. The beatific vision will, in fact, be not only as evident, but also as immediate as our present intuition of personal consciousness. But then we shall be on a level with the angels, who are subsistent intelligences or pure intuitives. In Scholastic philosophy, an angel is practically the equivalent of *noûs* (*intellectus, intelligentia*) when used by such writers as Aristotle, Porphyry, Plotinus, or Pseudo-Dionysius, to represent not a faculty, but a species of being.

Opposed to this ideal intellection, so characteristic of Scholastic angelology, is our actual human experience, which is a *gignómenon*, a coming to be. Man is rational in the sense that he is a being who arrives at conclusions from premises. Our intellectual life is a process, a voyage of discovery; our knowledge is not a static ready-made whole; it is rather an organism instinct with life and growth. Each new conclusion becomes the basis of further inference. Hence, too, the word *reason* is used to signify

a premise or ground of knowledge, as distinguished from a cause or real ground. So important is this distinction, that one may say herein lies the nucleus of all philosophy. The task of the philosopher is to distinguish the *a priori* of the logical form from the *a priori* of time; the existence of many systems of psychologism and evolutionism testify to the fact that this task is a difficult one. Reasoning, therefore, must be asserted to be a *sui-generis* process. This is perhaps the best answer to give to the question so much discussed by the old logicians: What kind of causative influence do the premises exert on the conclusion? We can only say that they validate it, they are its warrant. For inference is not a mere succession in time; it is a nexus thought-of, not merely an association between thoughts. An irrational conclusion or a misleading association is as much a fact and a result as a correct conclusion; the existence of the latter is explained only by its logical parentage. Hence the futility of trying to account completely for the existence of a human thought — the conclusion of a train of reasoning — simply by the accompanying sense-data and psychological associations. The question of validity is prior to all problems of genesis; for rational knowledge can never be the product of irrational conditions.

But today I think we should stay close to the concept of St. Maximus the Confessor, that of "divine reason", because it is more adequate than the act of reasoning or speaking of an organic quality of the human being. Taking into account this concept of "divine reason", we maintain the unity of creation, because what makes knowledge incomplete is precisely the refusal of a subject to remain in the organic unity of creation. The difficulties of Revelation are not intrinsic to it, but have their origin in the limited aspect of the human being. What comes into my mind when talking about this truth is Saint Augustine with his *Confessions*. But, in arguing this, I would prefer to make use of Father Stăniloae's theology.

In Father Dumitru Stăniloae's thinking, the divine reasons of things are the ones which transform creation into a dialogical medium meant for the meeting-communion between God and man. The world has a rationality which may be known to us, rational beings. Therefore, it must have its origin in a Being whose aim in creating the world — and in preserving it — is the knowledge of the world, and through it the knowledge of this Being by man (Stăniloae [2003], p. 11). The reasons of things reveal their light in the reason and through the rational and conscious action of man. Likewise, our reason reveals its power and its depth by discovering the reasons of things. But in this reciprocal influence, the one that has the function of a subject which works in a conscious way is the human reason, not the reasons of things. The reasons of things reveal themselves to the human conscience, in order to be assimilated by it, concentrated in it; they reveal themselves as having the conscious virtual center of them in

the human reason, helping it to become their actual center. They are the virtual rays of the human reason with the possibility of being revealed as actual rays of it and through which the human reason may extend more and more its sight.

The rationality of the subject who uses, in a conscious way, the rationality of nature, is infinitely superior to the latter, because nature develops itself rigidly and without the consciousness of any purpose of it. According to our faith, the rationality which exists in the universe must be supplemented, it requires an explanation in the rationality of a person. The rationality of the universe does not exhaust all rationality. At the same time, the universe cannot be irrational or illogical. It receives its complete meaning when it is considered as having its source in a rational person, who makes use of it for an eternal dialogue of love with other persons. Therefore, the rationality of the world implies, for its fulfillment, the existence of a superior subject, of a free subject who created and gave the world a rationality at the level of human understanding, a rationality having the purpose of dialoguing with man, a rationality through which man should be led to an eternal and rationally superior communion with the Infinite (Stăniloae [2003], p. 20) — the creative subject. Every rational object is the instrument for an interpersonal dialogue.

So, the world as an object is only the instrument of a dialogue of loving thoughts and facts between the supreme rational Person and the human rational persons, as well as between the human persons themselves. The whole universe wears the mark given to it by its originating in the rational creative Person and by its destination of being the instrument of an interpersonal dialogue between that Person and the human persons, with the purpose of making them eternal in that happiness of the communion between them. The whole universe wears the mark of a personal rationality meant to make the human persons eternal (Stăniloae [2003], p. 21).

St. Gregory the Theologian rightly remarks that the rationality of the world cannot be explained without a person who would want it rational; without this person, this rationality would have no purpose, it would be meaningless, it would be an absurd rationality. Likewise, St. Gregory remarks that God did not make a world isolated in a static rationality or in an identical circular movement, but a world through which God performs a singing moving forward in its melodic themes; God continues His talking with us through the world and leads us toward a purpose. He is not only the maker of this immense guitar, but also the performer of a huge and complex melody (Stăniloae [2003], p. 119).

The world as nature turns to be a rational unitary reality, existing for the interhuman dialogue. According to the Fathers of the Church, all

things have their reasons in the divine Logos or in the Supreme Reason (Stăniloae [2003], p. 360). The rationality of the world reveals its meaning by the fact that it is supplemented by the rationality of the human subject, which is conscious, and has an inexhaustible wealth, and is not a monotonous repetition. It is a rationality which discovers, chooses, and aims at greater and greater purposes, reaching them by using nature itself, and doing this not in a monotonous repetition, but with an ever new understanding of things, by freely choosing other and other ways, by using the natural laws and having in view more and more useful results.

The Fathers of the Church, speaking of the eternal reasons of things contained in the divine Reason or in the Logos/the Word of God, also understand these more and more greater meanings which are hidden in them and thought that these meanings might be comprehended, with the help of the supreme Word, by the human reason which perceives the reasons of things in a strict sense. Sometimes, they distinguish between the meaning of a thing and its strict reason, calling the latter *logos* and the former, *noema*. Likewise, they make a distinction between the understanding of the meaning (*noesis*) and the strict personal reason, which perceives the objective reason of a thing, calling these last two *logos*. By making use of this distinction, we will also distinguish between the reasons of things and their understanding with the help of human reason in a strict sense, on the one hand, and their meanings and their understanding in a continuous process, through a knowing act, more synthetic and more direct — intuition (Stăniloae [2003], p. 361) —, on the other hand.

Thus, there is a common and inexhaustible meaning of things, one which binds them together, a meaning whose richness is ineffable. Their supreme and unique meaning is the divine Logos. The meanings of all things are in Him, only He explains everything and man finds his proper meaning of existence only in Him. Especially the one who is a believer may perceive this supreme meaning by a general act of intuition, through his spirit.

According to our faith, when God created all things, which are His plasticized reasons, He gave reason to man as an instrument of knowing them. This is why we may assert that man has the duty to know this creation, because, in his turn, he was created having an adequate reason for that. On the other hand, man is obliged to know the reasons of things, otherwise he cannot use them and cannot live among them. In order that man may live and use them, things have, in their constitution and their interdependent reasons, a certain permanence, adequate to the permanence of human reason, which depends on them.

The Rationality of Things and the Words — Means of the Dialogue with God

The rationality of the world is for man and finds its climax in man; it is not man who was created for the rationality of the world. Someone had in mind the human person when he created the world. But in the way in which the knowledge of things progresses and becomes more nuanced, so the language progresses in richness and nuance. It is a progress toward the infinity of the divine Word, in which the infinite roots of things or their meanings are contained (Stăniloae [2003], p. 366).

God endowed the human beings, through the agency of things, not only with the possibility of thinking and speaking, but also with the necessity of thinking them and expressing them, so they may use them in their mutual relationships and, therefore, the dialogue between them and Him may be achieved, that is, so they may answer to Him by their thinking and speaking. Man discovers new alternatives of things not only through his reasoning and by combining and using them in new ways, but also through new perceptions and thoughts caused in his body by the contact with them and by the new relationships they mediate between him and his fellow men. All these need to be expressed and communicated in a language more and more enriched.

This is the meaning of the words of *Genesis*: “Now the Lord God had formed out of the ground all the beasts of the field and all the birds of the air. He brought them to the man to see what he would name them; and whatever the man called each living creature, that was its name. So the man gave names to all the livestock, the birds of the air and all the beasts of the field” (*Genesis*, 2, 19-20). Thus, God Himself asked the human being to speak, because He urged him or placed in his nature the necessity of discovering the words that He communicated to him through things or the meanings He gave to things.

Therefore, the words addressed to us by God through things stimulate us to understand them. Their understanding determines us to give Him an answer. For there is no word understood by man that remains without an attitude from man — that is, an answer. He started to talk when he started to answer God, because he had to, being obliged by God to answer through the things placed by God in front of him; he started to act as a partner in a dialogue with God (Stăniloae [2003], p. 367). God accepts the names man gives to things, because these names have been given by God Himself. Only in this dialogue with God about things, our being is proved to be superior to the things as objects. Through this, our person is raised to an equal level with God, as two subjects who talk about

things as about objects. Through God's benevolence, our being is superior to things and capable of staying in a dialogue with God and on the same level as God.

But God does not inspire man with the meanings and names of those created by Him; He waits for our effort in deciphering them, for we have already this capacity, as well as an innate necessity of doing that. Man starts to discover the reasons of things by discovering their material utility, but, at the same time, by searching for their higher meaning, by explaining their sense. Things are rational with this double purpose: to be useful to man for his material and biological maintenance, but also to fulfill him spiritually by knowing their ultimate meaning, which is God, the One who best answers the infinite thirst of man after perfection (Stăniloae [2003], p. 369). The meaning of things becomes wider and wider by the very fact that they are the content of the common thinking and of the verbal communication with the others, therefore of the more and more intimate communion, of the mutual and spiritual enrichment and unity. During this communication, people discover in themselves aspects which are above the material needs; they discover themselves as subjects in searching for a supreme spiritual meaning of things and of themselves. The human beings discover that they should act in a certain way regarding things, so that things may promote the communion between them instead of hindering it. This does not mean that they have to let themselves dominated by things and forget their spiritual needs; this means that they must use things with a certain moderation, that they must perceive the infinite superiority of the human persons in comparison with things, to see the transparency of things. Thus, the meaning of things is to become instruments in the spiritual progress of men.

Above all, things reveal their meaning, because their rationality is perceived by man as having its origin in God, the personal one, because they are seen as means of the love of God, therefore of the dialogue between God and us and between ourselves, a dialogue through which God leads us to a more and more profound knowledge of His thinking and His love and to a growth of our proper thinking and love in the relationship with God and our fellow men. The dialogue with God through things contributes to our progress, because these are seen as images, as symbols or as transparent aspects of the reasons of God, of the meanings He had in mind when He created them, and through these meanings He wants to lead us to Him and to our proper development, provided that we discover and accomplish these meanings. The better we know things, the more we know the wisdom and the love of God for men, and the more we know these, the more we discover in things more profound meanings (Stăniloae [2003], pp. 373-372).

The fundamental meaning discovered by us in the rationality of the world is that the world comes from the Supreme Being and is addressed to another person. We notice the very special importance given by God to the human person. Rationality is the intelligible way a person communicates itself to another person, so that the communion between them may be achieved. The person is much more than rationality, because of its endless intentionality directed toward another, because of its boundless love, because of its unlimited freedom. But these are not meaningless. Rationality is the way through which the profound meanings implied in these are communicated. The infinite meaning is in the communion of the Trinity. And the Trinity communicates with the human being, in a rational way, its will of lifting it in this communion, too, because this communion represents the final meaning of man. This understanding of the rationality of the created world is based on the teachings of St. Maximus the Confessor, who said that there is no contradiction between the mystery of God and the rationality of the world (St. Maximus [1947], pp. 45 ff.). The meaning of existence and the rationality of the universe are revealed to us, but only when these are understood as a "medium of the dialogue in love" (Stăniloae [2005], p. 11).

In order to understand the limits of reason and the way in which it finds forms useful to the preservation of the transcendent aspect of the miraculous revelation, I will bring up some conclusions drawn by Vasile Avram in *The Images of Divinity*, in which he says that the religious man is conscious of the limits of his reason, therefore he turns to the cosmic-liturgical expressions, more adequate to the experience of Reality.

The Limits of Rationality

Ethnological documents may be regarded, in our opinion, as historical proofs only if they are not in flagrant contradiction with the scientific hypotheses based on archeological discoveries or on the logical correlations of some dates which presume future discoveries. They cannot be used as documents for the history interpreted as a succession of events or incidents that have in their center a character with a concrete biography (Constantinescu [1987], p. 113). On the other hand, they cannot be eliminated, arguing that they are mere poetical inventions with no documentary value.⁸ There is an inner sense, necessary to every researcher, that we may call "a good scientific sense", which protects us against hazardous assertions, but, at the same time, it is true that a "bad scientific sense"

8. Such exaggerations existed, as was in the case of D. Caracostea.

may also exist — the one which either risks too much or cannot surpass the "objective" barrier of the document, which remains a prisoner of the facts and the hypotheses archaeologically "proved", which fears to make use of its intuition and imagination. If we did not imagine, as Eliade said, the semantic opacity of the documents, they would lead us to either fragmentary visions of the past (for example, to the idea that, in prehistory, "the activity of the human spirit was limited to the preservation and transmission of technology" — Eliade [2000], p. 7), or a completely erroneous understanding of the history of culture. For example, we run the risk of confounding the apparition of a faith, of a practice, or of a collective creation with their first attestation.⁹

Unfortunately for the prisoners of the document, "the beliefs and ideas cannot be fossilized" (Eliade [2000], p. 6), they must be "discovered" with the help of a good inner sense, by carefully examining their cultural patterns structured in ligaments (in "semantic reservoirs") specific to an area and, by extension, to the entire humanity.¹⁰ We will never know for sure if Uranus, Saturn, or Typhoon were originally historical characters, epiphanies of the archetypal divinity, or cosmic entities created by man's mythical imagination. Once entered into the moving horizon of the myths describing origins or foundations, we slip on the ladder of time until we reach a point zero, which is impossible to transgress. The Dacian-Getic Kogaion, as many other sacred mountains, loses any geographic relief, so that any attempt to identify it anywhere in the Carpathians is doomed to fail. The Sinai Mountain, even if it has kept its name since the times of the Old Testament (is it really so?) has nothing to do with the legendary mountain on which Moses received the Decalogue, and the Golgotha may be situated anywhere in the mythical area of a traditional place. And it is in vain that we will try to find the Land of the Hyperboreans, the stone to which Hercules was bound in chains, the Columns of Hercules, the Colchis of the Argonauts, and other mythical places whose memory was transmitted to us by ancient poets, historians, and philosophers. They remain landmarks of a way of assimilating events, depositing into memory and perpetuating them in time, events which perhaps took place

9. Rigorously applied, this method would make us consider as the date of the apparition of the Germanic fairy-tales the years 1812-1842, which, in fact, represent the years of their publication by the Grimm brothers.

10. Pushing the limits in one way or another is wrong. One example is N. Densusianu who, on the one hand, asserted that myths may be determined to attest a historical reality and, on the other hand, gave value to some historical and archaeological documents that he submitted to a paradigm of thinking subjectively prefigured. A large amount of work has been done for demonstrating that some suppositions are closer to fiction than science.

at some time or another, under the translucent dome of time, but which took possession, from an archetypal horizon, of symbols pertaining to a mythical paradigm situated beyond the historical memory. One and the same rock may be also a *genitrix Dei* found in carols, a menhir as a sign of a mythological sepulchre, an altar for mysteric sacrifices, a column built as a remembrance, or a matrix carrying the signs of a legendary hero.

But it is no need perhaps to know in detail the structure and appearance of an archaic reality in order to understand and appreciate it. It is enough to follow the main lines of the myth, searching for a mirror through which man may be defined as a creator of culture and as a factor mediating the relationship between immanence and transcendence. After a summary research by means of a competent hermeneutical sense, we may observe that the man of the traditional communities has preserved paradigms of mentality and representation similar to those pertaining to the man of the archaic societies. Unlike our epoch, in which the collective memory is reshaped in evanescent structures by the flux of information, full of particles valuable in themselves, the age of the traditional communities could not survive without being connected to the horizon of archetypes, of myths organizing their existence, of symbols mediating between the micro- and the macro-universe. In a society whose center is the sacred, consciousness unites with the subconscious (in which the informal archetypes are deposited), and the symbolic center of man (his heart) mystically unites with the center of the universe, so that, in this way, the aim of his salvation and his ascension may be achieved (Jung [1997], p. 194). By "joining the changeable" with the transcendent reality, by establishing an order in chaos, by uniting the opposites in a symbolic center which harmonizes them, the man of the religious society was permanently performing a mythological language, a range of primordial images which lay at the foundation of all acts of thinking and attitude, an original *psyche* (Jung) having a social, cosmic, but also an abyssal function.

The archetypes are in an inextricable unity, both synchronic and diachronic, with intuition and rational knowledge, so there is no wonder in finding them in the substratum of all the components of the symbolic imaginary. It is true that the intellect always tries to find differences, because without them, it cannot know, but when conscience refers to a myth, the differences disappear and the convergence lines appear, lines of a type of thinking which, unlike the modern one, is not controlled at the level of rationality, it has no self-consciousness (Jung [1997], p. 191). Ethnologists and anthropologists have noticed that primitive man lived his myths without asking about their meaning, their value, and their truth. "These people — says Frobenius about the Ethiopians — are absolutely incapable even of describing their customs (they are so natural to them),

not to mention the impossibility of explaining them, of clothing their conceptions in words, of expressing what they feel in other ways than through traditions and customs, upon which they do not reflect consciously" (Frobenius [1985], p. 87). And G. Gusdorf concludes that "the time of myths, prehistory of philosophy, is the epoch in which the myth rules everywhere, without being acknowledged as such" (Gusdorf [1996], p. 11). Even if the members of traditional societies are at a different level of reflection regarding the myth, the symbol, and the rite than the members of primitive communities, the impulses of their thinking emerge from the same trans-conscious area in which the dream is mixed with pragmatic experience, the real existence is mixed with the potential one, the concrete with the imaginary.¹¹

The symbolic motives, as well as the pattern of thinking and action were transmitted from generation to generation, not only in conformity with mnemotechnical models¹², but also under a magical pressure: the fear that the cosmos may fall back into chaos and man may become an animal if the pattern were not strictly observed. No wonder, then, that we find in the folklore of traditional societies images and symbols which existed also in the Neolithic or even earlier. All that is necessary is to project upon them a light free of any interferences from discursive rationality and free of our tendency to isolate the facts in order to analyze them.

We are surrounded by mysteries which surpass our understanding, but they invite us to embody them, and once this fact is acknowledged and accepted, our work will be directed toward this achievement. As we could see in the teachings of St. Maximus the Confessor, no contradiction exists between mysteries and the rationality of the world, but the rationality of the world is revealed to us only when we perceive creation as a medium of the agapic joining together. If we understand these two aspects, which were subjected to our discussion today, we will be able to talk about an objective dialogue carried in the dynamic context of the cosmic liturgy, which proves us that the limits of reason are flexible and they can be embraced by the communion/communication of grace, through which human reason may be led to eternal knowledge and may transcend the *hic and nunc* of idealized/idolized epistemologies.

11. Lucian Blaga says, in his work *The Chronicle and the Song of the Ages*: "For me, the village was an area of wonderful interferences: here, reality with its palpable reasons met the story and the biblical mythology, which had their certainties, too. The angels and the devils were for me beings living in the village itself. In the middle of this world I lived an exciting life, full of wonder and fear" (Blaga [1979], p. 29).

12. Ovidiu Bârlea says: "The popular creator borrows a lot from tradition, from the repertoire he has at hand due to his ancestors" (Bârlea [1969], p. 162).

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Naturalism and Divine Action: A Western Dilemma and an Orthodox Response*

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Within the transdisciplinary dialogue between science and theology among Western Christians, a major issue is that of how God may be said to act in a world characterized by obedience to the “laws of nature”. Two kinds of answers to this problem of divine action have been offered.

The most widely accepted of these — characteristic of the work of Arthur Peacocke, John Polkinghorne, Philip Clayton, and many others — has relied, at least implicitly, on a traditional Western conceptual scheme which speaks of a “special” mode of God’s action. In this understanding, a clear distinction is made between “general” providence — which arises straightforwardly from what a benignly-designed cosmos will do “on its own” (so to speak) — and what will happen if God chooses to perform some act of “special” providence by interfering with those workings. While those who use the concept of special providence in this way now tend to avoid the language of “supernatural intervention” (with its implication that the laws of nature are set aside in acts of special providence), they still affirm, at least implicitly, that there sometimes occurs a kind of temporal divine interference with the workings of the world. If divine communication or answer to intercessory prayer is to be possible, according to this basic conceptual scheme, there must exist, at the very least,

* Originally presented at the international congress “The Dialogue Between Science and Religion in the Orthodox World” (Romanian Academy, Bucharest, September 24-27, 2008).

some kind of “causal joint” which allows God to manipulate the processes of the natural world in such a way as to bring about an appropriate “response” to events. Much effort has gone into identifying this joint in a scientifically-literate way (Knight [2007a], pp. 25-27).

The main motivation for this insistence on the reality of a “special” mode of divine action is typically linked to one or both of two misconceptions. One is that the traditional theological conception of God as existing beyond time is incompatible with the notion of God’s “involvement” in temporal processes. God’s action must therefore, according to this view, be seen as the action of a temporal agent, since a non-temporal God can only be a “distant” or even “absent” God. The other — often related — misconception is rooted in the Western theological history. Quite simply, Western theologians tend, quasi-instinctively, to identify any denial of special providence with 18th-century deism, in which an essentially distant or absent God was assumed and the scope of general providence was seen as extremely limited. (Intercessory prayer, for example, was seen in classical deism as having no purpose — other, perhaps, than refining the religious sensibilities of those who indulge in it — and the possibility of events of the kind usually labelled miraculous was simply denied.)

It is important to recognize that neither of these assumptions is as self-evident as is sometimes assumed. The notion of God’s essential temporality arises, typically, from a failure to appreciate the subtlety of the traditional notion of God’s non-temporal character, as affirmed in the mainstream of both Eastern and Western Christian traditions — neither of which assumes a “distant” or “absent” God. Moreover, it is not the case, philosophically, that classical deism is the only option available to those who wish to insist on what I call a “strong” naturalism (Knight [2007b], pp. 81-84), in which the concept of special providence is avoided. A strong naturalistic view, in itself, assumes simply that the cosmos develops at all times according to some intrinsic “fixed instructions” of a law-like kind. Something that deism seems not to have considered — the possibility that such instructions could have been divinely designed to bring about subtle and appropriate “responses” to events in the world — cannot be precluded *a priori*.

I have argued both these points from a philosophical perspective in my recent book, *The God of Nature* (Knight [2007a]). I have also argued, both there and elsewhere (Knight [2005a]) that, even though naturalistic mechanisms for events of the kind usually attributed to special providence are not entirely beyond conjecture, the validity of the kind of expanded theistic naturalism that I explore does not depend, philosophically, on the identification of these mechanisms. It depends, rather, on the acceptance of the general belief that lies behind the search for such

mechanisms: that the creation — with its inbuilt “fixed instructions” — is much more subtle and complex than our present scientific understanding indicates. Some proponents of a strong naturalistic view might find this idea difficult to accept, but it is not incompatible with naturalism as such.

The point here is that the “laws of nature” that can be provisionally identified are simply those that can be explored through the scientific methodology. We cannot *a priori* preclude the possibility that the cosmos obeys not only the laws that can be identified in this way, but also other “fixed instructions” that are not straightforwardly susceptible to this investigative methodology. Indeed, this possibility may even seem likely when we consider the effects of complexity. Practical repeatability and discernible cause-and-effect are, in fact, characteristic of only relatively simple systems, which can be effectively isolated from factors that would obscure these characteristics. Moreover, as many now recognize, important issues related to the philosophical topics of reductionism and emergence suggest the necessity of positing laws or organizing principles of a kind that are not susceptible to ordinary scientific investigation, but can only be inferred from their general effect (see, *e.g.*, Davies [1987], p. 143).

These issues have important ramifications for our response to the anecdotal evidence of phenomena of the kind labelled “paranormal” (which, when they occur in a religious context, we tend to think of in terms of the miraculous). It is, I would argue, simplistic for the naturalist to see such phenomena as spurious simply because they have not proved susceptible to investigation through normal laboratory methods. There is nothing incoherent in believing that such phenomena may occur through processes that exhibit law-like patterns but are, in practice, impossible to replicate in a straightforward manner. The failure of laboratory methods may simply indicate that such phenomena occur only in situations of considerable complexity or extremity. This possibility may be argued both from a scientific perspective, in terms of what the physicist calls regime change (Polkinghorne [1986], pp. 74-76), and from a theological perspective, in terms of the sort of implicit notion of a higher level of the laws of nature to be found in the writings of St. Augustine (Knight [2007a], p. 36). Once this perspective is recognized, I have argued, the supposed impossibility of paranormal phenomena from a naturalistic perspective turns out to be questionable and a number of further questions present themselves for consideration. Not the least of these is what weight we should give to the anecdotal evidence for such phenomena, which (in the religious context in particular) we may judge to be considerable.

The point of these essentially philosophical considerations is that, when atheistic or deistic advocates of a strong naturalism deny the possibility of the kind of events usually ascribed to special divine providence,

they do this in the context of inadequate philosophical presuppositions about the implications of a purely naturalistic view. It goes without saying that this realization does not, in itself, mean that a strong theistic naturalism is acceptable, because analysis from a theological, as well as a philosophical perspective is needed. It is helpful, all the same, to be able to begin that theological analysis without the picture being clouded by philosophical presuppositions of a spurious kind.

Where, then, can we start theologically? One possible starting point is the observation that one of the main objections sometimes voiced to a purely naturalistic theology is the assertion that such a theology — whatever the scope of divine action it allows — must still envisage the essentially “absent” God of the deistic model. Certainly, if one accepts the separation of God from the world that has characterized most Western philosophical theology, this objection must surely have some force. However, in the context of this argument, we must recognize that there has been something of a reaction against this concept of separation in recent years. Pantheism — the notion that the cosmos is to be seen as being in some sense “in God” — is in fact finding increasing favour from a number of different perspectives (Clayton and Peacocke [2004]). This is important in this context, because if, for whatever reason, we do adopt a pantheistic position, then the argument about an “absent” God immediately fails. If the cosmos is within God’s self, then God can hardly be said to be absent from it!

If, as this argument suggests, a strong theistic naturalism is more persuasive if it is expanded in terms of a pantheistic understanding of the relationship between God and the world, then this persuasiveness will undoubtedly be reinforced if such an expansion is based on something more than an *ad hoc* juxtaposition of the two frameworks. This is possible, I believe, through a second Western approach to the problem of divine action, that I have not so far considered, and that, I believe, complements and reinforces the philosophical arguments I have outlined. It is the approach that is, in Western theology (and especially in strands of neo-Thomist thought), usually expressed philosophically in terms of a distinction between “primary” and “secondary” causes. In the forms in which this understanding has existed hitherto, this approach has, admittedly, seemed inadequate to many and, as a result, it has had little influence in the current dialogue between science and theology. I have argued, however, that the perceived problems of this kind of model can be solved by recasting it in terms of the particular kind of pantheism which was characteristic of much of the early thinking of the Eastern Christian world, and was made most explicit, perhaps, in what is sometimes called the “cosmic vision” of St. Maximus the Confessor (Louth [2004]).

I have outlined the details of how I think this cosmic vision may be used as an inspiration for our current age both in the book to which I have referred (Knight [2007a]), and elsewhere (Knight [2005b]). My argument hinges on the way in which St. Maximus' understanding manifests a general intuition that is implicit throughout the Eastern Christian tradition: that it is quite wrong to speak — as Western theology so often has — of divine grace as something added as a supernatural gift to “pure nature”. Rather, as Vladimir Lossky ([1957], p. 101) has rightly noted, this Eastern tradition knows nothing of “pure nature”, since it sees grace as being “implied in the act of creation itself”. Because of this, as he goes on to note, the cosmos is seen as inherently “dynamic... tending always to its final end”.

What Lossky hints at here is the way in which, for important strands of Byzantine theology, at least some aspects of the divine providence arise from within the creation through the intrinsically teleological factors that have been, so to speak, built into its components. This is particularly clear in the work of St. Maximus himself, since he sees the *logos* that constitutes the inner reality of each created thing, not only as a manifestation of the divine *Logos* of which the fourth gospel speaks, but also as what Metropolitan Kallistos (Ware [2004], p. 160) has described as “God’s intention for that thing, its inner essence, that which makes it distinctively itself and at the same time draws it towards the divine realm”. For St. Maximus, and for the strand of the Greek patristic tradition that culminates in his work, the way in which each created thing has its origin and intended final end in God is intimately linked to the constitutive presence in it of a characteristic *logos* which is a manifestation, in some sense, of the divine *Logos* itself. This presence not only gives, to each created thing, the being it has in the temporal world, but also draws it — from within, not by some external, “special” action — towards its eschatological fulfilment.

This approach posits, then, a model of the created order that is both teleological and christological. It is a teleological model in the sense that created things are continuously drawn towards their intended final end (though not in a way that subverts human free will and its consequences). It is a christological model in the sense that this teleological dynamism comes about, not through some external created “force”, but through the inherent presence of the divine *Logos* in the innermost essence of each created thing.

At the present time, perhaps, few outside the Eastern Orthodox tradition are likely to accept the details of the Byzantine philosophical articulation of this cosmic vision, and even within that tradition it may seem legitimate, and even necessary, to recast or expand that vision in terms of recent scientific insights (Louth [2004], p. 189). Whatever view

we take of this, however, what seems a legitimate goal, for both those within, and those outside this tradition, is the articulation of what we might call a neo-Byzantine model of divine action, based on the general “teleological-christological” character of the vision that St. Maximus sets forth. For what such a model promises is a capability of envisaging a mode of divine action that is neither the “special”, nor the “general” mode of the predominant strand of Western thinking. By allowing us to transcend the need for any distinction between what nature can do “on its own” and what can only be done through some “special” mode of action, a neo-Byzantine model of this sort would allow us to see God’s presence and action in the cosmos simply as two sides of the same coin. In this respect, it seems not only to tend towards the sort of Western model that speaks in terms of primary and secondary causes, but also to give this model a far more definitive theological grounding than it has usually been given.

I would argue that here we are helped by the way in which the sciences of our time have evoked questions about teleology in a direct way. In particular, we are now aware that a universe whose development depends on laws of nature and on certain fundamental physical constants need not necessarily be a fruitful one of the sort that ours clearly is. Only very particular laws, together with very “finely tuned” values of those physical constants, provide the possibility of a fruitful universe like our own. This insight, as is well-known, has given rise to many arguments related to what is usually called the “anthropic cosmological principle” (Barrow and Tipler [1986]), and from a theological perspective these need careful analysis. Some, for example, have seen anthropic considerations as allowing the development of an apologetic approach comparable to that of the Western “natural theology” of the past. This, however, has not been widely accepted, and in my view this caution is justified. I share, in fact, the majority view within the Western dialogue of science and theology: that the perception that the universe has been able to “make itself” so fruitfully is not persuasive of, but simply consonant with, the notion of its purposeful creation, providing the foundation, not for a natural theology akin to that of the past, but for a “theology of nature” in which, for religious believers, scientific perspectives provide valid insights into the way in which God acts (Knight [2007a], pp. 1-9).

If we accept, with those who think in this way, that God’s action as creator should be understood — partially, at least — in naturalistic terms, then we are faced with the question of how we should understand the teleological aspect of this viewpoint, and this will especially be the case if we wish to extend these naturalistic perspectives in the way that I have indicated. Here, two key points need to be made.

The first is that, in speaking of a teleological factor in this context, I am speaking of something very different to the teleological factor assumed in the Aristotelian thought of the late medieval West. The model I advocate does not compete with the concept of mathematical laws of nature, but focuses on the meaningful outcome of the working of those laws. It envisages what we might call a teleology of complexity: a framework in which we can see significance in the increasing intricacy of the cosmos' structures and in the successive emergent properties to which this intricacy gives rise. Just as it is possible for Simon Conway Morris to talk about evolutionary convergence in terms of predictable, functional solutions to problems of adaptation — “attractors” analogous to those in the chaos theory —, so here teleology is understood, not as in medieval Western philosophy, but in terms very similar to those he has outlined. The interaction of chance and the laws of nature is such, it would seem, that certain developmental paths are in practice very likely to be followed, and these “attractors” may, in a theological perspective, be explicitly understood as a component of the divine intention. In terms of biology, for example, what for Morris is simply a guess about the outcome of a scientific research program may be taken, for a theological model, as axiomatic: that there is “a deeper fabric in biology in which Darwinian evolution remains central as the agency, but the [attractors] are effectively determined from the Big Bang” (Morris [2003], pp. 309-310).

The second point to be made arises from this insight. It is that, in speaking here in terms of teleology, I am not adopting the sort of quasi-vitalistic framework in which the components of the universe are seen as being drawn towards an intended final end by some external agent or force. “Attractors” — in the sense in which Conway Morris uses the term — do not literally attract through some kind of force or influence that they exert. They are simply some likely outcomes of the laws of nature acting on the components of the universe, and they may be understood, scientifically, in terms that make no reference to these outcomes themselves. We may, in a theological context, choose to speak of the reality of these attractors in terms of God's design of the entire universe, but, if we do this, it is important to recognize that the tendencies we identify as part of the divine design are, for the purposes of purely scientific description, irrelevant. The theological interpretation of these tendencies in no way impinges on their scientific description in the way it would if a vitalistic understanding were adopted.

The relevance of this second point to the question of divine action becomes clear when we recall the character of the teleological tendency posited by the strand of the Byzantine tradition embodied in the work of St. Maximus the Confessor. For there, too, as we have seen, there is an

understanding of the cosmos' teleological tendency that has precisely this character. Put in modern terms, the *logos* of each created thing, as perceived by St. Maximus, is not something which is added to the laws of nature, but is, rather, something manifested in those laws.

Recognition of this parallelism between ancient and modern perspectives cannot, of course, lead in any simplistic way to the claim that the earlier model anticipates an important aspect of contemporary science. At the level of details, this is clearly far from true. At a more fundamental level, however, we can surely recognize that there is a broad consonance between the two kinds of understanding. By pointing to the way in which the "laws of nature" perceptible to the scientist have a teleological effect — both in the physical development of the cosmos, and in the biological evolution of the species of our planet —, the scientific perspectives do suggest important parallels between what we now call the laws of nature and what St. Maximus calls the *logoi* of created things. At the very least, there seems to be a sense in which, when teleology is discussed at this low level, there need be no dissonance between the scientific perspectives and the basic insights of the teleological-christological model that he articulated.

Moreover, when we take into account both the philosophical, and the scientific perspectives on the effects of complexity that are now widely accepted, we can go much further than this. If one accepts my argument that there is no need to limit the "fixed instructions" of the universe to scientifically explorable ones, then this conclusion will have a specific application here. It indicates that there is no reason to limit the teleological tendency of created things to the inherent creativity of the particular laws of nature that scientists can investigate. Rather, from the perspective of a teleological-christological model, it is quite possible to see the laws of nature that are perceptible to the scientist as representing no more than a "low-level" manifestation of what St. Maximus calls the characteristic *logoi* of created things. Over and above this level of manifestation, there may be for this model, at least in principle, higher levels of manifestation that will — even though they are "law-like" — inevitably be beyond what the scientific methodology is able to examine.

My conclusion from all these considerations is that we can articulate a teleological-christological model of the divine presence and action in the world which allows us both to acknowledge the general insights about the teleological tendencies that arise from the natural sciences, and also to appropriate these insights in such a way that we can by-pass the usual objections to the concept of teleology and avoid the conventional distinction between general and special providence. On the one hand, we can acknowledge that the teleological traits of the cosmos that are visible

to the scientist — those to be seen in the physical development of the universe and in the biological evolution of the species of our planet — represent an important clarification of what we might call the “low-level teleology” inherent in a teleological-christological cosmos. On the other hand, we can insist, from a theological perspective, that manifestations of a “higher-level teleology” are to be expected in the model we are using. These latter manifestations, while lying beyond what the scientists’ methodology can investigate, need not in any way be contradicted by a scientific understanding. They can, in principle, account for all that has previously been attributed to God’s special providence.

Interpreted in this way, the teleological-christological model of the divine presence and providence clearly manifests a number of advantages over the competing models of divine action. The model is based on an explicitly theological understanding, rather than on abstract philosophical questions about the divine agency. Questions about how God acts “on” the world — as if from outside — are rendered meaningless, since the model rejects the usual conceptual picture of what the cosmos can do “on its own” or when merely “sustained in being”. This means, among other things, that the conventional distinction between general and special providence cannot be made, and all aspects of providence are comprehensible in terms of a single, simple model. While the model is at one level “naturalistic”, there need be no inherent limitation to the scope of the divine providence, of the sort assumed by the deists and by more recent advocates of a strong theistic naturalism. The question of what God has done or could do becomes, not an abstract philosophical one, but a broader theological one, focused on a *Logos* christology. Moreover, the model removes the tension between scientific understanding and belief in divine action in two distinct ways. It enables us to incorporate, within a theological perspective, specific aspects of scientific understanding that are sometimes held to challenge religious belief, such as the role of chance in the created order (Monod [1972]). In an important way, it also allows for the intrinsic limitations of the scientific methodology to be seen much more clearly than hitherto.

One of the most interesting aspects of this model is, in my view, the way in which it can be seen not only as a valid extension of an important strand of Eastern Orthodox theology, but also as complementing another aspect of that theology: that which speaks of the world in which we live as a “sub-natural” or “fallen” one (Nellas [1997]; Knight [2008]) and of the sacraments, in particular, as a manifestation of how the sub-natural world of our everyday experience can be returned, by the invocation of God’s grace, to the “natural” state which was God’s original intention for it and which is the Christians’ eschatological hope.

What I mean by this is that the sacraments are, for the Orthodox tradition, what Alexander Schmemmann called ([1987], p. 33) “a revelation of the genuine nature of creation”. What is indicated in the sacrament is, as Philip Sherrard has put it, “something universal, the intrinsic sanctity and spirituality of all things, what one might call their real nature”. Although the Fall has, for this theology, led to the “estrangement and alienation from its intrinsic nature” of the created order, in the sacrament “this divided, estranged and alienated state is transcended”, so that the “essential and intrinsic nature [of the created order] is revealed”. The sacrament represents, therefore, not a transformation caused by something being added to, or replacing, the stuff of the empirical world, but rather it is “a re-creation of the world ‘as it was in the beginning’” (Sherrard [1964], pp. 134-139).

This notion of the potential for any part of the created order to become, in the sacrament, more fully transparent to the purposes and presence of God is, I believe, an extremely important one when we come to consider God’s action in more general terms. Quite simply put, what the Western theology has called God’s special providence may be seen, in this perspective, not as the product of some kind of interference with the world, but rather as the outward manifestation of something that is already present, but hidden within it — what we can properly call its “natural” state. The miraculous is not, in this perspective, the result of something being added to the world. It is, rather, the wiping away from that world of the grime of its fallen state, in order to reveal it in its pristine splendour.

While the created order obviously has a certain transparency to the purposes of God before any specific invocation of divine grace — in its divinely-ordained ability to evolve naturalistically from the Big Bang up to the present time, for example —, it is clearly not fully transparent to the divine purpose before that invocation. As the well-known “problem of natural evil” indicates, this transparency is only relative. In a “fallen” world, there is a certain opaqueness to God’s purposes and — as the centrality of intercessory prayer to the Christian tradition indicates — this opaqueness is usually overcome, and God’s “special” providence is brought about, only through the human recognition and invocation of God’s will.

When the universe changes so as to bring about miraculous events, it is a sign and foretaste of what is to be when all the purposes of God have been fulfilled. As the grime of fallen human nature gets wiped away in any person through response to God in faith, not only is the fullness of human nature that was manifested in Jesus Christ actualized in that person to some degree. In addition, one of the fruits of that person’s sanctity is

that the world around him may also be cleansed, so that the sub-natural “nature” of our everyday experience becomes truly “natural” once more. It is no accident that anticipatory experiences of the time when “the wolf shall live with the sheep and the leopard lie down with the kid” (*Isaiah*, 11, 6) are linked, in the memory of the Christian community, with the responses of wild animals to saints such as Francis of Assisi, Seraphim of Sarov, and Cuthbert of Lindisfarne.

My argument in the latter part of this paper has, then, been that the transdisciplinary thinking that led to my initial view of divine action — primarily philosophical and scientific in inspiration — may be reinforced and refined by a deeper level of transdisciplinary thinking rooted in the theological understanding of the Christian East. The use of two notions intrinsic to that understanding — of the teleological character of the *logoi* of created things, and of the miraculous fruits of sanctity as a revelation of what is truly “natural” — turn out to complement, in a remarkable way, the “naturalistic”, philosophical understanding of divine action by which I began.

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The Recovery of Human Nature*

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My purpose here is to look at human nature through the lens of the Islamic intellectual tradition. By *intellectual tradition* I mean the more sophisticated expositions of Islamic teachings found in the books of those Muslim scholars known to modern historians as “philosophers” and “mystics”.

By using the word *intellectual*, I have in mind the distinction often drawn in Islamic texts between two sorts of knowledge — ‘*aqlī* and *naqlī*, “intellectual” and “transmitted”. By making this distinction, the Muslim scholars want to remind us that people come to know things in two basic ways: either they learn from others, or they recover what they already know. Most knowledge is of the transmitted sort, which is to say that we have it by hearsay. We have learned practically everything we know — language, history, law, scripture, science — from others. In contrast, intellectual knowledge cannot be learned by transmission. What is at issue is not information, facts, or theory, but rather the actuality of knowing that accrues to the self when it awakens to the root of its own awareness and intelligence (‘*aql*).

Some may object to my use of the English word *intellectual* in this discussion, claiming, for example, that I mean “intuitive”. No one, however, has ever translated the Arabic word ‘*aql* — the noun from which the adjective ‘*aqlī* is derived — as “intuition”. Rather, it is typically rendered as intellect, intelligence, or reason (and, occasionally, mind). Moreover, if we remember the medieval distinction between *intellectus* and *ratio*, we can

* Originally presented at the 2008 Metanexus Conference, “Subject, Self, and Soul: Transdisciplinary Approaches to Personhood”, Madrid, July 13-17, 2008; published in electronic form on the Metanexus Global Spiral, www.globalspiral.com.

see a perfectly good justification for using *intellectual* here. As S.W. Gaukroger remarks, the general thrust of the distinction between *intellectus* and *ratio* in Aquinas' writings "is to mark out a form of direct intuitive grasp of truth from a limited, piecemeal, and often unreliable cognitive activity... Moreover, when it does lead to understanding, *ratio* annihilates itself: it has served its purpose and disappears in favour of true knowledge".¹ What philosophers and Sufis say when they make the distinction between transmitted and intellectual is that the transmission of knowledge, no matter how "rational" or "authoritative" it may seem, is an "unreliable cognitive activity", based on hearsay; its real purpose is to open up the soul to "true knowledge".²

In trying to express the nature of intellectual knowledge, Muslim scholars commonly cite mathematical understanding as an example, and they consider true mathematical insight as a halfway house on the road to intellectual vision. A real knowledge of mathematics does not derive from rote learning or rational argumentation, but rather from the discovery of the logic and clarity of mathematics in one's own self-awareness. When one perceives the truth of a mathematical statement, one cannot deny it, because it is self-evident to the intelligence.

In short, transmitted knowledge is acquired from society, teachers, books, study, and the media. Intellectual knowledge is found when intelligence awakens to its own nature. Discussion of these two sorts of knowledge is common in pre-modern worldviews, though a great variety of terminology is employed. Buddhist texts, for example, frequently refer to the difference between conventional knowledge and supreme or ultimate knowledge. Few people are unfamiliar with the Zen analogy of the finger pointing at the moon. Transmitted knowledge can at best be the pointing finger. Intellectual knowledge is the moon, and seeing the moon depends upon the transformation and transmutation of one's own selfhood. In the final analysis, intellectual understanding occurs when no distinction can be drawn between the knowing self and the illuminating moon. In Islamic texts, this ultimate stage of knowledge is often called "the unification of the intellecter, the intellected, and the intelligence" (*ittihād al-'āqil wa'l-ma'qūl wa'l-'aql*).

Like other traditional civilizations, Islam has always attributed an honored place to transmitted knowledge. Clearly, specifically "Islamic"

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1. *Descartes' Conception of Inference*, in R.S. Woolhouse (ed.), *Metaphysics and Philosophy of Science in the Seventeenth and Eighteenth Centuries*, New York, Springer, 1988, p. 112.
 2. For a detailed discussion of the two sorts of knowledge in Islamic sources and the differing methodologies that they entail, see W.C. Chittick, *Science of the Cosmos, Science of the Soul: The Pertinence of Islamic Cosmology in the Modern World*, Oxford, Oneworld, 2007.

knowledge — such as the Koran and the sayings of Muhammad — has been received by way of transmission. These two sources provide the foundations for Islamic law and belief, that is, for jurisprudence and dogmatics, the two sciences that attempt to rationalize and codify Islamic practice and thought. Nonetheless, throughout Islamic history, various great teachers have reminded the community that transmitted knowledge is not an end in itself. Its real function is to serve as a framework for self-realization, that is, for the awakening of the intelligence that is innate to the human soul.

Two traditions of Islamic learning have considered intellectual understanding the goal of human life. One of these is philosophy, which took inspiration from the Greek legacy and is typified by figures such as Avicenna (d. 1037) and Mulla Sadra (d. 1640). The other is Sufism, which was based on the Koran and the model of Muhammad and is typified by people like Ibn Arabi (d. 1240).

It is not difficult to see why philosophy should be called an “intellectual” approach, but most scholars would probably object to my placing Sufism in the same category. This is because they understand “Sufism” to mean Islamic mysticism and, for various reasons, mysticism is commonly considered irrational. Denying that Sufism offers an intellectual approach to knowledge, however, rests largely on current meanings of the word. The point I want to make is that Sufi teachers, like the Muslim philosophers, have never considered transmitted learning as anything other than a finger pointing at the moon.

As one brief example of a Sufi whose teachings are focused on the achievement of intellectual understanding, let me quote from someone who would not be considered an “intellectual” in any modern sense. This is Shams-i Tabrizi, whose name is associated with the famous Persian poet Jalal al-Din Rumi (d. 1273). Those familiar with Rumi’s teachings know that, far from being a mere poet, he was an outstanding seer, sage, and guide on the path to awakening and enlightenment. They will have heard that Shams-i Tabrizi’s intervention transformed Rumi from a conventional scholar of the religious (that is, transmitted) sciences into an enlightened sage. Here are some of Shams’s remarks about the scholarship of his age:

“The reason these people study in the universities is, they think, ‘We will become teachers, we will get employment in the schools’. They say: ‘One should do good deeds and act properly!’ They talk of these things in assemblies in order to get jobs”;

“Why do you study knowledge for the sake of worldly mouthfuls? This rope is for coming *out* of the well, not so that you can go from *this* well into *that* well”;

"You must exert yourself in knowing this: 'Who am I? What substance am I? Why have I come? Where am I going? From whence is my root? At this time what am I doing? What have I turned my face to?'"³

It would hardly be possible to summarize the issues addressed by the intellectual tradition more succinctly than Shams does here. Those who have seriously engaged in this tradition have always focused on solving the mystery of their own selfhood. The goal has been to answer the perennial question of the meaning of human life and human embodiment. Seekers in this path have been striving to emerge from the "well" of ignorance, forgetfulness, self-centeredness, hatred, and narrowness that is the common lot of mankind. In their view, any knowledge that does not aid in the quest to escape from the well is a hindrance on the path of achieving the full potential of human nature. This understanding of the human situation is famously captured in the Western tradition by Plato's myth of the cave, but it has parallels in most religious traditions.

In attempting to answer the questions highlighted by Shams-i Tabrizi, philosophers and Sufis have addressed a wide variety of issues, not least notions of subject, self, soul, and personhood. Indeed, it is not difficult to argue that the whole point of the theoretical expositions of both philosophy and Sufism is to provide a "spiritual psychology" whereby one may come to discern the nature of one's own self in the global context of reality.⁴ The goal of these authors, however, has not simply been to provide psychological theories, and certainly not to tell people who they really are. Rather, the goal has been to point seekers on the path of achieving self-awareness. The authors knew perfectly well that no one can achieve self-understanding by listening to the explanations of others. Teachers can provide the finger, but seekers must find the moon for themselves.

Orientation

The overall perspective of Islamic civilization is summarized in the double testimony of faith: "There is no god but God, and Muhammad is God's messenger". As traditionally understood, this formula distinguishes between intellectual knowledge and transmitted knowledge, though why this should be so needs some explanation.

3. For the source of the passage and a slightly different translation, see W.C. Chittick, *Me & Rumi: The Autobiography of Shams-i Tabrizi*, Louisville, Fons Vitae, 2004, pp. 50-51.

4. I provide this argument in the introduction to my book on a neglected 12th-13th century philosopher: *The Heart of Islamic Philosophy: The Quest for Self-Knowledge in the Teachings of Afḍal al-Dīn Kāshānī* (chapter two), Oxford, Oxford University Press, 2001.

In Arabic, the statement “There is no god but God” is called *kalimat al-tawhīd*, “the sentence asserting unity” — that is, the unity of God. The Koran presents *tawhīd* as a self-evident truth lying at the heart of every prophetic message. The first of the 124,000 prophets God sent was Adam, and the last was Muhammad. The Koran tells us that the function of all prophets is to “remind” (*dhikr, tadhkira*) people of *tawhīd*. To speak of a “reminder” is to say that there is nothing new or innovative about *tawhīd*. People already know that God is one, which is to say that they have an innate intuition that reality is coherent, integrated, and whole. In Koranic terms, this knowledge pertains to the original human nature (*fitra*), that is, to the intelligence and self-awareness that distinguish human beings from other creatures. Hence, the first function of the prophets is to help people recognize — that is, to *re-cognize* — what they already know. Here again, Plato provides a parallel with his notion of reminiscence.

Tawhīd is utterly basic to the Islamic worldview and is the constant point of reference for the intellectual tradition. Philosophers take it for granted, even if they devote many volumes to explaining why it must be so and why it underlies all true knowledge. For their part, the Sufis also take *tawhīd* for granted and, in their theoretical works, speak incessantly of the manner in which God’s unity determines the nature of things.

When we look at the traditional understanding of the formula of *tawhīd*: “There is no god but God”, we realize that there is nothing specifically “Islamic” about it. It is an unremarkable statement about the universe, much as if we were to say: “The sky is up, the earth is down”. Any rational person knows that reality is coherent, ordered, and somehow unified, and this knowledge lies behind every attempt to make sense of the world and the human situation. This is to say that the truth of *tawhīd* is universal. It has nothing to do with the historical or cosmic situation. Reality is at it is; the “universe” is in fact unified, as the word itself reminds us.

As for the second half of the Muslim testimony of faith — “Muhammad is God’s messenger” — this is by no means self-evident. Knowledge of Muhammad is not innate to human intelligence. No one can believe that Muhammad is God’s messenger without having received knowledge about Muhammad from others. And, likewise, no one can know anything about the message that Muhammad brought — the Koran — without hearing about it. Once someone believes that Muhammad was in fact God’s messenger, then that person will most likely take his message seriously. This is the beginning of Islam as a *religion* — in the sense that most people understand the word. As for knowledge of *tawhīd*, that pertains to human nature, irrespective of religion, history, and transmission.

The Metaphysical Background

We can summarize the role that these two sorts of knowledge have played in Islamic civilization in these terms: The goal of transmitted learning has been to provide people with guidance in thinking correctly and acting rightly on the basis of what has been received from the past, namely the Koran, the reports about Muhammad, and the teachings of the pious ancestors. In contrast, the goal of intellectual learning has been to lead people on the path of awakening and self-realization. As the Islamic tradition developed over time, theologians and jurists, who are the guardians of transmitted knowledge, took the position that people must submit to the teachings of the Koran and Muhammad in order to reach salvation after death. Sufis and philosophers, who are the guides to intellectual knowledge, took the position that the very nature of human intelligence calls upon people to strive for self-realization in this world, and not wait for salvation in the afterworld.

With these two approaches to knowledge in view, we can look at the basic question raised by my title: How can we conceptualize “human nature”? Typically, the intellectual tradition begins any discussion about human beings with a discussion of their entrance into existence from the Ultimate Reality, which is understood in terms of *tawhīd*. The tradition acknowledges, however, that human beings are abysmally ignorant in face of that Reality. How, indeed, can they even begin to think about it? The basic answer is: “in terms of names and qualities”. We observe names and qualities in nature and in ourselves, not to mention scripture. We constantly use these names in everyday language — words like life, knowledge, power, desire, speech, hearing, and seeing. These seven in particular are sometimes called “the seven pillars” of the Divine Reality.

Tawhīd provides a meditative formula with which to grasp the significance of these qualities. When applied to “life”, it means: “There is nothing living but the Alive”, which is to say that there is no true life but the divine source of all life. When applied to knowledge, *tawhīd* teaches that: “Nothing knows but the true Knower”, which is to say that real knowledge, awareness, and consciousness belong only to the source of all knowledge, awareness, and consciousness. When applied to power, it means: “There is no power but in God, the All-powerful” and, in face of God’s infinite power, the power of created things is trivial.

Traditionally, Muslim theologians have said that God has “ninety and nine names” and they have analyzed each of these names in much the same way. Philosophers like Avicenna have often curtailed the discussion by looking at a limited number of fundamental characteristics of the

Ultimate Reality, in his case unity, eternity, knowledge, desire, power, wisdom, and generosity.

Nowadays, when people talk about “reality”, they commonly take the position of naïve realism and reduce everything to the physical realm and its epiphenomena. In contrast, when Muslim intellectuals talk about reality (*haqq, haqīqa*), what they have in mind, in the first place, is Absolute Reality, which is called “God” in theological language. Philosophers, however, prefer to use abstract terms like *wujūd* — a word that is usually translated as “being”, or “existence”, but could also mean “consciousness” and “awareness”.

The idea that “reality” designates first and foremost the Infinite Reality of Being is rooted in *tawhīd*: “There is nothing real but the truly Real”. The first corollary of this statement is that everything other than Ultimate Reality must be relatively unreal. The cosmos, which is defined as “everything other than God” (*mā siwa’llāh*), can only have a conditional reality. It is this conditional reality that allows us to perceive ourselves and to think about our situation.

It is important to note that the definition of cosmos as “everything other than God” includes not only physical things, but also spiritual things, such as angels and souls, which are understood to be more real than physical things, but less real than God. To speak of more and less real is to say that reality has degrees. The great issue among the philosophers is not to prove that there is an Absolute Reality called *Wujūd*, or Existence, because that is self-evident, but rather to clarify the distinction between Reality *per se* and reality as it appears conditionally in things. Avicenna and others distinguish between the Ultimate “Existence” (*wujūd*) and the “existing things” (*mawjūdāt*, past participle of *wujūd*), by saying that the Real *Wujūd* is Necessary (*wājib*), which means that it cannot not be, and existing things are contingent (*mumkin*), which means that they partake of existence in a manner determined by the Necessary Existence.

The World Map

In the intellectual tradition, nothing can be understood correctly outside the context of *tawhīd*. In other words, the basic question is this: How does the contingent and relative existence of this specific thing, whatever it may be, tie it back to the Real Being? The cosmos as a whole is contingent upon its Origin, and each being in the cosmos has a unique situation, defined by its own thingness. The thingness of each is the specific collection of attributes, qualities, and characteristics that make it *this* thing rather than *that* thing. Only the Real Being itself has no thingness. Its Infinite

Reality allows for no specificities that can separate it out and make it distinct, so it is utterly different from all beings and, simultaneously, it displays its own qualities and characteristics in each of them. This is what Muslim theologians mean when they say that God is both transcendent and immanent, both utterly absent and omnipresent.

In the world map offered by the intellectual tradition, the cosmos is understood to have come into existence through a process of exteriorization, or sedimentation, or reification. Through its own infinite Being and Consciousness, the Ultimate Reality embraces every finite possibility and brings each into actualization in its appropriate context. But the contingent existence of the universe does not simply *appear from* the Necessary Being, it also *disappears into* the Necessary Being. Any primer of Islamic theology tells us that *tawhīd* has three basic implications: Everything comes from God, everything is sustained by God, and everything returns to God. In other words, the Absolute Reality alone determines the unfolding of things and their ultimate reintegration into the One from which they arose. Among the many implications of this way of looking at things is that “evolution”, however defined, must be the complement of a previous “devolution”. In other words, all efficient causality is determined by a First Cause, and all possibilities of thingness are prefigured in the Infinite Being of that First Cause.

In short, two grand movements can be observed in the cosmos as a whole: One is that of exteriorization, the other that of interiorization; one is that of creation or cosmogenesis, the other that of dissolution or destruction; one is that of manifestation, the other that of disappearance. These two movements are given a variety of names. Among the most common are “Origin and Return”, a phrase used as a book title by both Avicenna and Mulla Sadra. The Origin is pictured as centrifugal, dispersing, and devolutionary, and the Return as centripetal, integrating, and evolutionary. The two movements together are depicted as the circumference of the single circle of existence. Beginning at the top, all things come into manifestation through a gradual process of descent and differentiation, and they appear in a multiplicity of modes. Having reached the bottom — the realm of visible reality — they continue to follow the circumference and ascend toward the top. The two movements are thus called the “Arc of Descent” and the “Arc of Ascent”.

The Arc of Descent passes from the invisibility of Oneness and Indistinction, which characterize the Infinite Being and Consciousness of the Real, into the visibility of manyness and thingness. The unfolding of possibilities is directed and governed by the very nature of *Wujūd* itself. In terms of the seven attributes discussed by Avicenna, the Necessary Being is one, eternal, knowing, desiring, powerful, wise, and generous.

As Avicenna also says, it is the Absolute Good (*al-khayr al-mahd*) and it brings into existence a good and beautiful universe, ordered in a wise, compassionate, and generous way. If we fail to see wisdom and generosity suffusing the universe, that is our failing, not that of the Absolute Good.

In the world we find ourselves in, the Ascending Arc of Existence — the evolutionary thrust — is more obvious than the descending one, though both are always present. The ascent is observed in what used to be called “the three kingdoms” — the mineral, plant, and animal realms — which designate some of the lower links of the Great Chain of Being. In each successive ascending realm, the attributes of Real Being come further into manifestation. In minerals, few divine attributes are apparent. In plants, intimations of qualities like knowledge, desire, and power begin to show themselves. In animals, these qualities are more pronounced and integrated, allowing for greater understanding and control of the environment.

The highest observable link on the Arc of Ascent is the human being. In the human case, however, there is a radical break with the lower levels, in which the diversity of qualities and attributes is indefinitely dispersed; moreover, the specific qualities of each thing become manifest largely through its visible form. The cosmos as a whole is the externalization and differentiation of an infinite variety of attributes and qualities. In contrast, human beings are externally similar, but internally diverse. The outstanding characteristics of human beings are found not in the external appearance of their doings, makings, and accomplishments, but in the invisible realms of awareness and consciousness. It is their subjective access to an infinite realm of possibility that allows them to assimilate all ontological qualities and to make these manifest in the world and society through activity, artifacts, cultural productions, and technology.

Human Uniqueness

In the Koran, human beings are given a number of characteristics that separate them out from other creatures. Most salient, perhaps, is the statement that God “taught Adam the names, all of them” (2, 30). In the Koranic language, the word *Adam* designates both the progenitor of the human race and the human being *per se* (*insān*), that is, man as one sort of creature among others. One of the most basic interpretations of this verse is that God created man by investing him with all the divine names and qualities. In other words, “God created Adam in His own image”, a saying that was repeated by Muhammad.

Each thing in the cosmos displays some of the characteristics of the Infinite Reality of Being through its own thingness; this can be observed and deduced by studying and investigating the things. In contrast, the essential characteristic of human beings is that they do *not* have a specific thingness. In other words, the essential thingness of a human being is to be *no* thing, because each person is made in the image of the Imageless — the Real Being that transcends all beings and is simultaneously present in everything. When God instilled the human beings with the divine image, he made their essential nature to be without a specific description and without a designated attribute.

In short, the human nature is indefinable. The evidence for this is before our eyes, in the bewildering complexity and diversity of human cultures, languages, religions, and artifacts; in the ever-increasing proliferation of the sciences and academic disciplines; and in the ever louder cacophony of voices claiming that human beings are simply this or that. Human indefinability goes back to the fact that the Infinite Being has no specific image — or, to put it otherwise, God's human image is the image that embraces all possible images. For their part, human beings know instinctively, as a corollary of their intuition of *tawhīd*, that nothing limits them. All the attempts by modern scientists and academicians to answer the great and the small questions about the universe, the natural realm, history, society, art, literature, and human nature simply illustrate the unlimited possibilities of the human substance, made in the image of the Imageless.

The important point here is that the whole realm of human phenomena pertains essentially to the realm of consciousness and awareness, and only accidentally to external appearances. This inner realm has no intrinsic limits, because it is the unfolding of the Arc of Ascent which leads inexorably back to the Infinite Origin of all things. What makes the unlimitedness of the human substance especially hard to see in modern times is the *de facto* assumption of scientism — the reductionist ideology of the predominant forms of contemporary thought — that human life ends with death. On the contrary, as traditional religions have always stated and as the Islamic intellectual tradition has demonstrated convincingly, death is simply the first major transition in the unfolding of the limitless human nature.

Certainly, the physical embodiment is a necessary human stage in bringing the divine attributes into manifestation, but the full potentialities of manifestation are held back by the limitations of physicality. This is obvious to all of us as soon as we recognize, for example, that the realm of imagination is infinitely more vast than that of physical existence. On the outside, we are limited; on the inside, we are not. This helps explain

why Ibn Arabi describes death as a process whereby our perception of reality is turned inside out: the limited realm of physicality is interiorized, and the infinite realm of imagination is externalized, thereby becoming the new landscape of our unfolding selves.⁵ Mulla Sadra demonstrates philosophically that after death, every human individual, whether of the saved or the damned, will come to possess an entire world, greater than the present world and not congruent with any other world.⁶

Free Choice

The world as we know it unfolds in a direction that we experience as time. In the intellectual tradition, time is understood as the human perception of the process of manifestation and disappearance that is designated by the words “Origin and Return”. The cosmos — everything other than God — becomes manifest in an orderly manner that is rooted in the nature of things. The Necessary Being is good, wise, generous, and just, and these qualities demand that the realm of existence be directed toward the exigencies of goodness and wisdom.

In this approach to understanding, no clear distinction can be drawn between things as objects and things as value-laden. Given that the Ultimate Reality itself is good and wise, the human concern with the ethical and the moral does not pertain simply to conventions, but follows rather on the nature of things. Investigating the realm of objects without recognizing the moral and spiritual obligations that this realm places on the human soul is to falsify the world. This is why Muslim philosophers and scientists considered ethics an essential part of their quest for self-realization, not simply an ancillary discipline or an afterthought. Reality itself calls upon people to transform their character in conformity with its inherent goodness, wisdom, generosity, and justice. The fact that human beings can recognize the good and the wise, distinguish between right and wrong, and make moral choices goes back to the fact that God created them in his own image. He taught them *all* the names, not just some of the names, and thereby exposed them to *all* possibilities, including the possibility of saying “No” to truth, beauty, goodness, justice, generosity, and their own best interest.

5. For a detailed exposition, see William C. Chittick, *Imaginal Worlds: Ibn al-'Arabī and the Problem of Religious Diversity* (Chapter 7), Albany, State University of New York Press, 1994.

6. Mulla Sadra (Sadr al-Dīn Shīrāzī), *The Wisdom of the Throne*, translated by J.W. Morris, Princeton, Princeton University Press, 1981, p. 165.

Knowing the Unknowable

In order to suggest some of the relevance of this extremely brief review of the outlook of the intellectual tradition, let me come back to the questions posed by Shams-i Tabrizi: “Who am I? What substance am I? Why have I come? Where am I going? From whence is my root? At this time, what am I doing? Toward what have I turned my face?”

Speaking for the intellectual tradition, Shams is saying that the specifically *human* reason to search for knowledge is to solve the riddle of our own existence. The questions all circle around the first, “Who am I?” The intellectual tradition points out that language and hearsay cannot provide an adequate answer. At best, transmitted learning can suggest who we are not: Each of us is the image of the Imageless, the name of the Nameless, the form of the Formless. It follows that clinging to explanations of human nature provided by any sort of transmitted learning — religion, science, philosophy, history, anthropology — is to cling to the finger and forget the moon.

I will not try to run through the typical answers that the intellectual tradition provides for Shams’s questions — in any case, these answers are meant to highlight their own inadequacy and to alert us to the fact that each of us has no way of knowing himself or herself other than by finding that knowledge within the self, not by gathering information from outside. Instead, let me quote a few representative verses of Shams’s student Rumi, whose poetry is characterized, among other things, by the manner in which it catches the urgency of the quest for self-realization:

*Form comes into existence from the Formless,
just as smoke is born from fire.*⁷

*

*You dwell in a place, but your root is No-place —
Close down this shop and open up that shop!*⁸

*

*Everyone has turned his face toward a direction —
the great ones have turned toward the Directionless.*⁹

*

7. The *Mathnawī of Jalālu’ddīn Rūmī*, edited and translated by R.A. Nicholson (8 volumes, London, Luzac, 1925-1940), Book VI, verse 3712. The translations are my own.

8. *Ibidem*, II, 612.

9. *Ibidem*, V, 350.

*We and our existences are nonexistent —
 You are Absolute Existence showing Yourself as evanescent.
 All of us are lions, but lions on a banner —
 We attack moment by moment because of the wind.*¹⁰

*

*Fear the existence you have now!
 Your imagination is nothing, and you are nothing.
 A nothing has fallen in love with a nothing,
 a nothing-at-all has waylaid a nothing-at-all.
 When these images depart,
 your lack of intelligence will become clear to you.*¹¹

*

*The Absolute Being works in nonexistence —
 what but nonexistence is the workshop of the Existence-giver?
 Does anyone write on a written page?
 Does anyone sow in a planted plot?
 No, they search for paper free of writing,
 they sow their seed in a field unsown.
 Be, O friend, a field unsown,
 a blank piece of paper untouched by the pen!*¹²

10. *The Mathnawī of Jalālu'ddīn Rūmī, op.cit., I, 602-603.*

11. *Ibidem, VI, 1447-1449.*

12. *Ibidem, V, 1960-1963.*

Technology and Eschatology: Scientific and Religious Perspectives on the Transformation of Human Nature*

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In this paper, I want to compare two views of human transformation. The first is a religious view, specifically Christian, while the second is associated with the movement called transhumanism and is based in new and emerging technologies. While the two visions are different, they share important similarities perhaps because, to a large extent, the technological vision has grown up in the context of a theological, if only as a kind of technological, means by which a religious vision might actually be achieved.

This paper is intended to contribute to a growing list of studies that compare the religious and transhumanist views of human transformation.¹ Rather than retracing the same ground as these other papers, however, our focus here is on a specific religious claim made in some strands of Christianity, to the effect that the goal of human life is “to be made gods”, also referred to as “divinization” or *theosis*, and to ask what parallels may be found between this religious concept and some of the proposals made by the transhumanists. The theme of *theosis* fits theologically within a larger area of Christian doctrine called “eschatology”, which is a study of

* Originally presented at the 2008 Metanexus Conference, “Subject, Self, and Soul: Transdisciplinary Approaches to Personhood”, Madrid, July 13-17, 2008; published in electronic form on the Metanexus Global Spiral, www.globalspiral.com.

1. For example, see James J. Hughes’s work, including “The Compatibility of Religious and Transhumanist Views of Metaphysics, Suffering, Virtue, and Transcendence in an Enhanced Future”, or the various essays in the August 2005 issue of *Journal of Evolution and Technology*, 14(2), on the theme of “religion and transhumanism”.

last or final things (the *eschaton*), including the final or fully realized state of humanity.

The first section of the paper explores the theological theme of *theosis* by introducing it within the context of related themes, such as the essentially enigmatic nature of the human in the image of God, the natural history of the human species, and the meaning of eternal life. These themes are explored through a brief examination of three major thinkers: Irenaeus of Lyon, Gregory of Nyssa, and Augustine of Hippo. It must be stressed that no effort is made here to present even the anthropological views of these thinkers in anything like a comprehensive way. Only a few selected features are noted.

Section two looks briefly at the definition and the goals of transhumanism in reference to our theme of divinization. Section three reflects critically on some recent discussions of this theme and offers a few suggestions for future reflection.

As John Passmore makes clear in his comprehensive discussion in *The Perfectibility of Man* (Passmore [1970]), the question of enhancing or, indeed, of perfecting humanity is a nearly universal human question, pursued by philosophers and religious thinkers for thousands of years. The first section of this brief paper, by contrast, focuses somewhat narrowly on selected themes in one strand of Christian theology. The hope, however, is that light from the past might illuminate our present and guide our future.

Divinization in Christian Theology

Irenaeus of Lyon (2nd century A.D.) was one of the first Christian theologians to pick up and explore the possible meaning of the biblical notion that human beings are created in the image and likeness of God (*Gen.*, 1, 26). The biblical text refers here to Adam and Eve, understood as including all humanity, and thus for Irenaeus the phrase “image of God” refers not to an individual human or to our properties, such as rationality, but to our unity as a species. Furthermore, for Irenaeus, humanity in the beginning is immature, almost adolescent, and must be completed by the culmination of the creative process, which is concluded in Christ. Indeed, it is Christ who is in the full or complete image of God and who brings the human species to its ultimate destiny. Here, of course, Irenaeus is thinking of Christ as risen and ascended or seated in glory at the right hand of the Father (to use the traditional Christian terms). The human species as a whole is on a pathway of transformation from our present, incomplete form to a unified, glorious, eternal, and transcendent form, participant in a new and transformed or divinized nature.

It is important to note that for Irenaeus, salvation is not primarily a pathway *to* God. It is a process by which humans *become* gods. But the process is not merely human, as if the human beings initiated and completed their own transformation. Rather, for Irenaeus, the divinization of the human is a process that begins and ends in God. The Russian theologian Vladimir Lossky opens an essay on "Redemption and Deification" with these words: "'God made Himself man, that man might become God'. These powerful words, which we find for the first time in St. Irenaeus, are again found in the writings of St. Athanasius, St. Gregory of Nazianz, and St. Gregory of Nyssa. The Fathers and Orthodox theologians have repeated them in every century with the same emphasis, wishing to sum up in this striking sentence the very essence of Christianity: an ineffable descent of God to the ultimate limit of our fallen condition, even unto death — a descent of God which opens to men a path of ascent, the unlimited vistas of the union of created beings with the Divinity" (Lossky [1974], pp. 97-110).

Irenaeus does not think, of course, that human beings become God. There is only one uncreated Source, and whatever their degree of transformation, the human individuals remain creatures, always distinct from each other and from God. But they become godlike, sufficiently so at least to dwell eternally in God's presence, participating in the divine nature by the transformation of their own nature, so that the attributes of humanity that separate us from each other and from God (immorality, ignorance, and, most of all, mortality) are set aside in a new and glorious humanity.

Gregory of Nyssa (AD 335-394), mentioned above by Lossky, was one of the first theologians to write at length "On the Making of Man" ([1976], pp. 387-427). Here and elsewhere in his theology, he stresses the relational nature of human personhood. To be a person (*hypostasis*) is not to be a separate or independent nature or being (*ousia*), but rather to stand out as a relationship within a shared being (our common humanity), as an individuated or distinctive self. This is true of God (three *hypostases* in one shared divine *ousia*, otherwise known as the Trinity) and equally true of humanity. Strictly speaking, we are not human beings (there being only one, which we share), but we are human persons or individuals, each distinctly expressive of the one human being. This humanity that we share exists in relationship with God, mirroring or imaging the creator. As God the creator is rich beyond knowledge, an inexhaustible mystery, so human nature images this mystery by being inherently and essentially unknowable.

According to Gregory of Nyssa, human nature changes in the course of history. The first great change came as a result of the disobedience of Adam and Eve. Nyssa is not alone in offering an allegorical interpretation

of the “garments of skin”, which God was said to provide as clothing for the fallen humanity. These skins, from dead animals that lacked human intelligence, symbolize the change from human nature as created (immortal and rich in understanding) to a fallen nature. “Therefore mortality, derived from the nature of beings lacking intelligence, was by God’s dispensation imposed on a nature created for immortality.”² According to Panayiotis Nellas, “That man clothed himself with mortality coincides with the fact that he clothed himself with irrational nature” (Nellas [1997], p. 48). Before this event, “The human soul was open to the angelic powers and to God. It offered no resistance and communicated with ease alike with the angelic spiritual world and with the Spirit of God. There then existed, writes St Gregory of Nyssa, a unified choir of intelligent nature, both angelic and human, ‘gazing towards the one Head of the choir and singing in harmony with the Head’” (Nellas [1997], p. 55).

It is not just mortality and relative ignorance that are included in the allegory of the garments of skin, but nearly everything that makes up human life as we know it. “The laborious cultivation of the soil, then, the professions, the sciences, the arts, politics, all the operations and functions by which man lives in this world, make up the content of the ‘garments of skin’...” (Nellas [1997], p. 89). Our vulnerabilities to nature (hunger, disease, aging) are “given” together with the means of mitigation by work and invention. This view, which was widely held by early Christian theologians, points specifically to the human scientific and technical skills as gifts of God that are meant to allow humans to make their lives easier and safer. With the difficulties of the fall comes also a means of some escape, and with the clouding of intelligence comes a disciplined method (science) by which a level of knowledge might be attained.

A deeper theological question, however, seems to be left unsettled by Gregory. Does the fall constitute a change in human nature itself? It is clear that for Nyssa, God created human nature in a far different state than we now find it. But is the change merely a garment that covers an unaffected inner nature, or does the change go to the human nature itself?³ The theological significance of this question of the fall of human nature lies in the right response to the correlate question of the redemption of human nature. Is redemption a remaking of humanity into its final state, a restoring of humanity to its original state, or merely a cleansing and a reclothing of humanity so that its true state is revealed?

In the theology of Eastern Christianity, from Irenaeus to Athanasius, to the Cappadocians (including Gregory of Nyssa) and beyond, there is

2. Gregory of Nyssa, *Catechetical Oration* 8, quoted in Nellas [1997], p. 47.

3. For a discussion of these points, see Zachhuber [2000], pp. 185-186.

a shared affirmation that the full meaning of human redemption is expressed in the word *theosis*, sometimes translated as divinization. The Romanian theologian Dumitru Stăniloae defines *theosis* this way: "This greatest possible union with God wherein the fullness of God is stamped upon the human being, without the human being thereby being dissolved into God — this is the human being's deification" (Stăniloae [2000], p. 89). While the image of God means that humanity at every stage is destined for *theosis*, the full realization of the union or participation in divinity is not known until the end or until the eschatological state. It must also be pointed out that the eastern theologians do not all mean exactly the same thing by the process of *theosis*; Nyssa in particular held some dissenting views, for instance by seemingly granting a larger role for human freewill in the process of salvation than some of his counterparts.

But the real divergence on *theosis* or divinization is between Eastern and Western Christianity. In the West, Christians have been reluctant, from the beginning until today, to hold to such a dramatic view of human transformation. As a result, for Western Christians, the transformation brought about by salvation or redemption is mostly understood as a moral transformation, consisting in the forgiveness of sins and the renewal of the moral self so as to live a progressively less sinful life. While Eastern theologians understood the life, death, and resurrection of Jesus Christ as the transformation of our *natures*, Western theologians interpret these themes more in terms of forgiveness and moral reconciliation. These differences, however, are only tendencies, not sharp dichotomies.

Augustine of Hippo (354-430), the most influential theologian of Western Christianity, agreed that we human persons are a mystery to ourselves, but (compared to Nyssa) he located the enigma not so much in the mystery of the God we image, as in the way we blur that image and, by so doing, become opaque or hidden even to ourselves. A major theme of Augustinian anthropology is self-discovery and the reunification of the fragmented self, a process achieved only by God's grace and completed only in the resurrection. It is a process of self-discovery, but not one of self-help, for it can only be initiated and sustained by the grace of the Holy Spirit working within. By the hidden movements of healing grace, the self first comes to an awareness of what it has hidden from itself through its own self-deception, coming then to a progressively restored coherence of will and action that makes it possible to act with goodness and integrity. Knowledge of self and knowledge of God are intimately tied together for Augustine (just as for John Calvin a millennium later). We are most like God when we are most focused on God, reflecting what we image. But in the Western tradition from Augustine onward, while it is good to be godlike, being so is understood mostly in terms of the category

of the holy, which is realized through submission to the divine will rather than through proximity to the divine being.

In quite a different context, Augustine argues for the directionality of human history against a backdrop of a universal history of creation. History for Augustine is theological; that is, creation comes from, and returns to, God and its purpose, however frustrated at every moment, lies in its inevitable movement toward its pre-determined end. History is neither cyclical, nor futile, but the one-time events of history propel its movement forward toward its final goal.

If we put together some of these themes from Irenaeus, Gregory, or Augustine with the more general or common themes of Christian theology, the following theological picture of human nature begins to emerge. First, human nature is a mystery and the human persons are enigmatic or hidden from themselves. This is true in two ways. The very nature of the human reflects or images the nature of the divine. While for Christianity the actions and, indeed, the Persons of the triune God are revealed, the essence of the divine nature remains an inexhaustible mystery. Because the human nature reflects the divine nature, the mystery of the human is not just the actual experience of incomplete self-discovery, but the necessary correlation of the divine mystery. In a second way, however, unlike God, the human beings in their current state are hidden from themselves because both unwilling and unable to achieve perfect self-awareness. This secondary form of hiddenness, however, is neither essential, nor permanent.

Second, according to Christianity, the human self or individual person (*hypostasis* or *persona*) is not an individual being, but a relationship within an underlying shared being. This is not to deny the reality of the distinctiveness of the individual. Christianity never denies the reality of the individual human persons, nor does it say that individual identity is an illusion. Precisely on this point, the ancient theologians went to great lengths to expound a view of God as one being or substance in which three distinct individual hypostases subsist, surely not as three individual substances (therefore, never as "three gods"), but as eternally and relationally over against each other as three individual identities. So it is with human individuals, who are not just psychologically, but also ontologically individuated (hypostasized), but never separated in their individual identity. These themes of classic Christianity, East and West, have largely been forgotten especially in the modern West, where Christianity is nearly as individualistic in its ontology of personhood as modern philosophy. Deeper in the traditions of Christianity, however, is a more relational understanding of the self, which is now being recovered by some contemporary theologians.

Third, Christianity has seen the human nature from the beginning as changing over time, primarily because of the profound changes that occur in history in the relationship between God and humanity. The original intimacy of the relationship between God and humanity was rejected by Adam and Eve, according to the general Christian interpretation of *Genesis*, 1-3 (see *Romans*, 5-6, which is the canonical Christian exegesis of *Genesis*, 3). Before "the fall", humans would have been sustained forever in health and agelessness by the regenerative presence of the Holy Spirit. Because of our action taken representatively by Adam and Eve, the grace of this regenerative presence is removed, and humans become vulnerable to aging and death, as well as to all the other distresses of human life. This consequence is reversed by the coming of Jesus Christ, who restores in his own person the unity of the relationship between humanity and God and whose own resurrection represents the first of what is to come for all. At each stage, human life is transformed, first by loss (the fall), then by restoration (redemption), and finally by transfiguration or *theosis*. With the rise of modern science and especially with the impact of evolutionary consciousness, the historical events (recent creation, historical fall) that underpin these transformations are no longer credible, but in various ways recent theologians have continued to understand human nature as transformed over time.

Fourth, it should be noted that the early Christianity did not regard humanity as a thing in isolation from the rest of nature. Father Dumitru Stăniloae puts the point nicely: God's plan for the creation "consists in the deification of the created world... Salvation and deification undoubtedly have humanity directly as their aim, but not a humanity separated from nature, rather one that is ontologically united with it" (Stăniloae [2000], II, p. 1). Here again, however, the Western theology has tended to isolate God and the human (or more precisely, according to Augustine, God and the soul) as the primary axis of theological interest, with creation as little more than a presupposition for the salvation of souls. But here, too, the Western theology is changing, renouncing the soul/body dualism that was so basic to Augustine and Calvin, and also the anthropocentric focus.

Among the differences between East and West, it bears repeating that the Western theologians have been far more reticent about terms like *theosis*, or divinization, than have their Eastern counterparts: "In general, the Greek fathers, most notably Gregory of Nyssa, stood closer than did, say, Augustine to the neo-Platonic concepts of perfectibility" (Passmore [1970], p. 122). But, beginning in the 1700s with John Wesley and others, a renewed interest in moral (as distinct from ontological) "perfection" sweeps Protestant theology, not just in Methodism, but in various evangelical and new religious movements, perhaps mostly in the United States.

While the Protestant establishment regarded these movements with suspicion, they thrived nonetheless and reflected the optimism of the 19th century, an optimism that found its echoes in many non-religious programs of human improvement or perfection, including government reforms, educational reforms, and the quasi-scientific programs such as eugenics. What these programs had in common is that they all set out to improve the behavior and performance of the human beings. During these centuries, the Eastern theology maintained that human nature itself, not just our moral capacities, must be transformed so that, in the end, humanity becomes godlike, participating in the divine nature itself.

Transhumanist Goals

James J. Hughes defines transhumanism as “the proposition that human beings should use technology to transcend the limitations of the body and brain” (Hughes [2007], p. 2). Among other documents, Hughes refers to the Transhumanist Declaration, where we read: “Humanity will be radically changed by technology in the future. We foresee the feasibility of redesigning the human condition, including such parameters as the inevitability of aging, limitations on human and artificial intellects, unchosen psychology, suffering, and our confinement to the planet Earth.”⁴

Another definition of transhumanism is offered by Nick Bostrom: “Transhumanists view human nature as a work-in-progress, a half-baked beginning that we can learn to remold in desirable ways. Current humanity need not be the endpoint of evolution. Transhumanists hope that by responsible use of science, technology, and other rational means we shall eventually manage to become posthuman, beings with vastly greater capacities than present human beings have.”⁵ Elsewhere, Bostrom writes: “Transhumanism is a loosely defined movement that has developed gradually over the past two decades, and can be viewed as an outgrowth of secular humanism and the Enlightenment. It holds that the current human nature is improvable through the use of applied science and other rational methods, which may make it possible to increase the human health-span, extend our intellectual and physical capacities, and give us increased control over our own mental states and moods (Bostrom [2005], pp. 202-214).

4. The Transhumanist Association, “The Transhumanist Declaration”, 2002 (available at <http://www.transhumanism.org/index.php/WTA/declaration/>).

5. Nick Bostrom, “Transhumanist Values” (available at <http://www.nickbostrom.com/ethics/values.html>).

What technologies are identified as serving the transhumanist goals? The usual list includes such things as genetic modification (including, but not limited to, human germline modification with enhancement as a goal) and regenerative medicine through various means, including cell therapy and bionics. Also included, of course, are advances in computer-processing that might allow “mind uploading”, the transfer of the contents of the human brain to an enduring computer substrate. Advances in cognitive neuroscience will also be required and nanotechnology will no doubt play a role. The rapid pace of advance in these fields, indeed the exponential growth rate in many of these areas, compounded by what is sometimes called “convergence”⁶, or the accelerating effect of advances in one area on advances in other areas, has led to the suggestion that technology is reaching a taking-off point known as “the singularity”.

The term “singularity” is most famously associated with Ray Kurzweil, who defines it this way: “What, then, is the Singularity? It is a future period during which the pace of technological change will be so rapid, its impact so deep, that human life will be irreversibly transformed. Although neither utopian, nor dystopian, this epoch will transform the concepts that we rely on to give meaning to our lives, from our business models to the cycle of human life, including death” (Kurzweil [2005], p. 7).

The transhumanist statements endorse a commitment to a process — human transformation via technology — without specifying a goal or a final state, except to say that we will be “irreversibly transformed”. One reason for the lack of specificity is that the technologies of transhumanism are only in the earliest stages of development, which means that their full impact cannot be predicted. Quite justifiably, there is a range of opinions among the transhumanists as to what the outcomes might be and how they might be achieved. Even so, certain features of human nature are routinely marked by transhumanists for enhancement, for instance as in the statements quoted previously. These include our lifespan and our mental abilities. Other features, such as “unchosen psychology” — which perhaps includes mood disorders or attention disorders — are sometimes mentioned but raise conceptual complexities not associated, for instance, with the ideal of more years of healthy life.

The question of the *telos* or goal of the transhumanism project is another way of asking the question of the meaning of enhancement or improvement. The most common transhumanist answer to the question

6. See Mihail C. Roco and William Sims Bainbridge (eds.), “Converging Technologies for Improving Human Performance: Nanotechnology, Biotechnology, Information Technology, and Cognitive Science”, available at: http://www.wtec.org/ConvergingTechnologies/1/NBIC_report.pdf.

is procedural, not substantive. An enhancement is what the individual desires and freely chooses. Autonomy must be protected, including the freedom of the parents in making the choice over whether to make use of reproductive technologies for enhancement purposes. In such a case, the enhanced person, who might not yet be conceived, cannot give consent. It is precisely for that reason that many people who base their bioethics on autonomy are somewhat troubled by the idea of leaving the definition of enhancement to the parents.

Another reason for the lack of a specific goal is that transhumanist technology is grounded in the view that the cosmos itself is without goal. According to Hughes, "The most common transhumanist cosmology is that the universe is impersonal and purposeless. The emergence of intelligence is a chance occurrence, with no inevitability or pre-ordained end." Needless to say, if the cosmos is purposeless, technology has no purpose beyond what we give it; and if the emergence of intelligence has no *telos* or end of its own, then its enhancement is likewise without a final state.

Or is there more to it than that? Quoting Hughes: "So materialist transhumanism can, through certain logical steps, come full circle to the idea that we live in a created universe, perhaps a natural universe infused with the quantum mind of God, perhaps because we are a simulation being run in the mind of gods, or a resurrection of ourselves at the End of Time. None of these materialist ideas of a created or intelligent universe necessarily argue that God is unitary, benevolent or even aware of our existence... [W]e may be intended to evolve towards a posthuman apotheosis, or we may choose to become gods ourselves in order to challenge the Creator(s) for dominion" (Hughes [2007], p. 30).

The question of the goal comes round in the end to the question of God or gods, whether traditionally defined or emergent in the process of nature and perhaps created by the technologies themselves.

More often, however, the question of transhumanism and God comes up in response to the challenge put to much of today's technology that it represents an overweening impulse to "play God". While some people of religious faith use this label to criticize technology, it is used most often by journalists or others who wish to divide religion and technology. Theologians have questioned the religious usefulness of the phrase, and some have sought to reclaim its meaning as referring not to arrogant action that we must avoid, but to God-like, compassionate, and obedient

7. See Lisa Sowle Cahill, "'Playing God': Religious Symbols in Public Places" and Allen Verhey, "'Playing God' and Invoking a Perspective", in *The Journal of Medicine and Philosophy*, 20 (1995), pp. 342 and 364, respectively.

action that we must undertake.⁷ Not too different is the embrace of “god-like” in recent transhumanism rhetoric. In response to an interviewer’s question about whether transhumanism is “playing god”, David Pearce responded by saying: “What could be more ‘godlike’ than creating new life?... I think it’s hard to reconcile transhumanism and revealed religion. If we want to live in paradise, we will have to engineer it ourselves. If we want eternal life, then we’ll need to rewrite our bug-ridden genetic code and become godlike.”⁸ In this short statement, Pearce uses *godlike* in two ways, first as a measure of our powers to create, second as a product of our powers to make ourselves immortal. With a god’s power, we grant ourselves the durability of a god.

Referring to the relationship between religion and transhumanism, Mark Walker asks: “In what direction and how far should we pursue excellence? A very traditional perfectionist’s answer is that we should seek to become as godlike as possible” (Campbell & Walker [2005], p. vi). With some reticence, transhumanists speak of the final state of transformation as a godlike state. For instance, Kurzweil: “Once we saturate the matter and energy in the universe with intelligence, it will ‘wake up’, be conscious, and sublimely intelligent. That’s about as close to God as I can imagine” (Kurzweil [2005], p. 375). It is clear that Kurzweil speaks here of a distant point, not necessarily in terms of years, but in its technological advance over the present. Just as theology speaks of *theosis* as an eschatological realization, so transhumanism speaks of godlikeness as a condition of a future far different from the present.

Proximity to God seems most applicable when intelligence is being enhanced. Walker notes that: “Transhumanists are more sanguine on the whole about the view that human reason is godlike; nevertheless, using technology to alter the biological basis of our reason opens up the possibility of at least achieving a higher and more godlike reason or intellect. This is why some transhumanists should be very interested in at least some religious thinking, for if the goal is to achieve what we can in the way of perfection, and God is thought to be a perfect being, then religious thought on the question of why God is said to be a perfect being is very relevant” (Campbell & Walker [2005], p. vii). Walker claims that the idea of “using technology to make ourselves more godlike” is a “perfectly consistent transhumanism-religious hybrid” (*ibidem*). While some would agree, not everyone does, as we see in the final section of this paper.

8. David Pearce, in “Interview with Nick Bostrom and David Pearce”, in *Cronopis* (Dec. 2007), available at: <http://www.hedweb.com/transhumanism/index.html>.

Two Views of *Theosis*

A recent issue of *The New Atlantis* carried an article by David B. Hart contrasting the theology of transhumanism with that of the late Pope John Paul II. Hart could not be more stark in drawing the contrast: “The difference between John Paul’s theological anthropology and the pitilessly consistent materialism of the transhumanists and their kith — and this is extremely important to grasp — is a difference not simply between two radically antagonistic visions of what it is to be a human being, but between two radically antagonistic visions of what it is to be a god” (Hart [2005], pp. 65-73). Hart, who writes as an Eastern Orthodox theologian with an interest in the theology of Pope John Paul II, admits that the “desire to become a god” is a proper aim for Christians. However, “Theologically speaking, the proper destiny of human beings is to be ‘glorified’ — or ‘divinized’ — in Christ by the power of the Holy Spirit, to become ‘partakers of the divine nature’ (*II Peter*, 1, 4), to be called ‘gods’ (*Psalms* 82, 6; *John*, 10, 34-36). This is the venerable doctrine of *theosis* or ‘deification’, the teaching that — to employ a lapidary formula of great antiquity — ‘God became man that man might become god’: that is to say, in assuming human nature in the incarnation, Christ opened the path to union with the divine nature for all persons. From the time of the Church Fathers through the high Middle Ages, this understanding of salvation was a commonplace of theology. Admittedly, until recently it had somewhat disappeared from most Western articulations of the faith, but in the East it has always enjoyed a somewhat greater prominence; and it stands at the center of John Paul’s theology of the body” (Hart [2005], pp. 70-71).

Hart insists, however, that for John Paul II it is not enough to say that humanity in general is on its way toward *theosis*. Rather, it is the case that each individual human life from conception “is already, potentially, the strength of ‘the body full of power’...” (Hart [2005], p. 71).

Divinization is not something that lies beyond, especially in the sense that some future humans will cross a technological bridge, leaving all previous humans and all lesser humans behind as merely human. Hart argues: “For the late pope, divine humanity is not something that in a simple sense lies beyond the human; it does not reside in some future, post-human race to which the good of the present must be offered up; it is instead a glory hidden in the depths of every person, even the least of us — even ‘defectives’ and ‘morons’ and ‘genetic inferiors’, if you will — waiting to be revealed, a beauty and dignity and power of such magnificence and splendor that, could we see it now, it would move us either to worship, or to terror” (Hart [2005], p. 71).

For this reason, Hart believes, theological and transhumanist versions of divinization are essentially and fundamentally incommensurate. They are “divided not by a difference in practical or ethical philosophy, but by an irreconcilable hostility between two religions, two metaphysics, two worlds — at the last, two gods” (Hart [2005], p. 71).

With this analysis comes a warning of the necessity of a moral choice between what Hart might see as the true God of life and a false god of death: “And nothing less than the moral nature of society is at stake. If, as I have said, the metaphysics of transhumanism is inevitably implied within such things as embryonic stem cell research and human cloning, then to embark upon them is already to invoke and invite the advent of a god who will, I think, be a god of boundless horror, one with a limitless appetite for sacrifice. And it is by their gods that human beings are shaped and known. In some very real sense, ‘man’ is always only the shadow of the god upon whom he calls: for in the manner by which we summon and propitiate that god, and in that ultimate value that he represents for us, who and what we are is determined” (Hart [2005], pp. 71-72).

Perhaps it is indicative of the early stage of this conversation, but Hart’s uncompromising rejection of any compatibility between theological and transhumanist divinization is completely contrary to the stance taken by a self-appointed group who are members of the Church of Jesus Christ of Latter Day Saints, more widely known as the Mormons. Their organization, aptly named the Mormon Transhumanist Association, has issued an Affirmation that advances these views: (1) We seek the spiritual and physical exaltation of individuals and their anatomies, as well as communities and their environments, according to their wills, desires and laws, to the extent they are not oppressive; (2) We believe that scientific knowledge and technological power are among the means ordained of God to enable such exaltation, including the realization of diverse prophetic visions of transfiguration, immortality, resurrection, renewal of this world, and the discovery and creation of worlds without end; (3) We feel a duty to use science and technology according to wisdom and inspiration, to identify and prepare for risks and responsibilities associated with future advances, and to persuade others to do likewise.⁹

In its publications, the Association describes the basis for these views in the traditional beliefs of Mormonism, particularly the idea that it is our human destiny to be changed suddenly and completely into the children of God and thus to be like gods.

9. Mormon Transhumanist Association, “Mormon Transhumanist Affirmation”, available at: <http://transfigurism.org/community/content/MormonTranshumanistAffirmation.aspx>.

On this basis, the Mormon Transhumanist Association responds to various critics of transhumanism, defending especially the goal of aspiring to divinity: "This desire is evil, according to these critics, who claim it is immoral to aspire to Godhood. The religious critic asks: to what end do we pursue these improvements over past states of being? Mormonism answers: Godhood. The desire to work together toward Godhood is the highest and most righteous desire, and the fullest manifestation of charity. The Mormon view complements the Transhumanist view by providing a spiritual justification for the desire to better the human condition — to become Gods."¹⁰

No doubt the views of the Mormon Transhumanist Association are likely to remain in the minority among Mormons and among Christians. While Hart's views are perhaps a bit overstated, the following comment is probably a good predictor of where the religious public might stand. Michael E. Zimmerman writes that in comparison to Kurzweil's view of post-human transcendences, "...traditional Christians see something quite different from what they mean by *theosis*, the transfiguration of the human being into the glorified body of the God-man Christ. Instead, the God-like post-human amounts to a creature that has become divine, and that has thereby attained the status of cosmic *Logos*. Seeking after such an astonishing 'reaching up' is clearly impossible to square with orthodox Christianity."¹¹

On the other hand, James J. Hughes predicts that: "In this future religious landscape there will be bioconservative and transhumanist wings within all the world's faith, and probably new religious traditions inspired by the transhumanist project" (Hughes [2007], p. 31). Who will be right? Are religion and transhumanism implacable enemies, or is there room for a "transhumanist wing" in the traditional faiths? No doubt there will be those who oppose transhumanism on any grounds, including religious, and they will do so by stating (and perhaps overstating) the differences between the religious and the technological visions of the future, not to protect religion, but to attack transhumanism.

There are real differences between religion and transhumanism, however, and they should not be ignored. The religious passion for social justice, for instance, should never be downplayed in an uncritical willingness to join in giving birth to a technological future. But if there are differences, there are also similarities, all the more so if we hold to a form

10. Mormon Transhumanist Association, "Parallels and Complements between Mormonism and Transhumanism", p. 31, available at: www.transfigurism.org.

11. Michael E. Zimmerman, "The Singularity: A Crucial Phase in Divine Self-Actualization?", an unpublished paper at www.nchu.edu.tw/~hum/download/Posthumanism_s_Eschatological_4.doc.

of faith that desires to be a living tradition, taking into account perennial themes and present possibilities. Of course Irenaeus of Lyon and Gregory of Nyssa were not transhumanists. But the tradition they helped establish and which lives on today may, as Hughes suggests, have a legitimate “transhumanist wing”.

If so, the “transhumanist wing” of Christianity might endorse the idea that we humans are on a pathway of transformation. We cannot know whether this pathway leads in the end to distant descendants who do not age, who have access to all information, who live in transparent relationship with the rest of life, who have transcended the needs of our biology, and who have been released from all evil compulsions. Probably not. But it is almost certain that we and our descendants will make incremental, but significant movement along the pathway toward some or maybe most of these transformations. Will we become gods? We will not become God, not in any recognizably theistic sense of that word, but neither did the ancient Christian theologians assert such a destiny. Becoming more godlike is always relative, a movement from where we are toward a transcendent destiny. We must not allow those who overstate the perils of technology blind us from its legitimately theological yearnings, nor permit those who exaggerate the promise of technology obscure the truth that even small transformations may in the end be profound.

Of course, for Christians to think along these lines is to introduce new themes into an ancient tradition. God is no longer merely the source of action, but also the effect, transformed by the encounter with a creation which shares creative power. This is a theme developed during the past century by process theologians in the Whiteheadian tradition and more recently by trinitarian theologians, who see God as both cause and effect of creation, interactively becoming who God is as a result of creation becoming what it is. By contrast with such theological revisionism, a more traditional theological view would look at eschatology, including the divinization of the human, as a result of sheer divine intrusion. The human effort plays at best a supportive role, prompted by grace. But it is wrong to drive a wedge between divine and human action, as if only that which has no creaturely cause can be said to be God’s work. Especially today we might begin by recognizing that technology is not just a means of tinkering with a fixed creation, but a way of creating something new. For the Christians, this can only mean that despite all that goes wrong with technology, it is in the end a means of divine creation by which an interactive God evokes something new. If we are “divinized” in any sense by technology, it is God equally and jointly with technology that is the cause of this process, and it is God along with creation that is affected by the process.

It is perhaps surprising, but not objectionable that transhumanists speak of “the Singularity”, which of course is a product of technological processes, but which in the end becomes a power greater than us or our technology. It would be too simple, of course, to say that the Singularity is God and that our transformed descendants are God’s children, at last divinized. But it is clear that a creative power is emerging and that, for all monotheists, creative power can only be one.

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Recoupling Individuality: Relational Selves and Redemptive Relationships*

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We must love each other or die.

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The particularly toxic form that individuality has taken in European and Anglo-American culture in this era is substantially underpinned by a conception of mind, self, and soul that would hold these to be internal to the central nervous system of our biological organism. This conception of an internal/external boundary has roots going as far back as the early modern emergence of science (Berman [1989]). Codified as Cartesianism, there is an *internalism* in both dualist, and nondualist views of mind and soul. The historical development of individuality has taken an increasingly bounded and self-contained view that may be corrosive to our communal life (Cushman [1990]). Nevertheless, rooted in the arguments against private language from the followers of Husserl to the later Wittgenstein (1953), and the externalism of Sartre (1958), rejecting both the individual possession, and locational internalism of Descartes, there is a growing movement within the scientific and philosophical studies of mind which view it as embodied, enactive, encultured, and embedded in social and technical networks, and as a construction inclusive of its extensions beyond the boundary of the individual organism (Wilson [2004]). Originating one generation ago in the *content externalism* of Hilary Putnam (1975) and Tyler Burge (1986), that the semantic content of mental states is often

* Originally presented at the 2008 Metanexus Conference, "Subject, Self, and Soul: Transdisciplinary Approaches to Personhood", Madrid, July 13-17, 2008; published in electronic form on the Metanexus Global Spiral, www.globalspiral.com.

dependent on factors external to the subject, the last decade has seen the emergence of a substantially stronger *process* or *vehicle externalism*, that the structures or mechanisms making various mental states possible may themselves extend beyond the skin (see, e.g., Hurley [1998], Clark and Chalmers [1998]). Amongst the external structures that carry information relevant to completing an action, that can be operated upon to accomplish that action, certainly the commonest and most important of these are other human beings with whom we sustain ongoing relationships.

The thesis of the present essay is that vehicle externalism can be rooted in a relational ontology of self, and a primary intersubjectivity, which have mutual and reciprocal implications for a number of religious themes, from the nonduality of enlightened Buddhist views, to the more conventional Western theological concepts like *imago dei* and our understanding of redemption. I have argued elsewhere (Teske [2000]) that redemption must be social. I believe that our redemption has its origins in our most intimate relationships, where we must swallow our projections in order to heal our real, living, reciprocal and mutual relatedness, acknowledging the value of imagination both in empathic mutual understanding, and in orienting ourselves hopefully and confidently toward a sustainable human future, without confusing that imagination with the genuine connections between self and other (which themselves do not exclude shared imaginal elements). Conceptions of isolated individuality entail great risks in the projective attempts at symbolic completion meant not only to fail, but to damage the real possibilities of loving interconnections with each other. The redemption that is tied to faith, hope, and love may be led astray when confused with need-based understandings of our relationships, as it is *caritas* that may better lead to the development of faith in each other and our futures together, and in a larger sense to *agape*, and our embedding in corporate (embodied), collective (enactive), and communal (relational) life.

Externalism

Externalism is, quite simply, the view that “the mind ain’t in the head”. It denies that thoughts, beliefs, and desires are entirely constituted by states and processes physically internal to the organism. It does not mean that the mind is elsewhere, as the individual’s head, and his body, are proper parts of a mind. It entails a subject’s essential embodiment and immersion in the world. Bodies are not only necessary for the “somatic marking” that may be central to our conscious experience (Damasio [1999]), but for our external interdependencies, the most important of which are

both developmental, and social. Mental phenomena are hybrids of physical events in the head and events in the world to which they are often coupled, not least of which are events both within and between other people and ourselves. According to Mark Rowlands (2003) this is the most important development in the philosophy of mind in the latter half of the 20th century, though it has historical roots in the phenomenological philosophy of Husserl and his followers, in the existentialism of Sartre, and the linguistic philosophy of Wittgenstein.

Content Externalism, or “taxonomic externalism,” that was put forth by Putnam (1975) and Burge (1986), turns on Brentano’s Thesis, the claim that mental events are essentially and nonreductively *intentional*, that is, that they refer to, or are “about”, events outside themselves. The “demon” behind Cartesian dualism, the possibility that the mind could exist with only a demon to delude it, presupposes what Gregory McCulloch (2003) calls the “Demonic Dilemma”, an ontological distinction between mind and world, and between a self-contained mind and a mindless world. But this leaves either a mind cut off from the world, leaving no account of how intentionality could come into being, or a mind without content or subjectivity. Either intentional properties are a sham, or there is nothing to which intentions can be directed. To ask what is a mental representation is to ask what it is to be directed at the world; if it is merely the reliable causal effects of objects in the world, then there is nothing to make it a mental representation. McCulloch argues that a brain in a vat, in a null environment, would have no intentionality. Or *pace* either Wilson (2004), or Thompson (2007) that the vat, since it would have to duplicate many of the properties and processes of the body, including all of the external events to which its sensorimotor couplings would connect it, would constitute a surrogate body, bodily processes still being part of the minimally sufficient conditions for consciousness. It is on similar bases that Putnam (1975), in his twin earth arguments, shows that the meaning of a mental representation depends on, and is necessarily individuated by, the events in the world to which it refers, which is what distinguishes between different intentional states like memory, imagination, or even hallucination.

Phenomenological externalism follows from the view that the phenomenological content is in the mind; combined with Putnam’s moral, this entails that the mind is not just in the head. McCulloch (2003) argues that since phenomenology has to do with the subjective, and externalism with the objective, then the objective has to be invoked to understand the subjective; in short, that the subjective must be *inclusive* of the objective. There is a sense of this even in Jean-Paul Sartre’s assertion: “It is not true that... the union of soul and body is the contingent bringing together of two substances radically distinct. On the contrary, the very nature of the

For-itself [consciousness] demands that it be body" (Sartre [1958], p. 309), just as "to perceive the Other is to make known to oneself what he is by means of the world" (*ibidem*, p. 340). We also see this spelled out in more neurophysiological detail in Damasio's "somatic marker" hypothesis (1994). From here, McCulloch ([2003], p. 13) argues for an epistemological distinction, that, while not incorrigible (*contra* Descartes), "knowledge of the intentional is both radically distinct from, and privileged with, respect to scientific knowledge". This has powerful repercussions for the human sciences since, as historian R.G. Collingwood (1993) makes clear, we have to think ourselves into the thinkers' positions to understand their experience as, without doing so, their words, their beliefs, and their actions would be meaningless. One does not need to mimic a causal trajectory, but one does need to mimic the thinking to acquire knowledge of minds. While this may be quite unlike the physical sciences, other philosophers in the externalist tradition (Thompson [2007], Wilson [2004]) argue that in a mature science of mind, first-person phenomenological methods and objective scientific experimentation must be mutually informative, not merely in terms of correlations, say, between brain events and naïve subjective experience (though even here, context can result in particular states being both multiply *realizable* and multiply *constitutable* — Murphy [1998]), but in terms of the greater sensitivities and richer phenomenologies involved in more disciplined first-person methods, like those of the contemplative traditions. Consistent with Collingwood's view of history, it has also been true of sociologists in the *Verstehen* tradition (Martin [2000]), and even primate ethologists like Barbara Smuts (1985) have argued for the epistemic necessity of attention to individual, embodied, subjective points of view.

Vehicle Externalism, or "location externalism", takes a further step. In addition to denying the logical or semantic independence of the possession of mental properties from a world of objects, properties, or events external to the subject, vehicle externalism denies that even the mental particulars need to be spatially located inside the skins of mental subjects. Rowlands ([2003], p. 6) suggests that there is no principled reason for not supposing that as "...the structures and mechanisms that allow a creature to possess or undergo various mental states are often structures and mechanisms that extend beyond the skin of that creature", so, too, are the mental states themselves. If externalism is true of the architecture that allows us to perceive, remember, reason, or use language, then it is true of the processes that the architecture implements. The external structures can be as likely to carry the information relevant to accomplishing a task, and, to the extent that they are manipulated and transformed by the organism, to accomplish those tasks, as they can be said to be parts of the

process. Why would manipulating an external structure be any different in principle than manipulating one that is attached to, or incorporated in, one's body? Rowlands presents an evolutionary argument against developing genetically expensive encephalizations that might have selective disadvantages to downloading them to the environment, as beavers do with dams, where the capacity to manipulate the environment obviates the necessity of internalizing it, whether initially adaptive or exaptive. This is true for external information bearing structures like the "optic array" in James J. Gibson's (1979) "ecological approach" to visual perception, where "information processing" begins with the manipulation of the optic array in active sampling. Wilson ([2004], pp. 175-176) also cites examples from the socially-distributed cognition of seafaring navigation, and the deictic coding of eye-movements in animate vision, to the maximum of robotics, that the world is its own best model. It also applies to a whole range of day-to-day external memory aids, from knotted strings, shopping lists, and marks on calendars, to books, and the whole panoply of symbolic artifacts in a literate culture. Memory for an argument might consist in the capacity to flip through a book, scan the relevant portions of each page, until one comes across the argument.

The manipulation and exploitation of information-bearing structures is also likely to have been important in the historical development of some of the abilities which they make possible, as in code memorization, or the development of capacities for reading and writing. Indeed, as documented by Luria (1976) and Vygotsky (1978), many of our higher cognitive functions have been socially scaffolded in ways that are contingent on historical changes in social life and organization. Such abilities have been so shaped by the symbolically rich environment around us, that we cannot make a principled separation between our ability to remember and our ability to exploit ambient information. From the formalisms that reduce complicated arithmetic calculations to an iterated set of simpler steps, to the use of technological artifacts that we find increasingly indispensable for the performing of a task. To the extent to which the cognitive burden is distributed, so too the epistemic credit. Wilson (2004) calls this "wide computationalism". Just as literacy can substantially reduce our internal memory load, so too can a series of external supports provide for substantially reduced dysfunction in Alzheimer patients. When external aids improve memory in the same way as on-board internalizations, are we not entitled to take credit for so remembering?

Merlin Donald (2001) suggested that the human cognitive evolution has reached the stage of the externalization of memory. Mimesis and language, though coevolved with culture themselves, still depend on the internal memory capacity of individuals. Biological memory is imperma-

ment, its medium is fixed, and its format is constrained. The emergence of literacy and other skills which involve symbioses with symbolic external storage, allow memory to be externalized in ways that are enduring, refinable, and even capable of reformatting. External storage also, via the use of a spatialized external information space, allows us to harness vision for reflective thought, to change the part of the brain used for thinking, to interrelate information and images in novel ways. It makes possible to develop new cognitive strategies which are socially organized and can be institutionalized to survive the replacement of member individuals. External storage thus makes possible an even more thorough invasion and use of the brain by cultural programming, especially institutionalized education, the development and elaboration of new devices (from wax tablets to manipulable computer imaging systems), and new visual symbolic codes. This may change the role of biological memory to be more symbiotic with cultural artifacts, and increase demands on certain areas of the brain which, given its neuroplasticity, can expand their territory at the expense of other functions (*e.g.*, the loss of rote verbal skills and visual imagination that may come with literacy).

In his *Natural-Born Cyborgs*, Andy Clark argues that we have been human-technology symbionts since at least the invention of words, and that what is distinctive about our long developmental dependency and our neuroplasticity is precisely our ability “to enter into deep and complex relationships with nonbiological constraints, props and aides” (Clark [2003], p. 5). Pens, paper, wristwatches, scratchpads, notebooks, calculators, cell phones, and internet access are just the current and newest layer of our extended cognitive systems, expansions of our consciousness by temporal extension, scaffolding, embodiment, and embedding (Wilson [2004]). Certainly, offloading computation to calculators, memory to written text, or temporal orientation to clocks can and has altered our brains historically and developmentally. It is an illusion to believe that the normal understanding of mind and person is limited to the boundary of our skin, as “our sense of self, place, and potential are all malleable constructs ready to expand, change, or contract at surprisingly short notice” (Clark [2003], p. 33). This should be obvious to anyone who has wondered about the ownership of a benumbed arm upon awaking, or felt personally violated upon another’s contact with one’s automobile’s surface several meters away. We are as much made up of the social and technological matrix in which we exist as organisms as by the neural events, conscious and unconscious, that occur inside our skin.

If our neuroplasticity makes it possible for us to be “natural-born cyborgs”, one crucial lesson of our extended developmental dependency must certainly be how much our externalism is rooted in our biologically

embodied relationships with other human beings. It should be clear that the position being put forth here is that mental life is both embodied, and embedded in the world, not just located within the nervous system. While there are endogenous, dynamic patterns of neural activity which inform, and are informed by, the sensorimotor coupling between organism and environment, part-whole relations are dynamic and co-emergent, making autonomy a system-level, relational property. Two or more such systems are said to be *coupled* when the conduct of each is a function of the conduct of the other. A *structural coupling* is produced by "the history of recurrent interaction between two or more systems that leads to structural congruence between them" (Thompson [2007], p 45). One such structural congruence is produced in the dynamic co-emergence of interiority and exteriority, in which the autonomous self-production of an "inside" also specifies an "outside" to which it is normatively related.

Evan Thompson (2005, 2007) argues that thinking about consciousness and subjectivity as *interior* is a distortion, as the co-emergence of internal/external or self/other "depends formatively and constitutively on the dynamic coupling of self and other in empathy" ([2005], p. 263). Intersubjectivity is primary, experiences of individuality, or interior and exterior, of self and other only develop within the context of an empathic *coupling*. Self and other enact each other reciprocally within such couplings. "One's consciousness of oneself as a bodily subject in the world presupposes a certain empathic understanding of self and other" ([2007], p. 382). Human subjectivity is intersubjectivity from the outset, emerging developmentally and "configured by the distributed cognitive web of symbolic culture" (p. 382).

The first level of empathy is that of our involuntary affective and sensorimotor coupling. This is a powerful set of mechanisms by which we are linked to each other biologically and physiologically. Sensorimotor coupling is mediated by a population of "mirror neurons", that respond similarly whether preparing one's own or observing the movements of another. There is also an affective resonance which has to do with our capacity to read and mimic facial expressions, as well as a set of circuits for producing patterned interactions between the orbito-frontal cortex and the limbic system. There is a measurable nonverbal duet in empathy, which includes matched patterns of arousal, and even complementary breathing (well summarized in Goleman [2006]).

The second level of empathy is more active and cognitive, and involves the imaginary transposition into another's place. Human levels are linked to the emergence of joint attention (including gaze-following, joint engagement, and imitative learning), and the attribution of mental states thought to require the emergence of a "theory of mind". Barresi and

Moore (1996) propose the mutual development of self and other-understanding out of an experience of intentional relations in which first-person and third-person sources are not differentiated.

The third level is mutual self and other understanding, involving a reiterated experience of seeing each other as experienced empathically by the other, and can include the vocal interaction by which each participates in an intersubjective viewpoint which transcends the first-person view. Since one's own lived body is always at the zero-point of the intersubjective space, this is the only way one can come to experience one's own lived body as an object belonging to an intersubjective world. "In this way, my sense of self-identity in the world, even at the basic level of embodied agency, is inseparable from recognition by another, and from the ability to grasp that recognition empathically" (Thompson [2005], p. 268).

The fourth level is the ethical and moral perception of each other as persons worthy of concern and respect, not from imposed rules, but by empathizing with the other as a mental agent whose point of view one can take. Thompson holds that without empathy such concern and respect for others as persons would be impossible. Interpretation and understanding comes dialogically, not in additive combination of pre-existing isolates, but emerging from, and reciprocally. Moreover, this does not just occur instant by instant, but in memory, as the relationship has a history in which my sense of my own individuality, of my story, depends on being someone with a story for the other and with that other's story to tell.

This powerful intersubjectively externalist view of mind, self, and relationship may have implications for a nondualist view of self and other, in which self and other have no independent existence, no intrinsic identity. This would open the way for a Buddhist view that it is the egocentric attachment to a mentally imputed self that is the source of all suffering, and suggest ethical practices of empathic imagination, of addressing pride, rivalry, and jealousy by looking at oneself through the eyes of an inferior, an equal, or a superior, and of a self-other equality wherein the pain of another is suffered as one's own, to decenter the ego, and open oneself to "an originary intersubjectivity prior to the reified imputation of 'self' and 'other'" (Thompson [2005], p. 271).

Theology

We will not learn what, if anything, we can understand and project about ourselves from scientific facts considered solely from an external perspective. Facts can constrain possibilities, but they cannot tell us what possibilities are. Religion is part of our dream of possibilities;

its study provides a lens for the observation of many aspects of what the human enterprise is and can be about, of explorations of what it might mean to have different notions of our selves, and why it might matter if it did (Laurenson [2007], p. 815).

What I want to explore, in the remainder of this paper, is a number of contemporary theological developments within which we might begin to construct a broader set of religious meanings from the particular inter-subjective and externalist view of mind, self, and relationship sketched above. What I want to suggest is in contradiction to a view of the redemptive value of a private, individual relationship with the sacred, or the divine, while experienced “interiorly” in terms of bodily and emotional functions, functions which may themselves require, even on scientific grounds, an externalist understanding. Rather, it is in our relationships with others and with a larger communal world, our relationality and our communality, to which our understanding of redemption might better be bound, particularly in this era.

There are deep and historical contributions of Christianity to the understanding of interiority as separate, individuated, and bodily restricted. Nevertheless, though we can recognize that Augustine’s interior is walled, it also has no roof, that Aquinas’ individuation of *agent intellect* is still drawn from divine light, the mind does not become a dark chamber until the Enlightenment, and Locke (Carey [2000]). Contemporary theological resources for an externalist, intersubjective view include Barth’s (1958) conception of the *imago dei* as existing not in individuals, nor in the capacity for relationship, but in the relationship itself, and his view that the center of our being is dynamic and cannot be isolated from our embodiment, or our embedding in the world. They also include Rahner’s (1978) anti-Platonist views that the substantial unity of the human person is not merely *in praesenti statu vitae*, but that we are inescapably wedded to the world, literally one flesh with it, as we are to each other. Finally, we will explore the relationship between the projections of our images of each other, with both our tendency to alienate ourselves from the reality of our loving, finite, and mortal relationships, and our need to imagine the possible worlds without which hope can readily turn into despair.

The particular fleeting and tenuous nature of our technologically and electronically externalized social involvement has been detailed elsewhere (Teske [2002]), in the context of the history of the self, of individuality, and of human relationships, showing the growing erosion of our embodied social interconnectedness, and the resulting increases in our sense of psychological fragmentation. Despite the proliferation of communicative technologies, we are plagued by feelings of isolation and by longings to be connected. I think that this may be largely due to the fact

that the particular form of our externalizations in this era, while widely extending our communicative antennae in time and space, too frequently attenuates the sense of mimetic, bodily, and face-to-face engagement that has historically bound us to each other and to our communities, and given us a felt sense of belonging, of place, of involvement, and even of love. Our social groups are increasingly fluid, our relationships providing neither the duration, nor the solidity against which our self-definition and self-assertion can gain purchase (Bauman [2003]). The construction of personal identity is therefore an increasingly difficult achievement which, while contributed to by belief systems, and grounded in subdoxastic emotional integrations sketched elsewhere (Teske [2007]), is largely produced via our position within larger communities, our personal integrity depending upon the psychological interiorization of purposes extending well beyond the individual embodiment of our mentalities (Teske [2000]), which are sustained and enacted only in a world of relationships.

Stanley Grenz's encyclopedic work, *The Social God and the Relational Self* extends contemporary trinitarian thought, and develops a communal understanding of the *imago dei* in the face of the postmodern fragmentation of the self and the quest for relationality in community. His intent is to "foster a renewal of the Christian communally constituted soul out of the ashes of the demise of the centered self" (Grenz [2001], p. 3). He draws heavily on a patristic social analogy, traceable to Gregory of Nyssa's *parechoresis*, of a trinitarian God as three subjective centers of action, the revival of which has produced a rethinking of *person* as relational rather than substantial, embedded in the community rather than in isolation or abstracted from it. It appears that the unease toward the substantial and the ascendancy of relational ontologies is widespread, including Roman Catholic and Orthodox as well as Protestant theologians, and has brought together feminist, liberation, evangelical, philosophical, and process theologians. A metaphysic of individuals related internally might well have undermined patriarchal theologies via an understanding of individuality as necessarily social and interdependent. Grenz traces this development to the early 20th century "social personalism" of thinkers like Martin Buber, Michael Polanyi, and John Macmurray, influencing theologians like Karl Barth, Dietrich Bonhoeffer, and Emil Brunner in helping to contrast a "possessive individualism" of individual, self-disposing actors who are apart from others with an "I-Thou" relationality, not isolated selves, but dynamically related persons. "It is only in relation to others that we exist as persons... We live and move and have our being not in ourselves but in one another" (Macmurray [1991], p. 211). As with a feminist theologian like Catherine Keller, Grenz sees a self in motion, where relations with others are not seen to be external, but internal to our very identity. This is

also consistent with contemporary psychological theories of the development of the ego, like those of Jane Loevinger (1987) and Robert Kegan (1982). Loevinger's stages of development move from conformist and conscientious, to the individualistic and autonomous, whose interpersonal modes are mutual and interdependent. Kegan's stages of the self cycle between poles of independence and inclusion, moving from the imperial self of needs and wishes, and the institutional self of authorship and identity, to interpersonal mutuality, and the interindividuality of interpenetrable self-systems.

From developing ideas of relationality, Grenz builds a theological anthropology rooted in an *imago dei* in which this concept becomes central and crucial for human relationships, calling for partnerships which entail commitment to mutual respect, fairness, and cooperation. The *imago dei* leads to a theological center in *creation* rather than *fall*, following a contemporary renewal of Trinitarian theology which sees God as "inherently relational and dynamic" (Grenz [2001], p. 16). This will ultimately lead us to Grenz's theological vision of humanity as an eschatological community of embodied, sexual persons ecclesially bonded together in relationships of love. He traces the origins of this vision to the trinitarian eschatological pantheism of Jürgen Moltmann, and the reciprocal relational trinitarianism of Wolfhart Pannenberg. The key concept is that of *communion*, in which God's being consists in personal communion. "At the heart of recent attempts to devise a new ontology of communion has been a retrieval of the Greek tradition, especially as embodied in the Cappadocian fathers, together with a rejection of the Western theological tradition that finds its genesis in Augustine" (Grenz [2001], p. 51). Augustine is the only Latin father, and his work was not available in Greek for some time. Rather than viewing *person* as *prosopon*, as a kind of "mask", the Greek fathers identify *hypostasis* with it, rendering it as constitutive of being. A person is seen not as a static entity, a self-existent substance determined by its boundaries, but as a drive toward both integration and self-transcendence (also the essence of *faith* for Paul Tillich [1957]), implying an *ecstatic* drive toward communion, its *freedom* in transcending the boundaries of self. Communion does not threaten our uniqueness or particularity, but, since we are ourselves only in communion, we are constituted, indispensably and irreplaceably, by being part of a relational existence.

Grenz's first step is to trace the rise of modern, "centered" self, rooted in Augustine's "turn inward," leading to a centuries long attempt to see the self as the stable reality underlying individuality, the self-mastery of the Enlightenment (and of the evangelical movement), leading to its apex in the self-sufficient, self-constructing, "therapeutic" modern self. Nevertheless, this modern self is quickly undermined by a self-focused

"expressive" self, rooted in such autobiographical explorations as those of Montaigne and Rousseau, a Romantic self destabilized by Schopenhauer, Nietzsche, and Freud, reaching its apotheosis in Foucault's extension of the metaphor of the death of God to the postmodern embracing of the self's demise. What is left for Grenz ([2001], p. 17) to build a Soul upon is a "semblance of a self that is constituted by a narrative that is marked by a position in a vast relational web and looks to relationships for identity".

According to Charles Taylor (1989), the contemporary self is constituted by its "inwardness". We understand *person* in this era much on the model of our public masks, of the roles we play, our visible, embodied being, in contradiction to the "self" we take ourselves to be, with a personal unity or coherent inner being, possessing (or attempting to establish) a unique identity, with a continuous history (*cf.* Rom Harre [1984]). It is, of course, Augustine's inwardness, both cognitive and emotional, adopting the reflexive first-person point of view, which leads us to the idea of the mind on a journey to truth, the certainty of its existence proved, ironically, by the ability of being deceived, and making the social and communal outwardness of our relationality to others difficult to see. For Augustine, the fragmented and scattered self, in the midst of a disintegrating world, stands in need of the unifying impulse to which only the inward journey toward God can provide, the open roof of our walled interiority. From here it is the declaration of Boethius that we are an indivisible *individual* substance, of *soul* rather than mortal and decaying *body*, that leads to the modern assumption that our true personhood lies in an "inner self", giving prominence to an inevitable existential aloneness, separate from what we might see as an equally inescapable existence which is always, and perhaps constitutively, in relationship to others, to what is Other. Descartes did not invent subjectivity, but his use of Augustine's *cogito* shifted the focus of rationality, certainty now lying within the autonomous subject, "knowledge arising from the knowing subject's own personal self" (Grenz [2001], p. 70), and transformed an inward journey toward God into "an inwardness of self-sufficiency". However, it takes the dark room of Locke's passive, disengaged *camera oscura* to equate personal identity with a punctual self of mere self-consciousness. Kant provided the final philosophical foundation for the shift to the radical individualism of modernity, by raising the active mind, individualized by Aquinas from the divinity of Ibn Sina's (and Aristotle's) *agent intellect* (*cf.* Thomas Leahy [2000]), to the definitive agent in "creating" the world of experience, the process of knowing, and even in living ethical lives.

For Grenz (2001), there is but a small step from a Kantian *transcendental ego* to the self-mastering religious self of the Puritan and Pietist movements, and their evangelical spawn, where merely discerning the

presence of "signs of grace", becomes the inner combat necessary for the assurance that one is elected rather than damned from eternity, including a personal experience of regeneration or rebirth, shifting the locus of salvation from baptism, and justification by faith, to a subjective personal conversion. With Wesley and Edwards, the converted self of evangelical piety becomes the experimental self, proving the truth of the faith practically and instrumentally. According to Don S. Browning (1986), Edwards forms the transition to modern psychology in the protracted research into testimonies of conversion that would provide concepts and techniques for ordering our interior lives. Enter Psychology as the Jamesian science of consciousness, the self constituted momentarily by the functional and creative thinker's linking of the present to the totality of its past, and the elevation of the self to the center of psychology by Allport, Freud, and Erikson: "The task of becoming a mature self involves struggle, crisis, hopelessness, despair, and recovery, all of which take part in the movement of the person through inner conflict to integrity" (Grenz [2001], p. 93).

The proposals of psychologists such as Fromm and Maslow mark the end of the journey away from self-improvement or self-mastery as a religious vocation aided by divine grace, indicative of Edwards, to a secularized self-mastery characterized by the autonomous self's quest for psychological health through the actualization of an essential human nature as aided by the psychotherapist or by therapeutic relationships. (Grenz [2001], p. 96).

This is what Philip Rieff called the "triumph of the therapeutic" (1966), in what Christopher Lasch has diagnosed as a "culture of narcissism" (1979), where health is defined in terms of personal well-being, not as a means to some higher end or the result of commitment to some greater good, but as life's worthy goal: "a self-assured, self-sufficient, centered self that constituted a stable identity in the midst of a chaotic world" (Grenz [2001], p. 97). This center does not hold. Thank God.

The self-mastery that is the key to the construction of the Enlightenment self makes it possible to disengage from both natural and social contexts, and even from one's own self, and to objectify the world, inner or outer. Taylor's (1989) idea is that this is the "foundation for the modern ideal of individual autonomy, understood as the ability to determine one's own purposes apart from the controlling influence of natural and social forces" (Grenz [2001], p. 99), but it leads to an atomized view of the individual as the source of social connectivity, social institutions, and even ethics for thinkers such as John Rawls (1971). From the "looking inward" to find a unique individuality comes Montaigne and Rousseau's "autobiographical self", the unity and wholeness provided by Augustine's God now provided by a self-satisfied self-absorption. However, the Romantics'

deeper probing of the contradictions within the human person uncovered an untamed and disorderly interior life, including the irrational and even immoral, the underlying unity to be provided only by emotive participation, the realm in which religion was to be understood, beginning with Friedrich Schleiermacher. For him, the essence of religion is in the infinite “beyond”, behind and within our finitude, and upon which it depends, that we experience as “utter dependence”. Not reason and intellect then are guides toward truth, but emotionally stimulated imagination. “Consequently, for the Romantics, the pathway to true knowledge comes through introspection — including the discovery of one’s own hopes and imaginings — for the finite, individual self is the voice of the infinite” (Grenz [2001], p 111). Reality is to be found in ourselves, but, *pace* Arthur Schopenhauer, as *will* rather than reason, the world but a transcendental illusion, and that, with Friedrich Nietzsche, truth, like value, is created or willed rather than discovered, even artistic expression being a vehicle for illusion or deception, the world itself a work of art, a web of illusion behind which, *nothing*, the ego itself a fiction.

With Freud, the epistemological crisis is in full swing: Not only does he ask about the degree to which human motives are knowable, about the opacity of the human mind to know itself, but suggests that even in ordinary life, people hide their wishes, intentions, and motives from themselves, and that, as Owen Flanagan ([1992], p. 66) put it “many perfectly mundane and pedestrian human actions are the results of motives of which we are unaware and which we would, in fact, deny having were they attributed to us”. Introspection appears to be not only underprivileged, but decidedly corrigible, and the idea of an unconscious self no longer oxymoronic. Moreover, if our very ego develops via the incorporation of our relations with other objects, there clearly is no fixed identity, but a “free-floating” self, in endless interplay between what is conscious and what is not, and between reality and fantasy. As the modernist novelist Robert Musil suggests in *The Man Without Qualities* (1997, originally 1953), we are incomplete, unfinished, and we live in a world of possibility, “the capacity to think how everything could ‘just as easily’ be, and to attach no more importance to what is than to what is not” knowing that the possible “covers not only the dreams of nervously sensitive persons, but also the not yet manifested intentions of God” (p. 12).

The postmodern ethos may actually celebrate the loss of an illusory consistency and stability, intentionally deconstructing such a self. Rom Harre (1984) suggests that we are cultural artifacts rather than natural objects, and I have elsewhere argued (Teske [2000]) that this can just as easily be extended to a concept of human spirit, constituted, like personal identity, in the form of a socially constructed narrative, a story that is ini-

tially told about us, but that we learn to tell for ourselves (cf. Katherine Nelson [2003]). We therefore exist in Charles Taylor's ([1989], p. 36) "webs of interlocution", the question of who I am, answered at least in part via "a definition of where I am speaking from and to whom". Our identities are therefore only fully understood via the nexus of relationships that in fact constitute us. However, as Grenz (2001) indicates, this leaves a self that is not only decentered, but fluid, fluctuating with our relationships, a highly unstable and impermanent self in a rapidly changing world. A fluid, decentered, fleeting self, constructed moment by moment, translates too easily into fragmentation, and splintering into multiplicities, and we could only expect symptoms of identity dissociation to increase, the 1970's punk-rock vocalist Johnny Rotten as the Swiss Marianist Fr. Johann G. Roten's "chaotic self". Or, in the midst of the terrifying emptiness of our postmodern whirlwind, too often but a defense against meaninglessness, it could induce us to imagine something more meaningful. "You'll find that empty vessels make the most sound" (Johnny Rotten).

In this quest, I think Grenz (2001) provides some hope. Drawing on an eschatologically informed exegesis of the biblical creation narratives, he suggests a link between the *imago dei* and human relationality in the form of sexuality: "Sexuality as the sense of incompleteness together with the quest for wholeness. The eschatological community that is the goal of the creation of humankind as sexual creatures is not marriage *per se*, but the new humanity." For Grenz ([2001], p. 19), the empathies of the "I-Thou" model are not enough: "The relational self is sexual, therefore understood as persons-in-bonded-community. As such, the relational self is also the ecclesial self, the new humanity in communion with the triune God." If personal identity arises *extra se*, if the self arises in relationships, then its development is a communal task, and Grenz develops an understanding of the ecclesial self via a reintroduction of the sexual dimension to the relational self, offering a theological response to the constitution of the self, in Christian anthropological terms, in the character of the *imago dei*.

For Grenz, salvation is social, and involves discovering true community. The biblical narrative of the *imago dei* begins with the creative act of God which presents humanity as the earthly representation of divinity. It only ends when the divine intention for humanity is realized in community. It is an ontology of person-in-community that makes possible the reconstruction of self-in-relationship. Humankind is made in the divine image, as sexually differentiated male and female, hence as relational. Grenz points out that, while creation out of clay is a widespread creation motif, the addition of a separate creation of the woman distinguished the biblical narrative in its historical context. This emphasizes the sexual dimension of human existence, which, although biological and individual,

is closely linked to our sociality. It is not in the solitude of a man that the *imago dei* finds its full meaning, but in the relationship of man and woman, the original social relationship. "It is not good that man should be alone" (*Gen.*, 2, 18). Grenz suggests that sexuality is the fundamental drive that leads to the dynamic of bonding, the social purpose of sexuality, that we are formed to be social animals. He unpacks the social nature of sexuality by examining the two words used to describe this nature" *helper* and *suitable*. He points out that *'ezer*, translated as "helper", does not denote subordination, since it is also used to denote the relationship of Yahweh to Israel, hence translated in the Septuagint as *boethos*, which refers to help from one not needing help, implying a relationship of mutual support, also central to true human community. *Kenegdo*, translated as "suitable", can also be translated as "alongside", or "corresponding to", a being in whom we can recognize ourselves, in mutual understanding, whether in words or silence, constituting life in common. To this, Adam's ecstatic cry: "This at last is bone of my bones and flesh of my flesh" (*Gen.*, 2, 23), a covenant formula expressing a common, reciprocal loyalty. It is only in the presence of this woman, his counterpart, *'ishshah*, that Adam refers to himself as *'ish*, as "male", it is only in relationship to his counterpart that Adam becomes aware of the sexually-based nature of his unwholesome and debilitating solitude, endemic to his existence as a sexual being, and the liberation bestowed upon him by this relationship.

What Grenz suggests, however, is that this mutual intimacy is not the climax of the story. Instead, it indicates that our embodied existence entails an incompleteness, a yearning for completeness, for a wholeness and connection reaching beyond our differences and divisions. It begins with the bonding relationship, the personal community of man and woman, bodily and spiritual, of mutual help and understanding, which does not end with the couple as an isolated unit, but is just a step toward a broader human community, spurring us to seek community through relationships, and also motivates the quest for God, and is ultimately eschatological, as the new Jerusalem "prepared as a bride adorned for her husband" (*Rev.*, 21, 2). Grenz ([2001], p. 281) sees the City of God as "the society of transformed, yet embodied human beings, the perfect community in which all participate in the fullness of relationship... a realm in which sexuality — that is, the dynamic of finding one's personal incompleteness fulfilled through relationality — not only remains operative, but operates on the highest level". Indeed, Grenz suggests that this creation also reflects the nature of the *imago dei* as male and female, pointing out multiple references to God as protective mother, as primal matrix, God as Spirit-Sophia, who cries in labor giving birth to a new creation, Christ as Sophia's child, as Sophia herself pitching her tent in the flesh of

humanity, revealing Wisdom's love for the world (*cf.* Elizabeth Johnson [1992]). The Hebrew term for spirit, *ruach*, is feminine, and is often symbolized with feminine images, as fire or a dove.

Even if one views God as beyond sexual differentiation, the theological significance of human sexuality may be precisely in interpreting the *imago dei* in relational terms. Dietrich Bonhoeffer does so (1959), insisting that God recognizes himself in human freedom, which he sees in a relationship between two people in which each is free for the other, that we are only free in relationship, sexuality representing the great depth and seriousness in which we are bound, by which we belong to each other. Karl Barth (1958) focuses more on the "I-Thou" relationality, a relationship of freedom and love, humanity reflecting the *imago dei* by standing in the same relationship to each other, with the prototype the male-female relationship in which we differ from, but still belong to, each other. Nevertheless, Grenz ([2001], p. 300) believes that this does not give "sufficient place to human embodiment as sexual creatures", because it is the sexual embodiment, and our sense of incompleteness, that leads us out of our isolation into bonded relationships. He argues that without sexuality, the significance of the resurrection is undercut, in which humans participate in its transforming event as embodied persons, sexuality providing the basis for community eternally as well as temporally. For Grenz, the *imago dei* is more than relational, it is ultimately communal, even ecclesial.

Ultimately, Grenz sees the *imago dei* in the relationality of persons in community rather than in the individual *per se*, a view which, given the extended and socially coupled individuality we sketched early on, literally owing its existence to the relationships of which it is a part, gives us heart to see even broader goals to the development of our understanding, our actions, our lives. The modern erosion of community in the ever more isolated, internally fragmented, and even empty self (Cushman [1990]) has been documented extensively, and appears to even have entered a period of precipitous acceleration in contemporary life. Even recent U.S. census data (see *Newsweek*, 28 May 2001) shows married households with children dropping from 40 to 24 percent and single-person households doubling from 13 to 26 percent in little more than the time span of one generation. The unlikelihood of the individual being the source of any kind of salvation is detailed elsewhere (Teske [2002]), but meta-analytic findings of major increases in trait anxiety over the later 20th century suggest that it may not be a source of any solace at all. From sociologists like George Herbert Mead to existential philosophers like Jean-Paul Sartre, it has been understood since early 20th century that we can neither know ourselves, nor even continue as selves but for the dialectic confrontation with another knowing self, the "generalized other" by which a community

or social group grants us what individual unity of self we might ever have. The self is then something that is generated by, and continues to exist only within, the process of relating to others, neither pre-existing them, nor being sustained long without them. With Wolfhart Pannenberg (1995), we can see the self, in being social constituted, as “bestowed”, and take a thoroughgoing social constructivist model of self (also *cf.* Teske [2000]).

While accepting and celebrating this understanding of the relational self, Grenz ([2001], p. 312) points out that, not incorporating the “sexual character of the self-constructing dynamic”, we are not in a position to “draw from the idea of love that lies at the heart of Christian theological anthropology”. Hence, it may be from theology that we may need to take some insight for providing a fuller model of the relational self. Citing Emil Brunner, Grenz asserts that we cannot be human “by ourselves”, but only in community, as love only operates in community, and hence that human life is to be characterized not by reason, but by our union in love, and that we can discover what love truly is by seeing how God acted toward us in becoming incarnate. Even Augustine saw the Spirit to be the mutual and reciprocal love between the Begetter and the Begotten, Father and Son, a triune God comprehending lover, beloved, and shared love, love being *constitutive* of what God is, not a secondary property. Similarly, in *imago dei*, we can understand a dynamic ontology in which the essential nature of personhood consists of mutuality and interdependence, in which *communion* does not threaten, but constitutes our personal particularity. Nevertheless, in this model, it is the divine love of *agape*, in holy community, that the need-based, natural loves of *storge*, *philia*, and *eros* are elevated beyond their self-centered limitations, reconciling sinful humans and, on the basis of the embodied, biological, and therefore sexual character of human beings, draw the reconciled into communion, opening the way for an *ecclesial self*, ultimately, therefore, eschatological, enabling a true participation in divine life, *theosis*, something wider even than redemption (in accord with the Greek fathers and with the Orthodox tradition), and involving a new community in the *logos*, by whom all things find their interconnectedness.

In sum, Stanley Grenz (2001) has drawn our attention to an ontology of communion, opened readily by a more fully relational understanding of the human self, producing a concept of an “ecclesial self”. The social nature of personal identity gives this self a communal character, not primarily produced by an inward turn (though this is important to the social construction of self), but neither absorbing individuality into an undifferentiated collective, as it is the corporate community which constitutes itself those particular individualities, not as fictions or illusions, but as socially instituted, socially interdependent entities. It is also a *perichoretic*

“in-one-another”, also consistent with Thompson’s (2007) more Buddhist perspective, in which we take empathic traces of each other into ourselves, the scientific and biological basis of which we examined earlier, and we each find ourselves in others. It does require, as I have argued elsewhere (Teske [2000]), a *desacralization* of the boundaries of self, no longer to be understood as introducing impurity or pollution (but, perhaps, sacralizing sexuality as prototypical, as well as other forms of embodied, relational communion), but as the only means by which we can include each other in a shared, externalized, embodied life, and in each other becoming more than each alone, we all become more than we thought possible, in faith and trust.

From *I* to *We*

The present essay has been an attempt to map out how the toxicity of contemporary individuality, rooted in the Augustine’s inward turn, bounded in its dark interior room, and corrosive to communal life, can be recoupled to the external world, understood as relational, and meaningful only by virtue of our communal life. It is my view, and it is a *déjà vu*, that our redemption comes, and perhaps can only come, in particular, one-in-one, close, intimate, and loving relationships, even and perhaps inevitably, as mortal, embodied beings, unto suffering and death, as we are also redeemed. We do save each other, we can and must save each other, in *imago dei*, as the only path we have to the eschatological communion which is our *telos*.

One Christian theological project pursued so well by Karl Rahner (1978), has been to flush out and banish Christianity’s closet Platonism, the separation of reality into separate realms of spirit and matter, of a self divided into soul and body. He opposes the all-too-common formulations of Christian doctrine that view death as a separation of soul from body, our goal the immortality of the soul in an incorporeal heaven, our salvation inversely proportional to our material relationships with the world. Rahner holds that the Thomistic assertion of the substantial unity of the human person is not only *in praesenti statu vitae*, but the *only* state of life, that we are not only ineluctably “thrown” into the world, but inescapably material and related to matter. Our minds are always and exclusively focused on empirical data, unable to peek over our shoulders at some other realm. We are married to the world, for better or worse, literally as “one flesh”, that we do not part even in death. We may talk about eternity when we speak of salvation, but there is no afterlife, no continuation as if just having changed horses, no duration beyond experienced time. Death

is a fulfillment of what we have made of ourselves in life, which comes to be *through* death, not *after* it. We do not leave the world even in death, but enter more deeply into it; God is not to be found in some separate sacral realm, but accepted by falling into the abyss of the mystery of our existence with ultimate resolve and trust.

The present argument from externalism presses us to take the idea of being wedded to the world, literally of one flesh with it, ever more seriously. We are not only *cyborg* selves, incorporating our technologies, particularly extensive informational technologies, into our empirical self-experience, but, in the extensive exteriorization of higher cognitive abilities, and even memory, we are truly *symbionts* with a symbolic material culture. Moreover, in the ways in which our memories, and the externalizations of them, can be involved in the highest levels, not only of cognition but of empathy, inclusive of our histories and our stories, our marriage with the world is also a marriage to time, it is diachronic. Pre-eminent amongst the externalities from which our selves are composed are our relationships with other human beings, particularly those with whom we have deep and lengthy, even life-long, intimacies. Susanne Langer (1948) defines symbols, as Aquinas and Maritain did, as a kind of knowledge which includes identifying the “knower and the object known”, in the same way that one person comes to “know” another, no longer strangers, though there is always more to learn. As with Gabriel Marcel (1951), what is more important is not “I think”, but “we are” — as knowledge is intersubjective, we know by knowing each other.

What externalism entails is that we are, even physically and materially, not limited to the boundaries of our skin. What we are *about* is outside ourselves, is *other*. What we *are* even as individual selves, is not an internal space, connected to other such spaces, but that we are quite literally, and externally, composed of each other. We are one flesh, immersed in the world and married to the world, we are of one flesh with it as we are of one flesh with each other; not in ourselves, but in each other do we live, and move, and have our being. As minds and selves, we are embodied, enacted, encultured, and embedded within each other, our bodies, in living community. Given a primary intersubjectivity, a relational ontology of self, our selves are developed and enacted only in empathic, hence bodily, coupling. Our contemporary culture of indirect, distant, electronic communication, however available, can too easily attenuate our mimetic, face-to-face, and embodied empathies, which need the regular renewal which can only come via these engagements (*cf.* Teske [2002]). We must remember, with Kegan (1982), that the interindividuality of interpenetrable self-systems, the highest stage of the development of “self”, may be a fragile achievement, bearing our nurturance, and care.

Our relationships are our redemption. We act on each other's behalf, and show kindness in our bodily presence, with a touch, a kiss of peace, in holding and being held, in assurances of love, in the return of hope, in laughter and in tears: "Your tears moved me. I don't think people really have any idea what they do for one another. I don't know if you realize how much you've done for me." We are redeemed in our most loving relationships, in our lives together, by our *caritas* we save each other, as we are saved, in *agape*. From Walker Percy's *Second Coming*:

"Is it possible that there is such a life?"

"As what?"

"As a life of smiling ease with someone else and the sweetness for you deep in me and play and frolic and dear sweet love the livelong day, even at four o'clock in the afternoon turning the old yellow green-glade loneliness into a being with you at ease not a being with you at unease?"

"Yes, it's possible." (Percy [1980], pp. 328-329)

"It is not good that man should be alone" (*Gen.*, 2, 18); we can hear Adam's cry of delight even from Bertrand Russell, in his autobiography (1967):

With passion I have sought knowledge, [but with equal passion] I have sought love... I have sought it because it relieves loneliness — that terrible loneliness in which one shivering consciousness looks over the rim into the cold unfathomable lifeless abyss. I have sought it... because in the union of love I have seen, in a mystic miniature, the prefiguring vision of the heaven that saints and poets have imagined.

Stories of suffering and death are often the most moving. Joseph Heller's hero, Yossarian, in *Catch-22* ([1961], p. 450), reads a message in the entrails of his friend Snowden, dying in the waist of a B-24 bomber:

He gazed down despondently at the grim secret Snowden had spilled all over the messy floor. It was easy to read the message in his entrails. Man was matter, that was Snowden's secret. Drop him out of a window and he'll fall. Set fire to him and he'll burn. Bury him and he'll rot like other kinds of garbage... "I'm cold". Snowden said. "I'm cold." "There, there", said Yossarian. "There, there."

Yes, we are matter. But, in his "There, there", Yossarian can show Snowden a drop of *caritas*, and, in so doing, perhaps, redeem them both.

It is not just in the Christian tradition that we find the redemptive power of relationships. One of my favorite myths is of Psyche and Eros.

Having scratched himself with his own arrow, Eros falls in love and marries Psyche, but forbids her to look at him. Her betrayal is to gaze upon his real face, and realize she loves him as he truly is. Her only hope is to submit to an ordeal of impossible tasks put to her by the jealous and unrelenting Aphrodite (mother of Eros, interestingly enough), culminating with her descent to Hades, knowing no mortal can survive. But in doing so, she puts the gods to shame, and she is made immortal, the capricious Aphrodite blessing the union, the power of unconditional human love swaying even the gods. Psyche and Eros are reunited, in honest love for each other, standing face-to-face. Psyche has earned ecstatic fulfillment not by force or emotional manipulation, but by her steady inner commitment to love, including resentment, betrayal, separation, despair, and even the readiness to surrender it all. The conscious union of two loving, but separate partners raises Psyche to immortal status, her love now encompassing a spiritual as well as a personal and sensual dimension. Psyche's love has also humanized Eros; he no longer needs to hide his face from her sight, and Psyche's deep love brings her in connection with the divine. Loving another person can open the heart to a love of life itself, to meaning, and purpose, and a vision of a larger world. Plato wrote that in the face of the beloved we can see the reflection of the god to whose choir we once belonged, a humble and honest love connecting us with our own souls, and a feeling of permanence, meaning, and the goodness of life. Not every relationship achieves this promise, and none do it all the time, but, in hope and faith, we keep trying. As Rollo May wrote in *The Cry for Myth* ([1991], p. 294): "There are assets to being mortal — that we experience our own loneliness and, as Zeus said, "the poignancy of the transient, the sweet sadness of grasping for something that we know we cannot hold". This is what the gods envy of mortality, and why, so often in Greek myth, persons offered immortality choose mortality instead, as Ulysses gives up immortality with Calypso for more years on the wine-dark sea, in the uncertain hope of returning to Ithaca, and to his beloved, the aging Penelope. Could we learn to love each other, love passionately, if we knew we would never die? And might this not be the greater good, when eternity breaks into time, both incarnate in our mundane existence, and in a reaching beyond it? Is this not truly redemptive?

Nevertheless, I think Grenz's (2001) insight is an important one, and that we redeem each other *bodily*. We are fully, biologically, embodied and hence, particularly in the prototypical relationality of male and female, the final act of creation in Genesis, fully sexual. There is an externalism entailed by sexual incompleteness, and the quest for a coupled and communal wholeness. There is also, of course, as Rebecca Goldstein points out, in her novel *The Mind-Body Problem* ([1983] p. 190), a solipsistic

view of sex, which treats the object of sexuality as mere sensation, and leaves out "the complexity, the depth, and the reason why this part of life matters so much to us". Goldstein reflects on Sartre's (1958) view that the object of sexual desire is a "double reciprocal incarnation", expressed by a caress: "My caress causes my flesh to be born for me insofar as it is for the Other, *flesh causing her to be born as flesh*".

But it seems to me that even deeper than Sartre's object lies another: a double reciprocal mattering, the most typical expression of which is the gaze. In gazing with desire on the Other, I reveal how he, in my desire, takes me over, permeates my sense of self; and in his gaze I see how I similarly matter to him, who himself matters at that moment so much. It's *this* double reciprocal process that accounts, it think, for the *psychological* intensity of sexual experience. It is the answer to one of our deepest needs, a fundamental fact of human existence: the will to matter.

This, perhaps, is why Grenz can insist that sexuality continues to be operative, even at the highest levels of the eschatological community. It is in community that our place, our role, our meaning is most readily found, how we matter. As Paul puts it in his first epistle to the Corinthians, we are all parts of one body: "But God has so composed the body, giving the greater honor to the inferior part, that there may be no discord in the body, but that the members may have the same care for one another. If one member suffers, all suffer together; if one member is honored, all rejoice together" (1 Cor., 12, 24-26).

Our bodily attachment, the bonding with each other that produces communal life, is a product of our commonality of affective experience, rooted in our biology, as well as in the developmental shaping that makes cultural differences so difficult to overcome, and historical changes in it possible. Love is the positive form, shame and affect that produces the boundaries of individual isolation. Donald Nathanson ([1992], pp. 243 ff.) suggests that our expectations of love are built around the reduction of negative affect and the relief of needs in childhood. Love is built out of a cumulative memory of scenes which combine urgent need and the solace of relief, the scripts which we call love in adult life. Loneliness and redemption are paired experiences, the magnification of which can be seen in the relief of the lovers' "at last I have found you". Pride expands the boundaries of self, but shame guards them. As we see ourselves, or parts of ourselves, as defective, so we can cast another who sees us that way, and we develop a catalog of such experiences over a lifetime. Shame always haunts love, as the more we long for communion the more we are vulnerable to the shaming augmentation of its attenuators. Love always involves the risk of pain, intimacy validating, but its impediments injuring, our experience of self. Shame is what modulates those affects that lead us

to be social, communal, as we develop strategies to protect ourselves by withholding interest or remaining isolated. Vulnerability to pain and shame is the cost of being unarmored, the cost of being open to loving. Such emotional dynamics are central to our relationality; our religious yearnings are deeply driven by them. We have each felt the difference between communities in which one feels the power of the communion of positive emotions and ones in which shame and judgment predominate. The abject isolation of social shame is mitigated by loving communion and its redemption of disgrace, of exile, of feeling forsaken (Teske [2007]).

Can this, then, be the *imago dei*, in our *quest* for loving relationality in our communal life, at historical tension, in our contemporary world, with the postmodern isolation of the individual, the fragmentation of self and meaning? We live as embodied, sexual persons, ecclesially bonded together in loving relationships, their eschatological communal life our *telos*. Our meaning, how we matter, is not in the ends we attain, or even whether we attain them, but in our reaching for them, and the hope that we can. Hope is, as Vaclav Havel put it ([1990], p. 181):

not the same as joy that things are going well, or willingness to invest in enterprises that are obviously headed for early success, but rather, an ability to work for something because it is good, not because it stands a chance to succeed. The more unpropitious the situation in which we demonstrate hope, the deeper that hope is. Hope is definitely not the same thing as optimism. It is not the conviction that something will turn out well, but the certainty that something makes sense, regardless of how it turns out.

You must love a man who, in one of his first acts as President of the newly democratic Czech Republic, had *The Rolling Stones* as state guests.

It is truly in our hopes for loving, communal ends that we defeat the barriers of shame, not by ignoring them or pretending they are not there, but by looking them square in the face, and seeing the differences between the limitations of our mortal, embodied state, and the limitations incurred by the isolating boundaries of shame. An intersubjectively externalist view of mind, self, and relationship is one of the ways to help understand and undercut historical views that have contributed to constructing and reinforcing these isolating boundaries. But it is in religious imagination that we can project new futures for ourselves, of what it may mean to think about ourselves, our relationships, and our communities differently, and why it might matter deeply to do so. We can hear this in what Marshall Frady ([2002], p. 206) calls America's "highest moral adventure in recent history", in Martin Luther King, Jr.'s "I have a dream". His dream was about "sitting down at the table of brotherhood", that if we "let freedom ring... we speed up that day when *all* God's children —

black men and white men, Jews and Gentiles, Protestants and Catholics—will be able to join hands and sing in the words of the old Negro spiritual, *Free at last, free at last, thank god Almighty, we are free at last!*” That doing so, projecting such dreams for the future, and doing so in embodied, enactive, relational, and communal ways will certainly mean that we make ourselves as vulnerable as lovers do, and in ways that, in living more fully (and what is our fear of death but our fear of not living fully?), we risk pain and suffering, and may sometimes hasten our mortality, and even do so knowingly, as most of us would readily do for a beloved partner, or child. King knew this too and said, the night before he was murdered:

Like anybody, I would like to live a long time. Longevity has its place. But I'm not concerned about that now. I just want to do God's will — And he's allowed me to go up to the mountain, and I've looked over, and I've *seeen* The Promised Land. I may not get there with you. But I want you to know tonight that we, as a people, *will* get to the Promised Land! And so I'm happy tonight! I'm not fearing any man! Mine eyes have seen the glory of the coming of the Lord! (Frady [2002], pp. 202-203)

We still face injustice, racial and otherwise, we still feel the alienation of one tribe from another, of hatred and warfare, of the isolation and separation of our loneliness, and of the ecological degradation of our planet. What an intersubjective externalism can help us see, is how we are parts of each other, members of a communal body, and coupled with, wed to the world, of one flesh with it, and it deserves no less care. What it may take a religious imagination to see is how, in redeeming each other, and our broken world, we redeem ourselves.

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Entangled Narratives: Competing Visions of the Good Life*

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Our first business will be to supervise the making of fables and legends, rejecting all that are unsatisfactory; and we shall induce nurses and mothers to tell their children only those that we have approved.

SOCRATES (in Plato's *Republic*)

Modern humans, perhaps more than at any other time in human history, are caught up in a web of entangled narratives. Globalization and communication technologies have brought the world of differences into our living rooms, classrooms, and communities. People wage culture wars within and between our civilizations based on these narratives, which for the most part they do not even recognize as stories. What intellectual tools can help to mediate between these competing stories? People disagree about the good life; and, in so doing, they tend to demonize those with different visions of that life here at home and around the world.

Many contemporary thinkers have argued that there is a deep narrative structure of human thought (Taylor [1989]), (Ricoeur [1984-1986]), (Smith [2003]). Psychologist Jerome Bruner argues that "it is through narrative that we create and recreate selfhood; the self is a product of our telling and not some essence to be delved for in the recesses of subjectivity" (Bruner [2002], p. 13). Narratives are not just a matter of the individuals creating their inner and social Self; narratives are also what binds societies

* This paper was first presented at the US-Sri Lankan Fulbright Commission Symposium on "Imperial Entanglements in English Literature", in Colombo, Sri Lanka, on January 4, 2008. It was also presented at the Metanexus Conference on "Subject, Self, and Soul", in Madrid, Spain, on July 15, 2008. It was first published in *The Sri Lanka Journal of the Humanities XXXVII* (1&2) 2008, this being a revised version of the published paper; also published in electronic form on the Metanexus Global Spiral, www.globalspiral.com.

and cultures together. Narratives are how we integrate events and actions through time into meaningful patterns. Narratives specify cause-and-effect relationships and organize these into coherent wholes. Narratives tell us which events and actions are significant and which can be ignored. The inter-relationship of events in our lives is explained by these narratives. Our sense of meaning and purpose, our values and motivations are based on these narratives. Humans are deeply storied creatures.

Generation after generation, humans gathered around hearth and fire to tell and retell stories. Much of the cultural transmission came in the form of story-telling. Today, people are more likely to gather around the cool glow of the television, but we are no less storied creatures. Some imaginary calculations of the amount of time and money spent on the entertainment, news, and publishing industries should give us pause to think about how central story-telling is to our humanity. To this add the everyday interactions with friends and families, in which people recount events and share gossip. By my rough estimation, perhaps fifty percent or more of our waking hours is involved in story-telling. In the words of sociologist Christian Smith ([2003], p. 64), humans are “animals who make stories but also animals who are *made* by our stories”.

Stories always have a normative content, describing what is important, what is unimportant, what is better, what is worse, what is good, and what is bad. Charles Taylor argues that stories about self and society are how humans construct the “horizons of meaning” that form the critical background for social relations and life choices. Narratives always represent a kind of movement in moral space. Narratives are the way humans have of constructing coherence and continuity in our lives (Taylor [1989]).

Moral reasoning is not so much a matter of propositional logic and rational choice, as some modern philosophers have tried to argue (Rawls [1971]); rather, we make moral judgments based on the analogical applications of powerful stories (Vitz [1990]). Whether it is the story of the Ring of Gyges, the Good Samaritan, the Jataka Tales, or the story of our revered grandparent, we apply these mini-narratives to new situations in the course of our life. If we do the right thing, it is generally not because of a lot of philosophical reflection and rational cost-benefit analyses. The mini-narratives are nested together into larger stories, into stories within stories. It is stories, all the way down.

The most important stories that humans tell, retell, and reframe are the ones people do not generally recognize as stories at all. These are referred to as “meta-narratives” (Ricoeur [1973] 1981). These master stories are the stuff of ideologies, religions, and cultures. People do not even recognize them as stories, but rather tend to take them as an unarticulated background, the taken-for-granted truth, the way things really are.

In discussing religion and politics with someone with very different assumptions and beliefs, the debates can quickly become heated. There is a profound gap between the partners in such debates, so much so that they often do not agree about the relevant facts, let alone interpretations of these facts. For instance, a fundamentalist Muslim will refer only to the Qu'ran, the Haddith, and his particular reading of world history as relevant background for the debate. A fundamentalist Christian would refer only to his particular understanding of the Bible. A communist approaches economics and world history with a very different set of assumptions than that of a free-market capitalist. Palestinians and Israelis have very different understandings of the relevant histories and facts. Here, in Sri Lanka, we have the tragic competing narratives of the Sinhalese Buddhist nationalists and the Tamil separatist nationalists, each with their own reading of history and long list of grievances. In these moments of profound disagreement, both sides are confronted with incomprehensibility of the other's worldview and assumptions. In such arguments, one has the distinct feeling of beating one's head against a wall: "How can someone else be so stupid and stubborn", one tells oneself. They, the Other, do not even recognize what is obvious to you. They must be irrational, evil, inhuman — and so begins the escalating spiral of ideological violence.

Christian Smith explores these conflicts in his book *Moral, Believing Animals* (2003). In a chapter entitled "Living Narratives", he offers a dozen examples of contemporary meta-narratives, each presented in about two hundred words — the Christian narrative, the Militant Islamic Resurgence narrative, the American Experiment narrative, the Capitalist Prosperity narrative, the Progressive Socialism narrative, the Scientific Enlightenment narrative, the Expressive Romantic narrative, the Unity with Brahman narrative, the Liberal Progress narrative, the Ubiquitous Egoism narrative, and the Chance and Purposeless Narrative. Note that not only do explicitly political and religious movements have meta-narratives, but even competing schools of thought in sociology, economics, and psychology also assume the form of meta-narratives. These short statements of competing worldviews in Smith's book make for an excellent seminar discussion or role-play for students. I imagine it would also be a useful exercise for world religious and political leaders.

What one discovers very quickly is also disturbing on a deeper level. There is no simple way to adjudicate between these competing worldviews and world doings. Given a certain set of assumptions, any particular meta-narrative becomes difficult, if not impossible to refute. Indeed, once captured by a particular worldview, it is possible to rationalize just about anything and everything within that worldview. Soon all facts seem to bolster one's assumptions, because the facts-that-matter are dictated

by the narrative. People tend to carefully select facts and the interpretation of those facts based on their meta-narratives.

Christian Smith writes:

The problem with a narratological understanding of the human persons — and probably an important reason why modern people resist thinking of themselves as ultimately story-telling and believing and incarnating animals — is that it is difficult rationally to adjudicate between divergent stories. How do you tell which one is more deserving of assent and commitment than others? The American Experiment narrative will probably appeal to more readers of this book than the Militant Islamic Resurgence narrative. Why? Because objective, empirical evidence proves that it is a truer story? Not really. For what *is* evidence is *itself* largely made significant, if not constituted for us, by our narratives (Smith [2003], p. 87).

Let us examine one of the meta-narratives from Christian Smith's book in detail. This is the narrative of the Community Lost and it appears in different religious and cultural idioms (Smith [2003], pp. 85-86):

Once upon a time, folk lived together in local, face-to-face communities where we knew and took care of each other. Life was simple and sometimes hard. But we lived in harmony with nature, laboring honestly at the plough and in handicraft. Life was securely woven in homespun fabrics of organic, integrated culture, faith, and tradition. We truly knew who we were and felt deeply for our land, our kin, our customs. But then a dreadful thing happened. Folk community was overrun by the barbarisms of modern industry, urbanization, rationality, science, fragmentation, anonymity, transience, and mass production. Faith began to erode, social trust dissipated, folk customs vanish. Work became alienating, authentic feeling repressed, neighbors strangers, and life standardized and rationalized. Those who knew the worth of simplicity, authentic feeling, nature, and custom resisted the vulgarities and uniformities of modernity. But all that remains today are tattered vestiges of a world we have lost. The task of those who see clearly now is to memorialize and celebrate folk community, mourn its ruin, and resist and denounce the depravities of modern, scientific rationalism that would kill the Human Spirit.

This is a nostalgic narrative of the tragedy of modernity, industrialization, and globalization. It offers a backwards-looking romantic view of history. In the Old Days, people were better, life was better, local communities mattered. The basic structure of this narrative is repeated by many Christians, Muslims, and Hindus, as well as in other cultural idioms. In Sri Lanka, we see this narrative functioning in the romantic readings of the *Mahavamsa* and the idealization of "tank, temple, and paddy". There is

also a potent contemporary ecological version of this narrative articulated by some in the environmental movement, who might have us all return to Neolithic village life (Berry [1992]).

It is important to emphasize that humans can hold multiple narratives, sometimes mutually exclusive. We mix and we match. The conservative Roman Catholic narrative is incompatible with the narrative of Liberal Democracy, but that does not prevent most conservative Roman Catholics from being enthusiastic supporters of Liberal Democracies. The Christian narrative appears incompatible with capitalist virtues, but that does not prevent Christians from living the bourgeois life. The eco-romantic narrative appears incompatible with much of modern technology, but that does not prevent environmentalists from using soon to be obsolete laptops and flying around the world to enjoy ecotourism. The Theravada Buddhist narrative is incompatible with Sinhalese nationalism and militarism, but of course that is just like *samsara*. Each generation reinterprets these narratives in different situations, even as each generation is also constituted by these received stories. People are not passive recipients of these narratives, but active reinterpreters.

The idealized past narrative above contrasts sharply with progressive, future-oriented narratives, for instance the Scientific Enlightenment narrative or the Capitalist Prosperity narrative. This nostalgia narrative is woven into many of the fundamentalist religious movements of today, whether in the East or West, the North or South. One can argue with this nostalgia narrative, but evidence alone cannot compel someone to believe otherwise. Like all the narratives listed and described by Christian Smith, it involves a certain reading of history and a certain set of assumptions about what really matters in life.

As historian Eric Hobsbawn reminds us: "History is the raw material for nationalist or ethnic or fundamentalist ideologies... If there is no suitable past, it can always be invented... The past legitimizes. The past gives a more glorious background to a present that does not have much to celebrate..." (Hobsbawn [1997]). Of course, history is another form of story-telling, narrative in structure, always ideologically oriented toward some present reality and context in which the author lives, thinks, reads, and writes. That is why the rewriting of history will never end. The past will always be reread and reinterpreted in new times and new situations. In a hundred years' time, people will still be writing new books about the American Civil War, the French Revolution, and the Anuradhapura kingdoms of ancient Sri Lanka offering new insights and interpretations for new times.

It seems that we are at a relativistic impasse. There appears to be no way to adjudicate between the narratives of the Palestinians and Israelis,

of the Sinhalese Buddhist nationalists and Tamil separatists, of the Islamic militants and the West, the future utopic enthusiasts of progress and the nostalgic utopic conservationists of nature and tradition. If there is no possibility of mediating between these meta-narratives, then we are left with the prospects of brute force being the last judge between ideologies, political parties, nations, and religions. If might makes right, then we will all be losers in the 21st century.

The question I want to explore in this essay is how does one intellectually adjudicate between competing meta-narratives, understanding that these are then fundamental in structuring our thought and behavior in many profound ways, both political, and personal. Which of these stories is worthy of our affirmation and support? Which narrative has the power to convince, convert, and transform? Which stories of self, society, and cosmos are we willing to risk all for when push comes to shove?

I will turn to the field of hermeneutics to try to find a way out of the relativistic impasse. I believe the philosophy of interpretation offers us a way out and a path forward. In the end, I will advocate what I call intellectual non-violence. This path is not without risk, but it offers the greatest promises for discovering truths that transcend our many varied stories. I also will argue for the possibility of a more all-encompassing meta-narrative, in part by embracing the evolving scientific cosmology, which states but also transcends the many competing narratives mentioned above.

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Hermeneutics means the philosophy of interpretation. Problems of interpretation are endemic in scriptural studies, translation, law, history, literature, and the social sciences. The word *hermeneutics* derives from the Greek god Hermes, who was the messenger god, mediating between the gods of Mount Olympus, the mortals, and the gods of the Underworld. Hermes is something of a trickster god, using his role as the messenger to confound and confuse. So the *neutics* of Hermes is not a simple matter. How one interprets sacred scripture, translates from a foreign language, applies case law, constructs history, and reads a work of literature can lead one in very different directions with sometimes contradictory results.

Interpretation is also central to political theory and social action. Interpretation is central to the narrative creation and recreation of self and society. Indeed, elsewhere I argue that interpretation is central to the natural sciences as well (Grassie [1994]; Grassie [2003]). In this essay, I will use the work of Paul Ricoeur on hermeneutics to develop these ideas, all with the view to developing a hermeneutics of our entangle narratives and competing visions of the good life.

Paul Ricoeur takes the philosophical debate between Hans-Georg Gadamer (1989) and Jürgen Habermas (1984, 1987) as his point of departure. Gadamer rejects classical German hermeneutics by arguing that every reading of a text begins with a prejudgment. There is no possibility of objective interpretation, rather all readers begin with a set of assumptions and prejudices. The author's original intention is no longer accessible and not necessarily all that important, in part because like the reader, the author is not transparent to himself. There are hidden meanings in a text about which the author himself may be unaware. Humans are not objective to themselves, not as writers, not as readers. Self-knowledge requires effort and is never absolute. Creative works of authors and artists have a life of their own separate from the intentions of the creator. Gadamer looks towards a "fusion of horizons" between the world of the author, the text itself as something now disconnected from the author and his world, and the life of the reader.

Habermas was critical of Gadamer's subjectivization of hermeneutics, and its relativistic implications, and held out for a critical and objective reading of the text. Remember that the text is a stand in for much more than simply any old book. The text also refers to society, history, and culture. Habermas comes out of the German socialist tradition, so he is committed to the possibility of social scientific theories of society that allow critical and objective judgments to be made. Attributing so much weight to the reader's prejudice does not allow for the possibility of scientific objectivity in hermeneutics.

Always a creative synthesizer, Paul Ricoeur explores and expands the dialectic between Gadamer and Habermas. The hermeneutical circle, as expounded by Gadamer, moves in three stages. It begins with the *understanding* that we already bring to the text, the prejudices of the reader in his or her particular historical and social context. Just to pick up a book already means that the reader has a background in reading, but whether it is Plato's *Republic*, the *Gospel of John*, *Bhagavad Gita*, Dante's *Inferno*, Shakespeare's *Richard III*, or *The Communist Manifesto* is already determined by a cultural and historical situation which valorizes the text and orients the reader to its significance. Ricoeur agrees with Gadamer that we cannot escape these prejudices and they need not be seen as simply negative.

The second stage of the hermeneutical circle involves *explanation*, the work of reading, comprehending, analyzing, and interrogating the text. Here critical theory can help, though which critical theory we use is also partially determined by our prejudgments. For instance, if we take a psychological approach to the text, we might choose from any number of competing theories — employing the Freudian object-relation theory, the Jungian archetypal theory, Frankel's logo theory, or others.

This analytical stage then gives way to the third stage, which is our *appropriation* of the reading, a new interpretation based on the new data acquired and new relationships observed in a close, critical reading of the text. Through this increased familiarity with the text, we now end up with a deeper understanding. We have achieved what Gadamer refers to as “a fusion of horizons”. Should we read the text again, our understanding will be enriched by previous readings. Ricoeur refers to this third stage as the “second naiveté”, in which we form new prejudgments after all of the critical analysis. This then is the hermeneutical circle — understanding, explanation, and appropriation leading to deeper understandings as the world of the text and that of the reader interrelate and inform each other.

Ricoeur recognizes, along with Habermas, that the hermeneutical process so described can become a vicious circle, in which the prejudices of the reader dictate certain dogmatic readings, over and over again. The *explanation* employed is pre-selected to pre-determine the *appropriation*. Such is the case for many in the reading of sacred scripture or ideologically informed readings of history. Ricoeur’s solution is to interject the possibility of a willful *distanciation* from one’s own prejudices, a kind of temporary suspension of judgment. He renames the three stages as *pre-judgment*, *configuration*, and *refiguration*.

As an example, imagine an aging English professor, who has taught Jane Austen’s *Pride and Prejudice* for over a decade now. Indeed, she wrote her dissertation on Jane Austen. She thinks she knows the text inside-out and has the correct interpretation. Having recently gone into therapy for marital problems, she has been exposed to certain existential problems in her life, as well as schools of psychoanalytic thought with which she was not familiar. Suddenly, in re-reading *Pride and Prejudice* for tomorrow’s seminar, she sees new aspects of the text that she never thought of before. In the discussion with her students the following day, one of them also surprises her with his own original and compelling insight into the interpretation of the story. She falls in love with her job and this book all over again. These moments of discovery are what make it all worthwhile.

This little vignette is an example of the hermeneutical circle at work. This is the “fusion of horizons” that Gadamer and Ricoeur both celebrate.

Ricoeur seeks in part to reverse the relationship between the text and the reader. Instead of reading a “passive” text, we should allow an “active” text to read us, informing and transforming our world with new insights and understandings. To do so, we must become expectant readers of active texts. Critical theory is very much part of this active process, but it will not give us simple objectivity. By all means, use French-Russian structuralist theories, Marxist critical theories, psychoanalytic theories, feminist theories, post-colonial theories, Foucaultian power-knowledge

analyses, postmodernism, and so forth, just do not cling to these theories dogmatically. When our critical theories begin to predetermine our interpretations, try something completely different with different ideological baggage and analytic possibilities. This suspension of judgment and shifting of standpoint is the key to opening up the hermeneutical process into a hermeneutical spiral. Chart 1 below is a schematic presentation of this dynamic:

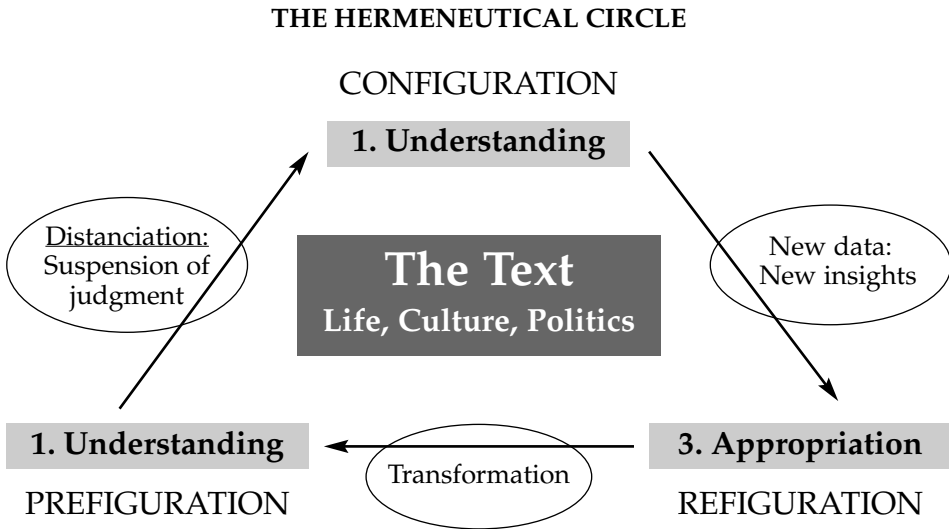


Chart 1 — **TURNING THE HERMENEUTICAL CIRCLE INTO A SPIRAL**

Returning to the challenge of entangled narratives in our global civilization, we can see that the hermeneutical process is involved here too. The Christian meta-narrative, for instance, can be a closed, fundamentalist circle, in which each reading of the Bible and tradition simply reinforces the prejudgments and prejudices with which we began. On the other hand, Ricoeur holds out the possibility that the Bible can also “read” us and offer new critical and transformative insights into the text and the world. Any sacred scripture or great work of literature offers up both possibilities. That’s what makes them enduring texts. Ricoeur ([1976], p. 79) writes:

[I]t is not true that all interpretations are equal. The text presents a limited field of possible constructions. The logic of validation allows us to move between the two limits of dogmatism and skepticism. It is always possible to argue for or against an interpretation, to confront interpretations, to arbitrate between them and to seek agreement, even if this agreement remains beyond our immediate reach.

Even within a closed culture or dogmatic ideology, the sacred stories and guiding meta-narratives are open to competing interpretations, some better, some worse, some more probable, while some highly improbable. The hermeneutical circle need not be a vicious circle. The text can “read” us and transform our lives with new insights. Religious fundamentalism, it has been argued, is never really closed. Religious fundamentalism insists on *intratextuality*, to be sure. This focus on a single text, however, does not mean that all fundamentalists agree with each other. Among the Christian fundamentalists, for instance, there are lots of disagreements about the correct reading of the Bible. Nor do all Muslim fundamentalists agree with each other. While the Bible or the Qu’ran can be read as the infallible word of God, the readers do not have infallible minds. Nor is the meaning of the sacred scripture necessarily to be found in its plain meaning. Orthodox Rabbis, for instance, state that there are at least seventy correct readings of every verse of the Torah. What characterizes fundamentalists is their insistence that “disagreements would be bounded by the final arbiter, the text, as interpreted by the principles of intratextuality” (Hood [2005], p. 8).

In a sense, we are all fundamentalists, though we may not be as clear about what specific text is relevant to solving our disagreements. We hold certain meta-narratives to be true and rarely do we question these fundamental assumptions. They structure how we think, our motivations, meanings, and values. We feel strongly about these meta-narratives and derive our sense of purpose and self-worth inside of these entangled stories. If we operate within the framework of a single story, whether it be religious or ideological, then we are as intratextual as the fundamentalist Christian or Muslim. Even here, we should not expect uniformity. Think for a moment about all of the sects that have been spawned by Communism over the years, even though they share most basic assumptions about dialectical materialism, class struggle, and world history.

Our challenge today, however, is so much more complicated than the intratextual hermeneutics of a single sacred tradition. We live in this global civilization and are confronted with many different entangled narratives. These entangled narratives are not just global, they are local, as I observe everyday on the campus of the University of Peradeniya with Buddhist, Muslim, Hindu, Christian, and JVP students coexisting, and only sometimes actually interacting in three different languages. Often we inhabit multiple and conflicting narratives of self, society, and cosmos. Where should our allegiances be? How do we mediate between the many conflicting narratives? The exploration of narrative social-psychology and philosophical hermeneutics may give us more insights into how these processes work, but are we any closer to adjudicating between these different worldviews?

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Here, I return to the work of Paul Ricoeur and his seminal book *Lectures on Ideology and Utopia* (Ricoeur [1986]), in order to find a partial solution and a way forward. As Ricoeur emphasizes, the words, ideology and utopia in common usage have negative connotations. Ideologies are always false ideologies. The use of the term is normally pejorative. Utopias are unattainable fantasies. Indeed, it can be argued that some of the worst tragedies in human history have been committed promoting ideologies and pursuing utopias.

The negative connotations of these words were first popularized by the orthodox Marxists. Ideologies were contrasted with the “science” of Marxism. Utopias, like religion, were denounced as “the opium of the masses”. False ideologies and false consciousness were contrasted with the true “science” of dialectical materialism.

As typologies, ideologies and utopias would appear to be distinctly unrelated. Ideologies tend to be authorless, that the content of which is extracted from many sources. They present a picture of reality, trying to mirror and reproduce a social order as “natural”. Ideologies function to legitimate “what is” in a particular social group. Ideologies are the mechanism by which societies integrate their members around a certain set of values, beliefs, and traditions. Ideologies are the societies’ way of controlling and programming social harmony and change. The term “ideology” is always polemical. It is always someone else’s ideology that is denounced. “We” are not ideological.

Utopias, on the other hand, are rather different. They seek to re-describe “what is” in a way that disrupts the existing order. Utopias seek to transfigure society in a way that highlights the gap between ideals and the existing reality from the perspective of “nowhere”, and thus produce a vision and motivation to change society or abandon it. Utopias are presented as fictions by acknowledged authors. The term was coined by Sir Thomas More to title his book *Utopia* (1516), about a fictional island with the perfect society. We can list a number of works and authors in this genre: Francis Bacon’s *New Atlantis* (1627), James Hilton’s *Lost Horizon* (1933), B.F. Skinner’s *Walden Two* (1948), Aldous Huxley’s *Island* (1962), Robert Heinlein’s *The Moon Is a Harsh Mistress* (1966). While the word *utopia* also has a sometimes pejorative association, the inclusion of popular modern science-fiction books in this list should alert us that the genre also has some popular appeal. Indeed, from a broader perspective, all religions promote some kind of utopic possibility — eternal life in heaven, a blissful end to suffering, complete wisdom and knowledge. The hope and promise of religions are always utopian in some fundamental sense.

Ricoeur is only too aware of these distinctions — ideology as a dysfunctional distortion of reality and utopia as an escapist fantasy to an alternate reality. He argues, however, that both terms also have a positive, integrative function in the realm of social transformations and cultural imagination. Ricoeur writes that “[t]he organizing hypothesis is that the very conjunction of these two opposite sides or complementary functions typifies what could be called social and cultural imagination” (Ricoeur [1986], p. 2). He builds this argument by exploring the work of Karl Marx (1818-1883), Louis Althusser (1918-1990), Karl Mannheim (1893-1947), and Clifford Geertz (1926-2006). He constructs a three-stage correlation of ideology and utopia, moving from negative to positive understandings.

In the first stage, both appear in their negative form — ideology as a distortion of reality and utopia as a fantasy incapable of dealing with reality. In the second stage, ideology serves to legitimate the status quo precisely because the political system falls short of its claims of legitimacy due to internal contradictions. For instance, the President of the United States — or Sri Lanka, for that matter — uses the “war on terrorism” as a justification, but to many it seems more like a ploy to consolidate political power and enrich himself and his allies. We will come back to this example later. In this second stage, utopia can be seen as an attempt to expose this contradiction, to show that “what is” could also be otherwise, indeed much, much better. In the third stage, drawing on the work of Clifford Geertz, Ricoeur argues that ideology is always necessary and serves the positive role of integrating humans within social groups. There is no ideologically free way to look at the world. By virtue of being social and symbolic creatures, we need powerful meaning systems to bind us together in functional groups. In this third stage, utopia functions as a form of social imagination that allows societies to imagine alternate futures, to critique the present, and thus to open up the hermeneutical circle into a progressive spiral. Ricoeur’s correlation of ideology and utopia is being presented in Chart 2.

It is helpful to consider an example of this process, so we can see the role of ideology as *distortion*, *legitimation*, and *integration*, along with the reciprocal role of utopic thought as *escapist*, *oppositional*, and *imaginative*. This interplay between ideology and utopia is directly linked to the vision of the good life and the good society, whether it be in preserving or transforming some status quo. In varying degrees, we should expect all ideologies and all utopias to manifest all of these aspects, both positive and negative.

In the United States, the “war on terror” is the ideological justification for an Imperial Presidency, for the abrogation of many constitutional principles, the use of torture, militarism, and an ill-considered invasion of

Chart 2 — THE CORRELATION OF IDEOLOGY AND UTOPIA

Ideology	Utopia
1) Ideology as a distortion of real social life	1) Utopia as an escapist, pathological inability to deal with real social life
2) Ideology as a legitimization of a status quo to fill the gap between the <i>claims for</i> , and <i>belief in</i> , the legitimacy of a system of power	2) Utopia as a challenge to authority and power in an attempt to unmask the gap in the <i>surplus-value of meaning</i> claimed by the ideology
3) Ideology as a positive and necessary <i>integration</i> of the individuals within cultural groupings	3) Utopia as <i>social imagination</i> that opens up the possibility of a critique of the status quo from “nowhere”, which turns the hermeneutical circle into a dynamic spiral

Iraq on what turned out to be specious grounds. Note that the “war on terror” was also used at home to reward political allies, demonize critics, and consolidate political power. The rationale for invading Iraq changed over time during the Bush administration. Denying Hussein weapons of mass destruction turned into liberating the people from a dictatorship and bringing democracy to the region. These noble principles might just as well have been invoked for invading Tibet or Zimbabwe, but there are no particular national interests in Tibet or Zimbabwe, unlike the huge oil reserves in Iraq. So there is a gap between the claims of the government to the people when asking for their support. Here, we see the use of ideology as both distortion of reality and gap in legitimation.

The positive function of ideology as integration is perhaps most easily seen in the days and weeks following the 9/11, 2001 attacks. The country was united in common cause, indeed united with the sympathies of the entire world, in ways we have rarely experienced. Unfortunately, there is nothing like a threat from outside to unite a people with common purpose. The symbols and ideals of the United States, our flag, and our “way of life” were and continue to be evoked to serve the function of integration, binding a people together in common purpose, indeed asking soldiers to make the ultimate sacrifice for the group. No society will long persist without some ideology of identity that integrates the individuals within a common culture and shared motivations.

Utopic processes were running parallel to these ideological processes. We were asked not just to fight a war against terrorism in self-defense, we were asked to fight a war of liberation that would bring democracy to Iraq and its neighbors. The idea of implanting Jeffersonian Democracy in Iraq can be seen in retrospect as a fantasy disconnected from history and context, a pathological dream in its inability to deal with profound social

realities and the history of that country. The vision of democratic reforms of governments in the Middle East was certainly oppositional to many decades of U.S. foreign policy in the region, which had been in support of these very dictatorships, including the dictatorship of Saddam Hussein over many decades. The vision from “no-where” of Iraq and the Middle East transformed into liberal democracies is certainly inspiring for social imagination. Why should the peoples of the region not enjoy better government, the same kind of government that we enjoy, based on the fundamental human rights, the balance of power, the impartial rule of law, and the concept of social contracts. It was and remains a noble vision.

We could spell out in similar details how ideology and utopia correlate and function in contemporary Iran, Sri Lanka, or elsewhere, but I will leave that to others. The point is that all political movements exhibit both ideological, and utopic dimensions. The same could be said about our personal lives. I have a set of stories about my life journey, some of which may be more distortions and legitimations of flaws and failures, but without these stories there would be no integration of self. These stories are also part of my own utopic vision of my good life, a life that I strive to realize involving hope for career successes and fulfilling personal relationships.

It is important to note that dystopia, a negative story, fills the same function as utopia in this correlation with ideology. George Orwell's *1984* was a powerful critique of totalitarian governments rendered through a work of fiction. Other examples could be listed. I am perhaps more naturally pessimistic about the world, so I often project very negative scenarios for the future of the planet, of my country, or my life. Perhaps it has something to do with experiencing air-raid drills for nuclear war in elementary school. Perhaps it has to do with the negativity bias of the media or my reading of human history. Perhaps it is my natural disposition to be pessimistic, albeit hopefully pessimistic. Whatever the reasons, a dystopia, say of the impact of global warming or a clash of civilizations, can also function as a critique of the business-as-usual and a form of social imagination for an alternative future. Dystopic novels play a prophetic role in the critique of ideology and the status quo.

As an exercise, I imagine writing two different stories about the future of Sri Lanka, a utopian and a dystopian vision of the future. Both would serve as critiques of the status quo and forms of social imagination. Both would be correlated to different ideological projects in the society today. Making these visions explicit would actually help clarify what is at stake in the contemporary debates about good governance, the hoped-for end of the civil conflict, the issues of cultural identity, economic development, environmental protection, and how to motivate and pursue the

good life. Indeed, what I fear most for this country after so many years of conflict and corruption is that there is growing learned helplessness. In the end, whatever ideological program can present a positive and hopefully realistic scenario for the future is most likely to succeed in winning public support. Our visions of the future, both personal and political, are partially self-fulfilling prophecies, because without the vision, it is difficult to create the motivations and sacrifices necessary for transformations.

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So far, we have postulated the centrality of narratives to human self-understanding on both the individual and the societal levels. We have explored a hermeneutical framework for thinking about these stories involving prefiguration, configuration, and refiguration, along with the possibility of open-ended and evolving readings of these foundational stories. We have considered the correlation between ideology and utopia, looking at both positive, and negative dimensions of each, and their roles as distortion/escapism, legitimation/critique, integration/imagination. The guiding question is how this analysis might help us in our central task in the 21st century of judging between the many conflicting, entangled narratives — religious, ideological, and socially scientific — which compete for our loyalty and commitment.

There will be no simple resolution of this conflict. One possibility is to re-narrate someone else's meta-narrative within a broader framework, showing how it fits within a larger context, and thereby redefining its significance within a different political and moral paradigm. This is what Alasdair MacIntyre attempts in his book *Three Rival Versions of Moral Enquiry* (1990). He begins by giving a fair and thorough presentation of the three competing schools of thought about moral nature — scientific, postmodern, and traditional. He himself ends by advocating the Catholic Thomist tradition drawing on both the Platonic notions of transcendence and the Aristotelian notions of natural dispositions. He asks:

Is there any way in which one of these rival might prevail over the other? One possible answer was supplied by Dante: that narrative prevails over its rivals which is able to include its rivals within it, not only to retell their stories as episodes within its story, but to tell the story of the telling of their stories as such episodes (MacIntyre [1990], p. 81).

This is a standard movement in apologetics, in which one projects commonality with an opponent, shows what is wrong with the other's position, and then projects a solution within one's own ideology showing how one's religion, politics, or psychology can explain the Other's failings.

In its crass form, this mode of argument involves psychologizing the Other. Because of their false consciousness or their ignorance of the real story, they do not understand the truth that you are privileged to have and patient enough to share with them. Too often, apologetics is more about convincing oneself of one's own righteousness, than about honestly seeking to understand and convert another, let alone risk the chance that you yourself might be converted in turn. The dialogue of apologetics gives rise to an arms race of each side trying to relativize the other through ever-expanding analyses.

Still, a dialogue of apologetics is better than knocking heads together, *i.e.*, using brute force to compel submission, if not ascension. In the process, there is always the possibility that new insights will emerge, that the Other may be recognized as partially right, that relationships will evolve, and that the hermeneutics will spiral out to something new and unexpected for both parties. After all, sometimes the missionary does go native, without ever setting out to do so.

Speaking of brute force, it is important we realize that our entangled narratives do not all compete on equal footing. There are real power disparities in the world that empower certain stories and marginalize others. One option advocated is the notion of a "preferential option for the poor" (Gutiérrez [1973]). Originally formulated as part of Liberation Theology in South America, it has become an important part of the Catholic social teaching, but need not be seen only within a Christian framework. Since the poor are downtrodden and oppressed, lacking dignity and even the basics of subsistence, lacking also a voice in political and economic decision-making, our social and political hermeneutics should always begin with their well-being and betterment as our point of departure.

There are other versions of this interpretative approach, in which other oppressed groups are hermeneutically privileged, even as they are socio-economically disadvantaged. Women, post-colonial societies, and ethnic minority groups all can claim special insights into the interpretation of social, political, economic, and cultural issues, precisely because from their standpoint on the margins of power. In the "master-slave" relationship, notes G.F.W. Hegel (1977), the slave has a better understanding of the social reality than the master. Standpoint epistemology argues that the marginalized and the oppressed have a better understand of the true nature of social relationships than the privileged and the powerful. Feminist philosopher Sandra Harding equates "standpoint epistemology" with "strong objectivity" (1986).

While this might be a useful heuristic for considering our entangled narratives, things turn out to be a bit more complicated. Is an African American woman from the ghetto more oppressed by being a woman,

by being black, or by being poor? A poor white man in West Virginia laid off from his job is also oppressed, but what if he beats his kids and was himself abused as a child? The white woman of privilege and education in New York City, who experiences sexual violence or workplace discrimination is also oppressed. And none of these oppressed Americans have it quite so tough as a family living off the garbage dumps in Sao Paulo, Brazil. Pretty soon, our standpoint epistemology degenerates into a calculus of comparative oppressions and runaway identity politics. Nor is it the least bit clear who is authorized to speak on behalf of these multiple oppressed identities and what privileges thereby ensue in the name of fighting for the oppressed. In practice, we are soon back to ideology as a mask used to claim and justify political power. Nor are the powerful really hegemonic or the oppressed simply innocent. Finally, we cannot say for certainty which meta-narrative will actually deliver the most betterment in the lives of the oppressed. Global capitalism, for instance, can be seen as “the rich get richer, while the poor get poorer” or as an engine for economic growth and new technologies, that have dramatically increased life expectancy and standards of living all over the world. Good things happen for bad reasons; bad things happen for good reasons.

Following the work of Hayden White, let us also note that all historiographies, indeed all meta-narratives, employ modes of emplotment. He lists romance, comedy, tragedy, and satire as the four basic tropes employed by historians, indeed by all story-tellers (White [1978]). Our utopic stories about the future tend to be romantic, painting a picture of something with which we should fall in love. The nostalgic stories that idealize the past are also romantic stories. Perhaps not enough has been done with the comedic renderings of history and the future, but comedies and tragedies are really two sides of the same structure. Both comedies and tragedies involve conflicts, one ends the synthesis of opposites, *i.e.*, a marriage, the other leads to the elimination of an opposite, *i.e.*, a death. In the West and the Academe, we have grown more cynical and are more likely to use satire and irony as the plot structure of our meta-narratives. Certainly, existentialist and stoic readings of history and life tend towards the ironic. Postmodernism despairs of telling grand narratives, so its deconstructions become endless ironic readings of life (Rorty [1989]). Part of what makes adjudicating between our entangled and conflicting meta-narratives today difficult is that we do not know how it all turns out in the future. We cannot prove historical predestination, even though meta-narratives assume some inevitable future outcomes, good or bad, based on current choices. The choice of emplotment, White argues, is an arbitrary, free choice of the historian, though the basic facts remain the same. How convincingly historians weave their emplotted story is another matter.

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Presumably the adjudication of competing, entangle narratives is a matter of knowing truth, goodness, and beauty, knowing which story or set of stories is most worthy of our support. If our goal is to know truth, at least as much truth as any one human might acquire in a lifetime, then we need to adopt a hermeneutics of non-violence. I call this “intellectual non-violence”, in order to distinguish from political non-violence or pacifism. These are not necessarily the same, as we will see below.

Intellectual non-violence can be defined as the *non-coercive habits of thought*. It recognizes that the most reliable truths are more likely to be found outside of oneself, in interpersonal, cultural, biophysical, and historical networks. Truth is found more *outside* in the complex distributed systems of God, culture, and nature, much more than is found *inside* the 1.3 kilograms of any single human mind. We need a new kind of intra- and inter-textuality that embraces multiple meta-narratives, that explores many situated knowledges of culture, class, gender, ethnicity, ideologies, and utopias. It is less about converting others and more about oneself being converted over and over by an appreciation and appropriation of the meta-narratives of others.

The greatest untruths will always be the unconscious lies that we tell ourselves, mistaking our own limited perspectives with the Absolute. Reinhold Niebuhr summed it up, when he quipped: “The doctrine of original sin is the only empirically verifiable doctrine of Christianity” (Niebuhr [1941]). To avoid sin, we should be humble, rigorous, courageous, and creative in pursuing truth (and beauty, and goodness), wherever it leads. And the goal of intellectual non-violence is to set out in as many different directions as possible, to be multiply converted to diverse meta-narratives, inhabiting their truths, forgiving their failures, taking the best, and leaving the rest.

Whatever God — or the God’s eye view of truth — might be, we humans are neither omnipotent, nor omniscient, neither reliably compassionate, nor unfailingly merciful. Human identities, norms, and actions are forged through the confluence of different stories, powerful symbols, causal patterns, divergent reasons, universal passions, existential terror, and transcendent hopes. New insights are often gained from unexpected sources. Even in the pathos and tragic mal-adaptations of inhumane extremes, there are important truths to be learned. There but for the grace of God (or Circumstance) go I. Thus the central tenant of intellectual non-violence is that it is never permissible to demonize the other, especially those we find the most repugnant and threatening. In the words of Princeton’s Jeffery Stout, we must resist our tendencies “to block the path

of moral inquiry and social criticism [...] by narrowing one's focus too quickly, reducing one's ability to recognize complexity and ambiguity or to experience moral ambivalence" (Stout [2004], pp. 287-288).

For these reasons, intellectual non-violence sits uneasily with different forms of political correctness. Too often, people become captive to taken-for-granted meta-narratives. Ideology and power politics substitute for authentic spirituality, penetrating philosophy, and compassionate curiosity. We all tend to fall back on our own patterns of dogmatic thought, manifested in political correctness, insularity, and lack of rigor. The real adventure in the hermeneutics of truth is to inhabit as many different meta-narratives as possible, while recognizing one's own inevitable partiality.

"Civilization — wrote Reinhold Niebuhr (1960) — depends upon the vigorous pursuit of the highest values by people who are intelligent enough to know that their values are qualified by their interests and corrupted by their prejudices". Civilization then depends on pursuing the highest values by temporarily by-passing one's prejudices and ignoring one's self-interest to see the world from another's perspective. Indeed, ascertaining what these "highest values" are also requires this kind of hermeneutics.

Intellectual non-violence is not the same as political non-violence. Pacifists are often captivated by their own insular, self-righteous meta-narrative, just as much as the next person. Their utopia can be an escapist fantasy. Intellectual non-violence does not rule out the use of violence, though it would do so with a very different attitude. When other options are exhausted, there will always be situations necessitating the use of force, including physical and lethal violence. The trouble is that state-organized violence tends to presuppose, indeed is always preceded by, ideological violence and epistemic distortions. In war, as the saying goes, truth is the first casualty. By the hermeneutics proposed here, one must resist the tendency to demonize and dehumanize. One must always seek the humanity in one's foe and in oneself, in order to embrace both the tragic, and the ambiguous in all conflicts. This is perhaps the practical implication of the understanding of universal sin and postmodern finitude. None of our meta-narratives alone are adequate; all of our entangled narratives woven together provide the most complete picture. This weaving of different perspectives into a richer, more encompassing life meta-narrative is analogous to the distributed wisdom of economic markets. Indeed, it is analogous to the distributed creativity of life itself.

Nations and individuals will continue to be faced with the need to kill in self-defense, overthrow tyranny, prevent tragedies, promote greater goods, but we do not need to commit intellectual violence. Prolonging

individual lives and postponing death will always be a relational value presupposing some greater purposes in human life that transcend mere longevity. What might those greater purposes be? How much risk are we willing to take? How much risk can we avoid? How can we most effectively promote noble purposes? What are these noble purposes? How can we pursue these together to our mutual benefit? In order for this vision of story-weaving and truth-seeking to be realized, it is necessary to temporarily suspend disagreements and inhabit someone else's meta-narrative, entering the intratextuality of their one-true story, to see what might be gleaned in the hopes of building more vectors of transcendent truth.

Intellectual non-violence is about epistemology, not sentimentality. It is about maximizing our potential for knowing truth in our short lifetimes, perhaps even transcendent truths. It is a hermeneutics for reading, debating, learning. It requires rigor and reciprocity. It is not passive. Paradoxically, it requires intolerance and arguments, but also honesty, principles, pragmatics, and always the real risk of conversions. These are virtues and values, I believe central to the mission of higher education, excellent philosophy, and authentic religion.

In all probability, power will continue to be the mediator and adjudicator between our entangled narratives in the 21st century. In that respect, better to get clear about what you believe and be pugnacious in arguing its validity. Single-minded advocacy gets the job done, although there is no guarantee here either that one is in fact right or will achieve one's aims. It does seem like the self-certain narratives have the upper hand, while the less, self-certain of us are more paralyzed with options and analyses. As William Butler Yeats (1865-1939) observed:

*Things fall apart; the centre cannot hold;
Mere anarchy is loosed upon the world,
The blood-dimmed tide is loosed, and everywhere
The ceremony of innocence is drowned;
The best lack all conviction, while the worst
Are full of passionate intensity.
Surely some revelation is at hand... (Yeats [1919])*

Ricoeur notes the same dilemma in prose form. The hermeneutics of suspicion in the modern academe has rendered us paralyzed, unable to take effective action. He advocates a "second naiveté" after all critical analyses have been done, when we refigure and re-appropriate our own understanding of the text:

This process of suspicion which started several centuries ago has already changed us. We are more cautious about our beliefs, sometimes even to

the point of lacking courage; we profess to be only critical, not committed. I would say that people are now more paralyzed than blind (Ricoeur [1986], p. 313).

Is it better to commit blindly to a single, "true" story and therein find both conviction and courage? Not if we also want to commit to an actually true story, for the truth is found in a transcendent fusion of horizons that we can approach, but never reach. We are left then with multiple and evolving convictions, but with no less need for courage, because the on-going adjudication of our competing, entangled narratives is not without risk. The practice of intellectual non-violence can be ineffective. It can easily be shouted out and down, drowned in the din of media amplified extremes. True, understanding from whence this "passionate intensity" arises, as well as this "lack of conviction" may make us more effective agents of truth and transformation, but we cannot escape the dangers. These are not just any risks; these are existential risks. Ricoeur warns us:

It is too simple a response, though, to say that we must keep the dialectic running. My more ultimate answer is that we must let ourselves be drawn into the circle and then must try to make the circle into a spiral. We cannot eliminate from a social ethics the element of risk. We wager on a certain set of values and then try to be consistent with them; verification is therefore a question of our whole life. No one can escape it. Anyone who claims to proceed in a value-free way will find nothing (Ricoeur [1986], p. 312).

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In trying to weave together the many entangled narratives we encounter, inhabiting as many different perspectives and truths as possible with our limited intellect and lifespan, it is important to realize that we do now have a loom on which to weave the many pieces of truth and goodness that we discover along the way. That loom is the history of our species over the last million plus years, the evolution of life on our planet over the last four billion years, and the evolution of the universe over some thirteen billion years. This is the story that science has discovered over the last few decades and centuries, though it really represents the achievement of all humanity over the millennia. Few of us have explored what it would mean to integrate this new story of the universe into our own special meta-narrative. One of the greatest challenges today is to integrate this new, remarkable, and evolving scientific story of the cosmos, society, and self into our diverse, traditional narratives.

Intellectual non-violence is also how science works, when it is at its best. Science should not impose its preconceptions on the phenomena,

rather it should let the experiments and observations tell their own story, which hypotheses are right or wrong, better or worse. Scientists need to get out of the way of the phenomena, as they enter their own hermeneutical circle, such that new and often unexpected readings of the “Book of Nature” can emerge. Good science then is altruistic fidelity to the phenomena. It does not impose itself on reality, but makes a space for many different realities of nature to tell their own authentic stories. Scientists then carefully translate the languages of particles, proteins, and people in the manner most authentic to the phenomena.

All stories of history and self involve facts. All texts are limited fields of interpretation, a specified construct of sentences, characters, and plot. Texts, histories, and self are open to multiple interpretations constrained by the specificity of facticity. Science has discovered a new set of facts that encompass all of our different stories and thus provide a new context for interpreting our entangled narratives.

The grand scientific meta-narrative is quite new and still evolving, so much so that we do not really have an adequate interpretative tradition surrounding it. In brief outline, this omniscient universe began some 13 billion years ago as infinite heat, infinite density, and total symmetry. The universe expanded and evolved into more differentiated and complex structures — forces, quarks, hydrogen, helium, galaxies, stars, heavier elements, complex chemistry, planetary systems. Some 3.5 billion years ago, in a small second- or third-generation solar system, the intricate processes called “life” began on at least one small planet. Animate matter-energy on Earth presented itself as a marvelous new intensification of the creative dynamics at work in the universe. Then some 2 million years ago, as if yesterday in the enormous time-scale of the universe, proto-humans emerged on the savanna of Africa with their enormously heightened capacities for conscious self-reflection, language, and making of tools. And this unfolding leads us all the way to today, to this collection of atoms in this particular room, all of us recycled stardust become conscious beings, engaged in this global conversation about our entangled and competing worldviews, brought to use by ephemeral electrons cascading through the Internet and bouncing off satellites.

This too is part of our entangled world of stories, but it is a story in which all of our separate stories necessarily must find their home and their partial validity. It is a story that includes many tragedies, too immense to even comprehend; but it is also a story of cosmic and comic improbabilities resulting in many fortuitous new possibilities. It is a story with irony, for instance, foisted upon us by our biology and our brains. It is an ironic story also because none of the scientists involved in piecing this puzzle together really understood that the collaborative results would

be a fantastic and evolving creation story of stunning complexity and grandeur. Science has done the work of continuing revelation during the 20th century. Finally, it is a story with a great deal of romantic appeal for all its majesty and beauty.

This new story of the universe necessarily includes humans, contrary to the abstractions of the scientists. All of our subjective experiences are part of this new objective story of the cosmos. It is a story in which all the different narratives told by humans around the world have their own places in the unfolding plot, all within their appropriate context. Some say that the story of the universe and humans within it is meaningless, employing Hayden White's ironic trope. The emplotment of this new universe story, however, is a free choice, first because the data can be read in multiple ways and second because the story itself has not ended. The emplotment can be Jewish, Christian, Muslim, Hindu, Buddhist, Secular, etc. That is, a free choice, though the skill of the synthesizer and storyteller will need to be convincing and accurate to the science. Remember, Ricoeur warns us, even though we have the same text, not all interpretations are plausible, not all interpretations are equal.

In the end, our entangled narratives must somehow incorporate an answer to the unfolding discoveries of the scientific, evolutionary cosmology. Triumph or tragedy, it is certainly an epic story, an epic of evolution. I note that Hayden White neglected to include epic as a possible trope, assuming that the category is subsumed by one of the other four tropes, but this need not be so. An epic need only be a story that never ends, that has many twists and turns, but it just goes on and on.

Every time we use a cell phone, pump 200 million year-old rainforests into the gas tanks of our cars, or travel across the continents in an airplane or via the Internet, we affirm the reality of this new scientific, evolutionary cosmology in deed, if not in thought. With this common cosmology as a basis, a hermeneutical foundation that also happens to be progressively true, our global civilization would be much better situated to solve the great religious and ideological debates of our time. Of course, we would not all possess the same interpretations of this evolutionary cosmology, but we would have a common conversation and a better possibility for a future "fusion of horizons". This story of the universe, and all of our separate meta-narratives within it, are woven together on a cosmic loom, each of us a thread in a greater tapestry of unfolding truth. If we listen carefully to each other and to nature, adopting a hermeneutics of intellectual non-violence, then our common future may also be a self-transcending process leading to greater truth, beauty, and goodness.

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Events

Événements

The Metanexus Institute Names Dr. Eric Weislogel Vice-President of Academic Affairs

The Metanexus Institute, located in Bryn Mawr, PA, USA, has appointed Eric Weislogel, Ph.D., to the position of Vice-President for Academic Affairs. The role of the Vice-President for Academic Affairs, who reports directly to the Institute's Governing Board, is to articulate and promote the mission of the Institute to colleges, universities, and other institutions around the world. In his new post, Weislogel will also be responsible for coordinating the efforts of the Institute's Academic Board, working closely with its Chair. He will be tasked with exploring relevant collaborations with academic institutions and other organizations in a striving effort to advance transdisciplinary approaches to profound questions of nature and humanity.

In assuming this newly created position, he will be leaving his current post as Executive Director. He will continue in his position as Senior Contributing Editor of the Institute's award-winning e-publication, the *Global Spiral*.

According to the Metanexus Institute's Governing Board President, Edward Devinney, the new position will allow Dr. Weislogel to focus on key issues important in bringing the Institute to the next level. He said: "Eric Weislogel has served the Institute in outstanding fashion as Executive Director, and we are greatly looking forward to his contribution in this new position."

"I am very much looking forward to this new position", said Weislogel. "Metanexus has made great strides over the years to promote the "bigger picture" view of our intellectual life. But "transdisciplinarity" is hardly a household word! Even at colleges and universities, there is too often little understanding about the profound value of transdisciplinary approaches to research and teaching. In this new position, I will be able to spend more time lecturing, writing, and, in general, making our case to the academy and the wider public."

Weislogel said: "We know that deep in the heart of each person is a desire for something like the whole story of the whole cosmos in order that we might be whole persons living in whole communities with a pro-

found regard for the whole of nature and reality. In other words, one way or another, we are all seeking wisdom. At Metanexus, we seek to help academic and other institutions to find ways to facilitate that quest for the benefit of all of us.”

About Eric Weislogel, Ph.D.

Eric Weislogel, Ph.D., is the Vice-President for Academic Affairs of the Metanexus Institute, headquartered in Bryn Mawr, Pennsylvania, USA. In addition, he serves as the Director of the Local Societies Initiative and its sequel grant-program, the Metanexus Global Network Initiative, with hundreds of projects in over 40 countries. He is also Senior Contributing Editor of the *Global Spiral*, the online journal of the Metanexus Institute.

Prior to joining Metanexus, Dr. Weislogel was Assistant Professor of Philosophy at the Indiana University of Pennsylvania and taught at Pennsylvania State University. He has published a number of philosophical essays and reviews in such journals as *Philosophy Today*, *Transdisciplinarity in Science and Religion*, *Idealistic Studies*, *Philosophy in Review*, *Science and Theology News*, and in the *Journal of the American Academy of Religion*. Additionally, his articles have appeared in the online journals *Metapsychology* and the *Journal for Cultural and Religious Theory*, as well as in the *Global Spiral*.

Dr. Weislogel is a Fellow of the World Academy of Arts and Sciences, and he was awarded the Diplôme d'Honneur by the Centre International de Recherches et Études Transdisciplinaires (CIRET) in 2007. He is an active member in a number of scholarly societies, including the American Academy of Religion, the American Academy for the Advancement of Science, and the American Philosophical Association, for which he serves currently on the Committee for International Cooperation. Dr. Weislogel's main philosophical interest consists in the interplay of postmodernism, religion, science, ethics, and metaphysics.

About the Metanexus Institute

The Metanexus Institute (www.metanexus.net), founded in 1998, is an internationally known non-profit organization. Metanexus comprises scholars, scientists, clergy, and citizens who recognize the need for a constructive and respectful collaboration between the sciences, arts, world religions, and humanities. Headquartered in Bryn Mawr, Pennsylvania, the Metanexus Institute hosts lectures, programs, and symposia locally and through a global network of 300+ projects in 42 countries. The Institute also publishes the monthly *Global Spiral* (www.global-spral.com), an online publication exploring areas of the Metanexus mission and vision.

“Cosmos, Nature, Culture: A Transdisciplinary Conference”

Metanexus Conference 2009,
July 18-21, 2009, Phoenix, Arizona, USA

<http://www.metanexus.net/conference2009/>

No one knows for sure, but it is estimated that there are something like 10^{24} stars in the universe. When talking about so unimaginably large numbers, our world seems cosmically insignificant. But, as far as we know, we are the only ones who count — in two senses of the word: we alone can count the stars, and it seems to count for something that we do. As Aristotle begins his *Metaphysics*, “All men by nature desire to *know*”. There is something within us — manifested as it is in the entire spectrum of human endeavor, from the sciences, to philosophy, to religion, to the arts, to ethics — that demands that we pursue the *whole story* of the *whole cosmos* if we are to be *whole persons*, in order to know who we are, where we are from, where we are going, and how we should live.

According to a recent piece in *Scientific American*, it seems that in about 100 billion years, scientists (if any) will no longer be able to detect the Big Bang. As the article poetically put it, “the runaway expansion of the cosmos by then will have blown away all evidence of the Big Bang like dandelion fluff into the wind”. The universe will look to our counterparts in the future as if it were static. There will be no ability to detect expansion, and no way to find the cosmic microwave background radiation. Astrophysicist Lawrence Krauss notes that we only discovered dark energy because we live in a ‘special’ time during which its mysterious influence is neither too weak nor too strong to observe: “This is about the only time in the history of the universe when you could detect it, and that’s really weird — Krauss says —, a weirdness that results in our time really being an ‘extraordinary moment’”. When the Big Bang finally and permanently recedes, “with it will go cosmology, the study of the origin and evolution of the universe”. And without understanding our origins, the “whole story” will be gone forever.

So maybe we need to gather our “cosmic” rosebuds — as well as our biological, ecological, philosophical, theological, mathematical, whatever other rosebuds — while we may. As Carl Sagan wrote, “the Cosmos is all that is or ever was or ever will be. Our feeblest contemplations of the Cosmos stir us — there is a tingling in the spine, a catch in the voice, a faint sensation, as if a distant memory, of falling from a height. We know we are approaching the greatest of mysteries.” If we are truly to understand the cosmos and our place in it, as well as our relation to each other and to the divine, we must adopt rich transdisciplinary approaches that deeply respect, yet cut across, the various fields of knowledge, institutional boundaries, cultural borders, and religious traditions that frame our intellectual and spiritual pursuits.

If we wish to pursue something like the *whole story of the whole cosmos for the whole person*, we need to explore such questions as: What is the state of our knowledge about our origins? What does the latest cutting-edge research in cosmology, quantum physics, evolutionary biology, and neuroscience have to teach us about where we are in our story and where we are going? And what do we know about the end of ourselves and of everything? What do we know about the birth of the stars and the moment of our death?

Recent years have witnessed a resurgence of interest in metaphysics, in particular the metaphysics of science. Can metaphysics give us a “whole story”? Can it at least contribute to the “story” of who we are and what we know? What role does metaphysics play in helping us get our story right? Is it essential? Could it be instead, as its critics maintain, an obstacle to knowing? What is the nature of “ultimate reality”? Are there fundamentally different levels of reality? Does science give us the final truth of reality? What is “scientific realism”? What is the metaphysical status of “universals”, “substance”, “causes”, “ontological categories”, “numbers”, “properties”, “time”, and the other terms in which science speaks to us?

To paraphrase novelist Walker Percy, “Why it is that of all billions and billions of strange objects in the Cosmos — novas, quasars, pulsars, black holes — we are beyond doubt the strangest?” There is something inescapably “first person” about consciousness. What accounts for this? Can third-person, objective science give a complete analysis of first-person, subjective experience? And can it tell us how to live our lives, how to seek virtue, or how to live together? The human brain manifests a massive complexity, comprising about 100 billion neurons and 100 trillion (10^{14}) synapses. But are we our brains? What can the latest developments in neuroscience, which has taken on fields from psychology to religion to economics in recent years, tell us about our deepest questions and future prospects?

D.H. Lawrence wrote, in his *Apocalypse*, "We and the cosmos are one. The cosmos is a vast living body, of which we are still parts. The sun is a great heart whose tremors run through our smallest veins. The moon is a great gleaming nerve-centre from which we quiver forever. Who knows the power Saturn has over us, or Venus? But it is a vital power, rippling exquisitely through us all the time." To what degree are we relational beings? Is there an essential relation between the "I" and the "Other"? Do animals count as "other"? Does "nature" as a whole count as "other"? Are human beings "natural", or are we, as some suggest, a "threat" to nature? What about God? Is God the "whole" that we seek, or does God somehow belong to the "whole"? Or is God, instead, *beyond* the whole, making the whole possible?

How might we go about a search for meaning, for what is "real and important" to ourselves? Is this a spiritual quest? A philosophical practice? An empirical exercise? A potential scientific discovery? How do we best approach this search, or are these questions somehow flawed? Is there such a thing as "natural law", and can it help us to know who we are and how to live? Is there a relationship between, in Kant's words, "the starry heavens above me and the moral law within me"?

Join us for the 10th international Metanexus Conference in which philosophers, biologists, physicists, cosmologists, neuroscientists, cognitive scientists, theologians, scholars in religious studies, other researchers and educators will discuss these and other profound questions of the cosmos, nature, and culture in a rapidly evolving and complex world.

Among the attendees will be representatives of the Metanexus Global Network of multidisciplinary Local Societies from more than 40 countries.

Additional Themes

Papers are invited that address the broad themes listed above, but *the conference is open to critically rigorous, scientifically-, theologically-, and philosophically-informed papers on any topics that touch on profound questions of a transdisciplinary nature concerning the person and the cosmos.*

Presentations by interdisciplinary or inter-institutional teams are especially welcome. Proposals for special sessions and panel discussions will be considered.

– meta-THEMES:

Transdisciplinary Theories, Methodologies, and Approaches

- (theories of transdisciplinarity, systems theory, integral theory, constructing transdisciplinary research programs, pluralist

methodologies, epistemology and transdisciplinarity, integrating scientific and non-scientific knowledge, the logic(s) of transdisciplinarity, developing standards of rigor for transdisciplinary studies, deontology of transdisciplinarity, poetics of transdisciplinarity)

– **nexus-THEMES:** *Profound Questions, Pressing Issues:*

- Exploring levels of reality
- Metaphysics of science from a transdisciplinary perspective
- System, identity, and transcendence (scientific, philosophical, and religious perspectives)
- The role of natural science in the pursuit of wisdom
- Healing the person, healing the Earth: integral or holistic approaches to spirituality and health
- Cosmic evolution and the future of humanity
- Transdisciplinarity and institutions (educational and otherwise)
- Transdisciplinary approaches to understanding human/nature interactions
- Metascience, or the possibility of post-postmodern metaphysics
- Reductionism, naturalism, nominalism — any viable alternatives?
- Scientific and religious perspectives on cosmology
- Issues in emergence and complexity
- Infinity—logic, mathematics, cosmology, theology
- Issues in continental and/or analytic philosophy of science
- Transdisciplinary solutions to energy policy
- Fruits of the earth: food and water
- The physics and biology of consciousness
- Scientific and metaphysical realism
- Space, time, and subjectivity
- Minds, brains, and programs
- Can there be a transhumanist future?
- Continental philosophy on possibility and reality
- The biology of religion
- Creation and creativity
- Prospects for the unity of knowledge
- Theology and naturalism
- Does science need a new poetics — the ART of science?
- Pan(en)theism and natural science
- Is there really an “anthropic principle”?
- Biology, physics, and freedom

DEADLINE for abstracts: January 15, 2009

Some of the speakers at previous Metanexus conferences include:

Nancy Ellen Abrams	Basarab Nicolescu
Stephen Barr	Stephen Post
John D. Caputo	Tariq Ramadan
Roy Clouser	Norbert M. Samuelson
Ursula Goodenough	Bülent Senay
Gail Ironson	Esther Sternberg
Robert Kane	Charles Hard Townes
Nancey Murphy	David Sloan Wilson
Andrew Newberg	Ian G Barbour
Robert Pollack	Arthur Caplan
Robert D. Putnam	Philip Clayton
Pauline Rudd	George F. R. Ellis
Martin Seligman	Philip Hefner
Rabbi Adin Steinsaltz	Byron Johnson
Hava Tirosh-Samuelsan	Timur Kuran
J. Wentzel van Huyssteen	Jacob Neusner
Mahmoud Ayoub	Ronald L. Numbers
Mario Beauregard	Joel Primack
Bruce Chilton	Holmes Rolston III
John DiIulio	Jeffrey P. Schloss
John F. Haught	Magda Stavinschi
Antje Jackelén	Marijan Sunjic
Robert Lawrence Kuhn	George E. Vaillant
Meera Nanda	Amos Yong

Guidelines

A NOTE ABOUT THE PRESENTATION OF THESE PAPERS: All abstracts submitted for Metanexus Conference 2009 will be evaluated in a blind review process under the direction of the Metanexus Institute Academic Board (see www.metanexus.net/academicboard.asp).

All accepted papers and presentations are to be submitted in advance in final form and will be posted and publicly accessible on the Metanexus Conference Web site. Abstracts will also be printed in the conference reader. All authors of accepted papers and presentations will be required to sign a release allowing Metanexus to record their contributions (audio, video, powerpoint, etc.) to the conference for later use by Metanexus.

The goal in this conference is not simply to present papers, but to meet and network with creative persons from around the world. The hope is to learn from each other, to try out new ideas on a welcoming yet critically astute audience, to provide inspiration towards further research and exploration, and to generate a synergy that will have effects long

after the conference is over. As this is a transdisciplinary conference, attendees will represent various academic fields and specialties. Papers should be crafted with this multidisciplinary scholarly audience in mind.

To be considered for a paper presentation at the conference, please submit ALL of the following in ENGLISH in THREE SEPARATE FILES:

FILE #1: A COVER SHEET that lists full name(s), name of institution(s), complete postal address, telephone number(s), and email address of the author(s), along with the PAPER TITLE;

FILE #2: A 200-word BIOGRAPHY for each author of the paper, written in third-person form ("She is professor..." rather than "I am professor..."). Please include your current job title or academic position;

FILE #3: An ABSTRACT of between 1,000 and 1,200 words. Please adhere to the following guidelines:

- all abstract PAGES MUST BE NUMBERED;
- the abstract MUST NOT CONTAIN ANY SELF-REFERENCES, in order to facilitate blind review;
- all submission elements MUST BE SENT VIA EMAIL AS ATTACHMENTS; all files must be in .DOC or .RTF format *only*; *no other file extensions (.pdf, .odf, .tex, .pages, etc.) will be accepted.*

NOTE: We cannot accept any cover sheets, bios, or abstracts in the body of email messages.

IMPORTANT DATES:

- DEADLINE for submitting abstract and biography is **January 15, 2009**;
- Authors submitting abstracts will be notified of acceptance decision by **March 15, 2009**;
- DEADLINE for completed versions of SELECTED papers is **June 15, 2009**.

Further instructions will be sent to presenters upon selection.

LENGTH LIMIT OF FULL PAPERS: 10,000 words (approximately twenty single-spaced 8.5"×11"-typed pages in 12-point Arial or Times New Roman font).

READING TIME: approx. 25 minutes, followed by up to 5 minutes of question and answer.

Please submit files containing cover sheets, abstracts, bios, and (if selected) completed papers as attachments via email to:

conferencepapers@metanexus.net.

Please use subject line: "CONFERENCE 2009 PAPERS".

Metanexus Grants: “Pursuing Transdisciplinary Approaches to Big Questions”

The aim of the Metanexus Global Network Initiative (MGNI) — www.metanexus.net/globalnetwork/mgngrant.asp — is based on the assumption that higher education today needs support that invests in viable and sustainable connections of scholars across different disciplines. Metanexus seeks to foster a renaissance in structured and transdisciplinary exploration of the fundamental questions confronting humanity. The program seeks to enter the largely uncharted territory where transdisciplinarity may thrive. Metanexus envisions scholars everywhere enriching academic discourse by participating in this exploration — injecting new life into perennial debates, capturing the attention of faculty, students, and the general public, and reminding the academy of its original purpose: the quest for wisdom.

To foster this transformation, MGNI will support open and dynamic transdisciplinary exploration and research with the aim of discovering new scientific, philosophical, and spiritual insights. The grants are intended to provide seed money for the formation and maintenance of networked groups of investigators from diverse academic backgrounds with the aim of building intellectual community.

The Metanexus Global Network Initiative represents an expansion of our innovative and highly-successful Local Societies Initiative (LSI) grant program. Launched in 2001, LSI created and fostered more than 240 interdisciplinary dialogue societies with some 11,000 members in 42 countries. Through its exploration of the historical disconnect between science and religion, LSI revealed a limitation of the current structure of our educational institutions. They are structured to promote the analytic and disciplinary approach to identifying and solving problems. This powerful approach enables in-depth exploration of very specific questions. Conversely, the exploration of the really big questions of humanity and the cosmos requires theories and methodologies that are all-encompassing and thus necessitates a transdisciplinary approach. In order to investigate ‘the whole’, and thus integrate and expand the knowledge of individual

academic disciplines, researchers and academics from multiple disciplines need to collaborate.

The Metanexus Global Network Initiative aims to transform higher education by providing a mechanism to transcend disciplinary boundaries and to collaborate in transdisciplinary exploration. This transdisciplinary approach, supplementing more mainstream academic research, is meant to open new fields of scientific research, to make new discoveries, and to pursue the unity or harmony of knowledge. It lays the groundwork for challenges to long-held assumptions and beliefs, helping to establish preconditions for paradigm shifts, intellectual breakthroughs, and the transformation of human knowledge.

Awards of \$30,000* will be made through the Metanexus Global Network Initiative (MGNI) Basic Grant. Winning proposals will demonstrate academic rigor in program content, imagination and creativity in program planning, and cost-effectiveness in program execution.

Book Reviews

Livres à signaler

Un sujet lourd pour un livre serein : *La Mort aujourd'hui**

CRISTINA HERMEZIU

La Mort aujourd'hui, volume d'essais et d'études dirigé par Basarab Nicolescu aux éditions Curtea Veche, est, par son thème et ses approches, un livre étrange et insolite, mais aussi empreint de sérénité et, en cela même, fascinant.

Tenu pour sacro-saint, difficile à appréhender et douloureux, frappé d'interdit et redouté, le sujet de la mort se prête, mieux que nul autre, à une approche transdisciplinaire. Le physicien Basarab Nicolescu, par ailleurs promoteur mondial de la transdisciplinarité et co-directeur, aux côtés de Magda Stavinschi, de la collection « Science et Religion » aux Éditions Curtea Veche, a rassemblé et fait traduire du français plusieurs études qui décortiquent le sujet de la mort dont l'opacité semble avoir été dissipée par endroits grâce à des approches très différentes.

Les auteurs auxquels on a donné la parole ne sont guère présentés et aucun « Avant-propos » ne vient éclairer l'intention de l'éditeur. Cela dit, le lecteur se fraye tout seul un chemin dans la matière du livre, selon une démarche que nous pourrions qualifier d'initiatique. En effet, certains fragments qui pourraient rester obscures s'ouvrent à la compréhension, une fois la page tournée, au travers d'une autre approche disciplinaire. De même, si le titre peut paraître a priori dense, d'une lourdeur qui freine la réflexion, une fois la dernière ligne lue, le lecteur a l'impression d'avoir réussi à percer le mystère de la « structure de l'atome ». Finalement, l'aventure de la lecture et de l'acquisition d'un savoir se déroule sans difficulté, comme autopropulsée par la force des révélations acquises.

* Basarab Nicolescu (éditeur), *Moartea astăzi*, traduit du français par Mirabela Fătu, Bucarest, Éditions Curtea Veche, coll. « Science et Religion », 2008, 225 p.

Au-delà de ces considérations sur la méthode transdisciplinaire qui s'applique aussi au processus de la lecture, il nous paraît important de nous arrêter un peu plus sur deux aspects thématiques que notre lecture initiatique a pu faire surgir dans une matière si nécessairement éclatée. Premièrement, nous retenons qu'il est possible de transcender la peur en toute conscience et d'une manière créative. Deuxièmement, il s'agit d'oser penser la mort d'un point de vue éducatif. En fait, les deux aspects se recoupent, sans doute, dans une perspective pédagogique plus large, étant donné que toute approche, soit-elle philosophique, anthropologique, religieuse ou biologique, obéit à un même but : nourrir la connaissance de soi.

Transcender la peur par la créativité

L'inconnu aliénant qui hante l'horizon de la mort nous conduit vers la compréhension de la finitude « comme saveur ineffable du présent » (Dominique Decant). Le sens de la dernière expression éclot dans un autre endroit du livre où on nous dit qu'entre le temps biologique (génétique) et le temps social (collectif) il y a un temps personnel (identitaire) « toujours vécu au présent » qui devient « la mesure du parcours et du mouvement, c'est-à-dire du changement » (Patrick Paul). La mort des formes, leur aptitude à la mutation, le changement en tant que loi du temps présent en perpétuelle mouvance créent des ponts entre différents niveaux de réalité et font entrevoir un troisième élément qui surgit à travers la neutralisation des contraires. Mourir fait partie de la vie, c'est précisément ce que disent bien des traditions et des cultures: « Notre corps n'arrête pas de mourir dans ses parties infinitésimales [...] Nos pensées, elles-mêmes, meurent dans l'oubli de la mémoire. » (René Barbier). Envisagée d'abord comme un processus qui trouve normalement sa place dans la vie, grâce à une incessante activité visant à rendre conscient ce parcours transformateur, l'essence même du « mourir » s'avère finalement procéder de l'*élan créateur* : « Le mourir implique que nous vivons consciemment dans un processus d'inachèvement où, sans cesse, d'instant en instant, finitude et création s'entrecroisent, interfèrent, sont d'une présence fulgurante en nous-mêmes. Dans cette attention vigilante, le passé n'accroche plus le présent, l'avenir et le projet ne sont plus l'objet de convoitise. Seul le présent comme braises de l'instant, constitue notre rapport au monde. Nous ressentons, à ce moment précis, que création, amour et mort sont de même nature. Ce moment étincelant où le projet est instantané ne peut-être nommé, si ce n'est, d'une manière tangentielle, par l'art et la poésie. » (René Barbier) Par conséquent, ce n'est pas par hasard si l'éditeur Basarab Nicolescu inclut dans ce recueil deux poèmes: *Requiem* de Magda Cârneci et *Chants de vie et de mort* de Horia Bădescu.

L'approche éducative du mourir, un sujet tabou ?

Au premier abord, il paraît que « mort » et « perspective éducative » semblent former un couple insensé. Toutefois, l'approche éducative du mourir s'avère être indispensable chaque fois qu'un enfant de trois ans veut savoir ce que signifie « mourir » après avoir appris la mort de ses grands-parents et vu lui-même quelque chose d'étrange se passer... Sommes-nous condamnés à rester pour toujours, à cet égard, un enfant de trois ans ? Le domaine « est vierge en éducation », affirme René Barbier qui évoque, dans son étude intitulée *La recherche, l'éducation et le sentiment de la mort : réflexions dans l'esprit de Krishnamurti*, une série de séminaires sur le thème de l'éducation de la mort proposés dans les années 1980 à l'Université Paris 8. Après avoir osé faire une recherche originale dans ce domaine « marqué par le sceau du secret et du mutisme obligé », l'une de ses étudiants, Marie-Ange Abras, est parvenue à soutenir une thèse de doctorat intitulée *S'éduquer à la mort. Philosophie de l'éducation et recherche — formation existentielle*. Elle avait proposé un concept inédit, thanatoécologie (éducation à la mort chez les enfants préadolescents), mais dans ce domaine les mentalités n'ont guère avancé et l'inertie demeure, comme René Barbier est obligé de le constater, non sans une certaine amertume : « Mon cours a duré deux ans. Depuis, aucun autre cours n'a abordé ce sujet à l'Université Paris 8, dans le département où j'enseigne. Il en va de même ailleurs. L'approche éducative du mourir est un sujet tabou, beaucoup plus que la sexualité, même marginale, ou que la violence des enfants dans les petites classes. »

Somme toute, le rôle des études transdisciplinaires dans ce domaine précis s'avère être particulièrement important: le recueil *La Mort aujourd'hui* n'a point l'ambition d'orchestrer des réponses claires, marquées par une approche scientifique unilatérale. Son but est de constituer une plateforme de réflexions, toutes les approches étant bienvenues. Voilà pour quoi, une fois la dernière ligne du livre lue, les lecteurs positivistes, hantés par la recherche de quelques hypothèses concrètes et crédibles sur la définition de la mort, s'en trouveront déçus. Une frustration créative, « intellectuelle et spirituelle », peut surgir aussi : le ressenti que ce livre ait pris fin trop vite, sur le seuil où une révélation fulgurante était sur le point de se produire sans que notre être, avec son bagage cognitif, spirituel ou sensible, ait le temps de la saisir.

Fort de sa structure si composite, ce livre réussit à dégager une figure intermédiaire de réflexion qui rend non seulement possible un dialogue serein entre auteurs et lecteurs, mais aussi l'acte de penser la mort en toute confiance sans que l'on ne sache rien de précis, bien que l'on

sache tous la même chose. En effet, l'objet même des études — la mort — devient pont de communication entre les vivants qui tentent de transcender la peur d'une manière consciente, rationnelle et poétique après avoir assumé un horizon fraternel: nos vies semblent si différentes, il n'y a que la mort et son mystère à peine effleuré que nous ayons en commun.

L'Utopie de la démarche transdisciplinaire montre une fois de plus son caractère éminemment humain : parler de la même chose à travers une multitude de voies de recherche revient à accepter l'Autre, puisqu'il est habité par une présence qui nous habite aussi: le Tiers Inclus, l'intermédiaire transcendant qui préserve son unicité en dépit de la profusion des représentations par lesquelles l'esprit humain se l'approprie dans sa quête de l'absolu.

Published in the same series / Parus dans la même collection :

Ian G. BARBOUR — *Când știința întâlnește religia. Adversare, străine sau partenerere?*

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Publisher: GRIGORE ARSENE
Editor: MIHNEA GAFIȚA
CURTEA VECHE PUBLISHING
11, Arch. Ion Mincu Street, Bucharest
Phones: 0040-21-2224765 / 2225726
Fax: 0040-21-2231688
Internet: www.curteaveche.ro
e-mail: redactie@curteaveche.ro

Printed by S.C. Tiparg S.A.

*The series “Știință și Religie” (Science and Religion)
addresses to all those who wish to explore the potential
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between science, religion, art, and society.*

ISSN 1843-3200

