The Metaphorical Model: The Bridge between Science and Religion

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Abstract

The relationship between science and religion has always been one of the most thought and provoking areas of human knowledge. Science and religion can be seen as mutually supporting. However, they also promote separate paths of thought with profound and seemingly unavoidable, logical incompatibilities, which many consider to be irreconcilable. The pragmatic character of both science and religion presents a neat point in favor of acknowledging their complementary relationship. In this work, both science and religion are defined as pragmatic, explanatory models applied in the coordination of human experiences. With setting the common ground for both scientific and religious studies, a mutually supporting and reinforcing interaction among them may become obvious. The fact that any results of physical measurements are products of an interaction between a measuring device and a measured system is used further to deepen links between scientific and religious views of existence. The fact that implicit assumptions are a necessary precondition of any reasoning is used to propose that faith-permeated, questioning qualities are all basal to religious and scientific frames of mind. I argue that comprehending both scientific constructions and religious narratives as analogies, instead of de facto representations, can solve many contemporary problems arising from religious or scientific fundamentalism and intolerance. These conclusions suggest that science and religion are practical tools when represented as sets of metaphoric pointers. When used in the coordination of human experiences, they point to the foundations of *love* as underlying scientific creativity and religious understanding.

Keywords: co-creation, constructivism, metaphor, objectivism, religion, science

1. Introduction

> "The person who thinks there can be any real conflict between science and religion must be either very young in science or very ignorant of religion"
>
> Joseph Henry

The road extending between the fields of science and religion has long been one of the most exciting areas of human knowledge. It has been pervaded with ideals and great promises of uniting what are, perhaps, two of the most creative realms of human society. But as every true adventure combines a hope of gains such as treasure at the end of the journey with dangers posed along the way, this road is also permeated with profound and seemingly unavoidable logical incompatibilities. The latter survive in many fundamentalist voices heard from both sides. Opinions like these, however, usually come from the popular press and media. The true followers of both sciences and religions have often been passionately engaged in finding ways to harmonize the coexistence of science and religion. Despite that, the casual, contemporary way of thinking very often, practically by default, excludes any possibility for their productive assimilation by juxtaposition.

Looking back into history, we notice a similar trend. While western religious institutions were at the peak of their power, the bases for logical and empirical knowledge were not producing any fruitful results – and barely surviving through the Dark Ages. However, since the rise of the Enlightenment era and the proliferation of ideas resulting from more empirical interpretations of the world, science has steadily increased its permanence and influence. In contrast, religious institutions have decreased in prominence and influence, to the point of occasionally being described as ridiculous by intellectual elites.

However, alternating tides and ebbs of the abundances of people devoted to either of these two ways of thinking point to a complementary relationship between scientific and religious views, at any point in time. The more engaged one is in the

study of scientific phenomena, the less conscious space is left for theological thought, and vice versa. Complementarity in any natural relationship is a sign of a fundamental entwinement and interaction of the conditions or entities.

In my native language, there is a common saying: "Who fights each other, essentially loves each other". Of course, this is not to say that we should fight people we care about (unless we cling to the importance of a dialectical approach to the development of knowledge). It is quite the opposite: Only where opportunities for cooperative relationships exist, does the potential for hostile confrontations show its face. Much of the hostility around us in the world arises as a consequence of any hurt resulting from transformations in loyalty, trust, or love. Thus, whenever we face a conflict in the world around us with hopes of finding a solution, we can expedite the process by looking for patterns of friendship, cooperation and love that might be concealed underneath.

By *science* I mean the positivistic and objectively realistic intellectual stances of modern science – not the older scientific traditions that might have been more inclined to use theological arguments in their explanatory models. By *religion* I mean a general approach to religious experience and disregard all of the subtle incompatibilities between sundry religious schools. As we shall see, both science and religion can be depicted as dialogues between our inner epistemological settings and the ontological features of a reality hidden behind the veil of our immediate experiences.

Chuang-tzu once mentioned that "hundreds of doctrines head forward, instead of looking back, thus condemned to never unite," whereby the Little Prince proposed that "by going only straight ahead, one does not travel far" (Saint-Exupery 1946). Therefore, the first step of our quest, for bridges that would cross the traditional gap between scientific and religious world-views, would be to start looking backward toward their roots.

2. Science as a dialogue between mind and Nature

> Physical concepts are free creations of the human mind, and are not, however it may seem, uniquely determined by the external world... The object of all science, whether natural science or psychology, is to coordinate our experiences and to bring them into a logical system
>
> Albert Einstein

It seems that, despite the continued growth in scientific productivity, progress toward building bridges between science and religion has been taking place at the cost of an increase in neglect of the general understanding of the meaning and purpose of science. Young students and scholars are more impelled to be productive, rather than simply curious about the nature of physical reality. Despite that, the largest number of scientific inventions in usage came as a result of fundamental, curiosity-driven research (Braben 2004). It is the balance between our benevolent quest for practical achievements and our thirst for fundamental knowledge that has always driven the brightest scientific minds.

The natural sciences have been ensconced in society for many years, but I still notice students that are rarely able to clearly define some of the elementary scientific notions, such as atoms and molecules. One hundred years after the breakthrough of some general ideas associated with the philosophy of pragmatism, transcendental phenomenology and the conceptual framework of quantum physics, many still believe that atoms and molecules are objectively existing entities, independent of the nature of observers.

In reality, there is no way of concluding the nature of physical reality without considering the nature of the observer. The results of a physical measurement are always the product of an interaction between a measuring device and a measured system. Therefore, it is the subject's mind that co-defines the qualities of the observed system, along with the properties of this presumably "objective" system.

Experienced users of telescopes and microscopes are always aware of this. E.g., the results of an electron

microscopic measurement are the products of an interaction between the electron beam and the aperture settings on one side, and the "real" observed system (although invisible as such). This implies that the features of the measuring instrument must be included in the description of each experimental result. Our perceptions comprise a complex interplay between the biological, cognitive and social properties of observers and the "real" observed system. The theories of constructivism (von Glasersfeld 2001; Glanville 2001; Peschl 2001), autopoiesis (Maturana and Varela 1987; Romesin 2002; Kenny 1988), second-order cybernetics (von Foerster 1973, 1995a) and information (Železnikar 1990; Winograd and Flores 1987) contain a considerable amount of evidence in favor of this point. Our perceptive reality is actively constructed from within as much as is it is passively detected from without. This is why I repeatedly refer to the phenomenon of co-creation of human experiences.

This idea is somewhat related to the ancient Platonic view of knowledge arising at the intersection of the subsets, named Truth and Belief. Werner Heisenberg wrote, in a similar sense, that "in natural sciences, the object of research is not any more nature in itself but nature exposed to our method of questioning, and in that sense, man herein faces himself" (Heisenberg 1959). In contrast, we still live in an era in which common science and society still proffer and back up a way of "imagining a universe that exists entirely free of our imagining" (Glanville 1995). It is, nevertheless, obvious that "we as scientists explain our experience with our experience" (Russell and Ison 2004), as Humberto Maturana stressed.

For many years, some anthropologists have emphasized the fact that when observing and reasoning about foreign cultures, we also observe, reason and reflect on our own cultures. Similarly, it is a well-known fact that psychological qualities are in large part co-defined by the implicit intentions and anticipations of the subject beings.

Every experiential quality could be, therefore, considered as the product of the dialogue between the human mind and Nature. All the perceptive impulses from the outer world are mixed with our *a priori* interpretations, so that what we see is

always a strange blend of something that we expect or believe in and "objective" reality. There is consequently no sense of speaking about any scientific quality in a purely objective and observer-independent manner.

However, this is not to say that scientific representations are not descriptive of the physical reality that underlies our experience. In fact, scientific abstractions intermingle with the observer's assumptions during physical analysis and interpretation of how the world "really" is. As such, the elements of subjectivity and objectivity are inextricably merged in every scientific concept. By describing the natural world, scientific arguments are reflecting the essential presuppositions of scientists, and are therefore, equally describing them. But it is wrong to conclude that the scientific observer dilutes or destroys any contact with reality. In fact, by comprehending science as a dialogue between human mind and Nature, a much clearer view of the nature of scientific endeavors may dawn on us.

3. Science as a pragmatic, co-orientational set of conceptual models

> All the explanations commonly given of nature are mere modes of imagining, and do not indicate the true nature of anything, but only the constitution of the imagination; and, although they have names, as though they were entities, existing externally to the imagination, I call them entities imaginary rather than real
> Spinoza, Ethics

Atoms, molecules and the entire lexicon of scientific images and descriptions could be, therefore, considered not as objectively existing entities and events, but as explanatory models applied for the purpose of coordinating human experiences.

Experiential features represented by them are neither objectively existing entities, as positivistic scientific world-views hold, nor solely human inventions as constructivist philosophies state. They are experiential forms created by the

intersection of these, objectivistic and constructivist creative spheres.

In that way, atomic and molecular scientific models are basically no different from any religious or mythological concept. All of these explanatory models may provide useful paradigms when trying to predict the evolution of investigated events. However, scientific depictions are unsurpassed in terms of their predictability. But this does not mean that some undiscovered frameworks of thought might not be equally useful in predicting a future scheme of events.

Scientific concepts can not be, therefore, correctly regarded as an ultimate representation of reality. Rather, they should be seen as metaphors – humanly constructed concepts applied in mutual coordination of human experiences.

In view of that, science should no longer be used as a tool for probing the "true" character of Nature. Attachment of the metaphorical criterion of viability to scientific descriptions implies that instead of being a "master" over human reasoning and creativity, science is a faithful "servant" on the road to the fulfillment of human aspirations.

It is important to note that denoting scientific descriptions as "metaphors" alters but does not weaken any scientific reference. It does not take the heart out of the enterprise of science, as some may think. In the end, the very "metaphors" are, in this context, used only as metaphors of the relationship between scientific models and natural/experiential systems. Thus, attaching the attribute of metaphor to scientific representations does not imply that they need to be as simple as one comprising common narratives. As of today, scientific metaphors might be the most elaborate metaphors we hold, something easily understood when you consider their delicate power to consistently explain natural processes and events, on all scales.

4. Religion as another set of pragmatic metaphors

> The heart of fools is in their mouth,
> but the mouth of the wise is in their heart
> Sirach 21:26

Religious scriptures can be said to possess a metaphoric nature as well. Instead of being regarded as a system of knowledge that reveals experimentally unverifiable truths, religion can be said to represent sets of metaphorical directives used to point the way to learning the right ethics of living.

The life of Christ and the Biblical Book of Revelation, for instance, may thus be seen not as truthful representations of supernatural phenomena, but as humble stories about spiritual journeys of individual human beings. Crucifixion and resurrection can be seen as metaphors of either the vanity of attempts to extinguish the boundless virtue of a loving heart and its good deeds, or the self-sacrifices and dissolution of egotistic personality traits as natural steps toward reaching true happiness and, in a sense, fulfilling the story of our individual journeys in life.

The image of the crucified Christ can also be identified as a strong metaphor of the advocated dialogue between mind and Nature ingrained in each experiential detail. Namely, besides being emblematic of the duality of choices that splits man in opposite directions and impels us to find a middle way or compromise between them, this powerful image depicts the Christ with his head bowed, immersed into his own heart, although with his hands stretched towards the world. It symbolizes a balance between a humble inwardness and a desire to sanctify and heal others. Somewhat like the Sun, deeply immersed in itself, burning its inner essence to sustain its glow, and yet existing purely for the sake of animating others. It is exactly this balance between an inner peacefulness and introspectiveness on one side, and living thoroughly for others on the other that can be argued as representing the secret of true Love.

Noah's rainbow (Genesis 9:13), or any rainbow and subsequent twinkle of clear sky following a pall of rain, might be regarded as a metaphor for the clearing and refreshing of the human mind that follows the rainy moments of our disgraces in thinking, judging and acting. In such moments the sins, or disharmonies, within our beings are being washed away.

Furthermore, the "Kingdom of God" and the "other world" (Luke 17:21) could be quite reasonably regarded as the inner world of our imagination and emotions.

From a metaphorical point of view, the biblical story of Genesis can be regarded not as a creationist story, but as an account of self-organizational instances in the evolution of life.

Instead of being understood as a truthful account of supernatural events, the Biblical story of the expulsion of Adam and Eve from Paradise can be regarded as an allegory of a collective renunciation of any sense of self-responsibility for the state of the world (Fromm 1956). Namely, when God enquired about the eaten fruits from the tree of knowledge, Adam did not protect Eve, but renounced his own responsibility by blaming her. Eve did the same by condemning the serpent for her own decision (Genesis 2:11-13). The biblical tree of knowledge may neatly represent the human capability of performing mentally reflective operations, as equivalent to conscious observation of the very processes of observing (Bateson 1972). The emergence of consciousness and self-awareness proceeds in parallel with a rise in the potential for exhibiting ashamed, disgraceful and desperate states of mind, which the expulsion from Paradise symbolizes. "For in much wisdom is much grief, and he that increaseth knowledge increaseth sorrow" (Ecclesiastes 1:18).

Among other mistaken representations, understanding religious scriptures in terms of universal, objective and literal meanings may lead to experiencing the image of God emerging from the Biblical stories as conditional and cruel, rather than ceaselessly pointing to the path of unconditional love and respect. The lives of many sages, one of the most notably Jesus Christ, consisted of resolute battles of reason against such literal interpretations of the sacred scriptures.

As far as the Oriental religious scriptures are concerned, the powerful allegory of Bhagavad-Gita may present a nice example. First of all, the confronted armies at the battlefield can be seen as reflections of the dialectical nature of any type of progress in life. Furthermore, although, in the beginning, Arjuna is headed along the "middle way" so as to carefully observe the nature of this polarity, he is later taught by

Krishna to pick one side and fight. Needless to say, any literal understanding of the character doing battle in this narrative goes against many sublime grains that religions of the world have proclaimed. But if understood metaphorically, it may, for example, signify that perfectly balanced situations exhibit a weak potential for progress. Like a paddler who propels the canoe by alternating between its left and right sides, thereby deviating in his efforts from a perfectly straight path, we also need to combine states of balance and states of imbalance in order to create a fertile ground for the evolution of life. In other words, only perfect imperfections can provide a path to a true perfectness. Numerous Biblical narratives, including the story of St. Paul's conversion on the road to Damascus, the book of Job, and the stories of the Babylonian tower and the city of Enoch, may be accepted as allegories that illustrate a need to have uncertainties inbred in every form of progressive knowledge. Thermodynamic and cybernetic viewpoints of the progress in life can similarly point out how only entropy and randomness can provide the "food" for developing patterns of knowledge and physical order (Ashby 1956).

It is important to note that the metaphoric meanings outlined here are only some among an endless variety of possibilities that could potentially be ascribed to allegories found in Biblical and other narrative, religious scriptures. The merits of allegorical thinking are the endless number of parallels that can be drawn between relationships that exist on different planes (the narrative and the "real" life, for example). Unlike logical chains of thought, with their strictly local links, analogical reasoning is based on a principle of unlimited possibilities in this parallel matching of distant relationships.

Finding metaphoric meanings in every tiny feature of Nature has ever since been a source of inspiration for many profound thinkers. As Henri Poincaré noticed, "Pure logic could never lead us to anything but tautologies; it could create nothing new; not from it alone can any science issue" (Hong 2005). It is releasing our imagination so that it may freely search for the inspiring metaphoric parallels, while firmly leaning on the rules of logic that conceals the key to creative thinking.

5. Approaching the way to unite science and religion

All real living is meeting
Martin Buber, *I and Thou*

Innumerable conflicts between scientific and religious worldviews could be elegantly resolved at their foundations. This would require a "tolerant" shift from the reliance on explanatory models derived from "objective" assumptions (implying that they are the only models possible for describing physical processes) to their application as pragmatic and convenient metaphors for describing one or several, among endless possible, experiential aspects.

The assumption of the metaphorical character of both science and religion could present the starting point for their hypermodern unification. Thinking about both as sets of metaphors and pointers to the dialogue between the human mind and Nature could erase the traditional gap between them. They would both point to the dialogue conducted between the essential features of mind and Nature, and their complementary understanding would be acknowledged as promoting successful scientific creativity.

Both science and religion consist of signs that should not be used erroneously to reveal the objective character of being and Nature, but should be regarded as metaphoric pointers applied for the sake of mutual co-orientation of human experiences toward the daylights of human spirit.

The consideration of the linguistic properties of a metaphoric expression, irrespective of whether it has a scientific, religious, or other theme, is not new (Harrison 2007). Thomas Aquinas was among the first theologians to recognize that meanings ascribed to religious notions depend on the actual context, and thus implicitly presumed the analogical nature of religious knowledge (Aquinas 1991). Paul Ricoeur explained how a metaphorical worldview may fruitfully merge poetic and speculative approaches to philosophic discourse (Ricoeur 1979). Pragmatic philosophers were among the first to point out the usefulness of metaphoric viewpoints (James 1907), that is, of accepting both scientific and religious descriptions of the world not as true reflections

of reality, but merely as pragmatic "maps" that help us coordinate ourselves on the "territory" of our experiences.

Both scientific and religious meanings are communicated through language, so any discussion of the metaphoric character of scientific and religious depictions may be transferred into the domain of linguistics. Inability to establish a firm propositional ground for the derivation of universal meanings can be regarded as the central problem of hermeneutics, and many hermeneutic stances were proposed as provisional solutions thereto (Bilimoria 2004). The inevitable subjective nature of each interpretation presents an unassailable obstacle for objectivistic ideals. Hans-Georg Gadamer thus depicted an interpretation of meaning in terms of an encounter between a horizon provided by the text and a horizon that the interpreter brings forth (Gadamer 1989) (where these horizons of meaning are partly subjective and partly adopted from the actual social tradition). The Japanese poet, Saigyo, claimed the following: "Although I write poetry, I never consider it as written". These two views resonate.

The pragmatic character of science and religion implies the second point: Besides an implicit dialogue between the human mind and Nature, scientific descriptions are inherently related to human-to-human communications enwrapped with the benevolent and caring purposefulness. As such, science can be seen as a natural manifestation of the two elementary Christian commandments (Mark 12:29-31). The intrinsic dialogue between mind and Nature in each scientific description is related to the first commandment that describes the love of God, whereas the pragmatic purposefulness of scientific expressions points to the second commandment that mentions the love of thy neighbor. How can we say now that science and religion contradict each other?

The fundamentals of scientific research lie in the domain of untouchable and invisible human qualities involved in social communication, including love, care and benevolence. The pragmatic character of scientific activity clearly speaks in favor of this point. On the other hand, each scientific description is, at the same time, a mysterious sign that points to the theological dialogue between the human mind and Nature. Science is, thus, a dialogue with both God and men.

In this way, science is partly faith. All the hostilities that arise from the unilateral pursuance of these two distinct approaches to knowledge would vanish in newly found forms of their fruitful entwinement.

6. Experience that comes before words

> Reason, in its speculative employment, conducted us through the field of experience, and since it could not find complete satisfaction there, from thence to speculative ideas, which, however, in the end brought us back to experience. In so doing the ideas fulfilled their purpose
>
> Immanuel Kant,
> *Critique of Pure Reason*

In accordance with the pragmatic definition of science and religion, the quality of ideas that comprise them could be described in terms of the viability of their application. As Confucius said, "The essence of knowledge is – once you have it, apply it".

Scientific practice perceived in this way could bridge the long-lasting social gap between philosophers and workers. Every form of scientific knowledge is not a passive, *l'art pour l'art* scheme of abstractions, but collection of conceptual models intended to ameliorate mutual coordination of behavior and experience at the social level.

Acknowledgement of the same, pragmatic and metaphorical roots of all human endeavors, from scientific schemes and technological blueprints to artistic concepts and religious scriptures, may naturally expand the potential for their flourishing interlacement.

However, accepting scientific and religious descriptions of the world as ingredients of a truthful representation of an objective and universal reality, rather than as pragmatic and ethical narratives, respectively, has caused tremendous problems over the course of history. Many intolerant attitudes can be correlated with the oppressive propagation of individual ideas as universal and objective truths. Tragic consequences of identifying written knowledge, not with sets

of ethical and pragmatic metaphors, but with images of an objective and universal reality, have ranged from the persecution of Christ and Inquisitional torture of heretics, to contemporary religious fundamentalism. Everyday misunderstandings in communication, caused by loose and literate interpretations of language, could also be added to this list.

Every form of knowledge is metaphoric in nature, and subsequently predisposed to satisfy, not the criterion of truthfulness, but only the criterion of viability. Despite this, the trend of erroneous identification of ideas as exclusively "true" representations of natural and experiential systems and events seems to not abate, and continues to frustrate the human race.

To reverse this trend, we should keep in mind both Heinz von Foerster's imperative that "truth is war" (Thyssen 2003), and Alfred Korzybski's proposition that "map is not the territory" (Bateson 1979). In accordance with the "common sense" knowledge that words never perfectly convey the speaker's emotions and meanings, the audience should always be aware not to "bite his finger off", but look for the landscapes to which it points (von Foerster 1995b).

Many futile and conflict prone debates might become harmonious and productive, if only the participants understood that the meaning of any expression of thought is not universal and proprietary, and that every reference to truthfulness implies a certain arrogance that undermines communicational bridges that may be supported only by mutual trust and confidence (Kuhn 2002). By accepting any language as a tool for the mutual coordination of experiences, phrases and clichés spontaneously formed through their repetitive use could be transformed into sincere and genuine assertions and body expressions.

An enlightened communication age in which human ethics would not be verbally explicit and superficial, insincere and phrased on frequent occasions, but verbally implicit and thereupon inevitably thoughtful, deep and honest, could yet spring into life.

In this sense, we could be reminded that some of the greatest sages (including Gautama Buddha, Confucius,

Socrates, Pythagoras, Jesus Christ and the prophet Mohammed) never wrote a single word. When attempting to cross the border to leave his country, Lao-tzu was apparently stopped by a guardian and forced to write down his teachings before being let through. This is how Tao-te-ching, the only work Lao-tzu ever wrote, came into existence. And still, Lao-tzu writes in it that "nothing can be compared to the teaching without words" (Tao-te-ching XLIII). The metaphoric nature of every sort of knowledge implies the same thing – that application of knowledge defines the scope of its meaningfulness. Only with such an attitude can we differ from the scribes and Pharisees for whom Jesus said, "All therefore whatsoever they bid you observe, that observe and do; but do not ye after their works: for they say, and do not" (Matthew 23:3).

In order to overcome the current trend of antagonism between science and religion, wherein scientific (and all other non-contextual and objectivistic) descriptions use "true" bricks to build big lies, and arts and religions use "white lies" to build big truths (Barrow 1998), the metaphorical nature of scientific and religious representations of the world must be acknowledged. A genuine meaning of the Biblical "truth" is not a provable, nor a totalitarian concept, but a "relationship pervaded with trust and reliance" (McGrath 2002). This can be discerned from such a metaphorical attitude, as well as from William Blake's famous words, "a truth that's told with bad intent beats all the lies you can invent" (Hoff 1992).

However, it is important to note that depriving human knowledge (irrespective of one's approach thereto) of any possibilities to arrive at perfect truths does not mean that scientific and theological pursuits to portray physical reality should be abandoned. By acknowledging the simultaneously subjective and objective nature of all the experiential details, it is clear that scientific and other explorations produce parallel insights into the hearts of the observer and Nature. But due to this need for parallel sources of experience, any view from only one of these perspectives will be vague and incomplete. Any insight into how physical reality "works" will always be blended with our own expectations due to our theories and

beliefs (and *vice versa*: any attempt to look into the deepest nature of our epistemological settings would be affected by predispositions and blind spots that they induce). In order to not fall into a trap of ungraceful thinking, and to have the privilege of experiencing the way that Nature really is, we should always be humbly reminded that 'now we see through a glass, darkly; but then face to face' (Corinthians I 13:12).

7. Science and religion are maps, not the territories

> You cannot give a way to anyone; you can only point to it
>
> Buddhist proverb

It may be useful to construct an analogy between a map and its territory on one side, and the relationship between science (or religion) and the objects of its inquiry on the other. As a map lays out a set of pragmatic, orientational guidelines, science comprises coded directives for the mutual coordination of human experiences. This is because, from the pragmatic point of view, the value of scientific concepts can be estimated according to the extent to which they aid the evolution of cognitive and informational landscapes of the human mind and Nature, respectively.

Language is related to the physical world similarly to the way maps are related to their depicted territories. By definition, a *metaphor* is an arrangement of figures of speech applied to represent something, although it is usually employed in representing something else (Soskice 1985). Therefore, a metaphor can be used to convey the relationship between the scientific and religious knowledge and the experiential events represented by this knowledge. This neatly explains the notion of metaphor, as used in this discourse. The idea behind such a broadening of the scope of meaning of the notion of "metaphor" becomes additionally strengthened in view of the discarded substitution theory of metaphor, proposed by Aristotle, according to which each metaphor could be replaced by the original word used to represent the object in question (Richards 1936; Black 1981). As each linguistic notion in usage can be considered as a metaphor of

the represented experiential event, the concept of metaphor can be seen as much broader than normally presumed.

Be that as it may, not a single map could have all the implicit assumptions perfectly defined. "1 + 1 = 2" would be a meaningless statement if the previously defined mathematical concepts of numbers and basic mathematical operations were unacknowledged. But to define the latter, we would have to use the same terms to define each other. This is probably why Bertrand Russell on one occasion used the notion of number to define that very same notion (von Glasersfeld 1995). For example, imagine how far one would advance in using Morse code to define Morse code. The languages of speech are more diverse, but essentially of the same nature as this simple code. An incessantly novel construction of a map in which the existence of this very map is acknowledged ought to be carried out in order to satisfy the criterion of perfect mapping (note that Gödel's incompleteness theorem might be depicted in this way). An infinite array of calibrations of calibrating instruments is similarly required to satisfy the criterion of perfect calibration and measurement (note that "weak" Heisenberg's uncertainty principle might be depicted in this way). Therefore, a perfect definition of any language, including any field of science, would require that all its implicit characteristics be explicated by means of another language, which is, of course, a process that requires a whole infinity. Similarly, as an observer cannot touch a rainbow because it always moves relative to his eyes, implicit assumptions could, in general, never be completely explicated, because there is no neutral perspective from which they could be described as objective patterns.

8. The role of tautological assumptions in scientific reasoning

> The things that I know, I believe in
> Ludwig Wittgenstein,
> *On Certainty*

The fundamental "religious" hypothesis that has pervaded all traditions of wise reasoning and planning throughout the history of human civilization is the idea that the way in which

people "seed" determines what they will "reap". Accordingly, it is believed that the quality of our thoughts and aspirations defines the qualities of our actions and deeds. The idea of the dialogue between the human mind and Nature points to our incessant facing of the environmental reflections of our intentional attitudes. One of the essential messages of the teaching of Christ is the importance of cultivating benevolent and graceful thoughts and intentions, seen as inevitably finding a fertile ground in the fields of the world. Some of the major Oriental theologies have even been more extreme in glorifying the powers of a chaste mind.

The mysterious ways in which our deepest intentions, expectations and aspirations are reflected in the world of our experiences have, therefore, presented the ethical core of religious studies. On the other hand, in accordance with Plato's view of philosophy as the method for "finding unconditional and absolute ground for conditionally derived expressions", philosophies of science have been in large extent engaged in deriving the links between implicit assumptions and their experimental and interpretational reflections.

The importance of these implicit and non-evident propositions and assumptions is frequently neglected in scientific and other types of reasoning. And yet they still become partly reflected in the quality of our thinking. "Rationalization is not a tool for penetrating the reality, but *post factum* attempt to match one's desires with the existing reality" (Fromm 1941), Erich From correspondingly mentioned, whereas Karl Popper claimed that "all observations are theory-laden: there is no pure, disinterested, theory-free observation... our senses embody that which adds up to prejudices" (Popper 1969).

In addition to the fact that our biological traits inevitably define the experiential appearances (Maturana and de Rezepka 1997), implicit values that we hold onto could be regarded as additional cognitive criteria of selection at both perceptive and abstract levels of experience. Just as the whole of scientific and philosophical reasoning rests on implicit assumptions that cannot be verified through experiments, but remain the subjects of faith and hope in their viability, the foundations of faith are implicit in redundant cognitive actions

through which the unique and irrevocable character of one's experiences becomes assimilated into experiential wholes with stable and permanent qualities, such as surrounding objects and beings. Therefore, not only do implicit values govern the interpretation of experiential phenomena by imposing criteria of selection in the processes of data accumulation and comparison of logical propositions, but the primary perception may be regarded as being partly guided in accordance with one's implicit values (Montuori 1993). Both perceptive and experimental results, thus, arise at the intersection of the neo-platonic patterns of Belief and Truth.

The attitudes of faith are inherently related to the concept of uncertainty, and can exist only in cognitive domains where the tendencies to reach final proofs and conclusive evidences are partly discarded in favor of another mindset. The person of this mindset is guided by a never-ending, adventurous quest for knowledge and a corresponding readiness to continuously evolve and change. A direct correlation between a true religiousness and a questioning and wondering "frame of mind" can thus be proposed. The blossoming of Christian love is also inherently related to one's openness to change, as sincere prayers are conditioned by one's receptiveness to fundamental cognitive "turnovers" in the acts of forgiving and repenting. Such inquirious and wondering cognitive standpoints may be, thereupon, proposed as another essential thread that links the realms of science and religion.

Therefore, one of the most significant ethical tasks in which both science and religion could be engaged is a quiet elevating of human consciousness to a level where an active comprehension of human ideals and values as the bases of one's reasoning and construction of conceptual worldviews would be manifested.

9. Common features of science and religion

> The physical and the spiritual realities supplement each other. They are the two terminals of the same realities, one terminal residing in the human soul, and the other in the things of the external world. Here is one of the fundamental

> reasons why Science and Religion supplement each other. They are the two pillars of the portal through which the human soul enters the world where the divinity resides
>
> Mihajlo Pupin, *The New Reformation*

Both science and religion present attempts to reveal the invisible foundations of the physical reality connected with apparent experiential phenomena. And, after realizing that both science and religion can be represented as sets of metaphoric pointers used for the pragmatic coordination of human experiences, One opens the doors for acknowledging their mutually supporting relationship.

The healthy relationship between scientific and religious attributes is vital for human creativity. Dedication to pure science without a consideration of ethical values, expounded by religious messages, can be devastating to the creativity and satisfaction of individual scientific endeavors. Religious narratives carry magnificent artistic impression, which brings about a strong imaginative and inspirational character to scientific creativity.

Imagination without rigor is schizophrenic, and rigor without imagination is robotic, as we all know (Bateson 1978). Successful scientists have ever since attempted to complement their scientific activities with artistic ventures, maybe knowing that wishing so much to succeed in their endeavors, and doing work for the sake of enlightening the planet, presents an inner pedestal from which their creativity in any domain should spring.

Minor shifts in perspective, compared linguistically, can erase any presumed immanence of conflicts between scientific and religious attitudes, and illuminate the common roots of all communicational endeavors of humanity. For example, the word "science" can be reduced to its Indo-European root *skei*, which means "to divide, to discern, to make a difference" (Bröcker 2004), whereby the word "religion" comes from Latin *religare*, which means "to connect" (Capra 1982). Consideration of the original linguistic roots of the words that denote science and religion may lead one to conclude that, whereas the essential features of the scientific approach are

inherently related to production of ever finer distinctions at the areas in which blank uniformities and singularities previously resided, the essence of the religious approach lies in an intrinsic cognitive quest for the subtle threads that connect and unify diverse experiential patterns, events, beings and phenomenological intentions that constitute the planetary network of life.

In addition, the old Slavic word, *nauk*, that is nowadays regularly applied among Slavic-speakers to denote science, may be simultaneously used to describe any sort of skill (Richardson and Cilliers 2001), from scientific mastery to orange juggling to guitar playing. The Slavic words that denote faith and probability comprise the same root, *vera*, which indicates that uncertainties and permanent complexities in the domain of human knowledge provide a fertile ground for the growth of devotional and "faithful" cognitive attitudes. Transforming the attitudes of believing to the ones of a perfect certainty relates to an unnatural, robotic idea of technical prohibition of mistakes, even though we know that mistakes present unavoidable steps on the pathways of learning and evolution of every biological organization. Innumerable metaphors of natural/experiential order, including Gödel's incompleteness theorem, Heisenberg's uncertainty principle, and thermodynamic and archeological patterns of natural evolution, indicate that every natural, wise and inspiring idealization ought to comprise an implicit acceptance of natural uncertainties. The key to fruition of beauty in our thoughts, movements and worldviews is in accepting natural uncertainties and encounters with spiraling harmonies between periodical recurrences and surprising novelties.

10. A party for everyone

> And the Spirit and the bride say, Come. And let him that heareth say, Come. And let him that is athirst come. And whosoever will, let him take the water of life freely
>
> Revelation 22:17

All of this is not to say that the ideals of transcendental experience, as implicit in religious worldviews, can not be

reconciled with the proposed metaphoric commonality between science and religion. In fact, as every experiential aspect can be seen as arising from the dialogue between the human mind and Nature, enough room is left for essentially all the possible ontological standpoints to fit in. Upon the pedestal of this basic proposition, the ideas of God and spirit as transcendental or immanent to the world can all be harmoniously placed. This dialogue from which all the experiential details arise can be imagined as the one between our epistemological assumptions and phenomenological intentions on one side and the ontological foundations of reality on the other, but can also be imagined as the one between the human spirit and God.

As objective and subjective features are intermingled in every detail of our experiential realities, the philosophical standpoint invoked herein stands out as a middle Way which could unite many different perspectives in understanding being and Nature. Despite an emphasis on the importance of subjective interpretations, the proposed viewpoint does not implicitly negate the existence of an observer-independent reality. That ontological basis of the physical reality, underlying our experience, inevitably leaves imprints on all the conceivable experiences, is an undeniable fact. This leaves a limitless space for many transcendental religious attitudes or realistic scientific perspectives.

But on the other hand, these ontological foundations are always hidden, and all we can be aware of are the products of the dialogue between our epistemological stances and these metaphysical foundations of a reality which some may call Nature and others God. But because they are impalpable and equivalent to Kant's *Ding an Sich*, or to the silent sound of one hand clapping from the famous Zen koan, we can only be reminded of Ludwig Wittgenstein words: "What we cannot speak about, we must pass over in silence" (Wittgenstein 1918).

11. Conclusions

> "The hardest and the most difficult task of our times is to develop a new way of understanding the reality, and in view of that, science and religion must be connected"
>
> Wolfgang Pauli

As we approach the final lines of this paper, we review the aims set at its beginning:

We began our discourse with a quest for the hidden patterns of Love behind the apparent hostile confrontations between science and religion; it seems we have found them.

As we conceived both science and religion as schemes of metaphorical signs applied in the pragmatic coordination of human experiences, we implicitly proposed benevolent intentions that underlie this coordination as the bases of both science and religion. The essences of both have thus returned to the human heart, and the loving and caring intentions it brings forth.

Truly creative endeavors can be consequently recognized as being intrinsically guided by the patterns of love and care for the beings of the world, set at the epistemological foundations of our perception, cognitive reflections and actions. All the visible aspects of contemporary communicational networks are, in fact, driven by the graceful "compass" of care and attention for other beings, residing at the core of our hearts. The studies of religious metaphors deepen and reinforce the invisible ethical roots of the scientific tree of knowledge, whereas our practical devotion to scientific and technological endeavors strengthens and invigorates potential for a more intensive drawing of saps of enlightening religious experiences.

After all, we are free to say that Love is the foundation of all knowledge. It is the bridge between science and religion.

Acknowledgements

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