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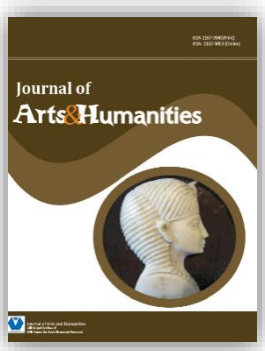

The Psychological Roots of Creativity in Messages Left by Leonardo da Vinci, Giorgio Vasari, and a Neanderthal Troglodyte

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ABSTRACT

The perfect memory that informs our local autistic facet is insufficient to deal with the unforeseen change that challenges our nonlocal artistic facet. The loss of quantum nonlocality leads autistics to fail tests rooted in overcoming the less-than-perfect ambiguity that elicits our creativity. The psychological structure by which perfect memory and less-than-perfect creativity empower each other remains in darkness. This article broaches the hypothesis that Leonardo da Vinci envisioned the union of local perfection and nonlocal less-than-perfection, and that he hid his insight in the Adoration of the Magi. Leonardo's knowledge - expressed here as the logos heuristic—guides a psychological interpretation of the smile of Mona Lisa; of the four avatars of the Vitruvian Man; of the recognition and location of Leonardo's unknown painting Natività; of the exact location of his lost work, Battaglia di Anghiari; and of a 39,000-year-old abstract engraving in Gorham's cave at Gibraltar. Logos can be used to single out local, nonlocal computing, and their alliance in pursuing a humanistic path to progress.

Keywords: Battaglia di Anghiari, Creativity, Gorham's cave, Leonardo da Vinci, local-nonlocal superposition, theory-of-everything, Natività.
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1.0 Introduction

My initial research on the cognitive limitations of autistics to deal with the word "maybe," false-belief stories, art metaphors, irony, the deixis of pronouns, and contextual change (Cassella 1997, 2000, 2002) led to the search for the underpinnings of quantum computing in natural systems (Cassella 2008, 2011,

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2013b), in the human brain (Cassella 2013a, 2013c), and in the arts and humanities (Cassella & Uribe, 2106a, 2016b, 2016c). In my view, all artistic endeavors reflect the dance of the principles that drive classical locality with the principles that drive quantum nonlocality in nature and the mind. Hamlet's ambiguous "to be or not to be," Bassanio's unease when he assumes wrongly that his wife Portia has "slept" with a superb lawyer (herself in disguise) in Shakespeare's *Merchant of Venice*, and Gilgamesh's search for the plant of immortality (Andrew, 1999) on the bottom of the sea support that idea.

Actually, the idea of the search for the alliance of local sequence and nonlocal simultaneity in the arts was born out of looking at the "Leonardesque" painting *Natività* in an Italian church in 2004, and of reading about the assertion by Anderson's (1915) and Giorgio Vasari (Vasari, 1589) that Leonardo had painted indeed a Nativity altar piece for the Holy Roman Emperor Maximilian I.

An insight into the psychological interpretation of the unfinished *Adoration of the Magi* came from reading Martin Kemp's comments (Kemp, 2004) on the works of Leonardo. Moreover, an indirect look at the literal translation of Vitruvius' *De Architectura* by Cesare Cesariano (1521) allowed understanding why in 1490 Leonardo had separated the center of the circle from the center of the square in his drawing *Vitruvian Man*. Finally, the importance of the dance of local and nonlocal computing in the growth of the artistic facet of the mind and of any natural system supports the interpretation of the following three clues left by Leonardo: (1) A lambda-like opening (Λ) between the thumb and the index in the left hand of the Virgin and the right hand of the angel of the *Virgin of the Rocks* kept at the Louvre and in the three characters of *La Natività* (Cassella & Uribe, 2106a), (2) the combination of the lambda opening with an ambiguous smile in *St. John the Baptist*, and (3) the combination of curiosity and longing in the smile depicted in *Mona Lisa*. Autistics and our autistic facet lack the artistic attention that first faces, and then integrates, opposite points of view into a new vision.

This paper extends my psychological findings about the alliance of our autistic and artistic facets in pursuing humanistic progress. Within that mission, I restate here the cognitive limitations of autistic individuals in order to justify a heuristic view (logos, or Λ) of creative intelligence. This view is a prelude to my recognizing the complementarity of local and nonlocal computing in a) three known paintings by Leonardo da Vinci plus an unknown painting thought to be by him, b) in a message left by Giorgio Vasari on the *Battaglia di Marciano* (Battle of Marciano) painted on a wall of the main hall of Palazzo Vecchio in Florence, c) in the location of Leonardo's lost oil mural *Battaglia di Anghiari* (Battle of Anghiari), and d) in an abstract engraving left by a Neanderthal troglodyte about 39,000 years ago in Gorham's cave at Gibraltar.

The psychological theory-of-everything that I express here as the superposition of nonlocality over locality may help us overcome the challenges imposed by climate change, increasing autism and schizophrenia, and hatred-driven fundamentalism.

2.0 Background

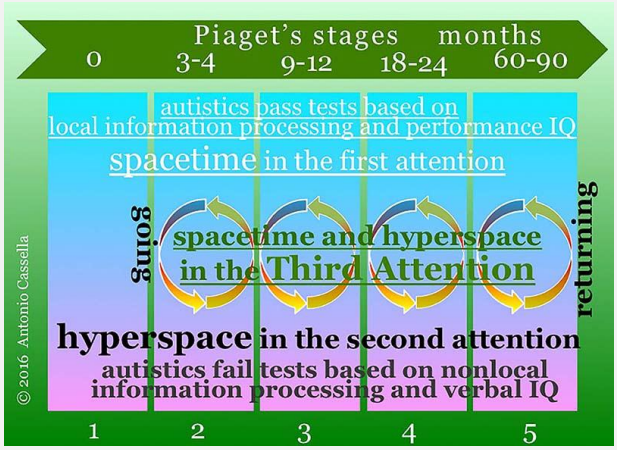
2.1 Jean Piaget's hidden "Montage Hèrèditaire"

Jean Piaget's research in the early fifties, led to his view that human intelligence grows from consciousness of an invariant self at age three months to the capacity for recognizing the stable relationship between two concepts at the age of seven and a half years (Piaget, 1983).[2] (See Figure 1.)

The fact that Piaget's samples did not include autistic individuals prevented that Swiss psychologist from understanding that nonlocal ambiguity, at the base of the problem-solving attitude of creative individuals, goes beyond the perfection associated with local certainty. Since Piaget was aware of the limitations of his observations, he called "montage hèrèditaire" the mysterious organization hidden behind the growth of intelligence in childhood.

[2] The right age range is four to six and a half years, or 48 to 78 months.

Figure 1: Growth of local and nonlocal computing in early childhood



The research I undertook in 1994-2002 established that, under a statistical framework, autistics: a) will pass neuropsychological tests based on performance IQ (intelligence quotient) and classical locality, in agreement with the growth of the primary capacity for information processing envisioned by Piaget (the top of the figure above); and b) they will fail tests based on verbal IQ and quantum nonlocality (the bottom of the figure above). People hit by ASD (autism spectrum disorders) cannot leave behind the spacetime of classical locality while they face a problem in the hyperspace of nonlocal, or quantum, computing. Conversely, unless they are treated, people hit by SSD (schizophrenia spectrum disorders) are unable to return from madness into hyperspace first, and then into a renewed spacetime with the solution to a problem.

In 1994-2002, my research about the tests of our primary attention that high-functioning autistics pass (for example, Proper Self [Povinelli, Landau, & Perilloux, 1996] and Zaitchik [Zaitchik, 1990]), and the tests of the secondary attention that autistics fail (for example, shifts of attention [Courchesne et al., 1994; Johnson, 1994] and false-belief tasks [Baron-Cohen, Leslie, & Frith, 1985; Baron-Cohen, 1995]) allowed me (Cassella, 1997, 2000, 2002) to uncover key features of Piaget's "montage hèrèditaire" (at the center of the figure above).

In 2002, I called spacetime, or first attention (underlined in my printed writings),[3] the local, or classical, domain followed by our autistic facet in its rejection of our schizophrenic facet (Figure 1). Also, I followed Caramazza (1994) in calling hyperspace, or second attention (in bold in my non-digital writings), the nonlocal, or quantum, dimension damaged in autism, which feeds the artistic facet of the normal mind (Figure 1). Finally, an experiment by Landry and Bryson (2004) confirmed my view (Cassella 2008, 2011, 2013a, 2013b, 2013c) that the second attention and the first attention empower each other in balanced growth.

Following Don Juan, the Yaqui sage who taught the path to knowledge of ancient Mesoamericans to the American anthropologist Carlos Castaneda about 50 years ago, I call third attention (underlined and in bold in my printed writings) the reciprocal empowerment of our autistic first attention and our artistic second attention (at the center of Figure 1). In other words, I attribute to our third attention the nonlocal returning voyage of our artistic self from hyperspace to spacetime. Don Juan also attributed any successful feat of the third attention to what he called the Eagle (Castaneda, 1972). When the Eagle of the third attention animates a Mage—that is, a Man- or a Woman-of-Knowledge in Don Juan's words—artistic talent and autistic respect balance quantum malice and schizophrenic disrespect. For example, the role of Quetzalcoatl in ancient Teotihuacan and the role of Hamlet in the eponymous tragedy reveal to possible explorers of hyperspace an alternative, but dangerous, path to progress.

[3] Innumerous examples of the notation that separates the first, from the second, and from the third attention will be found in printed books by Antonio Cassella about the *Return of Quetzalcoatl* and in the work *An unlawful look at an extraordinary theory-of-everything*, placed at "Antonio Cassella, Kindle store" through Google.

2.2 The quantum voyage of explorers of the unknown

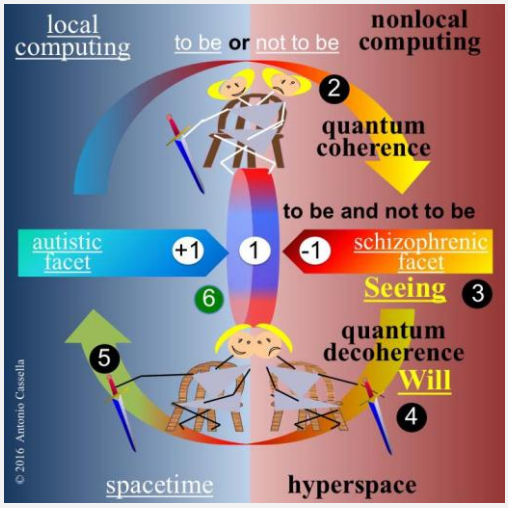
As Figure 1 shows, since the second stage of early development, nonlocal coherence in the second attention allows creative individuals to leave behind their autistic facet and the familiar world rooted in the shared knowledge guarded by the first attention (stage 1 in Figure 2). Quantum hope superposed on classical faith animates the explorers of the unknown who go boldly with quantum coherence toward the odd beliefs held by their schizophrenic facet (stage 2 in Figure 2). In the medal of the first attention (shown at the center of Figure 2), the shared beliefs of our autistic facet (+1) shall always oppose the unilateral beliefs of our schizophrenic facet (-1).

Within decoherence, even those explorers that are trapped by their schizophrenic facet may "return" with a new harmony to the local world. The works of Vincent van Gogh, for example, returned to a renovated spacetime after he died in the arms of madness. The nonlocal return of the third attention of an explorer, a warrior, an artist, or of his work, changes familiar spacetime forever. Progress—or degeneration if no explorers are allowed, or if Quetzalcoatl will never return—makes the reason why Don Genaro told Carlos Castaneda in *Journey to Ixtlán* (Castaneda, 1972) that he was unable, and that he will never be able, to find again his unchanging Ixtlán.

In my view, autistics cannot leave Ixtlán behind, schizophrenics cannot return to Ixtlán, and Heroines and Heroes—or Men- (or Women-) of-Knowledge in the like of Don Juan and his friend Genaro—do go from and come back to the changing Ixtlán they love (Cassella & Uribe, 2016b). According to Ronald Regan, the 40th President of the United States, every individual in the world can be taught how to follow the steps of a Hero or a Heroine filled with loving-kindness (Cassella & Uribe, 2016c).

Figure 2 shows the six steps taken by would-be-Mages (for example, Hamlet, Rama, Sita, Fatima, Quetzalcoatl, Don Juan, Genaro, Joan of Arc, and Mother Teresa) in their voyage from spacetime to hyperspace, and to a renewed spacetime.

Figure 2: A view of the going and returning of an explorer in hyperspace



In the First Act of *Hamlet*, the suspicious Hamlet utters the words "to be or not to be" (stage 2). Hamlet embraces the innocence and the guilt of his uncle Claudius when he decides that he will neither marry Ophelia on the wake of his autistic facet (+1 = to be), nor will he kill Claudius on the wake of his schizophrenic facet (-1 = not to be). He ends up courting "to be and not to be," near the madness (-1) that surrounds algebraic zero (+1 -1 = 0) at the right of Figure 2. Luckily, he does not fall into the claws of insanity, although the autistic Gertrude (his gullible mother) believes that he does. In the Fifth Act, when Gertrude drinks the poison destined to her son, Hamlet sees the truth (stage 3). After that, he wills (4) the death of the malicious and deceitful Claudius. By killing his uncle (5) and dying in the arms of the Eagle of the third attention, Hamlet frees his friend Horatio to the mission (6) of telling his story to future spectators.

When our implicit, or artistic, self leaves Ixtlán (+1) behind in facing a challenge (stage 2 in Figure 2), the second attention allows us to embrace simultaneously autism (+1) and schizophrenia (-1). That nonlocal act implies the infinite speed inherent in quantum entanglement and coherence, by which the same object may lie in opposite or separate places at the same time.

Infinity allows us to reach the eye (transcendental zero, or "to be and not to be") of the quantum hurricane. If we avoid the deadly traps (algebraic zero) hidden near our schizophrenic self (-1), quantum superposition may allow us to see a novel solution at the confines of madness. After acquiring Seeing (stage 3 in Figure 2), Will (4) invites us to cross the bridge of decoherence (5) in order to enrich (6) the companions left behind.

2.3 The principles of spacetime and hyperspace

The odd association of the story of Hamlet with the handicap of autistics suggests that nonlocal infinity, or the belief that an object may be or exist in separate places simultaneously (quantum entanglement, and the principle of Ubiquity in Cassella & Uribe (2016a), allows our artistic facet to leave our autistic facet behind in courting algebraic zero. If we do not become mad (-1) or die (+1-1 = 0), algebraic zero in the madness of the first attention becomes transcendental zero in the strangeness of the second attention. Transcendental zero feeds on the fact that separate objects can share the same space at the same time (quantum superposition, and the principle of Coincidence in Cassella & Uribe (2016a).

Under the nonlocal principle of Coincidence, transcendental zero welcomes both the merging of the classical speed and position of a subatomic particle in Heisenberg's uncertainty principle and the local merging of life and death in Schrödinger's cat (Icke, 1995; McEvoy & Zarate, 1999). I mean the cat enclosed in the box in which a radioactive particle, after a certain period of time, has released, or has not released, a deadly gaseous poison into the lungs of the confined animal. Unlike Schrödinger's autistic approach, the second attention of Niels Bohr led him to posit that Schrödinger's cat is simultaneously alive and dead in the artistic facet of the onlooker whose autistic facet has not yet opened the box.

In artistic hyperspace, quantum ambiguity surrounds Niels Bohr's ambiguous interpretation of Schrödinger's virtual cat and Heisenberg's uncertainty principle (Cassella & Uribe, 2016c). However, life does confront death as moving speed confronts fixed position in the classical spacetime cherished by our autistic facet. The logos heuristic accommodates the classical laws of thermodynamics through the principle of Locality (by which an object cannot exist in separate places simultaneously, in Cassella & Uribe (2016a) and the principle of Impenetrability (by which separate objects cannot share the same space at the same time). For example, Einstein-Rosen wormholes combine spacetime and hyperspace in connecting instantly separate locations in the visible universe.

As with an Einstein-Rosen bridge, I propose here that Leonardo da Vinci had an intuition of the principles of spacetime (Locality and Impenetrability, or Pauli exclusion principle in the first attention), of the principles of hyperspace (Ubiquity and Coincidence, or entanglement and superposition in the second attention), and of the hazy relationship between the first and the second attention—or between visible energy-matter and dark energy-matter. For example, Leonardo had seized the creative value of the dance of local egoism in spacetime with nonlocal grace in hyperspace when the Augustinian monks of San Donato a Scopeto in Florence gave him in 1481 the commission to paint the *Adoration of the Magi*.

3.0 Discussion

The Discussion examines four works by Leonardo da Vinci—the *Adoration of the Magi*, *Mona Lisa*, the *Nativity* (an unrecognized work by Leonardo), and the *Vitruvian Man*. Its aim is uncovering the meaning of a message left by Giorgio Vasari (Leonardo's biographer) in Florence's Palazzo Vecchio. The reading

of Vasari's message on his painting *Battaglia di Marciano* will lead to the precise location of Leonardo's lost painting *Battaglia di Anghiari* and to an unusual interpretation of an abstract crossing engraved 39,000 years ago by a Neanderthal troglodyte on a wall of a Gibraltar's cave.

3.1 Spacetime and hyperspace in Leonardo's Adoration of the Magi

Leonardo completed the underdrawing of the *Adoration of the Magi* (Figure 3, ⊖) before he left for Milan, in 1482—the same year in which the fanatic preacher-friar Girolamo Savonarola arrived in Florence.

The scientist and art-detective Maurizio Seracini (Seracini, 2006) affirmed that an unskilled artist painted the bottom half of the *Adoration* (for example, the beastly feet of the Virgin), long after Leonardo sketched its key elements. In any case, the upper part of the painting shows two messages left by Leonardo: (1) the classical confrontation between two horsemen in the wake of the principles of Locality and Impenetrability, and (2) the two quantum stairs between the autistic earth and the schizophrenic sky. The latter point agrees with the principles of Ubiquity (the stair of curiosity in the back) and Coincidence (the stair of longing at the front).

Figure 3: The first, the second, and the third attention in the *Adoration of the Magi*

On the upper right of the *Adoration* (⊖), the egotistic confrontation between two horsemen symbolizes the struggle for controlling a specific position and for implementing specific movements in the spacetime of the first attention. Beyond spacetime, the two stairs (at the left of the fighting horsemen) symbolize the second attention and Einstein-Rosen bridges in hyperspace. The two stairs are a metaphor for leaving behind precise position and speed within quantum coherence, for visiting a separate world in the eye of a quantum hurricane, and for returning to a changed familiar universe within quantum decoherence. Leonardo's vision matches the dream of Jacob at Bethel [Cassella & Uribe, 2016b]). The two nonlocal trees, depicted at the top of two columns on the upper left of the painting, stand for unknown harmonies at the border of local schizophrenia (near the sky). The sequence of a date palm tree and a carob tree in the center of the picture points at the natural creativity in the soil that nurtured the brain of Homo sapiens. Little Jesus (near the ground) represents the third attention, recognized also by three Magi (Sages or Mages) and their three gifts (Matthew, 2:1-12). In my view, the gold brought by the Persian Melchior stands for the "white hand" of local computing and the first attention; the frankincense brought by the Indian Gaspar, for the "brown hand" of nonlocal computing and the second attention; and the myrrh brought by the African Balthazar, for the "Black Hand" of the superposition of nonlocal over local computing in the third attention.

Leonardo included two inimical knights at the foot of the two stairs of the second attention because he realized that without the confrontation engraved in the rigidity of land by the first attention, the second attention would crumble (Cassella & Uribe, 2016a, 2016b, 2016c). The theme of confrontation in

space and time—for example, between a particle and its anti-particle—reflects the struggle for visible power between the autistic and the schizophrenic facets of the human mind, between life and death, speed and position, or movement and rest. Albert Einstein stressed the importance of spacetime in modern times. Leonardo lived about 450 years before Einstein. However, he knew that in the hyperspace of the second attention (the two stairs), the third attention can sublimate a confrontation (the "yes" opposed to "no" in the two fighting riders depicted above) rooted in the locality of position and speed. Leonardo also concealed the nonlocal meaning of the two stairs depicted in the *Adoration of the Magi* in the enigmatic—"yes and no"—smile of *Mona Lisa*.

3.2 The smile of Mona Lisa

A spontaneous smile refreshes our and others' lives when is fed simultaneously by curiosity and longing—as does Lisa del Giocondo, *Mona Lisa*, or the lady portrayed by Leonardo da Vinci in the *Gioconda* (Figure 4).

Figure 4: Coherence and decoherence portrayed in the smile of Mona Lisa

The smile of Mona Lisa, a mysterious lady, portrayed by Leonardo da Vinci as the *Gioconda*, is simultaneously infused with curiosity (quantum coherence) and longing (quantum decoherence) (The image above was taken from a picture in the public domain, ☺.)

Leonardo started dreaming *Mona Lisa* in Florence in 1503. In 1950, Nat King Cole sang this verse about Mona Lisa: "Many dreams have been brought to your doorstep." Nat King Cole saw that Mona Lisa is a metaphor for the quantum dreams that become classical reality to the travelers that go toward the infinite by way of their curious coherence and come back from transcendental nothingness to observable finiteness by way of their longing decoherence. Nat King Cole's artistic intuition suggests to me that Leonardo da Vinci hid this secret in the smile of *Mona Lisa*: The Complementarity between satisfaction in the first attention and curiosity and longing in the second attention.

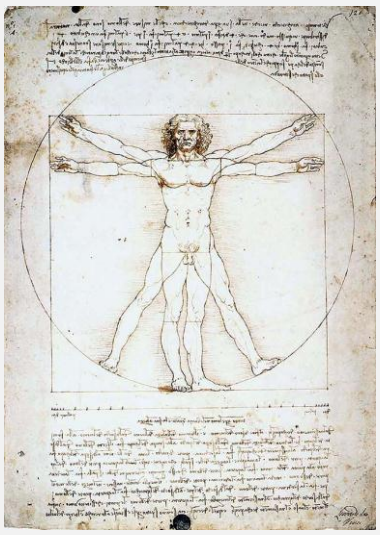
Curiosity—the "yes and no" key to enter the awe-inspiring realm introduced by quantum coherence—allows us to exist simultaneously in mutually exclusive worlds (the principle of Ubiquity). If we withstand the strength of the quantum hurricane that splits the self in two, then, our longing for the companions left behind will allow us to catch the breeze brought by decoherence. Therefore, it is the quantum breeze—or the principle of Coincidence—that allows us to integrate antithetical propositions into a new harmony; for example, when our artistic facet understands a pun. Our autistic facet does not enjoy humor.

The Complementarity between the first and the second attention can be especially appreciated in Leonardo's *Vitruvian Man* (Figure 5).

3.3 The eight arms and eight legs of the Vitruvian Man

Leonardo's sketch of a naked man enclosed in a square and a circle (Figure 5) resulted from his assimilation of the specifications concerning the human body left by Julius Caesar's military architect, Marcus Vitruvius Pollio, in his book *De Architectura*.

Figure 5: The Vitruvian Man



The reasons for Leonardo's odd mirror writing (under a 180° turn, in which a "b" becomes a "d" [Cassella & Uribe, 2016c]), and for the multiple arms and legs in the Vitruvian Man, are unknown in the literature. The man in the drawing above displays four arms and four legs. Within the Eagle of the third attention, however, he has eight arms and eight legs. (The image shown above is in the public domain.)

Possibly, Leonardo used a free translation of *De Architectura* by Francesco di Giorgio, which was published in Rome in 1486. Vitruvius' position can be gathered more precisely from the literal translation and the illustrations made by Cesare Cesariano (1521). Cesariano, the military engineer of the Sforzas in 1513, pictured a man with elevated arms inscribed inside a square surrounded by a circle. Before Cesariano, also Leonardo had followed Vitruvius in drawing the prototypical human being inside a circle and a square. But in his exploration of the harmony of the human body, Leonardo went beyond Vitruvius by concluding that the square and the circle could not share the same center.

Leonardo centered the circle on the navel of the Vitruvian Man, while he centered the square on the tip of the equilateral triangle formed by the open legs of his naked model. Leonardo's decision to separate the center of the square from the center of the circle allows differentiating (Cassella & Uribe, 2016a) four configurations of the universal man envisaged by Vitruvius (Figure 6):

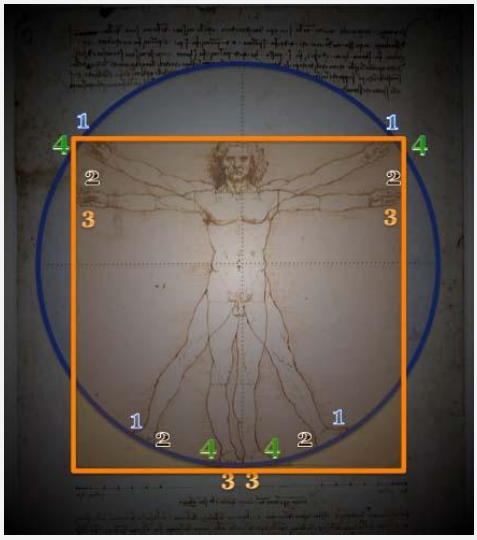
1. The man that resembles an "X" belongs to the circle, since his hands and feet hit the circle, although his hands explore simultaneously the two upper vertices of the square (1, 1, 1, 1, in Figure 6);
2. The man with horizontal arms, whose open legs resemble the contour of a "Mountain," is located partly in the circle and partly in the square, since his hands touch only the vertical sides of the square, while his separated feet rest only on the circle (2, 2, 2, 2);
3. The man with open horizontal arms and closed legs—which resembles a "Cross"— belongs fundamentally to the square, since his limbs touch the four sides of the square, although his feet also rest on the circle (3, 3, 3, 3); and
4. The man with closed legs that we might view as an "Eagle," places his feet both on the square and the circle, whereas his elevated hands touch both the circle and the square (4, 4, 4, 4).

The four anatomical configurations shown in Figure 6 support the following hypotheses (Cassella & Uribe, 2016a):

a. The Cross (in the square: 3, 3, 3, 3) reflects the madness rejected by the autistic facet and adored by the schizophrenic facet of the first attention. It also reflects the insane choice made by the artistic facet of an actor, as if he were a model of mental sanity. For example, at the beginning of his representation of *Hamlet*, the real actor Laurence Olivier became the virtual Hamlet.
b. The Mountain (half way between the circle and the square: 2, 2, 2, 2) can be viewed as a metaphor for the second attention in our ability to embrace sanity (in the circle) and insanity (in the square) simultaneously; that is, the virtual Hamlet was also the real Laurence Olivier just before the end of *Hamlet*.
c. The X (in the circle: 1, 1, 1, 1) may point to the trustworthiness guarded by the first attention (for example, at the end of his representation of *Hamlet*, Hamlet vanished, giving Laurence Olivier the opportunity to return to his familiar world).
d. Finally, the Eagle (in both, the circle and the square: 4, 4, 4, 4) becomes a metaphor for the third attention and for a difficult feat that fills with gladness the heart of a successful explorer. For example, the "Eagle" avatar could represent Leonardo's satisfaction when he drew his Vitruvian Man.

The Mountain of the second attention can be equated with the passion we display when we go (by virtue of the principle of Ubiquity) from the circular sanity of the X (the principles of Locality and Impenetrability) sought by classical computing into the squared insanity of the Cross rejected by our autistic facet. And the Eagle of the third attention comes up when we return (by virtue of the principle of Coincidence) from the square into a new circle with the secret of a new beauty.

Figure 6: The four avatars of the Vitruvian Man



1, 1, 1, 1 represents an X, or the autistic facet of the first attention in Homo sapiens. By lowering the arms, the X becomes 2, 2, 2, 2, the second attention, the Mountain, or the coherence movement sought by our artistic facet. By closing the legs, the Mountain becomes 3, 3, 3, 3, the Cross, or the schizophrenic facet of our first attention. Finally, by rising the arms, quantum decoherence transforms the Cross into 4, 4, 4, 4, or the Eagle of the third attention.

As a consequence:
a) The union of the Mountain of the second attention with the Cross of the first attention represents the going voyage of the curious self (quantum coherence); and
b) The Eagle represents the returning voyage of the longing self (quantum decoherence) and the culmination of a supreme challenge.

In the first place, the Eagle of the third attention enlivens the words uttered in 1969 by Neil Armstrong when his spacecraft (the Eagle, by name) landed on the Moon: "Houston, the Eagle has landed!" (Cassella & Uribe, 2016a).

In the second place, we can visualize the landing of the Eagle of the third attention in this manner: We need to assign the capacity for nonlocal malice to the right hand of the Vitruvian Man; the capacity for nonlocal grace, to his left hand; local egoism, to his right foot; and local respect, to his left foot. After that, his lower hunting side mirrors the union between egoism and respect; and his upper warring side, the union between malice and grace. Under that visualization, the left side of Leonardo's drawing reflects the clear union of malice with egoism; and the right side of the drawing reflects the dark union of grace and respect.

In the third place, we could experience personally the third attention by merging our self with the Vitruvian Man and by seeking our center of gravity. For example, we could balance . . .

a) Quantum malice on our right hand with classical respect on our left foot; and
b) Nonlocal grace on our left hand with local egoism on our right foot.

At the end of the third and final balancing act, we would contemplate our navel, the seat of the third attention in human beings, or the center of the circle in the Vitruvian Man. We would also reach there the humanistic power that controls both the power of the second attention and the power of the first attention. Leonardo da Vinci picked up the earthly arrival of universal power in the painting called *Natività* (Nativity Scene) (Figure 7).

3.4 The arrival of the third attention with Christmas

Figure 7: The painting *Natività* by Leonardo da Vinci

Leonardo painted the *Natività* after 1494. Actually, Ludovico Maria Sforza, or il Moro, had promised the penniless Holy Roman Emperor Maximilian I—when the latter married in 1494 Il Moro's niece, Bianca María Sforza—that he would send him a painting by Leonardo. *Giorgio Vasari stated* that Ludovico asked Leonardo to *paint an Altarpiece as a present to Maximilian* and that *the Altarpiece was a Nativity of Christ* (Anderson, 1915, p. 300). The *Nativity* was never delivered to Maximilian because the French took Milan in 1498 and, after being abandoned by his Swiss mercenaries in 1500, Ludovico died as prisoner to Louis XII. (The picture above obeys the courtesy of the Dioceses of Tortona in North Italy.)

The *Natività*, shown in Figure 7, hangs near the central altar of the Church of *Santa Maria dei Canali* in Tortona (Piedmont, Italy)—possibly initiated in the tenth century by the Holy Roman Emperor Otto II (the Red) and Bishop Giseprandus. The *Nativity* is attributed to the "Scuola Leonardesca" integrated by painters who worked in Milan with Leonardo before the end of the 15th century (for example, Bernardo Zenale, Giovanni Antonio Boltraffio, or Marco d'Oggiono). At that point in time, Leonardo was the head military engineer to the Duke of Milan, Ludovico Il Moro. The wrong attribution of *Natività* to a

Leonardesque School, however, forgets Vasari's testimony about Leonardo da Vinci. In Vasari's own Florentine language (Vasari, 1568):

> "Sentendo il Duca i ragionamenti tanto mirabili di Lionardo, talmente s'innamorò de le sue virtù, che era cosa incredibile. E pregatolo, gli fece fare in pittura una tavola d'altare, dentrovi una Natività che fu mandata dal Duca a l'imperatore." (Vasari, 1568). (In my translation: "After the Duke heard the amazing thoughts of Leonardo, he was taken by his virtues in an incredible way. And after begging him, he led him into making an Altarpiece that contained a Nativity scene, which the Duke sent to the emperor.")

In my view, the main reason why Ludovico Il Moro never sent the painting *Natività* to Maximilian I lies in the fact that the latter squandered the exceptional dowry of Bianca Maria Sforza even before the French took Milan. Furthermore, I attribute that painting to Leonardo because it contains, in a unique way, the principles behind the Complementarity of nonlocal with local computing in humans and nature (Cassella & Uribe, 2016a). The basis of this opinion can be appreciated by two actions:

(1) By placing one's left index above the two angels, the cloud appears to be outside the manger; and

(2) By placing one's right index above the cloud, the angels appear to be inside the manger. Otherwise, the cloud and the angels are simultaneously outside and inside the manger.

The two actions support five hypotheses:

a) The two angels who bless the scene, while they are simultaneously nonlocated inside and outside the manger, point at the principle of Ubiquity; b) the fact that part of the clouds and part of the legs of the angels share the same space at the same time might be taken as a metaphor for the principle of Coincidence; c) Saint Joseph reflects the universality of local computing; d) the Virgin Mary symbolizes the miraculous power of nonlocal superpartners in the second attention, and e) Little Jesus represents the third attention of the universe.

Notice that Joseph's hands, the right hand of the Virgin and the left hand of Jesus show an *opening* between the thumb and the index finger (V, or Λ). That lambda-like opening symbolizes the nonlocal voyage toward Ubiquity and Coincidence, or curiosity and longing. In the *Virgin of the Rocks* kept at the Louvre, also the left hand of the Virgin at the center and the right hand of the angel at the right show the opening of the wings of the third attention. At this point, the wings of the Eagle hidden in the *Nativity* may help us locate Leonardo's lost painting *Battaglia di Anghiari*.

3.5 The location of the *Battaglia di Anghiari*

After arriving at Florence in 1503, Leonardo was given the commission to paint a wall of the Hall of the Five Hundred in Palazzo Vecchio with a scene from the 1440 Battle of Anghiari between Florence and Milan (Figure 8).

In that battle, only one knight for hire died from an involuntary fall. Ironically, the excommunicated Dominican preacher-friar Girolamo Savonarola commissioned the hall in 1494, before losing in 1498 a trial by fire.

In 1503, Leonardo painted the *Battaglia di Anghiari* with colors diluted in walnut oil. He copied a technique of oil paint drying described hundreds of years earlier by the Roman sage Pliny the Elder, who stated that the heat drying technique he described should not be used on vertical surfaces. However, the Florentine genius, who did not know Latin, placed insufficient heat on the scaffold facing his huge wall painting. Instead of drying, the paint of the upper part of the mural dripped down and was destroyed. Between 1555 and 1572, the architect and biographer of Leonardo, Giorgio Vasari, modified and redecorated the great hall with scenes of battles between Florence, Pisa, and Siena.

Figure 8: Copy by Peter Paul Rubens of part of Leonardo's *Battaglia di Anghiari*

The art-detective and scientist Maurizio Seracini has proposed that Giorgio Vasari preserved *La Battaglia di Anghiari by* Leonardo behind his painting of the *Battaglia di Marciano* in the great hall of Palazzo Vecchio. (The picture of Rubens' copy is in the public domain, ⊜)

Following the art-detective Maurizio Seracini, I assume that Giorgio Vasari, who was an admirer of Leonardo's art, did not destroy the *Battaglia di Anghiari* (Figure 8), but hid it behind his own painting on the *Battaglia di Marciano in Val di Chiara* (Figure 9).

Vasari's words "cerca trova" ("seeks finds"), written on the upper part of his painting (Figure 9), represent two metaphors. The word "cerca" ("she seeks") stands for the coherence movement in which our artistic facet, or the Mountain in the Vitruvian Man, searches for a new harmony, near the confines with madness; and the word "trova" ("she finds") stands for the decoherence movement in which the Eagle lands in a regenerated world. We may recognize the feats of nonlocal computing a) in the ramp between the autistic earth and the schizophrenic sky dreamed by Jacob at Bethel (Genesis 28:10-22; Cassella & Uribe, 2016b), b) in the two stairs (coherence and decoherence) that Leonardo placed in the *Adoration of the Magi*, and c) in the going and returning of the Mesoamerican Quetzalcoatl. That demigod wandered between the autistic coatl (or the serpent on land) and the schizophrenic quetzal (or the bird in the sky). Ancient Mesoamericans posited that, after finding the roots of creation on Venus (the star at the upper right of Figure 9), Quetzalcoatl will return to the Earth. That return points to quantum decoherence and to the progress linked to the third attention.

Coincidentally, Vasari wrote the words "cerca trova" on the upper half of a nonlocal ramp that goes from the left lower corner of his painting (at the bottom left in Figure 9) toward the sky (or the Evening Star) at the top of his painting. On one hand, following Mesoamerican legends, Vasari's lead, and quantum coherence implies going up on Vasari's invisible ramp, and reaching the sky.

On the other hand, quantum decoherence implies turning around and going down on Vasari's fleeting ramp, until we hit the earth of the dying again—or the left lower corner of the *Battaglia di Marciano*. I believe that the ramp and the straight line shown by Vasari include the rising diagonal of Leonardo's *Battle of Anghiari*.

Along Vasari's tip, if the Italian authorities responsible for the artwork in Palazzo Vecchio, under the haziness of the Italian word "cerca" and quantum coherence, reported a same segment—the one comprised between the end of the words "cerca trova" and the roof—from the left lower corner of the painting toward the same direction of the words "cerca trova," they will find (the Italian "trova") the beginning of the rising diagonal of the *Battaglia di Anghiari.* Finding the rising diagonal would lead to the location of its dropping complement (quantum decoherence), as shown in Figure 9(below). The superposition of Leonardo's *Battle of Anghiari* on Vasari's work in Figure 9 indicates which specific part of Vasari's painting could be removed in order to uncover the upper left corner of Leonardo's work.

Figure 9: The Battle of Anghiari hidden behind Vasari's subsequent painting.

If we are to believe the promise made by Giorgio Vasari, the straight line fixed by the words "cerca trova," in his painting of the *Battaglia di Marciano in Val di Chiara*, includes the rising diagonal of Leonardo's painting about the *Battaglia di Anghiari*. Finding Leonardo's masterpiece would validate Vasari's intuition of the marriage of coherence and decoherence in the mind of a true artist. When I expanded on the upper right the picture of the tower at the center top, two helmets of the winning soldiers covered by chance the heads of two riders of the same side. (The picture of the copy made by Peter Paul Rubens of the *Battaglia di Anghiari* and the picture of Vasari's painting of the *Battaglia di Marciano* in the great hall of Palazzo Vecchio are both in the public domain, ~~©~~.)

3.6 Gorham's Crossing and the change from 48 to 46 chromosomes in humans

As with the truth imposed to all nonautistics by a gracious pun or by the solution to a riddle, Vasari's message is a metaphor for the string of the bow of nonlocal computing in any artist. And yet that message can be taken also as a metaphor for any hunter in spacetime loaded with the deceit provided by quantum hyperspace. We may suppose that the Neanderthal troglodyte that engraved an abstract crossing on a wall of Gorham's Cave at Gibraltar (Figure 10), about 39,000 years ago, saw that humans can apply the bow of their second attention to kill a prey (within the first attention) or to find new harmonies—within the third attention.

The application of the principles of the logos heuristic to Gorham's rock engraving leads to tracing a more detailed structure of the relationship between the autistic, the schizophrenic, and the artistic facets of the mind (Cassella & Uribe, 2016c) through the following hypotheses:

a) The upper horizontal line, when taken from right to left, symbolizes the quantum coherence movement that brings an archer to load his bow, a guitarist to tense the chords of his guitar, and an artist into seeing a new idea (for example, about imagining the placement of the rising diagonal of the lost *Battle of Anghiari*) within transcendental zero, or the eye of the quantum hurricane that enlivens the confines with madness;

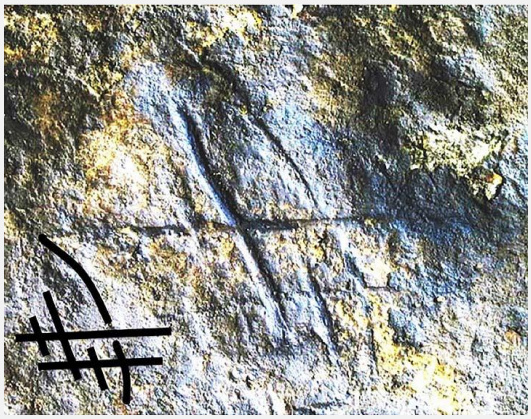
b) The lower horizontal line stands for the decoherence movement from left to right that launches a new discourse, a new drawing, a new song, or a deadly arrow back into a seemingly invariant, autistic world;

c) The three upper vertical lines represent the schizophrenic upper arm of the quantum bow;

d) The three lower vertical lines point to the autistic arm of the bow; and

e) The second vertical line from left to right is a metaphor for the tension of the string of the quantum bow that simultaneously unites and separates the upper and the lower arms (for example, Vasari's words, "cerca trova."

Figure 10: The message of Gorham's crossing



The figure above shows a mysterious crossing in Gibraltar's Gorham's Cave. My interpretation is depicted in the lower left corner. (The picture of Gorham's crossing follows the kindness of Rodríguez-Vidal et al (2014))

My interpretation of Gorham's crossing stresses three aspects (Cassella & Uribe, 2016c): (1) The union of two opposite vertical sets (composed of three vertical strokes each) with the two horizontal lines points at number 8, and matches the eight lobes of the cerebrum that hosts the first attention in Hominidae; (2) the six vertical elements match the number of our cerebellar lobes; and (3) the number 8 x 6 points to the mysterious arch-circuitry that unites the cerebral cortex with the cerebellar cortex. In a similar fashion, the Arch of Constantine in Rome shows 8 columns for the first attention and 6 arches for the second attention. The non-logical superposition of the cerebral and cerebellar columns, or the first and the second attention—for example, in the multiplication 8 x 6—leads to a fantastic domain composed by 48 elements.

Forty-eight chromosomes animated nonhuman Hominidae throughout two million years; and Neanderthal troglodytes, during more than 300,000 years. Modern humans have only 46 chromosomes. That reduction obeys the fusion of two chromosomes, which occurred probably in a small group of human hunters after Toba's eruption, about 75,000 years ago. Toba's lava changed our quantum facet for the best and for the worst at the same time.

Hypothetically, the Neanderthal cavewoman with 48 chromosomes who drew Gorham's crossing foresaw that the descendants of Homo sapiens would use their quantum malice to hunt irresponsibly the commons of the Earth (among them, the atmosphere, the oceans, forests, aquifers, and glaciers) in feeding their asphalt jungles. That defiance is equivalent to a global suicide. In another example, about 5,000 thermonuclear weapons can be launched at any time to destroy major cities on Earth.

3.7 The malicious talent hidden in the Mass-Energy equivalence relationship

The age of weapons of mass destruction was launched in 1939, when Einstein wrote a letter to President Franklin D. Roosevelt about the need to manufacture an atomic bomb that could release the destructive power of a few pounds of uranium. Einstein arrived at the equation $E = m_{\times} c^2$. According to that equation, energy and mass are equivalent. However, E would become infinite in the act of accelerating a rest mass (m_o) to the finiteness of the speed of light. Within his Theory of Special Relativity, Einstein asserted that the speed of light (c) cannot be infinite, but it is constant for all observers—a herald of spacetime in the first attention. Hence, the term c^2 in the equation above denotes nonlocal computing in the hyperspace of the second attention. That proposition notwithstanding, the term E, in the equation $E = m \times c^2$, may not correspond to a humanistic view of the third attention.

On the one hand, the term "E" is a prelude to the inhumane power of the atomic bomb that may travel in the top section of a rocket by the classical equation: momentum = mass x velocity. On the other

hand, E may correspond to the power of the humanistic dance of harmony and inventiveness. That dance animates the *Dance of the Hours* by Amilcare Ponchielli, the *Four Seasons* by Antonio Vivaldi, Leonardo's paintings, Vasari's suggestions about the location of the *Battaglia di Anghiari*, Vasari's message that Leonardo had indeed painted a *Nativity of Christ*, and *Gorham's crossing*.

In my view, the Neanderthal troglodyte who drew the crossing found in Gorham's Cave knew that the power of nonlocal infinity could be used to increase the momentum of an arrow to kill a prey or to paint a real image of a virtual prey. The stalking panthers of Chauvet-Pont-d'Arc in France and the roaming bisons of Altamira's cave in Spain, painted by the descendants of a few Neanderthal hunters and many Homo sapiens huntresses, stress both the angelic charm and the devilish curse of the second attention.

4.0 Concluding remarks

Before going to Milan in 1482, Leonardo wrote to Ludovico Il Moro (its Duke) that besides painting, he could design and manufacture new lethal weapons. As with Einstein's letter to the 32nd President of the United States, Leonardo's letter to Ludovico Il Moro demonstrates that the artistic facet of the human mind can support the humane ends of the third attention or the unilateral ends of the maddening facet of the first attention. The classical crossing of momenta in the clashing armies depicted in Vasari's *Battaglia di Marciano* in the great hall of Palazzo Vecchio, in the crossing of momenta in the death of a running deer hit by a speeding arrow, and in the strangling of Girolamo Savonarola in the square of Palazzo Vecchio point to the local victory of one side.

Hopefully, the message left by the predicament of autistic individuals, by Leonardo da Vinci in the *Adoration of the Magi*, *Mona Lisa*, and the *Vitruvian Man*, by Vasari's words "cerca trova" in the great hall of the Florentine Palazzo Vecchio, and by *Gorham's crossing* will lead to the recovery of two paintings by Leonardo: the *Battaglia di Anghiari* in Florence and the *Natività* in Tortona. The two findings could bring victory to all and open a new horizon of progress.

However, progress will appear only if we understand and acknowledge the indirect message evoked by Leonardo da Vinci, by our troglodyte ancestors, and by Gilgamesh: The creative power of our artistic second attention has to be distanced from malevolent accomplishments.

For example, Gilgamesh lost the plant of immortality about 5,000 years ago because of the following mistakes: (1) he used his second attention (his friend Enkidu) to kill Huwawa (the deity that protected primeval forests); (2) he downed the tallest cedar in the forest in order to build the doors of the temple of Enlil—the god of obedience to the power of the first attention; (3) he lost Enkidu and his second attention in the fight with Gugalanna (the monstrous Bull-of-Heaven, placed on the streets of Uruk by the Goddess Mother Inanna); (4) refused to marry Inanna and her humanistic dreams of progress; and (5) he misused the clean water of rivers, lakes and aquifers.

The wisdom of the immortal Utnapishtim could not save Gilgamesh and the walls of Uruk from falling. Let us not cause the fall of London Bridge by repeating the mistakes of the builder of the first city!

The arts and humanities hide innumerous examples of how to develop our creativity without damaging our environment. The logos heuristic may help us to teach our children how to appreciate, and then balance, the opportunities and dangers hidden in the power of quantum neural computing that feeds the creativity of Homo sapiens.

Knowledge of the psychological theory-of-everything implied by Leonardo and by a Neanderthal artist may stop our irresponsible attempt to destroy the commons of the Earth, aid the responsible superposition of hyperspace on spacetime, and invite us to sublimate into progress the challenges raised by climate change, increasing autism, and hatred-driven fundamentalism.

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