

A Cognitive View of the Cosmos and the Universal Grammar

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Abstract

This article shows that nature's nature,¹ the cosmos, and the universal grammar behind all languages agree with the ironic "semeiotic" of the American Charles Sanders Peirce ("pɜːrs/" IPA²). He stressed (Peirce, 1868) the crossing of classical ("yes *against* no") with quantum ("yes *and* no") computing in two propositions: "There is no griffin" and "A griffin is a winged quadruped." His logic, confused with American Pragmatism, lies unused. Yet global warming and the massive death of children without proper food and water before the turn of this century can be eluded by seizing Peirce's "science of irony," two lost artworks by Leonardo da Vinci, autism, folly, and the circle of complex numbers ("Z") that enlightens two universes in which matter counters anti-matter. The cosmos, led by infinity in dark energy and zero in dark matter, echoes the union of enemies, freedom after slavery, shame after sinning, and forgiveness for justice.

Keywords: Anti-matter, autism, classical-computing, complex-circle, cosmos, dark-energy, dark-matter, finiteness, infinity, Leonardo-da-Vinci, light, madness, matter, quantum-computing, universal-grammar, and zero.

1. Method

I unite here **facts**, **hypotheses**, and **problems** dealt with in the Background with **solutions** presented in the Discussion.

For example, I link my research on autistics' quandary, the Universal Grammar (Cassella, 2019c) behind Peirce's **logic**, and the cognitive meaning of the **crossing** in Gorham's Cave at Gibraltar (traced by Neanderthals earlier than 37,000 BCE [Before the Common Era]) with the Wisdom hidden in our Sacred Texts (Cassella, 2019a, 2021c) and artworks.

2. Results

In the last 25 years I failed to falsify the three attentions/intentions—**memory/rites**, **imagination/lying**, and **creativity/altruism**—I intuited at night during 1994-1997 in a master in psychology at Harvard University (Cassella, 1997) in Cambridge (MA, USA). The support I got through a doctorate in education at UNESR (Universidad Nacional Experimental Simón Rodríguez) (Cassella, 2000) in Caracas, Venezuela, stands unchallenged and unrecognized.

I link the Distributed Organization of our three attentions/intentions to Peirce's propositions (1868, p. 287, § 4), the crossing of Gorham's Cave, two contrary universes, and two vanished artworks by Leonardo da Vinci (Cassella, 2017b).

My research at the Energy Lab of MIT in 1994-1997 (Cassella, 2008, 2017a) may also favor the **return** of Progress, while deterring global warming and the completion of the Sixth Extinction of nonhuman species in the second half of the 21st century. And yet pervasive inertia, ambition, fear, and venality might cast our grandchildren from Paradise.

¹ The three *attentions/intentions* behind my **hypothetical** "Logos Heuristics" (or "Greek Lambda") about nature's nature use the following notation:

- Our underlined **1st attention (1)** goes 99% with the **recall** (Zaitchik, 1990; Povinelli et al., 1996), **finiteness**, or **classical computing** ($p = \text{probability} = 1$) spared in **autistics** (about 1% of us)—who **fancy the truths they see**;
- the **2nd attention (2)**, the **quantum computing** ($p = 1 \text{ and } 0$) hurt in **autistics**—or our **going with hope in facing doubts, sins, plights, lies, puns, metaphors, problems, infinity, nothingness, and paradoxes**—goes in **bold**; and
- the **3rd attention (3)**, "Z", or our **ironic ability** to **solve a problem**—**wronged in schizophrenics** (near 1% of us), who **see the lies they fancy**—combines **underlining and bold** or is stressed with an *irregular Capital*.

² IPA is the International Phonetic Alphabet.

3. Introduction

3.1 The Power of the Bow

In 1868, Peirce implied that nature's **nature** ("Z") and his "**semiotic**" hide behind two sentences: "**There is no griffin**" and "**A griffin is a winged quadruped.**" His Vision supports:

- **finiteness-visibility** (classical computing, first attention, or 1);
- **invisible infinity-nothingness** (quantum-coherence, second attention, or 2); and
- **zero-creativity** (quantum-decoherence, Third Attention, or 3).

One example is seeing **how far** an **arrow will travel** (Figure 1). The **bow and arrow** came from South Africa 60,000 years ago. In this weapon, **infinite speed** (2)—engaged by pulling **simultaneously** the two **arms** of the **bow**—combines with **nothingness/zero** (0) in releasing (3) an **arrow** (1).



Figure 1. The bow in simultaneous hyperspace empowers the finite voyage of an arrow in sequential spacetime

Among the Sioux, succeeding arrows made the "**run of the arrow**," the endurance test that gave a censured barefoot runner a *0 to 1 probability to live*. A spent runner died pierced; but a tough one got a pardon.

Native-American hunters used a **bow and arrow** to pierce a bison. The **free life** of bison and Native Americans remains in paintings since bison-buffaloes were almost exterminated by firearms. About 150 years ago, William Cody became "Buffalo Bill" by using firepower to provide bison meat to workers of the first transcontinental railroad in the USA.

Although the start of the Anthropocene Epoch courts the explosion of the first atomic bomb in 1945, Buffalo Bill's massive bison killings and the massive exploitation of coal by his English friend Queen Victoria make the mid 19th century the beginning of the end, instead of the **hopes** of progress traced in Gorham's Cave at Gibraltar.

3.2 The Crossing of Gorham's Cave

In Figure 2, a **crossing** made by Neanderthals *before* 37,000 BCE on the floor of Gorham's Cave at Gibraltar (Rodríguez-Vidal et al., 2014) implies that the **responsible use** of the **power** of **infinity-nothingness** in the bow drives the **development** of any natural system. Although Homo sapiens became aware of Neanderthals' Wisdom (Cassella, 2021c), most of us forgot our **values** and how they entered our Sacred Texts (e.g., in the **Lord's Prayer** [Cassella, 2021d]) and Artworks (Cassella, 2022).

In my sketch of Gorham's **crossing** (Figure 2), the four (or five?) traces in blue represent the **spacetime-1st-attention** spared in autism. The red **tension-infinity** that pulls **simultaneously** the two arms of a bow into the **hyperspace-2nd-attention** of Peirce's **griffin** makes the **quantum coherence** lost in autism. And the green color renders the **release** (3) of **tension** through **quantum-decoherence**, **irony**, or the Third Attention ruined in madness.

In my "logos heuristics" ("A"), our three attentions/intentions combine to *benefit all travelers*. Similarly, Neanderthals and early Homo-sapiens Sages used **tension** to **create** a song or a story.

In the story of the 12 sons of the Jewish **Jacob (Santiago)**, he loved especially Joseph, to whom he gave a multicolored garment (Genesis 37:3 KJV). By the **envy** in the **griffin-coherence** of their **capacity for sinning (quantum computing)**, Joseph's brothers **sold** him to a caravan going to Egypt (Genesis 37:28 KJV).

Yet Joseph became vice-pharaoh, **saved** his family from **starving** (Alter, 1996), **read** the **divine irony** that **flavored** his life, and **forgave** his **brothers**. Joseph's **story** suggests that Gorham's Crossing is a herald of the Universal Grammar.

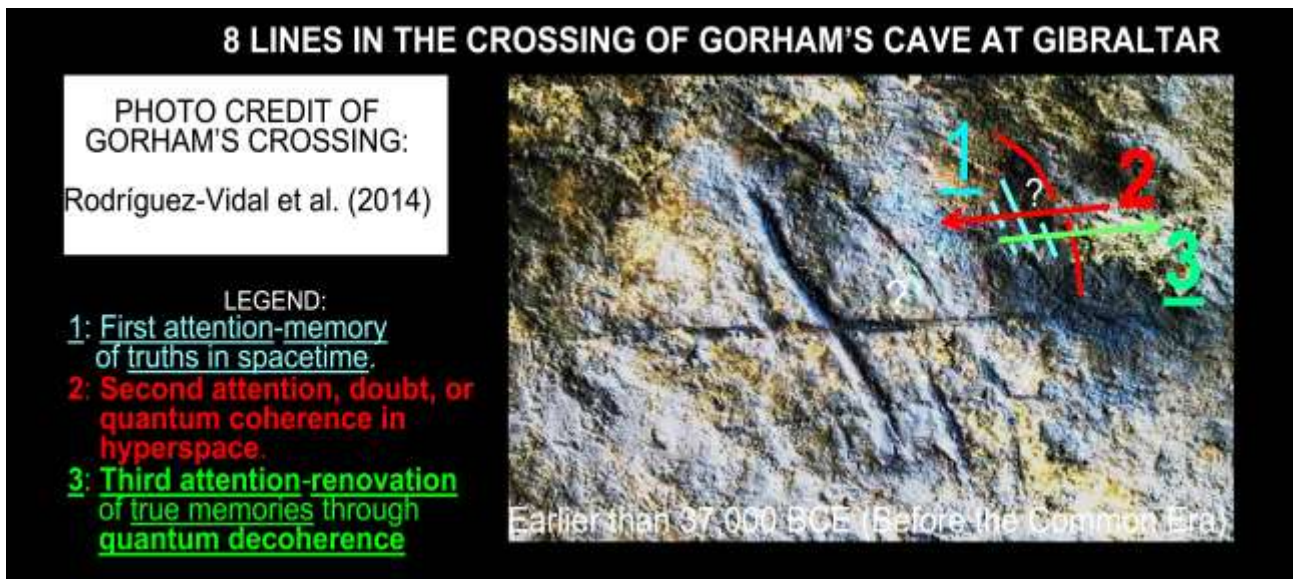


Figure 2. Gorham's crossing in Gibraltar

3.3 The Universal Grammar of an Upside-Down Paper

Three and a half millennia after **Joseph** came **Leonardo da Vinci**. His writings seem **strange**; **yet** we can **read** them **in front of a mirror**, although a "b" will appear as a "d" and a "p" will appear as a "q" in the 180° turn imposed by mirrors.

Peirce's semeiotic and nature's **nature** rely also on our capacity for reading upside-down (within a 180° turning) in which a "b" will appear as a "p" and a "d" will appear as a "q." This conclusion comes from **understanding** a story that don Juan (a Yaqui shaman in the rural Mexico of the sixties) gave the anthropologist Carlos Castaneda (1992).

In Castaneda's account, a creative but illiterate leader could govern a region that followed the Latin alphabet if he showed his constituents that he could **read a written discourse**. The nonreader went to a podium and "**read**" his speech. But a youngster noticed that the sheet he used was upside down. Thus, he screamed that the candidate was unschooled.

Yet the runner retorted that anybody could learn **upside-down reading!** He was right and was elected! Autistics can help **clarify** what Castaneda left **obscure**.

When my autistic son was learning reading, his teacher noticed that he confused the letter "b" with the letters "d," "q," and "p" (Cassella, 2018c, 2021e).

I explained his behavior to his teacher. I asked her to lie on a sofa, rotate 180 degrees, stand up, look into a **mirror**, and tell me if she had become another person whenever she changed her posture. Her denial reflected the reality of **monovalent signs**. But the letter "b" is **polyvalent**. **Polyvalence** is real.

Quantum scientists even conceive of a **dimension** in which **monovalent signs become polyvalent**, or **matter-electrons become light-photons** through a 180° **rotation** (Icke, 1995). We do not know that trick yet! But here is the Latin alphabet trick:

Because any "**a**" remains an "**a**" under any rotation, we **read** correctly upside-down (and mirror-reflected) syllables in which a **polyvalent joins** a **monovalent sign** (Figure 3). His strange writing reveals Leonardo's familiarity with the Universal Grammar. Still, we need to separate **reading** from **reading** and **reading**.

Within **grammar**, some people **read** and **memorize** a long text (e.g., the *Quran* venerated in Qatar).

Within **pragmatics**, some people **read** the **metaphors**, **paradoxes**, and **puns** that accompany an artistic text; and within the Universal Grammar, some people **read** the **ironies** in divine texts. For example, "In the beginning was the **word**, and the **word** was with God, and the **word** was God" (John 1: 1 KJV); in other words, "**Faith**, **hope**, and **charity**."

Likewise, in **Paradise** we could use the **Tree of Good and Evil** to grow with the **Tree of Life** (Genesis 3: 22-24, KJV).

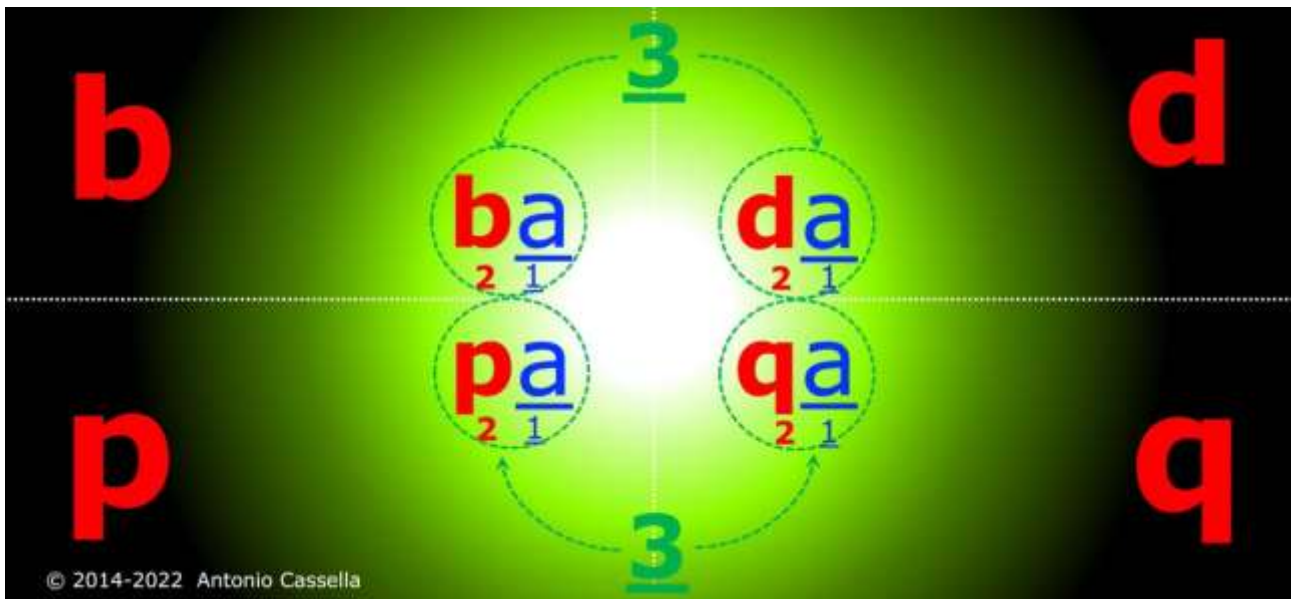


Figure 3. The union (3) of quantum (2) and classical (1) computing in some syllables of the Latin alphabet **Joining classical to quantum** computing makes the Universal Grammar (Cassella, 2019c) and the Philosopher's Stone.

4. Background

4.1 The Reality of the Philosopher's Stone

Charles Sanders Peirce implied 154 years ago (Peirce, 1868) that nature's **nature** was enclosed in two propositions:

1. "There is **no griffin**" **and**
2. "A **griffin is a winged quadruped.**"

No one **understood** his **logic**. Because **Peirce** traveled with Juliette (a French-speaking lady) without divorcing his first wife Zina, Simon Newcomb (an **envious** Canadian-American scientist) released a **scandal**. In January 1884, although he had divorced Zina and married Juliette, Peirce was **fired** from John Hopkins University. A friend of Peirce, William James, placed himself and Peirce as founders of the philosophical stream of **American Pragmatism**, addressed at the **practical effects** of our conceptions. Peirce went along with James at first; but later he named "Pragmaticism" his view of **natural growth**.

Nobody has explained so far Peirce's view. I compare his Finding to the Philosopher's Stone ("Z"). Peirce **discerned** the principles (Cassella, 2018d) behind the **universal grammar** announced by "Doctor Mirabilis" (the English Roger Bacon) in the 13th century. Bacon was jailed for **searching** and **finding** the **philosopher's stone** (Cassella, 2021f). Nearly five centuries later, Peirce concluded that **Roger Bacon** was **guided** by his **ironical inclination** (Peirce, 1877). One hundred twenty-eight years after Peirce, my **research** led me toward his and Bacon's **views** (Cassella, 2002).

4.2 Two Ways of Interpreting the World

In 1994-1997, I pursued a nocturnal master's degree in psychology at Harvard University (Cassella, 1997, 2011). In 1996, I examined 18 subjects, who included normal teens, high-functioning autistics, and average autistics.

From Louisiana University Dr. Daniel Povinelli sent me his **Proper-Self protocol** (Povinelli et al., 1996), which measures one's own **meta-representational memory**. Upon showing any subject a picture of a sticker placed surreptitiously on his or her hair, whoever removes the sticker passes the test.

Dr. Helen Tager-Flusberg examined my subjects with a **meta-representational false-belief protocol**,³ statistically failed by autistics (Baron-Cohen, 1995). In any false-belief story, a subject passes the test by **saying** that a returning doll will look for an object *where she left it before leaving the room*. Because they cannot **dwell simultaneously** in themselves **and** the doll, most autistics **wrongly answer** that she will **investigate** the changed location.

³ The page on autism of the website researchautism.com offers a description of the Proper-Self and False-belief protocols.

Besides testing for Proper-Self, I examined my subjects for Mirror Self-Recognition (MSR; Gallup, 1970), in which a two-year-old child passes that test by touching her red-spotted forehead while facing a mirror. All my subjects passed MSR, a measure of classical representation. Further, my high-functioning autistics passed meta-representational Proper-Self, while failing meta-representational false-belief as expected. My nonautistics passed both tests.

In talking to Alfonso Caramazza, the Director of the Cognitive Neuropsychology Lab at Harvard, he told me that passing Proper-Self was a *necessary but insufficient* condition to pass **false-belief**. Likewise, having Odysseus's powerful **bow** at hand did not help the weak Proci who wanted to marry his rich wife, Penelope.

In 1996-1997, my Harvard's research proved that we use at least two cognitive vectors—*the Toltec/Aztec Tonal spared* in autistics (blue in Figure 4) and the *Nagual impaired* in autism (red); or Moses' Thummim and Urim crystals, which Joseph Smith—the founder of the Latter-day Saints movement—associated to God (Cassella, 2018c).



Figure 4. Classical computing in spacetime (1, blue) and quantum computing in hyperspace (2, red)

In my diurnal work at the Center for Environmental Energy Policy and Research (CEEPR) of the nearby MIT (Massachusetts Institute of Technology), I evaluated long-term scenarios of energy use and population increase of all countries (Cassella, 2008). I realized there that China and India—as metaphors respectively for *pronounced economic growth* and *fast population growth*—might rush overwhelming global warming to 2060.

Along my doctoral research in Education at Simón Rodríguez University in 1997-2000, I analyzed (Cassella, 2000) Piaget's search of the growth of intelligence (Piaget, 1983). His *lack of autistic subjects* barred that psychologist from finding that *human intelligence grows along at least two vectors of cognition*: the classical-computing-word-Thummim-Tonal (1) spared in autism and the quantum-computing-word-Urim-Nagual (2) inherent to the **coherence** damaged in autism (Figure 4).

4.3 The Reality of Classical Computing

In the Thummim-vector explored by Piaget, babies recognize their self through perfect contingency (with $p = \text{probability} = 1$) by touching themselves, their cradle, or a rattle. Piaget found that children relate two objects to the self before age one year, and a representation to their self at two years (which bears the MSR protocol). Relating two concepts to the self (or classical meta-representation) requires five-and-a-half more years in Piaget's view, and four-and-a-half years in modern psychology.

By examining Perner's work (1991), I found that Proper-Self (recognition of the self) matches Zaitchik-Photo-Task (Zaitchik, 1990) (recognition of the other). In the latter protocol, a Sesame-Street character (say Bert) lies on a mat while a picture is taken. Bert leaves and Big Bird replaces him. When the opaque back of that picture and the question "who rested on the mat when this picture was taken?" are offered to a subject, whoever answers "Bert!" passes the test.

High-functioning autistics easily pass Proper-Self and Zaitchik-Photo-Task, though they fail **false-belief** by their inability to **string** the **bow** of **simultaneity** attached to **quantum computing** (coherence).

4.4 The Reality of Quantum Coherence

Following Peirce (1868), my Third Attention does not confuse Mary Magdalene or the Archangel Michael with an

apparent devil, as did John Watson. He used a string to tie a rattle to a foot of a sleeping four-month-old. After waking up, the baby moved her foot, causing the repetitive sound of the rattle, which Watson attributed to perfect contingency ($p = \text{probability} = 1$), or the Chinese “Yang.” The bored baby fell asleep again.

Watson tied a foot of a second four-month-old sleeping baby to the rattle, placing a screen between the two babies. When the first baby woke up, she played with the rattle, waking up the second baby, *who also moved the rattle* (Yang). Upon realizing that the rattle would sound without an intervention ($p = 0$), each baby **increased** her **play**. Watson attributed that **curiosity** to a probability **between 0 and 1**. That probability fits **less-than-perfect quantum computing** (Lloyd, 2006), our second attention, or the Chinese **Yin impaired in autism**. Watson never suspected the reality of our Third Attention/Intention, the **transformation** of **coherence** into **decoherence**, or the **alliance** (Yin-Yang) of **quantum** with classical computing.

4.5 The Reality of Quantum Decoherence

The **Yellow Emperor** and **Yu the Great** (the founder of the Xia royal dynasty in China) knew before **Moses** the gist of the **Urim and Thummim** crystals that **ally** in the Yin-Yang symbol. Here is an explanation of **Yin-Yang’s meaning!**

Peirce’s second proposition, “**A griffin is a winged quadruped**” **joins** the representations of the king of animals on land (the lion) **with** the king of animals in the sky (the eagle). Though a lion (Yang) and an eagle (Yang) can be ascribed to different local columns of our cerebral cortex, in the **cerebellar fantasy** lost in autism they **belong to the same nonlocal “representation”** (Yin).

Our **simultaneous stay** in separate cerebral columns **reflects** the **bow**, an **infinite speed**, and the **nothingness-zero** by which two animals **share the same space simultaneously**. That entails two principles of the **griffin** (Yin-devil-witch) that characterizes the “**hyperspace**” (Caramazza, 1994) that *autistics cannot fathom*.⁴

- **An object can exist in separate places concurrently** (**Ubiquity**, or **Entanglement** in quantum physics) and
- **Distinct objects can share the same space** (**Coincidence**, or **Quantum Superposition** in quantum physics).

The phrase “**there is no griffin**,” though, implies that the **principles of hyperspace** are denied by the principles of spacetime (Cassella, 2002, 2011):

- **An object cannot exist in separate places at once** (**Locality**, or **Einstein’s finiteness of the speed of light**) and
- **Distinct objects cannot share the same space** (**Impenetrability** or **Pauli Exclusion Principle**).

We cannot deny the deadly laws of the war-filled spacetime in which we live: **Butchers** live by the destructive power of **zero** in their knives.

Nothingness also empowers the teeth of dogs and the beak of the gannet that stabs a sardine. The fact that we easily stab others and are easily stabbed by **others** convinces too **many** people to deny the **crossing** of locality with **nonlocality**.

The **Roman prelates** who condemned Galileo Galilei (Redondi, 1987), for example, did not **get** the mysterious **union** of bread and wine in Transubstantiation. Yet the **story** of Mary Magdalene, the **union** of matter-electrons with **light-photons** (through *Sommerfeld’s fine-structure constant*), and autistics’ strain with **pronouns** (Kanner, 1943) can help us stress the ironical **alliance** (“**Z**”) of the principles of spacetime with the **principles of hyperspace** in the cosmos.

There is the autistic side of the mind (the piercing perfection of the first attention, classical computing, and grammar); and there is the **artistic side of the mind** (the **second attention**, **less-than-perfection**, **quantum coherence**, or language **pragmatics**). But their elegant **complementarity** (e.g., in the Scottish song “**The bonnie banks of Loch Lomond**,” Ivan Larionov’s song “**Kalinka**,” and the **inlet** to the Bank of England in London [Figure 5]) is also a fact!

Thus, to the insufficiency of the classical mirrors used by autistics in passing MSR we need to add the insufficiency of the **mirror** used by Walt Disney in “The Little Mermaid.” In that movie, the bewitching woman **Vanessa is reflected by her alter ego Ursula**, a fat octopus-sea-witch. Both the mirrors of the first attention and the **mirrors of the second attention** need to be complemented by the more durable **mirrors of the third attention**; for example, one that informs the **Evil Queen** about the beauty of her stepdaughter **Snow-White** (Grimm and Grimm, 1857).

The story of **Snow-White** matches the **combination** of **arch** and opposite columns in the door to the Bank of England in London and the **conversation** between the woman and the man in the overlapping white circles near it: The woman is **thanking** again the man for **picking her pen** up when she needed it.

4.6 The Complementarity of Reality and Fantasy in the Kind Use of Pronouns

Inside the bank, the man asked: “**I believe that this pen does not belong to me but to you.**” / “**Is it yours?**” The woman answered: “**It is mine!**” / “**I thank you for picking my pen up and giving it back to me just when I need it!**”

⁴ The reality of hyperspace was also cited by Arthur Koestler in 1964.

Notice that the *opposite pronouns* “yours” and “mine” *refer to the same “pen.”* This sentence shows our **consent** to a contradiction. Likewise, *opposite terms like “you” and “me” are applied to the same individual.*



Figure 5. Being and nonbeing at the inlet of the Bank of England in London

How can we own a house, draw money from a bank account, and recognize our image in a mirror if we **are whom we are** and someone else as **pronouns** imply? Would a cashier pay Ursula from an account opened by Vanessa?

Tyrants handle **pronouns** in a talk; but they **take** for **themselves**, their **partners**, and their acolytes rights of total control that none of them deserves. Will we recall the lovingkindness our ancestors received from the Buddha-Maitreya by repenting and crossing the principles of spacetime with the **principles of hyperspace** to avoid madness?

4.7 The Return of the Buddha through Maitreya

The Buddha called himself “Tathagata.” This name means not only “Thus gone” but also “Thus returned.” Most Buddhist monks or nuns go today by either meaning, forgetting the *individual lovingkindness* that values **both meanings simultaneously**. In his last sermon, the Buddha explained that everyone must **seek his or her own salvation**.

Figure 6 shows in green the **ironical third attention** that re-directs the first attention (Thummim-Tonal-Yang) and the devilish second attention (Urim-Nagual-Yin) into the return of the **Archangel Michael**, **Quetzalcoatl**, **Maitreya**, and the **Virgin of Guadalupe**, as a metaphor for the Progress brought by the perfume and grace of Larionov’s “Kalinka.”

Within Progress (Figure 6):

- Moses’s **Urim joins** a new Thummim (Cassella, 2019a);
- Laozi’s **Yin joins** a new Yang;
- Quetzalcoatl’s **Nagual joins** a new Tonal (Castaneda, 1992),
- The Mahdi will **turn around** the **Black Stone** to **re-create** Makkah; and
- Maitreya will **return to fulfill** the **hope** of **repentant** and **humble** individuals.

Peirce **returned** in 1868 with three aspects of Progress:

1. The classical link between two representations (within meta-representation) or the Thummim/Tonal demonstrated by the autistics who pass Proper-self and Zaitchik’s-Photo-Task (in blue),
2. the **pragmatics** (in red), **griffin**, **Urim/Nagual**, or **false-belief tasks** passed by 6.5-year-old nonautistics, the **pretend play** of two-year-olds, the **teasing/joint-attention** of one-year-olds, the **changes of attention** (Landry and Bryson, 2004) in four-month-olds; and
3. their **crossing** into the **universal grammar** (in green) and **values** that Peirce kept during his entire life.

Maitreya, Quetzalcoatl, and Laozi **return** to the mind of the **repented person** who recovers our primordial **purity** and **grace**—in Mary Magdalene, mothers, the Virgin of Guadalupe, irony, and the Holy Ghost—to **win with** former **sinners**.



Figure 6. The return of the Buddha-Quetzalcoatl through Grace-Maitreya

The universal grammar by which we win with others is the subject of the next subsection.

4.8 The Case for a Universal Grammar

Peirce (1968) knew that we use grammar to repeat learned rules or words. As Figure 7 implies, though, the Universal Grammar by which one gets new rules and words is more (3) than a grammar (1, Yang) inscribed in the pragmatics (2, Yin) seen by Charles W. Morris (Padrón, 1996). Rules may govern words, but something else readjusts both.



Figure 7. The ironical relationship between pragmatics and grammar in the Universal Grammar

Morris did not get the patience and forgiveness of Peirce. Only strategic planning ending in individual lovingkindness can reach Progress and the Universal Grammar that might save our grandchildren.

Without lovingkindness in the 3rd Attention, the griffin would degenerate in the Tower of Babel, as an arch or a dome would collapse near its sustaining columns. Vice-versa, only the 2nd attention may introduce the 3rd attention.

As enraged, separated, aloof, and deranged adults show, our pragmatic dimension may become as risky and insufficient as a unilateral grammar. That lot hit the angered Achilles in the Iliad.

4.9 The Mad Rage of Achilles and the Heroism of Hector

The Centaur Chiron showed young Achilles a force that can defeat gravity. As with Darth Vader and the Evil Emperor in the Star-Wars franchise, though, Achilles was charmed by the dark side of the Force.

His rage precluded him from embracing his dead friend Patroclus and from seizing the nothingness that protected the corpse of Hector. He never realized that Hector's corpse and the rocks in the soil of the Greek camp shared the same space at the same time.

As with Achilles, Charles W. Morris never mastered the union of the griffin with the inexistence of the griffin, or the ironical universal grammar proposed by Charles Sanders Santiago Peirce.

Any believer can memorize a Sacred Text. Some can read the metaphors hidden in Genesis—for example, the ramp (quantum computing) dreamed by Jacob in Bethel. But fewer leaders can read the struggle of Jacob with the face of God in Penuel. The Face of God (Michael?) blessed Jacob's survival by calling him "Israel" at dawn (Genesis, 32:32). All nonautistics share Jacob's capacity for playing with metaphor and lying, but few will act into becoming Israel.

5. Discussion

5.1 The Wonders of Metaphor, Paradox, and Lying

In 1947 my father arrived in Italy from the Second World War and prison in Africa. His first words to me were, "I survived because my platoon was like a shoal of sardines." Of course, 18 sardines never entered the bodies of 18 Italian soldiers. My father leaned on metaphor to mean that unbreakable union in his platoon saved him.

The latter sentence is true and false, as is Pinocchio's "My nose will be growing" (Figure 8). If Pinocchio's nose grows, he is lying, but his words are true! If his nose does not grow, he is not lying, but his words are false. Autistics cannot get Pinocchio's paradox, the pragmatics of a griffin, puns, metaphors, or lies. But angels and repented devils can lie.

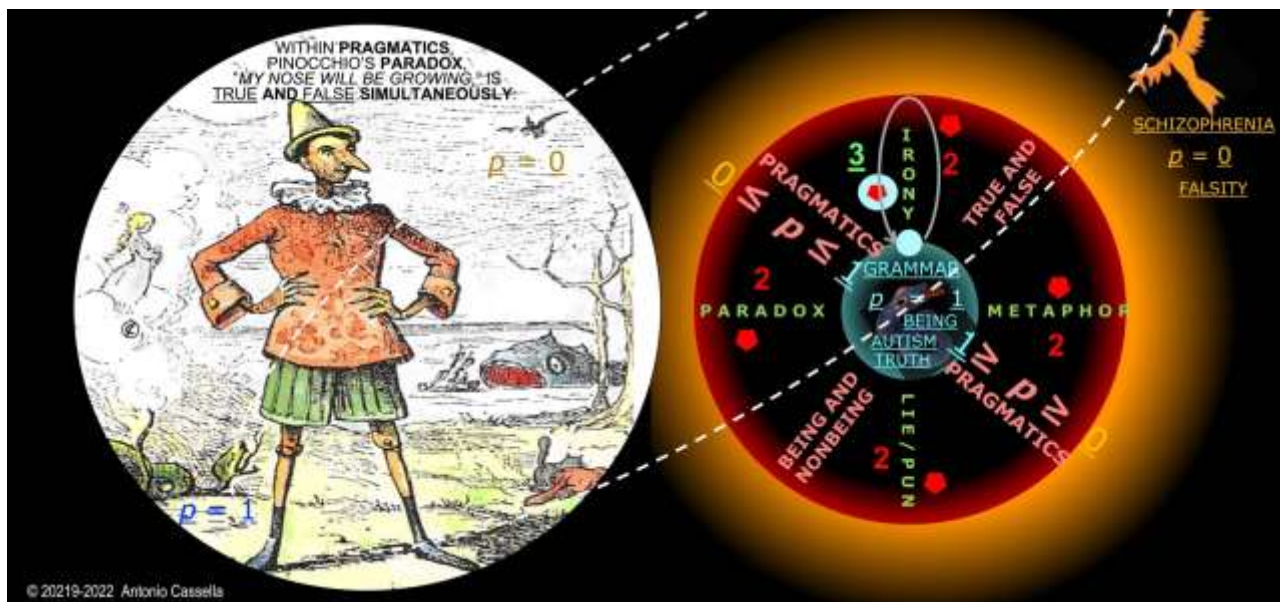


Figure 8. The simultaneous nature (2) of lying, humor, metaphor, and paradox

Before leaving Addis Ababa to fight the Allies in 1940, my father asked the Ethiopian owner of the house he had rented to look for the safety of his family. While my father was away, Addis Ababa became an open city in 1941.

When the Ethiopian free fighters arrived at our neighbor's home, my mother saw how they killed the wife and child of an absent Italian soldier. After that, they came to our house, while the owner was sitting before the closed main door. He told them that his wife was inside: a lie! Since his nose did not grow as in Pinocchio, they believed him and did not enter. That Ethiopian dark angel used the hidden tension of lying to save our lives.

A like case funds our winning with others through irony.

5.2 The Wonders of Irony

High-building's dwellers in Caracas keep the door to their apartment shut. Yet a mother realizes that she cannot convince her teen daughter about the soundness of this tradition. Upon coming back home from work, she always finds an open door. One day, however, she tells her daughter: "I had to use my keys to get in today, which pleased me a lot!"

Her daughter knows that, more than just **lying**, her mother is uttering an **irony**, for the door was and continues to be open. The daughter becomes **ashamed** and thereafter **bends** to a sounder behavior.

With his two 1868's propositions, Peirce implied that if **science** mastered the **union** of **classical** and **quantum** computing in **irony**, robots with **artificial extensions of the human mind** could translate **puns**.

5.3 Translating Puns

Imagine, for example, that the Roman Marc Antony came to Alexandria of Egypt to ask a favor from an English-educated Queen Cleopatra VII. He would be told immediately that the absent ruler denied any favor. Upon his insistence, he would be told that the queen had just gone to Giza by sea, that he could catch her before she landed on the western shore of The Nile River, and that "She is after all the Queen of **denial (The Nile)**."

Cleopatra VII shows that **puns** go by the **crossing** of unrelated contexts. Autistics' inability to mount the **infinite speed of the second attention**—by **dwelling** in diverse contexts **simultaneously**—explains why they cannot get **humor**.

5.4 From the Crossing of Contexts to a Renewed Life

Ironic humor may **save a life**. To the matter, Figure 9 reflects a fragment from the ancient philosopher Heraclitus from Ephesus and one adventure of Mr. Bean—the modern English **comedian** Rowan Atkinson.

Realizing that a baby cart hooked to some balloons was taking a sleeping baby into the sky, in the 1994 TV episode, "Mind the baby, Mr. Bean," he takes a **bow**, **shoots** an **arrow** into one of the balloons, and **causes** the flying cart to land near to the anxious baby's mother (context A). The **freedom** to **choose** context A over B suggests that **Mr. Bean** used **infinity** to **exist in both** contexts (since he knew what the usual **meaning** of a bow and arrow is), passed **schizophrenic nonbeing**, reached the **nothingness** of the Third Attention, and **landed** in the **renewed first attention** of context A.

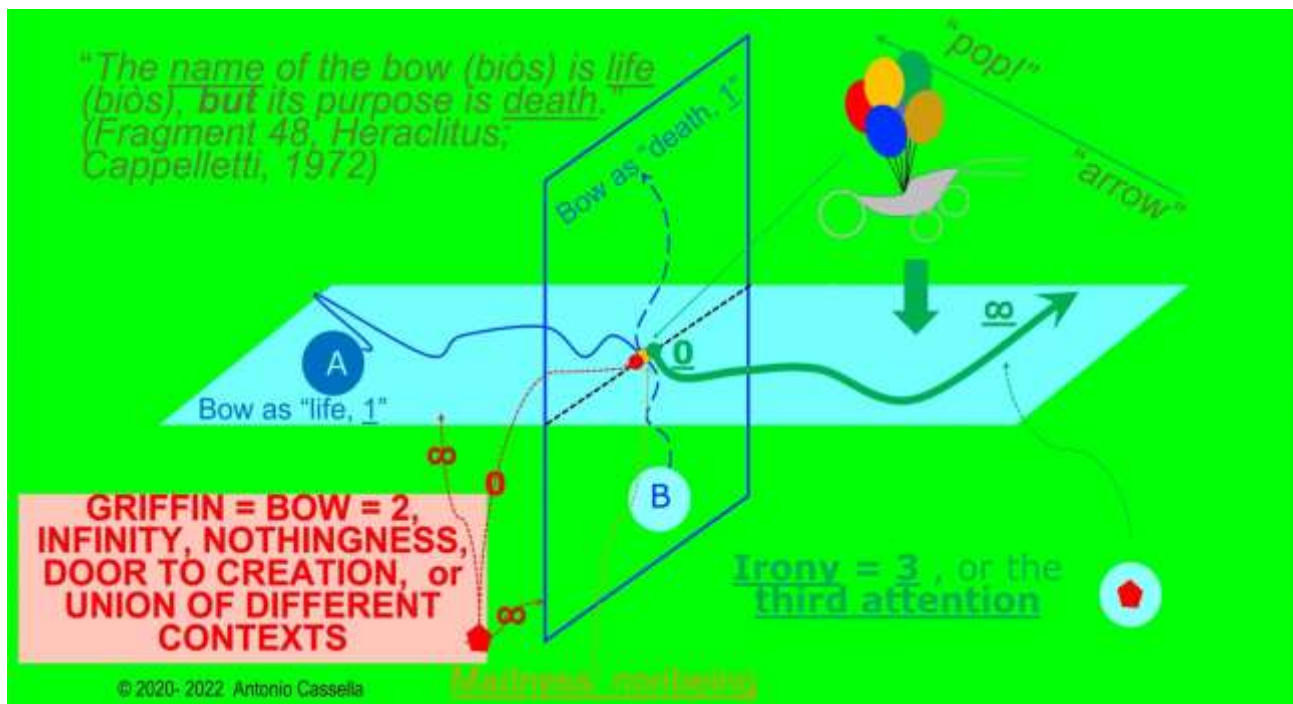


Figure 9. The landing of a griffin

5.5 A Tension to Kill and a Tension to Save

Mr. Bean respected memory when he pierced a balloon and **simultaneously** **his irony induced a better future!** Similarly, the **tension** of a **bow** can be used to **enrich** others (Figure 10).

The **tension** of the **griffin** (2) sustains any **discourse**. **Enriching** another person, another culture, or another country through **discourses**, though, is not a piece of cake.

We need to cross memory (1) with freedom (2) in padding together (3)! Without crossing the 1st with the 2nd attention, we cannot “take a cup of kindness yet” (3) in the song “Auld Lang Syne” (“səin”, Scottish IPA).

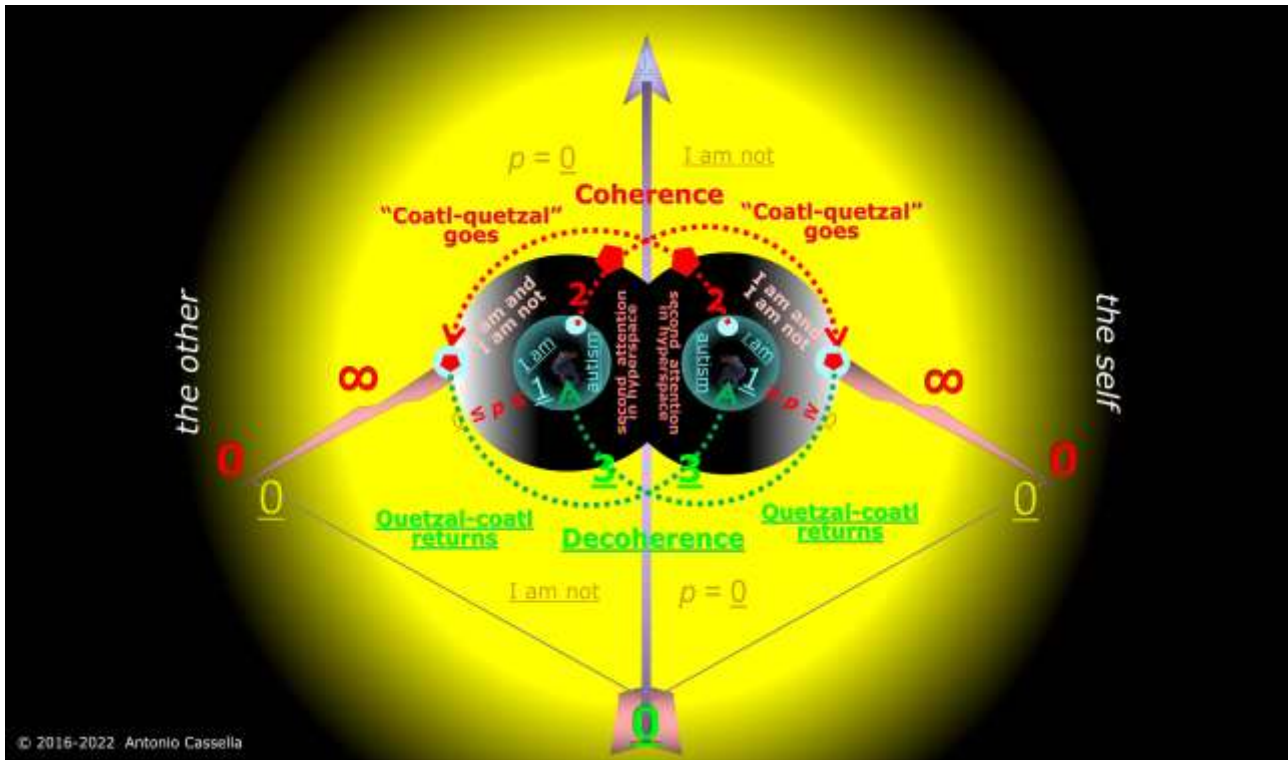


Figure 10. Classical and quantum computing in spontaneous discourse

In talking to others we need to cross the coherence, the schizophrenia, and the decoherence of the other with those of the self. Although the act shown in Figure 10 seems impossible, it is done whenever we watch a play by Shakespeare or talk blind followers into saving others, as did the house owner who lied to save my family and me from early death in Addis Ababa 81 years ago.

Lovingkindness, affection, and the will to dance with others make the distributed hierarchy of our brain.

A circle of dancers holding each-other hands while turning and singing “Auld lang syne” matches the emotion felt by the Scottish poet Robert Burns when he heard that song from an old man. When singer-dancers cross their forearms to reverse their affection to their neighbors, while seeking the center of their circle, that group reflects the Third Attention.

Understanding Peirce’s science of irony may help us pass from a personal miracle to a self-other miracle and a global miracle (e.g., the salvation of Earth from global warming and the 6th extinction). A global distributed hierarchy agrees with the circle of a global democracy (Cassella, 2021a) in which obedience derives from freedom, not fear.

5.6 The Irony in Our Brain

As Figure 11 shows coarsely, the human brain of a right-handed person responds to a distributed hierarchy made by a 1st attention in the cerebral cortex, a 2nd attention in cerebellar-brainstem-Long-term-Potentialiation (LTP), and a 3rd Attention in cerebellar-brainstem-Long-Term-Depression (LTD).

Under beta waves, our cerebral cortex feeds the deep cerebellar nuclei and Parallel Fibers true copies of the memory, rites, names, words, and rules attached to the society (1) we live in (Auld Lang Syne).

But in cerebellar microcomplexes (there are about 5,000 of them), quantum alpha waves (2) embrace the beta waves of truth and the delta waves of falsity simultaneously, within coherence, divergence, and LTP. Likewise, the “Hail-Mary” says, “Blessed art thou among women” (Luke, 1: 28, KJV).

Further, under quantum decoherence, extreme convergence, and LTD, the microcomplexes involved generate innovative solutions to the doubting-problem-hypothesis-hope at hand.

Two examples of the Third Attention are the verse “Blessed is the fruit of thy womb, Jesus” in the “Hail Mary” (Luke, 1: 42, KJV) and the verse “forgive us our sins; for we also forgive every one that is indebted to us,” in the Lord’s Prayer (Luke, 11: 4, KJV). To forgive and even help abusers is not easy.

For example, in facing a green traffic light (beta waves on), we *may assume* (**alpha waves on**) that a rival car is driven by a drunkard who will disrespect his red light. By **traveling simultaneously** in both cars (**LTP**), our **virtual self** will **realize** that both cars will reach the intersection simultaneously and destroy each other by the rigidity of the principles of spacetime. (**LTP** makes the *seven devils* that Jesus brought to **obey** Mary Magdalene).

Happily, under Theta waves and **the principles of hyperspace**, our **implicit self** would survive in that **virtual collision** and **return** to the explicit self that drives our car, who would then **choose** the cerebellar Purkinje cell that recommends pressing the brake (**LTD**).

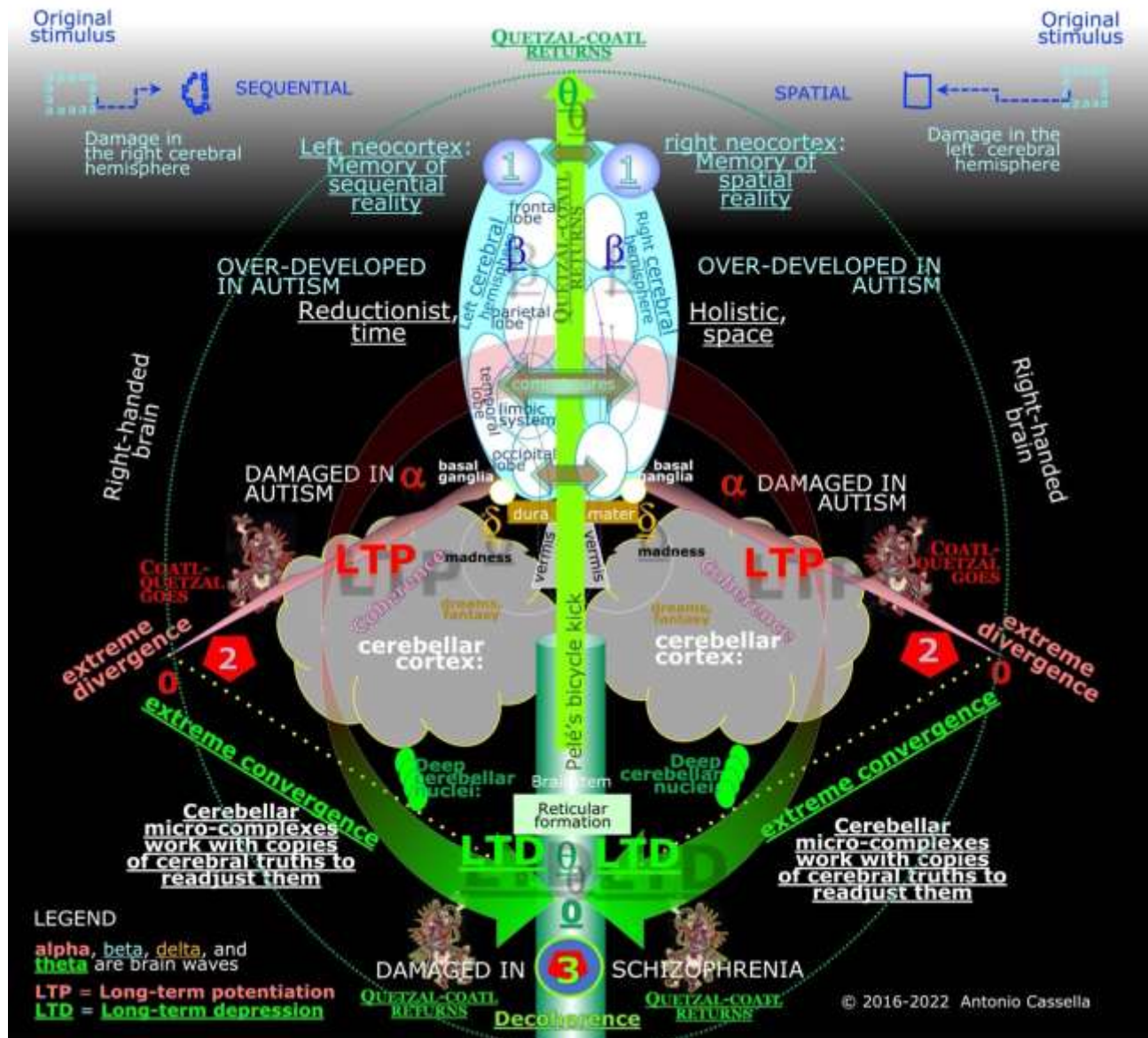


Figure 11. The bow of quantum computing in the human brain

The same neural path led Pelé in 1968 to inflict a **goal** on Belgium by way of a **bicycle kick**. Pelé **crossed** a surprising **inverse model** of his with the predictable forward model of a defense player who intended to pass the soccer ball to a midfielder mate.

Beta brain waves record cerebral truths; alpha brain waves, the **divergence** impaired in autism; delta brain waves, the negation of known reality; and theta brain waves, the **zeugma-disposition** to **re-create known reality** for a **wider good**.

In **changing** to Parallel fibers through Granule and Golgi cells in the cerebellar cortex, *one Mossy fiber from the cerebral cortex can excite about 200,000 Purkinje cells*—under the **divergence unleashed by quantum coherence**; and *one Purkinje cell can be excited by about 200,000 Parallel fibers* under the **convergence that favors quantum decoherence** (Ito, 2011). The relationship between **LTP** and **LTD** hides the **power** of 40 billion **artless** combinations.

Divergence and **convergence met** in the cerebellar microcomplex and Purkinje cells that allowed Pel é to impose a goal on Belgium in 1968 through a **bicycle kick**. Because the fewer **Purkinje cells** of autistics (Bauman and Kemper, 2006) lack our cognitive **bow** (the **second attention**), they can neither **cohere** nor **decohere**.

5.7 The Reconstruction of Reality

Peirce's **irony** and Pelé's **bicycle kick** exemplify the **re-construction** of reality. About 46 centuries ago, Egyptians needed to **reconstruct reality** after a flooding by The Nile. I posited (Cassella, 2018b) that pharaohs of the fourth dynasty had two circular triangulations, **overlapping one another** south of modern Cairo (Figure 12, right).

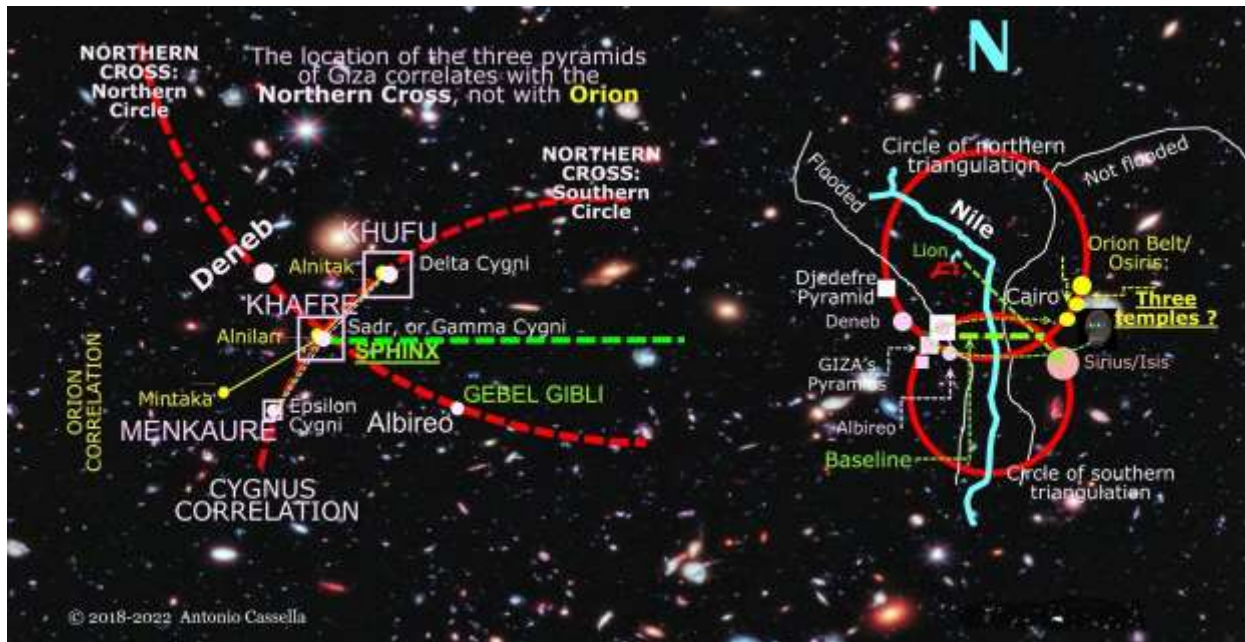


Figure 12. From the four right angles of the Northern Cross to two primary triangulations in ancient Egypt

Egyptian priests took the idea of crossing two circular triangulations from the Northern Cross—and not Orion—since the location of the Menkaure pyramid correlated with *Epsilon Cygni* and not with *Mintaka* (Figure 12, left) 4,600 years ago. The older Sphinx guards the west-to-east common baseline of the two triangulations (Cassella, 2018b).

Khafre's pyramid marks the western end of the baseline-intersection of the two circles; and a temple, the eastern end. On the Northern Circle (right of Figure 12), an empty tract of land, 1.8 miles north-east from the eastern end of the baseline *should hide the three buried temples of Orion's Belt*.

The location of the destroyed Djedefre's pyramid confirms the Northern Circle; and the temple to Isis/Sirius, the Southern one:

- The portion of the Nile in front of the Sphinx symbolizes the **reality** of **living in opposite worlds at the same time**; and
- in the pyramids of Lower Egypt built by the first five pharaoh of the fourth dynasty, the quotient of the perimeter of its base by its height gives a value near 6.28, Tau (τ), **twice Greek Pi** (2π), or a **circle** ("Z").

In the center of any **complex circle**, an **infinite** number of beginning **radii** in a fringe circumference **joins** classical **zero**, the **zero** of the **coherence** defective in **autism**, and the **zero** of the **decoherence** impaired in **madness**.

5.8 From Real to Complex Circles

Descartes **knew** that *the equation of a circle located in the center of the Cartesian Plane* (like the map of a city) *with radius one is: $x^2 + y^2 = 1$* . Also, that $x^2 + y^2 = 0$ or $y^2 = x^2(-1)$ *represents a zero-radius circle*. The two solutions of the equation of a zero-radius circle are: $y = \pm x\sqrt{-1}$. Descartes **saw** that the square root of -1 is an **imaginary** number.

One hundred years later, Euler spread the use of the symbols " i " for the **imaginary** square root of -1 . He implied the **complex plane** in which the horizontal axis in the Cartesian Plane **joins** imaginary **ordinates**. In any **complex number** ("**z**"), a **real abscissa** (**a**) is added to an **imaginary ordinate** (**ib**).

Euler also popularized the use of " π " for the ratio of any circle to its diameter. Finally, he imposed a circular-polar-

coordinate system with $z = e^{i\theta} = \cos\theta + i\sin\theta$ when the radius of the **complex circle** is one.⁵

As Figure 13 shows, if cosines keep perpendicular to sines, we may posit a **complex circle** (with radius = 1) in which abscissae are cosines, adjacent catheti, the first attention, Proper Self, Zaitchik-Photo-Task, Thummim-Tonal, and MSR.

In the **complex circle**, ordinates are Euler’s sines multiplied by the **imaginary unit “i,”** the **second attention, Yin-Urim-Nagual**, and the **false-belief protocol** that autistics cannot grasp. Since *the Big-Bang happened 13.8 and the acceleration five billion years ago*, I divide the complex circle shown in Figure 13 in four quadrants of 8.8 billion years.

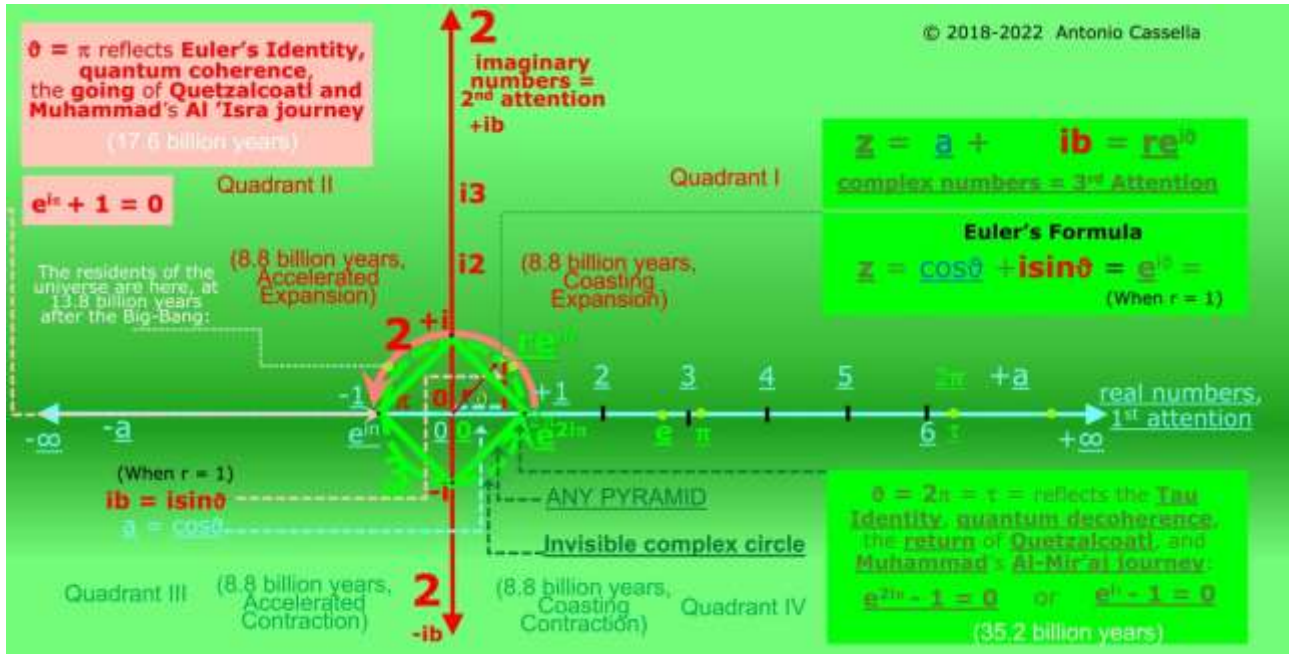


Figure 13. From a visible Cartesian pyramid to an invisible complex circle

The **complex circle** of Figure 13 supports more than the conjecture by Pierre de Fermat in 1637 that the exponent “n” cannot be more than 2 in the equation $a^n + b^n = c^n$: Fermat’s *conjecture* became his *last theorem*, proved in 1993 by Andrew Wiles. The value $n = 2$ gives Pythagoras’s theorem—e.g., in the $3^2 + 4^2 = 5^2$ (or $9 + 16 = 25$) used by ancient Egyptians to draw a right triangle in quadrant I. However, in **rotating** 360° a right triangle with two equal catheti, priests of Thoth would trace the **invisible complex circle** that circumscribes the four angles in the squared base of the pyramids built by the first five pharaohs of the fourth dynasty. In the cross of the two diagonals of a square, a dimensionless point (**nothingness**) shares in the **infinity** of two lines perpendicular to each other.

One coin can have only two faces. Still, when Jesus was asked if Jews should pay taxes to **Caesar** (pronounced “Czar”), in pointing at the **emperor’s** face in a copper coin, He asked to whom did that image belong. After His questioners recognized Caesar’s head, He said, “Render therefore unto **Caesar** the things that are Caesar’s; and unto **God** the things that are God’s” (Matthew 22:20-21 KJV).

Christ’s answer goes with the **3rd** Attention, or the **irony** proposed by Peirce. As with the story of **Joseph**, what seemed madness in the first place (+1 opposed to -1) **returned** to a better +1 when the “Z”-points of the **complex circle** showed their final meaning.

5.9 From Euler’s Identity to the Tau Identity in a Complex Circle

Euler’s followers noticed that going 180° (or the angle π in radians) toward the value -1 , starting from $+1$ in the real axis of the complex circle (as shown by the pink/red half-circumference in Figure 13), traces the upper half-circle and the identity $e^{i\pi} + 1 = 0$, called “**Euler’s Identity**.”⁶

If you buy a refrigerator contained in a square-cardboard box, after removing the upper plastic strip, that *square-strip* becomes a circle on a table. And if you cut that circle and reassemble it after turning one end by 180° , you obtain a **Möbius strip** with one surface only. More than squaring a circle in one step, however, Egyptians were interested in **mirroring** the cosmos and the mind.

⁵ In Euler’s formula, the letter “e” is Euler number (a constant that makes natural logarithms and is its own derivative).

⁶ Per Euler’s formula, $e^{i\theta} = \cos\theta + i\sin\theta$ we obtain at first, $e^{i\pi} = -1 + 0$; and then, $e^{i\pi} + 1 = 0$.

Hence, I examined what would happen if the angle theta in radians was 2π or “**tau**” (τ) in the Greek alphabet. In 2018 (Cassella, 2018a, 2019b), I found the identity $e^{i\tau} - 1 = 0$. I called it the “Tau Identity.” *The Tau Identity contains Euler’s Identity.*

In the pyramids (Figure 13) built by the first five pharaohs of the fourth dynasty, the perimeter of their squared-base divided by their height results in 6.28, 2π , or the **invisible complex circle** traced by rotating the visible square. That **circle** reflects the **union** of **infinity** with nothingness, **nothingness**, and nothingness (0, 0, and 0).

5.10 *The Universe and the Anti-Universe*

Figure 14 rises if one considers that one can draw the complex circle of Figure 13 starting from +1 and going up counterclockwise until returning to +1 or starting from -1 and going up clockwise until returning to -1. The latter case is equivalent to starting from -1 and going down counterclockwise until returning to -1, a situation in which the universe chases the anti-universe as a dog chases its tail.

Figure 14 posits (Cassella, 2019b) a universe of matter and one of anti-matter, which agrees with the mathematics of Boyle, Finn, and Turok (2018; 2022). While Euler’s Identity seems to trail the **mirror** of **Vanessa-Ursula**, the Tau Identity in Figures 13 and 14 goes by the **mirror of truth** of the Snow-White tale, or by **Mary Magdalene** ruling her inner **devils**. Similarly, in a **repented tyrant**, the **devil’s acting part** is over.

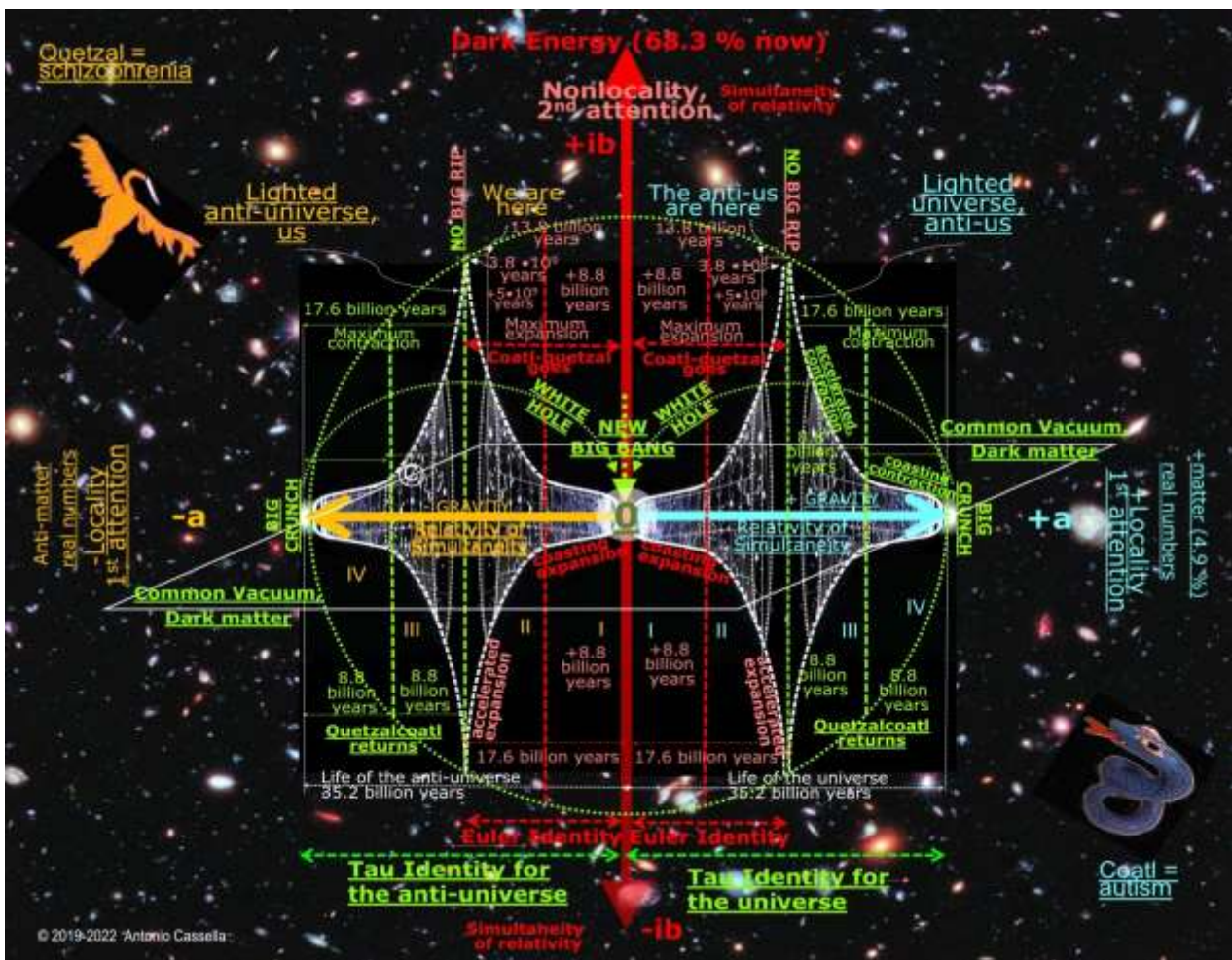


Figure 14. The rise and fall of the universe and anti-universe

In the Cartesian spacetime of the universe and anti-universe, nothing goes faster than the finite speed of light (Feynman, 1995). That is order (MSR) for an autistic who trusts the mirror he is facing. Since **magical mirrors go by an infinite speed**, the **fat octopus Ursula** reflects the ambitious expansion of her **Vanessa** alter ego in Euler’s Identity. But that expansion is an illusion in what concerns the **Tau Identity**, which begins with **Euler’s Identity** and *replaces it* after the **devil’s acting part** ends (see the difference between the **pink** and the **green** circular arrows of Figure 13).

The Big Rip of Euler’s Identity does not fit the Tau Identity. Instead, the latter **leads** to two Big Crunches and the next Big Bang in 21.4 billion years.

Within the Tau Identity (Figure 13) in a **complex circle**, a **turn** of 90° (the multiplication of $\underline{1}$ by i) would end the coasting growth of the cosmos; **turning** 180° (Euler’s Identity, or the multiplication of $\underline{1}$ by i^2 [-1]) would end their accelerated expansion; **turning** by 270° (the multiplication by i^3 [-i]), would end their faster contraction; and the product of $\underline{1}$ by i^4 [$i^2 \times i^2$; or $-1 \times -1 = +1$] would **return** both universes to a coasting contraction and a new Big-Bang.

Following Peirce’s affirmation (1868) that “**There is no griffin**,” I locate “us” in the **anti-universe**. I wrote before (Cassella, 2019b) that opposite universes eliminate the cosmological-constant problem. Within it, the vacuum density *measured* by the Λ -CDM (Lambda-Cold-Dark-Matter) model of general relativity is way below (one followed by 120 zeros) the vacuum density *calculated* through QFT (quantum field theory). If the **relativity of simultaneity allies with the simultaneity of relativity**, however, the **infinite speed** imposed by **dark energy** ousts the vacuum catastrophe.

5.11 *The Alliance of the Relativity of Simultaneity with the Simultaneity of Relativity*

To understand Einstein’s thought experiment of the **relativity of simultaneity** think of my *hiding* in the center of a school’s Conference-Room (Cassella, 2018c, 2021e), in which I use electrical switches to ring **simultaneously** a school bell hung at my right and a Big-Ben-bell hung at my left. I will hear the two bells **at once**. However, a **male teacher** under the school bell and one under the Big-Ben bell will **diverge (Yang)** in reporting which bell sounded first. And yet if we asked two **female teachers (Yin)**, after **recapping the experience** of their male colleagues they would say that because they **went through conflicting experiences at once**, **the two sounds were simultaneous (Yin-Yang)**.

The **alliance** of Einstein’s **relativity of simultaneity (1)** (spared in autism) with the **simultaneity of relativity** hurt in autism supports an **irony** that may **renew reality**. In opposite universes ruled by a **complex balance**, the **divergence of infinity** and the **convergence of zero** may vivify artists with an altruistic **intuition**—e.g., **Leonardo da Vinci**.

5.12 *Uncovering Leonardo’s “Fight for the Standard”*

In 1503, Leonardo agreed with the Republic of Florence to paint the “Battle of Anghiari,” **fought** in 1440 by Florence, Venice, and Rome **against** Milan. The top part of that mural melted down in 1505, but its presumably lower center piece—the “Fight for the Standard,” of which we have several small copies—survived five decades. The “Fight for the Standard” hides where Leonardo used porous Volterra plaster (calcium sulfate, instead of the calcium carbonate he used in the upper part of the *Battle of Anghiari*)—on the lower and southern part of the East Wall of the Hall of the 500, at Florence’s Palazzo Vecchio (Figure 15, bottom right [Cassella, 2017b, 2018e, 2022]).

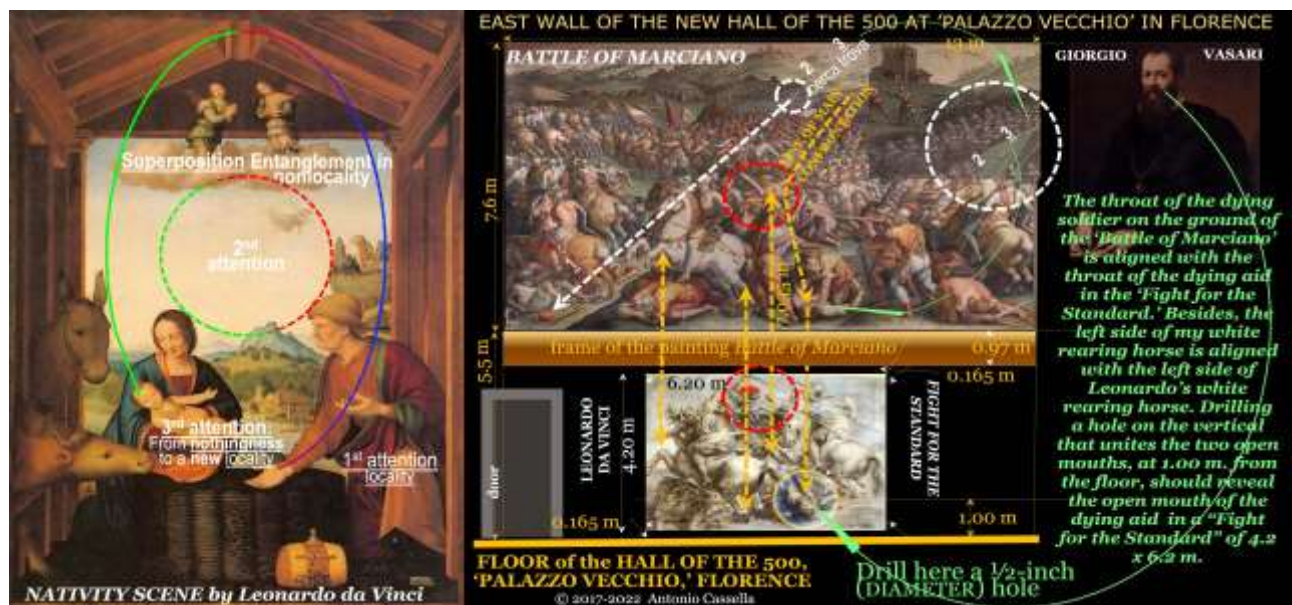


Figure 15. Leonardo’s “Nativity” and his “Fight for the Standard”

At the left of Figure 15, Leonardo’s painting “Nativity Scene” (kept in the church of “Santa Maria Canale” at Tortona, south of Milan) shows the **two main principles of quantum computing** in the **angels** that overlook the scene and evoke the **infinity-zero** inherent in the **vertical axis** of Figures 13 and 14.

Although the two angels are inside the manger, the fact that **their feet hide in clouds** located outside renders them **inside and outside at once**. (Notice that the *angel at left* belongs to the **2nd** and **3rd** attentions **simultaneously**.)

Leonardo painted the “Nativity Scene” before moving from Milan to Florence. He **gave more relevance** there to the losers **Niccoló Piccinino** and his son **Francesco** than to leaders of the Florentine-Venetian-Roman league (Cardinal

Ludovico Trevisan and Micheletto Attendolo).

My conclusion is that in the “Fight for the Standard” Leonardo’s reflects the **second attention** and **implies** the **third attention**.

Finding Leonardo’s “Fight for the Standard” (Cassella, 2017b) might convince key leaders of **crossing** the **finite principle** of **general relativity** with the **infinite principles** of **quantum physics** in appreciating Peirce’s **universal grammar** and **science of irony**.

5.13 Why the “Fight for the Standard” Is Located Under the “Battle of Marciano”

Figure 15 responds to ten **reasons why** a 4.20 x 6.20 m. “Fight for the Standard” hides under the “Battle of Marciano”:

1. In 1568, Vasari repeated his 1550-message about Leonardo’s “Fight for the Standard.”
2. By citing a “*man with a big red hat*” Vasari *admitted that he saw* the “Fight for the Standard.”
3. He painted a *big red hat* on the left lower corner of his “Battle of Marciano.”
4. He also left there the image of a bar represented in Rubens’ copy of the “Fight for the Standard”.
5. The straight line of the words “**cerca trova**” (“seek find”) at the top of the “Battle of Marciano” crosses Vasari’s “Big red hat” in the left lower corner of that painting.
6. In the center of the “Battle of Marciano” a soldier wears the “big red hat” of Piccinino.
7. If we **align** the mouths of the prone screaming soldier in the “Battle of Marciano” and the prone screaming man in the “Fight for the Standard,” the center of the “Battle of Marciano” suggests an increased “Fight for the Standard.”⁷
8. In the latter case, Leonardo’s **white rearing horse aligns** with Vasari’s **white rearing horse**.
9. Maurizio Seracini proved in 2011 that the Medici conserved the empty top part of Leonardo’s *Battle of Anghiari*.
10. Probably, the Medici conserved the *Fight for the Standard* below the *Battle of Marciano*.

Drilling a 0.5-inch hole, *at 1.00 m. from the floor*, on the vertical that crosses the mouth of the supine and screaming soldier of the “Battle of Marciano,” would expose the mouth of Leonardo’s supine and screaming individual.

6. Conclusion

Global warming (Cassella, 2021c; IPCC, 2022) and the 6^{th} *extinction of nonhuman species* will be stopped by stopping its three causes (Cassella, 2018e, 2021b):

- The *tenfold increase of global population since the Industrial Revolution*,
- the *increase of the per-capita energy consumption in terms of fossil fuels* (from 1.3 equivalent barrels per-year-per-person 10,000 years ago [Malanima, 2014] to 11.7 in 2021 [British Petroleum, 2022]), and
- our **oblivion** of the **values** of our ancestors (Cassella, 2021c).

If carbon dioxide (CO₂) in the atmosphere (about 420 ppm today) increases to 1000 ppm (in about 40 years?), *the positive feedback of melting the permafrost might increase the atmospheric content of CO₂ to 1500 ppm; and surface temperature by 6 °C*.

With more positive feedback, the release of melted methane clathrates from sea-bottoms would increase surface temperature by an additional 8 °C, causing the marine emission of hydrogen sulfide, poisoning most life, and destroying the ozone layer (Cassella, 2021b; Kump, Pavlov, and Arthur, 2005; Ward, 2006).

That scenario is equivalent to the environmental avalanche (or “The Great Dying”) that occurred about 252 million years ago, at the Permian-Triassic boundary.

By contrast, **understanding** Gorham’s crossing, Peirce’s science of irony, Leonardo’s “Nativity Scene,” and his “Fight for the Standard” could boost the Third Attention and bring back the **values** of our ancestors (e.g., **respect**, **honesty**, **pretending**, **imagination**, **altruism**, and **justice**). Would the temporary authority of a new Cincinnatus foster **global cooling**, the **reversal** of the 6th Extinction, the memory of ancient values, and global Democracy?

Acknowledgements

I thank my wife Ligia Josefina Uribe, my five sons, Mariano Gurfinkel, Alfonso Caramazza, Brendan and Barbara Maher, Helene Tager-Flusberg, Jay Hook, Migdy Chac ń, and Jos  Padr  n.

⁷ The tail of Trevisan’s horse cannot be as limp as Rubens painted it. I was compelled to increase the length of Ruben’s “Fight for the Standard.”

About the author

Placing the name “Antonio Cassella” at Amazon gives the list of his books, while the website researchautism.com allows downloading free films and articles about his “logos heuristics” (Λ).

Antonio Cassella had his primary education in Italy, and high-school in both Italy and Venezuela.

In 1965 he obtained a *BSc in Petroleum Engineering*. For the next 18 years Antonio improved the exploitation of oil fields of Maracaibo Basin with Creole (a subsidiary of Esso/ExxonMobil), Lagoven, and PDVSA (Petróleos de Venezuela). In 1976 he worked with Exxon Production Research in Houston; and with PDVSA’s Strategic Planning between 1983 and 1993. From 1994 to 1997 he was a scientist at MIT-CEEPR. His research resulted in two global scenarios of population, energy, and economic growth; i.e., until 2060 (Cassella, 2008).

In June 1997, his nocturnal exploration of autism and creative intelligence led to a *master’s degree in Psychology*, the *Dean’s List*, the *Thomas Small Prize*, and the *Award for Outstanding ALM Thesis in the Area of Natural and Human Sciences* from Harvard University. In 2001 Antonio received from Universidad Nacional Experimental Simón Rodríguez in Caracas a *doctoral degree of Research and Teaching in Sciences of Education*.

His writings in Italian, Spanish, and English show that we can and should repair the cycle of water, the atmosphere of the Earth, and our expectations before 2035.

Whoever wants to explore other implications of the “logos heuristics” may e-mail Antonio Cassella at researchautism.1@gmail.com or press CONTACT US at researchautism.com.

Research Autism LLC has published 18 free documentaries (15 minutes each) about the logos heuristics and Leonardo da Vinci’s “Fight for the Standard.” The new links (year 2022) are as follows:

Logos Heuristics	(A) https://youtu.be/DVHGUsVSuow	(B) https://youtu.be/HotEs8wLcS0
Logos Heuristics	(C) https://youtu.be/cGFYs5hZMc0	(D) https://youtu.be/i4Mc4hyWsgw
Fight for the Standard	(A) https://youtu.be/PZUe3ELyYyg	(B) https://youtu.be/et8I3ExEazU
Heurística logos	(A) https://youtu.be/pJrrHoNs044	(B) https://youtu.be/tz4dQAq7_o
Heurística logos	(C) https://youtu.be/ER6CM1LVIX4	(D) https://youtu.be/3SmsX3P2z6w
Lucha por el Estandarte	(A) https://youtu.be/maq8Qx8kDV8	(B) https://youtu.be/yxnKms3HcGQ
Eurística logos	(A) https://youtu.be/M45zQDLa_tk	(B) https://youtu.be/xA8rxjEp1_I
Eurística logos	(C) https://youtu.be/2OrS4UyBEbg	(D) https://youtu.be/QeestlY-fEw
Lotta per lo Stendardo	(A) https://youtu.be/vv6eiCUB4qw	(B) https://youtu.be/dtRnue7_0Do

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