

Antonio Cassella

*Autism and  
the Return of  
Quetzalcoatl*

A silhouette of a person holding a child up, standing on a beach at sunset. The person and child are reflected in the wet sand. The background shows a vast beach, the ocean, and a sky with streaks of light from the setting sun.

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**AUTISM** and  
the **RETURN** of  
**QUETZALCOATL**

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To the Virgin of Guadalupe for her providential guidance

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## Preface

This book offers a paradoxical view of autism and creative intelligence, namely that autism is due to the loss of the capacity for pretending, which is essential in the renovation of the self and the world.

Here I link artistic and social progress to the teachings of **Quetzalcoatl**, the **plumed serpent**—a metaphor for creativity. In the Mesoamerican tradition, this Olmec and Toltec demigod left our shores in the remote past promising that he would come back in order to show us a new way of life.

I associate the return of Quetzalcoatl with an exploration of the cognitive deficiency at the core of autism. I posit that understanding why autistics cannot create will allow us to glimpse the forces that refresh the mind, society, and nature. In my view, the research on autism may lead to an unraveling of the secret of social intelligence and the enlightened use of creativity.





## **PART 1:**

# **AUTISM AND CREATIVE INTELLIGENCE**

## Chapter 1. A Light on Autism

In 1943 Leo Kanner<sup>1</sup> used the term *early infantile autism* to describe the predicament of eleven children who showed three abnormal characteristics:

- the inability to integrate socially with peers, or **autistic aloneness**;<sup>2</sup>
- the desire for sameness, or **repetition**; and
- **islets of above-average abilities** in rote memory and the adroit manipulation of intricate form boards.

About Donald, the first child he had examined in 1938, he wrote,

He could, since the age of two and one half years, tell the names of all presidents and vice-presidents. . . . Yet he was unable to carry on an ordinary conversation. He was out of contact with people, while he could handle objects skillfully. His memory was phenomenal. The few times he addressed someone—largely to satisfy his wants—he referred to himself as “You” and to the person as “I.”

One year later, Hans Asperger<sup>3</sup> presented a wider spectrum of children with similar features, showing that not all autistics are gifted with highly functional characteristics.

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<sup>1</sup>Kanner, 1943.

<sup>2</sup>Cognitive abilities that are unimpaired or overdeveloped in autism are given in red.

<sup>3</sup>Asperger, 1944.

Yet today the term *Asperger* is used to point to the least impaired individuals in the autistic syndrome. Other peculiarities that Asperger noticed in his patients were:

- infrequency of eye contact;
- poverty of facial expressions and gestures;
- stereotypical movements (repeated hand flapping, jumping, and so on);
- anomalous language;
- adherence to their own impulses to the detriment of the demands of their environment; and
- the lack of capacity for learning from peers, parents, and teachers.

DSM-IV<sup>4</sup> adds other traits that may be observed before the age of three:

- impairments in communication (as severe as the total absence of language in many cases),
- the inability to engage in spontaneous pretense or make-believe play, and

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<sup>4</sup>DSM-IV (American Psychiatric Association), 2000.

- the inflexible adherence to rituals.

Concerning the frequency of autism, DSM-IV presents a median of 5 cases per 10,000 individuals, and also reports a value of 20 cases per 10,000 in some regions of the United States. But these numbers are rising fast. In 2003, the Autism Society of America (ASA) estimated that the rate of growth of autism in some regions of the U.S.A. has reached 12% per year.

From this we may infer that there are about 800,000 autistic individuals in the United States; the ASA suspects that this number may even reach 1.5 million.

### *Autism, Down's Syndrome, and Mental Retardation*

Unlike Down's syndrome, autism does not respond to a known abnormality.

Although de different varieties of autism may stem from damage to a central and strange facet of our cognition (a proposition that I support), the syndrome is attributed to a variety of etiologies, as happens with epilepsy, mental retardation, and cerebral palsy.

In fact, 70 percent of autistic individuals present a variable degree of mental retardation, which is a characteristic that autism shares with cerebral palsy and Down's

syndrome, although neither impairment is linked to infantile autism. Furthermore, in one third of autistic children, the syndrome is associated with pre- and perinatal abnormalities and the development of seizures in adolescence rather than in infancy.<sup>5</sup> By contrast, nonautistic mental retardation is linked to postnatal complications and to epilepsy in early childhood.<sup>6</sup>

### *The Benefits of Knowing the Cognitive Roots of Autism*

As far as it is known, autism is an irreversible condition, for no cure has been found yet. Furthermore, as I reported above, the percentage of the population that presents the syndrome is fast increasing.

This increase may be attributed to a combination of better diagnostic tools (years ago, a few cases of autism might have been attributed to other dysfunctions), the aggression by unknown viruses, or the toxic effect on some children of particular vaccines or chemicals released irresponsibly into the environment.

Due to the severity of the situation, the proposal of a theory or a model that would uncover the cognitive roots of autism is a

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<sup>5</sup>Deykin & MacMahon, 1980.

<sup>6</sup>Richardson, Koller, Katz & McLaren, 1980.

providential happening. Among other things, a model validated by experiments might help prevent the occurrence of autism, find a cure, diagnose the syndrome in the first year of life, and apply improved teaching methods very early in development. In addition, appropriate early education of autistic children might lead to a recovery of some of the lost abilities and an avoidance of a severe cognitive and functional involution.

### *Behavior Modification*

The fact that the basic cognitive disorder at the root of autism is not well understood severely limits the methods used to teach autistic children. Even today most teaching methods respond to behavior-modification techniques derived from operant conditioning, as described by Harvard psychologist B. F. Skinner.

Operant conditioning—which considers the existence of the mind a superfluous hypothesis—has developed positive reinforcement techniques that are crucial to acquiring central meanings, habits, rules, and basic skills.

Still, educational methods based on this theory cannot teach autistics how to readjust familiar knowledge when a context changes abruptly or when the environment presents unusual demands. Thus, behavior

modification, although it is essential in the acquisition of basic habits and skills, cannot offer fitting solutions when we encounter the unexpected.

As a matter of fact, when the vicissitudes of life force us to search for new horizons, behavior modification—used with great success in training circus animals—becomes less effective, ineffective, or counterproductive. Since autistics lack creativity, in an ironic twist, behavior modification may reinforce their autistic tendency to stick to what they know in situations in which familiar knowledge is inadequate.

In my view, teaching methods that lean on operant conditioning work better when they are complemented by an attitude favorable to change or creation. Only through creativity can we suspend the validity of “certainty,” “legitimacy,” repetitive and ingrained knowledge and habits at the right moment.

Undoubtedly, a model capable of explaining the roots of autistics’ cognitive limitations can enhance teaching methods and help both cognitively impaired and normal children.

### *The Failure of Autistics in False-Belief Tests (Theory of Mind)*

The theory we are searching for need not be based on speculation, for at present we have a variety of unexplained results derived from innumerable experiments conducted with autistics in the different fields of psychology and neurocognitive sciences.

This sizable array of enigmatic results may become a treasure trove in the eyes of whoever can integrate them and may explain the causal factors they respond to by means of a cognitive model. An additional benefit of a coherent model is its capacity to predict the outcome of new experiments with autistic subjects.

In more detail, in the last fifteen years, neurocognitive scientists have found out that the core problem of the spectrum of anomalous behaviors observed in autistic individuals lies in their inability to pass **false-belief tests**.<sup>7</sup>

As an example, experimental subjects may be asked to look at two dolls—a boy and a girl—who are playing marbles in a room. The subjects are then shown that the girl doll places her marbles under a pillow before leaving the room. They also see that the boy doll moves the marbles to a desk drawer while the girl doll is away. At this point a researcher asks the experimental subject where will the girl doll (who is about to enter the room) look for her marbles. Normal

children answer that she will look under the pillow, where she left them; and autistics say that she will search for them in the drawer, where the marbles are.

As this shows, autistic subjects fail the test. Because of their mental deficit, autistics have been called “mindblind,”<sup>8</sup> and the aspect of intelligence that allows testers to pass false belief is called **theory of mind**<sup>9</sup> in the cognitive literature.

So far the major research centers dedicated to the study of autism have been unable to adequately explain the cognitive nature of the theory-of-mind capability that autistics miss.

Still, according to a line of investigation<sup>10</sup> that crosses several fields of knowledge, **THEORY OF MIND REFLECTS THE INVERSE DYNAMICS SYSTEM, OR SET OF COGNITIVE LAWS, THAT STANDS AT THE ROOT OF OUR CAPACITY FOR LYING**.

I call **simultaneity** the cognitive domain or inverse dynamics impaired or missing in autism.

In the books *El Desarrollo de la Inteligencia Social: Aportes del Autismo*<sup>11</sup> and *Creativity at the Crossroads of Life and*

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<sup>7</sup>The tests in which autistics fail, as well as the cognitive abilities impaired in autism, are given in blue.

<sup>8</sup>Baron-Cohen, Leslie, & Frith, 1985.

<sup>9</sup>Wimmer & Perner, 1983.

<sup>10</sup>Cassella, 2000, 2002a, 2002b, 2004.

<sup>11</sup>Cassella, 2002a.

*Death*,<sup>12</sup> I outline the neurocircuitry of simultaneity in the human brain and offer the specific reasons why autistics cannot agree to the violations of reality presented in false-belief tests.

### *The Success of Autistics in Self-Other Recognition Tests*

Another crucial piece of knowledge that has contributed to my view of the roots of creativity is autistics' success in passing two fundamental cognitive tests.

One of them is **Zaitchik's photo task**.<sup>13</sup> This test, which in my view measures the capacity to **recognize the identity of the other** over time, is passed by normal children at the age of four to five years, the same age at which normal children pass false belief.

In Zaitchik's photo task, Ernie, a *Sesame Street* character, takes a picture of his friend Bert lying on a mat. Bert leaves, and Big Bird takes Bert's place on the mat. Pointing at the developed picture without showing its content, an experimenter asks the subject, "In the picture, who lies on the mat?" Acting in a way seemingly opposite to their behavior in false-belief tests, autistics answer Bert, although they see Big Bird lying on the mat.

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<sup>12</sup>Cassella, 2004.

<sup>13</sup>Zaitchik, 1990.

In Perner's<sup>14</sup> and in Leslie and Roth's<sup>15</sup> analogous replications, autistics were about 50 percent more successful with Zaitchik's photo task than were matched normal controls.

Because this test appears to be similar to and as complex as false-belief tasks, the question arises: what is the reason behind autistics' astounding performance?

Again, in my books<sup>16</sup> I have given specific reasons why autistics are extremely successful at this task.

In a nutshell, unlike false belief, Zaitchik makes use of a systems dynamics, or set of cognitive laws, that rests not on the need to violate reality, but to honor it.

I call **sequence** the cognitive domain or direct dynamics spared in autism.

My analysis of Zaitchik's photo task leads me to assert that **SEQUENCE UNDERLIES OUR CAPACITY FOR PRESERVING THE TRUTH** or, better said, what we believe is true.

In the particular case of Zaitchik's photo task, autistics answer that Bert is the character who lies on the mat pictured in the photo because, quite simply, that is the truth. Unhampered by doubt, they can remember the truth more efficiently than normal children.

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<sup>14</sup>Perner, 1991.

<sup>15</sup>Leslie & Roth, 1993.

<sup>16</sup>Cassella, 2002a, 2002b, 2004.

This argument is strengthened by the similar performance of autistics in an analogous task, **proper self**,<sup>17</sup> which is passed by normal children at the age (4-5 years) that they pass false belief and Zaitchik's photo task. According to Povinelli et al., the test measures the **capacity for recognizing the identity of the self** over time.

In the proper-self task, the leading experimenter stands beside a seated subject. A helper takes a picture of the subject and the experimenter while the latter is on the verge of surreptitiously placing a sticker on the subject's head. In a second picture, the sticker resting on the head of the unsuspecting person is clearly visible. The experimental subject passes the test if he or she takes the sticker off upon seeing one or both pictures.

At the beginning of my research I tested autistic individuals for false belief. I also examined (*for the first time in the history of neurocognitive testing*) their performance in proper self. My experiments<sup>18</sup> demonstrated that **proper self** also draws on **sequence**.

### *A Paradoxical Vision of Creativity*

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<sup>17</sup>Povinelli, Landau, & Perilloux, 1996.

<sup>18</sup>Cassella, 1997.

Autistics' surprising success in proper self and Zaitchik's photo task and their failure in false belief led me to integrating the results of the tests autistics pass and those they fail in a new vision of the cognitive roots of autism and those of creativity.<sup>19</sup>

This integration allowed me to view creative intelligence in human beings and nature as a play between two different systems dynamics:

- **simultaneity**, the inverse dynamics or parallel thinking impaired in autism, which reflects the **capacity for lying**, and
- **sequence**, the direct dynamics or sequential thinking spared in the autistic syndrome, which reflects the **capacity for preserving the truth**.

At first sight, the two dynamics seem to contradict each other, but thorough evidence shows that they become **complementary**<sup>20</sup> when they are in a reciprocal balance. I call their mysterious balanced state **Logos**, and represent it by means of the *Logos model* and the Greek letter "**Λ**."

The rationale behind **Λ**, or the Logos model, is not completely new.

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<sup>19</sup>Cassella, 1997, 2000, 2002a, 2002b, 2004.

<sup>20</sup>The balance between the side of the mind impaired in autism and the side unimpaired in it is given in green.

About forty years ago Rimland asserted that

The study of autism may shed much-needed light on some of the biological bases of intelligence.<sup>21</sup>

He also reported<sup>22</sup> the following point of view:

Intelligence is the ability to see relationships and meanings **by having access to as many alternatives as possible at approximately the same instant of time** [the use of red is mine].<sup>23</sup>

To this insight I add that **having access at the same time to a multitude of separate options**, which compete to explain the meaning of a visible sign, is just the **forward movement** of the paradoxical pendulum of creativity that is impaired in autism.

In the forward movement, the need to embrace alternatives at war with each may lead to poor decisions when we are unable to resist the suffering and the anguish brought about by ambiguity; and may even lead to insanity when we worry too much or too long. Touching the right key at the right moment make the good pianist they are not sustained long enough or when they are sustained beyond a reasonable limit.

Therefore, it is essential to connect in time with the **return movement** of the pendulum, which happens when we are able to **choose** an alternative or a combination of alternatives that **brings us “back”** to a refreshed self *and* other.

The metamorphosis conducive to renovation occurs when we connect existing pieces of knowledge in a new way, which others find valuable or pleasing.

In my view, the complementarity of the two sides of our minds is represented by the following process:

IF THE **NEW** SCHEMES (ideas, devices, works of art, and so on) WE **RE-COGNIZE** (know for the first time) THROUGH INVERSE DYNAMICS, OR **SIMULTANEITY**, PROVE USEFUL TO AND ARE ACCEPTED BY OTHERS, WE HAVE TRULY COME BACK TO A REFRESHED AND SHARED REALITY. FROM THEN ON WE WILL **RECOGNIZE** AND USE THE ACQUIRED SCHEMES **REPETITIVELY** THROUGH OUR DIRECT DYNAMICS, OR **SEQUENCE**.

As suggested by  $\Lambda$ , we need **simultaneity** (**the capacity for pretending and lying**, which is impaired in autism) to **re-cognize**—that is, to **readjust** or to **renovate**—our knowledge; and we need **sequence** (**the capacity to preserve the truth**, which is unimpaired in autism) to **recognize**—that is, to recall the precise identity of known signs—

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<sup>21</sup>Rimland, 1964.

<sup>22</sup>Ibid., p. 215.

<sup>23</sup>Travis & Hunter, 1928, cited in Goddard, 1946.

the newly arrived at schemes time after time and keep them unchanged until they become obsolete.

Such are the main steps of the **dance of change** and **permanence** along the way in which we flourish with the things we help flourish.

### *Creativity, Literature, and Theater*

Creativity may be thought of as the life-giving lymph that is sung in poetry.

With this notion in mind, I cherish our creative exploits in the arts, especially theater and literature, more than I do the invention of new machines.

One example of a creative attitude is our inclination for humor and metaphor; a similar marvel is our bent for theatrical acting from the age of four months.

Our capacity for living the existence of a real or imaginary person or thing—**in parallel with our own**—leads to laughter and tears at the same time, the consequence of living simultaneously in separate and even contradictory worlds.

For example, when we see *Hamlet*, **we travel to another place and time**, although we **remain where we are**, so as to meet the

Prince of Denmark; and in participating in his despair, we become this *dramatis persona*.

In an extraordinary way, our capacity for lying allows us **to enter Hamlet's make-believe world without leaving reality for good**. Basically, **we live his life and ours at the same time**.

### *The Strange Case of Dr. Jekyll and Mr. Hyde*

Autistics, unfortunately, cannot make fun of space and time by **living in ill-assorted or separate worlds at the same time** or **welcoming opposite worlds in their minds**.

This fact invites me to posit that the secret behind autistics' difficulty in being creative is a priceless treasure that would open new doors in every field of knowledge. Also, we may view the treasure as the possibility of glimpsing the dance of permanence and renovation that hides behind any creative exploit—from writing an absorbing novel to exploring the subatomic world posited by quantum physics.

For example, what is the common ground between the novel *The Strange Case of Dr. Jekyll and Mr. Hyde*, by Robert Louis Stevenson, and the fact, stated in quantum electrodynamics, that **two or more photons are willing to share the same space at the same time**?

Here is the solution! Both the meeting of separate persons in the same body, the theme of Stevenson's novel, and the meeting of two photons in the same point give away THE ESSENCE OF CREATIVITY: THE CAPACITY FOR BEING AND NOT BEING DIFFERENT THINGS AT THE SAME TIME.

Indeed, at a creative crossroads, DR. JEKYLL IS AND IS NOT HIS ALTER EGO, MR. HYDE, AS ONE PHOTON IS AND IS NOT ITS TWIN BROTHER!

To autistics, the union of being and nonbeing or truth and falsity is not possible; that is why they cannot comprehend creativity or create.

### *Autism and Freedom*

The dream and the hope of discovering the roots of creative intelligence in human beings and nature may lead us beyond the present division of knowledge and toward the integration of our creative exploits in any field.

But the dream of arriving at the crossroads of literature and science does not perturb the slumber of those who manage collective resources, the voters who empower them, the producers trapped by the need for financial return, and the consumers in search of a longer and more comfortable life span.

If discovering the nature of our affective-cognitive capacity to understand tragicomedies—which is impaired in autism—were viewed as a critical factor in the advancement of mainstream science and technology, untold resources would be allocated to researching autism. But that is a dream that has not yet found a dreamer willing to bring it to reality!

Our most cherished aims are linked with the search for the fountain of youth, the enslavement of nonhuman entities, the illusion of comfort, and the invention of sophisticated weapons with which to destroy whoever menaces our ways of life.

Ironically, few leaders suspect that AUTISTICS, BY VIRTUE OF THEIR IDOLIZATION OF THE MIRACLE OF PERMANENCE IN A UNIVERSE EMBEDDED IN CHANGE, MAY BECOME OUR GUIDES IN UNCOVERING THE ROOTS OF CREATIVITY, DEMOCRACY, FREEDOM, AND EVEN MADNESS.

In line with the ways of the ancient followers of the god of exploration—**Thoth** in Egypt and **Hermes** in Greece—I hide the door to the road of dreams and freedom, which may be opened with the help of autistics and the Logos model, behind this **hermetic** thought:

AUTISTICS CANNOT CONCEIVE OF RENEWAL BECAUSE THEY CANNOT CROSS THE UNSETTLING AND EXHILARATING FOG IN

WHICH THE SAME SIGN MAY REPRESENT MEANINGS "AT THE SAME TIME."  
DIFFERENT, AND EVEN OPPOSITE,

## Chapter 2. The Logos Model

Here is a familiar scenario: A little girl, while lying in bed, sings sweetly to her doll. The song she sings is the very song that her mother has sung to her the night before. Thus, while singing, the girl is *pretending* that she is the doll's mother and that her doll is herself.

This theatrical feat appears to be a piece of cake; and yet the acting relies on the use of a mysterious cognitive ability whose deficiency is the cause of the spectrum of odd behaviors observed in autism.

To an **autistic**<sup>1</sup> individual who witnesses this precious scene, only one person is lying on the bed: the little girl. For the creative witness, however, three persons "lie" on the bed. In fact, within her pretend play, **the little actress is three persons at the same time**:<sup>2</sup> her mother, the doll to which she has given life, and, naturally, herself.

The situation becomes even more paradoxical if we consider that the **young singer lies here and there or in two mismatched worlds simultaneously**, the one of children and the other of adults, for she

is a little girl in the present and a mother in the future.

The example supports the theory that autism is caused by a deficiency in the inverse cognitive dynamics that invites us to **share the same space at the same time with other things** and to **"exist" in separate worlds simultaneously** (through the mind).

In playing pretend, the girl's **artistic side** (**parallel** or multiple ways of thinking) nurtures her **autistic side** (**sequential** or linear thinking). Through her practice of nurturing her doll, then, over time she will grow into a real mother, the kind of person who can help others grow.

The above scenario is a good representation of a cognitive model I have called *Logos*.<sup>3</sup>

The Logos model (also expressed by the Greek symbol  $\Lambda$ ) presents the creative intelligence in human beings and nature as a **complementarity**<sup>4</sup> between two principles or systems dynamics; one of them is called

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<sup>1</sup>The cognitive abilities unimpaired or overdeveloped in autism are given in red.

<sup>2</sup>The cognitive abilities impaired in autism are given in blue.

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<sup>3</sup>Cassella, 1997, 2000, 2002a, 2002b, 2004.

<sup>4</sup>The play of the cognitive abilities spared in autism and the abilities impaired in it is given in green.

**sequence** (or **finiteness**) and the other, **simultaneity** (or **infinity**).

- **Sequence**—the direct dynamics or linear thinking unimpaired in autism—allows us to **recognize repetitive** patterns, legitimate interpretations of reality, and the literal meaning of anything we read or observe; for example, the most familiar meaning of the words given in a dictionary and the literal interpretation of any discourse.
- **Simultaneity**—the inverse dynamics or parallel thinking impaired in autism—by inhibiting the reality zealously guarded by sequence, helps us “**re-cognize**” (know for the first time) **new** patterns and deal with double dealing; for example, discerning the metaphor behind a literal interpretation of any text.

### *The Laws of Sequence and Simultaneity*

Each of the two dynamics contains a set of eight laws.

- Within **sequence**, the first law states that **the same object, person, or phenomenon cannot exist in separate worlds at the same time**; and the second one, that **separate objects, persons, or**

**phenomena cannot share the same space at the same time.**

- Within **simultaneity**, the first law maintains that **the same object, person, or phenomenon can “lie”** (meaning “to stay” and “to tell a lie”) **in separate worlds at the same time**; and the second one, that **separate objects, persons, or phenomena can share the same space at the same time.**

On the surface, sequence and simultaneity appear to be contradictory. But in fact, as  $\Lambda$  shows, they are **complementary**. For example, if the little girl were not **anchored** to a **unique** identity and position in space and time, she could not **think of** being who she really **is (here)** and also who she **is not**, her mother (**there**); in other words, she could not “**exist**” **here and there** or **be and not be herself at the same time.**

**Creativity** is born from the **integration** of opposite **sequential schemes**—for instance, the **union** of the concept of **here** with the concept of **there** (as used in the pretend play of the little actress of our example), **zero (0)** with **one (1)** (as with the quantum computation in which opposite limits may be chosen at the same time), “**I**” with “**you**” (in the proper use of pronouns), and so on.

### *Autism and the Inversion of Pronouns*

Those familiar with autism know that autistics tend to reverse their pronouns. This phenomenon occurs because AUTISTICS' MENTAL PROCESSES FOLLOW ONLY THE LINEAR CAUSALITY AND LEGITIMACY OF TANGIBLE OPERATIONS.

For instance, my autistic son, who calls himself "YOU" (the "name" I give him when I talk to him), cannot think of calling himself "I" (the "name" I give myself in his presence). Further, he cannot pretend to be "ME," his father, in imaginative play.

The reason is that he believes, implicitly, that **it is impossible for him to be himself and me, or lie in his place (here) and in my place (there), at the same time.**

Even less likely would be his belief that he could cease to be who he is in order to become another person—a maddening thought.

To us, however, the road toward creative madness is a very busy one.

Indeed, when creative pursuits lead us from the **certainty** of the familiar world into the **ambiguity** of the nebulous domain of simultaneity, we **are who we are and we also are something or someone else.** Definitely, when something is what it is and

something else, even its opposite, then, the separation among individual things and the linearity of cause-effect schemes are suspended within a virtual world in which things **are and are not** at the same time.

In short, my son can **conceive of linear** or **sequential** operations and of persons separated by unique names, identities, and specific positions in space at a particular time; but he cannot **think** of **simultaneous** or **parallel** operations in which **different identities and settings meet in the same visible sign.**

By contrast, we can handle and balance both ways of conception in many dimensions of our daily doings.

For example, although we call our selves "I" and any other person "YOU," we clearly understand that our *one and only* "I" is called into existence when other persons call us "YOU." Thus, the word "I" becomes the geometrical intersection of an infinite number of linear schemes: the crossroads of the life histories of all the persons with whom we enter into spontaneous dialogues.

Every person on Earth wants to call herself or himself "I."

Ironically, this "I" of "MINE," which seems unique and separate from any other thing on Earth, dwells simultaneously in me, in the

persons I love, and in the persons I hate:  
**everywhere and, thus, nowhere.**

That is a paradoxical, contradictory, and “unreal” situation, which my son cannot understand in spite of years of efforts on our part, his peers, and his teachers to school him on the correct use of pronouns.

Furthermore, he cannot tell a lie, for when we lie, we look **simultaneously** at both falsity and its opposite, truth—a feat that is akin to **dwelling in opposite worlds at the same time.**

### *Lying and Hoping*

To some, these new ways of thinking may be a challenge or a menace to the continuity of the “reality” they know. Sequence-driven folks, in particular, may find my notions on autism and creativity absurd and disturbing. If that happens, all they need to do is remember that when we tell a lie and succeed in deceiving others, we have engaged simultaneity.

In the same way, when we doubt, hope, and soar into the world of fantasy, we **exist simultaneously in parallel worlds** before landing in a single and linear reality refreshed by our creative capacities.

Again, my suggestion that **TELLING A LIE AND HOPING BELONG TO THE SAME SYSTEMS DYNAMICS** may seem distasteful to many persons. Still, the dreadful predicament of autistics and the suffering of those who love them give some validity to my point.

### *Autistics, Our Teachers*

Historically, our capacity for simultaneity is what led to the creation of both the violin, which releases vivifying musical notes, and the bow, which releases deadly arrows. Both are implements that defy logic; both thrive on the tension created by the engagement of opposite end points when we try to **separate and bring them together at the same time.**

As the Greek philosopher Heraclitus pointed out twenty-six centuries ago, the tension between diametrical limits that are brought together and separated at the same time may offer life or death.

In the same way, simultaneity is a double-edged sword: if we use it to co-create the world with others, it may refresh our world and grace us with harmony and life; and if we use it recklessly, it will lead us and many others to insanity, untold suffering, and untimely death.

In understanding the **complementarity** between **sequence** and **simultaneity**—the

most challenging aim in the universe—we can learn to commune with nature again, as our remote ancestors did.

In this regard, AUTISTICS ARE UNWITTINGLY SERVING AS OUR TEACHERS, FOR IN THE PROCESS OF THOROUGHLY UNDERSTANDING AUTISM WE UNDERSTAND OUR OWN MINDS.

### *The Power to Control Power*

An interest in uncovering the cognitive structure at the basis of autism is the first step on a road in which we must face a vast array of obstacles.

However, our efforts may be rewarded with a vast array of benefits.

Uncovering the cognitive roots of autism may lead to ways of curing autistics, refreshing current educational methods, and promoting a creative and cooperative mindset in our children, friends, and coworkers.

But there is more: The most fascinating goal that the study of autism may bring into the open is the opportunity to throw some light on the fair use of the power that animates any form of creation in the social and the natural world.

This mysterious power resides primarily in the natural world from which we are born and is shared by all things in the universe.

The creative power that visits us offers fascinating and DANGEROUS features at the same time. It seems highly advisable that we try to gain some insights into the best ways to keep it in check.

Paradoxically, only the beneficial use of power may lead to our knowing it in depth, and only knowing power in depth may lead us to using it well. We will have arrived when we meet THE ONLY POWER THAT MAKES SENSE: THE POWER TO CONTROL POWER.

PART 2:  
**AN INTERVIEW WITH ANTONIO CASSELLA**

## Chapter 3. Behind the Façade of Autism

*Antonio Cassella sits in his study with his 16-year-old autistic son, Giuseppe, at his side. A journalist readies herself to probe at leisure his knowledge and experience of autism and creativity.*

*Q-1. Dr. Cassella, how did your son acquire autism? And in what way did this event change your life?*

*A.* At this point, I cannot say which cause or combination of causes contributed to Giuseppe's quandary. As a matter of fact, there are various elements at play. His autism and mental retardation might have been activated by a genetic predisposition or a mishap that occurred before he was born. I also think that a virus or a toxic substance may have entered his system and damaged his brain before he was two years old.

In any case, I feel very fortunate to have Giuseppe. From the age of two years, he has guided my research on

autism and creative intelligence; he is the best teacher I have ever known.

*Q-2. What went wrong with your son's cognitive development?*

*A.* Along with his curiosity, Giuseppe somehow lost the cognitive capacity, with which we are all born, to seek and enjoy novel experiences. All he was left with was a predilection for keeping things as he knows them.

I mean that the permanence he is fundamentally interested in maintaining is a tendency that all living beings share; that is, we all hold on to the autistic side of our minds.

Unlike autistics, however, we can fiddle with our knowledge so as to amuse ourselves, enhance the probability of getting what we want, or adapt to changes of context.

By way of illustration, if I were invited to dinner by a friend in Tokyo, I would not sit automatically on the bench in front of me. Possibly, my creative side would suggest an interpretation of the

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meaning of the object different from the one I am used to in America.

After some hesitation, I would kneel down or sit on the floor, using the “bench” to hold up dishes and various dining ware.

Lacking a flexible side of the mind, my son would not recognize the object as a dining table. As doubt cannot perturb him, he would recognize it as a bench and only as a bench.

All told, AUTISTICS CANNOT UNDERSTAND THAT ANY OBJECT, PHENOMENON, OR OBSERVABLE SIGN IN THE UNIVERSE MAY SATISFY MISMATCHED AND EVEN OPPOSITE FUNCTIONS.

*Q-3. Can you tell us more about the tendency to seek constancy among autistics and in the autistic side of our minds?*

*A.* In my view, our autistic tendency to conserve known patterns is driven by the direct cognitive dynamics or organizing principle I call **sequence** or **finiteness**.<sup>28</sup>

Sequence is essential to our lives. We owe to it our ability to remember both what we witness and the repetitive schemes we acquire in different ways. When we encounter known referents, sequence allows us to recognize them; if we need them and they are out of sight, it allows us to search for them; and if we cannot find them, it shows us how to make a replica.

For example, the autistic side of our minds allows us to recognize known words, identify family members, and perceive the uniqueness and constancy of our identity in the image we see reflected in the mirror.

Our autistic capacity for recognition is an essential cognitive ability. It is a miracle that we take for granted and seldom appreciate. But look at it this way: if the members of our family did not recognize us upon returning from a trip, we would be chased out of our home.

**Sequence, then, leads us to value the permanence of known, repetitive patterns.**

WITHOUT THE CONSERVATION OR ACCURATE MEMORY OF REPETITIVE PATTERNS, THERE WOULD NOT BE A REALITY THAT WE COULD WITNESS, TALK ABOUT, USE, OR SHARE.

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<sup>28</sup>Recall that the cognitive abilities unimpaired or overdeveloped in autism are given in red.

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My special contribution to the study of the dynamics of sequence is the proposition that this mode of recognition assumes the existence of eight laws (there may be others I haven't found yet).

For example, according to the first law, **the same person, object, or phenomenon cannot exist in separate worlds at the same time**; and according to the second law, **separate persons, objects, or phenomena cannot share the same space at the same time**.

Again, we owe to the rigidity of the laws of sequence our sense of the permanence of everything that we consider real, certain, and legitimate—for example, our identities and the control of our assets.

*Q-4. Can you offer an example of an application of the laws of sequence?*

A. Without the capacity to keep intact the representations of known patterns (that is, to remember what happened), we could not hold to an individual identity, a house, or a bank account.

For example, recently a crook from Caracas, Venezuela, counterfeited my debit card and ID. That done, he purchased about \$2,500 worth of goods and services down there while I was here, in the United States. After I reported the fraud, the officers of the insurance company recognized right away the **legitimacy** of my claim.

The reason?

I couldn't have been the person who purchased the goods down there! I was not in Venezuela when the crime was committed!

According to my way of looking at the cognitive underpinnings of the situation, the officers realized unconsciously that **I could not have been in separate worlds, Caracas and Boston, at the same time**.

My precise wording here reflects the first law of sequence and the call for legitimacy and order that this dynamics evokes in our minds.

Indeed, the word "**legitimacy**" owes its meaning to our respect of the laws of sequence.

*Q-5. Did the crook who stole your money break the laws of sequence?*

A. More than breaking the laws of sequence, he made fun of them!

Paradoxically, while committing the crime, the **villain was in Venezuela and in the United States at the same time**. For a time, he was able to usurp my identity and take control of the property attached to it by using **simultaneity** or **infinity**,<sup>29</sup> the inverse cognitive dynamics or organizing principle that is impaired in autism.

As with **sequence** (the principle that guards or imprisons fixed and repetitive reality), **simultaneity** (the principle that frees our flexible fantasy) obeys eight laws.

Two of them are that **the same person, object, or phenomenon can “lie” in separate worlds simultaneously** (the first law) and **separate persons, objects, or phenomena can share the same space at the same time** (the second law).

Back to the fraud. When the thief lied about being me, he was unconsciously following the first law of simultaneity; indeed, while he was pretending to be

me, **he was in two separate worlds at once**—his and mine.

Furthermore, by temporarily deceiving the salespeople and the bank, the thief also followed the second law; that is, for a time, two separate worlds—his and mine—**shared the same space at the same time in his visible person**.

As with quantum physics, the laws of simultaneity are strange, fantastic, and absurd.

*Q-6. Are you suggesting that simultaneity, the inverse dynamics impaired in autism, is not real?*

A. Not exactly! As unreal as they may seem, the laws that enliven fantasy are very factual. The lack of an implicit awareness of these laws in autistics is the cause of their innocence and, at the same time, of their inability to renew reality.

Having no concept of mental **flexibility**, autistics have no concept of **deceit**.<sup>30</sup>

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<sup>29</sup>Recall that the cognitive abilities impaired in autism are given in blue.

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<sup>30</sup>For emphasis, the unilateral use of creativity is at times indicated in black.

As I said before, they are left only with the belief in the **rigidity** of the laws that drive the autistic side of our minds: **sequence**.

This primary aspect of our consciousness cannot conceive of wrongdoing; by nature it is utterly innocent.

Yet, unlike autistics, we also have a flexible side, **simultaneity**, one that we can use for good or ill.

The criminal, for example, used his creative side to gain an advantage, whatever the cost or damage to others. He did what my son, Giuseppe, could never do: **He “lied” in separate worlds at the same time!**

Ill will, as good will, then, concerns only persons who possess the dynamics of simultaneity.

*Q-7. What happens when we lose simultaneity and are left solely with sequence?*

A. As I said, the laws of sequence serve an important function: the conservation of reality. When isolated and exaggerated, as in the case of autism, conservation unleashes a subtle consequence: the implicit rejection of fantasy.

Thus autistics, who are trapped in a reality jealously guarded by sequence, cannot imagine the existence of ghosts or appreciate the magical feats of the young wizard Harry Potter.

Going through a brick wall on the platform of a railway station, for example, does not match factual operations; and there is a reason: When Harry Potter goes through that brick wall, **the matter of his body and the matter of the wall share the same space at the same time** (the second law of simultaneity).

If the laws of simultaneity were valid in the observable world, the laws of sequence would be obliterated and the physical separation between objects would be lost. Without the physical separation made possible by the laws of sequence, individual existence would become meaningless.

Thus autistics are compelled to reject the laws of simultaneity. They, and rigid minds as well, miss the fact that these laws belong not to the perceivable world but to a separate “reality” that hides behind space and time. Unfortunately, the laws that rule autistics’ *conception* are the very laws that rule their *perception* of the familiar world.

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Autistics conceive as convincingly as they perceive, acting according to natural drives and the schemes they learn with great difficulty from creative persons.

By contrast, we can deny anything we have witnessed and act on the basis of our rebellion; for example, we can lie despicably.

Indeed, THE CAPACITY FOR LYING AND DECEIVING IS THE MOTHER OF CREATIVITY. The legend of Ulysses is an example of what I mean.

*Q-8. Can we use our capacity for lying to benefit others?*

A. We can! I wonder if OUR MISSION IN LIFE MIGHT BE, ESSENTIALLY, THE ALTRUISTIC USE OF OUR CAPACITY FOR LYING.

The wrong use of simultaneity can cause immense suffering. And yet simultaneity can be fun; and I mean it literally.

For example, although I did not lie or deceive anybody in that particular episode of my life, if I want to, **I too can exist in separate worlds at the same time.**

But instead of pretending to be another person or character in order to steal, to make a mockery of the law, or to cause deep suffering to my traveling companions, I may lie just to amuse others or myself, as a comedian does. In fact, every actor lies; and almost everyone in the world can do that too, for almost everyone is a born actor.

As with autistics, usually we mean what we say; and yet we know all too well how to play the role of a comedian, a person pretending to possess qualities he or she does not have, and even an outright impostor!

Thus, as paradoxical as it may seem, our minds may call for two systems of cognition: we may be autistic and prone to conservation, and we may be nonautistic and inclined to renovation. Autistics stick only to the first system: **sequence**.

THE LACK OF **SIMULTANEITY**, OR THE COGNITIVE CAPACITY THAT ALLOWS US TO PRETEND THAT WE ARE ANOTHER PERSON OR THING AND TO MOVE **INSTANTANEOUSLY** WITH THE MIND TO ANOTHER PLACE AND TIME, IS PRECISELY THE PROBLEM AT THE ROOT OF AUTISM.

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*Q-9. Can you describe the essence of the cognitive deficit that hides behind the façade of autism?*

A. I will give you the results of my findings. In reality, I do not know of any other explanation of the nature of autism and creativity that leans on conclusions validated experimentally and in different fields of thought.

Autistics cannot take up the role of an actor or a liar, for the **simultaneity** they have lost feeds our **capacity for pretending and lying**.

The **sequence** they are left with allows them to experience natural sensations and needs, **repeatedly recognize** the patterns we teach them with strenuous effort, and rely on literal explanations or unique meanings.

All these limitations and their rigidity respond to the basic conviction that **we cannot exist simultaneously in incompatible worlds, nor can we share the same space at the same time with something else**.

From so trite a reflection, a fantastic idea is born.

Although what I have been saying all along may sound preposterous and even absurd, I insist on the fact that

autism stems from the loss of a key element of creative intelligence: **simultaneity** or the capacity for unconsciously believing that **we can exist in opposite worlds at once** or **that we can share the same space with something else at the same time**.

Simultaneity seems fantastic, unreal, and besieged by contradictions; and yet it is a real power. More than that, **SIMULTANEITY IS "THE" POWER**. By bringing in new patterns, it helps us overcome the sterility imposed by sequence.

**CONSERVATION** WITHOUT **RENOVATION** IS MEANINGLESS.

In a few words, **THERE CAN BE NO RECOGNITION** (the process by which we conserve and recognize known patterns) **WITHOUT "RE-COGNITION"** (the process by which we get to know them **for the first time**).

In more detail, simultaneity is the most efficient and safe way to **re-cognize** or **re-create** new patterns; after that, sequence allows us to easily **recognize** them and use them as a friendly reference, the **fixed point** that allows us to explore the unknown without getting lost.

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Who would not rejoice in suddenly **recognizing** an old friend in an unfamiliar town? Indeed, it takes years to **re-cognize** good friends and less than a second to **recognize** them.

More precisely, the absence of an implicit awareness of the laws of simultaneity means that autistics are incapable of acting, fantasizing, and even lying.

Autistics, unfortunately, rely exclusively on the **recognition** inherent in sequence; **re-cognition** is meaningless to them.

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