# Transcurssive Logic as Method

Dante Roberto Salatino★

### About the author

★Dante Roberto Salatino is a researcher of the Institute of Philosophy and of the Institute of Linguistics - Lecturer in the General Psychology Department – Lecturer in the Philosophical Aspects of Physical-Mathematical Science Department - Faculty of Philosophy and Letters - Teacher and Researcher in Artificial Intelligence in the Mechatronics Career - Faculty of Engineering - National University of Cuyo - Email for correspondence: dantesalatino@gmail.com

### ABSTRACT

The purpose of this paper is to present the Transcurssive Logic as an auxiliary or complementary method of investigation. This approach differs from the general scientific method in which the research process begins or is sustained in the perspective from which the subject observes reality. This is undoubtedly the only way to highlight what has been so often proclaimed by objective science and rarely accepted, such as intuition and imagination (creation) that leads to finding an answer to small or large enigmas of our world. On the other hand, it will be evident that there is no other way to create new knowledge on a given issue. We present the different levels of approach to reality that must be 'passed' if we want to fully characterize this fabulous enigma that represents to investigate the frame of reference where our life unfolds.

**Keyword:** reality, creativity, research, Transcurssive Logic.

> "If we make that something spin, there will be algebra; If while turning it, we cling it to an idea, there will be algebraic topology; but if we besides relate it to a thought, there will be Transcurssive Logic."
> *Dante R. Salatino, 2017*

## 1.0 INTRODUCTION

In 2009, Transcurssive Logic emerged as a tool that allowed us to study the origin, acquisition and production of our natural language. In addition, it enabled the delimitation of an 'operating space', our psychic apparatus, to process, record and distribute the perceived and to give the correct answers that end up conferring full meaning to reality. Transcurssive Logic also, became a method of investigation and this is the aspect that we will develop in this article.

## 2.0 LITERATURE REVIEW

### 2.1 Reality, natural language and an alternative logic. (Salatino, 2008)

In this paper, we analyze the relationship between what we assume as reality and natural language. This analysis is done from the perspective of a new logical approach (in the sense that Peirce gives to the term). It tries to understand why the multiple and diverse studies carried out on language over so long do not tell us how it is that we can understand each other, when we try to communicate real facts that involve us and involve our interlocutor assigning to our words by convention, a common meaning. It is proposed the existence of a universal language that could integrate the psycho-bio-

*International Journal of Research & Methodology in Social Science*
Vol. 3, No. 3, p.6 (Jul. – Sep. 2017). ISSN 2415-0371 (Online)
www.socialsciencepublication.com

socio-cultural aspects of reality, trying to explain how the semiotic phenomenon, that is our natural language, is integrated (as a real manifestation) in the representation of reality.

**2.2 Semiotic of the real systems. Semiotic analysis of the emergency psycho-bio-sociocultural as method of observation of the natural language. (Salatino, 2009 - Doctoral Thesis)**
In this work, it is considered to be the study of the natural language from the observation. I tries to be able to determine, without conditionings, reality, rooting to the alive thing, to the subjective thing, what aspects of the reality of the man it is capable of reflecting and how it does it. The intention is to contribute a method that allows to discover laws that according to the subjective thing, allow a study of the production / comprehension of the language. This analysis is realized by means of an original tool of so-called Transcurssive Logic (logic of the sense) allowed, on the one hand, to tie the reality of the language to the whole reality and for other, to demonstrate by means of the abductive analogical method, the possible existence of a 'universal language'. It also, comparing the phylogeny of the nervous central system with the proposal for the language which remains firmly established the biological and evolutionary character of the natural language. From the semiotic of the psycho-bio-sociocultural that emerge it was possible to consider the subjective aspects of the symbolic human language, determinant at the time of understanding what is the language and in a derivative way, to demonstrate that the natural human language and inside him, the different languages which are a products of a genetic evolution that shows an evolutionary variability.

**2.3 Psycho-bio-sociocultural aspects of human natural language. Introduction to the psychic theory of language. (Salatino, 2012)**
This study of natural language, made from observation, to analyze the subjective aspects that give rise to language, and enabling their acquisition and comprehension. As such, it constitutes the first truly original theory appeared in the last 55 years, after it appeared Chomsky generative grammar (1957), with the difference that in this case, is supported also by an original logic, the Transcurssive Logic. This logic is based on a modification of the Günther's policontextural logic (1959), the first and only known tool to address the subjective aspects, or those of which it is not concerned the traditional science. This book also provides an introduction to the first scientific theory of the psyche, whose only precedent is the project conceived by Freud in 1895.

**2.4 PSYCHE – Structure and Function. (Salatino, 2013a)**
Although the ideas of Sigmund Freud may or may not be known, and even if you know them, not agree with them; his theory of the structure and functioning of the psyche is still, so far, the only existing one. It could be argued that this theory lacks adequate neurobiological support, and given the impossibility to prove it, cannot be accepted in the scientific field. From the above arguments, the first is false, since as can be seen in PSYCHE, Freud was ahead by decades of several researchers of CNS, discoveries that were nominated or deserved a Nobel Prize. As to the second argument, it is half true because although not based its findings in laboratory experiments, he developed a plot so magnificent and finished, that with a suitable tool such as the Transcurssive Logic, it becomes pure science based on the important contributions of Rodolfo Llinás and Sigmund Freud. PSYCHE represents the first scientific theory about the structure and functioning of the psychic apparatus, able to contribute from a scientific perspective, to the foundations of psychology, psychiatry, psycholinguistics, cognitive sciences in general, philosophy in where always the 'mind' has been so important, and even to the same Psychoanalysis.

**2.5 The Freud's Project (Salatino, 2013b)**
In his initials works, Freud, makes a series of discoveries and fundamental contributions to the neurobiology and psychology, which he gives little or no diffusion. Several decades later, those same findings were reported by other researchers, that now, deserved in most cases, a Nobel Prize

in Medicine. I give a detail of such findings, as the result of a personal and original investigation of Freud's life and work; at the same time, I compare with my theory of psychic structure and function due to more than 10 years of research that culminated in my PhD thesis, *Semiotics of real systems*, and a treatise on the psychic theory of human natural language.

### 2.6 Policontextural Logic. (Salatino, 2013 – Wikipedia)
It is Gotthard Günther's proposal to overcome the (true / false) dualism of the traditional logical universe, and thus to be able to project a polyvalent logic that admits new dimensions, among them, one that contemplates the subjectivity as expression of a particular relation between subject and object. This logic is one of the bases of Transcurssive Logic.

### 2.7 Fictions, only fictions. (Salatino, 2015a)
As a result of a protracted research, I immersed myself in a conceptual journey that showed me how distant our reality is from which science reveals to us using logical thinking, and even gives us the common sense. I have been able to show (Salatino, 2009, 2012, 2013) that the reality of events is measured in terms of the language that describes them. A non-inferential dynamic relational model, called Transcurssive Logic (TL), allowed me to discover new rules of game that arise when we dare to move outside our monocontextura (the binary universe that contains us); those that prevent a traditional observer from describing what happens in our reality using conventional rules. In this work and based on solid neurobiological knowledge (Salatino, 2013), we will review the psychic processes that support thinking, consciousness and language that allows us to communicate the facts, which for us are real; that is, we are going to speak scientifically about subjective reality and its justification.

### 2.8 The 2201 pages of a theory. The true story of Transcurssive Logic. (Salatino, 2015b)
This work represents, beyond the transcription of the notes taken during more than 12 years, while preparing my Doctoral Thesis and wrote my first two books, a double analysis of all the primary sources where I have nourished to carry out this arduous work. On the one hand, the analysis made at the time of formation, which left no room for personal criticism, but only to assume firm positions according to my proposal. On the other hand, to the current criticism from a Transcurssive Logic, which although not fully mature, is solid enough as to provide a different point of view in the analysis of the work of eminent characters who nourish the ranks of human knowledge. Among which are numerous philosophers, scientists of almost all branches of science, and especially all those who are directly or indirectly linked to the Cognitive Sciences, of which I highlight their achievements, but I am very critical at the time to consider its fundamentals. Notwithstanding its beginning of novelistic cut, this work contributes, in addition to a methodological guide in investigation, all a baggage of knowledge that makes to the formation of any scientist, and infuses an inquisitive spirit that transcends the good textbooks of the disciplines that are addressed, in order to ensure that whoever reads it can build an epistemological stance of its own as strong and properly founded.

### 2.9 Music, Temporal Metaphor of Thought. (Salatino, 2015 – Research Gate)
Music, like all natural language, is a way of communicating our affections, those they say, as an unavoidable transcript of our subjectivity, about our desires and beliefs, our ideas and thoughts. As a language, then it is not possible to approach the music, but from the different systems that composing the subjective reality, because music is a possible manifestation, from her and for her. With this I want to emphasize that the musical behavior involves three domains: biological, psychical and social. In this article we will analyze from Transcurssive Logic (TL), the aspects that make music a real subjective manifestation of our thinking, one that is taken to 'flower of skin' every time we're listening, performing and composing a musical piece, whether instrumental or song.

*International Journal of Research & Methodology in Social Science*
Vol. 3, No. 3, p.8 (Jul. – Sep. 2017). ISSN 2415-0371 (Online)
www.socialsciencepublication.com

**2.10 Repeated implantation failure in oocyte donation. What to do to improve the endometrial receptivity? (Tersoglio, A. E.; Salatino, D. R. et al., 2015)**

To determine the role of polyvalent endometrial treatment in patients undergoing IVF-ET who had recurrent implantation failure (RIF) in a program of oocyte donation (OD). The results were expressed in terms of live birth rate (LBR). Secondly analyze changes of endometrial leukocyte population evaluated by flow cytometer (FC) and histopathology. In this peer reviewed work Transcurssive Logic, was used for the first time in a natural science as a complementary research method, through a prospective study of a model-based control with analog abductive methodology.

**2.11 Neurological and psychic bases of musical language. (Salatino, 2015c)**

This work is based on the subjective nature of music, so any living being is sensitive to the fundamental and natural musical elements. The aim of the article is to show that music is a natural language that does not differentiate of our mother tongue, because both have experienced an evolutionary ontogenetic process parallel to the development and evolution of the nervous system. Its main contribution is the proposal of stage of ontogenetic development of musical language, which are addressed by Transcurssive Logic, a tool and a method suitable for analysis of subjective phenomena. The detailed knowledge of the basic and natural musical elements and its relationship with life, the affection and the coexistence has, on the one hand, educational implications, since the operation on each of these elements allows an education that favors the psycho-bio-sociocultural aspects that characterize the subjective reality of the human being. On the other hand, it has therapeutic implications. It has been shown that when listening to music, patients with various neurological and psychical disorders, emphasizing each of the basic elements that can influence various aspects of their disease.

**2.12 On unconscious. (Salatino, 2015c)**

In 1912, Freud unveiled for the first time his hypothesis about the existence of unconscious mental processes. It substantially modified the outlook from where, from there how we would study the human psyche. This finding led to the proposal of the structural division of the psyche (Ego, Id and Superego), while allowing to set the hallmarks of every psychic process from the beginning, so also was crucial to understand, that there, will remained indelible, the 'memories' of childhood, including the prenatal memories, that although in adulthood, apparently were forgotten, they were responsible for the conduct and manifested by particular behaviors. In this paper, we will review the specifics of the unconscious, but also we will see their relationships with thoughts, ideas, preconscious and consciousness. Finally, we will address the important relationships between the Id and the Unconscious, since at that early part of the psyche, lies, according to my theory (Transcurssive Logic), the psychic structure and the main subjective transformations, allowing that impulses and desires are expressed. Since an instinct expresses the vital commitment that man has with the libido, we shall see, in some detail, how and where libido originates.

**2.13 The importance of symmetry. (Salatino, 2016)**

Symmetry is a matter of great importance in physics and mathematics however poorly exploited. I was able to show, with other arguments and focusing on it from the Transcurssive logic, that the finding of a symmetrical structure underlying the various problems facing science, allow for a different method of investigation and also with a tool to help in education of science. Since it begins by isolating the fundamental elements that posed the problem in question and integrate them in order to arrive at the solution thereof, thus resulting in an explanation whose simplicity does not mean that it is absolutely rigorous and precise, since we do not use a single formula.

**2.14 Beyond the Decisions-Making: The psychic determinants of conduct and economic behavior. (Salatino, 2017a)**

The objective of this paper is to provide a useful tool to evaluate the impact of conduct and economic behavior in decision making. It is a research based on a theory of the psychic structure and operation with a marked neurobiological support. The use of a new method is introduced: the Transcurssive Logic, to investigate the subjective reality of which the economy forms part. This is corroborated the hypotheses suggested by Hayek in his treatise on Theoretical Psychology: *The Sensible Order* (1952), and they are foundation to the psychic processes that give rise to both the behavior as the conduct. It constitutes a basic contribution to Economic Psychology.

**2.15 Treatise of Transcurssive Logic. Evolutionary origin of the sense in the subjective reality. (Salatino, 2017b)**
Transcurssive Logic (LT) is defined as a tool, it is the only one that allows to deal with the evolution (passing) of the subjective aspects of any living being, including man, in which both the volitional and the cognitive aspects are covered . TL is a dynamic, non-inferential, quaternary and policontextual relational model that operates with ontological niches (continents) assembled according to a universal language structurally defined by a Group (as a relational entity) and functionally by a Galois Connection (as composition of opposites and complementary). This model is based on the change or transformation that emerges when the compelled components of subjective reality, that is, subject and object, are interrelated. This change or transformation occurs in two simultaneous levels: a) superficial and apparent of discrete nature and what we will call 'content', and b) the profound and hidden of a continuous nature that we will know as 'continent'. As a research method: it allows to relate the theoretical knowledge and the empirical knowledge, with its discovery and validation, in this way it is adapted to the scientific knowledge that is intended to be achieved, making possible the validation of what is discovered. At the superficial level it behaves as an analogical-abductive method, starting from the results, one searches for a conclusion or hypothesis, separating two levels of analysis: known or evident (superficial) facts and unknown facts (profound), from which they are assumed to behave similarly. At the deeper level it behaves as an analogical-adductive method, by bringing the two previous levels closer together, making them simultaneous, contrasting them against a model taken from everyday reality. The strategy implemented has as its substrate, to dispense with the frame of reference, to be able to form an (algebraic) group with the relationships between the fundamental elements that characterize the system under study. In this way, the syntax of a 'Universal Language' is achieved that allows to approach any branch of the science and of the humanities.

**2.16 Beyond the Decision-Making II: Methodological Aspects. (Salatino, 2017c)**
The objective of this work is to show that the determinants of conduct and subjective behavior that govern research in Social Sciences, especially in economics. Both the investigative process and the economy have at their base the same relational pattern that determines subjective reality. We used the method based on the Transcurssive Logic that is apt to investigate the subjective reality, of which the economy forms a part. Individualistic methodological proposals and the one based on unification are adjusted. It constitutes a methodological contribution in economics.

**3.0 METHODOLOGY**
**3.1 The scientific method**
The scientific method is the main producer of knowledge in science. Based on the empirical and the measurement, observation is subject to specific rules of reasoning. (Newton, 1997, p. 461) All research is defined by an 'object of study' and by a method that enables its analysis. The 'object of study' always has to do with some portion of the reality that is intended to study, since science is in short a way of observing reality. Transcurssive Logic is also a way of scrutinizing the real, but it does so from the perspective of the subject and not only from the obvious or apparent manifestations that the empirical provides us.

*International Journal of Research & Methodology in Social Science*
Vol. 3, No. 3, p.10 (Jul. – Sep. 2017). ISSN 2415-0371 (Online)
www.socialsciencepublication.com

Its quality of 'scientific' is embodied in the following considerations: Scientific knowledge (the product to be achieved through research) accepts two variants: the abstract (based on theories) and the empirical (based on facts). The scientific method also supports a couple of options: validation and discovery. (Samaja, 2005, p. 41) Since a discovery is not equivalent to facts and validation is not to a theory, it is imperative to contemplate its 'logical product'. (Figure 1)

**Fig. 1:** Scientific investigation
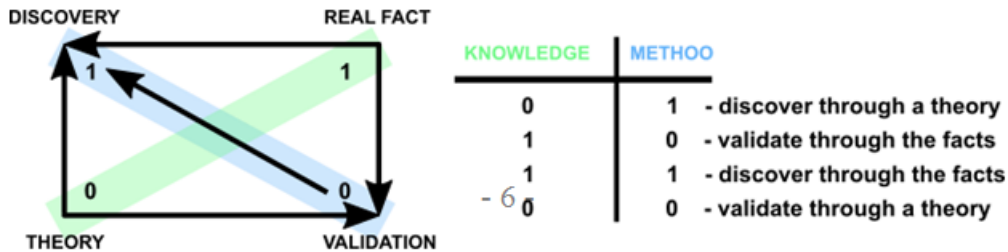


The above scheme suggests that research always consists of a combination of procedures intended to discover something and procedures to validate what is discovered. Accordingly, we would not be lacking the scientific norm if we used a method that adapted to the scientific knowledge which we intend to achieve, provide us with the necessary tools to validate what we discover (diagonal in the scheme), which would be equivalent to 'discover through a theory' (code 01) as it happens, for example, with theoretical physics.

**3.2 Transcurssive method**
To address the real from human subjectivity, that is, to discover through a theory or validate it through a discovery, we must necessarily do without any frame of reference. The paradigm of this requirement is perhaps in the theory of relativity. Here, light does not rest on any system of reference, but at the same time, all systems of classical physics move in relation to it. In addition, it is the form that relativistic physics has for guarantee that all reference systems have zero relative motion with respect to light (second principle of relativity theory). (Salatino, 2017, p. 390)

The Transcurssive Logic (TL) operates with its method in the same way light do since having no 'reference system' couples the subjective reality to the objective reality or observed, both globally and in a restricted form according to the portion of it that we need to investigate.

**4. FINDINGS & DISCUSSION**
**4.1 Subjective Reality**
The subjective reality is the variation of the existence to which all living beings resort so that the materiality that surrounds it can be transformed into 'incarnate knowledge'. The foundation stone of all experience and, therefore, in the construction of a history. From there, life urges the subject with the periodic, almost endless passage of his story that less emphatically denies a real identity with a preconceived plan, than what is based on a belief, at the evolutionary extreme. Believing that is the ultimate truth that gives the reality to a subject when a real fact makes sense; when he oozes the absolute certainty that allows him to survive despite his encounter and can change it by structure, with a clear intention to continue building. "In the most elementary circumstances the only truth is life." (Dante R. Salatino, 2017).

The structure arising from an incessant approximation of things to knowledge, decants its identity character towards the root that ends with the seeming diversity of the appearance. Subjective reality then manifests its dynamic foundation by fulfilling the unique function of legitimizing the identity between the union of apparent diversity and the separation of their coincidences. This dissolution of the classical principle allows to assemble and make lawful an opposition where before there was pure equality.

The antagonism raised is not exclusive as required by objective paraphernalia, but conservative as suggested by Hegel. Opposites, while complementary, do not share a common dimension, but a relational pattern of their own dimensions where the circumstance of participating in any one entity is equivalent to 'as if' they really were. This ambiguity, which is absolutely legitimate, depends on both the subject and the object so it offers greater options than the objective eventuality by regenerating based on error, totally unknown aspects of reality and projecting it as a 'universal language.'

The subjective reality has no relation to the religious, poetic and metaphysical worldviews posed by Dilthey (1949) in his 'Sciences of the spirit', nor with paradigms that are undergoing an update in an attempt to overcome the obsolescence of old schemes. It has to do with truths or beliefs, needs or desires that make us 'see', individually, a universe in which our life, our knowledge and our natural language are set. (Fig. 2).

**Fig. 2:** PAU of the subjective reality
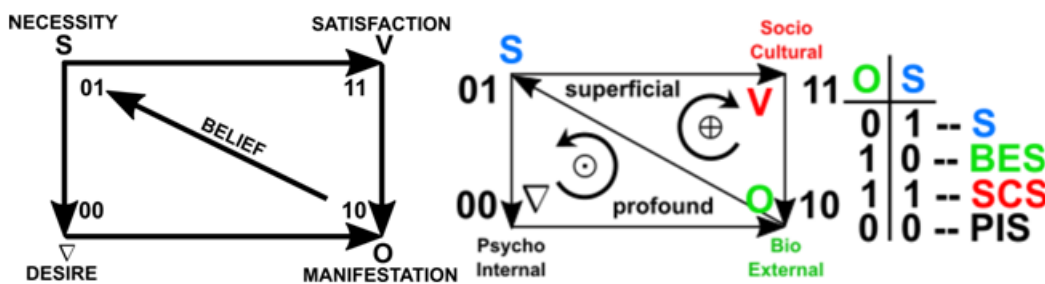


*References*: S: subject, O: object, V: evident transformation, ∇: not evident transformation, ⊕: XOR, ⊙: XNOR (equivalence), BES: Bio-External System, SCS: Socio-Cultural System, and PIS: Psycho-Internal System.

In Fig. 2 we see the interrelations that keep the fundamental elements that give base to the subjective reality. That is, the *necessity* (subject's patrimony) and its opposite and complementary, the *manifestation* of having fulfilled (or not) said necessity through the bio-external system (BES). The previous pair is mediated by another pair composed by *desire* (psycho-internal system - PIS) that demands the *satisfaction* of that need (sociocultural system - SSC). Complete this PAU (universal autonomous pattern) or syntax of this 'universal language', the *belief*, which is nothing other than the manifestation (response) that certifies that it has found meaning to a need. (Op. Cit., p. 191). In order to satisfy a desire that is met with a basic necessity, its manifestation of coverage can be positive or negative.

Covering a necessity in a positive way gives rise to a belief that represents 'truth'. That is, to have found meaning to the demand coming from the environment and that is against the solution that demands the necessity.

There are, therefore, three truths: 1) the 'biological truth' that allows the subject to live and reproduce; 2) the 'psychic truth' that allows him to harmonize with the environment; and 3) the 'social truth' that empowers him to be considered by others. Desires and beliefs allow us to construct our psychic structure (Salatino, 2013, p. 181), that is, our history and determine how we approach objective reality.

**4.2 Objective reality**
The objective reality is that area where the object resides, its knowledge or its representation and the subject that acquires that knowledge or creates that representation.

Science by means of specific criteria of truth tries to find the coincidence between an affirmation and the facts to validate a knowledge that will indicate as objective. Other objective guidelines are under the protection of truth tables of logic or the correct mathematical formulations.

Whatever the case, there are different proposals to address this objective reality. One of them, perhaps the simplest to understand is the one made by Karl Popper through his 'doctrine of the three worlds'. (Popper & Eccles, 1993, p. 43)

*World 1*: the world of physical entities.

*World 2*: the world of mental states, including among them states of consciousness, psychological dispositions and unconscious states.

*World 3*: the world of the contents of thought and the products of the human mind.

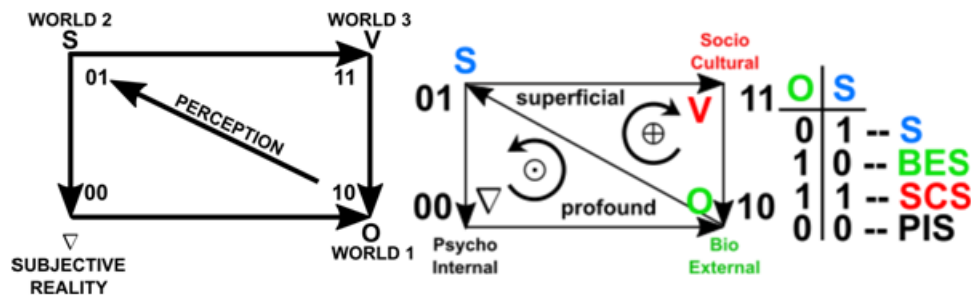**Fig. 3:** PAU of the Popper's World



Figure 3 shows the relationships that, according to the Transcurssive Logic, hold the 'Popperian worlds.'

Popper theorizes about the 'worlds of knowledge' and thus may be expressed in the PAU, its 'objective pole' (superficial level) or that which accounts for the evidence. That is, the object of the knowledge obtained by him and the subject to which as a mere object, is assigned the acquisition of that knowledge. In this statement the subjective disappears. In the previous figure, we see that the codes that structure the PAU have the same table of assignments as in the case of subjective reality. In Popper's PAU, the profound level represents through ∇ is subjectivity that makes possible the obvious manifestations of our knowledge.

Another way to shape the objective reality as an object of study is the method of 'levels of abstraction'. Luciano Floridi (2017) defines them as a set of variables of a known type, intuitively representable as an interface, which establishes the scope and type of data that will be available as a resource for generating information. Through an 'abstraction level' an information agent (observer) accesses a physical or conceptual environment. These levels need not be hierarchical to be comparable to each other. They are interfaces that mediate the epistemic relations between the observer and the observed.

The precisions given in the previous paragraph allow the theme to be approached as a method from the TL. As a result the analysis of a system can obtain a model that takes into account certain levels of abstraction according to the purpose of the system studied. The method of abstraction (Floridi, 2008) is useful for specifying the meaning of 'indirect knowledge', that is obtained by observation. It also provides a quantity of information according to the level of abstraction in which we are located, which will be greater the higher that level, which qualifies the information extracted from the system.

On the other hand, the levels of abstraction are the best 'antidote' against ambiguity and error. They force the theory adopted to support the analysis of the system to make explicit and clarify its ontological commitment, since they determine the range of available observables that allow to investigate the system under analysis and to elaborate a model that ends up identifying the structure of the studied system.

According to Floridi's proposal, a system that is analyzed at different levels of abstraction generates a model that allows us to identify a certain structure that can be attributed to that system.

Following strictly this scheme proposed by Floridi, we will elaborate the PAU respective according to the relational vision of the fundamental elements that propitiates the TL. (Figure 4)

**Fig. 4**: PAU of the level of abstraction
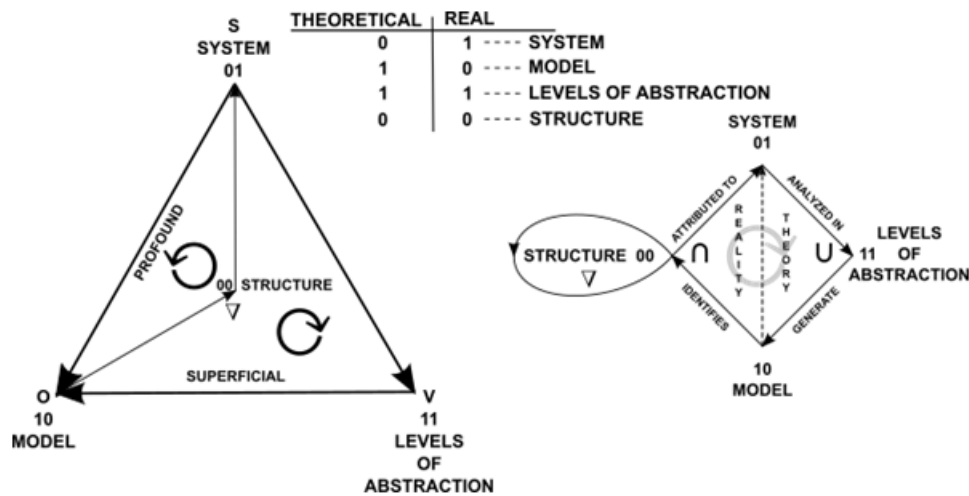


*References*: S: subject, O: object, V: evident transformation, and ∇: not evident transformation.

In the previous figure of PAU, the elements considered by the TL are fundamental to explain the operation of this interesting method. It is easy to perceive that the selected basic elements coincide fully with those proposed by Floridi; there are also certain relational dependencies that the original model does not show.

The interrelationships between system, levels of abstraction, model and structure determine two opposite and complementary levels that can be verified in the binary codes of each element, as shown in the table of assignments attached in the figure. There is a real element that represents the 'reality' to be studied: the system. A theoretical element: the model, which tries to succinctly represent the reality under study. A set of variables that define certain 'levels of abstraction' according to the system studied and that serves as 'mediator' between the real level and the theoretical level. Finally, the structure of the system studied is something that cannot be perceived so it cannot be classified as real or theoretical.

The superficial level is formed by the direct and obvious system-model relationship mediated by the levels of abstraction (logical union). This level constitutes what in scientific research is called 'theory'. It is a set of hypotheses that allows to make the model in function of the observation of the system under study.

Everything can end with the suggestion of a so-called 'theory' unless it is passed to the deep level which is determined by the indirect and hidden model-system relationship that allows disarming surface evidence and reassembling it in order to achieve maximum adjustment possible from the theoretical to the real (logical intersection). When this adjustment reaches the highest degree of approximation we can affirm that the theoretical model has identified a specific structure that can be assigned to the real system under inquiry.

It may happen that despite having a stable and considerably reliable structure, in practice the information obtained does not agree with empirical observations. It is then that deep level fulfills another function, in addition to 'finding' the corresponding structure. This function is to 'accommodate' the interrelationships that were established between the model, the structure and the system, until there is a greater affinity between theory and reality.

Adjusting the 'structure', the fundamental basis of any system, allows not only the simulation of systems (black box method) which is nothing more than a rough imitation, but emulation (white box method) where we can to venture to sketch the underlying processes that

would explain the functioning of the real system. This is where the subjective reality intervenes through $\nabla$, which in the specific case of the Floridi model, represents the structure of the system analyzed.

An alternative way of approaching objective reality is represented by Van Fraassen's proposal. The American philosopher of Dutch origin Bas Van Fraassen, who specializes in the Philosophy of Science and Logic, defines symmetry as Noether (1918), but proposes it as a guide for the characterization of a scientific theory. He considers it as the main key to understanding the world theoretically constructed through a model (Van Fraassen, 1989).

Let us look at a generic example (Van Fraassen, Op. Cit., p. 259) (Figure 5)

**Fig. 5** PAU of the symmetry
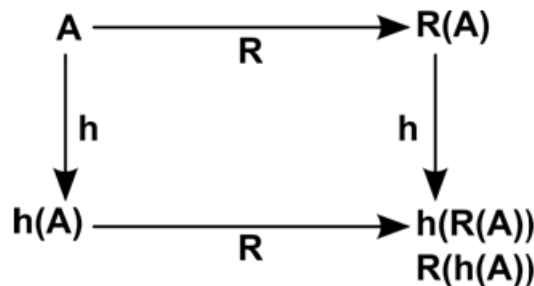


Van Fraassen tells us: if we have a rule (**R**) to solve a given problem (**A**), the application of that rule will output its solution (**R (A)**). But also, we have another transformation (**h**) that in applying it makes the problem, essentially, return to be the same. If a particular problem with an input **A** is modified by the transformation (**h**) becomes the problem with the input **h (A)**. In the lower right corner of the diagram we have two outputs: the original output transformed and the output of the transformed problem. But, if the two problems are essentially the same, then the two solutions are also the same. Thus, the symmetry requirement is satisfied: **h (R (A)) = R (h (A))**. The problem remains the same once you have found a solution. (Principle of invariance)

His contributions focus on projecting the concept of symmetry beyond physics or mathematics, attempting its application to any scientific theory, suggesting that 'similar problems have similar solutions'. On the other hand, it establishes as a method to individualize the features or relevant aspects of the solution, but does not specify how to do it.

This is the main requirement of symmetry; the methodology to generate arguments of symmetry. To put it another way: once the relevant parameters have been isolated, the solution consists of a rule (a function) that depends only on those parameters; which is to say that, from the methodological point of view, the object of study has been isolated. (Salatino, 2015).

The input **h (A)** is the one that makes possible the cycling source of the reflection symmetry of this group designed by Van Fraassen. This is where it should be the subjective contribution so that all this scheme that records a concrete objective reality, has a determining and reorganizing factor that justifies the dynamics of its evolution over time.

## 4.3 Bounded reality

No branch of science is exhaustive, but is dedicated to investigate a fraction of our reality. In fact, today this parceling is much more noticeable than in the 17th century, given the great quantity and quality of knowledge that we have achieved. Paradoxically, the problems of disconnection between these very diverse areas of research are not lacking.

However, the depth of knowledge acquired is not an obstacle, so regardless of the area in question, the scientific approach is always the same. The Transcurssive Logic has the method and the tool to make the above possible.

Isolating the essential or relevant structure of a phenomenon is equivalent to defining a group of transformations that once applied leave the problem, essentially, in the same situation from

*International Journal of Research & Methodology in Social Science*
Vol. 3, No. 3, p.15 (Jul. – Sep. 2017). ISSN 2415-0371 (Online)
www.socialsciencepublication.com

where it started (invariance). All these transformations are the symmetries of the problem. In TL, with the essential aspects, a group is formed (a logical-structural arrangement) that is called PAU (Universal Autonomous Pattern) (Figure 6), and the solution consists of a rule (a function) that depends only on these basic parameters.

**Fig. 6** PAU of bounded reality
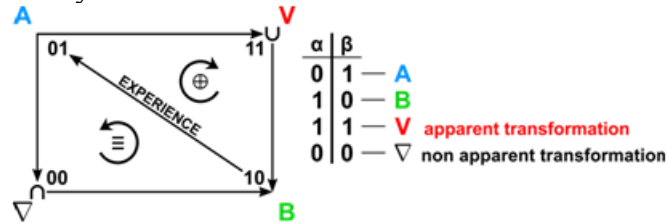


In the previous figure we see two essential aspects of any phenomenon (A and B) and the relations they keep together by means of two transformations: one superficial or apparent (V) and another hidden or profound ($\nabla$). The way we identify each of these elements is by individualizing some characteristic that is unique to each essential aspect ($\alpha$ and $\beta$). According to the resulting binary codes, we have that A is identified by having the characteristic $\beta$, but not the characteristic $\alpha$.

In contrast, B is identified by having the characteristic $\alpha$, but not the $\beta$; this is telling us that A and B are opposites with respect to the characteristics $\alpha$ and $\beta$, which are exclusive. Transformations are distinguished because the superficial (V) has both characteristics ($\alpha$ and $\beta$) of the aspects it relates (A and B), is what we call co-presence or organization, or what is evident in any phenomenon that is being observed.

The profound transformation ($\nabla$), on the other hand, shows a total absence of the characteristics that identify the aspects that it relates (co-absence or disorganization). As we see, as with the essential aspects (A and B), here the transformations T and T' are opposite; but in addition, both pairs are complementary, since, when added together, they give the apparent unity (11). This is nothing other than the obvious or superficial transformation (organization). Thus, is formed an opposition mediated by another opposition. (Galois Connection)

In the scheme of the figure, it is observed that between A and B there exists, in addition to the indirect relationship, mediated by a transformation that we have described, a direct relation between them that is shared by the two cycles that form. A superficial dextro-rotatory (in the clockwise sense) which represents the symmetries of rotation of the system and constitutes the 'objective pole'. A profound one of a counter-clockwise rotation which is an evidence of the reflection symmetries of our universal pattern and represents the 'subjective pole'. The opposite turns constitute another mode of complementarity that ensures the simultaneity in the operation of both cycles, where both the quantitative and the qualitative aspects of any real fact must be present at the same time.

Finally, so that the whole system is not just an inert structure, there must be a rule or function that sets it in motion. This rule ($\oplus$) allows shifting, superficially, to the right (quantitative or apparent transformation), making use of the characteristics that help identify each element of the system. Each of these elements occupies the place of its successor in the sequence, without losing its own identity (rotation symmetry), until the system returns to the beginning from where it left. With the above operation, we assume that we have reached the solution of the problem posed by the observable aspects of a real fact. At profound level, and as it could not be otherwise, the rule or function used is the opposite to the superficial ($\equiv$: equivalence), which allows to move to the left the elements of the system. Here, when the system returns to the original arrangement, after successive qualitative transformations, we obtain the complete solution to the problem (reflection symmetry).

*International Journal of Research & Methodology in Social Science*
Vol. 3, No. 3, p.16 (Jul. – Sep. 2017). ISSN 2415-0371 (Online)
www.socialsciencepublication.com

In short, it is this level, that of the aspects that characterize a phenomenon, the determinant of what shows us, in appearance, a real fact. What unifies the two levels is the experience that arises from solving a certain problem.

## 5. CONCLUSION

As we have seen, analyzing reality from the scientific point of view requires that at least three levels be explored: that of the 'subjective reality' that in this work is postulated as the sustenance and determinant of the other levels, which is based in a 'belief'. The "objective reality" is the level traditionally addressed by science and where you can choose different forms or theories from which to observe and measure the real, which is based on the 'evidence', and that of 'bounded reality' in which, is explored and valued. The object of study of an investigation, which is based on 'experience'.

The 'guiding thread': 'belief → evidence → experience' constitutes, in turn, an PAU that joins the fundamental elements of all research (Figure 7)

**Fig. 7:** PAU of the scientific research
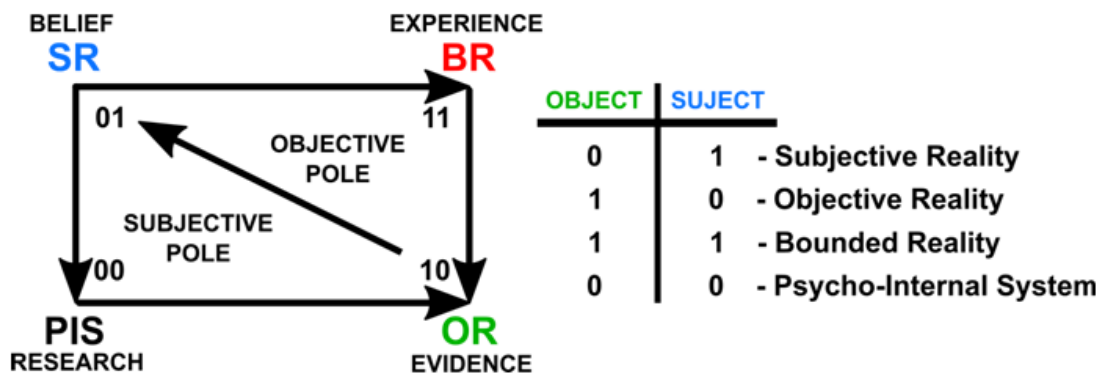


*References*: SR: subjective reality, OR: objective reality, BR: bounded reality, and PIS: Psycho-Internal System

Figure 8 summarizes everything analyzed. This scheme shows the dependence between the explored levels of reality. As can be seen, dependence is not hierarchical, but heterarchical (simultaneous) and fractal.

In addition, it is clear that all levels are based on their subjective pole, which is 'inherited' from the previous level. This provision emphasizes that all research is a dynamic and evolutionary process, where the subject that investigates and its domain are the main axis. However, this is not an impediment for this approach to be considered under any aspect, as scientific.

In this way, the Transcurssive Logic is outlined as an indispensable complement to any research process since it allows the creativity that usually accompanies any free thinker.

The traditional scientific method, without being obligatory nor an absolute guarantee of successful results, depends exclusively on the creative disposition, to be carried out. It would be of little use as a method if it were not possible to prosecute this creativity. The Transcurssive Logic allows the delimitation of the fundamental elements that intervene in any original approach that is made of reality. So that on them we can apply the rigorous process of analysis, organization of available material, ordering and critique of the ideas required by the current methodology, so that what is obtained is valid scientific knowledge.

We can conclude that, regardless of the level of reality we consider, there is always at the base a relational pattern, an invariant, a 'universal language'. These invariants (PAU[S]) are independent of the point of view that we adopt to make an observation. They take the same form from any reference system.

*International Journal of Research & Methodology in Social Science*
Vol. 3, No. 3, p.17 (Jul. – Sep. 2017). ISSN 2415-0371 (Online)
www.socialsciencepublication.com

A 'change', with the passing of time, ends up becoming a 'displacement' in a 4D hyperspace, where the structure is a permutation group and its dynamics becomes a Galois Connection.

*Ergo*, the invariants cease to be mere analogies to immediately transform themselves into facts, phenomena, and real processes.

**Fig. 8:** PAUS of the analysis of the reality
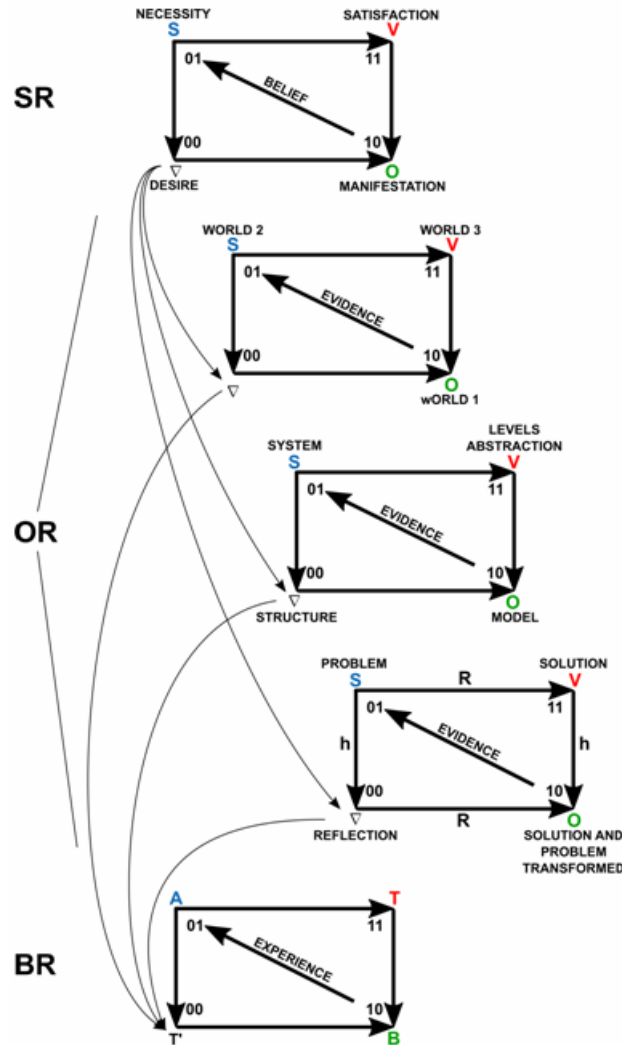


*References*: S: subject, O: object, V/T: evident transformation, ∇/T: not transformation, SR: subjective reality, OR: objective reality, and BR: bounded reality

## REFERENCES

Dilthey, W. (1949). *Introducción a las ciencias del espíritu*. México, Fondo de Cultura Económica.

Floridi, L. (2008). "The Method of Levels of Abstraction." *Minds and Machines*, **18**(3), pp. 303-329.

Floridi, L. (2017). "Semantic Conceptions of Information." *The Stanford Encyclopedia of Philosophy* (Spring 2017 Edition), Edward N. Zalta. https://plato.stanford.edu/archives/spr2017/entries/information-semantic/

Newton, I. (1997 – 1687). *Principios matemáticos de la Filosofía Natural*. Buenos Aires, Ediciones Altaya S. A.

*International Journal of Research & Methodology in Social Science*
Vol. 3, No. 3, p.18 (Jul. – Sep. 2017). ISSN 2415-0371 (Online)
www.socialsciencepublication.com

Noether, E. (1918). *Invariante Variationsprobleme*, Nachr. d. König. Gesellsch. d. Wiss.zu Göttingen, Math-phys. Klasse, s. 235-257

Popper, K. R.; Eccles, J. C. (1993). El yo y su cerebro. Barcelona, España, Editorial Labor, S. A.

Salatino, D. R. (2008). "Realidad, lenguaje natural y una lógica alternativa." *Anales de Lingüística* – Universidad Nacional de Cuyo – Facultad de Filosofía y Letras – Instituto de Lingüística – Centro de Estudios Lingüísticos (Tomo XXVII-XXVIII-XXIX: 2005-2006-2007): 75-106. Mendoza, Argentina: Editorial FFL. ISSN: 0325-3597.

Salatino, D. R. (2009). *Semiótica de los sistemas reales* – Tesis Doctoral en Letras – Facultad de Filosofía y Letras – Universidad Nacional de Cuyo - Mendoza, Argentina.

Salatino, D. R. (2012). Aspectos psico-bio-socio-culturales del lenguaje natural humano. Introducción a la teoría psíquica del lenguaje - Mendoza, Argentina - Desktop Publishing, Amazon, ISBN: 978-987-33-2379-9.

Salatino, D. R. (2013a). Psiquis – Estructura y función – Mendoza, Argentina – Autoedición. ISBN: 978-987-33-3808-3.

Salatino, D. R. (2013b). "El proyecto de Freud. En: Psicoanálisis." *Revista de la Asociación Psicoanalítica Colombiana*. **24**(1-2), pp. 43-60.

Salatino, D. R. (2015a). "Ficciones, solo ficciones." En: *Conceptos y Lenguajes en ciencia y tecnología*. Cuadrado, G.; Redmond, J.; López, R. (Editores). Serie: Selección de Textos, Volumen 3, pp. 251-273. Universidad de Valparaíso, Chile. ISBN: 978-956-358-724-1.

Salatino, D. R. (2015b). *Las 2201 páginas de una teoría. La verdadera historia de la Lógica Transcursiva*. 4 Volúmenes – Mendoza, Argentina, Autoedición – ISBN: 978-987-33-6655-0.

Salatino, D. R. (2015c). "Bases neurológicas y psíquicas del lenguaje musical." En: *Actas de ECCoM, La experiencia musical: cuerpo, tiempo y sonido en el escenario de nuestra mente*. Vol. 2, Nº 1, pp. 257-267.

Salatino, D. R. (2015d). Sobre el inconsciente – En: Psicoanálisis – Revista de la Asociación Psicoanalítica Colombiana. Vol. XXVII, Nº 1, pp. 199-228.

Salatino, D. R. (2016a). *Procesos Cognitivos. Fundamentos Neurofisiológicos. Una teoría del funcionamiento psíquico* – Mendoza – Argentina, Autoedición – ISBN: 978-987-42-2038-7.

Salatino, D. R. (2016b). *La importancia de la simetría. En Educación en Ciencias Empíricas en Facultades de Ingeniería*. (ECEFI 2016), pp. 1-29. Ed. Cuadrado, G.; Gómez, L. – Mendoza, Argentina, Facultad Regional Mendoza –Universidad Tecnológica Nacional. (En prensa).

Salatino, D. R. (2017a). "Beyond the Decisions-Making: The Psychic Determinants of Conduct and Economic Behavior." *Inter. J. Res. Methodol. Soc. Sci.*, 3(1), pp. 6-26. (Jan. – Mar. 2017); ISSN: 2415-0371.

Salatino, D. R. (2017b). *Tratado de Lógica Transcursiva. Origen evolutivo del sentido en la realidad subjetiva*. Mendoza, Argentina, 1ª Autoedición. ISBN: 978-987-42-5099-5.

Salatino, D. R. (2017c). Beyond the Decisions-Making II: Methodological Aspects. Inter. J. Res. Methodol. Soc. Sci., Vol. 3, Nº 2, pp. 6-28. (Apr. – Jun. 2017); ISSN: 2415-0371)

Samaja, J. (2005). Epistemología y Metodología. Elementos para una teoría de la investigación científica. Bs. As.: Eudeba.

Tersoglio, A. E.; Salatino, D. R.; *et al*. (2015). "Repeated implantation failure in oocyte donation. What to do to improve the endometrial receptivity?" *JBRA Assist. Reprod.* **19**(2), pp. 44-52.

Van Fraassen, B. C. (1989). *Laws and Symmetry* – Clarendon Press, Oxford.