

Imagination Studies in the Era of Neurosciences

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“Imagination is not an activity of alleged pure understanding or reason, but rather is an embodied process of human meaning-making that is responsible for the order, quality, and significance in terms of which we are able to make sense of our experience.”
(Mark Johnson)

THE CONCEPT “*l’imaginaire*” (the imaginary) was coined and developed by the French school of thought, in the works of Gaston Bachelard, Gilbert Durand, Henry Corbin, Charles Mauron, etc. Starting from the Kantian category of transcendental imagination and from Ernst Cassirer’s theory of “symbolic poignancy,” the French philosophers ascribed to the imaginary, in contrast with classical imagination, the functions of structuring representations and investing them with additional meanings, newly created by the human psyche. While Bachelard identified the source of symbolic contents in the unconscious, as defined in psychoanalysis, Gilbert Durand searched for the physiological bases of imaginary schemata and regimes in the theory of primary reflexes advanced by W. Betcherev, N. Kostyleff, and E. Minkowski.

All these theories, neo-Kantianism, psychoanalysis, *Gestalt*-theory or reflex physiology considered that human imagination was underpinned by a set of innate schemata, called archetypes by C. G. Jung and Gilbert Durand.

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These are seen as the equivalent, at the level of mental life, of what instincts represent at the level of somatic life. Archetypes are patterns that generate recurring images and symbols. Grouped into imaginary constellations and regimes, these general human themes and motifs make possible an archetypal analysis of cultural, religious, mythical, literary, artistic, or everyday representations.

The heyday of archetypal criticism was in the mid-twentieth century, when great syntheses were undertaken in anthropology, psychology, the history of religions, literature and fine arts by C. G. Jung, Karl Kerényi, Mircea Eliade, Joseph Campbell, Gaston Bachelard, Northrop Frye and Gilbert Durand. Since the 1970s, however, poststructuralism, deconstructionism and skeptical postmodernism, on the one hand, and cognitive, positivist psychology, on the other, have rejected the postulate of archetypal schemata, considering it a speculative and untenable concept. In this context, I wonder what would be today the status of a priori categories, of “symbolic forms,” of archetypes, of paradigms, of principles (*arché* or *telos*), as heuristic and taxonomic tools of human imaginaries? Could psychoanalysis and reflexology still offer an organic and psychiatric basis for research on the imaginary? And if not, are imagination studies doomed by postmodern skepticism?

This paper aims to show that contemporary sciences, such as neo-evolutionism (Joseph Carroll), neurosciences (Antonio R. Damasio, George Lakoff, Mark Johnson, Mark Turner) and “deep” cognitivism (Leonard Talmy, P. N. Johnson-Laird, Teun A. van Dijk), propose new concepts that come to continue and complement those of schemata and archetypes, namely: “human universals,” “primitives” and “image schemas.” These new concepts allow the theory of the imaginary to be “updated” and laid on physiological and neurological foundations, in line with the latest research in the field.

IN ANOTHER study, which outlined an archaeology of the term archetype in the history of European philosophy, I identified three main meanings of the concept: ontological (or metaphysical), anthropological (or psychological) and cultural (or philological).¹ In a systematic analysis of archetypal invariants that resembles my own, Joseph Carroll, one of the current representatives of neo-Darwinism, distinguishes between transcendent universals and natural universals. “Transcendental” theorists postulate that archetypes are ontological realities, while “naturalist” theorists claim that they are repetitive cognitive schemata. The former are metaphysicians in the lineage of Plato, while the latter are anthropologists who research the invariants of the human psyche:

Transcendental theorists postulate absolute spiritual realities—ultimate forms of beauty and of truth—and argue that literary works gain access to those ultimate

realities. Naturalistic theorists postulate a common human nature—structure of motives, cognitive processes, and emotions that are common to all people—and they argue that literary works represent that common human nature.²

Nietzsche's, Heidegger's or Derrida's critique of metaphysical universals—Platonic essences (*eide*), ideas (*noeta*) and models (*paradigmata*)—which ended with the collapse of metaphysics itself does not concern us here. Instead, we will focus on the anthropological or “naturalistic” acceptance, where the “quarrel of universals” is still in full swing: on the one hand, the theory of a priori categories (I. Kant), of “symbolic forms” (E. Cassirer) or psychological archetypes (C. G. Jung) has been successfully challenged by poststructuralism, deconstructivism and postmodernism; on the other hand, the idea of “innate structures,” “human universals,” “image schemas,” “spatial forms” and “narrative patterns” is used by contemporary “naturalist theorists,” by representatives of neo-evolutionism, neuroscience and “deep” cognitivism, as well as by theorists of language and discourse. We will review a few of these current theories to see if the categories they suggest could be adopted as a neurological basis for what Gilbert Durand called the “anthropological structures of the imaginary.”

The antecedents of these types of research can be found in Russian formalism and in German Gestaltism. In opposition to archetypologies focused on semantics, i.e. referential reality (whether interior or exterior), formalisms began to look for invariants in semiotics, i.e. in the formal structures of thought, language and discourse. Following in the footsteps of formalists, the French structuralist school of the 1950s–60s investigated narrative structures and the configurations of literary genres. V. I. Propp, J. Greimas, R. Barthes, Tz. Todorov, C. Bremond and G. Genette explained the structure of fabliaux, the “morphology” of fairy tales, the “grammar” of the *Decameron*, the “logic” of storytelling, the functions and figures of narrative, etc. Then, in the 1970s–80s, Anglo-Saxon cognitive psychology relocated such research in the area of the mechanisms of thought, creation and reception, or in that of the production of discourse and meaning. However, since the 1990s, cognitivism has undergone internal development, relinquishing the “surface” structures investigated until then and returning to “depth” structures: “The Zeitgeist has shifted from the shallow to the deep levels of comprehension.”³ Using the theories of R. Arnheim in the fine arts and of N. Chomsky in linguistics, “deep” cognitivism gave birth to concepts such as modes of understanding and schematic categories such as, for instance, spatial forms and narrative patterns. In the 1990s, the neurosciences launched new ways for understanding the psyche and the shared human nature. On experimental bases, they brought the concepts of neural maps, cognitive modules and image schemas in support of cognitive theories. Finally, evolutionary ethology

and psychology provided an even broader frame for these “human universals,” presenting “primitives” as innate structures of the human brain, created by our species’ need to adapt to the environment.

In this study, in order to provide a synoptic map of the current acceptations of the concept of human universals, we will not follow the historical timeline of the above mentioned domains, but will proceed deductively, going from the most general, i.e. fundamental disciplines, to more specific and individualized disciplines, devoted to the analysis of concrete forms. Thus, we will begin with neo-Darwinian psychology, which identifies innate structures in the genome of our race. We will continue by discussing the contribution of neuroscience to the analysis of cortical mechanisms involved in the generation of “mental maps” with the help of image schemas, and then we will systematize the contributions of cognitive linguistics and rhetoric, which would allow us to move from the schemata of cognition to the macrostructures and superstructures of discourse.

E VOLUTIONARY PSYCHOLOGY starts from the axiom of the “adapted mind,” according to which the relationship between the organism and the environment forms a matrix that precedes all other social, psychological or semiotic behaviors.⁴ The main function of the psychic apparatus is to ensure the most effective adaptation and integration (“inclusive fitness”) of our species to the planetary conditions of the last millennia (let us not forget that man himself is about to change this environment, to transform the Pleistocene into the Anthropocene). The psyche is organized by innate motivational and cognitive structures, built throughout the adaptative process of natural selection.⁵

To solve the problems of adaptation posed by the environment, the human brain has developed a series of cognitive modules, i.e. neural structures capable of managing the information required for each field of existence. Evolutionary psychologists are divided between the hypothesis of a “massive modularity” (the brain is seen as a set of automatic and efficient independent modules, such as sight, each having a specific function) and that of a “cognitive fluidity” (a conception which grants priority to the transversal functions of integration and communication between these modules). Both hypotheses, however, reject the idea of *tabula rasa*, of a brain that is furnished exclusively with forms and contents received from outside.⁶

This leads evolutionary psychologists to postulate the existence of human universals that are hereditary and not created by experience and culture: “the human mind contains a rich array of innate structures that have evolved through the adaptative process of natural selection.”⁷ These “universals” are the instruments through which the psyche creates a cognitive cartography of reality, together with cognitive modules (such as the mode of visual perception, or that of

language), with the systems or mechanisms of behavior (survival and individual identity; reproduction, sex and mating; kin assistance, parenting and kinship; reciprocation and group living; learning and cognition), with personality factors (extraversion/introversion, agreeableness/antagonism, neurotic/security, conscientiousness/carelessness, and curiosity/dullness) and with basic emotions (joy, sadness, fear, anger, disgust, surprise).

Jungian psychologists like Anthony Stevens believe that research on evolutionism and ethology is a confirmation of the theory of archetypes.⁸ Moreover, while C. G. Jung did not attempt to assign archetypes to certain well-defined areas of the brain, current research in “neurotheology” appears to be able to locate religious archetypes, such as the self or the image of God, in the brain.⁹ In its turn, Gilbert Durand’s theory of the imaginary, based on the reflexology of W. Betcherev, N. Kostyleff, and E. Minkowski,¹⁰ may be supported by contemporary research on basic behaviors. Thus, the three “dominant reflexes” (postural, digestive, and sexual), which underpin Durand’s regimes of the imaginary, are to some extent certified and included in the abovementioned “behavioral systems.” Searching for “the deep structure of literary representations,” Joseph Carroll has assigned, for instance, four major narrative typologies and themes to each of the four behavioral mechanisms referenced above: adventure, romance, family, and society.¹¹ *Mutatis mutandis*, it has become possible for Gilbert Durand’s “general archetypology” to be reassigned to the “human universals” of evolutionary psychology.

NEUROSCIENCE MAKES an even more robust contribution to demonstrating the existence of “primitives,” or innate mental structures. Whereas neo-Darwinians start from the axiom of an “adapted mind” over the course of evolution, contemporary neuroscientists postulate the idea of an “embodied mind,” outlining the dependence of mental activity on the neural structures of the brain and the body in general.¹² Antonio R. Damasio, for example, denounces “Descartes’ error” in separating the two substances, *res cogitans* and *res extensa*, the soul and the body. According to his research, not even the most independent faculties, such as reason or human will, are free from corporeal conditionings, since they depend both on certain precise neural masses (whose damage may affect the respective faculty) and on biochemical mechanisms regulating the activity of the body and the brain.¹³

This dependence is due to the cortical support which organizes the functions of the brain at all its levels. During the evolution of our species, various processes of development led neurons to become organized in specialized groups designed to solve different problems of adaptation. These groups form “neural maps.” More specifically, according to Gerald Edelman’s theory of neural

groups, different “sensory sheets,” such as the retina, the cochlea or the skin, project information on specific regions of the cortex, where receptor neurons regroup into neural maps, due to the repetition of stimuli that activate the same synapses. Each perceived object gives rise to multiple patterns of regrouped neurons, in different areas of the brain, depending on the modalities of perception (shape, motion, color, sound, smell, etc.).¹⁴

The nature of neural maps is partly innate and partly acquired. The number of neurons and the number of their patterned combinations is much too large to be stored in information transmitted through the DNA, so it is logically impossible to assign a genetic programming to all the cortical maps. What is transmitted genetically is an instruction concerning the organization of neurons, the formation of neural groups, their shape, their number, their interconnectivity, etc. Life experiences, the repetition of stimuli, and adaptation to the environment will lead to the formation and specialization of cortical systems as cognitive modules over the course of an individual’s evolution.¹⁵

One of the most important mechanisms for explaining brain activity is that of “mirror neurons,” discovered by Giacomo Rizzolatti and Vittorio Gallese, researchers at the University of Parma.¹⁶ According to their research, the activation of sensory-motor neurons located in the primary cortex causes the activation of some visual neurons located in the parietal cortex and vice versa, as if these groups of neurons were reflected in a mirror. The signal for bodily movement and the signal for the visual perception of this movement activate one another, so much so that the receptor neurons that receive the visual or auditory signal of another person’s gesture “turn on” the motor neurons that allow us to perform the same gesture. In other words,

(1) Imagining an action or perception activates much of the same neural network as is active when actually performing that action or experiencing that perception (for review, cf. Kosslyn et al. 2001). (2) Observation of an action activates much of the same neural substrate as actual execution; certain visuomotor neurons in the motor system, known as mirror neurons, discharge both when an individual performs an action and when he observes someone else performing that action (di Pellegrino et al. 1992; Gallese et al. 1996; Rizzolatti et al. 1996; review in Rizzolatti and Craighero 2004). (3) Particularly significant are recent studies which indicate that language (verbs and sentences) denoting actions performed by different body parts (mouth, arms, feet) activates some of the regions as are active when each type of action is actually performed (Hank et al. 2004; Hank and Pulvermüller 2004; Tettamanti et al. 2005).¹⁷

To explain the flow of information between primary and secondary brain areas, Damasio proposes the concept of “as-if body loops.” The movement occurs both ways: not only do the neural formations of the representation reproduce motor gestures, but they also anticipate movement. In a subsequent paper, Damasio suggests an even more complex model, that of “convergence-divergence zones” which make possible the architecture of memory through the simultaneous activation of different groups of neurons involved in the mapping of objects and events.¹⁸ These loops and nodal areas are the ones that make possible learning by imitation, mimetic behavior, the transmission of impulses and desires from one individual to another, empathy (the intuition of the others’ emotions) and the effects of emotional mass contagion, etc.¹⁹

Cortical networks are structured by what neuroscience calls “image schemas,” some “primitives” which organize the maps of mental representations. The concept of schema, derived from Gestalttheorie and from cognitivism, has been adapted to neuroscience by George Lakoff and Mark Johnson.²⁰ According to these researchers, image schemas are neuronal *Gestalten* that receive and organize the sensor-motor signals of experience. They are organic, incorporated, “embodied,” pre-conceptual structures that work unconsciously. At the same time, although firmly structured, they are very flexible, undergoing various transformations, depending on the specific experiences of each individual.²¹ Resumed through the circuits of mirror neurons, image schemas work not only within the primary motor system, but also in the secondary cortical system, as schemata of abstract thinking:

The central idea is that image schemas, which arise permanently in our perception and bodily movement, have their own logic, which can be applied to the abstract conceptual domain. Image-schematic logic then serves as the basis for inferences about abstract entities and operations. From a neural perspective, this means that certain connections to sensory-motors areas are inhibited, while the image-schematic structure remains activated and is appropriated for abstract thinking. According to this view, we do not have two kinds of logic, one for spatial-bodily concepts and a wholly different one for abstracts concepts. There is no disembodied logic at all. Instead, we recruit body-based image-schematic logic to perform abstract reasoning.²²

In the same article, Mark Johnson associates image schemas with Kant’s a priori categories. The researcher believes that the Kantian concept of “transcendental imagination” can be validated and deserves to be preserved, because it depicts, albeit in a rather speculative manner, the matrixial function of neural schemata:

*Imagination is not an activity of alleged pure understanding or reason, but rather is an embodied process of human meaning-making that is responsible for the order, quality, and significance in terms of which we are able to make sense of our experience.*²³

Thus, alongside evolutionary psychology, neuroscience also postulates the existence of an organic, cerebral support for the Kantian a priori categories, E. Cassirer's "symbolic forms," C. G. Jung's "archetypes" or G. Durand's "anthropological structures of the imaginary."

The role of image schemas in human psychology has been widely studied by Mark Turner. These schemata or "skeletal patterns," such as "motion along a path," "bounded interior," "balance," or symmetry, shape sensory and motor experiences and allow the regrouping of similar events and actions into categories, such as walking, entering a site, throwing an object, etc.²⁴ Image schemas and categories can subsequently be projected, through processes like analogy and parable, onto other image schemas and categories, creating new representations. For example, the projection of temporality onto spatiality generates a linear or circular image of time, which adds to the category of time-specific features of space, such as continuity, extent, fragmentation, etc.²⁵

These projections are made possible by brain structures such as mirror neurons, convolutions, perceptual integration, synaesthesia, "neural binding," "as-if body loops," convergence areas, etc., which Mark Turner regroups under the term "cogs," i.e. teeth of a neural gear, wheels in a cerebral assemblage. "Cogs" are secondary circuits, which reproduce the schemata of primary circuits even when they are turned off or inhibited. In this way, sensor-motor patterns are taken from primary representations and transposed into secondary, "abstract" representations, such as the perception of space in painting or that of time in music.²⁶ Projections based on analogy, metaphor and parable underlie, thus, human thought, which is of a "literary" ("literary mind") or "artistic" nature ("artful mind").

In a recent summary, Mark Turner explains metaphorical projection or parable through the mental process of "blending," mixing, combining or fusing "mental spaces":

*A blend is a mental space. It results from the mental act of blending other mental spaces in a mental web. The blend is not an abstraction, or an analogy, or anything else already named and recognized in common sense. A blend is a new mental space that contains some elements from different mental spaces in a mental web but that develops new meaning of its own that is not drawn from those spaces. This new meaning emerges in the blend.*²⁷

The ability of the brain to project primary schemata into secondary circuits, to combine mental spaces and overlay brain maps is deemed to be the source of new images and ideas. The defining characteristic of our species, the “human spark,” which marked the evolutionary detachment of the human brain from the brain of primates or of the *homo sapiens* brain from the brains of Neanderthals and other anthropoid races, consists in the emergence of the capacity to mix primary representations into new ones. Image schemas that underlie human cognitive modes are the building blocks of all cultural manifestations.

BEFORE EVOLUTIONARY psychology and neuroscience, the concept of mental schema was developed by cognitive psychology and linguistics. Relying on Gestalt and generativist theories, Leonard Talmy has shown that different notions of knowledge are organized by mental schemata. Talmy calls such patterns “schematic categories.” To give an example, the domain category includes the distinctions space-time, object-ground, etc. Spatial, number, gender or grammatical schemata constitute the basis of different modes of comprehension.²⁸ In turn, schematic categories are regrouped into integrated systems, which Talmy calls “schematic systems” or “imaging systems.” Schematic systems include the following: the configurative structure, perspective, “distribution of attention,” “force dynamics,” “cognitive states,” linguistic patterns, etc.²⁹

Similarly, another researcher, P. N. Johnson-Laird argues that mental activity is organized by “primitives,” i.e. some formal patterns. These “conceptual primitives” are not acquired or derived from previous representations or concepts; on the contrary, they are innate categories. They are the source of the “mental models,” the computational functions (made up of three primitive functions: origin, sequence and identity), the verbal representations or the logical concepts.³⁰

According to Johnson-Laird, there are three types of schemata of increasing complexity: mental images, mental models, and verbal representations. Mental images are specific and individualized, because they correspond to external objects perceived in some particular circumstances. Mental models regroup mental images into schematic figures, although mental images do not lose their specificity thus. Mental models are not some abstractions or conceptualizations of mental images. They are the result of the organization of mental images into patterns through the action of “primitives.” If mental images represent the perceptible features of objects in the real world, mental models ensure the coherence and cognitive integration of all these individual versions:

mental models play a central and unifying role in representing objects, states of affairs, sequences of events, the way the world is, and the social and psychological

*actions of daily life. They enable individuals to make inferences and predictions, to understand phenomena, to decide what action to take and to control its execution, and above all to experience events by proxy; they allow language to be used to create representations comparable to those deriving from direct acquaintance with the world; and they relate words to the world by way of conception and perception.*³¹

Mental models are the basis of some more sophisticated forms of representation, such as Euler's circles, Venn diagrams, graphs, logical drawings, etc.³² Language itself derives from mental models. It is created by a secondary activity, analogous to the activity of primitive functions. While mental images are analogues of things in the external world, and mental models are analogues of these images, structured by innate "primitives" into configurations that can be manipulated and controlled through dimensional variables, verbal representations are analogues of images and patterns through secondary circuits of thinking. Because of this, although using arbitrary supports in relation to the things represented, i.e. words, propositional representations are also formatted by primitive categories.³³

Mental models and verbal representations form the basis for two fundamental comprehension modes, which resume the older distinction made by Lessing between spatial arts and temporal arts: spatial, simultaneous comprehension, and temporal, sequential comprehension.

Before it was integrated in the cognitive sciences, the spatial mode of comprehension was defined by the German *Gestaltpsychologie* (or the psychology of form) and was subsequently developed by Rudolf Arnheim. Starting from the Gestalt axiom that representation organizes the perception of an object in a unified, global form, and not as a mere juxtaposition of elements, Arnheim shows that the reception of art involves the creation of mental schemata, which he calls synopses. Anticipating the concept of mental maps in neuroscience, synopses are simple maps, more precisely some analogical iconic images that reproduce the object in its visual wholeness. The reception of the artistic forms of painting or sculpture is based on synoptic insights that allow for a direct, full perceptual comprehension of contemplated paintings and sculptures.³⁴

In Arnheim's conception, within the frame of reception, it is not just spatial arts, but also temporal arts that entail a reduction to a synopsis. Evolving as a suite of time sequences, music and literary discourse tend to be perceived as global units, as schemata that provide a representation of the work as a whole. Time is thus transposed into space and successive elements are placed in contiguity. The spatial form most commonly used to convey temporality is an unbroken line, although other shapes, such as circles, spirals, etc., could serve as analogic support for time. In order for comprehension to be complete, the spatial synop-

sis must be accompanied by a structural hierarchy, which dictates the order of importance of the elements in the synopsis.³⁵

Rudolf Arnheim's concepts have been adapted by cognitive psychology. Thus, Louis O. Mink shows that "understanding" involves a reorganization of sensory, perception, memory and imagination data that the brain perceives in a sequential manner, *seriatim*, into simple or cumulative acts. This helps convey a simultaneous image of all the sequential relations of these data. At the most primitive level, "understanding" enables the subject to grasp together the characteristics of individual objects; at an intermediate level, it brings together series of objects, classifying and generalizing them; at a higher level, it joins them together in a simple system, which accounts for the world as a whole (although, obviously, an all-encompassing view of the universe is not possible, for a totalizing vision would have to belong to God). Depending on the manner of capturing several objects in a unique mental operation, there are several modes of comprehension: the theoretical or hypothetical-deductive mode (objects are understood as cases of one and the same generalization); the categorical or Platonic mode (objects are understood as examples of a single category); the configurative mode (objects are understood as a *totum simul*).³⁶

Of these, the configurative mode allows us to structure the sequence of events of concrete existence into a comprehensible ensemble. According to Mink, to give reality meaning, we have to put it in a story, to recount it. Narrative organizes the representations stored in memory into a synoptic story. The most famous model of this function of literature is found in Aristotle's definition of tragedy: because a theatre play reproduces a unique action mimetically, so that it can be perceived as an autonomous whole, it must have a beginning, a middle and an end.³⁷ In agreement with Paul Ricoeur's comments on the relationship between time and story, Mink sees any narrative as a mode for the configurative comprehension of time:

*As the human activity by which elements of knowledge are converted into understanding, it is the synoptic vision without which (even though transiently and partially attained) we might forever pass in review our shards of knowledge as in some nightmare quiz show where nothing relates 'fact' to 'fact' except the fragmented identities of the participants and the mounting total of the score.*³⁸

Thus, both neuroscience and cognitive psychology distinguish between two kinds of primitive schemata: spatial and temporal. Using data from neuroscience, Mark Turner argues that the image schemas theorized by George Lakoff and Mark Johnson structure the perception of reality in simple "stories," which

can be either short spatial stories, organized in simultaneity, or event stories (non-spatial events), organized in succession.³⁹ Turner confirms thus the idea of P. N. Johnson-Laird that perceptive images of the world find their correspondent either in mental models, which are spatial structural analogues of the world, or in propositional representations, which are a series of symbols specific to natural languages.⁴⁰ Spatial forms and narrative patterns correspond to and are coterminous with each other. We will focus briefly on each of them, presenting a few relevant theories.

As regards spatial forms, the most common samples are the spatial diagrams (Leonard Talmy) or the logical pictures (August Fenk). According to Fenk, spatial thinking is structured by spatial metaphors. These are tools that make possible knowledge and communication, playing a key role in the co-evolution of thinking and language, of mental design and symbolic manipulation. Spatial metaphors can be expressed in a dynamic way, through gestures accompanying an oral discourse, or in a visual way, through logical drawings, such as diagrams, graphs, and other logical pictures. At a more general level, spatial metaphors “in-form” language, not so much as a reductive “bed of Procrustes,” but as a topical organizer, as a “donor of form” for thoughts.⁴¹

Along similar lines, another theorist, Joseph Frank, speaks of “spatial forms” as tools for the topical organization of mental representations. Both spatially and temporally organized configurations, such as language and literature, resort to the spatial forms that reorganize a succession of elements in a concomitant layout. As Frank contends, modern poetry and prose in particular tend to impose non-sequential forms, in which history is reorganized spatially. Thus, in *Ulysses* James Joyce outlines a synopsis of Dublin through the meandering wanderings of Leopold Bloom; in *À la recherche du temps perdu*, Proust succeeds in summoning the past into an eternal present, into a space of simultaneity for all the engrams of memory; in *Nightwood*, Djuna Barnes unravels the plot into a poly-perspectival cubist sequence of paintings. This is how modern literature transforms the historical imaginary into a mythical view which abolishes history or temporality, condensing it into a slideshow of archetypal characters and events.⁴²

Insofar as narrative patterns are concerned, I shall refer to two theories, that of Frank Kermode and that of J. Hillis Miller. In *The Sense of an Ending: Studies in the Theory of Fiction*, Kermode posits that the basic structure of all narrative fictions is the beginning-middle-end sequence (echoing thus the Aristotelian pattern for tragedy). This structure is summed up in the Tick-Tock formula, through which we represent the passage of time. We might ask why the two onomatopoeias are not identical (Tick-Tick or Tock-Tock), since the seconds of real time that they are supposed to designate generically are identical? The answer, as Kermode suggests, is that we are conditioned intuitively and schemati-

cally to organize sequences into patterns of beginnings and ends. Any beginning implies an end, and any act involves a result.⁴³ This organizing scheme is deemed to provide the structure of all narrative plots, from the simplest (for example, the acts-reactions of the characters) to the most complex (for instance, the Christian axis of history and of the Bible: Genesis—Apocalypse). The function of the Tick-Tock image schema is to give meaning to history. What in actual existence is a mere succession of indifferent events becomes, in the story, a progression (or regression) that shapes a destiny. Through the “temporal integration” of fiction, the random time of the world becomes a human time full of meaning: *chronos* becomes *kairos* and *chaos* becomes *cosmos*.⁴⁴ Is it true that, according to Kermode, the impulse to search for patterns in historical time and in theoretical reflections on history is of recent date and marks the transition from a mythical conception of time to a historical and, later on, philosophical conception.⁴⁵

In turn, J. Hillis Miller argues, based on the physical form of books, whether written by hand or printed, that the primitive form of discursive organization is the line. The schema of writing, which links up letter after letter, provides the pattern for structuring ever more complex levels: narrative or diegesis, linear description of the characters (“life line,” etc.), interpersonal relationships (parentage, etc.), economic terminology, topography, illustrations, figurative language and tropes and, ultimately, mimesis and realistic representation, as a mirror of the real world.⁴⁶ The line, as a narrative schema, organizes events in a causal order and gives thus the story a global sense, a *logos*:

*The model of the line is a powerful part of the traditional metaphysical terminology. It cannot be easily detached from these implications or from the functions it has within that system. Narrative event follow narrative event in a purely metonymic line, but the series tends to organize itself or to be organized in a causal chain. . . . The image of the line tends always to imply the norm of a single continuous unified structure determined by one external organizing principle. This principle holds the whole line together, gives it its law, controls its progressive extension, curbing or straight, with some arché, telos, or ground. Origin, goal, or base: all three come together in the gathering movement of the logos.*⁴⁷

Such schemata act not only at the primary level of language, but also at the most complex level of discourse and rhetoric. Due to this fact, structuralist critics have been able to borrow directly the terms of language and linguistics, of grammar and syntax, in order to describe the structures of narrative and discourse. In the wake of Russian formalism, Vladimir I. Propp developed a *Morphology of the Fairy Tale*, which establishes a set of 31 narrative functions and 7 categories of characters that are entwined in the storyteller’s performance of the text.⁴⁸ A.

J. Greimas transposes these concepts into a more abstract, paradigmatic plan of structural logic, aiming to outline a “constitutional model” (the generative matrix) of stories and a universal grammar of narrative.⁴⁹ In *La Logique du récit*, Claude Brémond develops a triadic matrix of storytelling, composed of several stages (the virtuality, the actualization and the results of an action), as well as of the main narrative roles.⁵⁰ Roland Barthes, Tzvetan Todorov, and Gérard Genette expanded even further the concepts and taxonomies of narrative and of discourse.⁵¹ Wondering if it is legitimate for the structures of grammar, morphology and syntax to be extrapolated to the figures of rhetoric, Paul de Man affirms/confirms the existence of organizing schemata at levels that are superior to linguistics (for instance, at the level of poetics and cognitive aesthetics).⁵²

FROM THE simplest to the most complex and sophisticated, all of these theories—evolutionary psychology, neuroscience, cognitivism, Gestaltism, formalism and structuralism—assert the existence of “primitive” image schemas, spatial and temporal forms, synopses and mental maps, cognitive modules, configurative modes and schematic systems, narrative functions and structures of discourse. As can be easily seen, almost all of these invariants relate to the “formal” aspect of representations, to patterns that organize knowledge and comprehension, grammar and syntax, rhetoric and theory. In other words, they relate to the semiotic aspect of literature.

On the other hand, the archetypal systematizations and taxonomies of the 1940s–60s I have cited in the beginning of this paper place invariants on the semantic level of the story, i.e. at the level of mental representation, of the worldview, of the fictional universe. Archetypes are categories or principles that systematize the “ontology” of possible worlds, just like the categories of physics, chemistry, biology or zoology map the real world. Archetypes transpose the *realia* of the primary world into the *nomina* of secondary worlds. Regardless of whether they are assigned roots in psychology, as in the case of Ernst Cassirer’s “symbolic forms,” Lucian Blaga’s “abyssal categories,” C. G. Jung’s archetypes or Gilbert Durand’s imaginary schemata and regimes, these patterns play a major heuristic role in classifying the elements of fiction and in structuring the “content” of stories.

On these bases, several philosophers, anthropologists, historians of religions, or literary theorists have built vast archetypal syntheses, using classification criteria borrowed from representations of the macro- and the micro-universe. Gaston Bachelard turned to the four elements of Aristotle in his “psychoanalyses” of fire, water, air, and earth, organizing the images and symbols of literature according to the categories of “material imagination.”⁵³ Northrop Frye arranged the “modes of fiction” and literary genres according to the natural schema of the

four seasons, spring, summer, autumn, and winter.⁵⁴ Through a phenomenological reduction of religious phenomena, Mircea Eliade outlined a topographic hierarchy that descends from the astral and atmospheric heavens to the terrestrial, biological, zoological, mineralogical and subterranean elements, forming the panoply of representations of *homo religiosus*.⁵⁵ More or less all the pictures and charts organizing contingent or metaphysical reality, such as the 7 visible planets or the 12 houses of the zodiac, the main colors, the mineral, the vegetable or the animal species, etc., have served or could serve to build typologies of fictional worlds.

Taxonomies that served for the classification of psychological types or of human characters may just as well produce organizing archetypologies of mythologies, literature, and the arts. The psychological types or the archetypes of the collective unconscious (ego, shadow, *animus* and *anima*, the wise old man, the *persona*, the self, etc.), as defined by Jung, allowed the historian of religions Karl Kerényi to analyze some gods like Zeus and Hera, Demeter and Persephone, Dionysus and Prometheus as personifications of the *imago* of the Father and the Mother, of the Mother and the Daughter, the Libido or the human Ego.⁵⁶ Joseph Campbell regrouped the various figures of heroes and gods from the major mythologies in synoptic syntheses such as *The Hero with a Thousand Faces* and *The Masks of God*.⁵⁷ Last but not least, starting from the primary reflexes of the human being, Gilbert Durand organized constellations of collective symbols into regimes of the imaginary: diurnal, nocturnal, and cyclical.⁵⁸

Cognitive sciences have recovered and conceptualized the two great modes of organization—semiotic and semantic—of mythological, literary or artistic works, of their fictional worlds. In this regard, Teun A. van Dijk distinguishes between superstructures and macrostructures. The former belong to a semiological analysis, hence, to the formal structures of discourse, as they have been analyzed by formalism, structuralism and cognitivism. Taking into account Paul de Man's requirement that one should not superimpose linguistic structures over rhetorical and aesthetic structures, van Dijk asserts:

*Whereas stylistics and rhetoric were traditionally closely related to literature and grammar, there are other structures of text and talk that go far beyond the grammatical characterization of discourse, and which may be called "superstructures," because they are abstract form-schemata that globally organize discourse across sentence boundaries.*⁵⁹

Superstructures are formal schemata which provide a framework for the organization of texts at various levels, starting from the metric structure of poetry and from tropes such as metaphor, metonymy, irony, etc. The categories of

stories proposed by V. I. Propp, A. J. Greimas, R. Barthes, Tzvetan Todorov, C. Bremond, and G. Genette are all superstructures. At an even more abstract level, superstructures ensure the configuration of different types of discourse, such as argumentation (premises, development, conclusion), narration (summary, orientation, complication, resolution, coda), academic article (title, abstract, keywords), written press article, etc.⁶⁰ Finally, superstructures give the defining characteristics of literary genres (such as classical tragedy or utopia) and of the poetics of a current or an era.⁶¹

In a complementary manner, “the semantic macrostructure . . . defines the overall meaning of the text.”⁶² In defining macrostructures, Walter Kintsch and Teun van Dijk start from the concept of “mental model,” as defined by Johnson-Laird, which they describe as a “situation model,” i.e. a mental network of relations of meaning (causal, spatial, temporal) between the elements of representation (“tokens”), such as characters, objects, and events.⁶³ A mental model organizes the successive information of a discourse or of a story into a simultaneous global representation of the fictional universe or a fragment thereof. Thus, the mental model is an analogical structure of the real universe, providing a possibility of knowledge through parallelism and analogy between the primary and the secondary worlds.⁶⁴

Macrostructures operate, therefore, at the level of semantics. They organize referential components into unitary and comprehensive mental structures, such as maps and *mappae mundi*, graphs and synoptic diagrams, summaries and syntheses. The images of the world (*Weltbildes* or *Weltanschauungen*), or the chronotope, as defined by M. Bakhtin,⁶⁵ are mental models for fictional worlds, presenting their imaginary ontology, theogony, cosmology, geography or history. The archetypologies of Gaston Bachelard, Northrop Frye, Mircea Eliade, Joseph Campbell, or Gilbert Durand are synoptic macrostructures which organize, at the most general level, constellations of images, symbols and figures used by the creators of mythological or fictional universes.

IT IS clear that mental schemata exist at all levels of the human psyche, from the simplest to the most complex. I have overviewed them in an ascending, inductive manner, starting from basic structures and reaching the most extensive structures. Thus, evolutionary psychology has offered us the concept of “primitives,” i.e. innate “human universals,” which the brain needs for a cognitive mapping of the environment, as well as for adapting to the conditions of the Pleistocene. Neuroscience has offered these “universals” organic support in the “modules” of the brain and in neural maps, which use image schemas to compose mental “stories” organized either spatially (“spatial stories”) or temporally (“event stories”). Cognitive disciplines have developed the theory of mental

models and propositional representations, using the concepts of spatial forms and metaphors (such as synopses and charts) and narrative patterns (such as “Tick-Tock” or the line). At the level of the “linguistic module,” these schemata are responsible for the organization of grammar and syntax, while at the level of discourse they provide the tools for a cognitive rhetoric and aesthetic. Finally, the concepts of superstructures and macrostructures allow us to recover both the major semiotic systems, which deal with the formal organization of the stories, and semantic systematizations, which regroup the chronotopes and archetypal taxonomies of fictional worlds.

All these disciplines confirm, therefore, the existence of innate categories. Of course, the way of defining invariants has changed radically from neo-Kantianism to neuroscience, or from psychoanalysis to cognitivism, reiterating, in a way, the opposition between the “ideas” and paradigms of Plato and the forms and entelechies of Aristotle, between Joseph Carroll’s “transcendental” and “naturalistic” universals. Archetypes have descended from metaphysical or metapsychical transcendence into the immanence of structures or configurations of the brain and knowledge. However, whether thematic or formal, semantic or semiotic, the universals that underpin all macrostructures and superstructures are understood, by all of these disciplines, as some inherited “primitives” (at least as some genetic possibilities of regrouping neurons on brain maps), and not as acquired categories (although adaptation to the environment plays an important role in the concrete configuration of these patterns). *Mutatis mutandis*, by upgrading the primary reflexes invoked by Gilbert Durand to the behavioral mechanisms of evolutionary psychology, and Jung’s archetypes to the image schemas of neuroscience, contemporary research has acquired a new scientific basis for redefining the “anthropological structures of the imaginary.”



Notes

1. Corin Braga, *10 studii de arhetipologie*, Arhetipologie generală (Cluj-Napoca: Dacia, 2007), 5–23.
2. Joseph Carroll, *Literary Darwinism: Evolution, Human Nature, and Literature* (New York–London: Routledge, 2004), 117.
3. Bruce K. Britton and Arthur C. Graesser, *Models of Understanding Text* (Mahwah, New Jersey: Laurence Erlbaum Associates, Publishers, 1996), 1.
4. See Jerome H. Barkow, Leda Cosmides, and John Tooby, eds., *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* (New York–Oxford: Oxford University Press, 1992); Steven Mithen, *The Prehistory of the Mind: The Cognitive Origins of Art, Religion, and Science* (London: Thames & Hudson, 1996).

5. Carroll, *Literary Darwinism*, VI.
6. Joseph Carroll, *Reading Human Nature: Literary Darwinism in Theory and Practice* (Albany, New York: State University of New York Press, 2011), 20–21.
7. Joseph Carroll, “The Deep Structure of Literary Representations,” *Evolution and Human Behavior* 20, 3 (May 1999): 171.
8. Anthony Stevens, *Archetype Revisited: An Updated Natural History of the Self* (London: Taylor & Francis, 2004), 9, 10, 17, 19, 174–175.
9. See Laurence O. McKinney, *Neurotheology: Virtual Religion in the 21st Century* (Cambridge, Mass.: American Institute for Mindfulness, 1994); Matthew Alper, *The “God” Part of the Brain: A Scientific Interpretation of Human Spirituality and God* (Naperville, Ill.: Sourcebooks, 1996); Eugene d’Aquili and Andrew B. Newberg, *The Mystical Mind: Probing the Biology of Religious Experience*, Theology & the Sciences (Minneapolis, Minn.: Fortress Press, 1999); Andrew Newberg, Eugene d’Aquili, and Vince Rause, *Why God Won’t Go Away: Brain Science and the Biology of Belief* (New York: Ballantine Books, 2001).
10. Gilbert Durand, *Les Structures anthropologiques de l’imaginaire: Introduction à l’archétypologie générale*, 12th edition, preface by Jean-Jacques Wunenburger (Paris: Dunod, 2016), 25–32.
11. Carroll, “Deep Structure of Literary Representations,” 159–173.
12. Mark Johnson, *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason* (Chicago: University of Chicago Press, 1987); George Lakoff and Mark Johnson, *Philosophy in the Flesh: The Embodied Mind and Its Challenge to Western Thought* (New York: Basic Books, 1999).
13. Antonio R. Damasio, *Descartes’ Error: Emotion, Reason, and the Human Brain* (New York: Grosset/Putnam, 1994).
14. See Mark Turner, *The Literary Mind: The Origins of Thought and Language* (New York–Oxford: Oxford University Press, 1996), 23.
15. See Tim Rohrer, “Image schemata in the brain,” in *From Perception to Meaning: Image Schemas in Cognitive Linguistics*, Cognitive Linguistics Research, 29, edited by Beate Hampe, in cooperation with Joseph E. Grady (Berlin–New York: Mouton de Gruyter, 2005), 176–177.
16. See Giacomo Rizolatti and Corrado Sinigaglia, *Les Neurones miroirs*, transl. Marilène Raiola, Sciences (Paris: Odile Jacob, 2007).
17. Ellen Dodge and George Lakoff, “Image schemas: From linguistic analysis to neural grounding,” in *From Perception to Meaning*, 73.
18. Antonio Damasio, *Self Comes to Mind: Constructing the Conscious Brain* (New York: Pantheon Books, 2010), chap. 4, “Mapping Body States and Simulating Body States,” and chap. 6, “More on Convergence-Divergence Zones.”
19. See Arnold H. Modell, *Imagination and the Meaningful Brain* (Cambridge, Mass.–London: The MIT Press, 2003), 183–187.
20. George Lakoff, *Women, Fire, and Dangerous Things: What Categories Reveal About the Mind* (Chicago: University of Chicago Press, 1987); Johnson, *The Body in the Mind*; Lakoff and Johnson, *Philosophy in the Flesh*.

21. See the short presentation made by Beate Hampe, "Image schemas in Cognitive Linguistics," in *From Perception to Meaning*, 1–2.
22. Mark Johnson, "The philosophical significance of image schemas," in *From Perception to Meaning*, 24.
23. *Ibid.*, 17.
24. Turner, *Literary Mind*, 16–17.
25. *Ibid.*, 17–18.
26. Mark Turner, ed., *The Artful Mind: Cognition Science and the Riddle of Human Creativity* (Oxford–New York: Oxford University Press, 2006), 164–165.
27. Mark Turner, *The Origin of Ideas: Blending, Creativity, and the Human Spark*, Language, Speech, and Communication (Oxford–New York: Oxford University Press, 2014), 6.
28. Leonard Talmy, "The fundamental system of spatial schemas in language," in *From Perception to Meaning*, 199–234.
29. Leonard Talmy, *Toward a Cognitive Semantics*, vol. 1, *Concept Structuring Systems* (Cambridge, Mass.–London: A Bradford Book, The MIT Press, 2000), 40.
30. *Ibid.*, 411–412.
31. P. N. Johnson-Laird, *Mental Models: Towards a Cognitive Science of Language, Inference, and Consciousness*, Cognitive Science Series 6 (Cambridge: Harvard University Press, 1983), 397.
32. See Wolfgang Schnotz and Raymond W. Kulhavy, eds., *Comprehension of Graphics*, Advanced in Psychology 108 (Amsterdam–London–New York–Tokyo: North-Holland/Elsevier, 1994).
33. *Ibid.*, 156–157.
34. Rudolf Arnheim, *New Essays on the Psychology of Art* (Berkeley–Los Angeles–London: University of California Press, 1986), X–XI, 194 et passim.
35. *Ibid.*, 21, 79.
36. Luis O. Mink, *Historical Understanding*, eds. Brian Fay, Eugene O. Golob, and Richard T. Vann (Ithaca, New York–London: Cornell University Press, 1987), 50–52.
37. *Ibid.*, 49–50.
38. *Ibid.*, 55.
39. Turner, *Literary Mind*, 5, 36 et passim.
40. Johnson-Laird, *Mental Models*, 156–165.
41. August Fenk, "Spatial Metaphors and Logical Pictures," in *Comprehension of Graphics*, 57–58.
42. Joseph Frank, *The Idea of Spatial Form* (New Brunswick–London: Rutgers University Press, 1991), 63–64 et passim.
43. Frank Kermode, *The Sense of an Ending: Studies in the Theory of Fiction* (London–Oxford–New York: Oxford University Press, 1967), 45.
44. *Ibid.*, 47.
45. *Ibid.*, 56.
46. J. Hillis Miller, *Ariadne's Thread: Story Lines* (New Haven–London: Yale University Press, 1992), 21.
47. *Ibid.*, 18.

48. Vladimir Propp, *Morphologie du conte*, suivie de *Les Transformation des contes merveilleux* et de E. Méliétinski *L'étude structurale et typologique du conte*, transl. Marguerite Derrida, Tzveten Todorov, and Claude Kahn, Points (Paris: Poétique/Seuil, 1970).
49. A. J. Greimas, *Sémantique structurale: Recherche de méthode* (Paris: Larousse, 1966); id., *Du sens, essais sémiotiques* (Paris: Seuil, 1970); id., *Sémiotique: Dictionnaire raisonné de la théorie du langage*, Language–Linguistique–Communication (with J. Courtés) (Paris: Hachette Université, 1979).
50. Claude Brémond, *Logique du récit*, Poétique (Paris: Seuil, 1973).
51. See Roland Barthes, *Le Degré zéro de l'écriture* (Paris, Seuil, 1953); id., *Mythologies* (Paris: Seuil, 1957); id., *Éléments de sémiologie*, Médiations (Paris: Denoël/Gonthier, 1965); id., *S/Z: Essai*, Tel Quel (Paris: Seuil, 1970); Tzvetan Todorov, *Littérature et signification*, Langue et langage (Paris: Larousse, 1967); id., *Grammaire du Décaméron*, Approaches to Semiotics 3 (The Hague–Paris: Mouton, 1969); id., *Poétique de la prose*, Poétique (Paris: Seuil, 1971); Gérard Genette, *Figures*, The Quel & Poétique, 5 vols. (Paris: Seuil, 1966–2002).
52. Paul de Man, *Allegories of Reading: Figural Language in Rousseau, Nietzsche, Rilke, and Proust* (New Haven–London: Yale University Press, 1979), 6–7.
53. Gaston Bachelard, *La Psychanalyse du feu*, Psychologie 7 (Paris: Gallimard, 1938); id., *L'Eau et les rêves: Essai sur l'imagination de la matière* (Paris: José Corti, 1942); id., *L'Air et les songes: Essai sur l'imagination de mouvement* (Paris: José Corti, 1943); id., *La Terre et les rêveries de la volonté* (Paris: José Corti, 1948); id., *La Terre et les rêveries du repos* (Paris: José Corti, 1948).
54. Northrop Frye, *Anatomy of Criticism: Four Essays* (Princeton, New Jersey: Princeton University Press, 1957).
55. Mircea Eliade, *Traité d'histoire des religions*, new ed., rev. and updated (Paris: Payot, 1964).
56. Carl Kerényi, *Zeus and Hera: Archetypal Image of Father, Husband and Wife*, transl. Christopher Holme, Archetipal Images in Greek Religion 5 (Princeton, New Jersey: Princeton University Press, 1975); id., *Goddesses of Sun and Moon: Circe, Aphrodite, Medea, Niobe*, transl. Murray Stein, Dunquin Series 11 (Irving, Texas: Spring Publications, 1979); id., *Eleusis: Archetypal Image of Mother and Daughter*, new ed., transl. Ralph Manheim, Bollingen Series 122 (Princeton, New Jersey: Princeton University Press, 1991); id., *Dionysos: Archetypal Image of Indestructible Life*, transl. Ralph Manheim, Bollingen Series 144 (Princeton, New Jersey: Princeton University Press, 1996); *Prometheus: Archetypal Image of Human Existence*, rev. edition, transl. Ralph Manheim, Bollingen Series 146 (Princeton, New Jersey: Princeton University Press, 1997).
57. Joseph Campbell, *The Hero with a Thousand Faces* (New York: Pantheon Books, 1949); id., *The Masks of God*, vol. 1, *Primitive Mythology* (New York: The Viking Press, 1959); vol. 2, *Oriental Mythology* (New York: The Viking Press, 1962); vol. 3, *Occidental Mythology* (New York: The Viking Press, 1964), vol. 4, *Creative Mythology* (New York: The Viking Press, 1968).
58. Gilbert Durand, *Les Structures anthropologiques de l'imaginaire*; id., *Beaux-arts et archetypes: La religion de l'art* (Paris: Presses Universitaires de France, 1989); id., *Intro-*

- duction à la mythodologie: Mythes et sociétés*, La Pensée et le Sacré (Paris: Albin Michel, 1996).
59. Teun A. van Dijk, ed., *Discourse Studies*, Sage Benchmark Series, vol. 1 (Los Angeles–London–New Delhi–Singapore: Sage Publications, 2007), XXX.
 60. Allan Bell, “The Discourse Structure of News Stories,” in *Discourse Studies*, 1: 58–89.
 61. Teun A. van Dijk and Walter Kintsch, *Strategies of Discourse Comprehension* (New York: Academic Press, 1983), 235–236.
 62. Teun A. van Dijk, “On Macrostructures, Mental Models, and Other Inventions: A Brief Personal History of the Kintsch–van Dijk Theory,” in *Discourse Comprehension: Essays in Honor of Walter Kintsch*, eds. Charles A. Weaver, III, Suzanne Mannes, and Charles R. Fletcher (Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1995), 385.
 63. See Valérie Gyselinck and Hubert Tardieu, “Illustration, Mental Models, and Comprehension of Instructional Texts,” in *Comprehension of Graphics*, 139–140.
 64. Van Dijk, “On Macrostructures, Mental Models, and Other Inventions,” 404–405.
 65. M. M. Bakhtin, “Forms of time and of the chronotope in the novel,” in *The Dialogic Imagination: Four Essays*, ed. Michael Holquist, transl. Caryl Emerson and Michael Holquist (Austin: University of Texas Press, 1990), 84–258. See also Bart Keunen, “Bakhtin, Genre Formation, and the Cognitive Turn: Chronotopes as Memory Schemata,” in *CLCWeb: Comparative Literature and Culture* 2, 2 (2000), <<https://doi.org/10.7771/1481-4374.1069>>.

Abstract

Imagination Studies in the Era of Neurosciences

Comparative religions and literature in general, and French imagination studies (*recherches sur l'imaginaire*) in special, have explained the existence of thematic invariants through two theories, that of influences and that of epigenesis. Starting from neo-Kantian assumptions about the presence of a priori schemata or innate “symbolic forms” of the human psyche, C. G. Jung, Gaston Bachelard, Northrop Frye, Gilbert Durand, Mircea Eliade or Joseph Campbell among others devised genuine archetypal maps of the collective imaginary. Nonetheless, contemporary research based on analytical philosophy, cognitivism, semiotics or discourse theory has criticized such assumptions as being speculative and indemonstrable. My study aims to present new arguments relating to the existence of inherited “primitives,” of image schemas and mental maps, according to the latest research in evolutionary psychology (Joseph Carroll), neurosciences (George Lakoff, Mark Johnson, Mark Turner), and cognitivism (Leonard Talmy, P. N. Johnson-Laird, Teun A. van Dijk). This would give anthropological, religious and imagination studies an up-to-date psychological and neurological frame of explanation.

Keywords

mental schemata, mental maps, collective imaginary, evolutionary psychology, neuroscience, cognitivism