

## Cognitive literary Anthropology and Neurohermeneutics. A theoretical Proposal

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### Abstract

In the current debate on the definition of new paradigms bridging aesthetics, literary criticism, and the neurocognitive inquiry, Iser's reader response theory represents the pathway along which we may develop a new methodological discourse opening new perspectives for the current research in both fields: the mindbrain and the literary text. The literary anthropological perspective opened by Wolfgang Iser in 1976 closely borders on relevant new disciplines within the cognitive neurosciences, that have gained important insights in the way the human mindbrain is constructed and works. In this article, we have figured out a cognitive anthropological frame related to a neurohermeneutic theoretical model in order to investigate the act of reading as a complex linguistic, diffuse, and dynamic system. This system is hierarchically constituted in terms of time and rhythm, matching the complex diffuse activations and hierarchical organization of the mindbrain. Our heuristic model will allow to inquire the cognitive, emotional and imaginative processes put at stake by the literary experience. In doing this we will focus on the relation between text, reader, and author and interpret structural features, style, and rhetoric figures of the literary text as matching processes of the human thought. With this approach, we aim to gain new insights in how the mindbrain fulfils the mysterious process of imagining a counterfactual world, allowing the human being to construct meaning through an interrogation into the deepest conditions for symbolic interaction and culture, redefining the self, elaborating new meanings and finding new solutions for human life in the ecosystem and in the social world.

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### Keywords

Reader-response theory, cognitive anthropology, neurohermeneutics

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### 1. Hypothesis

This study intends to contribute to the current debate about the definition of new paradigms bridging aesthetics, literary criticism and the neurocognitive inquiry. In particular, we aim at interrogating the mindbrain construction of the world in and around us in relation to literary reading. At stake is the process of reading considered as a fundamental pathway to investigate human experience processing aesthetic pleasure, aesthetic evalua-

<sup>1</sup> This paper is the result of a common research of the three authors. For the text's editing, we shall refer to each author by pointing out their initials in square brackets.

tion, emotional arousal, empathic feelings, cognition, and, more in general, the perception of the self, as well as creativity and literariness.

In the frame of the epistemological changes occurred in the last decades – since the so called ‘neuro-turn’ and the definition of an «epistemology based on the brain» (Edelman 2004) – we propose the definition of «cognitive literary anthropology» as a cross-disciplinary frame. By this, we focus on the investigation of human processes like aesthetic experience, imagination, empathy, emotion and so on, from different perspectives developed both by scholars of the humanities and by scholars of the ‘hard sciences’. This in order to offer a way that may help transdisciplinary to gain, on the one hand, new insights in how our mindbrain fulfils the mysterious process of imagining a counterfactual world, constructing new meanings out of this experience, and, on the other hand, a new methodology to interpret literary texts.

In our opinion, the literary anthropological perspective opened by Wolfgang Iser in 1976 closely borders on the new disciplines within the cognitive neurosciences, psycholinguistics, and artificial intelligence that have recently gained important insights in the way in which the human mindbrain is made up and functions. Iser’s perspective also allows us to consider the literary text as a device involved in a dynamic process that can be more deeply disclosed if analysed in its wholeness, i.e. by referring to the relation among text, reader and author. Therefore, Iser’s theory constitutes the pathway along which we may develop a new methodological discourse, opening new perspectives to the current research in both fields – the mindbrain and the literary text – by bridging the qualitative analysis of the human studies and the quantitative one of empiric research. Schleiermacher had already indicated this difficult challenge as the most effective way to interpret a text, when he maintained: «The act of understanding a text can be achieved by joining two modalities of enquiry, the qualitative and the quantitative» (Schleiermacher, *Hermeneutics* I, 21).

Schleiermacher’s hermeneutic approach to the literary text as expression of the author’s thought linked to Iser’s literary anthropology may offer the possibility of empirically trying to get evidence of a correlation between features of the text and features of the cognitive process by the reader. This would allow to develop specific hypotheses on which features of the text might stimulate physiological arousal data and on how we can investigate the relation among reader, text and author. This in order to get a heuristic model of interpreting structural features, style and rhetorical figures of the literary text as matching processes of the human thought.

In order to achieve this aim, we have figured out a cognitive anthropological frame related to a neurohermeneutic theoretical model describing the reading dynamics with regard to new empirical researches engaged in investigating the act of reading as a mirroring the mindbrain processes.

We start by referring to the origins of the anthropological discourse in the eighteenth century. This was based on a continuous exchange among different fields of studies, such as medicine, biology, physiology, ethnology and sociology, which investigated the human being from different perspectives, mainly trying to overcome the Cartesian dualism. These studies were deeply interconnected with the first reflections on literature interpreted as a device mirroring the human mindbrain processes. This is the case of Schleiermacher’s and Herder’s reflections upon hermeneutics and the circular process engaged among reader, text, and author. These first challenging questions were – more than two hundred years afterwards – posed again and investigated by the fundamental studies by Wolfgang Iser on anthropology and the reader response. Although many liter-

ary scholars still struggle to accept the idea that «if no reading, then no meaning», scientists from different fields of research started joining multidisciplinary groups in order to study what is going on in our minds while reading, why we enjoy such a difficult task, and most importantly, how is it possible to ‘guide’ the readers’ imagination and emotional states through textual and structural strategies. Following this purpose, we propose a neurohermeneutic approach that gives account of the literary text as a complex linguistic, diffuse, and dynamic system hierarchically constituted in terms of time and rhythm, matching the complex diffuse activations and hierarchical organization of the mindbrain. The literary text is interpreted as a dynamic device of knowledge and meaning-making, created by the embodied imagination of the author, interacting with the cognitive network in which the text is situated, and activating its metaphorical and symbolical patterns by triggering the imaginative processes of the reader during the embodied act of the text’s reception.

Therefore, we argue that the literary experience needs to be investigated as a complex, fluctuating, and embodied dynamics of the human mindbrain imagining virtual worlds and constructing meaning. The interaction with an aesthetic fictive world affects deeply the definition and re-definition of the self because of the activation of different forms of perception and thought elaboration than those at work during our interaction with the environment and the world surrounding us. The literary experience allows a quite different disposition of the human being who is involved in «as-if simulation loops» enhancing immersion, transportation and imagination. In fact, the literary experience involves both the act of reading and of priming mental images, thus triggering the embodied simulation of the reader and activating a kind of «guided imagination act». This triggers a strong affective response in the reader, due to the intense activation of the neural processes underpinning the imaginative aesthetic experience by generating pleasure, emotional and cognitive arousal, and new meaning processing.

In order to investigate this complex experience, we propose to refer to what we call a «cognitive anthropological frame», taking as a theoretical model what we define as «neurohermeneutic circle». With the term «cognitive literary anthropology» we refer to a discourse on the human being, his/her deep nature, desires, inclinations, emotions, memories, cognitive and imaginative processes put at stake by the literary experience. With «neurohermeneutic circle» we refer to the act of reading as a non-linear cognitive process, as an expression of the ground structure of human existence, through which it is possible to develop a theory of human understanding and pre-understanding. Referring this heuristic approach to a cognitive anthropological discourse originated in the Eighteenth Century and further developed by Iser, we aim to reconstruct and elucidate the circular relation among author, text, and reader, and the process of the reader response intended as a ‘rewinding’ of the internal dynamics of the artist’s cognitive and imaginative processes. With this approach we hope to offer new insights in how the human being fulfils the mysterious process of imagining a counterfactual world, constructing new meanings through an interrogation into the deepest conditions for symbolic interaction and culture, redefining the self, and finding new solutions for his/her life in the ecosystem and in the social world.

## 2. Old paradigms, new dynamics

The study of literature was a main issue in the anthropological discourse that can be traced back to the culture of the eighteenth century. It is useful to highlight how, back in

that time, the anthropological inquiry was based on a continuous exchange among different fields of studies such as medicine, biology, physiology, ethnology and sociology, which investigated the human being from their different perspectives. Some of them concentrated on a mechanistic interpretation of the human being, whereas others were oriented in trying to overcome the Cartesian dualism. Nevertheless, the central focus of all these investigations was always the human being, both as a bodily and as a social being situated into a specific culture. Interesting for the purposes of our discussion is the eighteenth century anthropological concept of the human being as «ein ganzer Mensch» (a whole man). This concept referred to the study of the human body and its functions, instincts, needs, and emotions from a scientific point of view, as well as to the understanding of the human being as a cultural agent from an historical perspective (Lehmann 57). «Der ganze Mensch» was considered an indivisible unit of nature and culture, cognition and perception, sexuality and reason, and, above all, mind/soul and body.

One of the most important texts of German anthropology was *Anthropologie für Ärzte und Weltweise* [Anthropology for physicians and the worldwise] (1772) by Ernst Platner, a professor of medicine in Göttingen. In it Platner writes that while anatomy and physiology consider the human being as a machine independent from the soul, and while psychology regards the characteristics of the soul as detached from the body, anthropology studies the body and the soul *in their reciprocal interactions*, because «the human being is neither body nor soul alone: it is the harmony between both of them» (VI). The anthropological inquiry on the complex interaction between mind/soul and body (*commercium mentis et corporis*) was one of the main issues investigated not only empirically in works by scholars like Albrecht von Haller (*Præliminaria physiologiae*, 1747, and *De partibus corporis humani sensibilibus et irritabilibus*, 1752) and Johann Gottlob Krüger (*Versuch einer Experimental-Seelenlehre* [About an experimental theory of the soul], 1756), but also philosophically, for example in Friedrich Schiller's dissertation (*Versuch über den Zusammenhang der tierischen Natur des Menschen mit seiner geistigen* [About the relationship between the animal and the spiritual nature of the human being], 1780). Therefore, anthropology in the eighteenth century was conceived not just as a mere science of observation, but as a self-reflexive approach of investigation, based on empirical and philosophical interpretations made by humanities scholars and scientists in order to understand and define the human nature.

With Kant's *Anthropologie in pragmatischer Hinsicht* [Anthropology from a pragmatic point of view] (1798) literature became a useful tool to comprehend the authentic human nature, since it was considered as an act of self-understanding and autopoiesis of the human being who expresses his/her natural conditions through literary creations. In this sense, literature was thought to contribute to the research about the question «was ist der Mensch?» As Kant claimed «anthropology can be developed thanks to the help of history, biography, theatrical plays, and novels» (Kant 40), because artistic inventions are based on the author's actual observation of other human beings and reproduce qualities coherent with the human nature. In this sense, literary texts and authors play an important role in the anthropological knowledge, since they aim at representing both the reality of the human being with the reciprocal interrelation between mind and body and how he/she interacts with the social world around them (Lehmann 59).

During the eighties of the twentieth century, German studies re-examined the cultural period presented above in order to define literary anthropology as the new focus for an interdisciplinary research based on the reciprocal support of anthropology and literature. As Helmut Pfotenhauer (*Literarische Anthropologie. Selbstbiographien und ihre Geschichte – am*

*Leitfaden des Leibes* [Literary anthropology. Autobiography and its history with regard to the body], 1987) pointed out, the literary autobiography is a powerful tool to understand the inner reality of the human being, since it represents the dialogue between the narrating subject and the world around him/her and how his/her interior perceptions create, consequently, a literary text. Literature as a representation of the interior human nature has become a central point of investigations thereafter (Riedel; Schweizer). In particular, Wolfgang Riedel underlined how literature not only shows affinity with anthropology regarding its themes of analysis, but is also a specific and peculiar medium which allows representations of all possible experiences of reality that are probably fully expressed only through literary texts (Riedel 110). Similarly, Wolfgang Iser argues in *Das Fiktive und das Imaginäre* (1991) [The Fictive and the Imaginary] that fictionality represents the literary anthropological device to develop a discourse on the human being with regard to the imaginative faculty, since the literary text allows a deep reflection about «its origin, the creative process» (Benthien 70). Therefore, literature and fiction are considered as representations of the human being in relation to his/her empirical and ephemeral nature, his/her affects, desires, and dreams. In this perspective literature deals mainly with the representation of human faculties and limits, with sufferance, solitude, melancholy and death. Only in literature we can find a real representation of the human being and of faculties like imagination, thought processing, and emotion.

A phenomenological approach to literary works as «important and worthy of study essentially because they can be read and can engender responses in human beings» was delivered by Wolfgang Iser's in *Der Akt des Lesens* in 1976 (*The Act of Reading* 15), in which he investigated the reader response (like also Poyatos and Fish). The idea that reading is to be considered as the essential condition to any meaning-making in the process of literary interpretation gives way to the idea that meaning is not static and determined but dynamic and evolving. Therefore, meaning depends on the dynamic process that takes place between text and reader within what Iser calls a «virtual dimension». This ephemeral world is created by the reader's imagination elicited by the author. During this process, there is a permanent fluid exchange between the text structural features and the reader's imagery that converges at a central *locus* of fluid meaning (Iser, *The Act of Reading* 39).

In Iser's opinion, a literary text is not to be considered as an object but as dynamic relation between the written text and the reader. In Iser's words, «the literary work has two poles, which we might call the artistic and the aesthetic: the artistic pole is the author's text and the aesthetic is the realization accomplished by the reader» (*The Act of Reading* 16). If the work exists only between text and reader, then it is clearly the product of an interaction between the two. The study of this interaction is the main aim of literary anthropology. This did not only result in a paradigm shift within literary studies, but has inevitably put on the foreground the question about the literary reception and about what goes on between the text and the reader while reading a literary text also in other fields of research, such as quantitative empirical psychological and behavioural studies on the reader response. The reception studies started by Iser (1976) were successfully developed with a cognitive approach by Martindale (1978, 1988, 2007); Schmidt (1979, 1983); Van Dijk (1979); Van Peer (1986, 2007); Hoffstaedter (1987); Miall (1988, 1989, 1990); Zwaan (1993); Miall and Kuiken (1994); Oatley (1994); Hanauer (1997); Gerrig (1993); Bortolussi and Dixon (2003). In this perspective, reading has been investigated as a human behaviour which implies a large number of other complex activities of the mind-

brain such as communicating, understanding, imagining, writing, empathizing, symbolizing, etc. [FA].

The huge amount of researches on the human brain and on cognition in the last fifty years should have induced literary critics and theorists to consider the new ideas emerging from the cognitive sciences, neurology, neurophysiology, neurophenomenology, neuroaesthetics, empirical psychology, etc. as fundamental in their search for new paradigms for literary studies. And yet, literary scholars have shown remarkably little interest in starting multidisciplinary studies about literature that join qualitative and quantitative analysis. As Alan Richardson points out: «what must be the great interdisciplinary venture of our times, cognitive science (or, as a number of researchers now prefer, the cognitive neurosciences), has been left largely unexamined in a much heralded era of interdisciplinary scholarship» (“Cognitive Science” 157).

Pioneering researches were started by some literary scholars like Reuven Tsur, Norman Holland, David Miall, Marie-Laure Ryan, David Herman, Patrik Colm Hogan among others, and many remarkable studies came from linguists like Mark Johnson, George Lakoff, and Peter Stockwell. To bridge literary studies and cognitive science was also the aim of scholars of the ‘hard sciences’ like Gerald Edelman, Antonio Damasio, Anjan Chatterjee, Eric Kandel, Semir Zeki, founder of Neuroaesthetics, as well as of scholars, who focussed on the process taking place between the text and the reader’s brain, like Raymond Gibbs, Merlin Wilfred Donald, Mark Turner, Ellen Spolsky, Arthur Jacobs, Gabrielle Starr, Stanilas Dehaene and others.

Cognitive approaches to arts and literature have been collected under the still fluctuating definitions of cognitive poetics, cognitive literary criticism, cognitive linguistic, cognitive literary empiric studies, neuroaesthetics, proposing interdisciplinary investigations including issues from cognitive psychology, philosophy of the mind, evolutionary biology, and more recently from neuroscientific cognitive research. In the last decades many studies were produced in order to define new heuristic models in the complex «interdisciplinary venture» of cognitive approaches to literature (Zunshine, *Oxford Handbook* 1), changing the focus of the debate by taking into account «dialogic», «decentralized», and dynamic features.

The mainstream studies in these fields have been summed up by Patrick Colm Hogan in his relevant integration to the trend of the «correlation criticism» (“Literary brains” 293). The first relevant reflections on cognitive linguistic, poetics, and literary criticism go back to the eighties, when Norman Holland pointed out the advantages emerging from cognitive neuroscience and Raymond Gibbs investigated the aspects and features of what he defined as the «poetics of mind», postulating that rhetorical figures, like metaphor (which has also been deeply analysed by Lakoff and Johnson), metonymy, allegory, irony, and so on, mirror the functioning of fundamental cognitive processes (Gibbs). Trying to amend some post-structuralist and deconstructionist claims, Ellen Spolsky praised in this new critical frame the guarantee of neurological authenticity, while Reuven Tsur pointed out the possibility of working on the universal rules of cognitive processing, despite the historical changes considered as a contingent factor. In these early studies about poetics, issues of cognitive science were linked to the approaches of the earlier literary formalism and structuralism (Tsur; Freeman; Miall), with aesthetic theories (Esrock; Scarry), to rhetoric and composition studies (Oakley; Herman) and later to narrative approaches (Fludernik; Turner; Herman). In the nineties, Mark Turner developed the field of cognitive rhetoric (Turner) and his cognitive model of narrative (Turner), while Crane and Richardson tried to elaborate a new form of interdisciplinarity (Crane

and Richardson), giving rise to what has been defined as «cognitive literary criticism» (Richardson and Steen 2; Richardson). Narrative understanding as a process of (re)constructing storyworlds on the basis of textual cues and inferences that they make possible is the focus of some of Hogan's studies. In one of his last work ("Literary Brains: Neuroscience, Criticism, and Theory") he states that the neuroscientific humanist aims «to contribute to the understanding of the human mind and human society» (303), focussing, in particular, on how neuroscience bears on aspects of research that are specific to the literary study such as inquiries about emotions, memory, and embedded cognition. Cognitive and linguistic issues were also integrated into post-modern literary theory, addressing cultural and literary production as peculiar to the human cognitive system (Spolsky; Crane and Richardson), displaying common «universal» (Ramachandran and Hirstein; Sternberg) matching the invariances at cognitive level (Hogan; Miall; Richardson; Regev). A further development is represented by the Darwinian literary criticism – now on the decline (Samson 29) – and by the cognitive stream of research, which focuses on issues of evolutionary biology and combines them with cognitive theory and psychology in culture and in literary texts (Zunshine, *Introduction to Cognitive Cultural Studies*). The amount of work produced by the cognitive literary criticism delivered an open range of interpretative strategies, reconstructing possible models of the mental processes that underlie the work of arts (Richardson and Steen) and assuming the main hypothesis that literary texts are to be distinguished from other forms of discourse by virtue of their "literacy" (Miall and Kuiken).

The future goal is the achievement of cross-disciplinary research in team built up by scholars from the humanities and from the hard sciences, in order to develop a discourse on how the human being experiences literature and arts, from diverse interfering perspectives and with different interacting modalities.

### 3. The neurohermeneutic circle in the frame of a cognitive anthropological approach

Reader response studies need to be linked to literary inquiries on the relevance of the strategies and structures of the literary text as generating peculiar responses while reading. Assuming with Mark Turner that the basic processes of literary language are the same that we use to organize and negotiate our experience in the world, we have to consider our mind as structured on a «literary and narrative basis» and the reading process as a sort of simulated dynamics of featuring the world around us. Textual features and strategies guide the reader to construct his/her experience of the aesthetic object. Therefore, textual structures and comprehension strategies are the two poles of the act of communication, whose success depends on a well-established interaction between reader and literary work.

This was already the fundamental idea in Schleiermacher's theory regarding reading as based on a «double relation», i.e. a circular relation among author, text and reader. The hermeneutic theories by Schleiermacher (1838) regard the literary interpretation as the study of the human thought reflected in language. As Schleiermacher claimed, thinking is grounded in language, it is «identical with language» (*Hermeneutics* 11). The concept of interpretation as based on a dynamic process between the text and the reader, i.e., on the circularity and the interdependency of the hermeneutic act, emerged primarily with Johann Gottfried Herder (1778) and flourished in a systematic hermeneutic theory with Friedrich Ast (1808). Herder's and Schleiermacher's hermeneutics turned out to be a first

attempt of establishing a sort of scientific approach to human thought: both philosophers describe hermeneutics as the science capable to inquire the «totality of knowledge», since every process of interpretation is an attempt to understand the human thought.

Herder's theory is based on three main principles: (1) meaning relies on word use; (2) any concept or meaning formulated by our mind depends on the individual capacity for linguistic expression; (3) meanings are essentially based on sensations, either perceptive and/or affective. These principles are very close to the ideas of contemporary cognitive linguistics and are particularly interesting if considered as basic principles of human thinking in general. Herder's three basic principles – here just briefly summed up – greatly contributed to develop some new ideas in hermeneutics, but the consequences of the third principle seem to be particularly relevant for further investigations. It indeed refers to the specific act that a reader undertakes in order to achieve some sort of imaginative reproduction of the author's intentions represented in the work of art. Herder speaks of *Einfühlung* (empathy) to specify the act of the reader who empathically tries to get in touch with the mind of the author and his/her affective and imaginative world. Herder also introduces the important idea that the act of reading is not a one-way process. In fact, it is fundamental in achieving true self-knowledge and new knowledge about the world, since meanings are a sort of *schemata*, they are basic tools for the production of images. Moreover, Herder clearly set the principle that non-linguistic arts (figurative art, music, etc.) do express meanings and thoughts, following the principle that parts reveal the whole and the whole the single parts.

Also Schleiermacher pointed out the fundamental relation among author, reader and text in every exegetic process:

Each text is to be considered in its double relation: to the complexity of language and to the way of thinking and conceiving the world of the person who created it. Therefore the process of understanding the text should be regarded as constituted by two acts: understanding the language structures and understanding the thinking process. (*Hermeneutics* §5)

Schleiermacher regards the act of understanding a text as related to language and to thought since language «is communication of thought, which is processed and completed only by the inner speech. As a consequence, speech is the completed thought itself» (§4). Language is the essence of all which is conceivable by the human brain:

Language is a guiding principle for everyone, not only negatively, in that we cannot escape from the domain of the thought grasped within it, but also positively, in that the language directs how we combine thoughts through the interrelationships that lie within it. Thus we can say only what language wants, and we are its voice. (§15)

The act of reading is one with the act of understanding and is inexhaustible since its potential meanings are infinite. Understanding is processed by the reader's mind by oscillating between two procedures: the immediate and the comparative, i.e. the subjective and the objective acts within a dialectic that examines objective features of the text and subjective reactions to them, the two poles of understanding, the qualitative and the quantitative: «word and thing, utterance and word need to correspond correctly» (§21). This comparative procedure is based on the analysis of the grammatical and stylistic features with regard to the relation of the parts to the whole and in comparison to the everyday language.

These principles, further developed by Jurij Lotman's structuralist theory, lead to the assumption that the meaning and its ideological implications rely on the poetic structure of the language, summed up in the utterance: «The ideological content is its structure» (18). This is relevant to our hypothesis since it postulates that the 'formal' features of a poetic text and its specific 'artistic model', as it is delivered by the author, display the model of the author's world and consequently his/her way of thinking about the world (25). The relation between content/idea and structure reflects the relationship between life and biological mechanisms of the living world: life is the function of the living organism and cannot be conceived outside of this. In the same way meaning is not detachable from the poetic structure and formal features are meaning features.

By reflecting on these fundamental issues, in this paper we propose a theoretical model – the neurohermeneutic circle –, which will undergo empirical tests conducted by an interdisciplinary team, with which we collaborate, in order to investigate the different reader response in reading poetry and narrative. The aim of the interdisciplinary researches conducted by Arthur M. Jacobs with his team – who published fundamental studies in this field (see bibliography) – is to investigate how textual structures trigger specific comprehension strategies and elicit peculiar responses in the reader.

Our neurohermeneutic approach is structured in three phases: 1. we aim to identify and analyse foregrounding (Miall and Kuiken) «surface» features of a literary text (Genette) generated by the mindbrain of the author as possibly triggering specific reader responses in terms of immersion, empathy, emotional arousal, aesthetic appreciations, pleasure; 2. we will interpret them as 'traces' of the author's brain processes, i.e. as specific highly formalized elements of the «poetic language» (Lotman), expressing the thought processes of the creative mindbrain of the author; 3. we will try to investigate how such elements enhance individual aesthetic experiences, focussing on the relationship among author, text, and reader. In fact, in our opinion, the literary text functions as a dynamic device created by the author's imagination, while its stylistic, rhetoric, metaphorical and symbolic patterns enhance the reader's imaginative process within broader cognitive and cultural networks.

Finally, we consider and inquire the meaning-making process hermeneutically, i.e., not as generated by the sum of the parts, but as an emerging complex phenomenon involving the cultural, social, and historical endeavour of the aesthetic objects and of the experiencing subjects. As a matter of fact, the surface features of the text, i.e. the structural, stylistic, and rhetorical foregrounding features are interconnected with lexical and semantic activations occurring in the reading experience, conceived as a performative act based on processes underlying the aesthetic stimuli and activating emotional response and cognitive meaning (Martindale; DeFonso). The emotional impact is not only determined by the effective text features – which can be assessed and measured – but also by processes of the imagination, remembrance, and association. These cannot be predicted objectively since they are produced by semantic ambiguity and syntactic elliptical or redundant structures affecting the semantic and the final meaning processing.

With regard to this assumptions, we point out that literary texts contain elements that cannot be immediately and exhaustively decoded by the reader, like stylistic features, rhetorical figures, syntagmatic and paradigmatic interrelations, and so on. These lead to the emergence of infinite new levels of meaning (Lotman), stimulating a creative «longing» in the reader. This infinite potentiality is due to the organizational nature of works of art, which is to be considered as relying on a peculiar play «between redundant order and informative surprise» (Paulson 43). The literary text goes beyond a conventional, causal

and linear «word-sign» system, compelling the reader to create new secondary or tertiary signifying systems and codes. This multiplication of levels of meaning, relations and codes constitutes the essence of every aesthetic experience and of every artistic emergence of meaning out of the literary experience: «What is extra-systemic in life is represented as poly-systemic in art» (Lotman 72). The peculiar qualities of a literary text are neither predictable, nor deducible by the knowledge of the single elements and qualities: they are emergent, context-dependent, and complex. The reader does not disclose all the different semantic and formal layers implied by the literary text, so that some of them will remain not decoded, or, as Paulson (1988) said: «noisy». The literary experience drives the reader to the activation of unique and specific dynamic relations among all the elements of the text. The literary text is clearly different from communicative and informative texts, for its pre-communicative features, i.e. it does not intend to communicate, while rather to trigger experience. The reader has to construct meaning activating the process of self-organization from a noisy background. Literary criticism is therefore forced to break the boundaries of established codes, venturing into the vast domain of noise, forcing new articulations among levels of phenomena in order to let new worlds of complexity emerge and new figures of causality get formalized. [GP]

Foregrounding features need to be considered not as stable variances, but as an unstable and changeable manifestation of neurocognitive processes underpinning both the creative act and the reception of the text (meaning the affective and cognitive impact on the reader); they need to be elucidated in order to build up those immanent concepts and principles which can serve as axioms. Furthermore, they need to be related to the contingent epistemological frames reconstructed by the investigation into the cultural, philosophical, aesthetic, and social specificity of the epoch.

Each text is a complex whole, displaying features that are quite different from those of other texts. The heuristics of the approach that we propose here demands therefore to respect and exploit these differences in order to develop a new way to uncover the deep questions posed by a text, to locate those principles and concepts, and to investigate the irreducible and unstable complex system of each time unique literary experience. We refer to a form of «evidential criticism», as already proposed by Helen Vendler, looking for «instant and sufficient linguistic evidence» and for interpretative conjectures developed according to the peculiarities of each text.

In the frame of such a relativistic criticism, each text requires different procedural strategies according to the peculiarity of the text, which is never to be considered as a discrete whole. For this reason, we need first to mediate between the sphere of the uniqueness of the artwork – eliciting the axiomatic principles to deal with – and the analysis of structural elements, which create a first descriptive step towards the application of a dynamic procedure developed with regard to the elicited dynamic axioms.

For instance, if we deal with a poem, we need to find out the foregrounding textual features (at the phonological, metric, morpho-syntactic, rhetorical level) in relation to the emotional valence and the arousal effect of style and rhetorical figures or words and to the mental processes eventually instantiated – i.e. visual–imagining, blending, strong affective emotional response, memorial production, or others.

If we deal with prose, we need first to identify the different configurations relating to the peculiar features of the text, since each text presents elements that quite completely differ from those of other texts and require different forms of evaluation. So it may be necessary to asset configurations like that of the characters in relation to each other (e.g.,

Goethe's *Elective Affinities*), or in relation to the reader by ways of empathic identifications (novels of the romantic period); simulation—levels achieved by means of descriptive (e.g., Büchner's and Kafka's short stories) versus evocative style (e.g., Schnitzler's *Miss Else*); time and space features strongly influencing the reading experience because of temporal shifts in the relation between *récit* and *diegesis* (e.g., Musil's *The Man without Qualities*, or Mann's *The Magic Mountain*); efficacy of visual features and double or multiple-coding (all ekphrastic texts, starting from Philostratus's *Imagines*) of rhetorical figures and so on. After establishing one or more layers of configuration, it is necessary to collect data in relation to features of possibly present *Pathosformel* (forms of Pathos), like in case of the *Elective Affinities*; to features of bodily simulation processes, like in the case of Büchner's texts; to features of meaning *déplacement*, like in the case of Kafka's work, and so on, in order to identify the relevant mindbrain processes activated during the literary experience, without forgetting non-measurable phenomena like *redundance* and *entanglement* of foregrounding levels (phonemic, morpho-syntactic and rhetoric) and semantic latency and ambiguity.

These change and fluctuate according to the different configuration of the text: in the case of the Goethe's *Elective Affinities*, the activation of identification processes is emotionally constantly confused and permuted by the mirror—relation of the four characters; in the case of Schnitzler's *Miss Else* it is enhanced by the presence of the stream of consciousness, which triggers in the reader elusive and subliminal kinaesthetic perceptions and memorial reactivations. In the case of *ekphrastic* texts, we assist to peculiar phenomena like a stronger activation of the imaginative faculty eliciting 'vivid' mental images which enhances a stronger affective response.

Common to all textual genres is the process of the mindbrain "resonating" to the inner relations and dynamics among the elements in the text, producing an own inner experience within the counterfactual world created by the imagination. This process takes place thanks to the reader's act of 'unfolding' the 'compressed token' of a text, i.e. the foregrounding features and symbolic configuration 'folded' into the artwork.

By 'process of unfolding' we intend a virtual experience in our head, i.e. living a highly emotional experience like discovering the head of the river Orinoco, by simply sitting in an armchair at home, quietly reading Humboldt's *Travels*. To better explain what we mean, we refer to one of the most important dynamics of the mindbrain system in relation to language and to texts, which has been theorized by Mark Turner under the principles of «compression and decompression» and their very complex dynamic relation: the «blending» (Fauconnier and Turner). According to Turner, human thought stretches across vast lapses of time, space, causation, and agency, activating potentially enormous conceptual networks that cannot possibly be held in working memory. Furthermore, they would be intractable to human thought except that blending can be used to create tight, manageable compressions of the network to provide small mental platforms, on which we can stand and manage to work here and there in the rest of the network (*The Origins of Ideas* 13-15). Turner considers compression as a basic feature of human thought. Arts are very successful in providing us with some even more complex forms of compression—in poetry, stories, drama, music, sculpture, painting, fashion, and so on, the whole 'scenery' of a personal experience is compressed or, as we prefer, 'folded up' into the words printed on a page or into the colour spots of a painting. In fact, in our opinion, the aesthetic literary experience starts from the authorial imaginative process of 'folding' his world, his stories, and his visions into what we call the compressed 'tokens of the text' (i.e. structures and figures); it is completed by the reader's imagination's pro-

cess which is able to ‘unfold’ these ‘tokens’ into the whole range of physical, emotional, and cognitive elements of a fully lived experience. In short, both actions are situated within the intrinsic relation among elements, the parts and the whole, the inner and the outer elements of the text, triggering our imagination to the whole sensory and emotional features of a real experience self-emerging in our mind. By the process of ‘unfolding’ the “tokens” of a text, the reader completes and fulfils the creative process of the writer. He creates new worlds of meanings, semanticizes non-semanticized elements, produces new kinds of levels of constraint and new contexts in which to interpret otherwise discarded «extra-systemic» elements (Paulson 44). The agency (both of the author and of the reader) is also relevant in the neurohermeneutic circle and is to be considered as a dominating quality of the literary experience, since whatever seems extra-systemic or casual at a given level, must be taken as a possible index of another coding system at another level. In fact, the reader creates a new context (environment), he/she puts into action cognitive processes and emotional dynamics that make it possible to ‘virtually recreate’ the source imaginative process. The reader is therefore elicited to activate his/her mindbrain system «resonating» to the inner relations and dynamics among the elements in the text, producing his/her own inner experience in the counterfactual world created by his/her imagination.

Imagination is a further relevant issue within the neurohermeneutic frame. According to our previous studies about the processes of the imagination considered as a complex multidimensional and multisensory emergent process, (Gambino and Pulvirenti) imagination may be observed and described by every literary experience as the main source of the aesthetic pleasure. Imagination turns out to be a multimodal dynamic system exhibiting features that are referred to as self-organization or emergence, implying simulation, emotional reward and in general the activation of embodied multiple neural circuits involved in superior associative cognitive functions. More specifically we focussed our enquiries on meta-critical works of art, eliciting images that turn out to be a form of meta-representation, i.e. the allegorical figuration of the human mental act of imagining. In such cases, the literary text is the meta-representation of «the imagination representing its own processes», allowing the reader to overcome the cognitive limits of depicting the invisible act of generating images and of creating aesthetic knowledge. Finally, from the investigations conducted applying our neurohermeneutic approach on works of the German eighteenth century literature like Goethe, Chamisso, and Kleist, (Pulvirenti and Gambino; Gambino and Pulvirenti) we can draw the following conclusions.

The neurohermeneutic circle allows to better understand the main dynamics of the literary experience intended as a complex system of meaning making and of the literary text considered as a device which guides the active imagination of the reader. According to ancient and modern studies on aesthetics, the fictional representation of feelings and emotions, of actions and motions produces an intense activity of the imagination appealing to the bodily simulation (Johnson; Cuccio, Carapezza and Gallese) and the sensory-motor system. The reader, by “unfolding” the “tokens” of the fictive counterfactual world of the literary text, creates new representations of the perceptive, memorial, and emotional processes experienced by the simulation of the literary experience; he/she recalls personal phantasmata and memories, in order to construct a private and intensely emotional representation of what he/she is experiencing in the “renewing” of the “traces” of the text, like, in Goethe’s *Faust*, the very act of the imagination or, in Kleist’s case, the overwhelming perception of the immensity of nature and of the disproportion of human cognition to conceive immensity (Pulvirenti and Gambino).

#### 4. Conclusion

Our definition of cognitive literary anthropology aims to give account of the complexity of the processes affecting the human being while experiencing literature, with particular regard to two aspects: the coupling of art and mind (Chatterjee 4) and the process of meaning-making. This is particularly relevant in every aesthetic experience considered as a global «emergent property of different components, which cannot be derived by studying its parts» (xiv). The literary text is a complex device of meaning-making, originating from discernible and non-discernible objects, starting with the black letters on a page or the sounds of a reading voice, implying also silent acts (Perrone-Bertolotti et al.; Yao et al.; Brück et al.), and culminating in the meaning-making process. As we have showed, arts, and literature, are privileged “devices” mirroring the major high-order mindbrain processes and tools to better understand the human being and the phenomenology of the human encounter with the world.

Finally, in order to provide evidence to the heuristic opportunity of the described approach, we have to elucidate our vision of the literary experience as emergent phenomenon. At the base of our vision is the general assumption that the brain itself may be considered as a complex system of neural cells, displaying dynamics assumed to be described by non-linear mathematics of neural networks, and to be revealed by patterns or recurring dynamics or states. The same happens in a text, which is to be regarded as a complex semantic system of phonemic, morpho-syntactic, syntagmatic particles, displaying non-linear relations and giving rise to flexible networks of meaning.

Therefore, the experience of beauty is to be considered as an ‘organicist whole’, superseding the mechanical notion of the world. In fact, the idea of the autonomy of art, of its changing in time, of its intrinsic complexity and of its strong influence on human perception and mind, makes it easy to recur to the model of an organic unity for interpretative purposes. This view is not a new issue. At a critical level, for instance, Aby Warburg, who was not afraid to overcome barriers among different disciplines, conceived art history as a sort of living organism putting in direct relation human psychology and stylistic changes in art. Warburg disrupted the rigid distinction between a science of nature and a science of the soul, basing his interpretation of art on the mechanisms of human individual and collective implicit memories and of the response evoked in the beholder by the representation of bodily expressive movements in art.

Considering the work of art, and specifically a literary text, as an ‘organicist unity’ allows new insights in its deep essence and subliminal functions, resulting out of the relations of the subordinate parts to the whole, the local to the global, the device or figure to the work. The problem of the definition of the intrinsic unity of an artwork has been at the core of the aesthetic reflection over epochs. It has been regarded as the effective source of the aesthetic experience, as it has been described in the converging and relevant hypothesis during the eighteenth century. Theoreticians, such as Diderot, Kant and the Shaftsbury, attested that the source of aesthetic pleasure was to be found in objects and perceptions quite untouched by the explanatory powers of the Newtonian world view and characterized by a state of «disinterested interest». This concept appears frequently in the aesthetics and in the anthropological discourse of the eighteenth century as related to the question of the accomplishment of the artwork. So, for instance, the German writer Karl Philipp Moritz pointed out that the intrinsic unity of a masterpiece relies on the fulfilled inner relations of the parts. A work of art is perceived as beautiful because it is «in sich selbst vollendet» (in itself perfectly accomplished), i.e. with no external finality. This issue appears again in the recent neuroaesthetic theories by Anjan

Chatterjee, Oshin Vartanian and Semir Zeki. Chatterjee and Vartanian postulate the autonomy of the artistic object by observing the autonomy of the «experience of beauty», characterized by a state of «disinterested interest», i.e. an interest free from desires to acquire, control, or manipulate the object. In this sense, the «disinterested interest state» may reflect the autonomy of the artwork. According to Anjan Chatterjee, aesthetic experiences occur in the appraisal of objects, in which the subordinate parts relate to the whole, the local to the global, within a totality of intertwined relations. According to Semir Zeki's last researches, the aesthetic experiences triggered by different sensory sources correlate with the activity in the same brain areas. According to the empiric data of the tests, Zeki argues that a unique faculty of beauty does exist, and this can be stimulated by any and all senses. These conclusions were intuitively forecast by some authors of aesthetics in the eighteenth century—specifically, as Zeki suggests, in Edmund Burke's *Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful* (1757) where he wrote: “Beauty is, for the greater part, some quality in bodies acting mechanically upon the human mind by the intervention of the senses” (55).

Starting with the discourse about the human nature in the anthropology of the eighteenth century we have attempted to depict the circular relation between the subject and beauty perceived through the senses, elaborated in the mindbrain by creating and imagining a counterfactual world during the reception of art. The aesthetic literary experience can be dynamically investigated within the frame of a cognitive literary anthropology speculating about the reader response, i.e. the circular relationship between the reader and the text. At stake are the mindbrain processes activated by the literary device in order to involve the reader in imagining, emotionally feeling, and cognitively getting meanings out of the process of literary reading. The result of this kind of investigation aims to explain the anthropological relevance of the meaning-making act during the reception of the literary text as the result of a complex dynamic emergent process of inquiring after truth, questioning the cultural literary device and its ways and conditions for symbolic communication and activation of the subject's imagination. By investigating such processes, we can gain new insights into the nature of literature, arts, and the human ability to overcome the limits and restrictions given by the main cognitive structures –time and space– in the infinite and overwhelming experience of artistic beauty. (RG)

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